

## **Deliverable No. 2**

# **Remedial Investigation Workplan Fieldstone Property Consent Order Docket No. HSA-CO 01/02-154**



**21 July 2003**

**Submitted to:**



**Department of Toxic Substances Control  
Southern California Cleanup Operations  
Cypress Office  
5796 Corporate Avenue  
Cypress, California 90630**

**Submitted for:**

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Irvine, California 92614**

**Prepared by:**



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20 February 2003

Thomas M. Cota, Chief  
Dr. Yasser Aref, Project Manager  
Southern California Cleanup Operations – Cypress Office  
Department of Toxic Substance Control  
5796 Corporate Avenue  
Cypress, California 90630

Subject: Remedial Investigation Workplan  
Consent Order HAS-CO 01/02-154, Fieldstone Property  
Orange County, California

Dear Mr. Cota and Dr. Aref:

In accordance with Section 5.2.2 of the above-referenced Consent Order, the project respondent, Hearthside Residential Corp. (Hearthside) is pleased to submit this Remedial Investigation Workplan for your review. This workplan is Deliverable No. 2 in the list of deliverables specified in the above-referenced Consent Order.

The enclosed Remedial Investigation Workplan contains background on the Fieldstone Property Site, and it also presents a plan for the Remedial Investigation to be performed. Components of the workplan include:

- Project Management Plan;
- Scoping Assessment;
  - Field Sampling Plan;
- Quality Assurance Project Plan;
  - Health and Safety Plan; and
  - Remedial Investigation Schedule.

Hearthside is anxious to move forward with the process of addressing the impacts at the Fieldstone Site. Please call Mr. Ray Pacini, the Project Coordinator, at

*HR0653-01/FLD03-15.LTR.DOC*



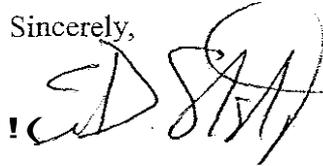
Thomas M. Cota and Dr. Yasser Aref

20 February 2003

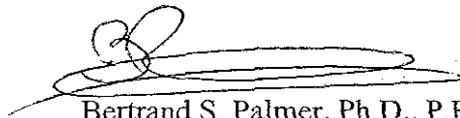
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(949) 250-7781 or either of the undersigned at (714) 969-0800 with questions regarding this workplan.

Sincerely,



Eric Smalstig, P.E.  
Site Project Engineer



Bertrand S. Palmer, Ph.D., P.E.  
Principal

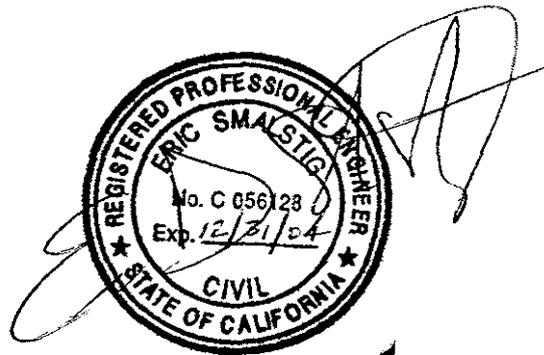
Copy to: Ray Pacini, Hearthside Residential Corp.  
Lucy Dunn, Hearthside Residential Corp.  
Sohrab Kourosch, Technico Environmental



**DELIVERABLE NO. 2**  
**REMEDIAL INVESTIGATION WORKPLAN**  
**CONSENT ORDER, DOCKET NO. HAS-CO 01/02-154**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

This report was prepared by the staff of GeoSyntec Consultants under the supervision of the Project Engineer whose signature appears hereon. The findings or professional opinions were prepared in accordance with generally accepted professional engineering and geologic practice. No attempt to verify the accuracy of the data provided by third parties was made. No warranty is expressed or implied.

Eric Smalstig, P.E



Date: 20 FEBRUARY 2003

## EXECUTIVE SUMMARY

The Fieldstone Property (the Site) is an approximately 42-acre parcel located in an unincorporated area of Orange County, adjacent to the City of Huntington Beach, California. Soil samples were collected by State of California representatives at the Fieldstone Property for analysis during the performance of an environmental assessment of adjacent property, known as the Bolsa Chica Lowland. Analytical laboratory results from soil samples collected at the Site indicate that polychlorinated biphenyls (PCBs) are present in Site soils. This data set was expanded during additional sampling events conducted at Hearthsides Residential Corp. (Hearthsides) request. Following the notification of the appropriate agencies, the Site owner, Hearthsides, entered into a Consent Order with the Department of Toxic Substances Control (DTSC). The Consent Order provides a framework for further evaluation of the Site, including characterization of the nature and extent of the contamination, potential risks posed by the contaminants to humans and ecological receptors, and evaluation methods to mitigate these risks through the implementation of remedial measures. The Consent Order identifies a list of required deliverables. This list of deliverables and status of each is presented in Table ES-1. The goal of this project (i.e., Fieldstone Site Remediation) is to identify and remediate Fieldstone Site contaminants encountered during random sampling by the State of California and subsequent Site sampling.

The objective of this task of the Consent Order is to prepare a workplan for additional remedial investigation. Existing data from numerous soil sampling locations were reviewed to identify data gaps. The results of sampling performed prior to implementation of this RI Workplan indicated that, to further characterize nature and extent of impacts to the Site, additional environmental data that will be collected include:

- Debris-Focused Areas - Debris pile-specific soil sampling;
- Uncharacterized Areas - Random soil samples collected across the Site and groundwater samples collected from two adjacent wells and temporary on-Site wells; and
- Drainage Areas – Water and soil sampling from storm water drainage course and topographic low point sampling.

In addition, confirmation sampling of previously sampled areas will be performed. The sampling locations are shown in Figure ES-1. The technical approach consists of sampling surface and near-surface soils within the upper 6 feet of soil at the Site, as well as groundwater and accumulated surface water. Should contamination be detected, additional analyses/sampling will be performed to evaluate the extent of contamination (horizontal and vertical) at the identified locations. The primary constituent of concern is polychlorinated biphenyls (PCBs). A total of 619 discrete samples from three different media (soil, groundwater, and surface water) will be

collected as part of this work, with a subset of the discrete samples and their corresponding composites being analyzed by a chemical analytical laboratory.

This document, the RI Workplan, is Deliverable No. 2 of the requirements of the Consent Order. This document summarizes the existing data review, identification of data gaps, and methodology for addressing the data gaps. Following completion of the fieldwork and laboratory analysis presented in this RI Workplan, results and findings will be compiled into the RI Report.

TABLE ES-1

**CONSENT ORDER COMPLIANCE CHECKLIST**  
**DOCKET No. HSA-CO 01/02-154**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**  
**(Updated 21 July 2003)**

<b>DELIVERABLE NO.</b>	<b>ITEM</b>	<b>C.O. SECTION</b>	<b>COMPLIANCE DATE</b>	<b>SUBMITTAL DATE</b>
1a	Identification of Project Coordinator	6.1	11 July 02	8 July 02
1b	Identification of Project Engineer	6.2	16 July 02	11 July 02
2	Remedial Investigation Workplan	5.2.2	31 July 02 * Revised and resubmitted 20 Feb 2003 ** Second revision 23 May 2003 ***Third Revision 21 July 2003	31 July 02 *20 Feb 2003 **23 May 2003 ***21 July 2003
2a	Project Management Plan	5.2.2 (a)	31 July 02	31 July 02 *20 Feb 03 ** 23 May 2003
2b	Health and Safety Plan	5.2.2 (e)	31 July 02	31 July 02 *20 Feb 03 ** 23 May 2003
2c	Quality Assurance Project Plan	5.2.2 (d)	31 July 02	31 July 02 *20 Feb 03 ** 23 May 2003
3	Public Participation Plan	5.8	---	10 Feb 03
4	Remedial Investigation Report	5.5	TBD	
5	Interim Screening and Evaluation Document	5.3	TBD	
6	Baseline Health and Ecological Risk Workplan		TBD	
7	Baseline Health and Ecological Risk Assessment	5.6	TBD	
8	Feasibility Study Workplan	5.2.2	TBD	

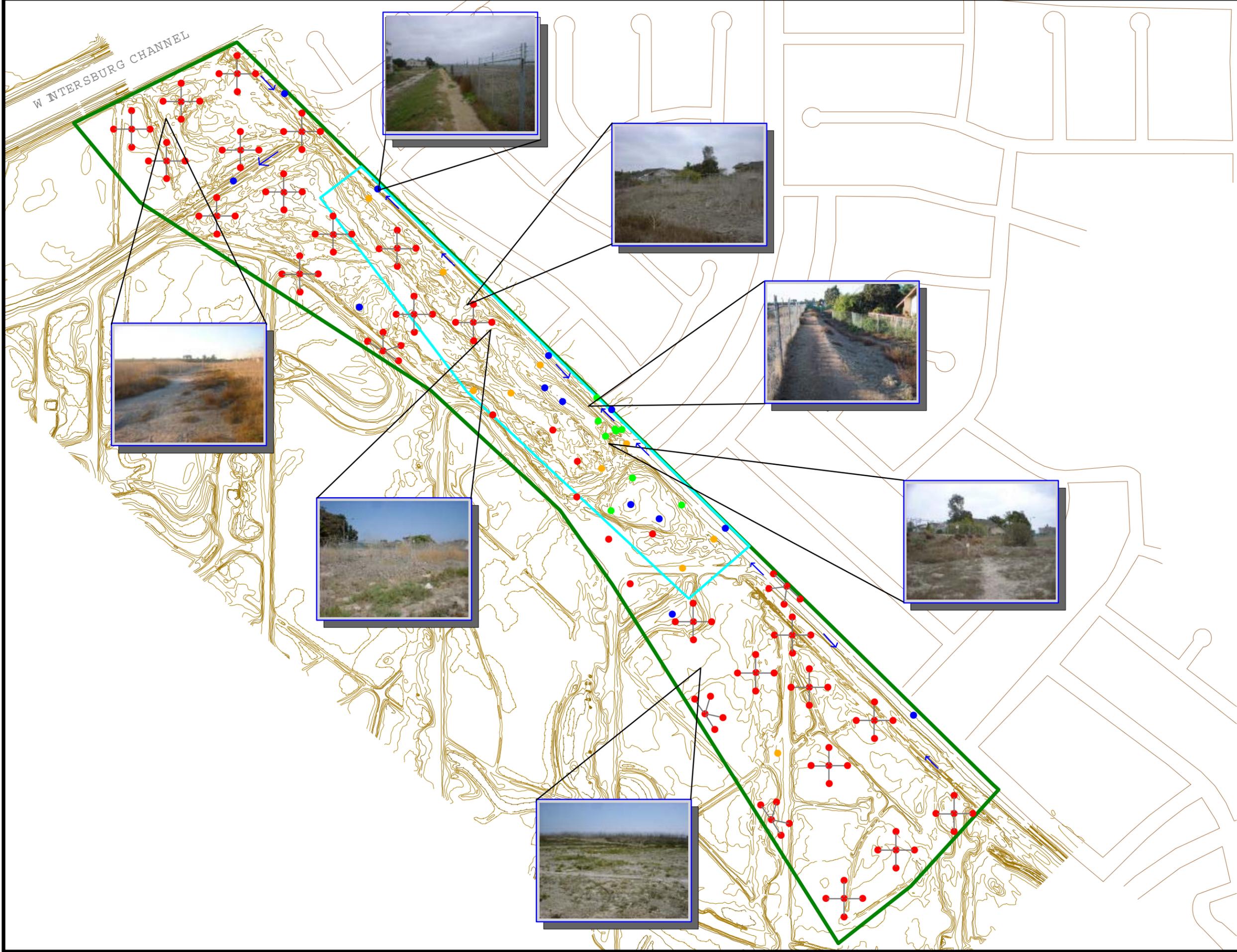
**Notes:** TBD = To Be Determined based on review and implementation of RI Workplan.

**TABLE ES-1 (continued)**

**CONSENT ORDER COMPLIANCE CHECKLIST**  
**DOCKET No. HSA-CO 01/02-154**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**  
**(Updated 21 July 2003)**

<b>DELIVERABLE NO.</b>	<b>ITEM</b>	<b>C.O. SECTION</b>	<b>COMPLIANCE DATE</b>	<b>SUBMITTAL DATE</b>
9	Feasibility Study Report	5.7	TBD	
10	Initial Study and Checklist	5.9	TBD	
11	RAP	5.10	TBD	
11a	Responsiveness Summary	5.10	TBD	
12	Remedial Design	5.11	TBD	
13	Implementation Report	5.13	TBD	
14	O&M Workplan	5.15	TBD	
<b>PERIODIC SUBMITTALS</b>				
MS-1	Monthly Summary Report	6.3	31 July 02	31 July 02
MS-2	Monthly Summary Report	6.3	15 Sep 02	10 Sep 02
MS-3	Monthly Summary Report	6.3	15 Oct 02	15 Oct 02
MS-4	Monthly Summary Report	6.3	15 Nov 02	15 Nov 02
MS-5	Monthly Summary Report	6.3	15 Dec 02	12 Dec 02
MS-6	Monthly Summary Report	6.3	15 Jan 03	13 Jan 03
MS-7	Monthly Summary Report	6.3	15 Feb 03	11 Feb 03
MS-8	Monthly Summary Report	6.3	15 Mar 03	6 Mar 03
MS-9	Monthly Summary Report	6.3	15 April 03	1 April 03
MS-10	Monthly Summary Report	6.3	15 May 03	13 May 03
MS-11	Monthly Summary Report	6.3	15 June 03	10 June 03
MS-12	Monthly Summary Report	6.3	15 July 03	7 July 03

**Notes:** TBD = To Be Determined based on review and implementation of RI Workplan.



WATERSBURG CHANNEL

LEGEND

- Approximate Sample Locations
- Uncharacterized Site
  - Uncharacterized Site Composite
  - Debris (Locations May Vary Based on Debris Pile Locations) Pile Uncharacterized Site
  - Surface Water Drainage Area
  - Confirmation Sample
  - General Surface Water Flow Direction
  - ▭ Site Boundary
  - ▭ Approximate Location of the Majority of Debris Piles

Note:

1. Locations are approximate. Actual sampling location will be approved by DTSC.
2. References for Topographic map:
  - Williamson and Schmitt Consulting Civil Engineers and Land Surveyors, July 1986, As Modified by Moffatt and Nichol Engineers, October 1999.
  - Original Topography Compiled by Williamson and Schmitt from 100-Scale Aerial Photography by SanLO Aerial Surveys on 17 September 1980 and 28 July 1986.
3. References for Streets:
  - Adapted from United States Geological Survey 7.5 Minute Seal Beach, California Quadrangle, 1:24,000 Scale.
  - Survey Coordinates are Referenced to North American Datum (NAD) 1927 and National Geodetic Vertical Datum (NGVD) 1929 Mean Sea Level.



PROJECT: FIELDSTONE

TITLE: Figure ES-1  
Remedial Investigation Sampling Locations  
Orange County, California

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## **1. INTRODUCTION**

### **1.1 Terms of Reference**

This document contains the Remedial Investigation (RI) Workplan that is designed to expand the environmental data set for the Fieldstone Property (the Site) located in an unincorporated area of Orange County, adjacent to Huntington Beach, California. This workplan was prepared in accordance with Section 5.2.2 of the Consent Order, Docket No. HAS-CO 01/02-154 entered into by Hearthside Residential Corp. (Hearthside) and the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). A list of the deliverables to be submitted by Hearthside as indicated in the Consent Order is provided in Table ES-1. This document is Deliverable No. 2 of the documents indicated in the Consent Order. This workplan was prepared by GeoSyntec Consultants (GeoSyntec) on behalf of Hearthside for submittal to the DTSC.

### **1.2 Remedial Investigation Workplan Objectives**

The objectives of the RI work are to fill in data gaps within the existing data set, expand the environmental data set (Appendix A), and to further evaluate the nature and extent of soil containing detectable levels of polychlorinated biphenyls (PCB) at the Site. This document contains a description of the tasks to be performed, information or data needed for each task, and the deliverables that will be submitted to the DTSC during implementation of the RI Workplan.

### **1.3 Project Organization and Objectives**

This RI Workplan is one of a series of deliverables listed in the Consent Order. The purpose of the Consent Order is to present a framework for:

- the completion of the RI to characterize the nature and extent of contamination at the Site;

- the evaluation of potential risks posed by contamination at the Site to human health and the environment;
- the performance of a feasibility study (FS) to evaluate potential remedial alternatives to mitigate the risks; and
- the development and implementation of a Remedial Action Plan (RAP) for the Site.

The organization chart for work to be performed for each phase of the Consent Order compliance is presented as Figure 1-1. As identified in previous deliverables to the DTSC, Ray Pacini of Hearthside is the Project Coordinator, and Eric Smalstig, P.E., of GeoSyntec is the Project Engineer for this Site. Further descriptions of the key personnel and their responsibilities are contained in the Project Management Plan (PMP), included as Appendix B to this workplan. The PMP is used to define the relationships and responsibilities for major tasks and project management items by the Fieldstone Project Team.

During the course of the project, the PMP may be updated, as needed, to reflect modifications to roles and responsibilities of the Fieldstone Project Team. If updated, the PMP will be submitted along with future deliverables to the DTSC.

#### **1.4 Organization of the Workplan**

The remainder of this workplan is organized, in accordance with the requirements of the Consent Order, into the following sections:

- Section 2, *Project Scoping*, describes program goals and contains background information on the Site;
- Section 3, *Field Sampling Plan*, presents the field work objectives and plan for additional sampling at the Site;

- Section 4, *Health and Safety*, contains information on Health and Safety procedures to be used while performing work at the Site;
- Section 5, *Data Management and Reporting*, contains information on data objectives and data handling procedures; and
- Section 6, *Remedial Investigation Schedule*, presents the RI schedule and key assumptions used as a basis for the schedule.

References, tables, figures, and appendices are presented at the end of the report. Table 1-1 references the appropriate section(s) of this workplan that contain the components listed in the Consent Order. The Appendices contain Historical Data (Appendix A), Consent Order components (Appendices B, C, and D), and Oil Well Abandonment documentation (Appendix E).

## **2. PROJECT SCOPING**

### **2.1 Program Goals**

A requirement of the Consent Order involves the Respondent and the DTSC collaborating during a Site Remediation Strategy Meeting (CO Section 5.1.3) to kickoff the project. During this meeting, the plan for (or “scoping of”) the Site RI/FS/RAP process is developed. This meeting was held at the DTSC Cypress, California, offices on 11 July 2002. Discussion included program goals, project strategy, priorities, risk characterization approach, and public participation. Results of this meeting, as it relates to the RI, are included in this section, as required by the Consent Order.

The goal of the Fieldstone project is to evaluate the risks to human health and the environment posed by chemicals detected at the Site, and to implement appropriate remedial actions to mitigate the identified risks. Scoping includes evaluating the Site background and existing data to develop a preliminary conceptual model for the Site and to develop a plan for gathering additional data from the Site, as necessary. These data will be collected to meet the objectives of the RI/FS process.

Background information on the Site is presented as a basis for this RI Workplan and future remedial action decisions. This information will be synthesized and expanded upon in the RI Report (Deliverable No. 3), the Baseline Health and Ecological Risk Assessment (Deliverable No. 7), and during the FS process. The conceptual model of the Site may be modified, pending evaluation of the results gathered during the RI.

### **2.2 Geographic Setting**

The Site is located in an unincorporated area of Orange County, California adjacent to the City of Huntington Beach. The Site location is shown in Figure 2-1. An aerial photograph of the Site taken in 1999 is presented in Figure 2-2. The Site is located within the northern portion of the Seal Beach, California, United States Geological Survey (USGS) 7.5-minute quadrangle map (Township 5S, Range 11W, Section 28). The Site is bordered to the south and southwest by the Bolsa Chica

Lowlands currently being operated as an oil field, a residential neighborhood of Huntington Beach to the northeast, and the Wintersburg Channel and the Bolsa Chica Mesa to the northwest. The southernmost extent of Graham Street deadends into the central portion of the Fieldstone Property.

### **2.3 Geologic and Hydrogeologic Setting**

The Site is located within the geomorphic feature known as the Bolsa Gap, bounded by the Bolsa Chica Mesa to the northwest and the Huntington Beach Mesa to the southeast as described in a California Department of Water Resources publication [DWR, 1968]. At the end of the Pleistocene epoch, the Bolsa Gap was incised deeply into early Pleistocene sediments at the modern coast by rivers that drained the inland Los Angeles sedimentary basin in response to a major decline in sea level. About 15,000 years ago, the sea level began to rise rapidly, causing coarse-grained channel sediments to deposit unconformably over the early Pleistocene sediments of the Bolsa Gap. Those coarse-grained channel deposits formed the Bolsa Aquifer approximately 11,700 years ago. With the submergence of the Bolsa Gap below the rising sea level and resulting transition from a high-energy to a low-energy depositional environment about 9,000 years ago, predominantly fine-grained floodplain sediments were deposited across the gap and formed the Bolsa Aquiclude, the Semi-perched Aquifer (shallow aquifer), and the present land surface [GeoSyntec, 2000].

The Site is adjacent to the active Newport-Inglewood fault zone, predominantly a right-lateral strike-slip fault zone paralleling the San Andreas Fault. The fault zone consists of multiple discontinuous strike-slip splays trending northwesterly across the Site. Although the fault zone is not exposed in the lowland, it was exposed with trenching in the bluffs of the Bolsa Chica Mesa to the northwest and in the Huntington Beach Mesa to the southeast [Freeman et al., 1992].

In the Bolsa Gap, the Bolsa Aquiclude, consisting of 25 to 40 ft of clays and silts, separates the Bolsa Aquifer from the Semi-perched Aquifer. This aquiclude reportedly thins toward the Bolsa Chica Mesa to the northwest. The Bolsa Aquifer occurs at a depth of approximately 80 ft, ranges in thickness from 5 to 40 ft, and consists of fine- to coarse-grained sand and gravel. The coastal portion of the Bolsa

Aquifer located seaward of the Newport Inglewood fault has been impacted by sea water for many years, while improved groundwater, albeit non-potable, inland of the fault has historically been observed [GeoSyntec, 2000].

The Semi-perched Aquifer consists of silty fine- to medium-grained sand with thin lenses of tidal marsh and lagoonal organic sandy silts and clays and only minor lenses of coarse-grained sand. The thickness varies from 15 ft to 40 ft (7.6 m to 12.2 m) along the coast, and gradually thins inland to a thickness of approximately 5 ft where it pinches out. Groundwater in the Semi-perched Aquifer occurs under unconfined to semi-confined conditions, and generally flows inland to the north and northeast within the Bolsa Chica Wetland, as reported by Bilhorn [1981, 1986] and LeRoy Crandall and Associates [1982]. Figures 2-3, 2-4, and 2-5 present groundwater contours from the Semi-perched Aquifer in October 1999, January 2000, and April 2000. Although groundwater in the Semi-perched Aquifer generally flows inland under the Bolsa Chica, a hydrogeologic “trough” exists in the vicinity of the Site where local groundwater flows seaward.

The Water Quality Control Plan for the Santa Ana River Basin, the Santa Ana Pressure Basin that contains the Fieldstone property has been designated suitable or potentially suitable for municipal or domestic supply, agricultural supply, industrial service supply, and industrial process supply [SARWQCB, 1995]. Depth to first groundwater at the Site is approximately 10 feet below ground surface (bgs) depending on local topography (approximately -8 ft MSL). The first groundwater encountered beneath the Site is in the Semi-perched Aquifer, an aquifer of minimal use from a water quality standpoint [Heath, 1992]. The groundwater quality beneath the Site is characterized by high concentrations of salts and is not withdrawn for domestic or industrial uses due to the high levels of total dissolved solids (TDS) [SWRCB, 1988].

The upper soil profile at the Site consists of predominantly silts and clays. Figures 2-6 and 2-7 show a hydrogeologic cross section, which illustrates subsurface geologic and hydrogeologic conditions at the Site. This cross-section was constructed based on lithologic interpretations of borehole and CPT sounding logs completed as part of previous hydrologic investigations of the Bolsa Chica Lowlands [GeoSyntec, 2000; Woodward-Clyde, 1991; Earth Tech, 1991; Bilhorn, 1986].

## **2.4 Surface Features**

The elevation of the Site is approximately mean sea level and is relatively flat. The Site topography undulates slightly (generally  $\pm 3$  ft). Other topographic features include man-made soil berms constructed along the northeastern boundaries of the Site and random soil and debris piles (concrete and asphalt). These surface features generally serve to both contain stormwater run-off on the property (except on the landward side of the berm), and to reduce run-on from adjacent properties migrating onto the Site. The Site is undeveloped open space, containing seasonal ponds vegetated with native coastal salt-marsh shrubs and grasses.

## **2.5 Climate**

The climate at the Site is characterized by warm, dry summers, tempered by ocean breezes and mild winters. The average annual rainfall for the Site is approximately 16 inches (in.) per year, which predominately occurs between November and April. Depending on the amount of annual precipitation, seasonal ponds may form in the low-lying portions of the Fieldstone Property. Average high temperatures range from approximately 18 degrees Celsius (C) (64 F) in summer to 11 degrees C (52 F) in winter with an annual range between 1.7 and 38 degrees C (35 to 100 F). The prevailing winds are on-shore from the southwest, however, in fall and early winter strong, gusty winds from the northeast deserts can occur (known as a Santa Ana condition) [CH2M Hill, 2001].

## **2.6 Site Operations**

The Fieldstone Property ownership history and the history of oil field interests in the surrounding properties are presented in Table 2-1. Apart from minor improvements (e.g., the berm), the site has never been developed, rather it has remained an unused and undeveloped parcel of property except for limited use in agriculture and oil field operations. Available aerial photographs of the site from 1927 to 1970 were reviewed. These photos show that between approximately 1927 and 1960 the site was

primarily undeveloped land containing seasonal ponds. Circa 1960, the oil field development extended to the area to the south of the site, with dirt roads being built connecting adjacent oil derricks. Four oil wells were installed at what is currently the Fieldstone Property. The approximate locations of these wells are shown on Figure 2-8. These wells were abandoned according to Department of Oil and Gas and Geothermal Resources (DOGGR) requirements prior to 1986. Abandonment documentation is provided in Appendix E. The adjacent oil field operations continue to date. In the early 1970s the existing neighborhood adjacent to the site to the northeast was constructed.

## **2.7 Existing Site Data**

A brief history of soil sampling and sample analysis performed at the Site includes:

- State of California (State Lands Commission, SLC) random sampling performed in 1998 and focused sampling in 2000 by consultants (CH2M Hill); and
- Hearthside sampling performed in 1999, 2000, and 2001 by consultants (PIC and GeoSyntec).

A chronological description of the investigations performed at the Site is presented in Table 2-2. The Bolsa Chica (Lowland and Upland portions) has been the focus of environmental investigation and research for many years. As part of the Bolsa Chica land transaction between the State of California (SLC) and Signal Landmark in 1997 and on-going studies, environmental sampling was performed by consultants to the SLC. Much of the sampling was founded upon potential environmental areas of concern identified in a Phase I and limited Phase II Environmental Site Assessment performed by Schaefer Dixon Associates [1991]. Soil samples were initially collected from the Site in 1998 during random testing conducted as part of the Bolsa Chica Lowlands ecological risk assessment, and tested by a chemical analytical laboratory for the parameters identified in Table 2-3. Sampling was allowed to be performed on the Fieldstone Property (which is currently not owned by the State) because the parcel has been planned for incorporation into the Bolsa Chica Lowland restoration. Additional

focused sampling was performed by the State in 2000 at two locations within the Site (designated CAR26). Tables in Appendix A-1 presents a summary of analytical laboratory data for inorganic and organic compounds (including, volatile and semi-volatile organic compounds – VOCs and SVOCs, PCB, pesticides, petroleum hydrocarbons) analyses performed on Site soil as part of the State investigation. Inorganics (e.g., general minerals, metals) were generally considered to be within background (i.e., ambient) levels established for the area [CH2M HILL, 2001]. This background/ambient data evaluation is presented in detail in the State's document and will not be re-printed here. Data collected during the SLC investigation are summarized in Appendix A-1.

PCBs in soil were identified for additional investigation at the Site due to elevated PCB levels in the soil samples collected by the State. The random sampling at the site conducted in October 1998 indicated that PCB was detected in one of the composite samples of soil collected from 0 to 6 in. bgs, R47C1-1, collected in an area designated as Cell 47 (i.e., a portion of the Fieldstone Property). PCBs were not detected in other samples collected from the Site. The cell designations and sampling locations are shown on Figure 2-8.

The sample analyzed from Cell 47 was a composite of four sampling locations (RD-47-01, RD-47-02, RD-47-03, and RD-47-04 identified on Figure 2-8). Subsequently, confirmation sampling was performed on 13 April 1999 by Hearthside which also indicated the presence of PCB in soil samples from the site [PIC, 1999 data in Appendix A-2]. The confirmation sampling was performed by collecting discrete samples from each of the four locations, RD-47-01 through RD-47-04, and analyzing them for PCB. PCBs were detected in two of the four locations, RD-47-03 and RD-47-04. PCBs were not detected in the remaining two locations, RD-47-01 and RD-47-02.

To further evaluate the nature and extent of PCB in the areas of RD-47-03 and RD-47-04, additional soil samples were collected in August and October of 1999, as requested by Hearthside under the oversight of the Orange County Health Care Agency (OCHCA). This testing program included analyses as both Aroclors and certain congeners by EPA Method 8080A. To evaluate the extent of PCB in the near-surface (i.e., 6 to 12 in.) and shallow-depth soils (18 to 24 in. and 42 to 48 in.), soil

samples were collected at discrete depths from several locations in a grid pattern around the locations where SLC soil samples initially indicated detectable levels of PCB, and follow-up sampling confirmed the presence of PCB. The PCB detected was Aroclor 1260. Additional testing in April 2001 and November 2001 was performed to further evaluate the extent of the PCB contamination. Laboratory results from these events were included in Hearthside's response to the DTSC's request for information in February 2002. These data are also included in Appendix A-2. Soil containing detectable levels of PCB was encountered in samples collected between depths of 0 and 4 ft bgs.

Hearthside soil samples were analyzed by Advanced Technology Laboratories (ATL) of Signal Hill, California, a laboratory certified by the State of California Department of Health Services. Data collected during the Hearthside investigation are summarized in Appendix A-2. The samples were analyzed on a location-specific basis for the following:

- PCB by EPA Methods 8080A and 8082;
- Total Recoverable Petroleum Hydrocarbons (TRPH) by EPA Method 418.1; and
- SVOC by EPA Method 8270C.

To date, 176 samples have been collected by GeoSyntec personnel and analyzed during the implementation of the site evaluation. The samples were analyzed in phases. The samples were selected for analysis initially from a wide grid pattern (e.g., approximately 60 ft grid spacing), and if results indicated further delineation was necessary, the samples collected from the narrower grid spacing (i.e., less than 12 ft) were analyzed. The number of soil samples submitted for laboratory analysis was dependent on the results of this phased approach to analysis.

The results of sampling conducted following the State's sampling effort are also presented on three figures, Figure 2-9 – PCB Results (6 to 12 in. bgs), Figure 2-10a – PCB Results (18 to 24 in. bgs), and Figure 2-10b – PCB Results (42 to 48 in. bgs). Results indicated that a certain PCB, Aroclor 1260, was encountered at each location

where PCB was found in site soils. Results also indicated that PCB was found primarily in soils located from 6 to 12 in. bgs. In most locations, PCB was not detected in deeper soils. However, a few samples at the 2 ft and 4 ft depth did indicate PCB contamination, as noted in Figures 2-10a and 2-10b. Select samples were analyzed using EPA 8270C for SVOCs, which were not detected (see Appendix A). Based on the existing data, soil containing detectable levels of PCB is located near debris piles located near the street ends. It should be noted that various debris (i.e., asphalt and concrete) of unknown origin, likely present at the site for several years, are evident at the site within this area.

As PCB usually exists in manufactured products as part of an oil matrix, TRPH analysis was also performed (see Appendix A). These results indicated relatively low levels of TRPH (maximum detection of 2300 mg/kg, with other detections below 1000 mg/kg). This may indicate the PCB contamination occurred several years ago, resulting in significant weathering of the petroleum components. The existing data set will be included along with additional data compiled from the RI and presented in the RI Report (Deliverable No. 3).

## **2.8 Regulatory Background**

PCBs were initially detected in soil samples collected from the Site in 1998. The property was fenced after the data were verified and distributed to Hearthside in 1999. Concurrently, additional evaluations were conducted and discussions held regarding the mitigation of the soil containing detectable levels of PCB. Since that time Hearthside has worked with various agencies to evaluate nature, extent, and potential sources of the PCB to develop a mitigation plan for the impacts. The SLC discussed the data with representatives of Hearthside and with the Bolsa Chica Technical Committee (Technical Committee) in the first quarter of 1999. The Technical Committee is made up of representatives from various state and federal agencies including the Regional Water Quality Control Board (RWQCB), California Department of Fish and Game (DFG), the US Fish and Wildlife Service, and the US EPA. Following the discussion of the PCB contamination at the Technical Committee, Hearthside initiated conversations with the OCHCA, the local lead environmental agency for Bolsa Chica site-specific investigation and closure activities used by the Technical Committee. Additional

fencing was installed at the Site in 2001 pursuant to soil sample results that were obtained as part of the Site investigation under OCHCA. OCHCA transferred regulatory oversight to the DTSC in 2002, therefore DTSC is the lead agency for the Fieldstone Property. Regulatory correspondence (via letters and meetings) was provided to the DTSC pursuant to their information request, including a timeline of the regulatory history.

## **2.9 Preliminary Conceptual Site Model**

### **2.9.1 General**

This section presents the preliminary conceptual model for the Site. The conceptual model presents information about physical Site conditions and evaluates the potential for exposures to receptors due to soil containing detectable levels of PCB. The objective of this section does not include quantifying the increased risks due to the potential exposures identified, which will be the focus of the Baseline Health and Ecological Risk Assessment (Deliverable No. 7). The conceptual site models (CSMs) that will be used during the risk assessment phase of the project will be developed in detail and presented as components of the Baseline Health and Ecological Risk Assessment. The focus of the model is the area of soil contaminated by PCB and its potential to migrate with surface water or groundwater. At this point in time, the origin of the PCB contamination appears to be clandestine dumping. This hypothesis will be evaluated, in part, by analyzing the potential correlation of PCB-contamination with debris piles evident at the Site. The remainder of this section is organized into the following:

- Initial Characterization of Contamination,
- Migration Pathway Evaluation, and
- Exposure Assessment.

The physical setting of the Site and its impact on the preliminary conceptual model are described in each section.

## 2.9.2 Initial Characterization of Site Contamination

Soil contamination due to PCBs, specifically Aroclor 1260, has been identified at the Site. Although other chemicals were detected at low levels, including petroleum hydrocarbons, the body of data for the Site will be evaluated for risk assessment purposes, but PCBs are the primary focus of the RI. The PCBs were first identified through random sampling conducted as part of an environmental assessment of the Bolsa Chica Lowlands. Additional sampling has since been conducted to evaluate the vertical and horizontal extent of the PCB contamination. Based on the investigations conducted to date, the PCB-contaminated soil appears to be confined to an approximately 2-acre area along the northeastern portion of the Site (see Figures 2-9, 2-10a, and 2-10b). The sampling data also indicate that the PCB appears to be confined to the upper few feet of soils in this area. The Fieldstone Property has not been developed, or used for industrial activity. The data collected to date do not provide evidence of a specific source. These findings will be further expanded using the data from the RI; the preliminary conceptual model may be refined based on this information.

Although the Site is currently undeveloped, historical uses of portions of the Site have included agriculture and oil field operations. However, review of historical aerial photographs, and other investigation activities have failed to lead to the identification of a specific source of the PCBs. Based on the topography of the site and the presence of debris piles, the PCB currently appears to be co-located with certain debris piles. Therefore clandestine dumping by an unidentified party is the most likely source of the contamination.

PCBs are a class of chemical compound composed of a mixture of biphenyls (i.e., a dual ring structure consisting of 6 carbon atoms each) with chlorine atoms attached to the biphenyl ring carbon atoms. There are 209 individual chemical species, known as congeners, which fall into the category of PCBs. The amount of the individual congeners present in a PCB mixture as a manufactured product (e.g., transformer oil, lubricant) determine the overall percentage of chlorine present in the product. The products are classified based on the chlorine percentage into groups known as Aroclors. The testing of soil samples from the Site as part of previous investigations has included an extensive list of PCB species, petroleum hydrocarbons,

and both volatile and semi-volatile organic compounds. Based on the results of this testing, the constituent of concern identified at the Site has been the PCB species, Aroclor 1260.

The unique PCB chemical and physical properties of thermal stability, resistance to oxidation, acid, bases, and excellent electrical insulating properties lead to their widespread manufacture and use from approximately 1929 until 1978, when Congress passed legislation generally prohibiting their use based on health effects. PCBs have been found to enter the human body through the skin, lungs, and gastrointestinal tract, and are accumulated in fatty-tissues. The EPA has determined that PCBs may cause adverse reproductive effects, developmental toxicity, and tumor development in humans. The most important properties of PCBs from an environmental perspective are their resistance to degradation and low solubility and vapor pressure. PCBs have been shown to strongly adsorb to a variety of surfaces including wood, plastic, glass, and the organic fraction of silts and clays.

### **2.9.3 Migration Pathway Evaluation**

This section presents an evaluation of potential migration pathways for PCBs from the initial areas where PCBs have been identified and are believed to have been initially deposited, to various receptors. This evaluation builds upon the hydrogeologic information of the Site and facts relating to the nature and properties of PCBs previously presented. The following description will be expanded during the Health and Ecological Risk Assessment phase.

A conceptual model of the Site including the identified contaminated soil and first groundwater is shown in Figure 2-11. As shown on Figure 2-11, the major forces capable of transporting the PCBs are physical transport, including soil tracking via human and ecological populations crossing the site, precipitation, and wind. Volatilization of PCBs under the conditions present at the Site is assumed to be an insignificant migration pathway due to the relatively low vapor pressures of these compounds.

Physical transport can occur via various organisms tracking PCB contaminated soil on their person, clothing or equipment. Physical transport may also occur via precipitation that falls on the Site and may move PCB contaminated soil particles. Turbid water will either be shed as runoff or will infiltrate into Site soils. Water that infiltrates into soils will then either ultimately be lost through evaporation at the ground surface or will migrate downward as recharge to groundwater. Considering the tendency for PCBs to adsorb to silts and clays (especially those high with a high organic fraction, such as in seasonal pond environments), the upper soil profile at the Site, and the low water solubilities of PCBs, the potential for downward migration of PCBs due to water infiltration is reduced. This statement is supported by the previous investigations that have found the PCBs to be retained in the upper few feet of the soil profile, even after years of precipitation infiltration. The potential for contaminant migration to groundwater will be evaluated as part of this work.

Runoff of precipitation from areas of contaminated soils does have the potential to transport PCBs. The predominant mechanism for transport of PCBs by surface runoff is through suspension of silt or clay particles that have adsorbed fractions of PCBs. Dissolution of PCBs in surface runoff is not viewed as significant due to the relatively low solubilities of these compounds. Surface runoff will carry the PCB adsorbed sediments until the velocity of the flow decreases to a point where the suspended particles will settle out.

Another possible mechanism of transport for PCBs is by wind blown soil particles. As discussed previously, normal winds experienced at the Site consist of moderate on-shore breezes from the southwest and occasionally stronger Santa Ana winds from the northeast. Therefore, it would be expected that soil particles with adsorbed fractions of PCBs would be transported in these general directions. As with surface water transport, the quantity and distance the material may be transported will be a function of the wind velocity and fetch in a particular direction. Considering the nature of the PCB (i.e., present generally as an oily matrix), higher densities, adhesion to organic fraction of soil, as well as the presence of vegetation at the Site, accumulation of significant concentrations of PCB within wind-blown dust is unlikely. However, this exposure pathway will be considered in greater detail during the human health risk assessment using EPA and DTSC risk assessment guidance.

#### **2.9.4 Exposure Assessment**

Potential receptors of PCB from the Site include humans and other biota (e.g., birds, small mammals, plant uptake). The assessment of potential exposures and subsequent risks to humans and both terrestrial and aquatic biota is being addressed with a Site-specific risk assessment, which will be submitted as part of a separate report (Baseline Health and Ecological Risk Assessment). Therefore, this section will briefly highlight the exposure pathways.

The Site is private property, with a majority of the Site currently fenced. This should preclude direct human ingestion of and dermal contact with PCB contaminated soils or debris piles on the Site. Even though migration to groundwater is not considered a significant migration pathway, it should be noted that the groundwater beneath the Site is not extracted for domestic or industrial purposes. Contact with soils does exist with various animal vectors that populate the site.

The potential for human exposure via dermal contact and ingestion of PCBs does exist if the surface water runoff containing PCB-laden sediment is shown to flow outside the fenced property boundary to areas frequented by the neighborhood residents and the public. The potential for this condition and its significance will be evaluated. For this condition to occur, PCBs would have to be transported and accumulate in sufficient quantities or concentrations to exceed a threshold risk level. An additional potential human exposure scenario might include inhalation of wind blown contaminated soils. Although the Site is vegetated with grasses and shrubs that act to reduce soil erosion, and portions of the fencing around the Site do contain wind screens, the potential for exposure due to the windblown pathway will be evaluated.

The potential for ecological exposure via incidental soil contact, dermal contact, and ingestion of PCBs exists at the Site will be evaluated using Site data. Since ecological receptors may consume Site biota that could potentially be in contact with chemicals in the Site soil, this pathway will also be evaluated as part of the Baseline Health and Ecological Risk Assessment.

Sampling to be conducted during the RI will include the exposure pathways involving direct soil contact and the potential physical movement of PCB-contaminated soils along water drainage courses and into surface water and groundwater. The sample data will be used to evaluate risk to human and ecological receptors, which will be presented in the Baseline Health and Ecological Risk Assessment.

## **2.9.5 Preliminary Conceptual Site Model Summaries**

### 2.9.5.1 Introduction

Detailed CSMs, for human health and ecological risk, will be presented in the Baseline Health and Ecological Risk Assessment deliverable. Summaries of the CSMs, which were formed based on the information presented in previous sections of this Workplan, are presented in this section. The potential contamination release mechanisms and exposure pathways that will be evaluated as part of the RI are illustrated by the preliminary CSM summaries. The receptor endpoints and their associated risk evaluations will be presented as part of the Baseline Health and Ecological Risk Assessment deliverable.

### 2.9.5.2 Human Health Risk Preliminary Conceptual Site Model

The primary source of chemicals that pose risk to human health at the Site is unknown, although the debris piles are likely to be co-located with the original deposits of contamination at the Site. The contamination may have since been distributed to other Site media that comprise the potential secondary sources of risk to human receptors, including:

- Soil;
- Surface Water as Seasonal Ponds;
- Wind; and
- Groundwater.

Due to the potential distribution of contamination in the aforementioned Site media, potential secondary release mechanisms including stormwater runoff, fugitive dust, and volatilization of contaminants were evaluated. The volatilization release mechanism was considered to be an incomplete pathway based on the low volatility of compounds detected in soil samples from the Site. The pathways and exposure routes for the release mechanisms that will be evaluated at the Site include:

- Site soil will be sampled and analyzed to provide data to quantitatively evaluate the risks associated with ingestion or dermal absorption of chemicals via direct soil contact;
- Site surface water will be sampled and analyzed, if present, to quantitatively evaluate the risks associated with ingestion or dermal absorption of chemicals via direct surface water contact;
- Groundwater underlying the Site will be sampled and analyzed to quantitatively evaluate the risks associated with ingestion or dermal absorption of chemicals via direct groundwater contact; and
- The windblown exposure pathway will be evaluated by modeling in accordance with the EPA and DTSC guidance.

The data collected during the RI will be used to evaluate the risks associated with contamination at the Site. The Baseline Health and Ecological Risk Assessment will present detailed CSMs for the Site, accompanied by quantitative evaluations of risk from the pathways identified in the CSMs.

### 2.9.5.3 Ecological Risk Preliminary Conceptual Site Model

As presented previously, the primary source of risk at the Site is unknown, although the debris piles are likely to be co-located with the original deposits of contamination at the Site. The contamination may have since been distributed to other Site media that comprise the potential secondary sources of risk to ecological receptors, including:

- Soil; and
- Surface Water as Seasonal Ponds.

Due to the potential distribution of contamination in the aforementioned Site media, potential secondary release mechanisms including stormwater runoff and biotic uptake were evaluated. The pathways and exposure routes for the release mechanisms that will be evaluated at the Site include:

- Site soil will be sampled and analyzed to quantitatively evaluate the risks associated with ingestion or dermal absorption via direct soil contact and with ingestion of biota in contact with Site soil; and
- Site surface water will be sampled and analyzed, if present, to quantitatively evaluate the risks associated with ingestion or dermal absorption via direct surface water contact and with ingestion of biota in contact with Site surface water.

The data collected during the RI will be used to evaluate the risks associated with contamination at the Site. The Baseline Health and Ecological Risk Assessment will present detailed CSMs for the Site accompanied by quantitative evaluations of the risk from the pathways identified here.

## **2.10 Summary of Data Needs**

Based on the existing information collected to date and the discussions with DTSC at the Site strategy meeting, additional data needs were identified. Additional data will be collected from the Site prior to developing potential remedial alternatives. The additional data to be collected from the Site includes:

- Data from a California Heritage Database search that will provide a biological survey of threatened or endangered species at the Site (to be addressed during the Baseline Health and Ecological Risk Assessment phase);

- Data to evaluate the potential of soil containing detectable levels of PCB to be co-located with debris piles;
- Data to evaluate previously uncharacterized (i.e., unsampled) areas of the Site;
- Data to evaluate the potential for precipitation runoff to carry soil containing detectable levels of PCB to the water drainage areas at the Site;
- Data to confirm the presence/absence of PCB in soil samples collected during previous sampling events;
- Data to evaluate the potential for the presence of PCB and polycyclic aromatic hydrocarbons (PAH) in groundwater underlying the Site;
- Data to classify the PCB congener mixture present at the site;
- Data to evaluate the concentration of certain metals in Site soils; and
- Data to evaluate the potential for the presence of Dioxins and Furans in Site soils.

Plans and procedures to be used to provide this additional data are presented in Section 3, Field Sampling Plan. These data will be used to augment the existing data set and summarized in the RI Report. The FS process will then be initiated to evaluate potential remedial alternatives for the Site.

## **2.11 Potential Remedial Alternatives Evaluation**

Potential remedial alternatives will be evaluated pursuant to the results of the RI. The RI data will be presented in the RI Report and used to develop the FS Workplan (Deliverable No. 8).

### 3. FIELD SAMPLING PLAN

#### 3.1 Sampling Objectives

##### 3.1.1 General

Additional sampling of Site soil will be conducted as part of the RI. The sampling will be conducted to provide analytical data to address the data gaps. The data collected will be used to:

- Evaluate if PCB contamination is co-located with debris piles;
- Further evaluate the extent of detectable levels of PCB in soils at the Site, including previously unsampled areas;
- Evaluate the potential for PCB transport via storm water flow and if detectable levels of PCB are present in accumulated surface water;
- Confirm previous sample results and test for PAH and Title 22 metals in the upper 2 sampling depth intervals at these locations;
- Evaluate if detectable levels of PCB and PAH are present in groundwater beneath the Site;
- Evaluate the congener composition of the PCB detected in Soils at the Site;
- Evaluate the potential soil concentrations of metals at the Site; and
- Evaluate if detectable levels of Dioxins and Furans are present in Site soils.

Figure 3-1 presents a map of RI soil sampling locations. Figure 3-2 presents a flowchart for sample analyses. Figure 3-2 outlines the analyses associated with the various samples and the progression that will lead to further analyses, if necessary.

### 3.1.2 Data Gap Identification

As described in Section 2, soil sampling that identified PCBs in soil has been performed on behalf of the State at the Site. Additional soil sampling was conducted in a manner to evaluate the concentrations of PCB in and around the focus areas where these PCBs were detected. The sampling was conducted near areas of soil that were initially identified by the State to contain detectable amounts of PCBs [CH2M Hill, 2001]. Previous sampling efforts have involved collecting samples from soil at depths ranging from 6 in. to 6 ft bgs. GeoSyntec conducted additional sampling events from April 1999 until November 2001 to collect data to evaluate the soil for detectable levels of PCB content in accordance with discussions with the OCHCA. The data indicate that the soil containing detectable levels of Aroclor 1260 is centered in the area around sampling locations RD-47-03 and RD-47-04 (also known as focused locations F03 and F04) and may be co-located with debris present at the Site.

To fill in the data gaps that were identified during the site strategy meeting and outlined previously, additional samples will be collected during the RI. As discussed during the site strategy meeting, soil samples will be collected from the up to four depths, including from 0 to 6 in. bgs, 24 to 30 in. bgs, 48 to 54 in. bgs, and 72 to 78 in. bgs, at the sample locations to allow the evaluation of exposure scenarios defined in the Baseline Health and Ecological Risk Assessment Report. These sample categories and objectives include:

- Debris pile samples, to evaluate the potential co-location of PCB with debris piles observed at the Site;
- Uncharacterized Site locations, to evaluate the nature and extent of PCBs within previously unsampled areas of the Site;
- Storm water drainage course samples, to evaluate the nature and extent of PCBs within drainage courses at the Site;

- Confirmation samples, to confirm the presence/absence of PCBs in previous soil samples. The confirmation samples from the upper two depth intervals will also be tested for PAH and Title 22 metals to evaluate the potential for co-location of these chemicals with PCB;
- Groundwater samples, to evaluate the presence/absence of PAH and PCBs in groundwater; and
- Constituent evaluation samples, to evaluate the potential levels of different congeners, dioxins and furans, and metals in Site soils.

Note that samples will be collected during RI sampling activities and some will be composited. Discrete samples comprising the composites will be archived for potential later analyses, if necessary, pending PCB detections in composite samples. Sample collection activities will not include field screening, and samples will be processed for shipment to the laboratory following collection using direct push drilling methodologies. Each of the above sample categories is described in the following sections. Details regarding sample locations, field sampling designation, and equipment and procedures are provided in Sections 3.2, 3.3, and 3.4 respectively.

### **3.1.3 Debris Pile Sampling**

Debris piles have been observed at the Site. These debris piles generally consist of fill soils, asphalt and concrete debris. Apparently due to the Site's location on the end of several streets and the undeveloped nature of the Site, miscellaneous debris has been deposited there historically, including during construction of the adjacent residential neighborhoods. Certain debris have subsequently been spread around the Site by trespassers. There are approximately ten debris piles still containing a significant accumulation of debris that have not been sampled during past investigation efforts. Samples will be collected from a discrete location within these piles to evaluate the soil at the debris piles. The approximate locations for the collection of debris pile samples are presented on Figure 3-1, but these locations will be determined in the field.

### **3.1.4 Uncharacterized Site Areas**

Few areas of the Site outside of the vicinity of the RD-47-03 and RD-47-04 (i.e., F03, F04) sampling locations have been sampled for PCB. This was primarily due to the State's data set (i.e., other random and focused samples) indicating the absence of PCBs at their sampling locations identified on Figure 2-8. Based on existing data collected at the Site, there is no identified reason for PCBs to be located in these areas (e.g., presence of industrial operations, debris accumulation). However, it is beneficial to collect random samples from the uncharacterized areas to due to the apparent clandestine nature of the detected PCB contamination. Discrete samples will be collected from the 130 points. Twenty-six composite samples at each depth (four horizons) will be formed from the 130 locations (i.e., 5 discrete samples per composite). The approximate locations and orientation of the composites are shown on Figure 3-1.

### **3.1.5 Storm Water Drainage Areas**

Some historical samples have been collected and analyzed in the surface water drainage areas on the northeastern border of the Site. Samples will be collected from 0 to 6 in. bgs at 13 locations to evaluate the soil in these drainage areas. Surface water drainage sampling locations were chosen based on physical Site features. Up to 5 surface water samples may also be collected if ponded water is present during sampling activities.

### **3.1.6 Confirmation Samples**

Soil samples will be collected at previously sampled locations on the Site. Nine sampling locations that had detectable quantities of PCBs during past sampling events (generally the higher detections) will be re-sampled to confirm the presence of PCBs at these locations and to evaluate PAH and metal concentrations in the upper 30 in. of Site soil.

### **3.1.7 Groundwater Samples**

Groundwater samples will be collected from two existing groundwater wells screened in the Semi-perched Aquifer underlying the Site. Temporary wells installed in the Semi-perched Aquifer via direct push methods will also be sampled at three locations on the Site. These samples will be analyzed to evaluate the potential migration of PCBs and PAH into groundwater beneath the Site.

## **3.2 Sample Locations**

### **3.2.1 Introduction**

Soil sampling locations were selected to address the data gaps identified in Section 3.1. Soil samples will be collected from up to four depths, including from 0 to 6 in. bgs, 24 to 30 in. bgs, 48 to 54 in. bgs, and 72 to 78 in. bgs, at the soil sampling locations. The locations that were selected are shown in Figure 3-1. Figure 3-2 presents a flowchart of the sample analyses that will be performed. These locations were selected based on known information about the Site, but some may be adjusted according to observations made while in the field. Reasons for adjusting the locations would include: debris pile actual location is different from the location shown on Figure 3-1, surface drainage path low point is different from expected location, and soil is inaccessible due to boulders, fencing, etc. Actual sample points will be marked in the field using wooden stakes before the sampling commences. The sample coordinates will be recorded using global positioning systems (GPS). These locations will be approved by the DTSC.

### **3.2.2 Debris Pile Sampling**

The approximate locations of the eleven debris piles sampling locations are presented in Figure 3-1. During sampling activities, the debris piles will be identified in the field and staked as potential sample locations. The actual debris pile locations will be recorded for future use. It should be noted that field procedures outlined in this

workplan make the assumption that debris piles will be identifiable by GeoSyntec personnel. Since debris are scattered around the site in small amounts, sampling will generally be focused on larger, more intact debris piles. Debris pile locations will be sampled at a four depths and analyzed according to Table 3-1.

### **3.2.3 Uncharacterized Site Areas**

Using a distance measuring wheel, the 26 uncharacterized locations shown on Figure 3-1 will be measured off, marked with wooden stakes, and assigned coordinates using GPS. The 26 locations will have 5 corresponding discrete sampling locations that will be marked and assigned GPS coordinates. Uncharacterized locations will be sampled at four depths and analyzed according to Table 3-1. Composites, comprised of the corresponding five discrete locations, will be analyzed according to Table 3-1. The discrete samples will be archived for later analyses, if necessary, based on composite sample results as presented in Figure 3-2.

### **3.2.4 Storm Water Drainage Areas**

Thirteen surface water drainage area sampling locations are shown in Figure 3-1. Sampling locations will be identified in the field based on topographic features and potential water ponding areas. The sampling points will be marked in the field with wooden stakes and assigned coordinates using GPS. Each location will be recorded and sampled at the 0 to 6 in. bgs soil interval and analyzed according to Table 3-1.

### **3.2.5 Confirmation Samples**

The sample locations chosen for confirmation sampling are shown on Figure 3-1. These nine locations were chosen based on previous reported PCB detections and for the potential for elevated Title 22 metal concentrations in Site soil from these locations. The general area of these sample locations will be located using Figure 3-1 and then identified using location markers placed during past sampling

events. Confirmation sample locations will be recorded and sampled at four depths and analyzed according to Table 3-1 and Figure 3-2.

### **3.2.6 Groundwater Samples**

Groundwater samples will be collected from existing wells MW2 and P-9 screened in the Semi-perched Aquifer. These wells are shown on Figures 2-6 and 2-7. Groundwater samples will also be collected from the aquifer at three temporary locations, shown in Figure 3-1, in the vicinity of the elevated PCB area via direct push methods.

### **3.3 Sample Designations**

The samples will be labeled following the numbering system outlined in this section. The sample designation system consists of four components as follows:

- Sample type: The letters “SS” will be used as a prefix to designate that samples are soil samples, “SW” for surface water, and “GW” for groundwater.
- Sample location: Each discrete sampling location is assigned a number that follows the last sample number in a progression. The first sample location number that will be used for the purposes of this RI is 63 (based on previous sample location identifier numbers up to and including 62). Composites will be assigned a location group and composite number. The discrete samples that are composited will have the composite group location followed by a numerical distinction between 1 and 5 (i.e., SS-110C1).
- Sample depth: The sample depth at each location will be denoted by following the sample location designation with a letter that corresponds to the sample depth. The letter “A” will denote a 0 to 6 in. bgs soil interval, “B” to denote the 18-in. to 24-in. bgs soil

interval, “C” to denote the 42-in. to 48-in. bgs soil interval, and “D” to denote the 66-in. to 72-in. bgs soil interval (i.e., SS-110C1-A).

- Split/Duplicate/ designation: Select samples will be submitted to the laboratory as duplicates or split samples. Samples that are duplicates will be labeled with “(D)”, and split samples will be labeled with “(S)”.

As an example of the sample designation system, one of the debris pile soil samples collected from 0 to 6 in. bgs that is collected for PCB screening will be labeled SS-63-A.

### **3.4 Sampling Equipment and Procedures**

#### **3.4.1 General**

Soil samples will be collected using direct push methodologies. Groundwater will be collected using a purge and sample technique. Up to five surface water samples will be collected from seasonal ponds if the ponds are present during the sampling activities. The procedures outlined in the following sections will be used to collect samples.

#### **3.4.2 Soil Samples**

Actual soil sampling locations will be determined in the field based on accessibility, visible signs of potential presence of detectable levels of PCB (e.g., stained soils), and topographical features which may indicate locations of hazardous substance disposal (e.g., depressions that may indicate a historic excavation). Soil sample locations will be recorded in the field logbook when sampling is completed at that location. Locations will also be marked and assigned GPS coordinates.

Direct push methodologies will be used for soil sample collection. Direct push soil sampling will be conducted using a direct push percussion rig equipped with 1-in. diameter sampling sleeves and will include the following procedures:

- The sampling location will be accessed by the direct push rig and the drive hammer will be positioned to bore vertical holes;
- The drive rods will be equipped with 1-in. inner sample sleeves to collect soil from desired depths;
- The sampler will be driven into the ground using the percussion of the direct push rig;
- The desired sampling depth will be achieved by adding a series of drive rods as needed;
- Soil collects and compacts in the sample sleeve as the drive rods are advanced. Sand catcher devices will be fastened to sampling sleeves to retain loose soil, if necessary; and
- The soil sampling sleeves containing the desired samples will be retracted from the borehole.

Soil samples will be containerized for analysis according to Table 3-1 and Figure 3-2. Samples will be collected from up to 4 depths as presented in Figure 3-2. Boreholes from the procedure will be backfilled with a bentonite slurry, as needed. Soil samples may be analyzed by one or more of the following methods:

- Laboratory analysis for PCBs by EPA Method 8082;
- Laboratory analysis for dioxins/furans by EPA Method 8280A;
- Laboratory analysis for metals by EPA Methods 6010B and 7000;
- Laboratory analysis for PAHs by EPA Method 8310; and
- Laboratory analysis for PCB congeners by EPA Method 1668A.

Sample containers will be filled to the top with measures taken to reduce the potential for soil to remain in the lid threads prior to being sealed to reduce the potential for migration of soil to or from the sample. After laboratory sample containers are filled, they will be immediately sealed and processed for shipment to the laboratory.

### **3.5 Surface Water Samples**

Up to five surface water samples will be collected from seasonal ponds at the site, if present during sampling activities. The surface water samples will be analyzed for PCBs by EPA Method 8082 according to Table 3-1 and Figure 3-2. The storm water samples will be grab samples collected by submerging the collection container directly into the ponded water. The sample collection container will be rinsed with distilled water (two to three times) at the sample locations before transferring the water to sample bottles. Touching the inside of the collection container or sample bottles will be avoided. The bottles will be filled completely to minimize headspace within the bottle without over filling.

### **3.6 Groundwater Samples**

#### **3.6.1 Introduction**

Groundwater samples will be collected from the Semi-perched Aquifer using groundwater wells MW2 and P9 and three direct push locations. Dedicated tubing will be used to collect the samples which will be analyzed for PCBs by EPA Method 8082 and PAH by EPA Method 8310.

#### **3.6.2 Groundwater Access**

Existing groundwater wells MW2 and P9 are screened in the Semi-perched Aquifer and are presumed to contain static groundwater. The groundwater will be accessed directly, from the surface via the well casing with down-hole equipment.

The direct push groundwater locations will be accessed using dedicated groundwater samplers that are assembled with an expendable drive point, drive head, protective sheath, and well screen and O-ring seal. A drive rod is added to the top of the sampler and the entire assembly is driven into the subsurface using the percussion of the direct push rig. The sampler will be advanced to the desired sampling depth by adding a series of hardened steel, hollow drive rods. The desired sampling depth will be determined based on the aquifer conditions observed in MW2 and P9. Following the achievement of desired depth, extension rods will be placed down the center of the drive rods to dislodge the expendable point and to hold the screen in position as the rods are retracted approximately 4 feet. The stainless steel screen is thereby exposed to the aquifer and fills with groundwater. The groundwater will be extracted via a peristaltic pump stationed at ground surface using dedicated tubing which is inserted down the center of the rods into the screen.

### **3.6.3 Gauging Depth to Groundwater**

Prior to groundwater sampling activities at the Site, the static water level will be measured using an electronic water level meter to the nearest 0.01 ft. The water level meter will be decontaminated prior to its use and before each subsequent use. The water level will be measured from a standard reference point of the well casing. The measurement will be repeated at least two more times and then recorded on a groundwater sample collection log provided that the measurement is stable.

### **3.6.4 Water Quality Field Measurements**

Prior to groundwater sampling activities, the water quality meter will be decontaminated and calibrated to the manufacturers specifications. For the measurement of water quality parameters of the purged groundwater stream, a flow-through container equipped with sample measurement access ports (flow cell) will be inserted in line with the purge tubing and the purge water collection container. Water quality parameters will be recorded periodically, along with the corresponding purge volume, during the groundwater purging process. The water quality parameters that will be monitored and recorded until they stabilize include:

- Temperature;
- pH;
- Specific conductance;
- Dissolved oxygen; and
- Turbidity.

### **3.6.5 Groundwater Purging and Sampling**

Low flow purging methods, utilizing dedicated down-hole tubing and a variable speed peristaltic pump, will be used to obtain groundwater samples. Low flow groundwater sampling is conducted using the following steps:

- Insert the dedicated down-hole tubing into the well and extend to the lower foot of water in the well casing;
- Measure static water level at the location;
- Begin purging groundwater at the minimum rate that will produce groundwater;
- Measure the depth to the groundwater;
- Increase the rate of purging until minimal drawdown is observed;
- Connect the pump discharge tubing to the flow cell;
- Monitor and record water quality parameters from the pump discharge stream at periodic intervals;
- Purging is complete when water quality parameters have stabilized at values that are within 10% of the previous values;
- Disconnect flow cell;

- Fill the unpreserved sample containers slowly until they are full using care to not overflow; and
- Secure the well prior to leaving.

Non-dedicated or disposable equipment will be decontaminated following use. Decontamination and purge water will be containerized for waste management (see Section 3.10).

### **3.7 Decontamination Procedures**

Non-disposable soil and water sampling equipment, such as small tools and disposable gloves, will be either decontaminated or disposed of after each use. The decontamination procedure will consist of the following steps:

- Equipment will be washed in a phosphate-free soap and water mixture;
- Equipment will be rinsed thoroughly in distilled water following washing; and
- Equipment will be rinsed again in distilled water.

Decontamination procedures will be done using three 5-gallon buckets with their respective wash/rinse solutions. Solutions will be transferred into 55-gallon drums and replaced when it becomes cloudy, or after 10 hand tools have been decontaminated.

### **3.8 Sample Handling**

#### **3.8.1 Sample Numbering System and Label**

The sample numbering system was discussed in Section 3.3. The sample identification number will be recorded in the field logbook, on the sample container, and on the chain-of-custody form. The corresponding GPS coordinates will be recorded for the sample locations.

#### **3.8.2 Bottles and Preservatives**

The containers are pre-cleaned and will not be rinsed prior to sample collection. Preservatives are not necessary for soil samples that will be analyzed for PCB (EPA 8082 or 1668A) Dioxins and Furans (EPA 8280A), Metals (EPA 6010B/7000), or PAH (EPA 8310). Laboratory soil sample containers will be 4 oz. wide-mouth glass sample jars with screw-cap lids. Water samples will be collected in appropriate containers for the analysis(es) to be performed.

Rinsate blanks that may be analyzed for PCBs, Dioxins and Furans, Metals, or PAHs will be collected in 1-liter amber glass bottles. No preservative is required for these blanks. One bottle of each equipment rinsate sample will be collected for potential analysis by the laboratory.

#### **3.8.3 Sample Chain-of-Custody Records**

Chain-of-custody records are used to document sample collection and shipment to laboratory for analysis. Sample shipments for laboratory analyses will be accompanied by a chain-of-custody record. Form(s) will be completed and sent with the samples for each laboratory and each shipment (i.e., each day). If multiple coolers are sent to a single laboratory on a single day, form(s) will be completed and sent with the samples for each cooler. The chain-of-custody record will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample

is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. Until the samples are shipped, the custody of the samples will be the responsibility of GeoSyntec. The Site leader or designee will sign the chain-of-custody record. The Site leader or designee will sign the 'relinquished by' box and note date and time. Corrections on sample paperwork will be made by placing a single line through the mistake and initialing and dating the change. The correct information will be entered above, below, or after the mistake.

The requested analysis will be noted on the chain-of-custody form. EPA Method 8082 will be used by the laboratory to analyze the samples for PCBs, EPA 8082A for dioxins and furans, EPA Methods 6010B/7000 for metals, EPA Method 8310 for PAHs, and EPA Method 1668A for PCB congeners.

#### **3.8.4 Photographs**

Photographs will be taken at sample locations and at other areas of interest on Site. They will be taken as a supplement to information entered in the field logbook. When a photograph is taken, the following information will be written in the logbook or will be recorded in a separate field photography log:

- Time, date, location, and, if appropriate, weather conditions;
- Description of the subject photographed; and
- Name of person taking the photograph.

#### **3.8.5 Labeling, Packaging, and Shipment**

Samples collected will be labeled in a clear and precise way for proper identification in the field and for tracking in the laboratory. The samples for laboratory analyses will have preassigned, identifiable, and unique numbers. At a minimum, the sample labels will contain the following information: Project name, date of collection, analytical parameter(s), and method of preservation.

Sample containers will be placed in a strong-outside shipping container. The following outlines the packaging procedures that will be followed for the samples.

- Line the bottom of the cooler with bubble wrap to reduce the potential for breakage during shipment;
- Check screw caps for tightness;
- Check that sample labels are correctly completed; and
- Wrap glass sample containers in bubble wrap to reduce the potential for breakage.
- Double-bag liquid samples for shipment.

Samples will be placed in coolers with the appropriate chain-of-custody forms. Forms will be enclosed in a large plastic bag and affixed to the underside of the cooler lid. Empty space in the cooler will be filled with bubble wrap or styrofoam peanuts to reduce the potential for movement and breakage during shipment. Each ice chest will be securely taped shut with nylon strapping tape.

The DTSC will be notified a minimum of one week prior to sampling activities (phone 714-484-5349) of the sample collection and shipment schedule.

### **3.9 Sample Analysis**

There are two California-certified laboratories that could potentially analyze samples from the Site. The first, Advanced Technologies Laboratories is in Signal Hill, California, and the second is B.C. Laboratories, located in Bakersfield, California. Select soil samples will be analyzed by one of the California-Certified laboratories or their subcontractors. PCBs will be analyzed using EPA Methods 8082 and 1668A. EPA Method 6010B/7000 will be used by the analytical laboratory to analyze for metals. EPA Method 8280A will be used by the analytical laboratory to analyze

dioxins and furans. EPA Method 8310 will be used by the analytical laboratory to analyze for PAH.

### **3.10 Sampling Waste Management Plan**

The analytical laboratory will be responsible for disposing of investigation derived wastes (IDW) generated during the sampling and analysis process. Decontamination solution will be stored inside the fenced area on the Site in a 55-gallon drum(s). After sampling activities conducted as part of the RI, the decontamination solution will be analyzed for PCBs and other detected soil analytes based on the results from the soil samples. Pending the results of the laboratory analysis, the decontamination solution will be disposed of accordingly.

## **4. HEALTH AND SAFETY**

### **4.1 General**

Measures will be implemented at the Site to protect project personnel and the general public by reducing the risk to health and safety during the RI implementation. A Site-specific Health and Safety Plan (HASP) is used to establish procedures to reduce the risk at the Site.

### **4.2 Health and Safety Plan**

The Site-specific HASP for the Fieldstone Property was prepared in accordance with federal (29 CFR 1910.120) and State (C.C.R. Title 8, Section 5192) requirements and is presented as Appendix C of this workplan. During future phases of the project, the HASP may be updated, as needed. Changes to the HASP will be tracked and updated versions presented, as appropriate, with future project submittals.

## **5. DATA MANAGEMENT AND REPORTING**

### **5.1 General**

This section contains information about procedures to be used for managing and reporting data from the analyses of the samples and use of this data as part of future phases of the project. The data quality objectives are selected to form a basis for project data management and information. Additional information regarding data quality, data validation and use of the data are presented in the Quality Assurance Project Plan (QAPP). The QAPP is presented in Appendix D to this workplan.

### **5.2 Data Management**

#### **5.2.1 Data Quality Objectives**

DQOs are qualitative and quantitative statements derived from the outputs of the initial project strategy discussions and steps of the DQO Process that:

- Clarify the study objective;
- Define the most appropriate type of data to collect;
- Determine the most appropriate conditions from which to collect the data; and
- Provide guidance on tolerable limits on decision errors that will be used as the basis for establishing the quantity and quality of data needed to support the decision.

The DQOs are then used to develop a scientific and resource-effective data collection design. According to analysis of historical data and Site conditions, the following conclusions were reached to address the DQO definition presented above:

- The objective of this Focused RI is to evaluate the nature and extent of impacts at the Fieldstone Property;
- Historical data indicate that, although low level concentrations of certain chemicals have been detected at the Site, PCB Aroclor 1260 is the primary chemical of concern;
- Historical sampling efforts have provided data that indicate that detectable levels of Aroclor 1260 is primarily present in the soil close to the ground surface. Only one sample (44B) of the 10 highest Aroclor 1260 concentrations was from a sample collected below the 6 in. to 12 in. bgs soil interval; and
- This RI Workplan and its attachments will be followed to reduce potential decision-making errors.

### **5.2.2 Remedial Investigation Data Quality Objective Process**

This section presents the data quality process for decisions during the RI process. The DQO process for the RI is summarized in Table 5-1. The seven DQO process steps are described with the corresponding RI information below:

- Step 1: State the Problem:
  - In order to evaluate whether PCBs and other contaminants pose a potential risk to human health and/or the environment, data regarding concentrations and distributions of PCBs and other contaminants in the soil, surface water, and groundwater are needed.
- Step 2: Identify the Decision:
  - Determine whether PCBs, and other contaminants, present at the site pose an unacceptable risk to human health and/or the

environment, and requires development of remedial alternatives to mitigate the risks or requires no action

- Step 3: Identify Inputs to the Decision:
  - Surface water, groundwater, and additional soil samples will be collected and analyzed for PCBs, and other contaminants, from areas of the site.
  
- Step 4: Define the Study Boundaries:
  - Debris piles, surface water, stormwater drainage courses, groundwater, and previously uncharacterized locations will be sampled. Soil samples from the debris piles and previously uncharacterized locations will be collected from 0 to 6 inches bgs, 24 to 30 inches bgs, 48 to 54 inches bgs, and 72 to 78 inches bgs. Surface water samples will be collected from areas of ponded water. Stormwater drainage course samples will be collected from 0 to 6 inches bgs. Groundwater samples will be collected from the Semi-perched Aquifer.
  
- Step 5: Develop a Decision Rule:
  - If the concentrations of PCBs, or other contaminants, at the site pose an unacceptable risk to human health and/or the environment, then a Feasibility Study will be performed to evaluate potential remedial alternatives to mitigate the risks. However, if it is determined that there is an acceptable risk to human health and environment, then no further action would be required.

- Step 6: Specify Tolerable Limits on Decision Errors:
  - Judgmental samples will be collected to minimize introduction of uncertainty. Specific errors rates can not be provided due to the selected sampling design.
  
- Step 7: Optimize the Design for Obtaining Data:
  - The sampling and analyses plan has been developed to efficiently provide usable Site data. Components of the design include:
    - sampling in accordance with EPA SW-846 procedures;
    - combining composite sampling and focused discrete sampling;
    - collecting archive samples that will be analyzed pending composite sample analyses results;
    - locating certain sample points based on Site physical characteristics (i.e., debris piles, drainage courses, etc.); and
    - instituting data validation procedures.

### **5.2.3 Quality Assurance Project Plan**

The QAPP includes information about project organization and responsibilities with respect to sampling and analysis, quality assurance objectives, sampling procedures, laboratory procedures, data management, and internal quality control. This document will be updated, as needed, during the course of this Project.

Modifications will be tracked and updated versions of the QAPP will be included, as necessary, with future submittals to the DTSC.

### **5.3 Data Reporting**

Data will be collected, primarily on PCB concentration within soil, for use in the RI/FS/RAP process. Two components of data reporting agreed by the Respondent and DTSC include:

- Detection limit to be used for PCB analysis; and
- Methods for public dissemination of data.

For soil samples analyzed for PCBs using EPA Method 8082, the laboratories can achieve a practical quantitation limit (PQL) of approximately 0.033 mg/kg. In the event of sample interference, an upper bound for the quantitation limit for acceptance of data as valid for purposes of this RI will be set at 0.18 mg/kg. This value, discussed with the DTSC, is below the EPA Region 9 Residential Preliminary Remediation Goal of 0.22 mg/kg. If the 0.18 mg/kg upper limit is not met, attempts will be made to remove the interference that is causing the elevated limit. If this is not possible, the data will be flagged with a notation with the type of interference, if possible. Samples having non-detect values at a quantitation limit above 0.18 mg/kg will be deemed invalid, and additional samples will be collected. Samples analyzed for PCB congeners using EPA Method 1668A will also have 0.18 mg/kg as an upper quantitation limit for the sum of the congener detections. The analytical laboratory will provide detection limits along with the data for each analytical procedure, including congener-specific PCB analysis, dioxins and furans, metals, and PAH. Copies of the data from the laboratory analysis of Fieldstone soil samples are to be accessible to the DTSC and placed in the public information repository. Details of the information distribution will be presented in the Public Participation Plan.

## **6. REMEDIAL INVESTIGATION SCHEDULE**

A proposed schedule for implementation of the RI and subsequent tasks contained in the Consent Order was originally submitted to the DTSC on 31 July 2002. Due to review discussions, the schedule will be finalized upon receiving final approval from DTSC. The revised schedule for implementation of the RI at the Site presented in Figure 6-1 will be forwarded to DTSC at that time. The following are notable milestones contained in the schedule:

- Soil sampling at the Site, as described in this RI Workplan will likely begin in Summer 2003; and
- The RI Report will be submitted to the DTSC in Fall/Winter 2003 pending RI fieldwork.

The following assumption was used as the basis for the RI schedule:

- The DTSC will approve the RI Workplan for the Site in July 2003.

Deviations from the aforementioned schedule will be documented in subsequent deliverables listed in the Consent Order.

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# **TABLES**

**TABLE 1-1**  
**RI WORKPLAN CONTENTS**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

<b>Consent Order Section</b>	<b>Content</b>	<b>Remedial Investigation Workplan Section</b>
5.2.2(a)	Project Management Plan	Section 1.3, Appendix B
5.2.2(b)	Scoping Document	Section 2
5.2.2(c)	Field Sampling Plan	Section 3
5.2.2(d)	Quality Assurance Project Plan	Section 5.2.2, Appendix D
5.2.2(e)	Health and Safety Plan	Section 4.2, Appendix C
5.2.2(g)	Schedule	Section 6

**TABLE 2-1**  
**OWNERSHIP HISTORY AND HISTORY OF OIL AND**  
**GAS INTERESTS AT BOLSA CHICA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**  
**(July 2002)**

<b>DATE</b>	<b>OWNERSHIP</b>
Pre-1970	Signal Oil and Gas Company (“SOAG”) acquired various individual fractionalized fee interests in the Bolsa Chica property from a number of co-tenants, totaling approximately 2,000 acres. The Bolsa Chica property included a 41-acre area now known as the Fieldstone property.
January 1970	The Signal Companies, Inc. conveyed its oil and gas business to its subsidiary, SOAG and then acquired approximately 2,000 acres at Bolsa Chica (which included the Fieldstone property) from SOAG, subject to outstanding oil and gas leases.
February 1970	The Signal Companies, Inc. conveyed the Fieldstone property to its subsidiary, Signal Properties, Inc.
July 1970	Signal Properties, Inc. conveyed the Fieldstone property to its subsidiary, Signal Bolsa Corporation.
1974	Signal Bolsa corporation conveyed approximately 220 acres, including the Fieldstone property, to A-S Development, Inc. <sup>1</sup> for residential development
August 1974	A-S Development, Inc. conveyed the Fieldstone property to Kendall Development Co., Inc. <sup>1</sup> Kendall merged with W.R. Grace Properties, Inc. <sup>1</sup> in 1976. (W.R. Grace Properties has subsequently filed for bankruptcy.)
July 1989	The Fieldstone Company acquired the 41-acre property from W.R. Grace Properties, Inc.
September 1997	Signal Bolsa Corporation acquired the 41-acre property from the Fieldstone Company.
January 1998	Signal Bolsa Corporation was merged into its parent, Signal Landmark
December 1999	Signal Landmark transferred title of the Fieldstone property to its subsidiary. Hearthside Residential Corp.

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<sup>1</sup> These entities are unrelated third parties.

**TABLE 2-1 (continued)**  
**OWNERSHIP HISTORY AND HISTORY OF OIL AND**  
**GAS INTERESTS AT BOLSA CHICA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**  
**(July 2002)**

<b>DATE</b>	<b>OIL AND GAS INTEREST</b>
December 1943	A large number of tenants in common entered into an oil and gas lease with a company later known as The Signal Companies, Inc.
January 1970	The Signal Companies, Inc. conveyed its oil and gas business to its subsidiary, Signal Oil and Gas Company (“SOAG”) and then acquired approximately 2,000 acres at Bolsa Chica from SOAG, subject to outstanding oil and gas leases.
December 1973	Burmah Oil Incorporated <sup>1</sup> acquired the stock of SOAG from The Signal Companies, Inc. Burmah changed its name to Aminoil <sup>1</sup> and was later merged into its parent company, Phillips Petroleum Company. <sup>1</sup>
June 1986	Phillips Petroleum Company sold its ownership interest in the Bolsa Chica oil and gas leases to Shell Oil Company. <sup>1</sup> Shell Oil Company thereafter held certain of its California operations, including those at Bolsa Chica, in Cal Resources LLC. <sup>1</sup>
Currently	As a result of the merger of Shell Oil’s California operations (Cal Resources LLC) and Mobil Oil’s California operations, Aera Energy <sup>1</sup> was formed and currently holds the oil and gas interests.

**TABLE 2-2  
CHRONOLOGICAL SITE INVESTIGATIONS SUMMARY  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**

<b>DATE</b>	<b>INVESTIGATING PARTY</b>	<b>SAMPLING DESIGN</b>	<b>MEDIA SAMPLED</b>	<b>ANALYTICAL SUITE(S)</b>	<b>ORGANIC CHEMICAL DETECTIONS GREATER THAN RES. PRGs<sup>(1)</sup></b>
October 1998	California State Lands Commission	Random Composite	Soil	Gen Min Hydrocarbons Metals O&G PCB/Pest SVOCs VOCs	PCB Aroclor 1260 Total PCB
April 1999	Hearthside	Discrete (Re-sample points used in October 1998 Composite)	Soil	PCBs	PCB Aroclor 1260
August 1999	Hearthside	Discrete (Delineation of areas where PCB was detected in April 1999)	Soil	TRPH PCB	PCB Aroclor 1260
October 1999	Hearthside	Discrete (Expansion of areas where PCB was detected in August 1999)	Soil	PCB	PCB Aroclor 1260
April 2000	California State Lands Commission	Bolsa Chica Ecological Risk Assessment	Soil	Gen Min Hydrocarbons Metals O&G PCB/Pest SVOCs VOCs	None
April 2001	Hearthside	Discrete (Further delineation of areas with PCB detections)	Soil	PCB	PCB Aroclor 1260
November 2001	Hearthside	Discrete (Further delineation of areas with PCB detections and evaluation of SVOC co-location))	Soil	PCB SVOCs	PCB Aroclor 1260

**NOTES:**

(1) Refers to the samples collected on the Fieldstone property

RES. PRG – USEPA Region 9 Preliminary Remediation Goals for Residential Areas  
 Gen Min – General Minerals  
 O&G – Oil and Gas  
 PCB/Pest – Polychlorinated Biphenyls/Pesticides  
 SVOCs – Semi-Volatile Organic Chemical  
 Aroclor – Designated Mixture of PCB

**TABLE 2-3  
STATE DATA - ANALYTICAL SUITES  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**

Sample Date	Sample I.D.	Depth From (ft)	Depth To (ft)	Analytical Suite
4/19/2000	CAR_26_1A	0	0.5	Gen Min
				Hydrocarbons
				Metals
				O&G
				PCB/Pest
				SVOCs
4/19/2000	CAR_26_1B	2.5	6	Hydrocarbons
				Metals
4/19/2000	CAR_26_2A	0	0.5	Gen Min
				Hydrocarbons
				Metals
				O&G
				PCB/Pest
				SVOCs
4/19/2000	CAR_26_2B	2.5	6	Hydrocarbons
				Metals
10/6/1998	R41C1-1	0	0.5	Gen Min
				Hydrocarbons
				Metals
				O&G
				PCB/Pest
				SVOCs
				Gen Min
10/6/1998	R41C1-2	2.5	6	Gen Min
				Hydrocarbons
				Metals
				SVOCs
				VOCs
10/1/1998	R42C1-1	0	0.5	Gen Min
				Hydrocarbons
				Metals
				O&G
				PCB/Pest
				SVOCs

**TABLE 2-3 (cont.)**  
**STATE DATA – ANALYTICAL SUITES**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

Sample Date	Sample I.D.	Depth From (ft)	Depth To (ft)	Analytical Suite
10/1/1998	R42C1-2	2.5	6	Gen Min
				Hydrocarbons
				Metals
				VOCs
10/7/1998	R47C1-1	0	0.5	Gen Min
				Hydrocarbons
				Metals
				O&G
				PCB/Pest
				SVOCs
				Gen Min
10/7/1998	R47C1-2	2.5	6	Gen Min
				Hydrocarbons
				Metals
				SVOCs
				VOCs
10/6/1998	R50C2-1	0	0.5	Gen Min
				Hydrocarbons
				Metals
				O&G
				PCB/Pest
				SVOCs
10/6/1998	R50C2-2	2.5	6	Gen Min
				Hydrocarbons
				Metals
				SVOCs
				VOCs

**TABLE 3-1  
PROPOSED ANALYTICAL TESTING PROTOCOL  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**

<b>AREA DESIGNATION</b>	<b>SAMPLE ORIENTATION</b>	<b>NUMBER OF SAMPLES COLLECTED/TESTED</b>	<b>ANALYSES</b>	<b>DEPENDENT ANALYSES</b>
Uncharacterized (Composite) Locations	<b><u>26 Location Groups</u></b> 5 composites collected @ each of the following depths: 0, 2, 4, 6 ft bgs	520/104	<b>EPA 8082 (PCB)</b> * <b>EPA 6010B/7000</b> (Title 22 Metals at two historical sampling locations)	<b>EPA 1668A</b> (PCB Congerer) <b>EPA 8280A</b> (Dioxins/Furans)  PCB Congener (high resolution) and Dioxin/Furans analyses will be performed on 5 highest PCB detections in site solids.
Debris Locations	<b><u>10 Locations</u></b> Discrete @ each of the following depths: 0, 2, 4, 6 ft bgs	40/40	<b>EPA 8082 (PCB)</b> <b>EPA 6010B/7000</b> (Title 22 Metals) <b>EPA 8310 (PAH)</b>	
Surface Water "Low Point" or Flow Areas	<b><u>13 Locations</u></b> Discrete @ Surface (0 ft bgs)	13/13	<b>EPA 8082 (PCB)</b>	
Confirmatory Testing in Identified PCB Area (Shallow)	<b><u>9 Locations</u></b> Discrete @ each of the following depths: 0, 2 ft bgs	18/18	<b>EPA 8082 (PCB)</b> <b>EPA 6010B/7000</b> (Title 22 Metals) <b>EPA 8310 (PAH)</b>	
Confirmatory Testing in Identified PCB Area (Deep)	<b><u>9 Locations</u></b> Discrete @ each of the following depths: 4, 6 ft bgs	18/18	<b>EPA 8082 (PCB)</b>	
Surface Water	<b><u>5 Locations</u></b> Grab sample	5/5	<b>EPA 8082 (PCB)</b>	No dependent analyses
Groundwater	<b><u>2 Locations</u></b> Grab sample	2/2	<b>EPA 8082 (PCB)</b> <b>EPA 8310 (PAH)</b>	No dependent analyses
<b>TOTALS</b>		616/200		

## SAMPLE DESIGNATION:

[Media]-[Location number/ composite group][C+Composite number within group (if applicable)]-[Depth (A,B,C, or D)]-[D(uplicate)][(S(plit))]

EXAMPLES: **SS-70C1-A(D)** = Discrete soil sample from sample location #1 of composite sample location 70 that was collected from 0 to 6 in. bgs

**SS-70-A** = Composite soil sample from 0 to 6 in. bgs at composite sample location 70

**TABLE 5-1**  
**REMEDIAL INVESTIGATION DATA QUALITY PROCESS**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

<b>Steps in the DQO Process (EPA, 2000)</b>	<b>Application to Remedial Investigation</b>
1 – State the Problem	In order to evaluate whether PCBs and other contaminants pose a potential risk to human health and/or the environment, data regarding concentrations and distributions of PCBs and other contaminants in the soil, surface water, and groundwater are needed.
2 – Identify the Decision	Determine whether PCBs, and other contaminants, present at the site pose an unacceptable risk to human health and/or the environment, and requires development of remedial alternatives to mitigate the risks or requires no action.
3 – Identify Input (s) to the Decision	Surface water, groundwater, and additional soil samples will be collected and analyzed for PCBs, and other contaminants, from areas of the site.
4 – Define the Boundaries of the Study	Debris piles, surface water, stormwater drainage courses, groundwater, and previously uncharacterized locations will be sampled. Soil samples from the debris piles and previously uncharacterized locations will be collected from 0 to 6 inches bgs, 24 to 30 inches bgs, 48 to 54 inches bgs, and 72 to 78 inches bgs. Surface water samples will be collected from areas of ponded water. Stormwater drainage course samples will be collected from 0 to 6 inches bgs. Groundwater samples will be collected from the Semi-perched aquifer.
5 - Develop a Decision Rule	If the concentrations of PCBs, or other contaminants, at the site pose an unacceptable risk to human health and/or the environment, then a Feasibility Study will be performed to evaluate potential remedial alternatives to mitigate the risks. However, if it is determined that there is an acceptable risk to human health and environment, then no further action would be required.
6 - Specify Tolerable Limits on Decision Errors	Judgmental samples will be collected to minimize introduction of uncertainty. Specific errors rates can not be provided due to the selected sampling design.
7 - Optimize the Design for Obtaining Data	<p>The sampling and analyses plan has been developed to efficiently provide usable Site data. Components include:</p> <ul style="list-style-type: none"> <li>• Sampling in accordance with EPA Sw-846 procedures;</li> <li>• Combining composite sampling and focused discrete sampling;</li> <li>• Collecting archive samples to be analyzed pending composite sample analyses results;</li> <li>• Locating certain points based on Site physical characteristics; and</li> <li>• Instituting data validation procedures.</li> </ul>

**TABLE 5-2**  
**DECISION RULES FOR REMEDIAL INVESTIGATION DQO PROCESS**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

SAMPLE TYPE	SAMPLE ANALYSES RESULTS				QA/QC ITEMS	POTENTIAL ACTIONS
	PCB	DIOXINS/FURANS	TITLE 22 METALS	PAH		
DISCRETE	ND < 0.033 mg/kg	ND < PRGs	ND < PRGs	ND < PRGs	Precision Accuracy Hold Times Lab Equipment	Use Sample Analysis Results in Site Model
	ND > 0.033 mg/kg	One or more results is ND > PRGs				Re-analyze--reject data point same result after 2nd analysis
	ND > 0.033 mg/kg	ND < PRGs	ND < PRGs	ND < PRGs		Re-analyze--reject data point same result after 2nd analysis
COMPOSITE	ND < 0.18 mg/kg	NOT ANALYZED			Precision Accuracy Hold Times Lab Equipment	Use Sample Analysis Results in Site Model
	ND > 0.18 mg/kg					Analyze as discrete samples
	Detection					Analyze as discrete samples

**NOTES**

**PCB** - Polychlorinated Biphenyl

**PAH** - Polycyclic Aromatic Hydrocarbons

**QA/QC** - Quality Assurance/ Quality Control

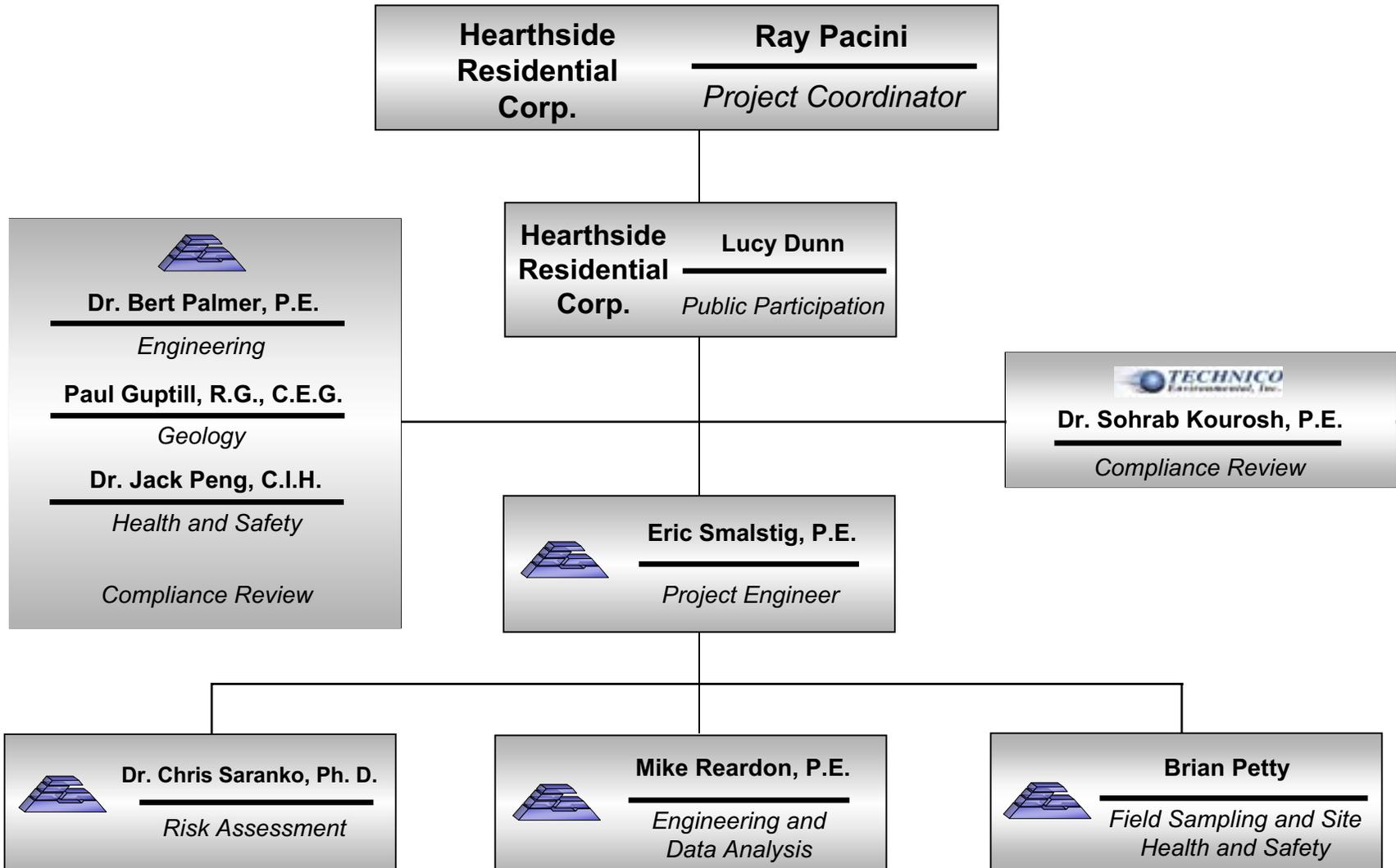
**ND** - Not Detected at the specified concentration

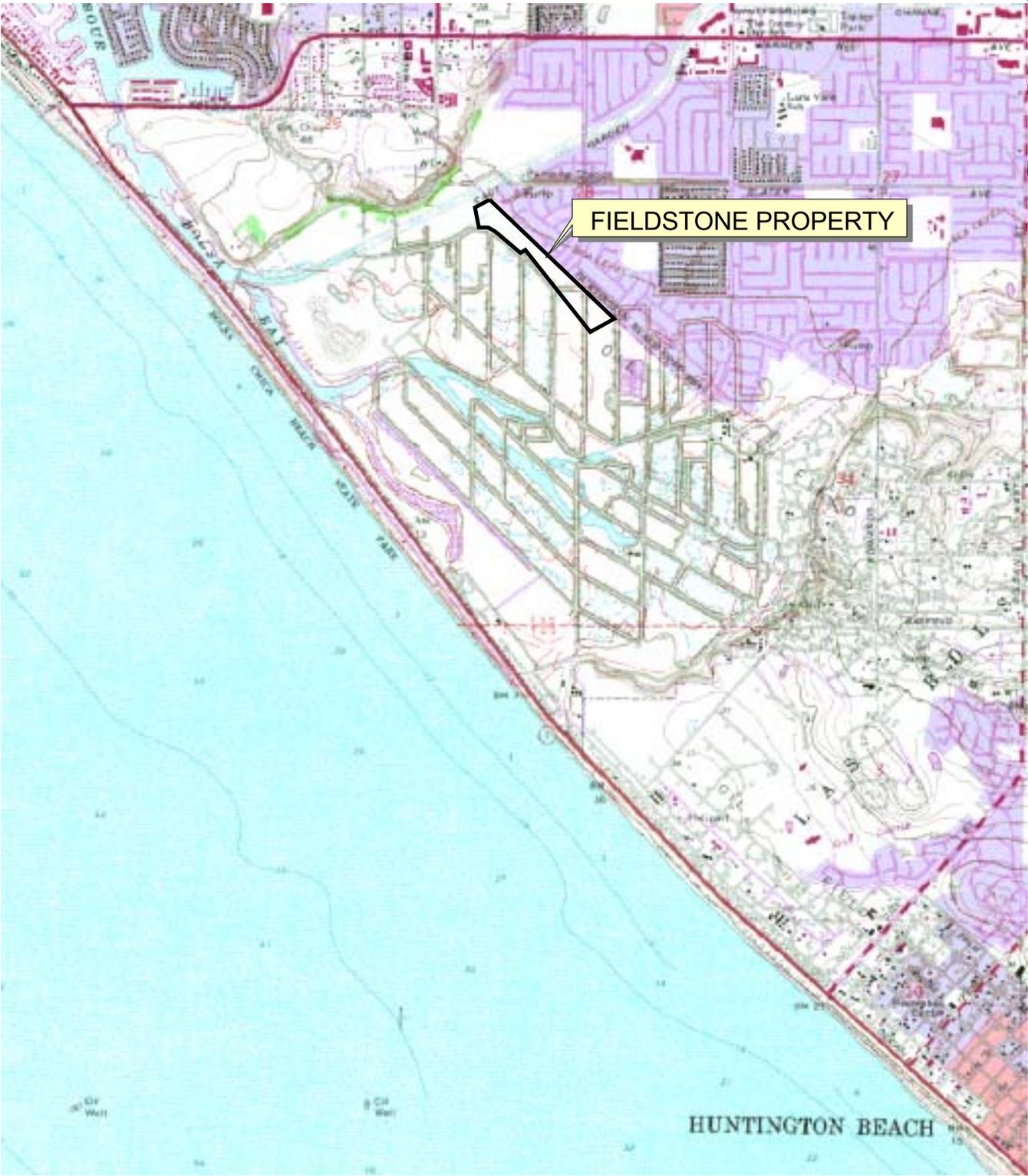
**mg/kg** - concentration expressed in milligrams per kilogram

**PRG** - USEPA Region 9 Preliminary Remediation Goal

# FIGURES

# Figure 1-1 Project Organization Chart Fieldstone Property Orange County, California





SITE LOCATION  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA

FIGURE NO.	2-1
PROJECT NO.	HR0653-01
FILE NO.	0653G001.APR
DATE:	FEBRUARY 2003



**LEGEND**

- Approximate Fieldstone Property Boundary
- Approximate Bolsa Chica Lowlands Boundary

Notes:  
Photo Base Map taken January, 1999.

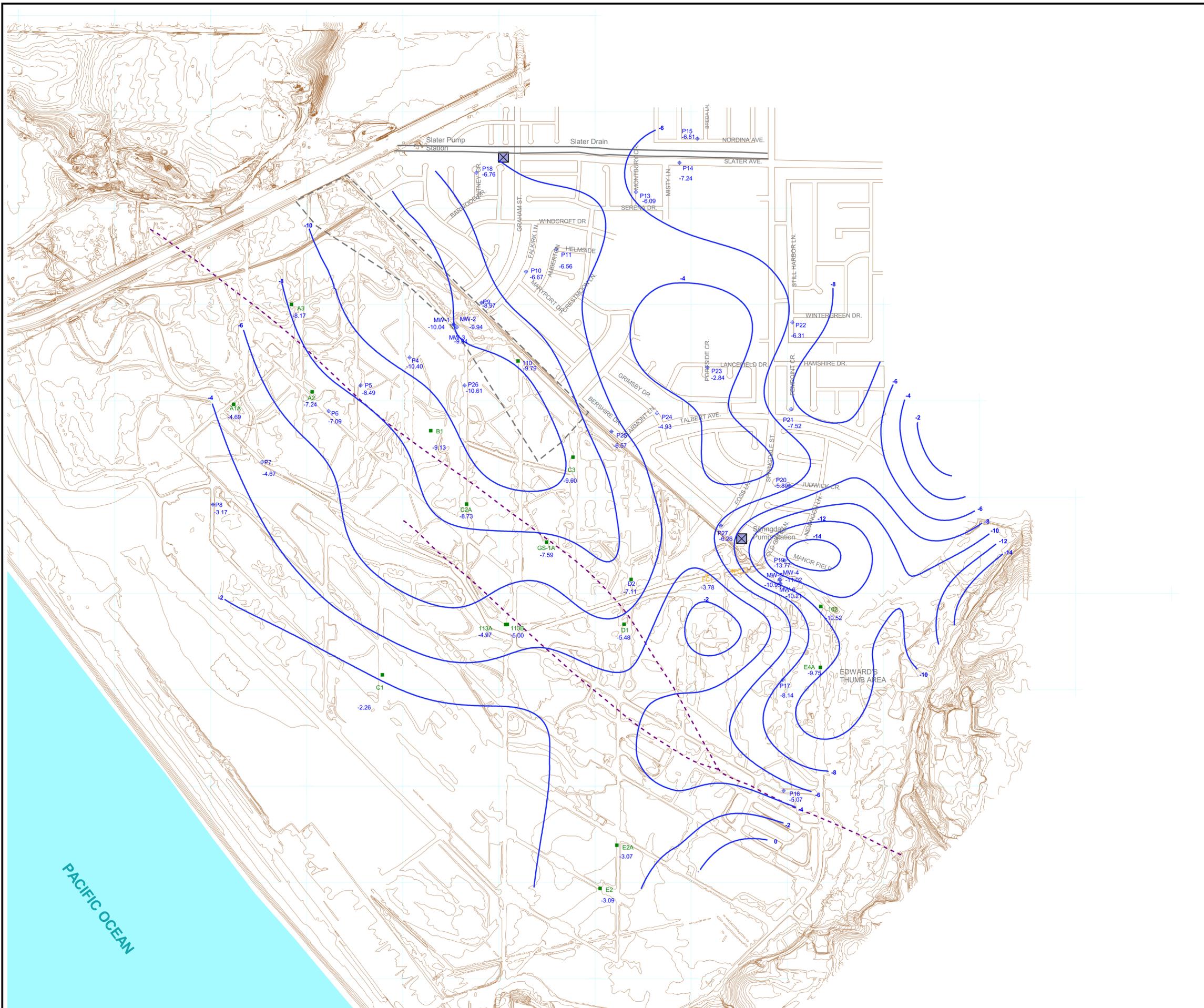


140 0 140 Feet



PROJECT: FIELDSTONE

TITLE: Figure 2-2  
Aerial Photograph



**LEGEND**

- Monitoring Well (MW) or Piezometer (P) Location, 1999
- Bilhorn (1986) Well Locations
- Site Boundary
- Newport-Inglewood Fault Trace (Approximate Location). Woodward-Clyde Consultants, 1991
- Groundwater Contour, Based on 10 January 2000 Static Groundwater Level Measurements Contour Interval is 2 ft.
- Static Groundwater Level Measured on 10 January 2000 in feet relative to Mean Sea Level.

- References for Topographic map:
1. Williamson and Schmid Consulting Civil Engineers and Land Surveyors, July 1986, As Modified By Moffatt and Nichol Engineers, October 1999.
  2. Original Topography Compiled By Williamson and Schmid from 100-Scale Aerial Photography by San-LO Aerial Surveys. On 17 September 1980 and 28 July 1986.
- Reference for Streets:
- Adapted from United States Geological Survey 7.5 Minute Seal Beach, California Quadrangle, 1:24,000 Scale, 1965, revised 1981.

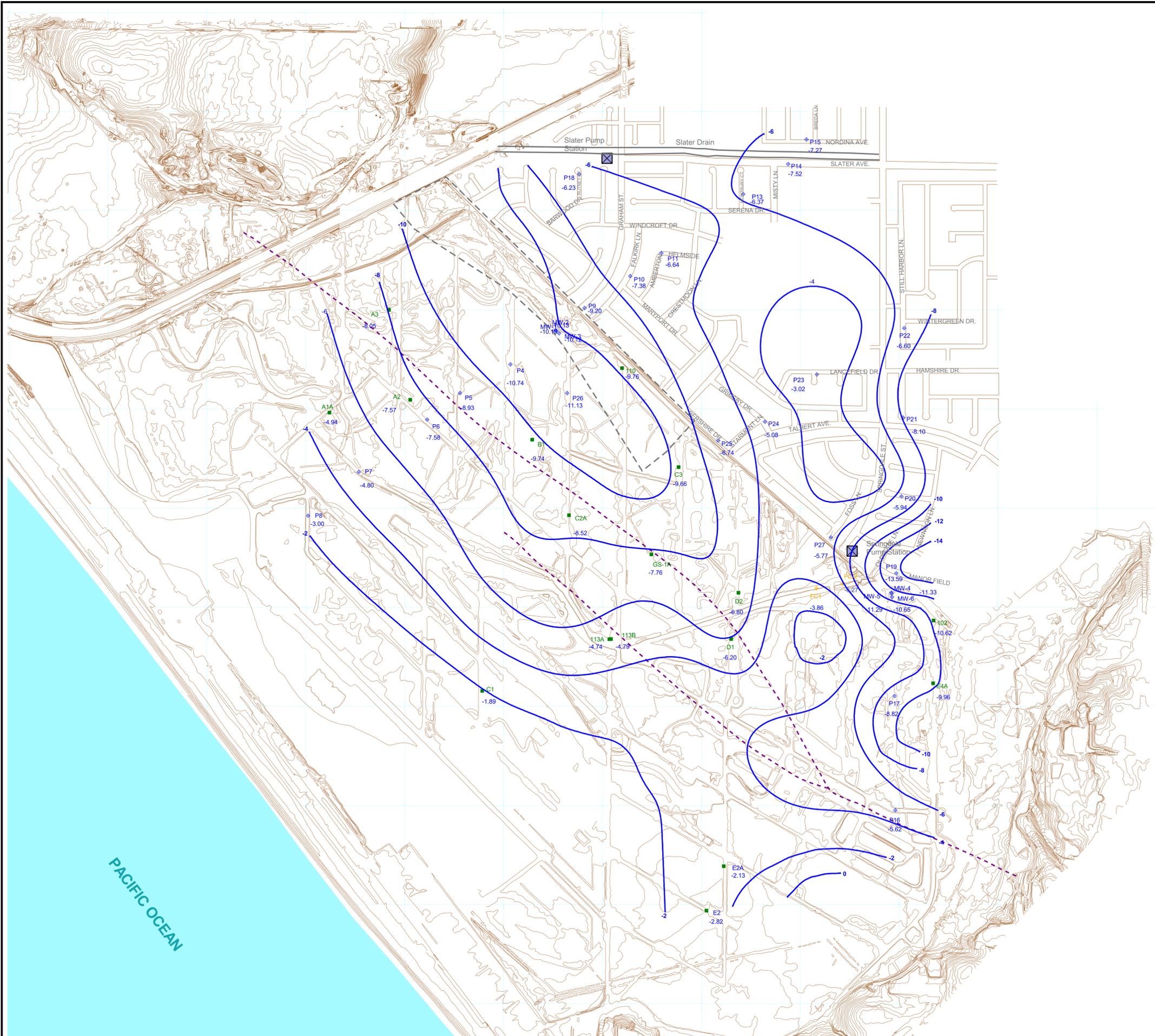
Notes:  
 Survey Coordinates are Referenced to North America Datum (NAD) of 1927 and National Geodetic Vertical Datum (NGVD) of 1929 Mean Sea Level.  
 Information excerpted from "Hydrogeologic Evaluation of Shallow Groundwater Conditions and Associated Impacts of Wetland Restoration, Bolsa Chica Wetland." GeoSyntec Consultants, 2000



PACIFIC OCEAN



PROJECT:	FIELDSTONE
TITLE:	FIGURE 2-3 OCTOBER 1999 SEMI-PERCHED GROUNDWATER CONTOUR MAP



**LEGEND**

- Monitoring Well (MW) or Piezometer (P) Location, 1999
- Bilhorn (1986) Well Locations
- Site Boundary
- Newport-Inglewood Fault Trace (Approximate Location). Woodward-Clyde Consultants, 1991
- Groundwater Contour, Based on 10 January 2000 Static Groundwater Level Measurements Contour Interval is 2 ft.
- Static Groundwater Level Measured on 10 January 2000 in feet relative to Mean Sea Level.

- References for Topographic map:
1. Williamson and Schmid Consulting Civil Engineers and Land Surveyors, July 1986, As Modified By Moffatt and Nichol Engineers, October 1999.
  2. Original Topography Compiled By Williamson and Schmid from 100-Scale Aerial Photography by San-LO Aerial Surveys. On 17 September 1980 and 28 July 1986.

- Reference for Streets:
- Adapted from United States Geological Survey 7.5 Minute Seal Beach, California Quadrangle, 1:24,000 Scale, 1965, revised 1981.

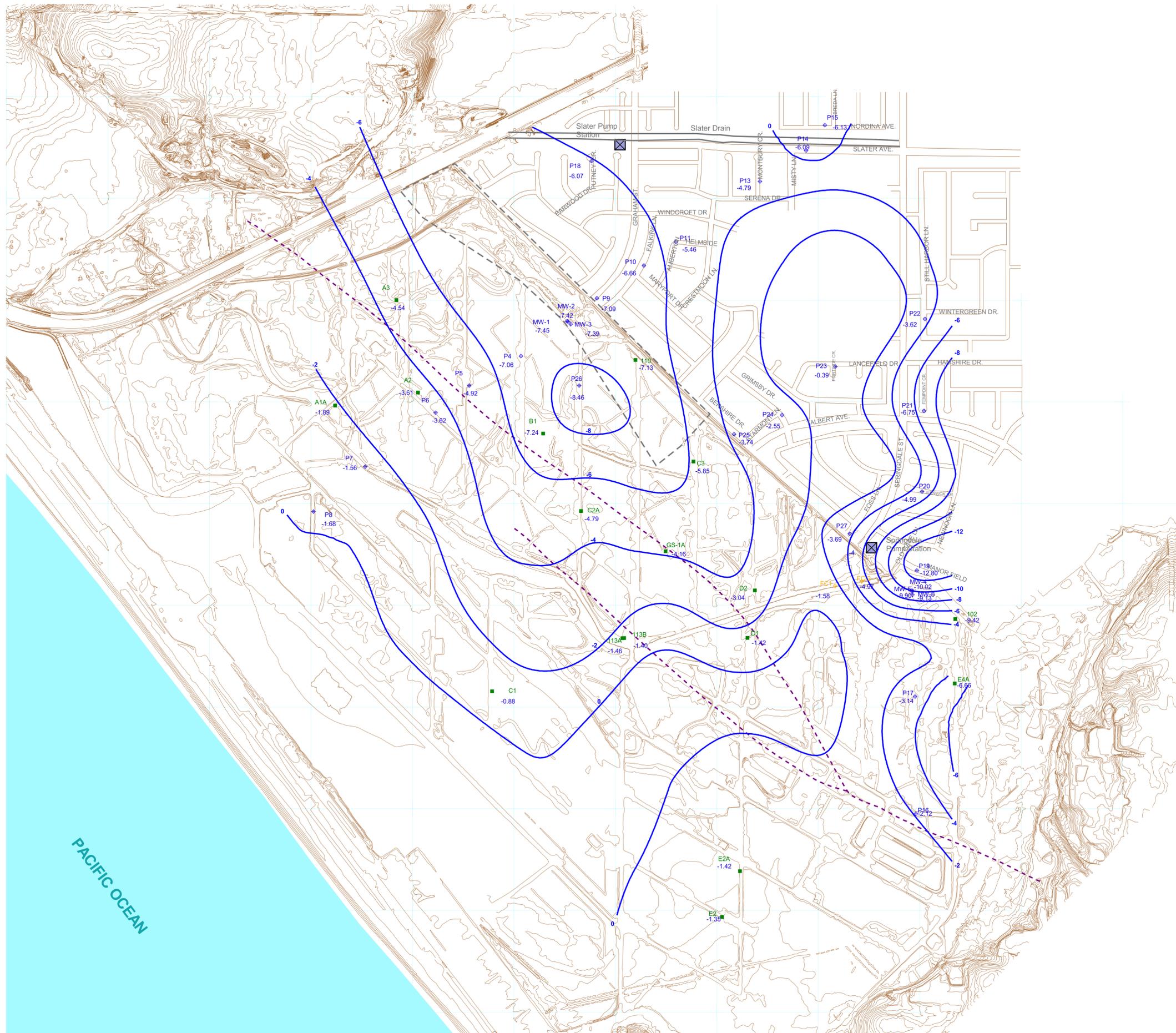
Notes:  
 Survey Coordinates are Referenced to North America Datum (NAD) of 1927 and National Geodetic Vertical Datum (NGVD) of 1929 Mean Sea Level.

Information excerpted from "Hydrogeologic Evaluation of Shallow Groundwater Conditions and Associated Impacts of Wetland Restoration, Bolsa Chica Wetland." GeoSyntec Consultants, 2000



PROJECT: FIELDSTONE

TITLE: **FIGURE 2-4**  
**JANUARY 2000 SEMI-PERCHED**  
**GROUNDWATER CONTOUR MAP**



**LEGEND**

- Monitoring Well (MW) or Piezometer (P) Location, 1999
- Bilhorn (1986) Well Locations
- Site Boundary
- Newport-Inglewood Fault Trace (Approximate Location). Woodward-Clyde Consultants, 1991
- Groundwater Contour, Based on 10 January 2000 Static Groundwater Level Measurements Contour Interval is 2 ft.
- Static Groundwater Level Measured on 10 January 2000 in feet relative to Mean Sea Level.

- References for Topographic map:
1. Williamson and Schmid Consulting Civil Engineers and Land Surveyors, July 1986, As Modified By Moffatt and Nichol Engineers, October 1999.
  2. Original Topography Compiled By Williamson and Schmid from 100-Scale Aerial Photography by San-LO Aerial Surveys. On 17 September 1980 and 28 July 1986.

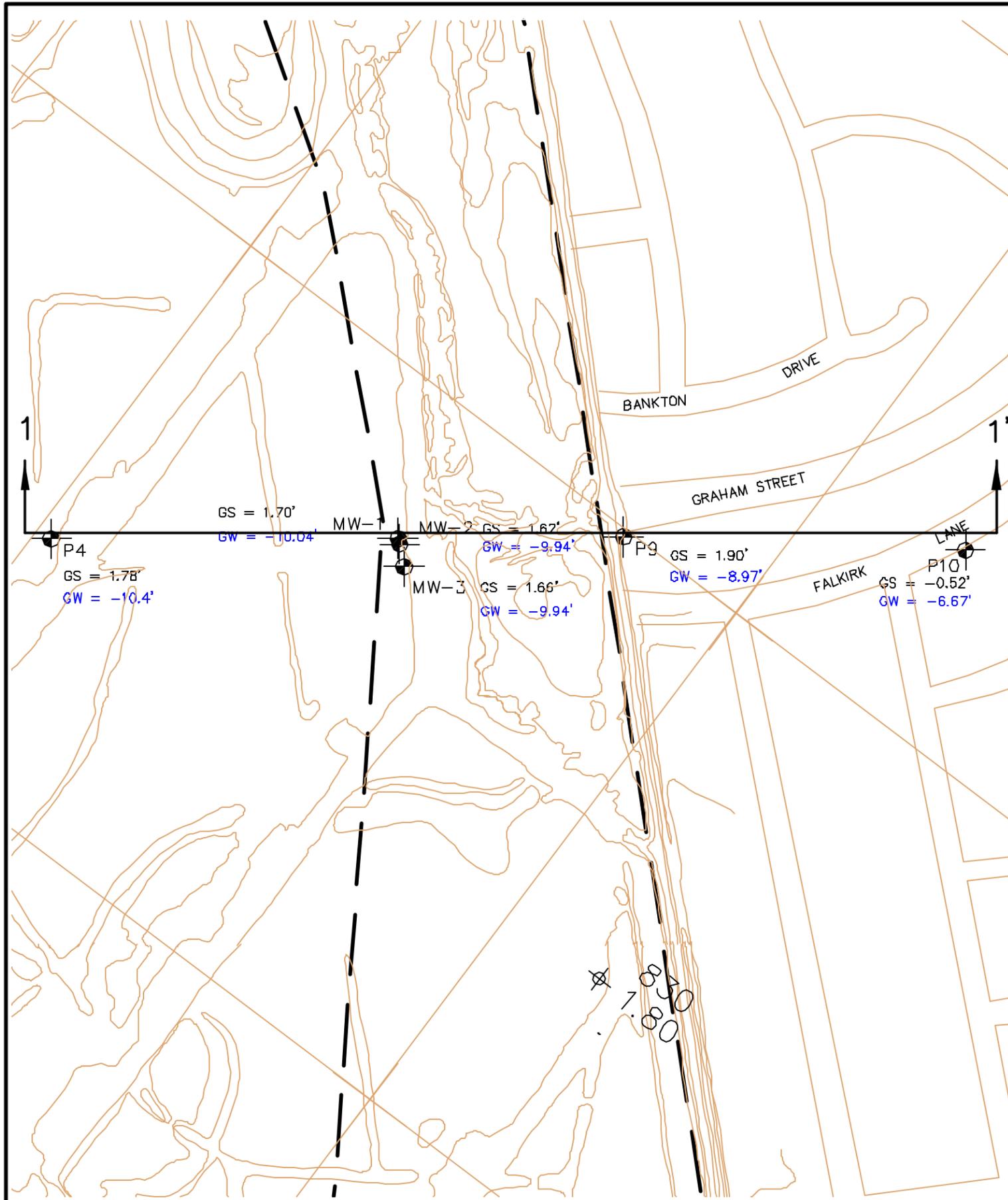
- Reference for Streets:
- Adapted from United States Geological Survey 7.5 Minute Seal Beach, California Quadrangle, 1:24,000 Scale, 1965, revised 1981.

Notes:  
 Survey Coordinates are Referenced to North America Datum (NAD) of 1927 and National Geodetic Vertical Datum (NGVD) of 1929 Mean Sea Level.

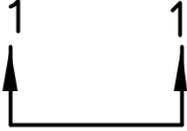
Information excerpted from "Hydrogeologic Evaluation of Shallow Groundwater Conditions and Associated Impacts of Wetland Restoration, Bolsa Chica Wetland." GeoSyntec Consultants, 2000



PROJECT:	FIELDSTONE
TITLE:	FIGURE 2-5 APRIL 2000 SEMI-PERCHED GROUNDWATER CONTOUR MAP



## LEGEND

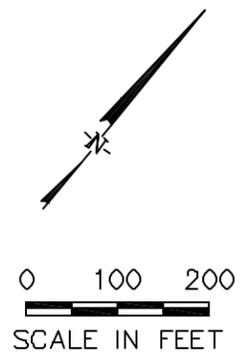
-  TOPOGRAPHIC CONTOUR IN FEET ABOVE MEAN SEA LEVEL (WILLIAMSON AND SCHMID, JULY 1986 MODIFIED BY MOFFATT & NICHOL, OCTOBER 1999.) AND STREET MAP (ADAPTED FROM USGS, 1965, REVISED 1981, 7.5 MINUTES SEAL BEACH QUADRANGLE)
-  SITE BOUNDARY
-  P7 CPT LOCATION CONVERTED TO A PIEZOMETER
-  MW-1 HOLLOW STEM AUGER BORING CONVERTED TO A MONITORING WELL (LOCATIONS SHOWN ARE APPROXIMATE)
-  CROSS SECTIONAL LINE
-  SURVEY CONTROL POINT

### NOTES:

GS - GROUND SURFACE ELEVATION (MSL) JANUARY 1999

GW - GROUNDWATER ELEVATION (MSL) 13 OCTOBER 1999

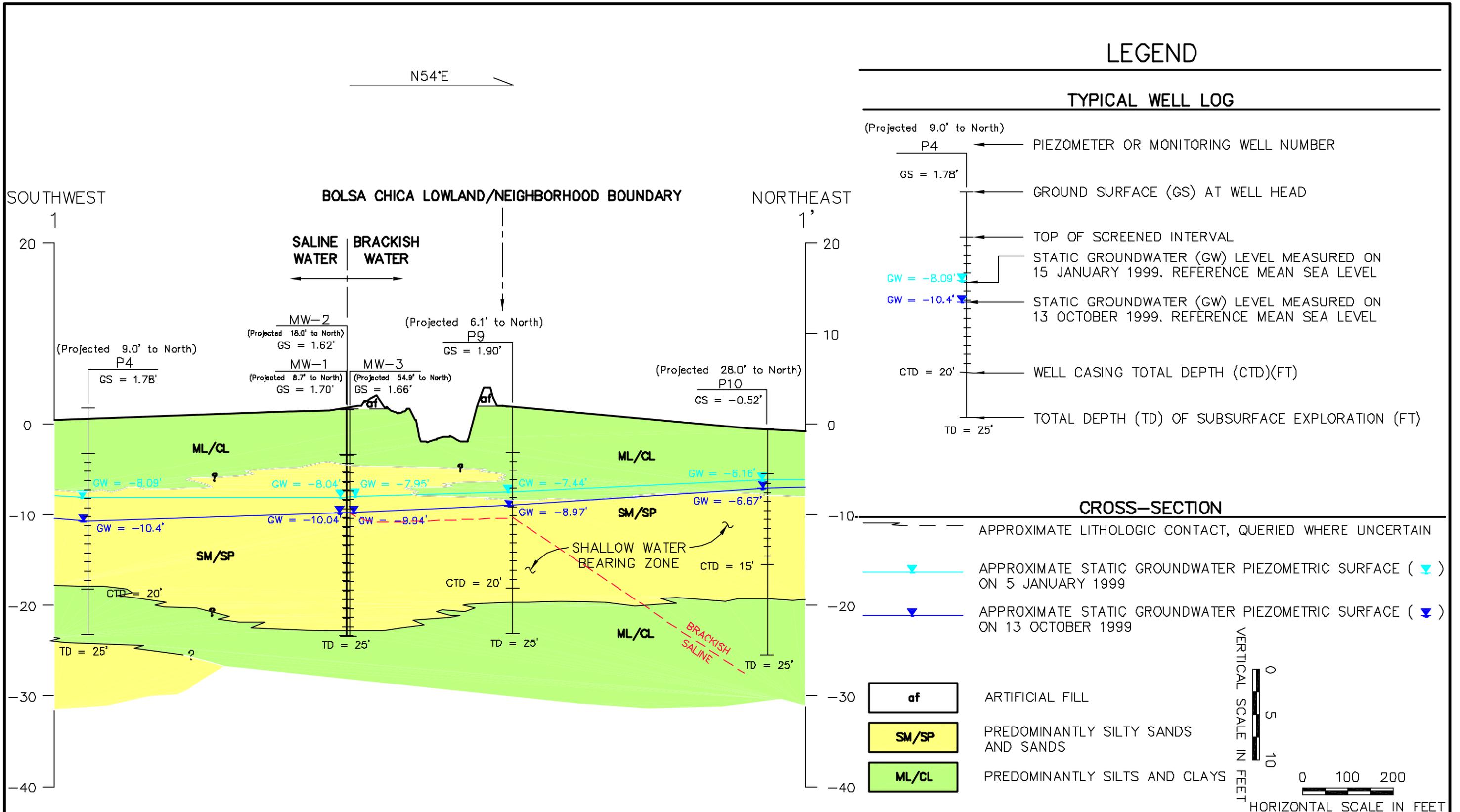
INFORMATION EXCERPTED FROM "HYDROGEOLOGIC EVALUATION OF SHALLOW GROUNDWATER CONDITIONS AND ASSOCIATED IMPACTED OF WETLAND RESTORATION, BOLSA CHICA WETLAND", GEOSYNTEC CONSULTANTS, 2000.



 **GEOSYNTEC CONSULTANTS**

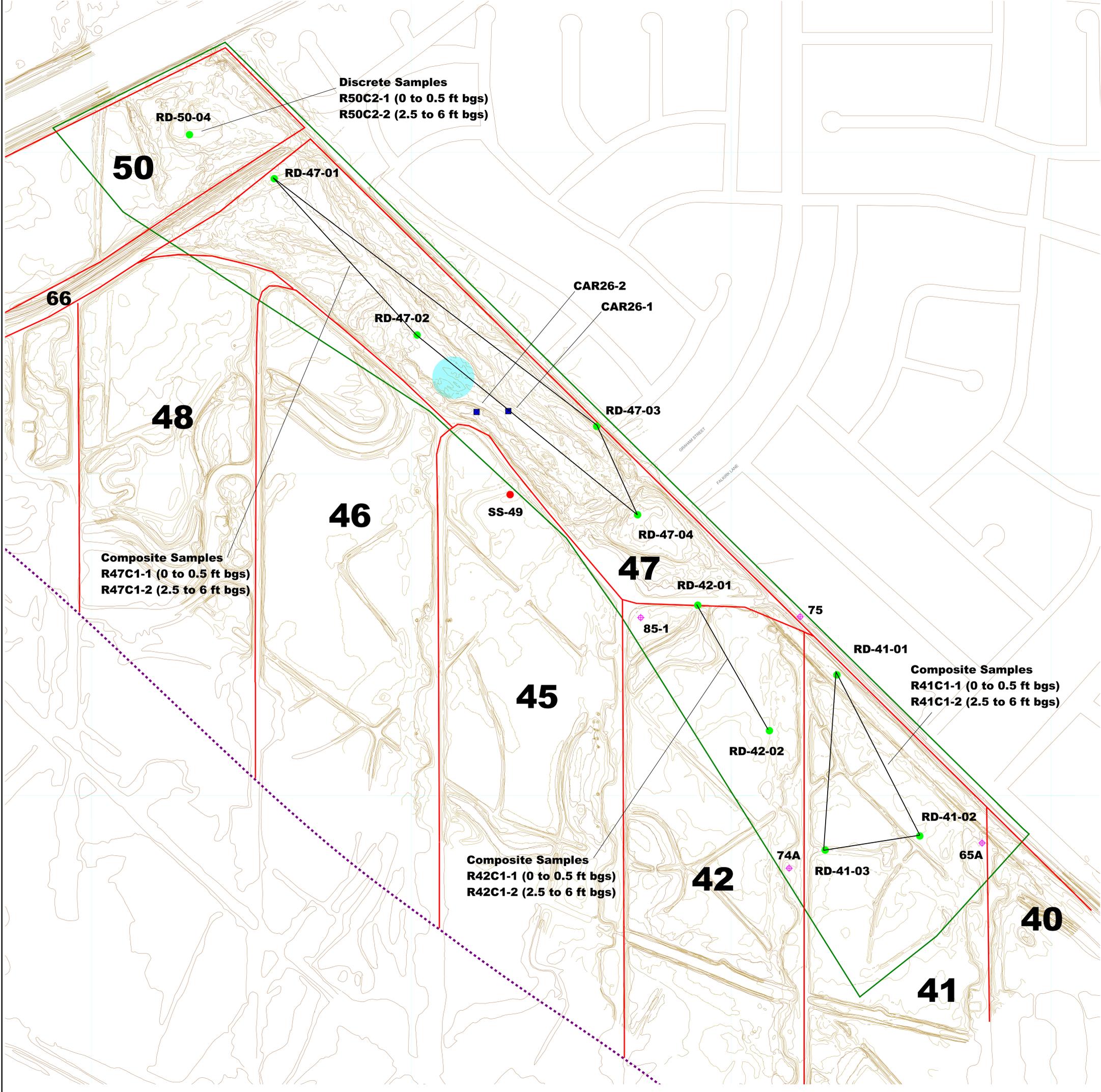
HYDROGEOLOGIC LAYOUT  
BOLSA CHICA LOWLAND  
ORANGE COUNTY, CALIFORNIA

FIGURE NO.	2-6
PROJECT NO.	HR0653-01
DOCUMENT NO.	
DATE:	FEBRUARY 2003



NOTE:  
 INFORMATION EXCERPTED FROM "HYDROGEOLOGIC EVALUATION OF SHALLOW GROUNDWATER CONDITIONS AND ASSOCIATED IMPACTED OF WETLAND RESTORATION, BOLSA CHICA WETLAND", GEOSYNTec CONSULTANTS, 2000.

 HYDROGEOLOGIC CROSS SECTION1-1' BOLSA CHICA LOWLAND ORANGE COUNTY, CALIFORNIA	FIGURE NO. 2-7
	PROJECT NO. HR0653-01
	DOCUMENT NO.
	DATE: FEBRUARY 2003

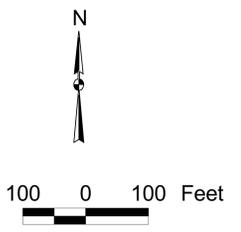


**LEGEND**

- **Tetra Tech Sample Location**
- **CH2M Hill Random Sampling Locations**
- 47** **Cell Designation (CH2M Hill Nomenclature)**
- **CH2M Hill Focused Sample Locations**
- ⊕ **Oil Well - Abandoned Prior to 1986**
- **Site 26 (Identified by Schaefer-Dixon, 1991 Phase 1 ESA)**
- **Site Boundary**
- **Oil Field Cell Boundary**
- - - **Newport-Inglewood Fault Trace (Approximate Location)**  
**Woodward-Clyde Consultants, 1991**

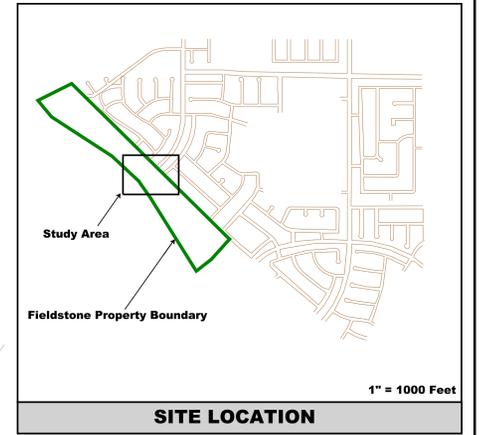
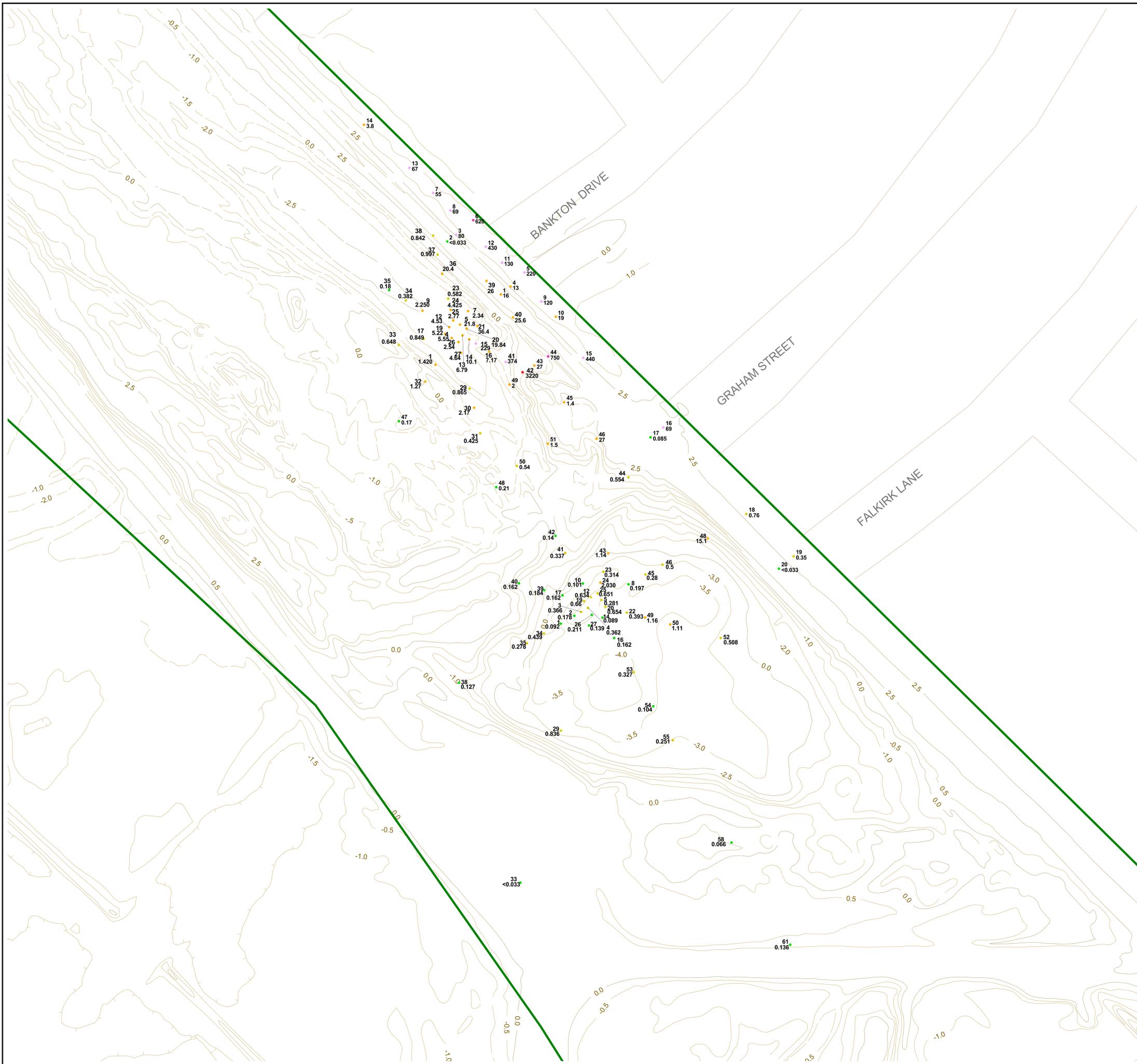
Notes:

1. Locations are based on information provided by third parties and are approximate.
2. References for Topographic map:
  - Williamson and Schmid Consulting Civil Engineers and Land Surveyors, July 1986, As Modified By Moffatt and Nichol Engineers, October 1999.
  - Original Topography Compiled By Williamson and Schmid from 100-Scale Aerial Photography by San-LO Aerial Surveys, on 17 September 1980 and 28 July 1986.
3. References for Streets:
  - Adapted from United States Geological Survey 7.5 Minute Seal Beach, California Quadrangle, 1:24,000 Scale.
  - Survey Coordinates are Referenced to North American Datum (NAD) of 1927 and National Geodetic Vertical Datum (NGVD) of 1929 Mean Sea Level.



PROJECT: FIELDSTONE

TITLE: Figure 2-8  
Previous Sampling Locations/Site Features  
(Bolsa Chica Ecological Risk Assessment  
[CH2M Hill, 2001])



**LEGEND**

**Concentration Key**

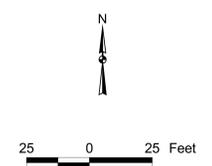
- 0 - <0.22
- 0.22 - <1.0
- 1.0 - <50
- 50 - <500
- 500 - <1000
- ≥1000

● 44 0.554 **Results (44 - Location Designation)**  
 0.554 - PCB Result, mg/kg

— **Site Boundary**

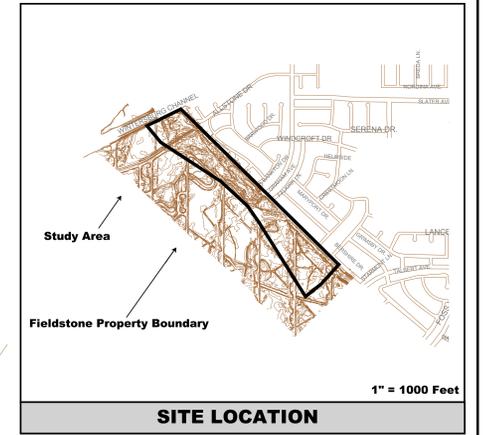
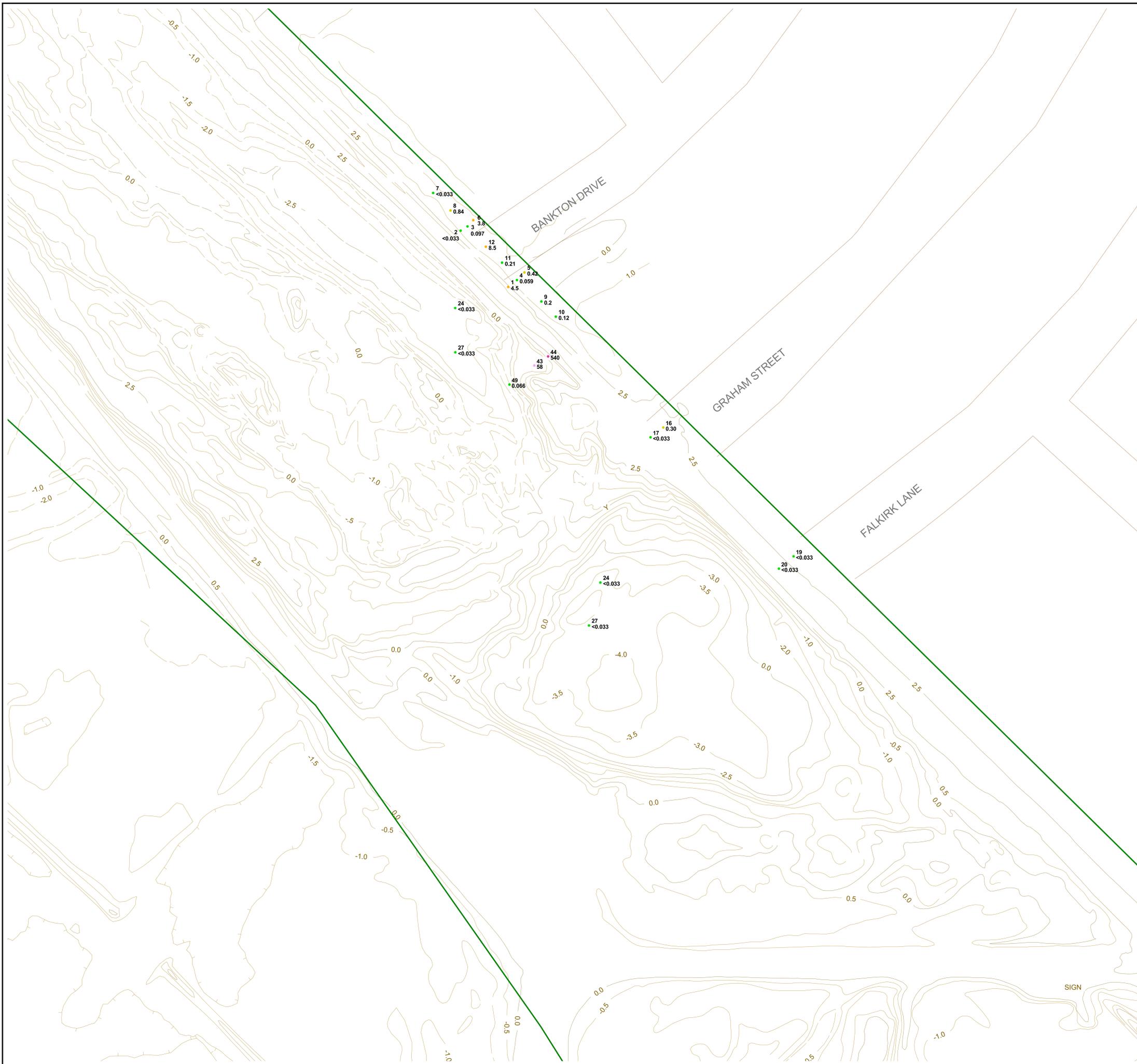
Notes:

- Soil sample results are compiled from the following sampling events:  
 April 1999, October 1999, April 2001, November 2001.  
 Non-detect values are indicated to be less than the detection limit (e.g., <0.033)
- References for Topographic Map:  
 -Williamson and Schmid Consulting Civil Engineers and Land Surveyors,  
 July 1988, As Modified By Moffatt and Nichol Engineers, October 1999.  
 -Original Topography Compiled by Williamson and Schmid from 100-Scale Aerial  
 Photography by San-LO Aerial Surveys, on 17 September 1980 and 26 July 1988.
- References for Streets:  
 -Adapted from United States Geological Survey 7.5 Minute Seal Beach, California  
 Quadrangle, 1:24,000 Scale.  
 -Survey Coordinates are Referenced to North American Datum (NAD) of 1927 and  
 National Geodetic Vertical Datum (NGVD) of 1929 Mean Sea Level.



PROJECT:  
 FIELDSTONE

TITLE:  
 Figure 2-9  
 PCB Results (6 to 12 inches bgs)



**LEGEND**

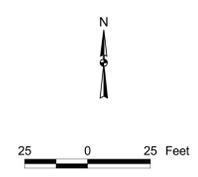
**Concentration Key**

- 0 - <math><0.22</math>
  - 0.22 - <math><1.0</math>
  - 1.0 - <math><50</math>
  - 50 - <math><500</math>
  - 500 - <math><1000</math>
  - >1000
- Tapo-labels.shp

- 49 - Results (49 - Location Designation)
- 0.066 - PCB Result, mg/kg
- Site Boundary

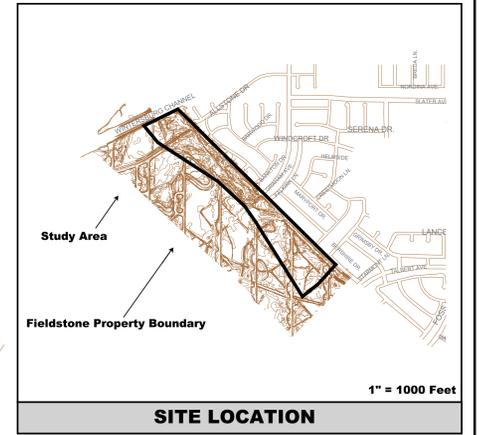
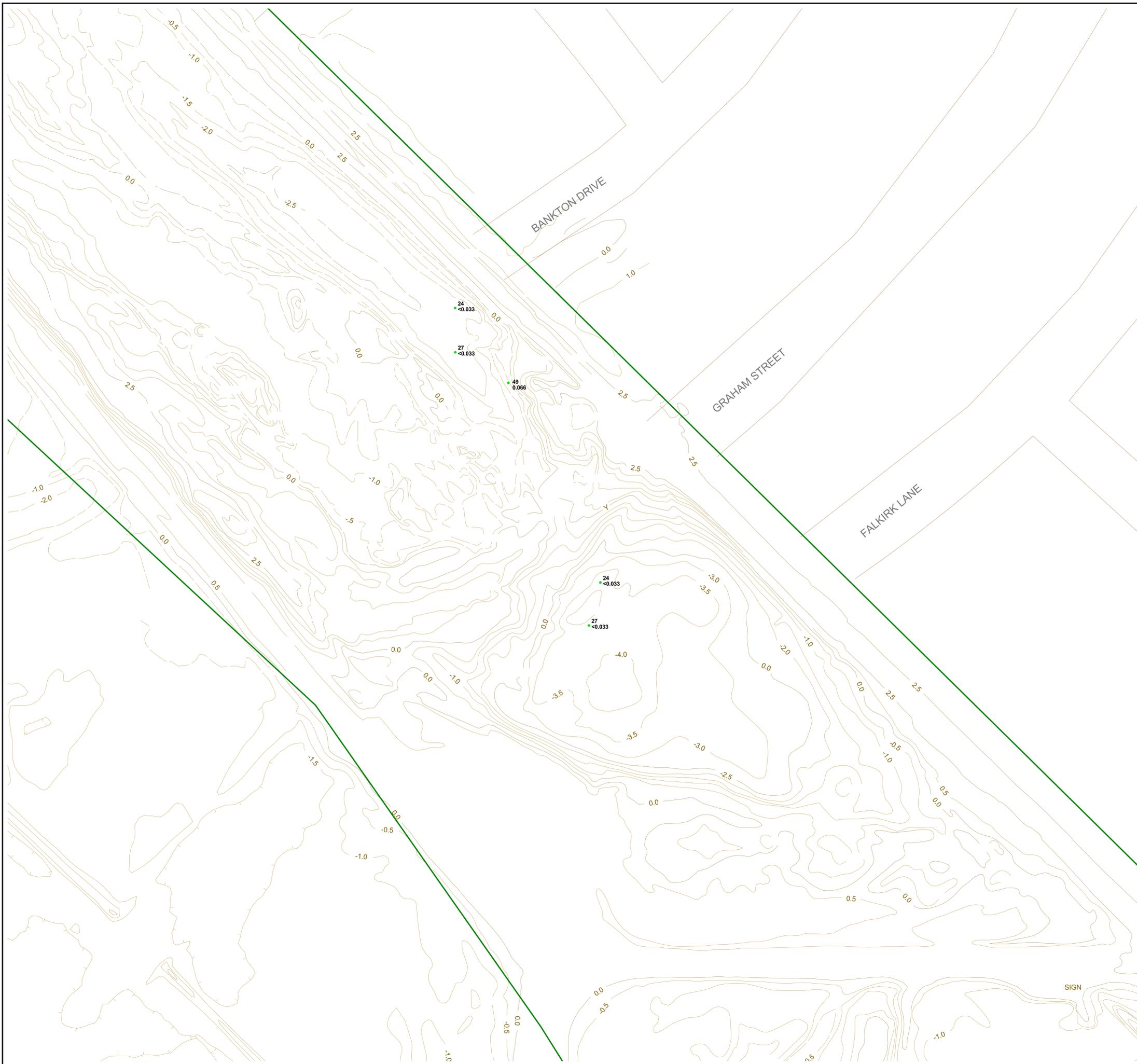
Notes:

- Soil sample results are compiled from the following sampling events: April 1999, October 1999, April 2001, November 2001. Non-detect values are indicated to be less than the detection limit (e.g., <math><0.033</math>).
- References for Topographic Map:
  - Williamson and Schmid Consulting Civil Engineers and Land Surveyors, July 1986, As Modified By Moffatt and Nichol Engineers, October 1999.
  - Original Topography Compiled by Williamson and Schmid from 100-Scale Aerial Photography by San-LO Aerial Surveys, on 17 September 1980 and 28 July 1986.
- References for Streets:
  - Adapted from United States Geological Survey 7.5 Minute Seal Beach, California Quadrangle, 1:24,000 Scale.
  - Survey Coordinates are Referenced to North American Datum (NAD) of 1927 and National Geodetic Vertical Datum (NGVD) of 1929 Mean Sea Level.



PROJECT: **FIELDSTONE**

TITLE: **Figure 2-10a  
PCB Results (18 - 24 inches bgs)**



**LEGEND**

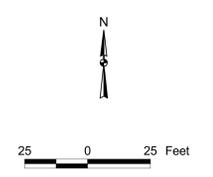
**Concentration Key**

49 • Results (49 - Location Designation)  
0.066 • PCB Result, mg/kg

— Site Boundary

Notes:

- Soil sample results are compiled from the following sampling events: April 1999, October 1999, April 2001, November 2001. Non-detect values are indicated to be less than the detection limit (e.g., <math><0.033</math>).
- References for Topographic Map:
  - Williamson and Schmid Consulting Civil Engineers and Land Surveyors, July 1986, As Modified By Moffatt and Nichol Engineers, October 1999.
  - Original Topography Compiled By Williamson and Schmid from 100-Scale Aerial Photography by San-LO Aerial Surveys, on 17 September 1980 and 28 July 1986.
- References for Streets:
  - Adapted from United States Geological Survey 7.5 Minute Seal Beach, California Quadrangle, 1:24,000 Scale.
  - Survey Coordinates are Referenced to North American Datum (NAD) of 1927 and National Geodetic Vertical Datum (NGVD) of 1929 Mean Sea Level.

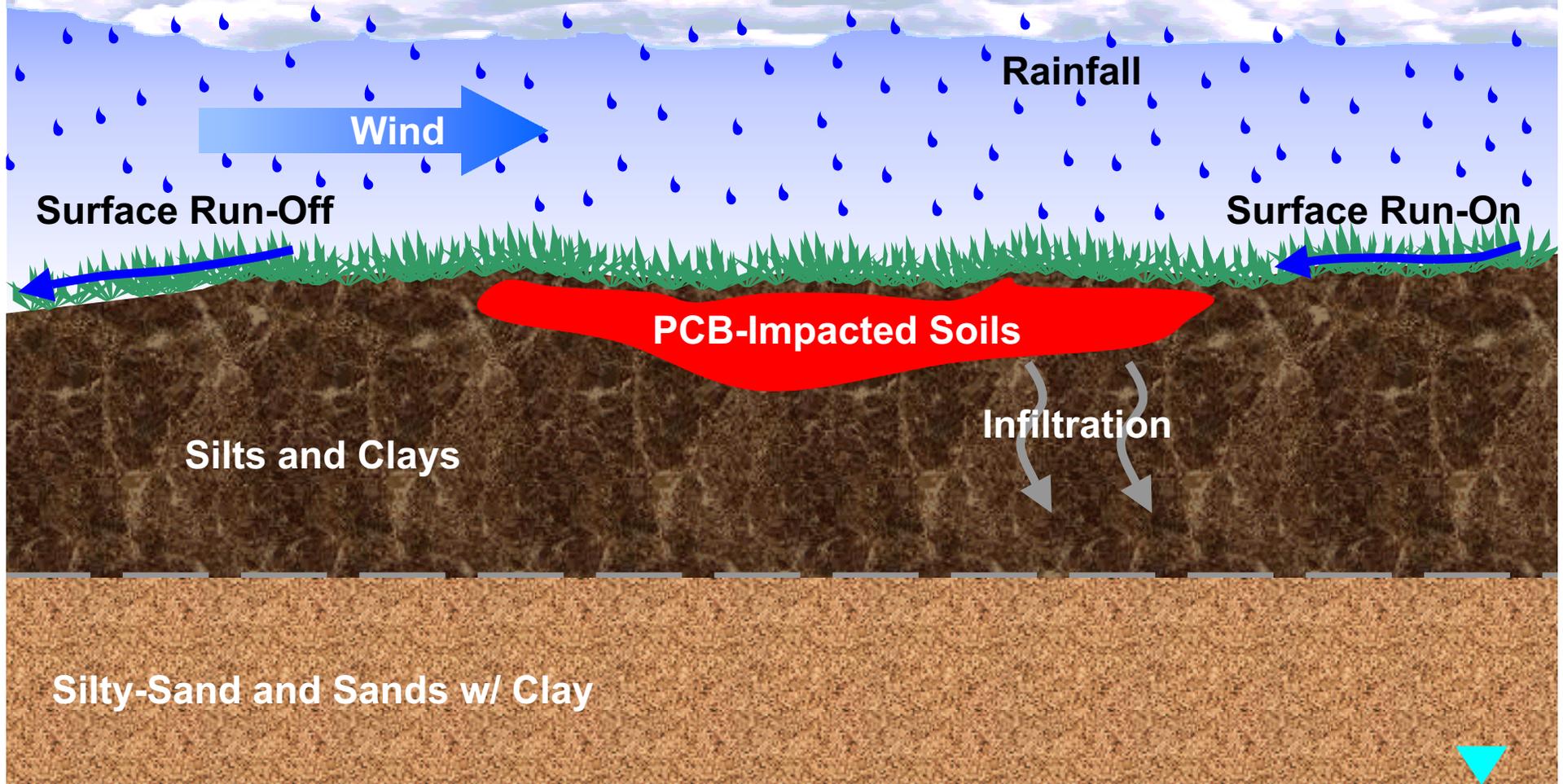


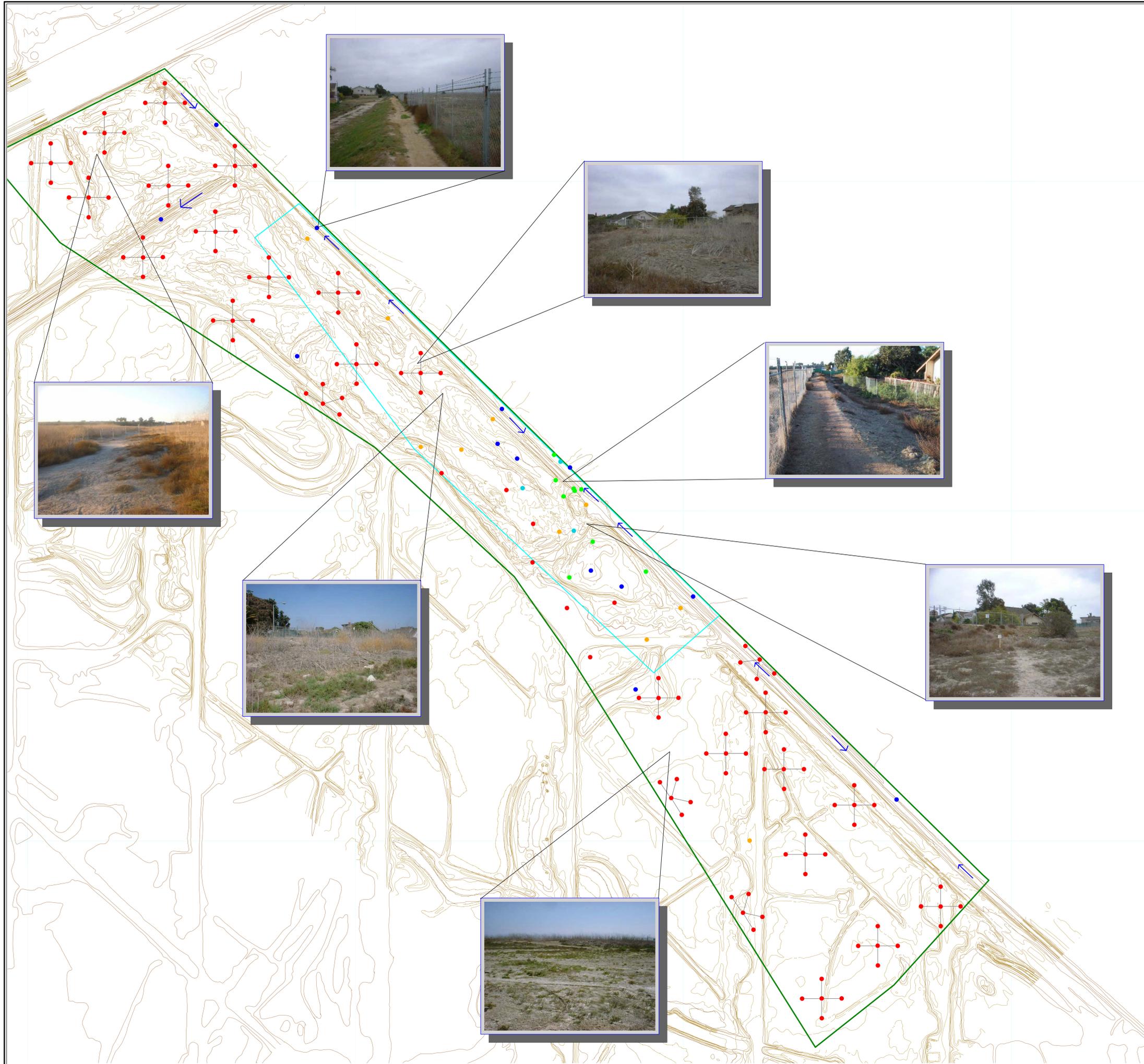
**GeoSyntec Consultants**

PROJECT: **FIELDSTONE**

TITLE: **Figure 2-10b  
PCB Results (42 - 48 inches bgs)**

# Figure 2-11 Preliminary Conceptual Site Model Fieldstone Property



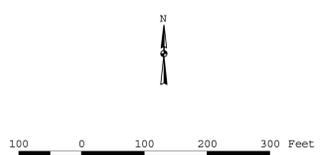


LEGEND

- Approximate Sample Locations
- Uncharacterized Site
  - Uncharacterized Site Composite
  - Debris (Locations May Vary Based on Debris Pile Locations) Pile Uncharacterized Site
  - Surface Water Drainage Area
  - Confirmation Sample
  - Direct Push Semi-Perched Groundwater Sample
  - General Surface Water Flow Direction
  - ▭ Site Boundary
  - ▭ Approximate Location of the Majority of Debris Piles

Note:

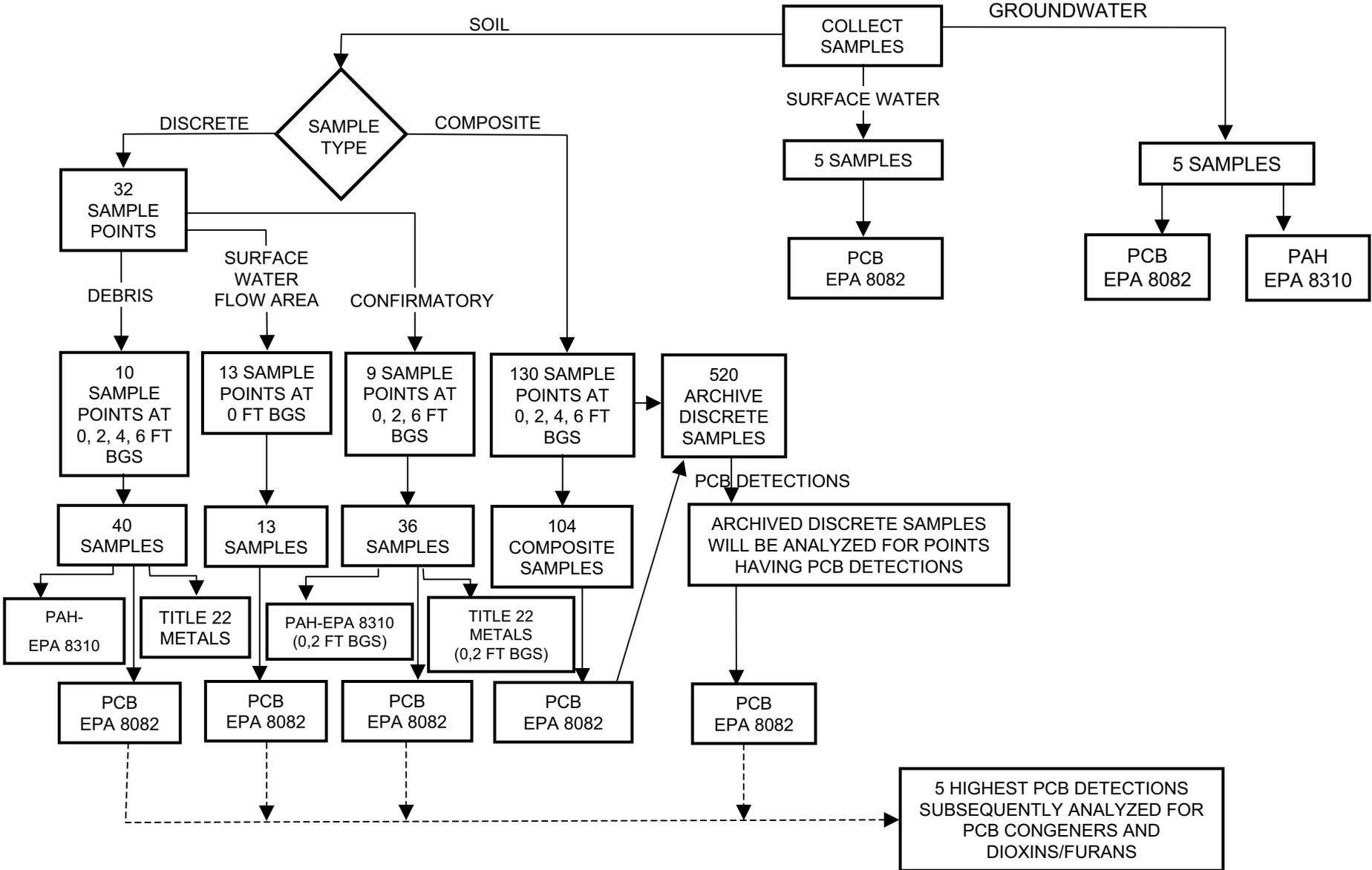
1. Locations are approximate. Actual sampling location will be approved by DTSC.
2. References for Topographic Map:
  - Williamson and Schmitt Consulting Civil Engineers and Land Surveyors, July 1986, As Modified by Moffatt and Wohl Engineers, October 1999.
  - Original Topography Compiled by Williamson and Schmitt from 100-foot Aerial Photography by San Joaquin Surveys on 17 September 1980 and 28 July 1986.
3. References for Streets:
  - Adapted from United States Geological Survey 7.5 Minute Seal Beach, California Quadrangle, 1:24,000 Scale.
  - Survey Coordinates are Referenced to North American Datum (NAD) 1927 and National Geodetic Vertical Datum (NGVD) 1929 Mean Sea Level.



PROJECT: FIELDSTONE

TITLE: Figure 3-1  
Remedial Investigation Sampling Locations  
Orange County, California

**FIGURE 3-2  
SAMPLE ANALYSES FLOWCHART  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**



Remedial Investigation Schedule  
Fieldstone Property  
Orange County, California

GeoSyntec Consultants

ID	Task Name	Start	Finish	Jul 03				Aug 03				Sep 03				Oct 03				Nov 03				Dec 03			
				29	6	13	20	27	3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23	30	7
1	RIW orkplan Review Process	Wed 7/31/02	Thu 7/31/03	[Task Bar]																							
2	DTSC Approval of RIW orkplan	Fri 8/1/03	Fri 8/1/03					[Milestone]																			
3	RI Fieldwork Preparation	Fri 8/1/03	Fri 9/5/03					[Task Bar]																			
4	Permitting	Fri 8/1/03	Fri 8/22/03					[Task Bar]																			
5	Contracting	Tue 8/12/03	Fri 8/22/03					[Task Bar]																			
6	Equipment Procurement	Mon 8/25/03	Fri 9/5/03					[Task Bar]																			
7	RI Fieldwork	Mon 9/8/03	Fri 10/10/03									[Task Bar]				Surface water sampling contingent upon precipitation.											
8	Soil Sampling	Mon 9/8/03	Fri 9/19/03									[Task Bar]															
9	Groundwater Sampling	Mon 10/6/03	Fri 10/10/03									[Task Bar]															
10	Data Evaluation	Mon 9/22/03	Mon 11/17/03									[Task Bar]															
11	Initial Soil Data Evaluation	Mon 9/22/03	Mon 10/6/03					[Task Bar]																			
12	Contingent Soil Analysis Data Evaluation	Tue 10/28/03	Mon 11/10/03									[Task Bar]															
13	Groundwater Data Evaluation	Fri 10/31/03	Mon 11/17/03									[Task Bar]															
14	RI Report Composition	Tue 11/18/03	Fri 12/12/03													[Task Bar]											
15	RI Report Submitted to DTSC	Fri 12/19/03	Fri 12/19/03													[Milestone]											

Project Date: 8/1/03      Task [ ]      Milestone [ ]

**APPENDIX A**  
**HISTORICAL SITE DATA**

**APPENDIX A-1**

**HISTORICAL SITE DATA**

**CALIFORNIA STATE LANDS**  
**COMMISSION DATA**

**STATE DATA SAMPLE RESULTS FOR CAR\_26\_1A  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
<b>INORGANICS</b>						
4/19/2000	0	0.5	6020	Lead	11	mg/Kg
4/19/2000	0	0.5	6020	Barium	55	mg/Kg
4/19/2000	0	0.5	6020	Beryllium	0.53	mg/Kg
4/19/2000	0	0.5	6020	Thallium	0.25	mg/Kg
4/19/2000	0	0.5	6020	Cadmium	ND < 0.1	mg/Kg
4/19/2000	0	0.5	6020	Zinc	45	mg/Kg
4/19/2000	0	0.5	6020	Chromium	23	mg/Kg
4/19/2000	0	0.5	6020	Nickel	14	mg/Kg
4/19/2000	0	0.5	6020	Silver	ND < 0.1	mg/Kg
4/19/2000	0	0.5	6020	Vanadium	57	mg/Kg
4/19/2000	0	0.5	6020	Cobalt	6	mg/Kg
4/19/2000	0	0.5	6020	Copper	12	mg/Kg
4/19/2000	0	0.5	7060	Arsenic	5.5	mg/Kg
4/19/2000	0	0.5	7471	Mercury	0.031 J	mg/Kg
4/19/2000	0	0.5	7740	Selenium	NA	mg/Kg
4/19/2000	0	0.5	9045B	pH	5.9	units
<b>ORGANICS</b>						
4/19/2000	0	0.5	1664	Oil and Grease	100 UJ	mg/Kg
4/19/2000	0	0.5	8081	Total PCB	NA	mg/Kg
4/19/2000	0	0.5	8081	Total DDT	NA	mg/Kg
4/19/2000	0	0.5	8081	Chlordane (technical)	NA	mg/Kg
4/19/2000	0	0.5	8081	Dieldrin	NA	mg/Kg
4/19/2000	0	0.5	8081	BHC-delta	NA	mg/Kg
4/19/2000	0	0.5	8081	Endosulfan I	ND < 0.0024	mg/Kg
4/19/2000	0	0.5	8081	Endrin	ND < 0.0006	mg/Kg
4/19/2000	0	0.5	8081	4,4'-DDT	ND < 0.0006	mg/Kg
4/19/2000	0	0.5	8081	BHC-beta	ND < 0.0006	mg/Kg
4/19/2000	0	0.5	8081	Aldrin	ND < 0.0006	mg/Kg
4/19/2000	0	0.5	8081	Endrin aldehyde	ND < 0.0006	mg/Kg
4/19/2000	0	0.5	8081	Endrin ketone	ND < 0.0006	mg/Kg
4/19/2000	0	0.5	8081	4,4'-DDD	ND < 0.0006	mg/Kg
4/19/2000	0	0.5	8081	Toxaphene	ND < 0.036	mg/Kg
4/19/2000	0	0.5	8081	BHC-gamma	ND < 0.0006	mg/Kg
4/19/2000	0	0.5	8081	Endosulfan II	ND < 0.0006	mg/Kg

**STATE DATA SAMPLE RESULTS FOR CAR\_26\_1A (continued)**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
4/19/2000	0	0.5	8081	PCB 1254	ND < 0.024	mg/Kg
4/19/2000	0	0.5	8081	4,4'-DDE	ND < 0.0006	mg/Kg
4/19/2000	0	0.5	8081	Chlordane-gamma	ND < 0.006	mg/Kg
4/19/2000	0	0.5	8081	PCB 1260	ND < 0.024	mg/Kg
4/19/2000	0	0.5	8081	BHC-alpha	NA	mg/Kg
4/19/2000	0	0.5	8081	Chlordane-alpha	NA	mg/Kg
4/19/2000	0	0.5	8081	PCB 1242	NA	mg/Kg
4/19/2000	0	0.5	8081	Endosulfan Sulfate	NA	mg/Kg
4/19/2000	0	0.5	8015-E	TPH-Diesel	ND < 12	mg/Kg
4/19/2000	0	0.5	8015-E	Waste oil	ND < 24	mg/Kg
4/19/2000	0	0.5	8270B	Total phthalate esters	0.067	mg/Kg
4/19/2000	0	0.5	8270B	Low MW PAHs	NA	mg/Kg
4/19/2000	0	0.5	8270B	High MW PAHs	NA	mg/Kg
4/19/2000	0	0.5	8270B	Total PAHs	NA	mg/Kg
4/19/2000	0	0.5	8270B	Benzo(e)pyrene	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Bis(2-ethylhexyl)phthalate	0.056	mg/Kg
4/19/2000	0	0.5	8270B	Dimethylphthalate	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Phenanthrene	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Acenaphthylene	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Di-n-octylphthalate	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Indeno(1,2,3-c,d)pyrene	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Naphthalene	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Fluoranthene	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Benzo(b)fluoranthene	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Pyrene	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Anthracene	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Benzo(k)fluoranthene	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Diethylphthalate	0.011	mg/Kg
4/19/2000	0	0.5	8270B	Benzo(a)anthracene	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Acenaphthene	NA	mg/Kg
4/19/2000	0	0.5	8270B	Dibenz(a,h)anthracene	NA	mg/Kg
4/19/2000	0	0.5	8270B	Fluorene	NA	mg/Kg
4/19/2000	0	0.5	8270B	Butylbenzylphthalate	NA	mg/Kg
4/19/2000	0	0.5	8270B	Benzo(g,h,i)perylene	NA	mg/Kg
4/19/2000	0	0.5	8270B	Chrysene	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Di-n-butylphthalate	ND < 0.0089	mg/Kg
4/19/2000	0	0.5	8270B	Benzo(a)pyrene	ND < 0.0089	mg/Kg

**STATE DATA SAMPLE RESULTS FOR CAR\_26\_1B  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
<b>INORGANICS</b>						
4/19/2000	2.5	6	7060	Arsenic	ND < 6.2	mg/Kg
4/19/2000	2.5	6	7421	Lead	9.1	mg/Kg
4/19/2000	2.5	6	7471	Mercury	ND < 0.27	mg/Kg
4/19/2000	2.5	6	7740	Selenium	ND < 1.2	mg/Kg
4/19/2000	2.5	6	7841	Thallium	ND < 1.2	mg/Kg
4/19/2000	2.5	6	6010A	Copper	19.2	mg/Kg
4/19/2000	2.5	6	6010A	Cadmium	ND < 1.4	mg/Kg
4/19/2000	2.5	6	6010A	Barium	92.3	mg/Kg
4/19/2000	2.5	6	6010A	Zinc	73.3	mg/Kg
4/19/2000	2.5	6	6010A	Silver	ND < 1.4	mg/Kg
4/19/2000	2.5	6	6010A	Nickel	18.6	mg/Kg
4/19/2000	2.5	6	6010A	Vanadium	55.1	mg/Kg
4/19/2000	2.5	6	6010A	Chromium	25.7	mg/Kg
4/19/2000	2.5	6	6010A	Cobalt	11.7	mg/Kg
4/19/2000	2.5	6	6010A	Beryllium	ND < 1.4	mg/Kg
<b>ORGANICS</b>						
4/19/2000	2.5	6	8015-E	Waste oil	ND < 27	mg/Kg
4/19/2000	2.5	6	8015-E	TPH-Diesel	ND < 14	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R41C1-1  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
<b>INORGANICS</b>						
10/6/1998	0	0.5	300	Sulfate	5830	mg/Kg
10/6/1998	0	0.5	350.2	Ammonia as Nitrogen	11	mg/Kg
10/6/1998	0	0.5	GAUDETTE	Total organic carbon	0.79	Percent
10/6/1998	0	0.5	120.1	Specific conductance	1000	umhos
10/6/1998	0	0.5	160.4	Total volatile solids	5.4	Percent
10/6/1998	0	0.5	9045B	pH	7.5	units
10/6/1998	0	0.5	6020	Lead	70	mg/Kg
10/6/1998	0	0.5	6020	Nickel	27	mg/Kg
10/6/1998	0	0.5	6020	Thallium	0.63	mg/Kg
10/6/1998	0	0.5	6020	Barium	120	mg/Kg
10/6/1998	0	0.5	6020	Beryllium	1.1	mg/Kg
10/6/1998	0	0.5	6020	Cadmium	0.27	mg/Kg
10/6/1998	0	0.5	6020	Chromium	46	mg/Kg
10/6/1998	0	0.5	6020	Cobalt	12	mg/Kg
10/6/1998	0	0.5	6020	Copper	27	mg/Kg
10/6/1998	0	0.5	6020	Vanadium	120	mg/Kg
10/6/1998	0	0.5	6020	Zinc	130	mg/Kg
10/6/1998	0	0.5	6020	Silver	ND < 0.1	mg/Kg
10/6/1998	0	0.5	7061	Arsenic	9.4	mg/Kg
10/6/1998	0	0.5	7471	Mercury	0.033	mg/Kg
10/6/1998	0	0.5	7741	Selenium	0.2	mg/Kg
<b>ORGANICS</b>						
10/6/1998	0	0.5	1664	Oil and Grease	ND < 100	mg/Kg
10/6/1998	0	0.5	8081	Total DDT	0.00048	mg/Kg
10/6/1998	0	0.5	8081	Total PCB	NA	mg/Kg
10/6/1998	0	0.5	8081	BHC-beta	0.00695	mg/Kg
10/6/1998	0	0.5	8081	4,4'-DDE	0.00048	mg/Kg
10/6/1998	0	0.5	8081	Endosulfan Sulfate	ND < 0.0063	mg/Kg
10/6/1998	0	0.5	8081	PCB 1260	ND < 0.013	mg/Kg
10/6/1998	0	0.5	8081	PCB 1254	ND < 0.013	mg/Kg
10/6/1998	0	0.5	8081	Chlordane (technical)	ND < 0.0032	mg/Kg
10/6/1998	0	0.5	8081	PCB 209	ND < 0.0032	mg/Kg
10/6/1998	0	0.5	8081	Aldrin	ND < 0.00032	mg/Kg
10/6/1998	0	0.5	8081	PCB 118	ND < 0.0063	mg/Kg
10/6/1998	0	0.5	8081	BHC-alpha	ND < 0.00032	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R41C1-1 (continued)**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
10/6/1998	0	0.5	8081	BHC-delta	ND < 0.00032	mg/Kg
10/6/1998	0	0.5	8081	PCB 066	ND < 0.013	mg/Kg
10/6/1998	0	0.5	8081	PCB 105	ND < 0.0063	mg/Kg
10/6/1998	0	0.5	8081	Endosulfan II	ND < 0.00032	mg/Kg
10/6/1998	0	0.5	8081	PCB 008	ND < 0.013	mg/Kg
10/6/1998	0	0.5	8081	PCB 153	ND < 0.0063	mg/Kg
10/6/1998	0	0.5	8081	PCB 138	ND < 0.0063	mg/Kg
10/6/1998	0	0.5	8081	PCB 180	ND < 0.0032	mg/Kg
10/6/1998	0	0.5	8081	PCB 170	ND < 0.0032	mg/Kg
10/6/1998	0	0.5	8081	PCB 052	ND < 0.013	mg/Kg
10/6/1998	0	0.5	8081	PCB 018	ND < 0.013	mg/Kg
10/6/1998	0	0.5	8081	PCB 101	ND < 0.013	mg/Kg
10/6/1998	0	0.5	8081	PCB 128	ND < 0.0063	mg/Kg
10/6/1998	0	0.5	8081	PCB 206	ND < 0.0032	mg/Kg
10/6/1998	0	0.5	8081	PCB 044	ND < 0.013	mg/Kg
10/6/1998	0	0.5	8081	4,4'-DDT	ND < 0.00032	mg/Kg
10/6/1998	0	0.5	8081	Chlordane-alpha	ND < 0.0032	mg/Kg
10/6/1998	0	0.5	8081	Chlordane-gamma	ND < 0.0032	mg/Kg
10/6/1998	0	0.5	8081	PCB 187	ND < 0.0063	mg/Kg
10/6/1998	0	0.5	8081	PCB 195	ND < 0.0032	mg/Kg
10/6/1998	0	0.5	8081	PCB 1242	ND < 0.013	mg/Kg
10/6/1998	0	0.5	8081	Endrin ketone	ND < 0.00032	mg/Kg
10/6/1998	0	0.5	8081	BHC-gamma	ND < 0.00032	mg/Kg
10/6/1998	0	0.5	8081	Dieldrin	ND < 0.00032	mg/Kg
10/6/1998	0	0.5	8081	PCB 028	ND < 0.013	mg/Kg
10/6/1998	0	0.5	8081	Endrin	ND < 0.00032	mg/Kg
10/6/1998	0	0.5	8081	4,4'-DDD	ND < 0.00032	mg/Kg
10/6/1998	0	0.5	8081	Endrin aldehyde	ND < 0.00032	mg/Kg
10/6/1998	0	0.5	8081	Toxaphene	ND < 0.019	mg/Kg
10/6/1998	0	0.5	8081	Endosulfan I	ND < 0.0013	mg/Kg
10/6/1998	0	0.5	9030	Sulfide	ND < 0.1	mg/Kg
10/6/1998	0	0.5	8015 Modified	TPHDWO	33	mg/Kg
10/6/1998	0	0.5	8015 Modified	TPH-Diesel	14	mg/Kg
10/6/1998	0	0.5	8015 Modified	Waste oil	19 J	mg/Kg
10/6/1998	0	0.5	8270B	High MW PAHs	NA	mg/Kg
10/6/1998	0	0.5	8270B	Low MW PAHs	NA	mg/Kg
10/6/1998	0	0.5	8270B	Total PAHs	NA	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R41C1-1 (continued)**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
10/6/1998	0	0.5	8270B	Total phenol	NA	mg/Kg
10/6/1998	0	0.5	8270B	Total phthalate esters	0.03	mg/Kg
10/6/1998	0	0.5	8270B	ethylhexylphthalate	ND < 0.095	mg/Kg
10/6/1998	0	0.5	8270B	Di-n-octylphthalate	0.018 J	mg/Kg
10/6/1998	0	0.5	8270B	Diethylphthalate	ND < 0.027	mg/Kg
10/6/1998	0	0.5	8270B	Di-n-butylphthalate	ND < 0.12	mg/Kg
10/6/1998	0	0.5	8270B	Butylbenzylphthalate	0.012	mg/Kg
10/6/1998	0	0.5	8270B	4-Nitrophenol	ND < 0.063	mg/Kg
10/6/1998	0	0.5	8270B	2,4-Dimethylphenol	ND < 0.025	mg/Kg
10/6/1998	0	0.5	8270B	4-Methylphenol	ND < 0.063	mg/Kg
10/6/1998	0	0.5	8270B	Phenol	ND < 0.063	mg/Kg
10/6/1998	0	0.5	8270B	Anthracene	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	2,4-Dichlorophenol	0.013 UJ	mg/Kg
10/6/1998	0	0.5	8270B	Pyrene	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	Dimethylphthalate	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	Benzo(g,h,i)perylene	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	Indeno(1,2,3-c,d)pyrene	ND < 0.013	mg/Kg
10/6/1998	0	0.5	8270B	Benzo(b)fluoranthene	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	Fluoranthene	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	Benzo(k)fluoranthene	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	Acenaphthylene	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	Chrysene	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	Benzo(a)pyrene	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	2,4-Dinitrophenol	ND < 0.063	mg/Kg
10/6/1998	0	0.5	8270B	Dibenz(a,h)anthracene	ND < 0.013	mg/Kg
10/6/1998	0	0.5	8270B	methylphenol	ND < 0.063	mg/Kg
10/6/1998	0	0.5	8270B	Benzo(a)anthracene	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	4-Chloro-3-methylphenol	ND < 0.013	mg/Kg
10/6/1998	0	0.5	8270B	Acenaphthene	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	Phenanthrene	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	Fluorene	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	Pentachlorophenol	ND < 0.063	mg/Kg
10/6/1998	0	0.5	8270B	2,4,6-Trichlorophenol	ND < 0.013	mg/Kg
10/6/1998	0	0.5	8270B	2-Nitrophenol	0.025 UJ	mg/Kg
10/6/1998	0	0.5	8270B	Naphthalene	ND < 0.0095	mg/Kg
10/6/1998	0	0.5	8270B	2-Methylphenol	ND < 0.025	mg/Kg
10/6/1998	0	0.5	8270B	2-Chlorophenol	ND < 0.025	mg/Kg
10/6/1998	0	0.5	8270B	2,4,5-Trichlorophenol	ND < 0.013	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R41C1-2  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
<b>INORGANICS</b>						
10/6/1998	2.5	6	7060	Arsenic	ND < 6.7	mg/Kg
10/6/1998	2.5	6	7421	Lead	9.3	mg/Kg
10/6/1998	2.5	6	7471	Mercury	ND < 0.27	mg/Kg
10/6/1998	2.5	6	7740	Selenium	ND < 6.7	mg/Kg
10/6/1998	2.5	6	7841	Thallium	ND < 6.7	mg/Kg
10/6/1998	2.5	6	9060	Total organic carbon	1540	mg/Kg
10/6/1998	2.5	6	6010A	Nickel	17.3	mg/Kg
10/6/1998	2.5	6	6010A	Barium	142	mg/Kg
10/6/1998	2.5	6	6010A	Chromium	23.2	mg/Kg
10/6/1998	2.5	6	6010A	Cobalt	10.9	mg/Kg
10/6/1998	2.5	6	6010A	Vanadium	50.4	mg/Kg
10/6/1998	2.5	6	6010A	Zinc	72.5	mg/Kg
10/6/1998	2.5	6	6010A	Copper	22.3	mg/Kg
10/6/1998	2.5	6	6010A	Silver	ND < 1.3	mg/Kg
10/6/1998	2.5	6	6010A	Beryllium	ND < 1.3	mg/Kg
10/6/1998	2.5	6	6010A	Cadmium	ND < 1.3	mg/Kg
<b>ORGANICS</b>						
10/6/1998	2.5	6	8015 Modified	TPH-Diesel	ND < 13	mg/Kg
10/6/1998	2.5	6	8270B	High MW PAHs	NA	mg/Kg
10/6/1998	2.5	6	8270B	Low MW PAHs	NA	mg/Kg
10/6/1998	2.5	6	8270B	Total PAHs	NA	mg/Kg
10/6/1998	2.5	6	8270B	Total phthalate esters	NA	mg/Kg
10/6/1998	2.5	6	8270B	Bis(2-ethylhexyl)phthalate	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Di-n-octylphthalate	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Anthracene	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Pyrene	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Dimethylphthalate	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Benzo(g,h,i)perylene	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Indeno(1,2,3-c,d)pyrene	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Benzo(b)fluoranthene	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Fluoranthene	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Benzo(k)fluoranthene	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Chrysene	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Benzo(a)pyrene	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Dibenz(a,h)anthracene	ND < 0.53	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R41C1-2 (continued)**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

<b>SAMPLE DATE</b>	<b>DEPTH FROM (FT)</b>	<b>DEPTH TO (FT)</b>	<b>EPA METHOD</b>	<b>ANALYTE</b>	<b>RESULT</b>	<b>UNITS</b>
10/6/1998	2.5	6	8270B	Benzo(a)anthracene	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Diethylphthalate	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Di-n-butylphthalate	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Phenanthrene	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Butylbenzylphthalate	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Fluorene	ND < 0.53	mg/Kg
10/6/1998	2.5	6	8270B	Naphthalene	ND < 0.53	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R42C1-1  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
<b>INORGANICS</b>						
10/1/1998	0	0.5	9045B	pH	7	units
10/1/1998	0	0.5	120.1	Specific conductance	690	umhos
10/1/1998	0	0.5	160.4	Total volatile solids	7.7	Percent
10/1/1998	0	0.5	300	Sulfate	3650	mg/Kg
10/1/1998	0	0.5	350.2	Ammonia as Nitrogen	21	mg/Kg
10/1/1998	0	0.5	GAUDETTE	Total organic carbon	0.81	Percent
10/1/1998	0	0.5	6020	Lead	62	mg/Kg
10/1/1998	0	0.5	6020	Nickel	27	mg/Kg
10/1/1998	0	0.5	6020	Thallium	0.65	mg/Kg
10/1/1998	0	0.5	6020	Barium	210	mg/Kg
10/1/1998	0	0.5	6020	Beryllium	0.87	mg/Kg
10/1/1998	0	0.5	6020	Cadmium	0.4	mg/Kg
10/1/1998	0	0.5	6020	Chromium	41	mg/Kg
10/1/1998	0	0.5	6020	Cobalt	9.7	mg/Kg
10/1/1998	0	0.5	6020	Copper	26	mg/Kg
10/1/1998	0	0.5	6020	Vanadium	84	mg/Kg
10/1/1998	0	0.5	6020	Zinc	140	mg/Kg
10/1/1998	0	0.5	6020	Silver	ND < 0.1	mg/Kg
10/1/1998	0	0.5	7061	Arsenic	6.3	mg/Kg
10/1/1998	0	0.5	7471	Mercury	0.039	mg/Kg
10/1/1998	0	0.5	7741	Selenium	0.23	mg/Kg
<b>ORGANICS</b>						
10/1/1998	0	0.5	1664	Oil and Grease	260	mg/Kg
10/1/1998	0	0.5	8081	Total DDT	0.049	mg/Kg
10/1/1998	0	0.5	8081	Total PCB	NA	mg/Kg
10/1/1998	0	0.5	8081	4,4'-DDD	0.024	mg/Kg
10/1/1998	0	0.5	8081	4,4'-DDE	0.025	mg/Kg
10/1/1998	0	0.5	8081	Endosulfan Sulfate	ND < 0.0062	mg/Kg
10/1/1998	0	0.5	8081	PCB 1260	ND < 0.012	mg/Kg
10/1/1998	0	0.5	8081	PCB 1254	ND < 0.012	mg/Kg
10/1/1998	0	0.5	8081	Chlordane (technical)	ND < 0.0031	mg/Kg
10/1/1998	0	0.5	8081	PCB 209	ND < 0.0031	mg/Kg
10/1/1998	0	0.5	8081	Aldrin	ND < 0.00031	mg/Kg
10/1/1998	0	0.5	8081	PCB 118	ND < 0.0062	mg/Kg
10/1/1998	0	0.5	8081	BHC-alpha	ND < 0.00031	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R42C1-1 (continued)**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
10/1/1998	0	0.5	8081	PCB 008	ND < 0.012	mg/Kg
10/1/1998	0	0.5	8081	PCB 153	ND < 0.0062	mg/Kg
10/1/1998	0	0.5	8081	PCB 138	ND < 0.0062	mg/Kg
10/1/1998	0	0.5	8081	PCB 180	ND < 0.0031	mg/Kg
10/1/1998	0	0.5	8081	PCB 170	ND < 0.0031	mg/Kg
10/1/1998	0	0.5	8081	PCB 052	ND < 0.012	mg/Kg
10/1/1998	0	0.5	8081	PCB 018	ND < 0.012	mg/Kg
10/1/1998	0	0.5	8081	PCB 101	ND < 0.012	mg/Kg
10/1/1998	0	0.5	8081	PCB 128	ND < 0.0062	mg/Kg
10/1/1998	0	0.5	8081	PCB 206	ND < 0.0031	mg/Kg
10/1/1998	0	0.5	8081	PCB 044	ND < 0.012	mg/Kg
10/1/1998	0	0.5	8081	4,4'-DDT	ND < 0.00031	mg/Kg
10/1/1998	0	0.5	8081	Chlordane-alpha	ND < 0.0031	mg/Kg
10/1/1998	0	0.5	8081	Chlordane-gamma	ND < 0.0031	mg/Kg
10/1/1998	0	0.5	8081	PCB 187	ND < 0.0062	mg/Kg
10/1/1998	0	0.5	8081	PCB 195	ND < 0.0031	mg/Kg
10/1/1998	0	0.5	8081	PCB 1242	ND < 0.012	mg/Kg
10/1/1998	0	0.5	8081	Endrin ketone	ND < 0.00031	mg/Kg
10/1/1998	0	0.5	8081	BHC-gamma	ND < 0.00031	mg/Kg
10/1/1998	0	0.5	8081	Dieldrin	ND < 0.00031	mg/Kg
10/1/1998	0	0.5	8081	PCB 028	ND < 0.012	mg/Kg
10/1/1998	0	0.5	8081	Endrin	ND < 0.00031	mg/Kg
10/1/1998	0	0.5	8081	Endrin aldehyde	ND < 0.00031	mg/Kg
10/1/1998	0	0.5	8081	Toxaphene	ND < 0.019	mg/Kg
10/1/1998	0	0.5	8081	Endosulfan I	ND < 0.0012	mg/Kg
10/1/1998	0	0.5	9030	Sulfide, Dissolved	ND < 0.1	mg/Kg
10/1/1998	0	0.5	9030	Sulfide	ND < 0.1	mg/Kg
10/1/1998	0	0.5	8015 Modified	TPHDWO	112	mg/Kg
10/1/1998	0	0.5	8015 Modified	TPH-Diesel	28	mg/Kg
10/1/1998	0	0.5	8015 Modified	Waste oil	84 J	mg/Kg
10/1/1998	0	0.5	8270B	High MW PAHs	0.055	mg/Kg
10/1/1998	0	0.5	8270B	Low MW PAHs	NA	mg/Kg
10/1/1998	0	0.5	8270B	Total PAHs	0.055	mg/Kg
10/1/1998	0	0.5	8270B	Total phenol	NA	mg/Kg
10/1/1998	0	0.5	8270B	Total phthalate esters	0.087	mg/Kg
10/1/1998	0	0.5	8270B	Bis(2-ethylhexyl)phthalate	ND < 0.12	mg/Kg
10/1/1998	0	0.5	8270B	Di-n-octylphthalate	0.054 J	mg/Kg
10/1/1998	0	0.5	8270B	Pyrene	0.011	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R42C1-1 (continued)**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
10/1/1998	0	0.5	8270B	Butylbenzylphthalate	0.033	mg/Kg
10/1/1998	0	0.5	8270B	4-Nitrophenol	ND < 0.062	mg/Kg
10/1/1998	0	0.5	8270B	2,4-Dimethylphenol	ND < 0.025	mg/Kg
10/1/1998	0	0.5	8270B	4-Methylphenol	ND < 0.062	mg/Kg
10/1/1998	0	0.5	8270B	Phenol	ND < 0.062	mg/Kg
10/1/1998	0	0.5	8270B	Anthracene	ND < 0.0093	mg/Kg
10/1/1998	0	0.5	8270B	2,4-Dichlorophenol	0.012 UJ	mg/Kg
10/1/1998	0	0.5	8270B	Dimethylphthalate	ND < 0.0093	mg/Kg
10/1/1998	0	0.5	8270B	Indeno(1,2,3-c,d)pyrene	ND < 0.012	mg/Kg
10/1/1998	0	0.5	8270B	Benzo(b)fluoranthene	ND < 0.0093	mg/Kg
10/1/1998	0	0.5	8270B	Benzo(k)fluoranthene	ND < 0.0093	mg/Kg
10/1/1998	0	0.5	8270B	Acenaphthylene	ND < 0.0093	mg/Kg
10/1/1998	0	0.5	8270B	Benzo(a)pyrene	ND < 0.0093	mg/Kg
10/1/1998	0	0.5	8270B	2,4-Dinitrophenol	ND < 0.062	mg/Kg
10/1/1998	0	0.5	8270B	Dibenz(a,h)anthracene	ND < 0.012	mg/Kg
10/1/1998	0	0.5	8270B	4,6-Dinitro-2-methylphenol	ND < 0.062	mg/Kg
10/1/1998	0	0.5	8270B	Benzo(a)anthracene	ND < 0.0093	mg/Kg
10/1/1998	0	0.5	8270B	4-Chloro-3-methylphenol	ND < 0.012	mg/Kg
10/1/1998	0	0.5	8270B	Acenaphthene	ND < 0.0093	mg/Kg
10/1/1998	0	0.5	8270B	Phenanthrene	ND < 0.0093	mg/Kg
10/1/1998	0	0.5	8270B	Fluorene	ND < 0.0093	mg/Kg
10/1/1998	0	0.5	8270B	Pentachlorophenol	ND < 0.062	mg/Kg
10/1/1998	0	0.5	8270B	2,4,6-Trichlorophenol	ND < 0.012	mg/Kg
10/1/1998	0	0.5	8270B	2-Nitrophenol	0.025 UJ	mg/Kg
10/1/1998	0	0.5	8270B	Naphthalene	ND < 0.0093	mg/Kg
10/1/1998	0	0.5	8270B	2-Methylphenol	ND < 0.025	mg/Kg
10/1/1998	0	0.5	8270B	2-Chlorophenol	ND < 0.025	mg/Kg
10/1/1998	0	0.5	8270B	2,4,5-Trichlorophenol	ND < 0.012	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R42C1-2  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
<b>INORGANICS</b>						
10/1/1998	2.5	6	7060	Arsenic	17	mg/Kg
10/1/1998	2.5	6	7421	Lead	32.7	mg/Kg
10/1/1998	2.5	6	7471	Mercury	ND < 0.26	mg/Kg
10/1/1998	2.5	6	7740	Selenium	ND < 6.6	mg/Kg
10/1/1998	2.5	6	7841	Thallium	ND < 6.6	mg/Kg
10/1/1998	2.5	6	9060	Total organic carbon	3180	mg/Kg
10/1/1998	2.5	6	6010A	Nickel	13.9	mg/Kg
10/1/1998	2.5	6	6010A	Barium	75.9	mg/Kg
10/1/1998	2.5	6	6010A	Chromium	26.4	mg/Kg
10/1/1998	2.5	6	6010A	Cobalt	7.9	mg/Kg
10/1/1998	2.5	6	6010A	Vanadium	49.8	mg/Kg
10/1/1998	2.5	6	6010A	Zinc	61.1	mg/Kg
10/1/1998	2.5	6	6010A	Copper	20.4	mg/Kg
10/1/1998	2.5	6	6010A	Silver	ND < 1.3	mg/Kg
10/1/1998	2.5	6	6010A	Beryllium	ND < 1.3	mg/Kg
10/1/1998	2.5	6	6010A	Cadmium	ND < 1.3	mg/Kg
<b>ORGANICS</b>						
10/1/1998	2.5	6	8015 Modified	TPH-Diesel	ND < 13	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R47C1-1  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
<b>INORGANICS</b>						
10/7/1998	0	0.5	9045B	pH	8.8	units
10/7/1998	0	0.5	120.1	Specific conductance	2100	umhos
10/7/1998	0	0.5	160.3	Percent solids	100	Percent
10/7/1998	0	0.5	160.4	Total volatile solids	4.6	Percent
10/7/1998	0	0.5	300.0	Sulfate	3500	mg/Kg
10/7/1998	0	0.5	350.2	Ammonia as Nitrogen	11	mg/Kg
10/7/1998	0	0.5	GAUDETTE	Total organic carbon	0.83	Percent
10/7/1998	0	0.5	6020	Lead	12	mg/Kg
10/7/1998	0	0.5	6020	Nickel	23	mg/Kg
10/7/1998	0	0.5	6020	Thallium	0.37	mg/Kg
10/7/1998	0	0.5	6020	Barium	110	mg/Kg
10/7/1998	0	0.5	6020	Beryllium	0.81 J	mg/Kg
10/7/1998	0	0.5	6020	Cadmium	0.19	mg/Kg
10/7/1998	0	0.5	6020	Chromium	40 J	mg/Kg
10/7/1998	0	0.5	6020	Cobalt	11	mg/Kg
10/7/1998	0	0.5	6020	Copper	24	mg/Kg
10/7/1998	0	0.5	6020	Vanadium	97 J	mg/Kg
10/7/1998	0	0.5	6020	Zinc	110	mg/Kg
10/7/1998	0	0.5	6020	Silver	ND < 0.1	mg/Kg
10/7/1998	0	0.5	7061	Arsenic	0.62	mg/Kg
10/7/1998	0	0.5	7471	Mercury	0.031	mg/Kg
10/7/1998	0	0.5	7741	Selenium	ND < 0.1	mg/Kg
<b>ORGANICS</b>						
10/7/1998	0	0.5	1664	Oil and Grease	970 UJ	mg/Kg
10/7/1998	0	0.5	8081	Total DDT	NA 0	mg/Kg
10/7/1998	0	0.5	8081	Total PCB	2.8	mg/Kg
10/7/1998	0	0.5	8081	PCB 1260	2.8	mg/Kg
10/7/1998	0	0.5	8081	PCB 153	0.24	mg/Kg
10/7/1998	0	0.5	8081	PCB 138	0.22	mg/Kg
10/7/1998	0	0.5	8081	PCB 180	0.36 J	mg/Kg
10/7/1998	0	0.5	8081	PCB 170	0.17	mg/Kg
10/7/1998	0	0.5	8081	PCB 101	0.039	mg/Kg
10/7/1998	0	0.5	8081	PCB 206	0.01 J	mg/Kg
10/7/1998	0	0.5	8081	PCB 187	0.085 J	mg/Kg
10/7/1998	0	0.5	8081	BHC-gamma	0.00052	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R47C1-1 (continued)**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
10/7/1998	0	0.5	8081	Endosulfan Sulfate	ND < 0.55	mg/Kg
10/7/1998	0	0.5	8081	PCB 1254	ND < 0.11	mg/Kg
10/7/1998	0	0.5	8081	Chlordane (technical)	ND < 0.028	mg/Kg
10/7/1998	0	0.5	8081	PCB 209	ND < 0.0028	mg/Kg
10/7/1998	0	0.5	8081	Aldrin	ND < 0.00028	mg/Kg
10/7/1998	0	0.5	8081	PCB 118	ND < 0.0055	mg/Kg
10/7/1998	0	0.5	8081	BHC-alpha	ND < 0.00028	mg/Kg
10/7/1998	0	0.5	8081	BHC-beta	ND < 0.00028	mg/Kg
10/7/1998	0	0.5	8081	BHC-delta	ND < 0.00028	mg/Kg
10/7/1998	0	0.5	8081	PCB 066	ND < 0.011	mg/Kg
10/7/1998	0	0.5	8081	PCB 105	ND < 0.0055	mg/Kg
10/7/1998	0	0.5	8081	Endosulfan II	ND < 0.028	mg/Kg
10/7/1998	0	0.5	8081	PCB 008	ND < 0.011	mg/Kg
10/7/1998	0	0.5	8081	PCB 052	ND < 0.011	mg/Kg
10/7/1998	0	0.5	8081	PCB 018	ND < 0.011	mg/Kg
10/7/1998	0	0.5	8081	PCB 128	ND < 0.0055	mg/Kg
10/7/1998	0	0.5	8081	PCB 044	ND < 0.011	mg/Kg
10/7/1998	0	0.5	8081	4,4'-DDT	ND < 0.055	mg/Kg
10/7/1998	0	0.5	8081	Chlordane-alpha	ND < 0.028	mg/Kg
10/7/1998	0	0.5	8081	Chlordane-gamma	ND < 0.028	mg/Kg
10/7/1998	0	0.5	8081	PCB 195	ND < 0.0028	mg/Kg
10/7/1998	0	0.5	8081	PCB 1242	ND < 0.11	mg/Kg
10/7/1998	0	0.5	8081	Endrin ketone	ND < 0.28	mg/Kg
10/7/1998	0	0.5	8081	Dieldrin	ND < 0.028	mg/Kg
10/7/1998	0	0.5	8081	PCB 028	ND < 0.011	mg/Kg
10/7/1998	0	0.5	8081	Endrin	ND < 0.028	mg/Kg
10/7/1998	0	0.5	8081	4,4'-DDD	ND < 0.028	mg/Kg
10/7/1998	0	0.5	8081	4,4'-DDE	ND < 0.028	mg/Kg
10/7/1998	0	0.5	8081	Endrin aldehyde	ND < 0.28	mg/Kg
10/7/1998	0	0.5	8081	Toxaphene	ND < 0.17	mg/Kg
10/7/1998	0	0.5	8081	Endosulfan I	ND < 0.011	mg/Kg
10/7/1998	0	0.5	9030	Sulfide	110 J	mg/Kg
10/7/1998	0	0.5	8015 Modified	TPHDWO	29.5	mg/Kg
10/7/1998	0	0.5	8015 Modified	Waste oil	24	mg/Kg
10/7/1998	0	0.5	8015 Modified	TPH-Diesel	11 UJ	mg/Kg
10/7/1998	0	0.5	8270B	High MW PAHs	0.0189	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R47C1-1 (continued)**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
10/7/1998	0	0.5	8270B	Low MW PAHs	NA	mg/Kg
10/7/1998	0	0.5	8270B	Total PAHs	0.0189	mg/Kg
10/7/1998	0	0.5	8270B	Total phenol	NA	mg/Kg
10/7/1998	0	0.5	8270B	Total phthalate esters	0.015	mg/Kg
10/7/1998	0	0.5	8270B	Bis(2-ethylhexyl)phthalate	ND < 0.2	mg/Kg
10/7/1998	0	0.5	8270B	Benzo(e)pyrene	0.0094	mg/Kg
10/7/1998	0	0.5	8270B	Chrysene	0.0095	mg/Kg
10/7/1998	0	0.5	8270B	Diethylphthalate	ND < 0.012	mg/Kg
10/7/1998	0	0.5	8270B	Di-n-butylphthalate	ND < 0.03	mg/Kg
10/7/1998	0	0.5	8270B	Butylbenzylphthalate	0.015	mg/Kg
10/7/1998	0	0.5	8270B	4-Nitrophenol	ND < 0.055	mg/Kg
10/7/1998	0	0.5	8270B	2,4-Dimethylphenol	ND < 0.022	mg/Kg
10/7/1998	0	0.5	8270B	4-Methylphenol	ND < 0.055	mg/Kg
10/7/1998	0	0.5	8270B	Phenol	ND < 0.055	mg/Kg
10/7/1998	0	0.5	8270B	Di-n-octylphthalate	0.0083 UJ	mg/Kg
10/7/1998	0	0.5	8270B	Anthracene	ND < 0.0083	mg/Kg
10/7/1998	0	0.5	8270B	2,4-Dichlorophenol	ND < 0.011	mg/Kg
10/7/1998	0	0.5	8270B	Pyrene	ND < 0.0083	mg/Kg
10/7/1998	0	0.5	8270B	Dimethylphthalate	ND < 0.0083	mg/Kg
10/7/1998	0	0.5	8270B	Benzo(g,h,i)perylene	ND < 0.0083	mg/Kg
10/7/1998	0	0.5	8270B	Indeno(1,2,3-c,d)pyrene	ND < 0.011	mg/Kg
10/7/1998	0	0.5	8270B	Benzo(b)fluoranthene	ND < 0.0083	mg/Kg
10/7/1998	0	0.5	8270B	Fluoranthene	ND < 0.0083	mg/Kg
10/7/1998	0	0.5	8270B	Benzo(k)fluoranthene	ND < 0.0083	mg/Kg
10/7/1998	0	0.5	8270B	Acenaphthylene	ND < 0.0083	mg/Kg
10/7/1998	0	0.5	8270B	Benzo(a)pyrene	ND < 0.0083	mg/Kg
10/7/1998	0	0.5	8270B	2,4-Dinitrophenol	ND < 0.055	mg/Kg
10/7/1998	0	0.5	8270B	Dibenz(a,h)anthracene	ND < 0.011	mg/Kg
10/7/1998	0	0.5	8270B	4,6-Dinitro-2-methylphenol	ND < 0.055	mg/Kg
10/7/1998	0	0.5	8270B	Benzo(a)anthracene	ND < 0.0083	mg/Kg
10/7/1998	0	0.5	8270B	4-Chloro-3-methylphenol	0.011 UJ	mg/Kg
10/7/1998	0	0.5	8270B	Acenaphthene	0.0083 UJ	mg/Kg
10/7/1998	0	0.5	8270B	Phenanthrene	ND < 0.0083	mg/Kg
10/7/1998	0	0.5	8270B	Fluorene	ND < 0.0083	mg/Kg
10/7/1998	0	0.5	8270B	Pentachlorophenol	ND < 0.055	mg/Kg
10/7/1998	0	0.5	8270B	2,4,6-Trichlorophenol	ND < 0.011	mg/Kg
10/7/1998	0	0.5	8270B	2-Nitrophenol	ND < 0.022	mg/Kg
10/7/1998	0	0.5	8270B	Naphthalene	ND < 0.0083	mg/Kg
10/7/1998	0	0.5	8270B	2-Methylphenol	ND < 0.022	mg/Kg
10/7/1998	0	0.5	8270B	2-Chlorophenol	ND < 0.022	mg/Kg
10/7/1998	0	0.5	8270B	2,4,5-Trichlorophenol	ND < 0.011	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R47C1-2  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
<b>INORGANICS</b>						
10/7/1998	2.5	6	7060	Arsenic	ND < 6.7	mg/Kg
10/7/1998	2.5	6	7421	Lead	8.1 J	mg/Kg
10/7/1998	2.5	6	7471	Mercury	ND < 0.27	mg/Kg
10/7/1998	2.5	6	7740	Selenium	ND < 6.7	mg/Kg
10/7/1998	2.5	6	7841	Thallium	ND < 1.3	mg/Kg
10/7/1998	2.5	6	9060	Total organic carbon	1570	mg/Kg
10/7/1998	2.5	6	6010A	Nickel	15.2	mg/Kg
10/7/1998	2.5	6	6010A	Barium	81.4	mg/Kg
10/7/1998	2.5	6	6010A	Chromium	24.1	mg/Kg
10/7/1998	2.5	6	6010A	Cobalt	9	mg/Kg
10/7/1998	2.5	6	6010A	Copper	19.9	mg/Kg
10/7/1998	2.5	6	6010A	Vanadium	48.9	mg/Kg
10/7/1998	2.5	6	6010A	Zinc	61.3	mg/Kg
10/7/1998	2.5	6	6010A	Silver	ND < 1.3	mg/Kg
10/7/1998	2.5	6	6010A	Beryllium	ND < 1.3	mg/Kg
10/7/1998	2.5	6	6010A	Cadmium	ND < 1.3	mg/Kg
<b>ORGANICS</b>						
10/7/1998	2.5	6	8015 Modified	TPH-Diesel	ND < 14	mg/Kg
10/7/1998	2.5	6	8270B	High MW PAHs	NA	mg/Kg
10/7/1998	2.5	6	8270B	Low MW PAHs	NA	mg/Kg
10/7/1998	2.5	6	8270B	Total PAHs	NA	mg/Kg
10/7/1998	2.5	6	8270B	Total phthalate esters	1.48	mg/Kg
10/7/1998	2.5	6	8270B	Bis(2-ethylhexyl)phthalate	1.2	mg/Kg
10/7/1998	2.5	6	8270B	Di-n-butylphthalate	0.28 J	mg/Kg
10/7/1998	2.5	6	8270B	Di-n-octylphthalate	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Anthracene	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Pyrene	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Dimethylphthalate	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Benzo(g,h,i)perylene	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Indeno(1,2,3-c,d)pyrene	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Benzo(b)fluoranthene	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Fluoranthene	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Benzo(k)fluoranthene	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Chrysene	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Benzo(a)pyrene	ND < 0.54	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R47C1-2 (continued)**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

<b>SAMPLE DATE</b>	<b>DEPTH FROM (FT)</b>	<b>DEPTH TO (FT)</b>	<b>EPA METHOD</b>	<b>ANALYTE</b>	<b>RESULT</b>	<b>UNITS</b>
10/7/1998	2.5	6	8270B	Dibenz(a,h)anthracene	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Benzo(a)anthracene	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Diethylphthalate	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Phenanthrene	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Butylbenzylphthalate	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Fluorene	ND < 0.54	mg/Kg
10/7/1998	2.5	6	8270B	Naphthalene	ND < 0.54	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R50C2-1  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
<b>INORGANICS</b>						
10/6/1998	0	0.5	9045B	pH	8.5	units
10/6/1998	0	0.5	120.1	Specific conductance	560	umhos
10/6/1998	0	0.5	160.4	Total volatile solids	4.4	Percent
10/6/1998	0	0.5	300.0	Sulfate	2410	mg/Kg
10/6/1998	0	0.5	350.2	Ammonia as Nitrogen	ND <	mg/Kg
10/6/1998	0	0.5	GAUDETTE	Total organic carbon	0.78	Percent
10/6/1998	0	0.5	6020	Lead	15	mg/Kg
10/6/1998	0	0.5	6020	Nickel	20	mg/Kg
10/6/1998	0	0.5	6020	Thallium	0.45	mg/Kg
10/6/1998	0	0.5	6020	Barium	150	mg/Kg
10/6/1998	0	0.5	6020	Beryllium	0.66	mg/Kg
10/6/1998	0	0.5	6020	Cadmium	0.3	mg/Kg
10/6/1998	0	0.5	6020	Chromium	28	mg/Kg
10/6/1998	0	0.5	6020	Cobalt	9.8	mg/Kg
10/6/1998	0	0.5	6020	Copper	21	mg/Kg
10/6/1998	0	0.5	6020	Vanadium	64	mg/Kg
10/6/1998	0	0.5	6020	Zinc	100	mg/Kg
10/6/1998	0	0.5	6020	Silver	0.1 UJ	mg/Kg
10/6/1998	0	0.5	7061	Arsenic	4	mg/Kg
10/6/1998	0	0.5	7471	Mercury	0.024	mg/Kg
10/6/1998	0	0.5	7741	Selenium	0.11	mg/Kg
<b>ORGANICS</b>						
10/6/1998	0	0.5	1664	Oil and Grease	ND <	mg/Kg
10/6/1998	0	0.5	8081	Total DDT	0.0165	mg/Kg
10/6/1998	0	0.5	8081	Total PCB	NA	mg/Kg
10/6/1998	0	0.5	8081	BHC-beta	0.0059 J	mg/Kg
10/6/1998	0	0.5	8081	4,4'-DDT	0.0055 J	mg/Kg
10/6/1998	0	0.5	8081	4,4'-DDE	0.011	mg/Kg
10/6/1998	0	0.5	8081	Endosulfan Sulfate	ND < 0.0058	mg/Kg
10/6/1998	0	0.5	8081	PCB 1260	ND < 0.012	mg/Kg
10/6/1998	0	0.5	8081	PCB 1254	ND < 0.012	mg/Kg
10/6/1998	0	0.5	8081	Chlordane (technical)	ND < 0.0029	mg/Kg
10/6/1998	0	0.5	8081	PCB 209	ND < 0.0029	mg/Kg
10/6/1998	0	0.5	8081	Aldrin	ND < 0.00029	mg/Kg
10/6/1998	0	0.5	8081	PCB 118	ND < 0.0058	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R50C2-1 (continued)**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
10/6/1998	0	0.5	8081	BHC-alpha	ND < 0.00029	mg/Kg
10/6/1998	0	0.5	8081	BHC-delta	ND < 0.00029	mg/Kg
10/6/1998	0	0.5	8081	PCB 066	ND < 0.012	mg/Kg
10/6/1998	0	0.5	8081	PCB 105	ND < 0.0058	mg/Kg
10/6/1998	0	0.5	8081	Endosulfan II	ND < 0.00029	mg/Kg
10/6/1998	0	0.5	8081	PCB 008	ND < 0.012	mg/Kg
10/6/1998	0	0.5	8081	PCB 153	ND < 0.0058	mg/Kg
10/6/1998	0	0.5	8081	PCB 138	ND < 0.0058	mg/Kg
10/6/1998	0	0.5	8081	PCB 180	ND < 0.0029	mg/Kg
10/6/1998	0	0.5	8081	PCB 170	ND < 0.0029	mg/Kg
10/6/1998	0	0.5	8081	PCB 052	ND < 0.012	mg/Kg
10/6/1998	0	0.5	8081	PCB 018	ND < 0.012	mg/Kg
10/6/1998	0	0.5	8081	PCB 101	ND < 0.012	mg/Kg
10/6/1998	0	0.5	8081	PCB 128	ND < 0.0058	mg/Kg
10/6/1998	0	0.5	8081	PCB 206	ND < 0.0029	mg/Kg
10/6/1998	0	0.5	8081	PCB 044	ND < 0.012	mg/Kg
10/6/1998	0	0.5	8081	Chlordane-alpha	ND < 0.0029	mg/Kg
10/6/1998	0	0.5	8081	Chlordane-gamma	ND < 0.0029	mg/Kg
10/6/1998	0	0.5	8081	PCB 187	ND < 0.0058	mg/Kg
10/6/1998	0	0.5	8081	PCB 195	ND < 0.0029	mg/Kg
10/6/1998	0	0.5	8081	PCB 1242	ND < 0.012	mg/Kg
10/6/1998	0	0.5	8081	Endrin ketone	ND < 0.00029	mg/Kg
10/6/1998	0	0.5	8081	BHC-gamma	ND < 0.00029	mg/Kg
10/6/1998	0	0.5	8081	Dieldrin	ND < 0.00029	mg/Kg
10/6/1998	0	0.5	8081	PCB 028	ND < 0.012	mg/Kg
10/6/1998	0	0.5	8081	Endrin	ND < 0.00029	mg/Kg
10/6/1998	0	0.5	8081	4,4'-DDD	ND < 0.00029	mg/Kg
10/6/1998	0	0.5	8081	Endrin aldehyde	ND < 0.00029	mg/Kg
10/6/1998	0	0.5	8081	Toxaphene	ND < 0.017	mg/Kg
10/6/1998	0	0.5	8081	Endosulfan I	ND < 0.0012	mg/Kg
10/6/1998	0	0.5	9030	Sulfide	ND < 0.1	mg/Kg
10/6/1998	0	0.5	9030	Sulfide, Dissolved	ND < 0.1	mg/Kg
10/6/1998	0	0.5	8015 Modified	TPHDWO	13.9	mg/Kg
10/6/1998	0	0.5	8015 Modified	TPH-Diesel	7.9	mg/Kg
10/6/1998	0	0.5	8015 Modified	Waste oil	ND < 12	mg/Kg
10/6/1998	0	0.5	8270B	High MW PAHs	NA	mg/Kg
10/6/1998	0	0.5	8270B	Low MW PAHs	NA	mg/Kg

**STATE DATA SAMPLE RESULTS FOR R50C2-1 (continued)**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
10/6/1998	0	0.5	8270B	Total PAHs	NA	mg/Kg
10/6/1998	0	0.5	8270B	Total phenol	NA	mg/Kg
10/6/1998	0	0.5	8270B	Total phthalate esters	0.0332	mg/Kg
10/6/1998	0	0.5	8270B	Bis(2-ethylhexyl)phthalate	ND < 0.069	mg/Kg
10/6/1998	0	0.5	8270B	Di-n-octylphthalate	0.024 J	mg/Kg
10/6/1998	0	0.5	8270B	Diethylphthalate	ND < 0.014	mg/Kg
10/6/1998	0	0.5	8270B	Di-n-butylphthalate	ND < 0.041	mg/Kg
10/6/1998	0	0.5	8270B	Butylbenzylphthalate	0.0092	mg/Kg
10/6/1998	0	0.5	8270B	4-Nitrophenol	ND < 0.058	mg/Kg
10/6/1998	0	0.5	8270B	2,4-Dimethylphenol	ND < 0.023	mg/Kg
10/6/1998	0	0.5	8270B	4-Methylphenol	ND < 0.058	mg/Kg
10/6/1998	0	0.5	8270B	Phenol	ND < 0.058	mg/Kg
10/6/1998	0	0.5	8270B	Anthracene	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	2,4-Dichlorophenol	0.012 UJ	mg/Kg
10/6/1998	0	0.5	8270B	Pyrene	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	Dimethylphthalate	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	Benzo(g,h,i)perylene	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	Indeno(1,2,3-c,d)pyrene	ND < 0.012	mg/Kg
10/6/1998	0	0.5	8270B	Benzo(b)fluoranthene	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	Fluoranthene	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	Benzo(k)fluoranthene	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	Acenaphthylene	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	Chrysene	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	Benzo(a)pyrene	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	2,4-Dinitrophenol	ND < 0.058	mg/Kg
10/6/1998	0	0.5	8270B	Dibenz(a,h)anthracene	ND < 0.012	mg/Kg
10/6/1998	0	0.5	8270B	4,6-Dinitro-2-methylphenol	ND < 0.058	mg/Kg
10/6/1998	0	0.5	8270B	Benzo(a)anthracene	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	4-Chloro-3-methylphenol	ND < 0.012	mg/Kg
10/6/1998	0	0.5	8270B	Acenaphthene	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	Phenanthrene	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	Fluorene	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	Pentachlorophenol	ND < 0.058	mg/Kg
10/6/1998	0	0.5	8270B	2,4,6-Trichlorophenol	ND < 0.012	mg/Kg
10/6/1998	0	0.5	8270B	2-Nitrophenol	0.023	mg/Kg
10/6/1998	0	0.5	8270B	Naphthalene	ND < 0.0086	mg/Kg
10/6/1998	0	0.5	8270B	2-Methylphenol	ND < 0.023	mg/Kg
10/6/1998	0	0.5	8270B	2-Chlorophenol	ND < 0.023	mg/Kg
10/6/1998	0	0.5	8270B	2,4,5-Trichlorophenol	ND < 0.012	mg/Kg

**R50C2-2**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
<b>INORGANICS</b>						
10/6/1998	2.5	6	7060	Arsenic	28.8	mg/Kg
10/6/1998	2.5	6	7421	Lead	15.5	mg/Kg
10/6/1998	2.5	6	7471	Mercury	ND < 0.27	mg/Kg
10/6/1998	2.5	6	7740	Selenium	ND < 6.8	mg/Kg
10/6/1998	2.5	6	7841	Thallium	ND < 6.8	mg/Kg
10/6/1998	2.5	6	9060	Total organic carbon	2220	mg/Kg
10/6/1998	2.5	6	6010A	Nickel	24.9	mg/Kg
10/6/1998	2.5	6	6010A	Barium	92	mg/Kg
10/6/1998	2.5	6	6010A	Chromium	41.4	mg/Kg
10/6/1998	2.5	6	6010A	Cobalt	13.3	mg/Kg
10/6/1998	2.5	6	6010A	Vanadium	123	mg/Kg
10/6/1998	2.5	6	6010A	Zinc	92.6	mg/Kg
10/6/1998	2.5	6	6010A	Copper	37.2	mg/Kg
10/6/1998	2.5	6	6010A	Silver	1.4 UJ	mg/Kg
10/6/1998	2.5	6	6010A	Beryllium	ND < 1.4	mg/Kg
10/6/1998	2.5	6	6010A	Cadmium	ND < 1.4	mg/Kg
<b>ORGANICS</b>						
10/6/1998	2.5	6	8015 Modified	TPH-Diesel	ND < 14	mg/Kg
10/6/1998	2.5	6	8260A	Ethylbenzene	ND < 0.007	mg/Kg
10/6/1998	2.5	6	8260A	n-Propylbenzene	ND < 0.007	mg/Kg
10/6/1998	2.5	6	8260A	1,4-Dichlorobenzene	ND < 0.007	mg/Kg
10/6/1998	2.5	6	8260A	1,2-Dichloroethane	ND < 0.007	mg/Kg
10/6/1998	2.5	6	8260A	4-Methyl-2-pentanone	ND < 0.068	mg/Kg
10/6/1998	2.5	6	8260A	Toluene	ND < 0.007	mg/Kg
10/6/1998	2.5	6	8260A	Chlorobenzene	ND < 0.007	mg/Kg
10/6/1998	2.5	6	8260A	Tetrachloroethene	ND < 0.007	mg/Kg
10/6/1998	2.5	6	8260A	Xylene (total)	ND < 0.007	mg/Kg
10/6/1998	2.5	6	8260A	1,2-Dichloroethene (total)	ND < 0.007	mg/Kg
10/6/1998	2.5	6	8260A	1,3-Dichlorobenzene	ND < 0.007	mg/Kg
10/6/1998	2.5	6	8260A	2-Hexanone	ND < 0.068	mg/Kg
10/6/1998	2.5	6	8260A	Acetone	ND < 0.068	mg/Kg
10/6/1998	2.5	6	8260A	Benzene	ND < 0.007	mg/Kg
10/6/1998	2.5	6	8260A	Methylene chloride	ND < 0.007	mg/Kg
10/6/1998	2.5	6	8260A	Carbon disulfide	ND < 0.007	mg/Kg
10/6/1998	2.5	6	8260A	2-Butanone	ND < 0.068	mg/Kg

**R50C2-2 (continued)**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

SAMPLE DATE	DEPTH FROM (FT)	DEPTH TO (FT)	EPA METHOD	ANALYTE	RESULT	UNITS
10/6/1998	2.5	6	8270B	Total phthalate esters	NA	mg/Kg
10/6/1998	2.5	6	8270B	Bis(2-ethylhexyl)phthalate	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Di-n-octylphthalate	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Anthracene	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Pyrene	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Dimethylphthalate	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Benzo(g,h,i)perylene	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Indeno(1,2,3-c,d)pyrene	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Benzo(b)fluoranthene	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Fluoranthene	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Benzo(k)fluoranthene	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Chrysene	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Benzo(a)pyrene	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Dibenz(a,h)anthracene	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Benzo(a)anthracene	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Diethylphthalate	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Di-n-butylphthalate	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Phenanthrene	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Butylbenzylphthalate	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Fluorene	ND < 0.54	mg/Kg
10/6/1998	2.5	6	8270B	Naphthalene	ND < 0.54	mg/Kg

**APPENDIX A-2**

**HISTORICAL SITE DATA**

**HEARTHSIDE DATA**

**TABLE A-1**  
**SUMMARY OF HEARTHSTONE SOIL SAMPLING DATA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

TARGET ANALYTE	DATE SAMPLED	SAMPLE ID	ANALYSIS	RESULTS	UNITS
<b>9 April 1999</b>					
PCB Aroclor 1260	4/9/99	RD-47-04C	EPA 8080A	163	µg/kg
PCB Aroclor 1260	4/9/99	RD-47-03C	EPA 8080A	7630	µg/kg

**TABLE A-1 (continued)**  
**SUMMARY OF HEARTHIDE SOIL SAMPLING DATA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

TARGET ANALYTE	DATE SAMPLED	SAMPLE ID	ANALYSIS	RESULTS	UNITS
<b>19 August 1999</b>					
PCB (153)	8/19/99	F03-4	EPA 8080A	491	µg/kg
PCB (180)	8/19/99	F03-4	EPA 8080A	674	µg/kg
PCB (187)	8/19/99	F03-4	EPA 8080A	296	µg/kg
PCB Aroclor 1260	8/19/99	F03-4	EPA 8080A	5550	µg/kg
PCB (153)	8/19/99	F03-12	EPA 8080A	378	µg/kg
PCB (180)	8/19/99	F03-12	EPA 8080A	554	µg/kg
PCB (187)	8/19/99	F03-12	EPA 8080A	244	µg/kg
PCB Aroclor 1260	8/19/99	F03-12	EPA 8080A	4530	µg/kg
PCB (180)	8/19/99	F03-19	EPA 8080A	583	µg/kg
PCB Aroclor 1260	8/19/99	F03-19	EPA 8080A	5220	µg/kg
PCB (180)	8/19/99	F03-24A	EPA 8080A	503	µg/kg
PCB Aroclor 1260	8/19/99	F03-24A	EPA 8080A	4425	µg/kg
PCB	8/19/99	F03-24B	EPA 8080A	ND < 67	µg/kg
PCB	8/19/99	F03-24C	EPA 8080A	ND < 67	µg/kg
PCB	8/19/99	F03-24D	EPA 8080A	ND < 67	µg/kg
PCB (153)	8/19/99	F03-25A	EPA 8080A	230	µg/kg
PCB (180)	8/19/99	F03-25A	EPA 8080A	338	µg/kg
PCB (187)	8/19/99	F03-25A	EPA 8080A	144	µg/kg
PCB Aroclor 1260	8/19/99	F03-25A	EPA 8080A	2770	µg/kg
PCB (153)	8/19/99	F03-26A	EPA 8080A	219	µg/kg
PCB (180)	8/19/99	F03-26A	EPA 8080A	310	µg/kg
PCB (187)	8/19/99	F03-26A	EPA 8080A	132	µg/kg
PCB Aroclor 1260	8/19/99	F03-26A	EPA 8080A	2540	µg/kg
PCB (180)	8/19/99	F04-1	EPA 8080A	11	µg/kg
PCB Aroclor 1260	8/19/99	F04-1	EPA 8080A	92	µg/kg
PCB (153)	8/19/99	F04-2	EPA 8080A	18	µg/kg
PCB (170)	8/19/99	F04-2	EPA 8080A	14	µg/kg
PCB (180)	8/19/99	F04-2	EPA 8080A	21	µg/kg
PCB Aroclor 1260	8/19/99	F04-2	EPA 8080A	178	µg/kg

**TABLE A-1 (continued)**  
**SUMMARY OF HEARTH-SIDE SOIL SAMPLING DATA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

TARGET ANALYTE	DATE SAMPLED	SAMPLE ID	ANALYSIS	RESULTS	UNITS
PCB (138)	8/19/99	F04-3	EPA 8080A	11	µg/kg
PCB (153)	8/19/99	F04-3	EPA 8080A	31	µg/kg
PCB (170)	8/19/99	F04-3	EPA 8080A	37	µg/kg
PCB (180)	8/19/99	F04-3	EPA 8080A	48	µg/kg
PCB (183)	8/19/99	F04-3	EPA 8080A	10	µg/kg
PCB (187)	8/19/99	F04-3	EPA 8080A	17	µg/kg
PCB Aroclor 1260	8/19/99	F04-3	EPA 8080A	366	µg/kg
PCB (138)	8/19/99	F04-4	EPA 8080A	11	µg/kg
PCB (153)	8/19/99	F04-4	EPA 8080A	31	µg/kg
PCB (170)	8/19/99	F04-4	EPA 8080A	34	µg/kg
PCB (180)	8/19/99	F04-4	EPA 8080A	50	µg/kg
PCB (183)	8/19/99	F04-4	EPA 8080A	10	µg/kg
PCB (187)	8/19/99	F04-4	EPA 8080A	18	µg/kg
PCB Aroclor 1260	8/19/99	F04-4	EPA 8080A	362	µg/kg
PCB (153)	8/19/99	F04-5	EPA 8080A	28	µg/kg
PCB (170)	8/19/99	F04-5	EPA 8080A	24	µg/kg
PCB (180)	8/19/99	F04-5	EPA 8080A	36	µg/kg
PCB (187)	8/19/99	F04-5	EPA 8080A	14	µg/kg
PCB Aroclor 1260	8/19/99	F04-5	EPA 8080A	281	µg/kg
PCB (153)	8/19/99	F04-8	EPA 8080A	21	µg/kg
PCB (170)	8/19/99	F04-8	EPA 8080A	20	µg/kg
PCB (180)	8/19/99	F04-8	EPA 8080A	27	µg/kg
PCB (187)	8/19/99	F04-8	EPA 8080A	10	µg/kg
PCB Aroclor 1260	8/19/99	F04-8	EPA 8080A	197	µg/kg
PCB (180)	8/19/99	F04-10	EPA 8080A	13	µg/kg
PCB Aroclor 1260	8/19/99	F04-10	EPA 8080A	101	µg/kg

**TABLE A-1 (continued)**  
**SUMMARY OF HEARTHIDE SOIL SAMPLING DATA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

TARGET ANALYTE	DATE SAMPLED	SAMPLE ID	ANALYSIS	RESULTS	UNITS
PCB (101)	8/19/99	F04-12	EPA 8080A	12	µg/kg
PCB (138)	8/19/99	F04-12	EPA 8080A	21	µg/kg
PCB (153)	8/19/99	F04-12	EPA 8080A	53	µg/kg
PCB (170)	8/19/99	F04-12	EPA 8080A	76	µg/kg
PCB (180)	8/19/99	F04-12	EPA 8080A	99	µg/kg
PCB (183)	8/19/99	F04-12	EPA 8080A	19	µg/kg
PCB (187)	8/19/99	F04-12	EPA 8080A	36	µg/kg
PCB Aroclor 1260	8/19/99	F04-12	EPA 8080A	634	µg/kg
PCB (180)	8/19/99	F04-14	EPA 8080A	12	µg/kg
PCB Aroclor 1260	8/19/99	F04-14	EPA 8080A	89	µg/kg
PCB (153)	8/19/99	F04-16	EPA 8080A	15	µg/kg
PCB (170)	8/19/99	F04-16	EPA 8080A	16	µg/kg
PCB (180)	8/19/99	F04-16	EPA 8080A	22	µg/kg
PCB Aroclor 1260	8/19/99	F04-16	EPA 8080A	162	µg/kg
PCB (153)	8/19/99	F04-17	EPA 8080A	15	µg/kg
PCB (170)	8/19/99	F04-17	EPA 8080A	16	µg/kg
PCB (180)	8/19/99	F04-17	EPA 8080A	23	µg/kg
PCB Aroclor 1260	8/19/99	F04-17	EPA 8080A	162	µg/kg
PCB (151)	8/19/99	F04-19	EPA 8080A	13	µg/kg
PCB (138)	8/19/99	F04-19	EPA 8080A	22	µg/kg
PCB (153)	8/19/99	F04-19	EPA 8080A	64	µg/kg
PCB (170)	8/19/99	F04-19	EPA 8080A	60	µg/kg
PCB (180)	8/19/99	F04-19	EPA 8080A	81	µg/kg
PCB (183)	8/19/99	F04-19	EPA 8080A	21	µg/kg
PCB (187)	8/19/99	F04-19	EPA 8080A	34	µg/kg
PCB Aroclor 1260	8/19/99	F04-19	EPA 8080A	660	µg/kg

**TABLE A-1 (continued)**  
**SUMMARY OF HEARTHIDE SOIL SAMPLING DATA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

TARGET ANALYTE	DATE SAMPLED	SAMPLE ID	ANALYSIS	RESULTS	UNITS
PCB (151)	8/19/99	F04-20	EPA 8080A	13	µg/kg
PCB (138)	8/19/99	F04-20	EPA 8080A	20	µg/kg
PCB (153)	8/19/99	F04-20	EPA 8080A	72	µg/kg
PCB (170)	8/19/99	F04-20	EPA 8080A	52	µg/kg
PCB (180)	8/19/99	F04-20	EPA 8080A	81	µg/kg
PCB (183)	8/19/99	F04-20	EPA 8080A	18	µg/kg
PCB (187)	8/19/99	F04-20	EPA 8080A	32	µg/kg
PCB Aroclor 1260	8/19/99	F04-20	EPA 8080A	654	µg/kg
PCB (101)	8/19/99	F04-22	EPA 8080A	10	µg/kg
PCB (138)	8/19/99	F04-22	EPA 8080A	10	µg/kg
PCB (153)	8/19/99	F04-22	EPA 8080A	46	µg/kg
PCB (170)	8/19/99	F04-22	EPA 8080A	30	µg/kg
PCB (180)	8/19/99	F04-22	EPA 8080A	47	µg/kg
PCB (183)	8/19/99	F04-22	EPA 8080A	11	µg/kg
PCB (187)	8/19/99	F04-22	EPA 8080A	20	µg/kg
PCB Aroclor 1260	8/19/99	F04-22	EPA 8080A	393	µg/kg
PCB (138)	8/19/99	F04-23	EPA 8080A	11	µg/kg
PCB (153)	8/19/99	F04-23	EPA 8080A	31	µg/kg
PCB (170)	8/19/99	F04-23	EPA 8080A	30	µg/kg
PCB (180)	8/19/99	F04-23	EPA 8080A	44	µg/kg
PCB (187)	8/19/99	F04-23	EPA 8080A	16	µg/kg
PCB Aroclor 1260	8/19/99	F04-23	EPA 8080A	314	µg/kg
PCB (101)	8/19/99	F04-24A	EPA 8080A	13	µg/kg
PCB (138)	8/19/99	F04-24A	EPA 8080A	14	µg/kg
PCB (151)	8/19/99	F04-24A	EPA 8080A	11	µg/kg
PCB (153)	8/19/99	F04-24A	EPA 8080A	37	µg/kg
PCB (180)	8/19/99	F04-24A	EPA 8080A	42	µg/kg
PCB (183)	8/19/99	F04-24A	EPA 8080A	11	µg/kg
PCB (187)	8/19/99	F04-24A	EPA 8080A	18	µg/kg
PCB Aroclor 1260	8/19/99	F04-24A	EPA 8080A	2030	µg/kg
PCB	8/19/99	F04-24B	EPA 8080A	ND < 67	µg/kg
PCB	8/19/99	F04-24C	EPA 8080A	ND < 67	µg/kg
PCB	8/19/99	F04-24D	EPA 8080A	ND < 67	µg/kg

**TABLE A-1 (continued)**  
**SUMMARY OF HEARTHIDE SOIL SAMPLING DATA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

TARGET ANALYTE	DATE SAMPLED	SAMPLE ID	ANALYSIS	RESULTS	UNITS
PCB (101)	8/19/99	F04-25A	EPA 8080A	11	µg/kg
PCB (138)	8/19/99	F04-25A	EPA 8080A	19	µg/kg
PCB (151)	8/19/99	F04-25A	EPA 8080A	11	µg/kg
PCB (153)	8/19/99	F04-25A	EPA 8080A	53	µg/kg
PCB (170)	8/19/99	F04-25A	EPA 8080A	68	µg/kg
PCB (180)	8/19/99	F04-25A	EPA 8080A	85	µg/kg
PCB (183)	8/19/99	F04-25A	EPA 8080A	18	µg/kg
PCB (187)	8/19/99	F04-25A	EPA 8080A	30	µg/kg
PCB Aroclor 1260	8/19/99	F04-25A	EPA 8080A	651	µg/kg
PCB (153)	8/19/99	F04-26A	EPA 8080A	20	µg/kg
PCB (180)	8/19/99	F04-26A	EPA 8080A	22	µg/kg
PCB Aroclor 1260	8/19/99	F04-26A	EPA 8080A	211	µg/kg
PCB (153)	8/19/99	F04-27A	EPA 8080A	14	µg/kg
PCB (180)	8/19/99	F04-27A	EPA 8080A	15	µg/kg
PCB Aroclor 1260	8/19/99	F04-27A	EPA 8080A	139	µg/kg
PCB	8/19/99	F04-27B	EPA 8080A	ND < 67	µg/kg
PCB	8/19/99	F04-27C	EPA 8080A	ND < 67	µg/kg
PCB	8/19/99	F04-27D	EPA 8080A	ND < 67	µg/kg
TRPH	8/19/99	F03-4	EPA 418.1	207	mg/kg
TRPH	8/19/99	F03-12	EPA 418.1	208	mg/kg
TRPH	8/19/99	F03-19	EPA 418.1	20	mg/kg
TRPH	8/19/99	F03-24A	EPA 418.1	145	mg/kg
TRPH	8/19/99	F03-24B	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F03-24C	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F03-24D	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F03-25A	EPA 418.1	42	mg/kg
TRPH	8/19/99	F03-26A	EPA 418.1	293	mg/kg
TRPH	8/19/99	F04-1	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-2	EPA 418.1	12	mg/kg
TRPH	8/19/99	F04-3	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-4	EPA 418.1	102	mg/kg
TRPH	8/19/99	F04-5	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-8	EPA 418.1	11	mg/kg
TRPH	8/19/99	F04-10	EPA 418.1	28	mg/kg
TRPH	8/19/99	F04-12	EPA 418.1	11	mg/kg

**TABLE A-1 (continued)**  
**SUMMARY OF HEARTHIDE SOIL SAMPLING DATA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

TARGET ANALYTE	DATE SAMPLED	SAMPLE ID	ANALYSIS	RESULTS	UNITS
TRPH	8/19/99	F04-14	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-16	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-17	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-19	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-20	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-22	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-23	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-24A	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-24B	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-24C	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-24D	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-25A	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-26A	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-27A	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-27B	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-27C	EPA 418.1	ND < 10	mg/kg
TRPH	8/19/99	F04-27D	EPA 418.1	ND < 10	mg/kg

**TABLE A-1 (continued)**  
**SUMMARY OF HEARTHIDE SOIL SAMPLING DATA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

TARGET ANALYTE	DATE SAMPLED	SAMPLE ID	ANALYSIS	RESULTS	UNITS
<b>22 October 1999</b>					
PCB Aroclor 1260	10/22/99	F03-29	EPA 8082	865	µg/kg
PCB Aroclor 1260	10/22/99	F03-30	EPA 8082	2170	µg/kg
PCB	10/22/99	F03-31	EPA 8082	425	µg/kg
PCB Aroclor 1260	10/22/99	F03-32	EPA 8082	1270	µg/kg
PCB Aroclor 1260	10/22/99	F03-33	EPA 8082	648	µg/kg
PCB Aroclor 1260	10/22/99	F03-34	EPA 8082	382	µg/kg
PCB Aroclor 1260	10/22/99	F03-35	EPA 8082	180	µg/kg
PCB Aroclor 1260	10/22/99	F03-36	EPA 8082	20400	µg/kg
PCB Aroclor 1260	10/22/99	F03-37	EPA 8082	997	µg/kg
PCB Aroclor 1260	10/22/99	F03-38	EPA 8082	842	µg/kg
PCB Aroclor 1260	10/22/99	F03-39	EPA 8082	26000	µg/kg
PCB Aroclor 1260	10/22/99	F03-40	EPA 8082	25600	µg/kg
PCB Aroclor 1260	10/22/99	F03-41	EPA 8082	374000	µg/kg
PCB Aroclor 1260	10/22/99	F03-42	EPA 8082	3220000	µg/kg
PCB Aroclor 1260	10/22/99	F04-29	EPA 8082	836	µg/kg
PCB Aroclor 1260	10/22/99	F04-30	EPA 8082	273	µg/kg
PCB Aroclor 1260	10/22/99	F04-33	EPA 8082	ND < 67	µg/kg
PCB Aroclor 1260	10/22/99	F04-34	EPA 8082	439	µg/kg

**TABLE A-1 (continued)**  
**SUMMARY OF HEARTHIDE SOIL SAMPLING DATA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

TARGET ANALYTE	DATE SAMPLED	SAMPLE ID	ANALYSIS	RESULTS	UNITS
PCB Aroclor 1260	10/22/99	F04-35	EPA 8082	278	µg/kg
PCB Aroclor 1260	10/22/99	F04-38	EPA 8082	127	µg/kg
PCB Aroclor 1260	10/22/99	F04-39	EPA 8082	184	µg/kg
PCB Aroclor 1260	10/22/99	F04-40	EPA 8082	162	µg/kg
PCB Aroclor 1260	10/22/99	F04-41	EPA 8082	337	µg/kg
PCB Aroclor 1260	10/22/99	F04-42	EPA 8082	140	µg/kg
PCB Aroclor 1260	10/22/99	F04-43	EPA 8082	1140	µg/kg
PCB Aroclor 1260	10/22/99	F04-44	EPA 8082	554	µg/kg
PCB Aroclor 1260	10/22/99	F04-45	EPA 8082	280	µg/kg
PCB Aroclor 1260	10/22/99	F04-46	EPA 8082	500	µg/kg
PCB Aroclor 1260	10/22/99	F04-48	EPA 8082	15100	µg/kg
PCB Aroclor 1260	10/22/99	F04-49	EPA 8082	1160	µg/kg
PCB Aroclor 1260	10/22/99	F04-50	EPA 8082	1110	µg/kg
PCB Aroclor 1260	10/22/99	F04-52	EPA 8082	508	µg/kg
PCB Aroclor 1260	10/22/99	F04-53	EPA 8082	327	µg/kg
PCB Aroclor 1260	10/22/99	F04-54	EPA 8082	103	µg/kg
PCB Aroclor 1260	10/22/99	F04-55	EPA 8082	251	µg/kg
PCB Aroclor 1260	10/22/99	F04-58	EPA 8082	66	µg/kg
PCB Aroclor 1260	10/22/99	F04-61	EPA 8082	136	µg/kg

**TABLE A-1 (continued)**  
**SUMMARY OF HEARTHIDE SOIL SAMPLING DATA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

TARGET ANALYTE	DATE SAMPLED	SAMPLE ID	ANALYSIS	RESULTS	UNITS
<b>26 April 2001</b>					
PCB Aroclor 1260	04/26/01	F05-1A	EPA 8080A	16000	µg/kg
PCB Aroclor 1260	04/26/01	F05-1B	EPA 8080A	4500	µg/kg
PCB	04/26/01	F05-2A	EPA 8080A	ND < 1	µg/kg
PCB	04/26/01	F05-2B	EPA 8080A	ND < 1	µg/kg
PCB Aroclor 1260	04/26/01	F05-3A	EPA 8080A	80000	µg/kg
PCB Aroclor 1260	04/26/01	F05-3B	EPA 8080A	97	µg/kg
PCB Aroclor 1260	04/26/01	F05-4A	EPA 8080A	13000	µg/kg

**TABLE A-1 (continued)**  
**SUMMARY OF HEARTHIDE SOIL SAMPLING DATA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

TARGET ANALYTE	DATE SAMPLED	SAMPLE ID	ANALYSIS	RESULTS	UNITS
PCB Aroclor 1260	04/26/01	F05-4B	EPA 8080A	59	µg/kg
PCB Aroclor 1260	04/26/01	F05-5A	EPA 8080A	220000	µg/kg
PCB Aroclor 1260	04/26/01	F05-5B	EPA 8080A	420	µg/kg
PCB Aroclor 1260	04/26/01	F05-6A	EPA 8080A	620000	µg/kg
PCB Aroclor 1260	04/26/01	F05-6B	EPA 8080A	3800	µg/kg
PCB Aroclor 1260	04/26/01	F05-7A	EPA 8080A	55000	µg/kg
PCB Aroclor 1260	04/26/01	F05-7B	EPA 8080A	ND < 1	µg/kg
PCB Aroclor 1260	04/26/01	F05-8A	EPA 8080A	69000	µg/kg
PCB Aroclor 1260	04/26/01	F05-8B	EPA 8080A	840	µg/kg
PCB Aroclor 1260	04/26/01	F05-9A	EPA 8080A	120000	µg/kg
PCB Aroclor 1260	04/26/01	F05-9B	EPA 8080A	200	µg/kg
PCB Aroclor 1260	04/26/01	F05-10A	EPA 8080A	19000	µg/kg
PCB Aroclor 1260	04/26/01	F05-10B	EPA 8080A	120	µg/kg
PCB Aroclor 1260	04/26/01	F05-11A	EPA 8080A	130000	µg/kg
PCB Aroclor 1260	04/26/01	F05-11B	EPA 8080A	210	µg/kg
PCB Aroclor 1260	04/26/01	F05-12A	EPA 8080A	430000	µg/kg
PCB Aroclor 1260	04/26/01	F05-12B	EPA 8080A	8500	µg/kg

**TABLE A-1 (continued)**  
**SUMMARY OF HEARTHIDE SOIL SAMPLING DATA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

TARGET ANALYTE	DATE SAMPLED	SAMPLE ID	ANALYSIS	RESULTS	UNITS
<b>21 November 2001</b>					
PCB Aroclor 1260	11/21/01	F05-13A	EPA 8082	67000	µg/kg
PCB Aroclor 1260	11/21/01	F05-14A	EPA 8082	3800	µg/kg
PCB Aroclor 1260	11/21/01	F05-15A	EPA 8082	440000	µg/kg
PCB Aroclor 1260	11/21/01	F05-16A	EPA 8082	69000	µg/kg
PCB Aroclor 1260	11/21/01	F05-16B	EPA 8082	300	µg/kg
PCB Aroclor 1260	11/21/01	F05-17A	EPA 8082	85	µg/kg
PCB Aroclor 1260	11/21/01	F05-17B	EPA 8082	ND < 1	µg/kg
PCB Aroclor 1260	11/21/01	F05-18A	EPA 8082	760	µg/kg
PCB Aroclor 1260	11/21/01	F05-19A	EPA 8082	350	µg/kg
PCB Aroclor 1260	11/21/01	F05-19B	EPA 8082	ND < 1	µg/kg
PCB Aroclor 1260	11/21/01	F05-20A	EPA 8082	ND < 1	µg/kg
PCB Aroclor 1260	11/21/01	F05-20B	EPA 8082	ND < 1	µg/kg
PCB Aroclor 1260	11/21/01	F05-43A	EPA 8082	27000	µg/kg
PCB Aroclor 1260	11/21/01	F05-43B	EPA 8082	58000	µg/kg
PCB Aroclor 1260	11/21/01	F05-44A	EPA 8082	750000	µg/kg
PCB Aroclor 1260	11/21/01	F05-44B	EPA 8082	540000	µg/kg
PCB Aroclor 1260	11/21/01	F05-45A	EPA 8082	1400	µg/kg
PCB Aroclor 1260	11/21/01	F05-46A	EPA 8082	27000	µg/kg

**TABLE A-1 (continued)**  
**SUMMARY OF HEARTHIDE SOIL SAMPLING DATA**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

TARGET ANALYTE	DATE SAMPLED	SAMPLE ID	ANALYSIS	RESULTS	UNITS
PCB Aroclor 1260	11/21/01	F05-47A	EPA 8082	170	µg/kg
PCB Aroclor 1260	11/21/01	F05-48A	EPA 8082	210	µg/kg
PCB Aroclor 1260	11/21/01	F05-49A	EPA 8082	2000	µg/kg
PCB Aroclor 1260	11/21/01	F05-49B	EPA 8082	66	µg/kg
PCB Aroclor 1260	11/21/01	F05-49C	EPA 8082	43	µg/kg
PCB Aroclor 1260	11/21/01	F05-50A	EPA 8082	540	µg/kg
PCB Aroclor 1260	11/21/01	F05-51A	EPA 8082	1500	µg/kg
TRPH	11/21/01	F05-43A	EPA 418.1	320	mg/kg
TRPH	11/21/01	F05-43B	EPA 418.1	710	mg/kg
TRPH	11/21/01	F05-44A	EPA 418.1	2300	mg/kg
TRPH	11/21/01	F05-44B	EPA 418.1	890	mg/kg
TRPH	11/21/01	F05-45A	EPA 418.1	210	mg/kg
TRPH	11/21/01	F05-49A	EPA 418.1	220	mg/kg
TRPH	11/21/01	F05-49B	EPA 418.1	190	mg/kg
SVOC	11/21/01	F05-43A	EPA 8270C	ND < 5	µg/kg
SVOC	11/21/01	F05-43B	EPA 8270C	ND < 5	µg/kg
SVOC	11/21/01	F05-44A	EPA 8270C	ND < 5	µg/kg
SVOC	11/21/01	F05-44B	EPA 8270C	ND < 5	µg/kg
SVOC	11/21/01	F05-45A	EPA 8270C	ND < 5	µg/kg
SVOC	11/21/01	F05-49A	EPA 8270C	ND < 5	µg/kg
SVOC	11/21/01	F05-49B	EPA 8270C	ND < 5	µg/kg

*Notes:*

(1) Method Detection Limits for PCBs ranged between 10 µg/kg and 67 µg/kg.

ND – Not Detected

PCB – Polychlorinated Biphenyl

TRPH – Total Recoverable Petroleum Hydrocarbon

SVOC-Semi-volatile Organic Compound

µg/kg – micrograms per kilogram

mg/kg – milligrams per kilogram

**9 APRIL 1999 SAMPLING EVENT  
LABORATORY DATA  
FIELDSTONE PROPERTY  
HUNTINGTON BEACH, CALIFORNIA**

April 23, 1999

ELAP No.: 1838

PIC Environmental Services  
742 Genevieve St. Ste G  
Solana Beach, CA 92075

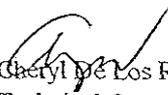
ATTN: Danny Olivier

Client's Project: E57741  
Lab No.: 35031-001/002

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

*Thank* you for the opportunity *to* service the needs of your company. Please feel free to call me at (562) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

  
Cheryl De Los Reyes  
Technical Operation Manager  
CDR/jh

Enclosures

**This** cover letter is an integral part of this analytical report

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purpose without authorization is prohibited.



Client: PIC Environmental Services  
 Attn: Danny Olivier

Client's Project: E57741  
 Date Received: 04/13/99  
 Extraction Method: 3510B  
 Matrix: Soil  
 Units: ug/kg

Date Amended: 04/27/99

EPA Method 8080A (PCB's)

Lab No.:	Method Blank	35031-001	35031-002										
Client Sample I.D.:	--	RD-47-04C	RD-47-03C										
Date Sampled:	--	04/09/99	04/09/99										
QC Batch #:	G998080S112	G998080S112	G998080S112										
Date Extracted:	04/19/99	04/19/99	04/19/99										
Date Analyzed :	04/20/99	04/20/99	04/20/99										
Analyst Initials:	YM	YM	YM										
Dilution Factor:	1	1	1										
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Aroclor-1016	33	33	ND	33	ND	33	ND						
Aroclor-1221	67	67	ND	67	ND	67	ND						
Aroclor-1232	33	33	ND	33	ND	33	ND						
Aroclor-1242	33	33	ND	33	ND	33	ND						
Aroclor-1248	33	33	ND	33	ND	33	ND						
Aroclor-1254	33	33	ND	33	ND	33	ND						
Aroclor-1260	33	33	ND	33	163	1650	7630*						
Aroclor-1262	33	33	ND	33	ND	33	ND						
Aroclor-1268	33	33	ND	33	ND	33	ND						

\* = Dilution Factor is 50.

MDL = Method Detection Limit  
 ND = Not Detected (Below DLR).  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

Reviewed/Approved By: \_\_\_\_\_

*V. Mallari*  
 Val Mallari  
 Department Supervisor

Date: \_\_\_\_\_

*4/27/99*

The cover letter is an integral part of this analytical report



Advanced Technology  
 Laboratories

1510 E. 33rd Street Signal Hill, CA 90807 Tel: 562 969-4045 Fa: 562 989-4040





**19/20 AUGUST 1999 SAMPLING EVENT  
LABORATORY DATA  
FIELDSTONE PROPERTY  
HUNTINGTON BEACH, CALIFORNIA**

ELAP No.: 1838

Geosyntec Consultants  
2100 Main Street Suite 150  
Huntington Beach, CA 92648

ATTN: Nancy Ruiz  
SUBJECT: **REGENERATED REPORT**

Client's Project: Fieldstone, #HG0152  
Lab No.: 37849-001/057

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (562) 989 - 4048 if I can be of further assistance to your company.

Sincerely,



Edgar Caballero  
Laboratory Director  
EC/dg

Enclosures



This cover letter is an integral part of this analytical report

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purpose without authorization is prohibited.



Client: Geosyntec Consultants  
 .ftn: Nancy Ruiz

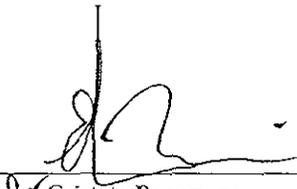
Client's Project: fieldstone, #HG0152

Date Received: 08/20/99

Date Sampled: 08/19/99

Lab No.	Sample I.D.	Analysis	Date Analyzed	Results	Matrix, Units	MDL	DLR	Analys
37849-001	F04-1	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-002	F04-2	EPA 418.1 (TRPH)	08/25/99	12	Soil, mg/kg	10	10	DTC
37849-003	F04-3	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-004	F04-4	EPA 418.1 (TRPH)	08/25/99	102	Soil, mg/kg	10	10	DTC
37849-005	F04-5	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-008	F04-8	EPA 418.1 (TRPH)	08/25/99	11	Soil, mg/kg	10	10	DTC
37849-010	F04-10	EPA 418.1 (TRPH)	08/25/99	28	Soil, mg/kg	10	10	DTC
37849-012	F04-12	EPA 418.1 (TRPH)	08/25/99	11	Soil, mg/kg	10	10	DTC
37849-014	F04-14	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-016	F04-16	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
7849-017	F04-17	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-019	F04-19	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-020	F04-20	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-022	F04-22	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-023	F04-23	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC

MDL = Method Detection Limit  
 ND = Not Detected (Below DLR)  
 Df = Dilution factor (DLR/MDL)

Reviewed/Approved By:   
 Cristeta Rocamora  
 Inorganics Supervisor

Date: 8/26/01

The cover letter is an integral part of this analytical report



Advanced Technology  
 Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel. 562 989-4045 Fax: 562 989-4040

Client: Geosyntec Consultants  
 Atta: Nancy Ruiz

Client's Project: Fieldstone, #HG0152

Date Received: 08120199  
 Date Sampled: 08/19/99  
 Date Amended: 09/08/99

Lab No.	Sample I.D.	Analysis	Date Analyzed	Results	Matrix, Units	MDL	DLR	Analyst
37849-024	F04-24A	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-025	F04-24B	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-026	F04-24C	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-027	F04-24D	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-028	F04-25A	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-032	F04-26A	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-036	F04-27A	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-037	F04-27B	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-038	F04-27C	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-039	F04-27D	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-041	F03-24A	EPA 418.1 (TRPH)	08/25/99	145	Soil, mg/kg	10	10	DTC
37849-042	F03-24B	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-043	F03-24C	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-044	F03-24D	EPA 418.1 (TRPH)	08/25/99	ND	Soil, mg/kg	10	10	DTC
37849-045	F03-26A	EPA 418.1 (TRPH)	08/25/99	293	Soil, mg/kg	10	10	DTC
37849-048	F03-25A	EPA 418.1 (TRPH)	08/31/99	42	Soil, mg/kg	10	10	DTC
37849-052	F03-19	EPA 418.1 (TRPH)	08/25/99	20	Soil, mg/kg	10	10	DTC
37849-055	F03-4	EPA 418.1 (TRPH)	08/25/99	207	Soil, mg/kg	10	10	DTC
37849-056	F03-12	EPA 418.1 (TRPH)	08/25/99	208	Soil, mg/kg	10	10	DTC

MDL = Method Detection Limit  
 ND = Not Detected (Below DLR)  
 DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By:   
 Cristeta Rocamora  
 Inorganics Supervisor

Date: 8/25/99

Client: Geosyntec Consultants  
 Attn: Nancy Ruiz

Client's Project: Fieldstone, HG0152  
 Date Received: 08/20/99  
 Extraction Method: 3550B  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8080A

Lab No.:	Method Blank		37849-001	37849-002	37849-003	37849-004	37849-005						
Client Sample I.D.:	--		F04-1	F04-2	F04-3	F04-4	F04-5						
Date Sampled:	--		08/19/99	08/19/99	08/19/99	08/19/99	08/19/99						
QC Batch #:	P998080S284		P998080S284	P998080S284	P998080S284	P998080S284	P998080S284						
Date Extracted:	08/25/99		08/25/99	08/25/99	08/25/99	08/25/99	08/25/99						
Date Analyzed:	08/26/99		08/26/99	08/26/99	08/26/99	08/26/99	08/26/99						
Analyst Initials:	NN		NN	NN	NN	NN	NN						
Dilution Factor:	1		1	1	1	1	1						
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
(#1) 2-CB	20	20	ND	20	ND	20	ND	20	ND	20	ND	20	ND
(#5) 2,3-DiCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#18) 2,2',5-TriCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#31) 2,4',5-TriCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#52) 2,2',5,5'-TetraCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#44) 2,2',3,5'-TetraCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#66) 2,3',4,4'-TetraCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#101) 2,2',4,5,5'-PentaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#87) 2,2',3,4,5'-PentaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#110) 2,3',3',4',6-PentaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#151) 2,2',3,5,5',6-HexaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#153) 2,2',4,4',5,5'-HexaC	10	10	ND	10	ND	10	18	10	31	10	31	10	28
(#138) 2,2',3,4,4',5-HexaCB	10	10	ND	10	ND	10	ND	10	11	10	11	10	ND
(#141) 2,2',3,4,5,5'-HexaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#187) 2,2',3,4',5,5'-6-Hep	10	10	ND	10	ND	10	ND	10	17	10	18	10	14
(#183) 2,2',3,4',4,5'-6-Hep	10	10	ND	10	ND	10	ND	10	10	10	10	10	ND
(#180) 2,2',3,4,4',5,5'-Hep	10	10	ND	10	11	10	21	10	48	10	50	10	36
(#170) 2,2',3,3',4,4',5-Hep	10	10	ND	10	ND	10	14	10	37	10	34	10	24
(#206 2,2',3,3',4,4',5,5'	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
Aroclor-1016	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1221	67	67	ND	67	ND	67	ND	67	ND	67	ND	67	ND
Aroclor-1232	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1242	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1248	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1254	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1260	33	33	ND	33	92	33	178	33	366	33	362	33	281
Aroclor-1262	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1268	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND

MDL = Method Detection Limit  
 ND = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

Reviewed/Approved By:   
 for Sylvia Chan  
 Semi Volatiles Croup Leader

Date: 8/26/01

The cover letter is an integral part of this analytical report.



Client: Geosyntec Consultants  
 Attn: Nancy Ruiz

Client's Project: fieldstone, HG0152  
 Date Received: 08/20/99  
 Extraction Method: 35508  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8080A

Lab No.:	Method Blank		37849-008	37849-010	37849-012	37849-014	37849-016						
Client Sample I.D.:	--		F04-8	F04-10	F04-12	F04-14	F04-16						
Date Sampled:	--		08/19/99	08/19/99	08/19/99	08/19/99	08/19/99						
QC Batch #:	P998080S284		P998080S284	P998080S284	P998080S284	P998080S284	P998080S284						
Date Extracted:	08/25/99		08/25/99	08/25/99	08/25/99	08/25/99	08/25/99						
Date Analyzed:	08/26/99		08/26/99	08/27/99	08/27/99	08/27/99	08/27/99						
Analyst Initials:	NN		NN	NN	NN	NN	NN						
Dilution Factor:	1		1	1	1	1	1						
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
(#1) 2-CB	20	20	ND	20	ND	20	ND	20	ND	20	ND	20	ND
(#5) 2,3-DiCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#18) 2,2',5-TriCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#31) 2,4',5-TriCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#52) 2,2',5,5'-TetraCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#44) 2,2',3,5'-TetraCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#66) 2,3',4,4'-TetraCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#101) 2,2',4,5,5'-PentaCB	10	10	ND	10	ND	10	ND	10	12	10	ND	10	ND
(#87) 2,2',3,4,5'-PentaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#110) 2,3,3',4',6-PentaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#151) 2,2',3,5,5',6-HexaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#153) 2,2',4,4',5,5'-HexaC	10	10	ND	10	21	10	ND	10	53	10	ND	10	15
(#138) 2,2',3,4,4',5-HexaCB	10	10	ND	10	ND	10	ND	10	21	10	ND	10	ND
(#141) 2,2',3,4,5,5'-HexaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
(#187) 2,2',3,4',5,5'-6-Hep	10	10	ND	10	10	10	ND	10	36	10	ND	10	ND
(#183) 2,2',3,4',4,5'-6-Hep	10	10	ND	10	ND	10	ND	10	19	10	ND	10	ND
(#180) 2,2',3,4,4',5,5'-Hep	10	10	ND	10	27	10	13	20	99**	10	12	10	22
(#170) 2,2',3,3',4,4',5-Hep	10	10	ND	10	20	10	ND	10	76	10	ND	10	16
(#206) 2,2',3,3',4,4',5,5'	10	10	ND	10	ND	10	ND	10	ND	10	ND	10	ND
Aroclor-1016	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1221	67	67	ND	67	ND	67	ND	67	ND	67	ND	67	ND
Aroclor-1232	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1242	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1248	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1254	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1260	33	33	ND	33	197	33	101	33	634	33	89	33	162
Aroclor-1262	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1268	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND

\*\* = Dilution factor is 2

MDL = Method Detection Limit  
 ND = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

Reviewed/Approved By:   
 for Sylvia Chan  
 Semi Volatiles Group Leader

Date: 6/25/00

The cover letter is an integral part of this analytical report.



Advanced Technology  
 Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

Client: Geosyntec Consultants  
 Attn: Nancy Ruiz

Client's Project: Fieldstone, HG0152  
 Date Received: 08/20/99  
 Extraction Method: 3550B  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8080A

Lab No.:	Method Blank		37849-017		37849-019		37849-020		37849-022		37849-023		
Client Sample ID.:	--		F04-17		F04-19		F04-20		F04-22		F04-23		
Date Sampled:	--		08/19/99		08/19/99		08/19/99		08/19/99		08/19/99		
QC Batch #:	P998080S284		P998080S284		P998080S284		P998080S284		P998080S284		P998080S284		
Date Extracted:	08/25/99		08/25/99		08/25/99		08/25/99		08/25/99		08/25/99		
Date Analyzed:	08/26/99		08/27/99		08/27/99		08/27/99		08/29/99		08/29/99		
Analyst Initials:	NN		NN		NN		NN		NN		NN		
Dilution Factor:	1		1		1		1		5		1		
ANALYTE	MDL	DLR	Results	DLR	Results								
(#1) 2-CB	20	20	ND	20	ND	20	ND	20	ND	100	ND	20	ND
(#5) 2,3,-DiCB	10	10	ND	10	ND	10	ND	10	ND	50	ND	10	ND
(#18) 2,2',5-TriCB	10	10	ND	10	ND	10	ND	10	ND	50	ND	10	ND
(#31) 2,4',5-TriCB	10	10	ND	10	ND	10	ND	10	ND	50	ND	10	ND
(#52) 2,2',5,5'-TetraCB	10	10	ND	10	ND	10	ND	10	ND	50	ND	10	ND
(#44) 2,2',3,5'-TetraCB	10	10	ND	10	ND	10	ND	10	ND	50	ND	10	ND
(#66) 2,3',4,4'-TetraCB	10	10	ND	10	ND	10	ND	10	ND	50	ND	10	ND
(#101) 2,2',4,5,5'-PentaCB	10	10	ND	10	ND	10	ND	10	ND	50	10	10	ND
(#87) 2,2',3,4,5'-PentaCB	10	10	ND	10	ND	10	ND	10	ND	50	ND	10	ND
(#110) 2,3,3',4',6-PentaCB	10	10	ND	10	ND	10	ND	10	ND	50	ND	10	ND
(#151) 2,2',3,5,5',6-HexaCB	10	10	ND	10	ND	10	13	10	13	50	ND	10	ND
(#153) 2,2',4,4',5,5'-HexaC	10	10	ND	10	15	10	64	10	72	50	46	10	31
(#138) 2,2',3,4,4',5-HexaCB	10	10	ND	10	ND	10	22	10	20	50	10	10	11
(#141) 2,2',3,4,5,5'-HexaCB	10	10	ND	10	ND	10	ND	10	ND	50	ND	10	ND
(#187) 2,2',3,4',5,5'-6-Hep	10	10	ND	10	ND	10	34	10	32	50	20	10	16
(#183) 2,2',3,4',4,5'-6-Hep	10	10	ND	10	ND	10	21	10	18	50	11	10	ND
(#180) 2,2',3,4,4',5,5'-Hep	10	10	ND	10	23	20	81**	10	81	50	47	10	44
(#170) 2,2',3,3',4,4',5-Hep	10	10	ND	10	16	10	60	10	52	50	30	10	30
(#206) 2,2',3,3',4,4',5,5'	10	10	ND	10	ND	10	ND	10	ND	50	ND	10	ND
Aroclor-1016	33	33	ND	33	ND	33	ND	33	ND	165	ND	33	ND
Aroclor-1221	67	67	ND	67	ND	67	ND	67	ND	335	ND	67	ND
Aroclor-1232	33	33	ND	33	ND	33	ND	33	ND	165	ND	33	ND
Aroclor-1242	33	33	ND	33	ND	33	ND	33	ND	165	ND	33	ND
Aroclor-1248	33	33	ND	33	ND	33	ND	33	ND	165	ND	33	ND
Aroclor-1254	33	33	ND	33	ND	33	ND	33	ND	165	ND	33	ND
Aroclor-1260	33	33	ND	33	162	33	660	33	654	165	393	33	314
Aroclor-1262	33	33	ND	33	ND	33	ND	33	ND	165	ND	33	ND
Aroclor-1268	33	33	ND	33	ND	33	ND	33	ND	165	ND	33	ND

MDL = Method Detection Limit  
 ND = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

\*\* = Dilution factor is 2

Reviewed/Approved By: \_\_\_\_\_

  
 for Sylvia Chan  
 Semi Volatiles Group Leader

Date: \_\_\_\_\_

5/25/01

The cover letter is an integral part of this analytical report



Advanced Technology  
 Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

Client: Ceosyntec Consultants  
 Attn: Nancy Ruiz

Client's Project: Fieldstone, HG0152  
 Date Received: 08120199  
 Extraction Method: 3550B  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8080A

Lab No.:	Method Blank	37849-024	37849-025	37849-026	37849-027	37849-028							
Client Sample I.D.:	--	F04-24A	F04-24B	F04-24C	F04-24D	F04-25A							
Date Sampled:	--	08/19/99	08/19/99	08/19/99	08/19/99	08/19/99							
QC Batch #:	P998080S284	P998080S284	P998080S284	P998080S284	P998080S284	P998080S284							
Date Extracted:	08/25/99	08/25/99	08/25/99	08/25/99	08/25/99	08/25/99							
Date Analyzed:	08/26/99	08/29/99	08/29/99	08/29/99	08/29/99	08/29/99							
Analyst Initials:	NN	NN	NN	NN	NN	NN							
Dilution Factor:	1	5	1	1	1	1							
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
(#1) 2-CB	20	20	ND	100	ND	20	ND	20	ND	20	ND	20	ND
(#5) 2,3,-DiCB	10	10	ND	50	ND	10	ND	10	ND	10	ND	10	ND
(#18) 2,2',5'-TriCB	10	10	ND	50	ND	10	ND	10	ND	10	ND	10	ND
(#31) 2,4',5'-TriCB	10	10	ND	50	ND	10	ND	10	ND	10	ND	10	ND
(#52) 2,2',5,5'-TetraCB	10	10	ND	50	ND	10	ND	10	ND	10	ND	10	ND
(#44) 2,2',3,5'-TetraCB	10	10	ND	50	ND	10	ND	10	ND	10	ND	10	ND
(#66) 2,3',4,4'-TetraCB	10	10	ND	50	ND	10	ND	10	ND	10	ND	10	ND
(#101) 2,2',4,5,5'-PentaCB	10	10	ND	50	13	10	ND	10	ND	10	ND	10	11
(#87) 2,2',3,4,5'-PentaCB	10	10	ND	50	ND	10	ND	10	ND	10	ND	10	ND
(#110) 2,3,3',4',6'-PentaCB	10	10	ND	50	ND	10	ND	10	ND	10	ND	10	ND
(#151) 2,2',3,5,5',6'-HexaCB	10	10	ND	50	11	10	ND	10	ND	10	ND	10	11
(#153) 2,2',4,4',5,5'-HexaC	10	10	ND	50	37	10	ND	10	ND	10	ND	10	53
(#138) 2,2',3,4,4',5'-HexaCB	10	10	ND	50	14	10	ND	10	ND	10	ND	10	19
(#141) 2,2',3,4,5,5'-HexaCB	10	10	ND	50	ND	10	ND	10	ND	10	ND	10	ND
(#187) 2,2',3,4',5,5'-6-Hep	10	10	ND	50	18	10	ND	10	ND	10	ND	10	30
(#183) 2,2',3,4',4,5'-6-Hep	10	10	ND	50	11	10	ND	10	ND	10	ND	10	18
(#180) 2,2',3,4,4',5,5'-Hep	10	10	ND	50	42	10	ND	10	ND	10	ND	20	85**
(#170) 2,2',3,3',4,4',5-Hep	10	10	ND	50	ND	10	ND	10	ND	10	ND	10	68
(#206) 2,2',3,3',4,4',5,5'	10	10	ND	50	ND	10	ND	10	ND	10	ND	10	ND
Aroclor-1016	33	33	ND	165	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1221	67	67	ND	335	ND	67	ND	67	ND	67	ND	67	ND
Aroclor-1232	33	33	ND	165	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1242	33	33	ND	165	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1248	33	33	ND	165	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1254	33	33	ND	165	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1260	33	33	ND	165	2030	33	ND	33	ND	33	ND	33	651
Aroclor-1262	33	33	ND	165	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1268	33	33	ND	165	ND	33	ND	33	ND	33	ND	33	ND

MDL = Method Detection Limit  
 ND = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

\*\* = Dilution factor is 2

Reviewed/Approved By: \_\_\_\_\_

*Sylvia Chan*  
 for Sylvia Chan  
 Semi Volatiles Group Leader

Date: 5/26/01

The cover letter is an integral part of this analytical report



Advanced Technology  
 Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 939-4040

Client: Geosyntec Consultants  
 Attn: Nancy Ruiz

Client's Project: Fieldstone, HG0152  
 Date Received: 08/20/99  
 Extraction Method: 3550B  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8080A

Lab No.:	Method Blank		37849-032		37849-036		37849-037		37849-038		37849-039		
Client Sample I.D.:	--		F04-26A		F04-27A		F04-27B		F04-27C		F04-27D		
Date Sampled:	--		08/19/99		08/19/99		08/19/99		08/19/99		08/19/99		
QC Batch #:	P998080S285		P998080S285		P998080S285		P998080S285		P998080S285		P998080S285		
Date Extracted:	08/25/99		08/25/99		08/25/99		08/25/99		08/25/99		08/25/99		
Date Analyzed:	08/29/99		08/30/99		08/30/99		08/30/99		08/30/99		08/30/99		
Analyst Initials:	NN		NN		NN		NN		NN		NN		
Dilution Factor:	1		1		1		1		1		1		
ANALYTE	MDL	DLR	Results	DLR	Results								
(#1) 2-CB	20	20	ND	20	ND								
(#5) 2,3-DiCB	10	10	ND	10	ND								
(#18) 2,2',5-TriCB	10	10	ND	10	ND								
(#31) 2,4',5-TriCB	10	10	ND	10	ND								
(#52) 2,2',5,5'-TetraCB	10	10	ND	10	ND								
(#44) 2,2',3,5'-TetraCB	10	10	ND	10	ND								
(#66) 2,3',4,4'-TetraCB	10	10	ND	10	ND								
(#101) 2,2',4,5,5'-PentaCB	10	10	ND	10	ND								
(#87) 2,2',3,4,5'-PentaCB	10	10	ND	10	ND								
(#110) 2,3,3',4',6-PentaCB	10	10	ND	10	ND								
(#151) 2,2',3,5,5',6-HexaCB	10	10	ND	10	ND								
(#153) 2,2',4,4',5,5'-HexaC	10	10	ND	10	20	10	14	10	ND	10	ND	10	ND
(#138) 2,2',3,4,4',5-HexaCB	10	10	ND	10	ND								
(#141) 2,2',3,4,5,5'-HexaCB	10	10	ND	10	ND								
(#187) 2,2',3,4',5,5'-6-Hep	10	10	ND	10	ND								
(#183) 2,2',3,4',4,5'-6-Hep	10	10	ND	10	ND								
(#180) 2,2',3,4,4',5,5'-Hep	10	10	ND	10	22	10	15	10	ND	10	ND	10	ND
(#170) 2,2',3,3',4,4',5-Hep	10	10	ND	10	ND								
(#206) 2,2',3,3',4,4',5,5'	10	10	ND	10	ND								
Aroclor-1016	33	33	ND	33	ND								
Aroclor-1221	67	67	ND	67	ND								
Aroclor-1232	33	33	ND	33	ND								
Aroclor-1242	33	33	ND	33	ND								
Aroclor-1248	33	33	ND	33	ND								
Aroclor-1254	33	33	ND	33	ND								
Aroclor-1260	33	33	ND	33	211	33	139	33	ND	33	ND	33	ND
Aroclor-1262	33	33	ND	33	ND								
Aroclor-1268	33	33	ND	33	ND								

MDL = Method Detection Limit  
 ND = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 KA = Not Analyzed

Reviewed/Approved By:   
 for Sylvia Chan  
 Semi Volatiles Group Leader

Date: 6/25/01

The cover letter is an integral part of this analytical report.



Client: Geosyntec Consultants  
 Attn: Nancy Ruiz

Client's Project: Fieldstone, HG0152  
 Date Received: 08/20/99  
 Extraction Method: 3550B  
 Matrix: Soil  
 Units: ug/kg

EPA Method 80804

Lab No.:	Method Blank		37849-041	37849-042	37849-043	37849-044	37849-045						
Client Sample I.D.:	--		F03-24A	F03-24B	F03-24C	F03-24D	F03-26A						
Date Sampled:	--		08/20/99	08/20/99	08/20/99	08/20/99	08/20/99						
QC Batch #:	P998080S285		P998080S285	P998080S285	P998080S285	P998080S285	P998080S285						
Date Extracted:	08/25/99		08/25/99	08/25/99	08/25/99	08/25/99	08/25/99						
Date Analyzed:	08/30/99		08/30/99	08/30/99	08/30/99	08/30/99	08/30/99						
Analyst Initials:	NN		NN	NN	NN	NN	NN						
Dilution Factor:	1		1	1	1	1	10						
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
(#1) 2-CB	20	20	ND	20	ND	20	ND	20	ND	20	ND	200	ND
(#5) 2,3-DiCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
(#18) 2,2',5-TriCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
(#31) 2,4',5-TriCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
(#52) 2,2',5,5'-TetraCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
(#44) 2,2',3,5'-TetraCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
(#66) 2,3',4,4'-TetraCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
(#101) 2,2',4,5,5'-PentaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
(#87) 2,2',3,4,5'-PentaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
(#110) 2,3,3',4',6-PentaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
(#151) 2,2',3,5,5',6-HexaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
(#153) 2,2',4,4',5,5'-HexaC	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	219
(#138) 2,2',3,4,4',5-HexaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
(#141) 2,2',3,4,5,5'-HexaCB	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
(#187) 2,2',3,4',5,5'-6-Hep	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	132
(#183) 2,2',3,4',4,5'-6-Hep	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
(#180) 2,2',3,4,4',5,5'-Hep	10	10	ND	10	503	10	ND	10	ND	10	ND	100	310
(#170) 2,2',3,3',4,4',5-Hep	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
(#206) 2,2',3,3',4,4',5,5'	10	10	ND	10	ND	10	ND	10	ND	10	ND	100	ND
Aroclor-1016	33	33	ND	33	ND	33	ND	33	ND	33	ND	330	ND
Aroclor-1221	67	67	ND	67	ND	67	ND	67	ND	67	ND	670	ND
Aroclor-1232	33	33	ND	33	ND	33	ND	33	ND	33	ND	330	ND
Aroclor-1242	33	33	ND	33	ND	33	ND	33	ND	33	ND	330	ND
Aroclor-1248	33	33	ND	33	ND	33	ND	33	ND	33	ND	330	ND
Aroclor-1254	33	33	ND	33	ND	33	ND	33	ND	33	ND	330	ND
Aroclor-1260	33	33	ND	33	4425	33	ND	33	ND	33	ND	330	2540
Aroclor-1262	33	33	ND	33	ND	33	ND	33	ND	33	ND	330	ND
Aroclor-1268	33	33	ND	33	ND	33	ND	33	ND	33	ND	330	ND

MDL = Method Defection Limit  
 ND = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

Reviewed/Approved By:   
 for Sylvia Chan  
 Semi Volatiles Group Leader

Date: 5/25/01

The cover letter is an integral part of this analytical report.



Advanced Technology  
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3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

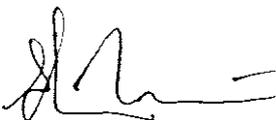
Client: Geosyntec Consultants  
 Attn: Nancy Ruiz  
 Client's Project: Fieldstone, HG0152  
 Date Received: 08/20/99  
 Extraction Method: 35508  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8080A

Lab No.:	Method Blank	37849-048							
Client Sample I.D.:	--	F0325A							
Date Sampled:	--	08/20/99							
QC Batch #:	P998080S293	P998080S293							
Date Extracted:	08/31/99	08/31/99							
Date Analyzed:	08/31/99	08/31/99							
Analyst Initials:	NN	NN							
Dilution Factor:	I	10							
ANALYTE	MDL	DLR	Results	DLR	Results				
(#1) 2-CB	20	20	ND	200	ND				
(#5) 2,3,-DiCB	10	10	ND	100	ND				
(#18) 2,2',5-TriCB	10	10	ND	100	ND				
(#31) 2,4',5-TriCB	10	10	ND	100	ND				
(#52) 2,2',5,5'-TetraCB	10	10	ND	100	ND				
(#44) 2,2',3,5'-TetraCB	10	10	ND	100	ND				
(#66) 2,3',4,4'-TetraCB	10	10	ND	100	ND				
(#101) 2,2',4,5,5'-PentaCB	10	10	ND	100	ND				
(#87) 2,2',3,4,5'-PentaCB	10	10	ND	100	ND				
(#110) 2,3,3',4',6-PentaCB	10	10	ND	100	ND				
(#151) 2,2',3,5,5',6-HexaCB	10	10	ND	100	ND				
(#153) 2,2',4,4',5,5'-HexaC	10	10	ND	100	230				
(#138) 2,2',3,4,4',5-HexaCB	10	10	ND	100	ND				
(#141) 2,2',3,4,5,5'-HexaCB	10	10	ND	100	ND				
(#187) 2,2',3,4',5,5'-6-Hep	10	10	ND	100	144				
(#183) 2,2',3,4',4,5'-6-Hep	10	10	ND	100	ND				
(#180) 2,2',3,4,4',5,5'-Hep	10	10	ND	100	338				
(#170) 2,2',3,3',4,4',5-Hep	10	10	ND	100	ND				
(#206) 2,2',3,3',4,4',5,5'	10	10	ND	100	ND				
Aroclor-1016	33	33	ND	3300	ND				
Aroclor-1221	67	67	ND	6700	ND				
Aroclor-1232	33	33	ND	3300	ND				
Aroclor-1242	33	33	ND	3300	ND				
Aroclor-1248	33	33	ND	3300	ND				
Aroclor-1254	33	33	ND	3300	ND				
Aroclor-1260	33	33	ND	3300	2770				
Aroclor-1262	33	33	ND	3300	ND				
Aroclor-1268	33	33	ND	3300	ND				

MDL = Method Detection Limit  
 ND = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

Reviewed/Approved By: \_\_\_\_\_

  
 for Sylvia Chan  
 Semi Volatiles Group Leader

Date: 5/25/01

The cover letter is an integral part of this analytical report.



Advanced Technology  
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3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

Client: Geosyntec Consultants  
 Attn: Nancy Ruiz

Client's Project: Fieldstone, HG0152  
 Date Received: 08/20/99  
 Extraction Method: 35508  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8080A

Lab No.:	Method Blank	37849-052	37849-055	37849-056									
Client Sample I.D.:	--	F03-19	F03-4	F03-12									
Date Sampled:	--	08/20/99	08/20/99	08/20/99									
QC Batch #:	P998080S285	P998080S285	P998080S285	P998080S285									
Date Extracted:	08/25/99	08/25/99	08/25/99	08/25/99									
Date Analyzed:	08/28/99	08/28/99	08/30/99	08/30/99									
Analyst Initials:	NN	NN	NN	NN									
Dilution Factor:	1	5	20	20									
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
(#1) 2-CB	20	20	ND	100	ND	400	ND	400	ND				
(#5) 2,3-DiCB	10	10	ND	50	ND	200	ND	200	ND				
(#18) 2,2',5-TriCB	10	10	ND	50	ND	200	ND	200	ND				
(#31) 2,4',5-TriCB	10	10	ND	50	ND	200	ND	200	ND				
(#52) 2,2',5,5'-TetraCB	10	10	ND	50	ND	200	ND	200	ND				
(#44) 2,2',3,5'-TetraCB	10	10	ND	50	ND	200	ND	200	ND				
(#66) 2,3',4,4'-TetraCB	10	10	ND	50	ND	200	ND	200	ND				
(#101) 2,2',4,5,5'-PentaCB	10	10	ND	50	ND	200	ND	200	ND				
(#87) 2,2',3,4,5'-PentaCB	10	10	ND	50	ND	200	ND	200	ND				
(#110) 2,3,3',4',6-PentaCB	10	10	ND	50	ND	200	ND	200	ND				
(#151) 2,2',3,5,5',6-HexaCB	10	10	ND	50	ND	200	ND	200	ND				
(#153) 2,2',4,4',5,5'-HexaC	10	10	ND	50	ND	200	491	200	378				
(#138) 2,2',3,4,4',5-HexaCB	10	10	ND	50	ND	200	ND	200	ND				
(#141) 2,2',3,4,5,5'-HexaCB	10	10	ND	50	ND	200	ND	200	ND				
(#187) 2,2',3,4',5,5'-6-Hep	10	10	ND	50	ND	200	296	200	244				
(#183) 2,2',3,4',4,5'-6-Hep	10	10	ND	50	ND	200	ND	200	ND				
(#180) 2,2',3,4,4',5,5'-Hep	10	10	ND	50	583	200	674	200	554				
(#170) 2,2',3,3',4,4',5-Hep	10	10	ND	50	ND	200	ND	200	ND				
(#206) 2,2',3,3',4,4',5,5'	10	10	ND	50	ND	200	ND	200	ND				
Aroclor-1016	33	33	ND	165	ND	660	ND	660	ND				
Aroclor-1221	67	67	ND	335	ND	1340	ND	1340	ND				
Aroclor-1232	33	33	ND	165	ND	660	ND	660	ND				
Aroclor-1242	33	33	ND	165	ND	660	ND	660	ND				
Aroclor-1248	33	33	ND	165	ND	660	ND	660	ND				
Aroclor-1254	33	33	ND	165	ND	660	ND	660	ND				
Aroclor-1260	33	33	ND	165	5220	660	5550	660	4530				
Aroclor-1262	33	33	ND	165	ND	660	ND	660	ND				
Aroclor-1268	33	33	ND	165	ND	660	ND	660	ND				

MDL = Method Detection Limit  
 ND = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

Reviewed/Approved By: Sylvia Chan  
 for Sylvia Chan  
 Semi Volatiles Group Leader

Date: 5/25/01

The cover letter is an integral part of this analytical report



Advanced Technology  
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3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

**22 OCTOBER 1999 SAMPLING EVENT  
LABORATORY DATA  
FIELDSTONE PROPERTY  
HUNTINGTON BEACH, CALIFORNIA**

ELAP No.: 1838

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648

ATTN: Eric Stone  
SUBJECT: **REGENERATED REPORT**

Client's Project: Fieldstone, #HG0152-96  
Lab No.: 39259-001/047

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (562)989 - 4045 if I can be of further assistance to your company.

Sincerely,



Edgar Caballero  
Laboratory Director  
EC/dg

Enclosures

This cover letter is an integral part of this analytical report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purpose without authorization is prohibited.



Client: Geosyntec  
 Attn: Eric Smaltig

Client's Project: Fieldstone, BG0152.96  
 Date Received: 10/25/99  
 Extraction Method: 3550B  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8082

Lab No.:	Method Blank		39259-001	39259-002	39259-005	39259-006					
Client Sample I.D.:	--		F-04-29 (100)	F-04-30 (120)	F-04-33 (210)	F-04-34 (45)					
Date Sampled:	--		10/22/99	10/22/99	10/22/99	10/22/99					
QC Batch #:	P998080S362		P998080S362	P998080S362	P998080S362	P998080S362					
Date Extracted:	10/26/99		10/26/99	10/26/99	10/26/99	10/26/99					
Date Analyzed:	10/28/99		10/28/99	10/28/99	10/28/99	10/28/99					
Analyst Initials:	NN		NN	NN	NN	NN					
Dilution Factor:	1		2	1	1	1					
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Aroclor-1016	33	33	ND	66	ND	33	ND	33	ND	33	ND
Aroclor-1221	67	67	ND	134	ND	67	ND	67	ND	67	ND
Aroclor-1232	33	33	ND	66	ND	33	ND	33	ND	33	ND
Aroclor-1242	33	33	ND	66	ND	33	ND	33	ND	33	ND
Aroclor-1248	33	33	ND	66	ND	33	ND	33	ND	33	ND
Aroclor-1254	33	33	ND	66	ND	33	ND	33	ND	33	ND
Aroclor-1260	33	33	ND	66	836	33	273	33	ND	33	439
Aroclor-1262	33	33	ND	66	ND	33	ND	33	ND	33	ND
Aroclor-1268	33	33	ND	66	ND	33	ND	33	ND	33	ND

DL = Method Detection Limit  
 D = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

Reviewed/Approved By: \_\_\_\_\_

  
 Eric Compton-Persaud  
 Department Supervisor

Date: 6/25/01

The cover letter is an integral part of this analytical report.

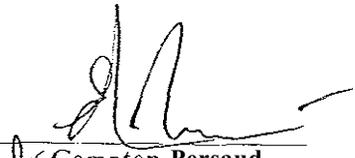
Client: Geosyntec  
 Attn: Eric Smaltig

Client's Project: Fieldstone, HGO152.96  
 Date Received: 10/25/99  
 Extraction Method: 3550B  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8082

Lab No.:	Method Blank	39259-007												
Client Sample I.D.:	--	F9-04-35 (60)												
Date Sampled:	--	10/22/99												
QC Batch #:	P998080S362	P998080S362												
Date Extracted:	10/26/99	10/26/99												
Date Analyzed:	10/28/99	10/28/99												
Analyst Initials:	NN	NN												
Dilution Factor:	1	1												
ANALYTE	MDL	DLR	Results	DLR	Results									
Aroclor-1016	33	33	ND	33	ND									
Aroclor-1221	67	67	ND	67	ND									
Aroclor-1232	33	33	ND	33	ND									
Aroclor-1242	33	33	ND	33	ND									
Aroclor-1248	33	33	ND	33	ND									
Aroclor-1254	33	33	ND	33	ND									
Aroclor-1260	33	33	ND	33	278									
Aroclor-1262	33	33	ND	33	ND									
Aroclor-1268	33	33	ND	33	ND									

DL = Method Detection Limit  
 D = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

Reviewed/Approved By:   
 Compton Persaud  
 Department Supervisor

Date: 5/25/01

The cover letter is an integral part of this analytical report.

Client: Geosyntec  
 Attn: Eric Smaltig

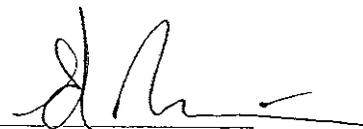
Client's Project: Fieldstone, HGO152.96  
 Date Received: 10/25/99  
 Extraction Method: 35508  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8082

Lab No.:	39259-010	39259-011	39259-012	39259-013	39259-014	39259-015							
Client Sample I.D.:	F-04-38 (120)	F-04-39 (40)	F-04-40 (60)	F-04-41 (45)	F-04-42 (60)	F-04-43 (40)							
Date Sampled:	10/22/99	10/22/99	10/22/99	10/22/99	10/22/99	10/22/99							
QC Batch #:	P998080S362	P998080S362	P998080S362	P998080S362	P998080S362	P998080S362							
Date Extracted:	10/26/99	10/26/99	10/26/99	10/26/99	10/26/99	10/26/99							
Date Analyzed:	10/28/99	10/28/99	10/28/99	10/28/99	10/28/99	10/28/99							
Analyst Initials:	NN	NN	NN	NN	NN	NN							
Dilution Factor:	1	1	1	1	1	2							
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Aroclor-1016	33	33	ND	33	ND	33	ND	33	ND	33	ND	66	ND
Aroclor-1221	67	67	ND	67	ND	67	ND	67	ND	67	ND	134	ND
Aroclor-1232	33	33	ND	33	ND	33	ND	33	ND	33	ND	66	ND
Aroclor-1242	33	33	ND	33	ND	33	ND	33	ND	33	ND	66	ND
Aroclor-1248	33	33	ND	33	ND	33	ND	33	ND	33	ND	66	ND
Aroclor-1254	33	33	ND	33	ND	33	ND	33	ND	33	ND	66	ND
Aroclor-1260	33	33	127	33	184	33	162	33	337	33	140	66	1140
Aroclor-1262	33	33	ND	33	ND	33	ND	33	ND	33	ND	66	ND
Aroclor-1268	33	33	ND	33	ND	33	ND	33	ND	33	ND	66	ND

DL = Method Detection Limit  
 J = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

Reviewed/Approved By:

  
 Eric Compton Persaud  
 Department Supervisor

Date: 5/25/01

The cover letter is an integral part of this analytical report



Advanced Technology  
 Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

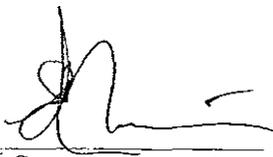
Client: Ceosgntec  
 Attn: Eric Smaltig

Client's Project: Fieldstone, HGO152.96  
 Date Received: 10/25/99  
 Extraction Method: 3550B  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8082

Lab No.:	39259-016												
Client Sample I.D.:	F-04-44 (60)												
Date Sampled:	10/22/99												
QC Batch #:	P998080S362												
Date Extracted:	10/26/99												
Date Analyzed:	10/28/99												
Analyst Initials:	NN												
Dilution Factor:	1												
ANALYTE	MDL	DLR	Results										
Aroclor-1016	33	33	ND										
Aroclor-1221	67	67	ND										
Aroclor-1232	33	33	ND										
Aroclor-1242	33	33	ND										
Aroclor-1248	33	33	ND										
Aroclor-1254	33	33	ND										
Aroclor-1260	33	33	554										
Aroclor-1262	33	33	ND										
Aroclor-1268	33	33	ND										

DL = Method Detection Limit  
 = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

Reviewed/Approved By:   
 Compton Persaud  
 Department Supervisor

5/25/01

The cover letter is an integral part of this analytical report

Client: Geosyntec  
 Attn: Eric Smaltig

Client's Project: Fieldstone, HGO152.96  
 Date Received: 10/25/99  
 Extraction Method: 35508  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8082

Lab No.:	Method Blank		39259-017	39259-018	39259-020	39259-021	39259-022						
Client Sample I.D.:	-		F-04-45 (45)	F-04-46 (60)	F-04-48 (100)	F-04-49 (40)	F-04-50 (60)						
Date Sampled:	-		10/22/99	10/22/99	10/22/99	10/22/99	10/22/99						
QC Batch #:	P998080S363		P998080S363	P998080S363	P998080S363	P998080S363	P998080S363						
Date Extracted:	10/27/99		10/27/99	10/27/99	10/27/99	10/27/99	10/27/99						
Date Analyzed:	10/28/99		10/28/99	10/28/99	10/28/99	10/28/99	10/28/99						
Analyst Initials:	NN		NN	NN	NN	NN	NN						
Dilution Factor:	1		1	1	50	2	2						
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Aroclor-1016	33	33	ND	33	ND	33	ND	1650	ND	66	ND	66	ND
Aroclor-1221	67	67	ND	67	ND	67	ND	3350	ND	134	ND	134	ND
Aroclor-1232	33	33	ND	33	ND	33	ND	1650	ND	66	ND	66	ND
Aroclor-1242	33	33	ND	33	ND	33	ND	1650	ND	66	ND	66	ND
Aroclor-1248	33	33	ND	33	ND	33	ND	1650	ND	66	ND	66	ND
Aroclor-1254	33	33	ND	33	ND	33	ND	1650	ND	66	ND	66	ND
Aroclor-1260	33	33	ND	33	280	33	500	1650	15100	66	1160	66	1110
Aroclor-1262	33	33	ND	33	ND	33	ND	1650	ND	66	ND	66	ND
Aroclor-1268	33	33	ND	33	ND	33	ND	1650	ND	66	ND	66	ND

DL = Method Detection Limit  
 ND = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

Reviewed/Approved By:   
 Compton Persaud  
 Department Supervisor

Date: 5/25/01

The cover letter is an integral part of this analytical report



Client: Geosyntec  
 Attn: Eric Smaltig

Client's Project: Fieldstone, HG0152.96  
 Date Received: 10/25/99  
 Extraction Method: 3550B  
 Matrix: Soil  
 Units: µg/kg

EPA Method 8082

Lab No.:	39259-024	39259-025	39259-026	39259-027	39259-030	39259-033							
Client Sample I.D.:	F-04-52 (100)	F-04-53 (60)	F-04-54 (90)	F-04-55 (120)	F-04-58 (210)	F-04-61 (300)							
Date Sampled:	10/22/99	10/22/99	10/22/99	10/22/99	10/22/99	10/22/99							
QC Batch #:	P998080S363	P998080S363	P998080S363	P998080S363	P998080S363	P998080S363							
Date Extracted:	10/27/99	10/27/99	10/27/99	10/27/99	10/27/99	10/27/99							
Date Analyzed:	10/28/99	10/28/99	10/28/99	10/28/99	10/28/99	10/28/99							
Analyst Initials:	NN	NN	NN	NN	NN	NN							
Dilution Factor:	1	1	1	1	1	1							
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Aroclor-1016	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1221	67	67	ND	67	ND	67	ND	67	ND	67	ND	67	ND
Aroclor-1232	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1242	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1248	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1254	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1260	33	33	508	33	327	33	103	33	251	33	66	33	136
Aroclor-1262	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND
Aroclor-1268	33	33	ND	33	ND	33	ND	33	ND	33	ND	33	ND

DL = Method Detection Limit  
 ND = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

Reviewed/Approved By: \_\_\_\_\_

*[Signature]*  
 For Compton Persaud  
 Department Supervisor

Date: 5/25/01

The cover letter is an integral part of this analytical report



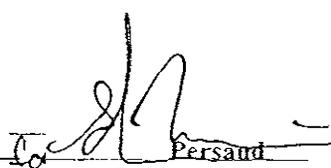
Client: Geosyntec  
 Attn: Eric Smaltig

Client's Project: Fieldstone, HC0152.96  
 Date Received: 10/25/99  
 Extraction Method: 3550B  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8082

Lab No.:	39259-034	39259-035	39259-036	39259-037	39259-038	39259-039							
Client Sample I.D.:	F-03-29 (45)	F-03-30 (60)	F-03-31 (20)	F-03-32 (45)	F-03-33 (45)	F-03-34 (45)							
Date Sampled:	10/22/99	10/22/99	10/22/99	10/22/99	10/22/99	10/22/99							
QC Batch #:	P998080S363	P998080S363	P998080S363	P998080S363	P998080S363	P998080S363							
Date Extracted:	10/27/99	10/27/99	10/27/99	10/27/99	10/27/99	10/27/99							
Date Analyzed:	10/28/99	10/28/99	10/28/99	10/28/99	10/28/99	10/28/99							
Analyst Initials:	NN	NN	NN	NN	NN	NN							
Dilution Factor:	2	5	1	2	1	1							
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Aroclor-1016	33	66	ND	165	ND	33	ND	66	ND	33	ND	33	ND
Aroclor-1221	67	134	ND	335	ND	67	ND	134	ND	67	ND	67	ND
Aroclor-1232	33	66	ND	165	ND	33	ND	66	ND	33	ND	33	ND
Aroclor-1242	33	66	ND	165	ND	33	ND	66	ND	33	ND	33	ND
Aroclor-1248	33	66	ND	165	ND	33	ND	66	ND	33	ND	33	ND
Aroclor-1254	33	66	ND	165	ND	33	ND	66	ND	33	ND	33	ND
Aroclor-1260	33	66	865	165	2170	33	425	66	1270	33	648	33	382
Aroclor-1262	33	66	ND	165	ND	33	ND	66	ND	33	ND	33	ND
Aroclor-1268	33	66	ND	165	ND	33	ND	66	ND	33	ND	33	ND

DL = Method Detection Limit  
 ND = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

Reviewed/Approved By:   
 Department Supervisor

Date: 5/25/01

The cover letter is an integral part of this analytical report



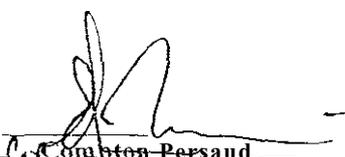
Client: Geosyntec  
 Attn: Eric Smaltig

Client's Project: Fieldstone, HG0152.96  
 Date Received: 10/25/99  
 Extraction Method: 3550B  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8082

Lab No.:	39259-040	39259-041	39259-042												
Client Sample I.D.:	F-03-35 (60)	F-03-36 (45)	F-03-37 (60)												
Date Sampled:	10/22/99	10/22/99	10/22/99												
QC Batch #:	P998080S363	P998080S363	P998080S363												
Date Extracted:	10/27/99	10/27/99	10/27/99												
Date Analyzed:	10/28/99	10/28/99	10/28/99												
Analyst Initials:	NN	NN	NN												
Dilution Factor:	1	50	2												
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Aroclor-1016	33	33	ND	1650	ND	66	ND								
Aroclor-1221	67	67	ND	3350	ND	134	ND								
Aroclor-1232	33	33	ND	1650	ND	66	ND								
Aroclor-1242	33	33	ND	1650	ND	66	ND								
Aroclor-1248	33	33	ND	1650	ND	66	ND								
Aroclor-1254	33	33	ND	1650	ND	66	ND								
Aroclor-1260	33	33	180	1650	20400	66	997								
Aroclor-1262	33	33	ND	1650	ND	66	ND								
Aroclor-1268	33	33	ND	1650	ND	66	ND								

DL = Method Detection Limit  
 J = Not Detected (Below DLR)  
 DLR = MDL X Dilution Factor  
 NA = Not Analyzed

Reviewed/Approved By:   
 Department Supervisor

Date: 5/21/01

The cover letter is an integral part of this analytical report.

Client: Geosyntec  
 Attn: Eric Smaltig  
 Client's Project: Fieldstone, HCO152.96  
 Date Received: 10/25/99  
 Extraction Method: 3550B  
 Matrix: Soil  
 Units: ug/kg

EPA Method 8082

Lab No.:	Method Blank	39259-043	39259-044	39259-045	39259-046	39259-047							
Client Sample I.D.:	--	F-03-38 (75)	F-03-39 (45)	F-03-40 (45)	F-03-41 (45)	F-03-42 (60)							
Date Sampled:	--	10/22/99	10/22/99	10/22/99	10/22/99	10/22/99							
QC Batch #:	H998080S364	H998080S364	H998080S364	H998080S364	H998080S364	H998080S364							
Date Extracted:	10/27/99	10/27/99	10/27/99	10/27/99	10/27/99	10/27/99							
Date Analyzed:	10/29/99	10/29/99	10/29/99	10/29/99	10/29/99	10/29/99							
Analyst Initials:	NN	NN	NN	NN	NN	NN							
Dilution Factor:	1	2	100	100	2000	5000							
ANALYTE	MDL	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results	DLR	Results
Aroclor-1016	33	33	ND	66	ND	3300	ND	3300	ND	66000	ND	165000	ND
Aroclor-1221	67	67	ND	134	ND	6700	ND	6700	ND	134000	ND	335000	ND
Aroclor-1232	33	33	ND	66	ND	3300	ND	3300	ND	66000	ND	165000	ND
Aroclor-1242	33	33	ND	66	ND	3300	ND	3300	ND	66000	ND	165000	ND
Aroclor-1248	33	33	ND	66	ND	3300	ND	3300	ND	66000	ND	165000	ND
Aroclor-1254	33	33	ND	66	ND	3300	ND	3300	ND	66000	ND	165000	ND
Aroclor-1260	33	33	ND	66	842	3300	26000	3300	25600	66000	374000	165000	3220000
Aroclor-1262	33	33	ND	66	ND	3300	ND	3300	ND	66000	ND	165000	ND
Aroclor-1268	33	33	ND	66	ND	3300	ND	3300	ND	66000	ND	165000	ND

MDL = Method Detection Limit  
 ND = Not Detected (Below DLR).  
 DLR = MDL X Dilution Factor  
 'A' = Not Analyzed

Reviewed/Approved By: \_\_\_\_\_

  
 for Compton Persaud  
 Department Supervisor

Date: 5/25/07

The cover letter is an integral part of this analytical report



Advanced Technology  
 Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

**26 APRIL 2001 SAMPLING EVENT  
LABORATORY DATA  
FIELDSTONE PROPERTY  
HUNTINGTON BEACH, CALIFORNIA**

May 03,2001

Nancy Ruiz  
GeoSyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648  
TEL (714) 969-0800  
FAX (714) 969-0820

ELAP No: 1838

RE: HG0152-096

Work Order No.: 050846

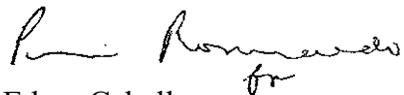
Attention: Nancy Ruiz

Enclosed are the results for sample(s) received on April 27, 2001 by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company

Sincerely,



Edgar Caballero

Laboratory Director

This cover letter is an integral part of this analytical report.



**Advanced Technology Laboratories**

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HG0152-096  
**Lab ID:** 050846-001A

**Client Sample ID:** 1-A  
**Collection Date:** 4126101  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
<b>ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A</b>						
RunID: GC5_010502B	BatchID: 4046			PrepDate: 5/1/01		Analyst: GG
Aroclor 1016	ND	1600		µg/Kg	50	5/2/01
Aroclor 1221	ND	3400		µg/Kg	50	5/2/01
Aroclor 1232	NO	1600		µg/Kg	50	5/2/01
Aroclor 1242	ND	1600		µg/Kg	50	5/2/01
Aroclor 1248	ND	1600		µg/Kg	50	5/2/01
Aroclor 1254	ND	1600		µg/Kg	50	5/2/01
Aroclor 1260	16000	1600		µg/Kg	50	5/2/01
Aroclor 1262	ND	1600		µg/Kg	50	5/2/01
Aroclor 1268	ND	1600		µg/Kg	50	5/2/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate **outside** of limits due to matrix interference  
 H - Samples exceeding analytical holding time  
 E - **Value** above quantitation **range**  
 M - Not Monitored. Highly Reactive

Initials: 



**Advanced Technology Laboratories**

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 1-B

**Lab Order:** 050846

**Project:** HG0152-096

**Collection Date:** 4/26/01

**Lab ID:** 050846-002A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A

RunID: GC5\_010502B

BatchID: 4046

PrepDate: 5/1/01

Analyst: GG

Aroclor 1016	ND	330		µg/Kg	10	5/2/01
Aroclor 1221	ND	670		µg/Kg	10	5/2/01
Aroclor 1232	ND	330		µg/Kg	10	5/2/01
Aroclor 1242	ND	330		µg/Kg	10	5/2/01
Aroclor 1248	ND	330		µg/Kg	10	5/2/01
Aroclor 1254	ND	330		µg/Kg	10	5/2/01
Aroclor 1260	4500	330		µg/Kg	10	5/2/01
Aroclor 1262	ND	330		µg/Kg	10	5/2/01
Aroclor 1268	ND	330		µg/Kg	10	5/2/01

Qualifiers: ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 



# Advanced Technology Laboratories

Print Date: 5/3/01

**CLIENT** GeoSyntec Consultants  
**Lab Order:** 050816  
**Project:** HGO 152-096  
**Lab ID:** 050846-003A

**Client Sample ID:** 2-A  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A**

RunID: **GC5\_010502B** BatchID: **4046** PrepDate: **5/1/01** Analyst: **GG**

Aroclor 1016	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1221	ND	67		µg/Kg	1.0	5/2/01
Aroclor 1232	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1242	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1248	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1254	ND	<b>33</b>		µg/Kg	1.0	5/2/01
Aroclor 1260	ND			µg/Kg	1.0	5/2/01
Aroclor 1262	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1268	ND	33		µg/Kg	1.0	5/2/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 



**Advanced Technology Laboratories**

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HG0152-096  
**Lab ID:** 050846-004A

**Client Sample ID:** 2-B  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A						
RunID: GC5_010502B	BatchID: 4046			PrepDate: 5/1/01		Analyst: GG
Aroclor 1016	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1221	ND	67		µg/Kg	1.0	5/2/01
Aroclor 1232	NO	33		µg/Kg	1.0	5/2/01
Aroclor 1242	ND			µg/Kg	1.0	5/2/01
Aroclor 1248	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1254	ND			µg/Kg	1.0	5/2/01
Aroclor 1260	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1262	ND			µg/Kg	1.0	5/2/01
Aroclor 1268	ND	33		µg/Kg	1.0	5/2/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 



# Advanced Technology Laboratories

Print Date: 5/3/01

**CLIENT** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HG0152-096  
**Lab ID:** 050846-005A

**Client Sample ID:** 3-A  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A**

RunID: GC5\_010502B      BatchID: 4046      PrepDate: 5/1/01      Analyst: GG

Aroclor 1016	ND	6600		µg/Kg	200	5/2/01
Aroclor 1221	ND	13000		µg/Kg	200	5/2/01
Aroclor 1232	ND	6600		µg/Kg	200	5/2/01
Aroclor 1242	ND	6600		µg/Kg	200	5/2/01
Aroclor 1248	ND	6600		µg/Kg	200	5/2/01
Aroclor 1254	ND	6600		µg/Kg	200	5/2/01
Aroclor 1260	80000	6600		µg/Kg	200	5/2/01
Aroclor 1262	ND	6600		µg/Kg	200	5/2/01
Aroclor 1268	ND	6600		µg/Kg	200	5/2/01

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike/Surrogate outside of limits due to matrix interference.  
 J - Analyte detected below quantitation limits      H - Samples exceeding analytical holding time  
 B - Analyte detected in the associated Method Blank      E - Value above quantitation range      Initials:   
 DO - Surrogate Diluted Out      M - Not Monitored. Highly Reactive



**Advanced Technology Laboratories**

Print Date: 5/3/01

**CLIENT** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HG0152-096  
**Lab ID:** 050846-006A

**Client Sample ID:** 3-B  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ORGANOCHLORINE PESTICIDES AND PCBS BY GC/IECD EPA 8080A						
RunID: GC5_010502B	BatchID: 4046			PrepDate: 5/1/01		Analyst: GG
Aroclor 1016	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1221	ND	67		µg/Kg	1.0	5/2/01
Aroclor 1232	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1242	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1248	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1254	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1260	97	33		µg/Kg	1.0	5/2/01
Aroclor 1262	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1268	ND	33		µg/Kg	1.0	5/2/01

**Qualifiers:** ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference.  
 J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time  
 B - Analyte detected in the associated Method Blank E - Value above quantitation range  
 DO - Surrogate Diluted Out M - Not Monitored, Highly Reactive

Initials: 



**Advanced Technology Laboratories**

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HG0152-096  
**Lab ID:** 050846-007A

**Client Sample ID:** 4-A  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A**

RunID: GC5\_010502B      BatchID: 4046      PrepDate: 5/1/01      Analyst: GG

Aroclor 1016	ND	660		µg/Kg	20	5/2/01
Aroclor 1221	ND	1300		µg/Kg	20	5/2/01
Aroclor 1232	ND	660		µg/Kg	20	5/2/01
Aroclor 1242	ND	660		µg/Kg	20	5/2/01
Aroclor 1248	ND	660		µg/Kg	20	5/2/01
Aroclor 1254	ND	660		µg/Kg	20	5/2/01
Aroclor 1260	13000	660		µg/Kg	20	5/2/01
Aroclor 1262	ND	660		µg/Kg	20	5/2/01
Aroclor 1268	ND	660		µg/Kg	20	5/2/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored, Highly Reactive

Initials: 



**Advanced Technology  
Laboratories**

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 969-4015 Fax: 562 989-4040

# Advanced Technology Laboratories

Print Date: 5/3/01

CLIENT: GeoSyntec Consultants  
 Lab Order: 050846  
 Project: HG0152-096  
 Lab ID: 050846-008A

Client Sample ID: 4-B  
 Collection Date: 4/26/01  
 Matrix: Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A						
RunID: GC5_010502B	BatchID: 4046			PrepDate: 5/1/01		Analyst: GG
Aroclor 1016	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1221	ND	67		µg/Kg	1.0	5/2/01
Aroclor 1232	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1242	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1248	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1254	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1260	59	33		µg/Kg	1.0	5/2/01
Aroclor 1262	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1268	ND	33		µg/Kg	1.0	5/2/01

Qualifiers: ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out  
 S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored Highly Reactive

Initials: 



# Advanced Technology Laboratories

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HG0152-096  
**Lab ID:** 050846-009A

**Client Sample ID:** 5-A  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A**

RunID: GC5\_010502B      BatchID: 4046      PrepDate: 5/1/01      Analyst: GG

Aroclor 1016	ND	16000		µg/Kg	500	5/2/01
Aroclor 1221	NO	34000		µg/Kg	500	5/2/01
Aroclor 1232	ND	16000		µg/Kg	500	5/2/01
Aroclor 1242	ND	16000		µg/Kg	500	5/2/01
Aroclor 1248	ND	16000		µg/Kg	500	5/2/01
Aroclor 1254	ND	16000		µg/Kg	500	5/2/01
Aroclor 1260	220000	16000		µg/Kg	500	5/2/01
Aroclor 1262	ND	16000		µg/Kg	500	5/2/01
Aroclor 1268	ND	16000		µg/Kg	500	5/2/01

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike/Surrogate outside of limits due to matrix interference  
 J - Analyte detected below quantitation limits      H - Samples exceeding analytical holding time  
 B - Analyte detected in the associated Method Blank      E - Value above quantitation range      Initials:             
 DO - Surrogate Diluted Out      M - Not Monitored Highly Reactive



**Advanced Technology Laboratories**

Print Date: 5/3/01

**CLIENT** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HGO152-096  
**Lab ID:** 050846-010A

**Client Sample ID:** 5-B  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A						
RunID: GC5_010502B	BatchID: 4046			PrepDate: 5/1/01		Analyst: GG
Aroclor 1016	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1221	ND	67		µg/Kg	1.0	5/2/01
Aroclor 1232	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1242	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1248	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1254	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1260	420	33		µg/Kg	1.0	5/2/01
Aroclor 1262	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1268	ND	33		µg/Kg	1.0	5/2/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Sampler exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 



# Advanced Technology Laboratories

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HGO 152-096  
**Lab ID:** 050846-011A

**Client Sample ID:** 6-A  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
<b>ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A</b>						
RunID: GC5_010502B	BatchID: 4046			PrepDate: 5/1/01		Analyst: GG
Aroclor 1016	ND	82000		µg/Kg	2500	5/2/01
Aroclor 1221	ND	170000		µg/Kg	2500	5/2/01
Aroclor 1232	ND	82000		µg/Kg	2500	5/2/01
Aroclor 1242	ND	82000		µg/Kg	2500	5/2/01
Aroclor 1248	ND	82000		µg/Kg	2500	5/2/01
Aroclor 1254	ND	82000		µg/Kg	2500	5/2/01
Aroclor 1260	620000	82000		µg/Kg	2500	5/2/01
Aroclor 1262	ND	82000		µg/Kg	2500	5/301
Aroclor 1268	ND	82000		µg/Kg	2500	5/2/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 



# Advanced Technology Laboratories

Print Date: 5/3/01

CLIENT: GeoSyntec Consultants  
 Lab Order: 050846  
 Project: HG0152-096  
 Lab ID: 050846-012A

Client Sample ID: 6-B  
 Collection Date: 4/26/01  
 Matrix: Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A

RunID: GC5\_010502B      BatchID: 4046      PrepDate: 511101      Analyst: GG

Aroclor 1016	ND	660		µg/Kg	20	5/2/01
Aroclor 1221	ND	13w		µg/Kg	20	5/2/01
Aroclor 1232	ND	660		µg/Kg	20	5/2/01
Aroclor 1242	ND	660		µg/Kg	20	5/2/01
Aroclor 1248	ND	660		µg/Kg	20	5/2/01
Aroclor 1254	ND	660		µg/Kg	20	5/2/01
Aroclor 1260	3800	660		µg/Kg	20	5/2/01
Aroclor 1262	ND	660		µg/Kg	20	5/2/01
Aroclor 1268	ND	660		µg/Kg	20	5/2/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 I - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials:   *GG*  

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Advanced Technology  
 Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

# Advanced Technology Laboratories

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HGO152-096  
**Lab ID:** 050846-013A

**Client Sample ID:** 7-A  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A**

RunID: GC5\_010502B      BatchID: 4046      PrepDate: 5/1/01      Analyst: GG

Aroclor 1016	ND	6600		µg/Kg	200	5/2/01
Aroclor 1221	ND	13000		µg/Kg	200	5/2/01
Aroclor 1232	ND	6600		µg/Kg	200	5/2/01
Aroclor 1242	ND	6600		µg/Kg	200	5/2/01
<b>Aroclor</b> 1248	ND	6600		µg/Kg	200	5/2/01
Aroclor 1254	ND	6600		µg/Kg	200	5/2/01
<b>Aroclor</b> 1260	55000	6600		µg/Kg	200	5/2/01
Aroclor 1262	ND	6600		µg/Kg	200	5/2/01
Aroclor 126a	ND	6600		µg/Kg	200	5/2/01

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike/Surrogate outside of limits due to matrix interference.  
 I - Analyte detected below quantitation limits      H - Samples exceeding analytical holding time  
 B - Analyte detected in the associated Method Blank      E - Value above quantitation range      **Initials:**   
 DO - Surrogate Diluted Out      M - Not Monitored. Highly Reactive



Advanced Technology  
Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

# Advanced Technology Laboratories

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HG0152-096  
**Lab ID:** 050846-014A

**Client Sample ID:** 7-B  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
<b>ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A</b>						
RunID: GC5_010502B	BatchID: 4046			PrepDate: 5/1/01		Analyst: GG
Aroclor 1016	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1221	ND	67		µg/Kg	1.0	5/3/01
Aroclor 1232	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1242	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1248	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1254	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1260	ND			µg/Kg	1.0	5/3/01
Aroclor 1262	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1268	ND	33		µg/Kg	1.0	5/3/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of h i & due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 



**Advanced Technology Laboratories**

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HGO152-096  
**Lab ID:** 050846-015A

**Client Sample ID:** 8-A  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A**

RunID: GC5\_010502B      BatchID: 4046      PrepDate: 5/1/01      Analyst: GG

Aroclor 1016	ND	6600		µg/Kg	200	5/2/01
Aroclor 1221	ND	13000		µg/Kg	200	5/2/01
Aroclor 1232	ND	6600		µg/Kg	200	5/2/01
Aroclor 1242	ND	6600		µg/Kg	200	5/2/01
Aroclor i248	ND	6600		µg/Kg	200	5/2/01
Aroclor 1254	ND	6600		µg/Kg	200	5/2/01
Aroclor 1260	69000	6600		µg/Kg	200	5/2/01
Aroclor 1262	ND	6600		µg/Kg	200	5/2/01
Aroclor 1268	ND	6600		µg/Kg	200	5/2/01

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike/Surrogate outside of limits due to matrix interference.  
 J - Analyte detected below quantitation limits      H - Sampler exceeding analytical holding time  
 B - Analyte detected in the associated Method Blank      E - Value above quantitation range      Initials:   
 DO - Surrogate Diluted Out      M - Not Monitored, Highly Reactive



# Advanced Technology Laboratories

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 050816  
**Project:** HGO152-096  
**Lab ID:** 050846-016A

**Client Sample ID:** 8-B  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A						
RunID: GC5_010502B	BatchID: 4046			PrepDate: 5/1/01		Analyst: GG
Aroclor 1016	ND	660		µg/Kg	20	5/2/01
Aroclor 1221	ND	1300		µg/Kg	20	5/2/01
Aroclor 1232	ND	660		µg/Kg	20	5/2/01
Aroclor 1242	ND	660		µg/Kg	20	5/2/01
<b>Aroclor</b> 1248	ND	660		µg/Kg	20	5/2/01
Aroclor 1254	ND	660		µg/Kg	20	5/2/01
Aroclor 1260	840	660		µg/Kg	20	5/2/01
Aroclor 1262	ND	660		µg/Kg	20	5/2/01
Aroclor 1268	ND	660		µg/Kg	20	5/2/01

Qualifiers: ND - Not Detected at the Reporting Limit      S - Spike/Surrogate outside of limits due to matrix interference.  
 J - Analyte detected below quantitation limits      H - Sampler exceeding analytical holding time  
 B - Analyte detected in the associated Method Blank      E - Value above quantitation range  
 DO - Surrogate Diluted Out      M - Not Monitored, Highly Reactive

Initials: 



# Advanced Technology Laboratories

Print Date: 2/3/01

CLIENT: GeoSyntec Consultants  
 Lab Order: 050836  
 Project: HG0152-096  
 Lab ID: 050846-017A

Client Sample ID: 9-A  
 Collection Date: 4/26/01  
 Matrix: Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A						
RunID: GC5_010502B	BatchID: 4046			PrepDate: 511101		Analyst: GG
Aroclor 1016	ND	6600		µg/Kg	200	5/2/01
Aroclor 1221	ND	13000		µg/Kg	200	5/2/01
Aroclor 1232	ND	6600		µg/Kg	200	5/2/01
Aroclor 1242	ND	6600		µg/Kg	200	5/2/01
Aroclor 1248	ND	6600		µg/Kg	200	5/2/01
Aroclor 1254	ND	6600		µg/Kg	200	5/2/01
Aroclor 1260	120000	6600		µg/Kg	200	5/2/01
Aroclor 1262	ND	6600		µg/Kg	200	5/2/01
Aroclor 1268	ND	6600		µg/Kg	200	5/2/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out  
 S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored Highly Reactive

Initials: 



**Advanced Technology Laboratories**

Print Date: 5/3/01

**CLIENT** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HG0152-096  
**Lab ID:** 050846-018A

**Client Sample ID:** 9-B  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A**

**RunID:** GC5\_010502B      **BatchID:** 4046      **PrepDate:** 5/1/01      **Analyst:** GG

Aroclor 1016	ND	63		µg/Kg	1.0	5/3/01
Aroclor 1221	ND			µg/Kg	1.0	5/3/01
Aroclor 1232	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1242	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1248	ND			µg/Kg	1.0	5/3/01
Aroclor 1254	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1260	200	33		µg/Kg	1.0	5/3/01
Aroclor 1262	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1268	ND			µg/Kg	1.0	5/3/01

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike/Surrogate outside of limits due to matrix interference.  
 J - Analyte detected below quantitation limits      H - Samples exceeding analytical holding time  
 B - Analyte detected in the associated Method Blank      E - Value above quantitation range  
 DO - Surrogate Diluted Out      M - Not Monitored. Highly Reactive

**Initials:** 



# Advanced Technology Laboratories

Print Date: 5/3/01

CLIENT: GeoSyntec Consultants  
 Lab Order: 050846  
 Project: HG0152-096  
 Lab ID: 050846-019A

Client Sample ID: 10-A  
 Collection Date: 4/26/01  
 Matrix: Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A**

RunID: GC5\_010502B      BatchID: 4046      PrepDate: 5/1/01      Analyst: GG

Aroclor 1016	ND	3300		µg/Kg	100	5/3/01
Aroclor 1221	ND	6700		µg/Kg	100	5/3/01
Aroclor 1232	ND	3300		µg/Kg	100	5/3/01
Aroclor 1242	ND	3300		µg/Kg	100	5/3/01
Aroclor 1248	ND	3300		µg/Kg	100	5/3/01
Aroclor 1254	ND	3300		µg/Kg	100	5/3/01
Aroclor 1260	19000	3300		µg/Kg	100	5/3/01
Aroclor 1262	ND	3300		µg/Kg	100	5/3/01
Aroclor 1268	ND	3300		µg/Kg	100	5/3/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 

19



# Advanced Technology Laboratories

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HG0152-096  
**Lab ID:** 050846-020A

**Client Sample ID:** 10-B  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A						
RunID: GC5_010502B	BatchID: 4046			PrepDate: 5/1/01		Analyst: GG
Aroclor 1016	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1221	ND	67		µg/Kg	1.0	5/2/01
Aroclor 1232	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1242	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1248	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1254	ND			µg/Kg	1.0	5/2/01
Aroclor 1260	120	33		µg/Kg	1.0	5/2/01
Aroclor 1262	ND	33		µg/Kg	1.0	5/2/01
Aroclor 1268	ND	33		µg/Kg	1.0	5/2/01

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike/Surrogate outside of limits due to matrix interference.  
 J - Analyte detected below quantitation limits      H - Samples exceeding analytical holding time  
 B - Analyte detected in the associated Method Blank      E - Value above quantitation range  
 DO - Surrogate Diluted Out      M - Not Monitored, Highly Reactive

Initials: 



**Advanced Technology Laboratories**

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HG0152-096  
**Lab ID:** 050846-021A

**Client Sample ID:** 1I-A  
**Collection Date:** 4126101  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
<b>ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A</b>						
RunID: GC10_010501A	BatchID: 4047			PrepDate: 5/1/01		Analyst: GG
Aroclor 1016	ND	6600		µg/Kg	200	5/3/01
Aroclor 1221	ND	13000		µg/Kg	200	5/3/01
Aroclor 1232	ND	6600		µg/Kg	200	5/3/01
Aroclor 1242	ND	6600		µg/Kg	200	5/3/01
Aroclor 1248	ND	6600		µg/Kg	200	5/3/01
Aroclor 1254	ND	6600		µg/Kg	200	5/3/01
Aroclor 1260	130000	6600		µg/Kg	200	5/3/01
Aroclor 1262	ND	6600		µg/Kg	200	5/3/01
Aroclor 1268	ND	6600		µg/Kg	200	5/3/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Sampler exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 



**Advanced Technology Laboratories**

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HGO152-096  
**Lab ID:** 050846-022A

**Client Sample ID:** 11-B  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A						
RunID: GC10_010501A	BatchID: 4047			PrepDate: 511101		Analyst: GG
Aroclor 1016	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1221	ND	67		µg/Kg	1.0	5/3/01
Aroclor 1232	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1242	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1248	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1254	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1260	210	33		µg/Kg	1.0	5/3/01
Aroclor 1262	ND	33		µg/Kg	1.0	5/3/01
Aroclor 1268	ND	33		µg/Kg	1.0	5/3/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out  
 S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

**Initials:** 



**Advanced Technology Laboratories**

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HG0152-096  
**Lab ID:** 050846-023A

**Client Sample ID:** 12-A  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A**

RunID: GC10\_010501A      BatchID: 4047      PrepDate: 5/1/01      Analyst: GG

Aroclor 1016	ND	82000		µg/Kg	2500	5/3/01
Aroclor 1221	ND	170000		µg/Kg	2500	5/3/01
Aroclor 1232	ND	82000		µg/Kg	2500	5/3/01
Aroclor 1242	ND	82000		µg/Kg	2500	5/3/01
Aroclor 1248	ND	82000		µg/Kg	2500	5/3/01
Aroclor 1254	ND	82000		µg/Kg	2500	5/3/01
Aroclor 1260	430000	82000		µg/Kg	2500	5/3/01
Aroclor 1262	ND	82000		µg/Kg	2500	5/3/01
Aroclor 1268	ND	82000		µg/Kg	2500	5/3/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 



# Advanced Technology Laboratories

Print Date: 5/3/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 050846  
**Project:** HG0152-096  
**Lab ID:** 050846-024A

**Client Sample ID:** 12-B  
**Collection Date:** 4/26/01  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
<b>ORGANOCHLORINE PESTICIDES AND PCBS BY GC/ECD EPA 8080A</b>						
RunID: GC10_010501A	BatchID: 4047			PrepDate: 5/1/01		Analyst: GG
Aroclor 1016	ND	660		µg/Kg	20	5/3/01
Aroclor 1221	ND	1300		µg/Kg	20	5/3/01
Aroclor 1232	ND	660		µg/Kg	20	5/3/01
Aroclor 1242	NO	660		µg/Kg	20	5/3/01
Aroclor 1248	ND	660		µg/Kg	20	5/3/01
Aroclor 1254	ND	660		µg/Kg	20	5/3/01
Aroclor 1260	8500	660		µg/Kg	20	5/3/01
Aroclor 1262	ND	660		µg/Kg	20	5/3/01
Aroclor 1268	ND	660		µg/Kg	20	5/3/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 





Advanced Technology Laboratories

# Advanced Technology Laboratories

Date: 03-May-01

CLIENT: GeoSyntec Consultants  
 Work Order: 050846  
 Project: HG0152-096

## QC SUMMARY REPORT Method Blank

Sample ID MB-4046 Batch ID: 4046 Test Name ORGANOCHLORINE PESTICIDES AND PCBs Units µg/Kg Analysis Date: 5/2/01 Prep Date: 5/1/01  
 MBLK SeqNo: 129572

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	33		0				0			
Aroclor 1221	ND	67		0				0			
Aroclor 1232	ND	33		0				0			
Aroclor 1242	ND	33		0				0			
Aroclor 1248	ND	33		0				0			
Aroclor 1254	ND	33		0				0			
Aroclor 1260	ND	33		0				0			
Aroclor 1262	ND	33		0				0			
Aroclor 1268	ND	33		0				0			
Surr: Decachlorobiphenyl	31	0	33.3	0	93	30	150	0			
Surr: Tetrachloro-m-xylene	30	0	33.3	0	91	30	150	0			

Sample ID MB.4047 Batch ID: 4047 Test Name ORGANOCHLORINE PESTICIDES AND PCBs Units µg/Kg Analysis Date: 5/2/01 Prep Date: 5/1/01  
 MBLK SeqNo: 129679

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	33		0				0			
Aroclor 1221	ND	67		0				0			
Aroclor 1232	ND	33		0				0			
Aroclor 1242	ND	33		0				0			
Aroclor 1248	ND	33		0				0			
Aroclor 1254	ND	33		0				0			
Aroclor 1260	ND	33		0				0			
Aroclor 1262	ND	33		0				0			
Aroclor 1268	ND	33		0				0			
Surr Decachlorobiphenyl	34	0	33.3	0	103	30	150	0			
Surr Telrachloro-m-xylene	28	0	33.3	0	83	30	150	0			

Qualifiers: ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank  
 M - Not Monitored, Highly Reactive  
 S - Spike/Surrogate outside of limits due to matrix interference

DO - Surrogate Diluted Out

Initials: 

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040



Advanced Technical  
Laboratories

3275 V In Avenue Signal Hill CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: GeoSyntec Consultants  
Work Order: 050846  
Project: HG0152-096

# QC SUMMARY REPORT

Method Blank

Sample ID **MB-4047** Batch ID: **4047** Test Name **ORGANOCHLORINEPESTICIDESAND PCBS** Units **µg/Kg** Analysis Date: **513101** Prep Date: **511101**

**MBLK** SeqNo: **129746**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	33		0				0			
Aroclor 1221	ND	67		0				0			
Aroclor 1232	ND	33		0				0			
Aroclor 1242	ND	33		0				0			
Aroclor 1248	ND	33		0				0			
Aroclor 1254	ND	33		0				0			
Aroclor 1260	ND	33		0				0			
Aroclor 1262	ND	33		0				0			
Aroclor 1268	ND	33		0				0			
Surr: Decachlorobiphenyl	29	0	33.3	0	86	30	150	0			
Surr: Tetrachloro-m-xylene	27	0	33.3	0	82	30	150	0			

Qualifiers: ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits  
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank  
M - Not Monitored. Highly Reactive  
S - Spike/Surrogate outside of limits due to matrix interference

DO - Surrogate Diluted Out

Initials:



Advanced Technology  
Laboratories

3275 W. nut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

# Advanced Technology Laboratories

Date: 03-May-01

CLIENT: GeoSyntec Consultants  
Work Order: 050846  
Project: HG0 152-096

## QC SUMMARY REPORT Sample Matrix Spike

Sample ID	Batch ID	Test Name	Units	Analysis Date	Prep Date						
MB-4046	4046	ORGANOCHLORINE PESTICIDES AND PCBS	µg/Kg	5/2/01	5/1/01						
MS			SeqNo:	129574							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	320	33	333.3	0	95	50	150	0			
Aroclor 1260	330	33	333.3	0	98	50	150	0			
Surr: Decachlorobiphenyl	31	0	33.3	0	93	30	150	0			
Surr: Tetrachloro-m-xylene	30	0	33.3	0	91	30	150	0			

Sample ID	Batch ID	Test Name	Units	Analysis Date	Prep Date						
MB-4046	4046	ORGANOCHLORINE PESTICIDES AND PCBs	µg/Kg	5/2/01	5/1/01						
MSD			SeqNo:	129575							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	310	33	333.3	0	92	50	150	320	3	50	
Aroclor 1260	320	33	333.3	0	96	50	150	330	2	50	
Surr: Decachlorobiphenyl	31	0	33.3	0	93	30	150	0	0	0	
Surr: Tetrachloro-m-xylene	29	0	33.3	0	86	30	150	0	0	0	

Sample ID	Batch ID	Test Name	Units	Analysis Date	Prep Date						
MB-4047	4047	ORGANOCHLORINE PESTICIDES AND PCBS	µg/Kg	5/2/01	5/1/01						
MS			SeqNo:	129681							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	290	33	333.3	0	87	50	150	0			
Aroclor 1260	300	33	333.3	0	90	50	150	0			
Surr: Decachlorobiphenyl	33	0	33.3	0	100	30	150	0			
Surr: Tetrachloro-m-xylene	28	0	33.3	0	83	30	150	0			

Qualifiers: ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits  
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank  
M - Not Monitored, Highly Reactive  
S - Spike/Surrogate outside of limits due to matrix interference

DO - Surrogate Diluted Out

Initials: \_\_\_\_\_



Advanced Technology  
Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: GeoSyntec Consultants  
Work Order: 050846  
Project: HG0152-096

**QC SUMMARY REPORT**  
Sample Matrix Spike Duplicate

Sample ID MB-4047 Batch ID: 4047 Test Name ORGANOCHLORINE PESTICIDES AND PCBs Units µg/Kg Analysis Date: 5/2/01 Prep Date: 5/1/01

MSD											
SeqNo: 129682											
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	280	33	333.3	0	85	50	150	290	2	50	
Aroclor 1260	290	33	333.3	0	88	50	150	300	2	50	
Surr: Decachlorobiphenyl	33	0	33.3	0	98	30	150	0	0	0	
Surr: Tetrachloro-m-xylene	27	0	33.3	0	82	30	150	0	0	0	

Qualifiers: ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits  
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank  
M - Not Monitored. Highly Reactive  
S - Spike/Surrogate outside of limits due to matrix interference

DO. Surrogate Diluted Out

Initials:



Advanced Technology Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

# Advanced Technology Laboratories

Date: 03-May-01

CLIENT: GeoSyntec Consultants  
 Work Order: 050846  
 Project: HG0152-096

## QC SUMMARY REPORT Laboratory Control Spike - generic

Sample ID	LCS-4046	Batch ID:	4046	Test Name	ORGANOCHLORINE PESTICIDES AND PCBs	Units	µg/Kg	Analysis Date:	5/2/01	Prep Date:	5/1/01	
LCS						SeqNo:	129573					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aroclor 1016	310	33	333.3	0	92	50	150	0				
Aroclor 1260	330	33	333.3	0	99	50	150	0				
Surr: Decachlorobiphenyl	31	0	33.3	0	93	30	150	0				
Surr: Tetrachloro-m-xylene	30	0	33.3	0	89	30	150	0				

Sample ID	LCS-4047	Batch ID:	4047	Test Name	ORGANOCHLORINE PESTICIDES AND PCBs	Units	µg/Kg	Analysis Date:	5/2/01	Prep Date:	5/1/01	
LCS						SeqNo:	129680					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aroclor 1016	300	33	333.3	0	90	50	150	0				
Aroclor 1260	310	33	333.3	0	93	50	150	0				
Surr: Decachlorobiphenyl	34	0	33.3	0	101	30	150	0				
Surr: Tetrachloro-m-xylene	28	0	33.3	0	85	30	150	0				

Sample ID	LCS-4047	Batch ID:	4047	Test Name	ORGANOCHLORINE PESTICIDES AND PCBs	Units	µg/Kg	Analysis Date:	5/3/01	Prep Date:	5/1/01	
LCS						SeqNo:	129747					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aroclor 1016	290	33	333.3	0	88	50	150	0				
Aroclor 1260	300	33	333.3	0	90	50	150	0				
Surr: Decachlorobiphenyl	29	0	33.3	0	88	30	150	0				
Surr: Tetrachloro-m-xylene	29	0	33.3	0	86	30	150	0				

Qualifiers: ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 R - RPD outside accepted recovery limits

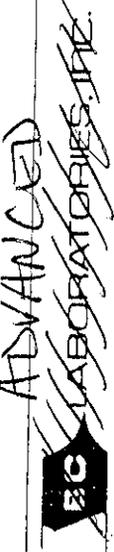
B - Analyte detected in the associated Method Blank  
 M - Not Monitored, Highly Reactive  
 S - Spike/Surrogate outside of limits due to matrix interference

DO - Surrogate Diluted Out

Initials:

**CHAIN OF CUSTODY**

SIGNAL HILL, CA  
4108 Atlas Court  
Bakersfield, California 93308



Re To: NANCY RUIZ

Name: GEDSYNTEC Project: \_\_\_\_\_

Address: 2100 MAIN STR Project #: HG0152-096

City: H13 Sampler Name: ERIC/MIKE

State: CA Zip: 92648 Other: \_\_\_\_\_

Attn: NANCY RUIZ

Phone: 714)969-0800 FAX 969-0820

Matrix (S) Soil (SL) Sludge (W) Water (Other)

DCBS

**Analysis Requested**

PAGE 1 of 2

Samples rec. cold (y/n)

Custody Seals (y/n)

Results Needed by: Date & Time

ASAP w/o SURCHARGE

Number and Container Type

Lab#	Sample Description	Date & Time Sampled
1-A		26 APR 01
1-B		
2-A		
2-B		
3-A		
3-B		
4-A		
4-B		
5-A		
5-B		
6-A		
6-B		

S X  
S X  
S X  
S X  
S X  
S X  
S X  
S X  
S X  
S X  
S X

1-1  
1-2  
2-1  
2-2  
3-1  
3-2  
4-1  
4-2  
5-1  
5-2  
6-1  
6-2

Comment:

Billing Info:

Name: SEE ABOVE

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_

Attention: \_\_\_\_\_

Time: \_\_\_\_\_

Miles: \_\_\_\_\_

P.O.# \_\_\_\_\_

Sample Disposal  
 BC Disposal @ 5.00 ea.  
 Return to client

Relinquished by: (Signature)	Received by: (Signature)	Date: Time:
Relinquished by: (Signature)	Received by: (Signature)	Date: Time:
Relinquished by: (Signature)	Received by: (Signature)	Date: Time:
Relinquished by: (Signature)	Received by: (Signature)	Date: Time:
Relinquished by: (Signature)	Received by: (Signature)	Date: Time:
Relinquished by: (Signature)	Received by: (Signature)	Date: Time:

A.T.C. Date: Time: 27 APR 01 12:30

4/27/01 7:35 PM

**CHAIN OF CUSTODY**

4100 Atlas Court  
Bakersfield, California 93308

**LABORATORIES, INC.**



Re To: **SEE PAGE 1 of 2**

Name: \_\_\_\_\_ Project: \_\_\_\_\_

Address: \_\_\_\_\_ Project #: \_\_\_\_\_

City: \_\_\_\_\_ Sampler Name: \_\_\_\_\_

State: \_\_\_\_\_ Zip: \_\_\_\_\_ Other: \_\_\_\_\_

Attn: \_\_\_\_\_

Phone: \_\_\_\_\_

Matrix (S) Soil (SL) Sludge (W) Water (Other)

**PCBs**

**Analysis Requested**

**PAGE 2 of 2**

Samples rec. cold (y/n)

Custody Seals (y/n)

Results Needed by: Date & Time

Number and Container Type

Lab#	Sample Description	Date & Time Sampled
7-A		26 APR 01
7-B		
8-A		
8-B		
9-A		
9-B		
10-A		
10-B		
11-A		
11-B		
12-A		
12-B		

X  
X  
X  
X  
X  
X  
X  
X  
X  
X  
X  
X

1 G

Comment: \_\_\_\_\_

Billing Info

Name: \_\_\_\_\_

Address: **SEE PAGE 1 of 2**

City: \_\_\_\_\_ State: \_\_\_\_\_

Attention: \_\_\_\_\_

Relinquished by: (Signature)	Received by: (Signature) <b>A.T.L.</b>	Date: Time: <b>27 APR 01 / 12</b>
Relinquished by: (Signature)	Received by: (Signature)	Date: Time:
Relinquished by: (Signature)	Received by: (Signature)	Date: Time:
Relinquished by: (Signature)	Received by: (Signature)	Date: Time:
Relinquished by: (Signature)	Received by: (Signature)	Date: Time:
Relinquished by: (Signature)	Received by: (Signature)	Date: Time:

Sample Disposal Miles: \_\_\_\_\_

BC Disposal @ 5.00 ea

Return to client

P.O.# \_\_\_\_\_

**21 NOVEMBER 2001 SAMPLING EVENT  
LABORATORY DATA  
FIELDSTONE PROPERTY  
HUNTINGTON BEACH, CALIFORNIA**

November 27, 2001

Eric Smalstig  
GeoSyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648  
TEL: (714) 969-0800  
FAX (714) 969-0820

ELAP No: 1838

RE: FIELDSTONE - HG0371-096

Work Order No.: 054057

Attention: Eric Smalstig

Enclosed are the results for sample(s) received on November 21,2001 by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,



Edgar Caballero  
Laboratory Director

This cover letter is an integral part of this analytical report.



**Advanced Technology Laboratories**

Print Date: 27-Nov-01

**CLIENT** GeoSyntec Consultants  
**Lab Order:** 054057  
**Project:** FIELDSTONE - HG0371-096

**Test No:** EPA418.1  
**Units:** mg/Kg  
**Analyst:** CA

Sample ID	Client Sample ID	Matrix	Collection Date	QC Batch	Petroleum Hydrocarbons, TR	PQL	Qual	DF	Analysis Date
054057-013A	43A	Soil	11/21/01	R13501	320	10	I		11/24/01
054057-014A	44A	Soil	11/21/01	R13501	2300	100	10		11/26/01
054057-015A	45A	Soil	11/21/01	R13501	210	10	1		11/26/01
054057-021A	43B	Soil	11/21/01	R13501	710	10	1		11/26/01
054057-022A	448	Soil	11/21/01	R13501	890	10	I		11/26/01
054057-023A	49B	Soil	11/21/01	R13501	190	10	1		11/26/01
054057-024A	49A	Soil	11/21/01	R13501	220	10	I		11/26/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected **below** quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value **above** quantitation range  
 M - Not Monitored. Highly Reactive

**Initials:** 



# Advanced Technology Laboratories

Print Date: 11/27/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 43A

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 12:55:00 PM

**Lab ID:** 054057-013A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8270C**

RunID: **MS6\_01121A**

BatchID: **6613**

PrepDate: **11/21/01**

Analyst: **IG**

1,2,4-Trichlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
1,2-Dichlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
1,3-Dichlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
1,4-Dichlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
2,4,5-Trichlorophenol	ND	1600		µg/Kg	5.0	11/22/01
2,4,6-Trichlorophenol	ND	1600		µg/Kg	5.0	11/22/01
2,4-Dichlorophenol	ND	8200		µg/Kg	5.0	11/22/01
2,4-Dimethylphenol	ND	1600		µg/Kg	5.0	11/22/01
2,4-Dinitrophenol	ND	8200		µg/Kg	5.0	11/22/01
2,4-Dinitrotoluene	ND	1600		µg/Kg	5.0	11/22/01
2,6-Dinitrotoluene	ND	1600		µg/Kg	5.0	11/22/01
2-Chloronaphthalene	ND	1600		µg/Kg	5.0	11/22/01
2-Chlorophenol	ND	1600		µg/Kg	5.0	11/22/01
2-Methylnaphthalene	ND	1600		µg/Kg	5.0	11/22/01
2-Methylphenol	ND	1600		µg/Kg	5.0	11/22/01
2-Nitroaniline	ND	8200		µg/Kg	5.0	11/22/01
2-Nitrophenol	ND	1600		µg/Kg	5.0	11/22/01
3,3'-Dichlorobenzidine	ND	3300		µg/Kg	5.0	11/22/01
3-Nitroaniline	ND	8200		µg/Kg	5.0	11/22/01
4,6-Dinitro-2-methylphenol	ND	8200		µg/Kg	5.0	11/22/01
4-Bromophenyl-phenylether	ND	1600		µg/Kg	5.0	11/22/01
4-Chloro-3-methylphenol	ND	3300		µg/Kg	5.0	11/22/01
4-Chloroaniline	ND	3300		µg/Kg	5.0	11/22/01
4-Chlorophenyl-phenylether	ND	1600		µg/Kg	5.0	11/22/01
4-Methylphenol	ND	1600		µg/Kg	5.0	11/22/01
4-Nitroaniline	ND	8200		µg/Kg	5.0	11/22/01
4-Nitrophenol	ND	8200		µg/Kg	5.0	11/22/01
Acenaphthene	ND	1600		µg/Kg	5.0	11/22/01
Acenaphthylene	ND	1600		µg/Kg	5.0	11/22/01
Anthracene	ND	1600		µg/Kg	5.0	11/22/01
Benzidine (M)	ND	8200		µg/Kg	5.0	11/22/01
Benzo(a)anthracene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(a)pyrene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(b)fluoranthene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(g,h,i)perylene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(k)fluoranthene	ND	1600		µg/Kg	5.0	11/22/01
Benzoic acid	ND	8200		µg/Kg	5.0	11/22/01
Benzyl alcohol	ND	3300		µg/Kg	5.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit

S - Spike/Surrogate outside of limits due to matrix interference.

J - Analyte detected below quantitation limits

H - Samples exceeding analytical holding time

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

Initials: 

DO - Surrogate Diluted Out

M - Not Monitored. Highly Reactive

2



Advanced Technology  
Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

# Advanced Technology Laboratories

Print Date: 11/27/01

**CLIENT** GeoSyntec Consultants

**Client Sample ID:** 43A

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 12:55:00 PM

**Lab ID:** 054057-013A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**SEMIVOLATILE ORGANIC COMPOUNDS BY GCIMS**

**EPA 8270C**

RunID: **MS6\_011121A**

BatchID: **6613**

PrepDate: **11/21/01**

Analyst: **IG**

Bis(2-chloroethoxy)methane	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-chloroethyl)ether	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-chloroisopropyl)ether	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-ethylhexyl)phthalate	NO	1600		µg/Kg	5.0	11/22/01
Butylbenzylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Chrysene	ND	1600		µg/Kg	5.0	11/22/01
Di-n-butylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Di-n-octylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Dibenz(a,h)anthracene	ND	1600		µg/Kg	5.0	11/22/01
Dibenzofuran	ND	1600		µg/Kg	5.0	11/22/01
Diethylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Dimethylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Fluoranthene	ND	1600		µg/Kg	5.0	11/22/01
Fluorene	ND	1600		µg/Kg	5.0	11/22/01
Hexachlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
Hexachlorobutadiene	ND	3300		µg/Kg	5.0	11/22/01
Hexachlorocyclopentadiene	ND	3300		µg/Kg	5.0	11/22/01
Hexachloroethane	ND	1600		µg/Kg	5.0	11/22/01
Indeno(1,2,3-cd)pyrene	ND	1600		µg/Kg	5.0	11/22/01
Isophorone	ND	1600		µg/Kg	5.0	11/22/01
N-Nitrosodi-n-propylamine	ND	1600		µg/Kg	5.0	11/22/01
N-Nitrosodiphenylamine	ND	1600		µg/Kg	5.0	11/22/01
Naphthalene	ND	1600		µg/Kg	5.0	11/22/01
Nitrobenzene	ND	1600		µg/Kg	5.0	11/22/01
Pentachlorophenol	ND	8200		µg/Kg	5.0	11/22/01
Phenanthrene	NO	1600		µg/Kg	5.0	11/22/01
Phenol	ND	1600		µg/Kg	5.0	11/22/01
Pyrene	ND	1600		µg/Kg	5.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 1 - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored Highly Reactive

Initials: 

3



**Advanced Technology Laboratories**

Print Date: 11/27/01

CLIENT: GeoSyntec Consultants Client Sample ID: 44A  
 Lab Order: 054057  
 Project: FIELDSTONE - HG0371-096 Collection Date: 11/21/01 1:00:00 PM  
 Lab ID: 054057-014A Matrix: Soil

Analyses Result Limit Qual Units DF Date Analyzed

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS		EPA 8270C				
RunID: MS6_011121A	BatchID: 6613	PrepDate	11/21/01	Analyst: IG		
1,2,4-Trichlorobenzene	ND	1600	µg/Kg	5.0	11/22/01	
1,2-Dichlorobenzene	ND	1600	µg/Kg	5.0	11/22/01	
1,3-Dichlorobenzene	ND	1600	µg/Kg	5.0	11/22/01	
1,4-Dichlorobenzene	ND	1600	µg/Kg	5.0	11/22/01	
2,4,5-Trichlorophenol	ND	1600	µg/Kg	5.0	11/22/01	
2,4,6-Trichlorophenol	ND	1600	µg/Kg	5.0	11/22/01	
2,4-Dichlorophenol	ND	6200	µg/Kg	5.0	11/22/01	
2,4-Dimethylphenol	ND	1600	µg/Kg	5.0	11/22/01	
2,4-Dinitrophenol	ND	6200	µg/Kg	5.0	11/22/01	
2,4-Dinitrotoluene	ND	1600	µg/Kg	5.0	11/22/01	
2,6-Dinitrotoluene	ND	1600	µg/Kg	5.0	11/22/01	
2-Chloronaphthalene	ND	1600	µg/Kg	5.0	11/22/01	
2-Chlorophenol	ND	1600	µg/Kg	5.0	11/22/01	
2-Methylnaphthalene	ND	1600	µg/Kg	5.0	11/22/01	
2-Methylphenol	ND	1600	µg/Kg	5.0	11/22/01	
2-Nitroaniline	ND	6200	µg/Kg	5.0	11/22/01	
2-Nitrophenol	ND	1600	µg/Kg	5.0	11/22/01	
3,3'-Dichlorobenzidine	ND	3300	µg/Kg	5.0	11/22/01	
3-Nitroaniline	ND	8200	µg/Kg	5.0	11/22/01	
4,6-Dinitro-2-methylphenol	ND	6200	µg/Kg	5.0	11/22/01	
4-Bromophenyl-phenylether	ND	1600	µg/Kg	5.0	11/22/01	
4-Chloro-3-methylphenol	ND	3300	µg/Kg	5.0	11/22/01	
4-Chloroaniline	ND	3300	µg/Kg	5.0	11/22/01	
4-Chlorophenyl-phenylether	ND	1600	µg/Kg	5.0	11/22/01	
4-Methylphenol	ND	1600	µg/Kg	5.0	11/22/01	
4-Nitroaniline	ND	8200	µg/Kg	5.0	11/22/01	
4-Nitrophenol	ND	6200	µg/Kg	5.0	11/22/01	
Acenaphthene	ND	1600	µg/Kg	5.0	11/22/01	
Acenaphthylene	ND	1600	µg/Kg	5.0	11/22/01	
Anthracene	ND	1600	µg/Kg	5.0	11/22/01	
Benzidine (M)	ND	8200	µg/Kg	5.0	11/22/01	
Benzo(a)anthracene	ND	1600	µg/Kg	5.0	11/22/01	
Benzo(a)pyrene	ND	1600	µg/Kg	5.0	11/22/01	
Benzo(b)fluoranthene	ND	1600	µg/Kg	5.0	11/22/01	
Benzo(g,h,i)perylene	ND	1600	µg/Kg	5.0	11/22/01	
Benzo(k)fluoranthene	ND	1600	µg/Kg	5.0	11/22/01	
Benzoic acid	ND	6200	µg/Kg	5.0	11/22/01	
Benzyl alcohol	ND	3300	µg/Kg	5.0	11/22/01	

Qualifiers: ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holdingtime  
 E - Value above quantitation range  
 M - Not Monitored Highly Reactive

Initials: 



**Advanced Technology Laboratories**

Print Date: 11/27/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 44A

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 1:00:00 PM

**Lab ID:** 054057-014A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8270C**

RunID: **MS6\_011121A**

BatchID: 6613

PrepDate: **11/21/01**

Analyst: **IG**

Bis(2-chloroethoxy)methane	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-chloroethyl)ether	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-chloroisopropyl)ether	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-ethylhexyl)phthalate	ND	1600		µg/Kg	5.0	11/22/01
Butylbenzylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Chrysene	ND	1600		µg/Kg	5.0	11/22/01
Di-n-butylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Di-n-octylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Dibenz(a,h)anthracene	ND	1600		µg/Kg	5.0	11/22/01
Dibenzofuran	ND	1600		µg/Kg	5.0	11/22/01
Diethylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Dimethylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Fluoranthene	ND	1600		µg/Kg	5.0	11/22/01
Fluorene	ND	1600		µg/Kg	5.0	11/22/01
Hexachlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
Hexachlorobutadiene	ND	3300		µg/Kg	5.0	11/22/01
<b>Hexachlorocyclopentadiene</b>	ND	3300		µg/Kg	5.0	11/22/01
Hexachloroethane	ND	1600		µg/Kg	5.0	11/22/01
Indeno(1,2,3-cd)pyrene	ND	1600		µg/Kg	5.0	11/22/01
Isophorone	ND	1600		µg/Kg	5.0	11/22/01
N-Nitrosodi-n-propylamine	ND	1600		µg/Kg	5.0	11/22/01
N-Nitrosodiphenylamine	ND	1600		µg/Kg	5.0	11/22/01
Naphthalene	ND	1600		µg/Kg	5.0	11/22/01
Nitrobenzene	ND	1600		µg/Kg	5.0	11/22/01
Pentachlorophenol	ND	8200		µg/Kg	5.0	11/22/01
Phenanthrene	ND	1600		µg/Kg	5.0	11/22/01
Phenol	ND	1600		µg/Kg	5.0	11/22/01
Pyrene	ND	1600		µg/Kg	5.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 I - Analyte detected below quantitation limits  
 B - Analyte **detected** in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored, Highly Reactive

**Initials:** 



# Advanced Technology Laboratories

Print Date: 11/27/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 4SA

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 11:20:00 PM

**Lab ID:** 054057-015A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8270C**

RunID: MS6\_011121A

BatchID: 6613

PrepDate

11/21/01

Analyst: IG

1,2,4-Trichlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
1,2-Dichlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
1,3-Dichlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
1,4-Dichlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
2,4,5-Trichlorophenol	ND	1600		µg/Kg	5.0	11/22/01
2,4,6-Trichlorophenol	ND	1600		µg/Kg	5.0	11/22/01
2,4-Dichlorophenol	ND	8200		µg/Kg	5.0	11/22/01
2,4-Dimethylphenol	ND	1600		µg/Kg	5.0	11/22/01
2,4-Dinitrophenol	ND	8200		µg/Kg	5.0	11/22/01
2,4-Dinitrotoluene	ND	1600		µg/Kg	5.0	11/22/01
2,6-Dinitrotoluene	ND	1600		µg/Kg	5.0	11/22/01
2-Chloronaphthalene	ND	1600		µg/Kg	5.0	11/22/01
2-Chlorophenol	ND	1600		µg/Kg	5.0	11/22/01
2-Methylnaphthalene	ND	1600		µg/Kg	5.0	11/22/01
2-Methylphenol	ND	1600		µg/Kg	5.0	11/22/01
2-Nitroaniline	ND	8200		µg/Kg	5.0	11/22/01
2-Nitrophenol	ND	1600		µg/Kg	5.0	11/22/01
3,3'-Dichlorobenzidine	ND	3300		µg/Kg	5.0	11/22/01
3-Nitroaniline	ND	8200		µg/Kg	5.0	11/22/01
4,6-Dinitro-2-methylphenol	ND	8200		µg/Kg	5.0	11/22/01
4-Bromophenyl-phenylether	ND	1600		µg/Kg	5.0	11/22/01
4-Chloro-3-methylphenol	ND	3300		µg/Kg	5.0	11/22/01
4-Chloroaniline	ND	3300		µg/Kg	5.0	11/22/01
4-Chlorophenyl-phenylether	ND	1600		µg/Kg	5.0	11/22/01
4-Methylphenol	ND	1600		µg/Kg	5.0	11/22/01
4-Nitroaniline	ND	8200		µg/Kg	5.0	11/22/01
4-Nitrophenol	ND	8200		µg/Kg	5.0	11/22/01
Acenaphthene	ND	1600		µg/Kg	5.0	11/22/01
Acenaphthylene	ND	1600		µg/Kg	5.0	11/22/01
Anthracene	ND	1600		µg/Kg	5.0	11/22/01
Benzidine (M)	ND	8200		µg/Kg	5.0	11/22/01
Benzo(a)anthracene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(a)pyrene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(b)fluoranthene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(g,h,i)perylene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(k)fluoranthene	ND	1600		µg/Kg	5.0	11/22/01
Benzoic acid	ND	8200		µg/Kg	5.0	11/22/01
Benzyl alcohol	ND	3300		µg/Kg	5.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference

H - Samples exceeding analytical holding time

E - Value above quantitation range

M - Not Monitored. Highly Reactive

Initials: 



Advanced Technology  
Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

# Advanced Technology Laboratories

Print Date: 11/27/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 45A

**Lab Order:** 054057

**Project:** FIELDSTONE-HG0371-096

**Collection Date:** 11/21/01 1:20:00 PM

**Lab ID:** 054057-015A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8270C**

RunID: **MS6\_011121A**

BatchID: **6613**

PrepDate: **11/21/01**

Analyst: **IG**

Bis(2-chloroethoxy)methane	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-chloroethyl)ether	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-chloroisopropyl)ether	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-ethylhexyl)phthalate	ND	1600		µg/Kg	5.0	11/22/01
Butylbenzylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Chrysene	ND	1600		µg/Kg	5.0	11/22/01
Di-n-butylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Di-n-octylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Dibenz(a,h)anthracene	ND	1600		µg/Kg	5.0	11/22/01
Dibenzofuran	ND	1600		µg/Kg	5.0	11/22/01
Diethylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Dimethylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Fluoranthene	ND	1600		µg/Kg	5.0	11/22/01
Fluorene	ND	1600		µg/Kg	5.0	11/22/01
Hexachlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
Hexachlorobutadiene	ND	3300		µg/Kg	5.0	11/22/01
Hexachlorocyclopentadiene	ND	3300		µg/Kg	5.0	11/22/01
Hexachloroethane	ND	1600		µg/Kg	5.0	11/22/01
Indeno(1,2,3-cd)pyrene	ND	1600		µg/Kg	5.0	11/22/01
Isophorone	ND	1600		µg/Kg	5.0	11/22/01
N-Nitrosodi-n-propylamine	ND	1600		µg/Kg	5.0	11/22/01
N-Nitrosodiphenylamine	ND	1600		µg/Kg	5.0	11/22/01
Naphthalene	ND	1600		µg/Kg	5.0	11/22/01
Nitrobenzene	ND	1600		µg/Kg	5.0	11/22/01
Pentachlorophenol	ND	8200		µg/Kg	5.0	11/22/01
Phenanthrene	ND	1600		µg/Kg	5.0	11/22/01
Phenol	ND	1600		µg/Kg	5.0	11/22/01
Pyrene	ND	1600		µg/Kg	5.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 

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Advanced Technology  
Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

**Advanced Technology Laboratories**

Print Date: 11/27/01

**CLIENT:** GeoSyntec Consultants **Client Sample ID:** 43B  
**Lab Order:** 054057  
**Project:** FIELDSTONE - HG0371-096 **Collection Date:** 11/21/01 12:00:00 PM  
**Lab ID:** 054057-021A **Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8270C**

RunID: MS6\_011121A BatchID: 6613 PrepDate: 11/21/01 Analyst: IG

1,2,4-Trichlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
1,2-Dichlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
1,3-Dichlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
1,4-Dichlorobenzene	NO	1600		µg/Kg	5.0	11/22/01
2,4,5-Trichlorophenol	ND	1600		µg/Kg	5.0	11/22/01
2,4,6-Trichlorophenol	ND	1600		µg/Kg	5.0	11/22/01
2,4-Dichlorophenol	ND	8200		µg/Kg	5.0	11/22/01
2,4-Dimethylphenol	ND	1600		µg/Kg	5.0	11/22/01
2,4-Dinitrophenol	ND	6200		µg/Kg	5.0	11/22/01
2,4-Dinitrotoluene	ND	1600		µg/Kg	5.0	11/22/01
2,6-Dinitrotoluene	ND	1600		µg/Kg	5.0	11/22/01
2-Chloronaphthalene	ND	1600		µg/Kg	5.0	11/22/01
2-Chlorophenol	ND	1600		µg/Kg	5.0	11/22/01
2-Methylnaphthalene	ND	1600		µg/Kg	5.0	11/22/01
2-Methylphenol	ND	1600		µg/Kg	5.0	11/22/01
2-Nitroaniline	ND	8200		µg/Kg	5.0	11/22/01
2-Nitrophenol	ND	1600		µg/Kg	5.0	11/22/01
3,3'-Dichlorobenzidine	ND	3300		µg/Kg	5.0	11/22/01
3-Nitroaniline	ND	6200		µg/Kg	5.0	11/22/01
4,6-Dinitro-2-methylphenol	ND	6200		µg/Kg	5.0	11/22/01
4-Bromophenyl-phenylether	ND	1600		µg/Kg	5.0	11/22/01
4-Chloro-3-methylphenol	ND	3300		µg/Kg	5.0	11/22/01
4-Chloroaniline	ND	3300		µg/Kg	5.0	11/22/01
4-Chlorophenyi-phenylether	ND	1600		µg/Kg	5.0	11/22/01
4-Methylphenol	ND	1600		µg/Kg	5.0	11/22/01
4-Nitroaniline	ND	8200		µg/Kg	5.0	11/22/01
4-Nitrophenol	ND	6200		µg/Kg	5.0	11/22/01
Acenaphthene	ND	1600		µg/Kg	5.0	11/22/01
Acenaphthylene	ND	1600		µg/Kg	5.0	11/22/01
Anthracene	ND	1600		µg/Kg	5.0	11/22/01
Benzidine (M)	ND	6200		µg/Kg	5.0	11/22/01
Benzo(a)anthracene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(a)pyrene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(b)fluoranthene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(g,h,i)perylene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(k)fluoranthene	ND	1600		µg/Kg	5.0	11/22/01
Benzoic acid	ND	6200		µg/Kg	5.0	11/22/01
Benzyl alcohol	ND	3300		µg/Kg	5.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference  
 J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time  
 B - Analyte detected in the associated Method Blank E - Value above quantitation range Initials:   
 VO - Surrogate Diluted Out M - Not Monitored. Highly Reactive



# Advanced Technology Laboratories

Print Date: 11/27/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 43B

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 2:00:00 PM

**Lab ID:** 054057-021A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8270C**

**RunID: MS6\_011121A**

**BatchID: 6613**

**PrepDate: 11/21/01**

**Analyst: IG**

Bis(2-chloroethoxy)methane	ND	1600		µg/Kg	5.0	11122101
Bis(2-chloroethyl)ether	ND	1600		µg/Kg	5.0	11122101
Bis(2-chloroisopropyl)ether	ND	1600		µg/Kg	5.0	11122101
Bis(2-ethylhexyl)phthalate	ND	1600		µg/Kg	5.0	11122101
Butylbenzylphthalate	ND	1600		µg/Kg	5.0	11122101
Chrysene	ND	1600		µg/Kg	5.0	11122101
Di-n-butylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Di-n-octylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Dibenz(a,h)anthracene	ND	1600		µg/Kg	5.0	11122101
Dibenzofuran	ND	1600		µg/Kg	5.0	11122101
Diethylphthalate	ND	1600		µg/Kg	5.0	11122101
Dimethylphthalate	ND	1600		µg/Kg	5.0	11122101
Fluoranthene	ND	1600		µg/Kg	5.0	11122101
Fluorene	ND	1600		µg/Kg	5.0	11122101
Hexachlorobenzene	ND	1600		µg/Kg	5.0	11122101
Hexachlorobutadiene	ND	3300		µg/Kg	5.0	11122101
Hexachlorocyclopentadiene	ND	3300		µg/Kg	5.0	11122101
Hexachloroethane	ND	1600		µg/Kg	5.0	11122101
Indeno(1,2,3-cd)pyrene	ND	1600		µg/Kg	5.0	11/22/01
Isophorone	ND	1600		µg/Kg	5.0	11122101
N-Nitrosodi-n-propylamine	ND	1600		µg/Kg	5.0	11122101
N-Nitrosodiphenylamine	ND	1600		µg/Kg	5.0	11122101
Naphthalene	ND	1600		µg/Kg	5.0	11/22/01
Nitrobenzene	ND	1600		µg/Kg	5.0	11/22/01
Pentachlorophenol	ND	8200		µg/Kg	5.0	11/22/01
Phenanthrene	ND	1600		µg/Kg	5.0	11122101
Phenol	ND	1600		µg/Kg	5.0	11122101
Pyrene	ND	1600		µg/Kg	5.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Our

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored, Highly Reactive

**Initials:** 



Advanced Technology  
Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

**Advanced Technology Laboratories**

Print Date: 11/27/01

**CLIENT** GeoSyntec Consultants **Client Sample ID:** 41B  
**Lab Order:** 054057  
**Project:** FIELDSTONE- HG0371-096 **Collection Date:** 11/21/01 2:00:00 PM  
**Lab ID:** 054057-022A **Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8270C**

RunID: MS6\_011121A BatchID: 6613 PrepDate: 11/21/01 Analyst: IG

1,2,4-Trichlorobenrene	ND	1600		µg/Kg	5.0	11/22/01
1,2-Dichlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
1,3-Dichlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
1,4-Dichlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
2,4,5-Trichlorophenol	ND	1600		µg/Kg	5.0	11/22/01
2,4,6-Trichlorophenol	ND	1600		µg/Kg	5.0	11/22/01
2,4-Dichlorophenol	ND	8200		µg/Kg	5.0	11/22/01
2,4-Dimethylphenol	ND	1600		µg/Kg	5.0	11/22/01
2,4-Dinitrophenol	ND	8200		µg/Kg	5.0	11/22/01
2,4-Dinitrotoluene	ND	1600		µg/Kg	5.0	11/22/01
2,6-Dinitrotoluene	ND	1600		µg/Kg	5.0	11/22/01
2-Chloronaphthalene	ND	1600		µg/Kg	5.0	11/22/01
2-Chlorophenol	ND	1600		µg/Kg	5.0	11/22/01
2-Methylnaphthalene	ND	1600		µg/Kg	5.0	11/22/01
2-Methylphenol	ND	1600		µg/Kg	5.0	11/22/01
2-Nitroaniline	ND	8200		µg/Kg	5.0	11/22/01
2-Nitrophenol	ND	1600		µg/Kg	5.0	11/22/01
3,3'-Dichlorobenzidine	ND	3300		µg/Kg	5.0	11/22/01
3-Nitroaniline	ND	8200		µg/Kg	5.0	11/22/01
4,6-Dinitro-2-methylphenol	ND	8200		µg/Kg	5.0	11/22/01
4-Bromophenyl-phenylether	NO	1600		µg/Kg	5.0	11/22/01
4-Chloro-3-methylphenol	ND	3300		µg/Kg	5.0	11/22/01
4-Chloroaniline	ND	3300		µg/Kg	5.0	11/22/01
4-Chlorophenyl-phenylether	ND	1600		µg/Kg	5.0	11/22/01
4-Methylphenol	ND	1600		µg/Kg	5.0	11/22/01
4-Nitroaniline	ND	8200		µg/Kg	5.0	11/22/01
4-Nitrophenol	ND	8200		µg/Kg	5.0	11/22/01
Acenaphthene	ND	1600		µg/Kg	5.0	11/22/01
Acenaphthylene	ND	1600		µg/Kg	5.0	11/22/01
Anthracene	ND	1600		µg/Kg	5.0	11/22/01
Benzidine (M)	ND	8200		µg/Kg	5.0	11/22/01
Benzo(a)anthracene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(a)pyrene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(b)fluoranthene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(g,h,i)perylene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(k)fluoranthene	ND	1600		µg/Kg	5.0	11/22/01
Benzoic acid	ND	8200		µg/Kg	5.0	11/22/01
Benzyl alcohol	ND	3300		µg/Kg	5.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference  
 J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time  
 B - Analyte detected in the associated Method Blank E - Value above quantitation range  
 DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive

Initials: 



**Advanced Technology Laboratories**

3278 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

# Advanced Technology Laboratories

Print Date: 11/27/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 054057

**Client Sample ID:** 448

**Project:** FIELDSTONE - HG0371-096  
**Lab ID:** 054057-022A

**Collection Date:** 11/21/01 2:00:00 PM  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8270C**

RunID: MS6\_011121A

BatchID: 6613

PrepDate: 11/21/01

Analyst: JG

Bis(2-chloroethoxy)methane	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-chloroethyl)ether	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-chloroisopropyl)ether	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-ethylhexyl)phthalate	ND	1600		µg/Kg	5.0	11/22/01
Butylbenzylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Chrysene	ND	1600		µg/Kg	5.0	11/22/01
Di-n-butylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Di-n-octylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Dibenz(a,h)anthracene	ND	1600		µg/Kg	5.0	11/22/01
Dibenzofuran	ND	1600		µg/Kg	5.0	11/22/01
Diethylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Dimethylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Fluoranthene	ND	1600		µg/Kg	5.0	11/22/01
Fluorene	ND	1600		µg/Kg	5.0	11/22/01
Hexachlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
Hexachlorobutadiene	ND	3300		µg/Kg	5.0	11/22/01
Hexachlorocyclopentadiene	ND	3300		µg/Kg	5.0	11/22/01
Hexachloroethane	ND	1600		µg/Kg	5.0	11/22/01
Indeno(1,2,3-cd)pyrene	ND	1600		µg/Kg	5.0	11/22/01
Isophorone	ND	1600		µg/Kg	5.0	11/22/01
N-Nitrosodi-n-propylamine	ND	1600		µg/Kg	5.0	11/22/01
N-Nitrosodiphenylamine	ND	1600		µg/Kg	5.0	11/22/01
Naphthalene	ND	1600		µg/Kg	5.0	11/22/01
Nitrobenzene	ND	1600		µg/Kg	5.0	11/22/01
Pentachlorophenol	ND	8200		µg/Kg	5.0	11/22/01
Phenanthrene	ND	1600		µg/Kg	5.0	11/22/01
Phenol	ND	1600		µg/Kg	5.0	11/22/01
Pyrene	ND	1600		µg/Kg	5.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored, Highly Reactive

Initials: 

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# Advanced Technology Laboratories

Print Date: 11/27/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 49B

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 2:00:00 PM

**Lab ID:** 054057-023A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8270C**

RunID: MS6\_011121A

BatchID: 6613

PrepDate: 11/21/01

Analyst: IG

1,2,4-Trichlorobenzene	ND	330		µg/Kg	1.0	11/21/01
1,2-Dichlorobenzene	ND	330		µg/Kg	1.0	11/21/01
1,3-Dichlorobenzene	ND	330		µg/Kg	1.0	11/21/01
1,4-Dichlorobenzene	ND	330		µg/Kg	1.0	11/21/01
2,4,5-Trichlorophenol	ND	330		µg/Kg	1.0	11/21/01
2,4,6-Trichlorophenol	ND	330		µg/Kg	1.0	11/21/01
2,4-Dichlorophenol	ND	1600		µg/Kg	1.0	11/21/01
2,4-Dimethylphenol	ND	330		µg/Kg	1.0	11/21/01
2,4-Dinitrophenol	ND	1600		µg/Kg	1.0	11/21/01
2,4-Dinitrotoluene	ND	330		µg/Kg	1.0	11/21/01
2,6-Dinitrotoluene	ND	330		µg/Kg	1.0	11/21/01
2-Chloronaphthalene	ND	330		µg/Kg	1.0	11/21/01
2-Chlorophenol	ND	330		µg/Kg	1.0	11/21/01
2-Methylnaphthalene	ND	330		µg/Kg	1.0	11/21/01
2-Methylphenol	ND	330		µg/Kg	1.0	11/21/01
2-Nitroaniline	ND	1600		µg/Kg	1.0	11/21/01
2-Nitrophenol	ND	330		µg/Kg	1.0	11/21/01
3,3'-Dichlorobenzidine	ND	660		µg/Kg	1.0	11/21/01
3-Nitroaniline	ND	1600		µg/Kg	1.0	11/21/01
4,6-Dinitro-2-methylphenol	ND	1600		µg/Kg	1.0	11/21/01
4-Bromophenyl-phenylether	ND	330		µg/Kg	1.0	11/21/01
4-Chloro-3-methylphenol	ND	660		µg/Kg	1.0	11/21/01
4-Chloroaniline	ND	660		µg/Kg	1.0	11/21/01
4-Chlorophenyl-phenylether	ND	330		µg/Kg	1.0	11/21/01
4-Methylphenol	ND	330		µg/Kg	1.0	11/21/01
4-Nitroaniline	ND	1600		µg/Kg	1.0	11/21/01
4-Nitrophenol	ND	1600		µg/Kg	1.0	11/21/01
Acenaphthene	ND	330		µg/Kg	1.0	11/21/01
Acenaphthylene	ND	330		µg/Kg	1.0	11/21/01
Anthracene	ND	330		µg/Kg	1.0	11/21/01
Benidine (M)	ND	1600		µg/Kg	1.0	11/21/01
Benzo(a)anthracene	ND	330		µg/Kg	1.0	11/21/01
Benzo(a)pyrene	ND	330		µg/Kg	1.0	11/21/01
Benzo(b)fluoranthene	ND	330		µg/Kg	1.0	11/21/01
Benzo(g,h,i)perylene	ND	330		µg/Kg	1.0	11/21/01
Benzo(k)fluoranthene	ND	330		µg/Kg	1.0	11/21/01
Benzoic acid	ND	1600		µg/Kg	1.0	11/21/01
Benzyl alcohol	ND	660		µg/Kg	1.0	11/21/01

**Qualifiers:** ND - Not Detected at the Reporting Limit

S - Spike/Surrogate outside of limits due to matrix interference.

J - Analyte detected below quantitation limits

H - Samples exceeding analytical holding time

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

DO - Surrogate Diluted Out

M - Not Monitored Highly Reactive

Initials: 

12



**Advanced Technology Laboratories**

Print Date: 11/27/01

CLIENT: GeoSyntec Consultants Client Sample ID: 49B  
 Lab Order: 053057  
 Project: FIELDSTONE - HG0371-096 Collection Date: 11/21/01 2:00:00 PM  
 Lab ID: 054057-023A Matrix: Soil

Analyses Result Limit Qual Units DF Date Analyzed

SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8270C

RunID: MS6\_011121A BatchID: 6613 PrepDate: 11/21/01 Analyst: IG

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Bis(2-chloroethoxy)methane	ND	330		µg/Kg	1.0	11/21/01
Bis(2-chloroethyl)ether	ND	330		µg/Kg	1.0	11/21/01
Bis(2-chloroisopropyl)ether	ND	330		µg/Kg	1.0	11/21/01
Bis(2-ethylhexyl)phthalate	NO	330		µg/Kg	1.0	11/21/01
Butylbenzylphthalate	ND	330		µg/Kg	1.0	11/21/01
Chrysene	ND	330		µg/Kg	1.0	11/21/01
Di-n-butylphthalate	ND	330		µg/Kg	1.0	11/21/01
Di-n-octylphthalate	NO	330		µg/Kg	1.0	11/21/01
Dibenz(a,h)anthracene	ND	330		µg/Kg	1.0	11/21/01
Dibenzofuran	ND	330		µg/Kg	1.0	11/21/01
Diethylphthalate	NO	330		µg/Kg	1.0	11/21/01
Dimethylphthalate	ND	330		µg/Kg	1.0	11/21/01
Fluoranthene	ND	330		µg/Kg	1.0	11/21/01
Fluorene	ND	330		µg/Kg	1.0	11/21/01
Hexachlorobenzene	ND	330		µg/Kg	1.0	11/21/01
Hexachlorobutadiene	ND	660		µg/Kg	1.0	11/21/01
Hexachlorocyclopentadiene	ND	660		µg/Kg	1.0	11/21/01
Hexachloroethane	NO	330		µg/Kg	1.0	11/21/01
Indeno(1,2,3-cd)pyrene	ND	330		µg/Kg	1.0	11/21/01
Isophorone	ND	330		µg/Kg	1.0	11/21/01
N-Nitrosodi-n-propylamine	ND	330		µg/Kg	1.0	11/21/01
N-Nitrosodiphenylamine	ND	330		µg/Kg	1.0	11/21/01
Naphthalene	ND	330		µg/Kg	1.0	11/21/01
Nitrobenzene	ND	330		µg/Kg	1.0	11/21/01
Pentachlorophenol	ND	1600		µg/Kg	1.0	11/21/01
Phenanthrene	ND	330		µg/Kg	1.0	11/21/01
Phenol	ND	330		µg/Kg	1.0	11/21/01
Pyrene	ND	330		µg/Kg	1.0	11/21/01

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference.  
 J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time  
 B - Analyte detected in the associated Method Blank E - Value above quantitation range  
 DO - Surrogate Diluted Out M - Not Monitored, Highly Reactive

Initials: 



# Advanced Technology Laboratories

Print Date: 11/27/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 49A

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 12:10:00 PM

**Lab ID:** 054057-024A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8270C**

RunID: MS6\_011121A

BatchID: 6613

PrepDate

11/21/01

Analyst: IG

1,2,4-Trichlorobenzene	ND	1600		µg/Kg	5.0	11122101
<del>1,2-Dichlorobenzene</del>	ND	1600		µg/Kg	5.0	11/22/01
1,3-Dichlorobenzene	ND	1600		µg/Kg	5.0	11122101
<del>1,4-Dichlorobenzene</del>	ND	1600		µg/Kg	5.0	11/22/01
2,4,5-Trichlorophenol	ND	1600		µg/Kg	5.0	11/22/01
2,4,6-Trichlorophenol	ND	1600		µg/Kg	5.0	11/22/01
2,4-Dichlorophenol	ND	8200		µg/Kg	5.0	11/22/01
2,4-Dimethylphenol	ND	1600		µg/Kg	5.0	11122101
2,4-Dinitrophenol	ND	8200		µg/Kg	5.0	11122101
2,4-Dinitrotoluene	ND	1600		µg/Kg	5.0	11122101
2,6-Dinitrotoluene	ND	1600		µg/Kg	5.0	11/22/01
2-Chloronaphthalene	ND	1600		µg/Kg	5.0	11/22/01
2-Chlorophenol	ND	1600		µg/Kg	5.0	11122101
2-Methylnaphthalene	ND	1600		µg/Kg	5.0	11/22/01
2-Methylphenol	ND	1600		µg/Kg	5.0	11/22/01
2-Nitroaniline	ND	8200		µg/Kg	5.0	11122101
2-Nitrophenol	ND	1600		µg/Kg	5.0	11/22/01
3,3'-Dichlorobenzidine	ND	3300		µg/Kg	5.0	11/22/01
3-Nitroaniline	ND	8200		µg/Kg	5.0	11/22/01
4,6-Dinitro-2-methylphenol	ND	8200		µg/Kg	5.0	11/22/01
4-Bromophenyl-phenylether	ND	1600		µg/Kg	5.0	11122101
4-Chloro-3-methylphenol	ND	3300		µg/Kg	5.0	11172101
4-Chloroaniline	ND	3300		µg/Kg	5.0	11/22/01
4-Chlorophenyl-phenylether	ND	1600		µg/Kg	5.0	11/22/01
4-Methylphenol	ND	1600		µg/Kg	5.0	11/22/01
4-Nitroaniline	ND	8200		µg/Kg	5.0	11/22/01
4-Nitrophenol	ND	8200		µg/Kg	5.0	11/22/01
Acenaphthene	ND	1600		µg/Kg	5.0	11122101
Acenaphthylene	ND	1600		µg/Kg	5.0	11122101
Anthracene	ND	1600		µg/Kg	5.0	11122101
Benzidine (M)	ND	8200		µg/Kg	5.0	11127101
Benzo(a)anthracene	ND	1600		µg/Kg	5.0	11/22/01
Benzo(a)pyrene	ND	1600		µg/Kg	5.0	11122101
Benzo(b)fluoranthene	ND	1600		µg/Kg	5.0	11122101
Benzo(g,h,i)perylene	ND	1600		µg/Kg	5.0	11122101
Benzo(k)fluoranthene	ND	1600		µg/Kg	5.0	11122101
Benzoic acid	ND	8200		µg/Kg	5.0	11122101
Benzyl alcohol	ND	3300		µg/Kg	5.0	11122101

Qualifiers: ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 



Advanced Technology  
Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

**Advanced Technology Laboratories**

Print Date: 11/27/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 49A

**Lab Order:** 084057

**Project:** FIELDSTONE - HGO371-096

**Collection Date:** 11/21/01 2:10:00 PM

**Lab ID:** 054057-024A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**SEMIVOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8270C**

RunID: MS6\_011121A

BatchID: 6613

PrepDate: 11/21/01

Analyst: IG

Bis(2-chloroethoxy)methane	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-chloroethyl)ether	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-chloroisopropyl)ether	ND	1600		µg/Kg	5.0	11/22/01
Bis(2-ethylhexyl)phthalate	ND	1600		µg/Kg	5.0	11/22/01
Butylbenzylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Chrysene	ND	1600		µg/Kg	5.0	11/27/01
Di-n-butylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Di-n-octylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Dibenz(a,h)anthracene	ND	1600		µg/Kg	5.0	11/22/01
Dibenzofuran	ND	1600		µg/Kg	5.0	11/22/01
Diethylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Dimethylphthalate	ND	1600		µg/Kg	5.0	11/22/01
Fluoranthene	ND	1600		µg/Kg	5.0	11/22/01
Fluorene	ND	1600		µg/Kg	5.0	11/22/01
Hexachlorobenzene	ND	1600		µg/Kg	5.0	11/22/01
Hexachlorobutadiene	ND	3300		µg/Kg	5.0	11/22/01
Hexachlorocyclopentadiene	ND	3300		µg/Kg	5.0	11/22/01
Hexachloroethane	ND	1600		µg/Kg	5.0	11/22/01
Indeno(1,2,3-cd)pyrene	ND	1600		µg/Kg	5.0	11/22/01
Isophorone	ND	1600		µg/Kg	5.0	11/22/01
N-Nitrosodi-n-propylamine	ND	1600		µg/Kg	5.0	11/72/01
N-Nitrosodiphenylamine	ND	1600		µg/Kg	5.0	11/22/01
Naphthalene	ND	1600		µg/Kg	5.0	11/22/01
Nitrobenzene	ND	1600		µg/Kg	5.0	11/77/01
Pentachlorophenol	ND	8200		µg/Kg	5.0	11/22/01
Phenanthrene	ND	1600		µg/Kg	5.0	11/22/01
Phenol	ND	1600		µg/Kg	5.0	11/72/01
Pyrene	ND	1600		µg/Kg	5.0	11/72/01

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike/Surrogate outside of limits due to matrix interference.

J - Analyte detected below quantitation limits

H - Samples exceeding analytical holdingtime

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

DO - Surrogate Diluted Out

M - Not Monitored. Highly Reactive

Initials: 

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# Advanced Technology Laboratories

Date: 27-Nov-01

CLIENT: GeoSyntec Consultants  
Work Order: 054057  
Project: FIELDSTONE - HG0371-096

## QC SUMMARY REPORT Method Blank

Sample ID MB-R13501 Batch ID: R13501 Test Name TOTAL RECOVERABLE PETROLEUM HYDRO Units mg/Kg Analysis Date: 11/26/01 Prep Date: 11/26/01

MBLK				SeqNo: 210391							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	10		0				0			

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Qualifiers: ND - Not Detected at the Reporting Limit    B - Analyte detected in the associated Method Blank    DO - Surrogate Diluted Out    Initials:             
 J - Analyte detected below quantitation limits    M - Not Monitored. **Highly** Reactive  
 R - RPD outside accepted recovery limits    S - Spike/Surrogate outside of limits due to matrix interference

All calculations are based on raw values.



Advanced Technology  
Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: GeoSyntec Consultants  
Work Order: 054057  
Project: FIELDSTONE. HG0371-096

**QC SUMMARY REPORT**  
Method Blank

Sample ID MB-6613 Batch ID: 6613 Test Name SEMIVOLATILE ORGANIC COMPOUNDS BY G Units µg/Kg Analysis Date: 11/21/01 Prep Date: 11/21/01  
MBLK SeqNo: 209987

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	330		0				0			
1,2-Dichlorobenzene	NO	330		0				0			
1,3-Dichlorobenzene	ND	330		0				0			
1,4-Dichlorobenzene	ND	330		0				0			
2,4,5-Trichlorophenol	ND	330		0				0			
2,4,6-Trichlorophenol	ND	330		0				0			
2,4-Dichlorophenol	ND	1600		0				0			
2,4-Dimethylphenol	ND	330		0				0			
2,4-Dinitrophenol	ND	1600		0				0			
2,4-Dinitrotoluene	ND	330		0				0			
2,6-Dinitrotoluene	ND	330		0				0			
2-Chloronaphthalene	ND	330		0				0			
2-Chlorophenol	NO	330		0				0			
2-Methylnaphthalene	ND	330		0				0			
2-Methylphenol	ND	330		0				0			
2-Nitroaniline	ND	1600		0				0			
2-Nitrophenol	ND	330		0				0			
3,3'-Dichlorobenzidine	ND	660		0				0			
3-Nitroaniline	ND	1600		0				0			
4,6-Dinitro-2-methylphenol	ND	1600		0				0			
4-Bromophenyl-phenylether	ND	330		0				0			
4-Chloro-3-methylphenol	ND	660		0				0			
4-Chloroaniline	ND	660		0				0			
4-Chlorophenyl-phenylether	ND	330		0				0			
4-Methylphenol	ND	330		0				0			
4-Nitroaniline	ND	1600		0				0			
4-Nitrophenol	ND	1600		0				0			

Qualifiers: ND - Not Detected at the Reporting Limit B - Analyte detected in the associated Method Blank DO - Surrogate Diluted Out  
J - Analyte detected below quantitation limits M - Not Monitored, Highly Reactive  
R - RPD outside accepted recovery limits S - Spike/Surrogate outside of limits due to matrix interference

Initials:                     

All calculations are based on raw values.



Advanced Technology  
Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: GeoSyntec Consultants  
Work Order: 054057  
Project: FIELDSTONE - HG0371-096

QC SUMMARY REPORT  
Method Blank

Acenaphthene	ND	330	0	0
Acenaphthylene	ND	330	0	0
Anthracene	ND	330	0	0
Benzidine (M)	ND	1600	0	0
Benzo(a)anthracene	ND	330	0	0
Benzo(a)pyrene	ND	330	0	0
Benzo(b)fluoranthene	ND	330	0	0
Benzo(g,h,i)perylene	ND	330	0	0
Benzo(k)fluoranthene	ND	330	0	0
Benzoic acid	ND	1600	0	0
Benzyl alcohol	ND	660	0	0
Bis(2-chloroethoxy)methane	ND	330	0	0
Bis(2-chloroethyl)ether	ND	330	0	0
Bis(2-chloroisopropyl)ether	ND	330	0	0
Bis(2-ethylhexyl)phthalate	ND	330	0	0
Butylbenzylphthalate	ND	330	0	0
Chrysene	ND	330	0	0
Di-n-butylphthalate	ND	330	0	0
Di-n-octylphthalate	ND	330	0	0
Dibenz(a,h)anthracene	ND	330	0	0
Dibenzofuran	ND	330	0	0
Diethylphthalate	ND	330	0	0
Dimethylphthalate	ND	330	0	0
Fluoranthene	ND	330	0	0
Fluorene	ND	330	0	0
Hexachlorobenzene	ND	330	0	0
Hexachlorobutadiene	ND	660	0	0
Hexachlorocyclopentadiene	ND	660	0	0
Hexachloroethane	ND	330	0	0
Indeno(1,2,3-cd)pyrene	ND	330	0	0
Isophorone	ND	330	0	0
N-Nitrosodi-n-propylamine	ND	330	0	0

Qualifiers: ND - Not Detected at the Reporting Limit      B - Analyte detected in the associated Method Blank      DO - Surrogate Diluted Out  
J - Analyte detected below quantitation limits      M - Not Monitored Highly Reactive  
R - RPD outside accepted recovery limits      S - Spike/Surrogate outside of limits due to matrix interference

Initials:     

All calculations are based on raw values.



Advanced Technology  
Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fa

2 989-4040

CLIENT: GeoSyntec Consultants

Work Older: 054057

## QC SUMMARY REPORT

Project: FIELDSTONE. HG0371-096

Method Blank

N-Nitrosodiphenylamine	ND	330	0	0
Naphthalene	ND	330	0	0
Nitrobenzene	ND	330	0	0
Peniachlorophenol	ND	1600	0	0
Phenanthrene	ND	330	0	0
Phenol	ND	330	0	0
Pyrene	ND	330	0	0

Qualifiers: ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank  
 M - Not Monitored, Highly Reactive  
 S - Spike/Surrogate outside of limits due to matrix interference

DO - Surrogate Diluted Out

Initials:

All calculations are based on raw







Advanced Technology  
Laboratories

# Advanced Technology Laboratories

Date: 27-Nov-01

CLIENT: GeoSyntec Consultants  
Work Order: 0.54057  
Project: FIELDSTONE - HG0371-096

## QC SUMMARY REPORT Laboratory Control Spike - generic

Sample ID LCS-R13501 Batch ID: R13501 Test Name TOTAL RECOVERABLE PETROLEUM HYDRO Units mg/Kg Analysis Date: 11/26/01 Prep Date: 11/26/01

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	510	10	500	0	102	80	120	0			

3275 Walnut Avenue  
Signal Hill, CA 90807

562 989-4045  
Fax: 562 989-4040

Qualifiers: ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 R - RPD outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank  
 M - Not Monitored. Highly Reactive  
 S - Spike/Surrogate outside of limits due to matrix interference  
 DO - Surrogate Diluted Out

Initials: 

All calculations are based on raw values.



Advanced Technology Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: GeoSyntec Consultants  
Work Order: 054057  
Project: FIELDSTONE - HG0371-096

# QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID LCS-6613 Batch ID: 6613 Test Name SEMIVOLATILE ORGANIC COMPOUNDS BY G Units µg/Kg Analysis Date: 11/21/01 Prep Date: 11/21/01

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Quai
1,2,4-Trichlorobenzene	2600	330	3330	0	77	35	140	0			
1,2-Dichlorobenzene	2300	330	3330	0	68	35	140	0			
1,3-Dichlorobenzene	2200	330	3330	0	67	35	140	0			
1,4-Dichlorobenzene	2300	330	3330	0	68	35	140	0			
2,4,6-Trichlorophenol	2900	330	3330	0	87	30	130	0			
2,4-Dichlorophenol	2900	1600	3330	0	88	30	130	0			
2,4-Dimethylphenol	2600	330	3330	0	77	30	130	0			
2,4-Dinitrophenol	2800	1600	3330	0	83	30	130	0			
2,4-Dinitrotoluene	3000	330	3330	0	90	35	140	0			
2,6-Dinitrotoluene	3000	330	3330	0	91	35	140	0			
2-Chloronaphthalene	2600	330	3330	0	77	35	140	0			
2-Chlorophenol	2700	330	3330	0	80	30	130	0			
2-Nitrophenol	2700	330	3330	0	82	30	130	0			
3,3'-Dichlorobenzidine	2800	660	3330	0	83	35	140	0			
4,6-Dinitro-2-methylphenol	2900	1600	3330	0	89	30	130	0			
4-Bromophenyl-phenylether	3200	330	3330	0	97	35	140	0			
4-Chloro-3-methylphenol	2900	660	3330	0	88	30	130	0			
4-Chlorophenyl-phenylether	2800	330	3330	0	83	35	140	0			
4-Nitrophenol	2700	1600	3330	0	81	30	130	0			
Acenaphthene	2500	330	3330	0	76	35	140	0			
Acenaphthylene	2600	330	3330	0	79	35	140	0			
Anthracene	2800	330	3330	0	83	35	140	0			
Benzidine (M)	ND	1600	3330	0	0	0	0	0			
Benzo(a)anthracene	2800	330	3330	0	84	35	140	0			
Benzo(a)pyrene	2800	330	3330	0	85	35	140	0			
Benzo(b)fluoranthene	2900	330	3330	0	86	35	140	0			
Benzo(g,h,i)perylene	2800	330	3330	0	84	35	140	0			

Qualifiers: ND - Not Detected at the Reporting Limit      B - Analyte detected in the associated Method Blank      DO - Surrogate Diluted Out  
 J - Analyte detected below quantitation limits      M - Not Monitored, Highly Reactive  
 R - RPD outside accepted recovery limits      S - Spike/Surrogate outside of limits due to matrix interference

Initials: \_\_\_\_\_

All calculations are based on raw values.



Advanced Technology  
Lab Offices

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

CLIENT: GeoSyntec Consultants  
Work Order: 054057  
Project: FIELDSTONE - HG0371-096

**QC SUMMARY REPORT**  
Laboratory Control Spike - generic

Benzo(k)fluoranthene	2800	330	3330	0	84	35	140	0
Benzoic acid	2700	1600	3330	0	81	30	130	0
Benzyl alcohol	2500	660	3330	0	75	40	130	0
Bis(2-chloroethoxy)methane	2200	330	3330	0	65	35	140	0
Bis(2-chloroethyl)ether	2300	330	3330	0	71	35	140	0
Bis(2-chloroisopropyl)ether	2100	330	3330	0	63	35	140	0
Bis(2-ethylhexyl)phthalate	2900	330	3330	0	86	35	140	0
Butylbenzylphthalate	2900	330	3330	0	88	35	140	0
Chrysene	2600	330	3330	0	79	35	140	0
Di-n-butylphthalate	2700	330	3330	0	82	35	140	0
Di-n-octylphthalate	3000	330	3330	0	91	35	140	0
Dibenz(a,h)anthracene	3000	330	3330	0	89	35	140	0
Diethylphthalate	2900	330	3330	0	86	35	140	0
Dimethylphthalate	2800	330	3330	0	85	35	140	0
Fluoranthene	2700	330	3330	0	82	35	140	0
Fluorene	2700	330	3330	0	82	35	140	0
Hexachlorobenzene	2800	330	3330	0	86	35	140	0
Hexachlorobutadiene	2300	660	3330	0	60	30	130	0
Hexachlorocyclopentadiene	2600	660	3330	0	77	30	130	0
Hexachloroelthane	2200	330	3330	0	66	35	140	0
Indeno(1,2,3-cd)pyrene	2800	330	3330	0	83	35	140	0
Isophorone	2500	330	3330	0	75	35	140	0
N-Nitrosodi-n-propylamine	2500	330	3330	0	76	35	140	0
N-Nitrosodiphenylamine	2800	330	3330	0	83	35	140	0
Naphthalene	2400	330	3330	0	72	35	140	0
Nitrobenzene	2500	330	3330	0	74	35	140	0
Pentachlorophenol	2800	1600	3330	0	83	30	130	0
Phenanthrene	2800	330	3330	0	83	35	140	0
Phenol	2600	330	3330	0	79	30	130	0
Pyrene	2700	330	3330	0	82	35	140	0

Qualifiers: ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits  
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank  
M - Not Monitored. Highly Keactive  
S - Spike/Surrogate outside of limits due to matrix interference

DO - Surrogate Diluted Out

Initials:           

All calculations are based on *raw* values.

November 26,200 1

Eric Smalstig  
GeoSyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648  
TEL: (714) 969-0800  
FAX (714) 969-0820

ELAP No: 1838

RE: FIELDSTONE - HG0371-096

Work Order No.: 054057

Attention: Eric Smalstig

Enclosed are the results for sample(s) received on November 21,2001 by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4015 if I can be of further assistance to your company.

Sincerely,



Edgar Caballero  
Laboratory Director

This cover letter is an integral part of this analytical report



# Advanced Technology Laboratories

Print Date: 11/26/01

**CLIENT** GeoSyntec Consultants

**Client Sample ID:** 13A

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 11:40:00 AM

**Lab ID:** 054057-001A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

**EPA 8082**

RunID: GC5\_011122A

BatchID: 6614

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	6600		µg/Kg	200	11/24/01
Aroclor 1221	ND	13000		µg/Kg	200	11/24/01
Aroclor 1232	ND	6600		µg/Kg	200	11/24/01
Aroclor 1242	ND	6600		µg/Kg	200	11/24/01
Aroclor 1248	ND	6600		µg/Kg	200	11/24/01
Aroclor 1254	ND	6600		µg/Kg	200	11/24/01
Aroclor 1260	67000	6600		µg/Kg	200	11/24/01
Aroclor 1262	ND	6600		µg/Kg	200	11/24/01
Aroclor 1268	ND	6600		µg/Kg	200	11/24/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 



**Advanced Technology**  
 Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

# Advanced Technology Laboratories

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 14A

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 11:40:00 AM

**Lab ID:** 054057-002A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

RunID: GC5\_011122A

BatchID: 6614

**EPA 8082**

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	330		µg/Kg	10	11/24/01
Aroclor 1221	ND	670		µg/Kg	10	11/24/01
Aroclor 1232	ND	330		µg/Kg	10	11/24/01
Aroclor 1242	ND	330		µg/Kg	10	11/24/01
Aroclor 1248	ND	330		µg/Kg	10	11/24/01
Aroclor 1254	ND	330		µg/Kg	10	11/24/01
Aroclor 1260	3800	330		µg/Kg	10	11/24/01
Aroclor 1262	NO	330		µg/Kg	10	11/24/01
Aroclor 1268	ND	330		µg/Kg	10	11/24/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method **Blank**  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to **matrix** interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

**Initials:** GG



**Advanced Technology Laboratories**

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 054057

**Client Sample ID:** 15A

**Project:** FIELDSTONE -HG0371-096

**Collection Date:** 11/21/01 11:46:00 AM

**Lab ID:** 054057-003A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

**EPA 8082**

RunID: GC5\_011122A

BatchID: 6614

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	66000		µg/Kg	2000	11/25/01
Aroclor 1221	ND	130000		µg/Kg	2000	11/25/01
Aroclor 1232	ND	66000		µg/Kg	2000	11/25/01
Aroclor 1242	ND	66000		µg/Kg	2000	11/25/01
Aroclor 1248	ND	66000		µg/Kg	2000	11/25/01
Aroclor 1254	ND	66000		µg/Kg	2000	11/25/01
Aroclor 1260	440000	66000		µg/Kg	2000	11/25/01
Aroclor 1262	ND	66000		µg/Kg	2000	11/25/01
Aroclor 1268	NO	66000		µg/Kg	2000	11/25/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Our

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored Highly Reactive

**Initials:** 



# Advanced Technology Laboratories

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 16A

**Lab Order:** 053057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 12:02:00 PM

**Lab ID:** 054057-004A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

**EPA 8082**

RunID: GC5\_011122A

BatchID: 6614

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	16000		µg/Kg	500	11/25/01
<b>Aroclor 1221</b>	ND	34000		µg/Kg	500	11/25/01
Aroclor 1232	ND	16000		µg/Kg	500	11/25/01
Aroclor 1242	ND	16000		µg/Kg	500	11/25/01
Aroclor 1248	ND	16000		µg/Kg	500	11/25/01
Aroclor 1254	ND	16000		µg/Kg	500	11/25/01
Aroclor 1260	69000	16000		µg/Kg	500	11/25/01
Aroclor 1262	ND	16000		µg/Kg	500	11/25/01
Aroclor 1268	ND	16000		µg/Kg	500	11/25/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 



Advanced Technology  
Laboratories

3275 Walnut Avenue Signal Hill, CA Y0807 Tel: 562 989-4045 Fax: 562 989-4040

**Advanced Technology Laboratories**

Print Date: 11/26/01

<b>CLIENT:</b> GeoSyntec Consultants	<b>Client Sample ID:</b> 17A
<b>Lab Order:</b> 054057	
<b>Project:</b> FIELDSTONE-HG0371-096	<b>Collection Date:</b> 11/21/01 12:02:00 PM
<b>Lab ID:</b> 054057-005A	<b>Matrix:</b> Soil

Analyses	Result	Limit	Quai	Units	DF	Date Analyzed
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PCB BY GC/ECD		EPA 8082				
RunID: GC5_011122A	BatchID: 6614			PrepDate: 11/21/01		Analyst: GG
Aroclor 1016	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1221	ND	67		µg/Kg	1.0	11/22/01
Aroclor 1232	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1242	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1248	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1254	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1260	85	33		µg/Kg	1.0	11/22/01
Aroclor 1262	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1268	ND	33		µg/Kg	1.0	11/22/01

<b>Qualifiers:</b> ND - Not Detected at the Reporting Limit	S - Spike/Surrogate outside of limits due to matrix interference.
J - Analyte detected below quantitation limits	H - Samples exceeding analytical holding time
B - Analyte detected in the associated Method Blank	E - Value above quantitation range
DO - Surrogate Diluted Out	M - Not Monitored. Highly Reactive

Initials: 



**Advanced Technology Laboratories**

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 18A

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 12:10:00 PM

**Lab ID:** 054057-006A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

RunID: GC5\_011122A

BatchID: 6614

**EPA 8082**

PrepDate: 11121101

Analyst: GG

Aroclor 1016	ND	33		µg/Kg	1.0	11122101
Aroclor 1221	ND	67		µg/Kg	1.0	11/22/01
Aroclor 1232	ND	33		µg/Kg	1.0	11122101
Aroclor 1242	ND	33		µg/Kg	1.0	11122101
Aroclor 1248	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1254	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1260	760	33		µg/Kg	1.0	11/22/01
Aroclor 1262	ND	33		µg/Kg	1.0	11122101
Aroclor 1268	ND	33		µg/Kg	1.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit

S - Spike/Surrogate outside of limits due to matrix interference

J - Analyte detected below quantitation limits

H - Samples exceeding analytical holding time

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

DO - Surrogate Diluted Out

M - Not Monitored. Highly Reactive

**Initials:** 



# Advanced Technology Laboratories

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 19A

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 12:20:00 PM

**Lab ID:** 054057-007A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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PCB BY GC/ECD

EPA 8082

RunID: GC5\_011122A

BatchID: 6614

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1221	ND	67		µg/Kg	1.0	11/22/01
Aroclor 1232	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1242	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1248	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1254	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1260	350	33		µg/Kg	1.0	11/22/01
Aroclor 1262	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1268	ND	33		µg/Kg	1.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored, Highly Reactive

Initials: 

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**Advanced Technology Laboratories**

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 20A

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 12:20:00 PM

**Lab ID:** 054057-008A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

RunID: GC5\_011122A

BatchID: 6614

**EPA 8082**

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1221	ND	67		µg/Kg	1.0	11/22/01
Aroclor 1232	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1242	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1248	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1254	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1260	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1262	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1268	ND	33		µg/Kg	1.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit

S - Spike/Surrogate outside of limits due to matrix interference.

J - Analyte detected below quantitation limits

H - Samples exceeding analytical holding time

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

**Initials:** 

DO - Surrogate Diluted Out

M - Not Monitored. Highly Reactive

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**Advanced Technology Laboratories**

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 16B

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 12:20:00 PM

**Lab ID:** 054057-009A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

**EPA 8082**

RunID: GC5\_011122A

BatchID: 6614

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1221	ND	67		µg/Kg	1.0	11/22/01
Aroclor 1232	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1242	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1248	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1254	ND			µg/Kg	1.0	11/22/01
Aroclor 1260	300	33		µg/Kg	1.0	11/22/01
Aroclor 1262	ND			µg/Kg	1.0	11/22/01
Aroclor 1268	ND	33		µg/Kg	1.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 I - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored Highly Reactive

**Initials:** 



**Advanced Technology Laboratories**

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 054057

**Client Sample ID:** 17B

**Project:** FIELDSTONE - HG0371-096  
**Lab ID:** 054057-010A

**Collection Date:** 11/21/01 12:20:00 PM  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

RunID: GC5\_011122A

BatchID: 6614

**EPA 8082**

PrepDate: 11/21/01

Analyst: GG

Arodor 1016	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1221	ND	67		µg/Kg	1.0	11/22/01
Aroclor 1232	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1242	ND	33		µg/Kg	1.0	11/22/01
Arodor 1248	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1254	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1260	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1262	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1268	ND	33		µg/Kg	1.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored Highly Reactive

Initials: 

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# Advanced Technology Laboratories

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 054057

**Client Sample ID:** 19B

**Project:** FIELDSTONE - HG0371-096  
**Lab ID:** 054057-011A

**Collection Date:** 11/21/01 12:35:00 PM  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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PCB BY GC/ECD

EPA 8082

RunID: GC5\_011122A

BatchID: 6614

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1221	ND	67		µg/Kg	1.0	11/22/01
Aroclor 1232	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1242	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1248	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1254	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1260	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1262	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1268	ND	33		µg/Kg	1.0	11/22/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored Highly Reactive

Initials: 

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Advanced Technology  
Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

# Advanced Technology Laboratories

Print Date: 11/26/01

CLIENT GeoSyntec Consultants

Client Sample ID: 20B

Lab Order: 054057

Project: FIELDSTONE- HG0371-096

Collection Date: 11/21/01 12:55:00 PM

Lab ID: 054057-012A

Matrix: Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

RunID: GC5\_011122A

BatchID: 6614

**EPA 8082**

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1221	ND	67		µg/Kg	1.0	11/22/01
Aroclor 1232	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1242	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1248	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1254	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1260	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1262	ND	33		µg/Kg	1.0	11/22/01
Aroclor 1268	ND	33		µg/Kg	1.0	11/22/01

Qualifiers: ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.

H - Samples exceeding analytical holding time

E - Value above quantitation range

M - Not Monitored. Highly Reactive

Initials: 



Advanced Technology  
Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

**Advanced Technology Laboratories**

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 43A

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 12:55:00 PM

**Lab ID:** 054057-013A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

**EPA 8082**

RunID: **GC5\_011122A**

BatchID: **6614**

PrepDate: **11/21/01**

Analyst: **GG**

Aroclor 1016	ND	3300		µg/Kg	100	11/24/01
Aroclor 1221	ND	6700		µg/Kg	100	11/24/01
Aroclor 1232	ND	3300		µg/Kg	100	11/24/01
Aroclor 1242	ND	3300		µg/Kg	100	11/24/01
Aroclor 1248	ND	3300		µg/Kg	100	11/24/01
Aroclor 1254	ND	3300		µg/Kg	100	11/24/01
<b>Aroclor 1260</b>	27000	3300		µg/Kg	100	11/24/01
Aroclor 1262	ND	3300		µg/Kg	100	11/24/01
Aroclor 1268	ND	3300		µg/Kg	100	11/24/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method **Blank**  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value **above** quantitation range  
 M - Not Monitored. Highly Reactive

**Initials:** 

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**Advanced Technology Laboratories**

Print Date: 11/26/01

**CLIENT** GeoSyntec Consultants

**Client Sample ID:** 44A

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 1:00:00 PM

**Lab ID:** 054057-014A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

**EPA 8082**

RunID: GC5\_011122A

BatchID: 6614

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	160000		µg/Kg	5000	11/24/01
Aroclor 1221	ND	340000		µg/Kg	5000	11/24/01
Aroclor 1232	ND	160000		µg/Kg	5000	11/24/01
Aroclor 1242	ND	160000		µg/Kg	5000	11/24/01
Aroclor 1248	ND	160000		µg/Kg	5000	11/24/01
Aroclor 1254	ND	160000		µg/Kg	5000	11/24/01
Aroclor 1260	750000	160000		µg/Kg	5000	11/24/01
Aroclor 1262	ND	160000		µg/Kg	5000	11/24/01
Aroclor 1268	ND	160000		µg/Kg	5000	11/24/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Sampler exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

**Initials:** 



# Advanced Technology Laboratories

Print Date: 11/26/01

<b>CLIENT:</b> GeoSyntec Consultants	<b>Client Sample ID:</b> 45A
<b>Lab Order:</b> 054057	
<b>Project:</b> FIELDSTONE - HG0371-096	<b>Collection Date:</b> 11/21/01 1:20:00 PM
<b>Lab ID:</b> 054057-015A	<b>Matrix:</b> Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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<b>PCB BY GC/ECD</b>		<b>EPA 8082</b>				
RunID: GC5_011122A	BatchID: 6614			PrepDate: 11/21/01		Analyst: GG
Aroclor 1016	ND	330		µg/Kg	10	11/24/01
Aroclor 1221	ND	670		µg/Kg	10	11/24/01
Aroclor 1232	ND	330		µg/Kg	10	11/24/01
Aroclor 1242	ND	330		µg/Kg	10	11/24/01
Aroclor 1248	ND	330		µg/Kg	10	11/24/01
Aroclor 1254	ND	330		µg/Kg	10	11/24/01
Aroclor 1760	1400	330		µg/Kg	10	11/24/01
Aroclor 1262	ND	330		µg/Kg	10	11/24/01
Aroclor 1268	ND	330		µg/Kg	10	11/24/01

<b>Qualifiers:</b>	ND - Not Detected at the Reporting Limit	S - Spike/Surrogate outside of limits due to matrix interference.
	J - Analyte detected below quantitation limits	H - Samples exceeding analytical holding time
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	DO - Surrogate Diluted Out	M - Not Monitored. Highly Reactive

Initials: 

IS



# Advanced Technology Laboratories

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 46A

**Lab Order:** 051057

**Project:** FIELDSTONE-HG0371-096

**Collection Date:** 11/21/01 1:30:00 PM

**Lab ID:** 054057-016A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

**EPA 8082**

RunID: GC5\_011122A

BatchID: 6614

PrepDate: 11121101

Analyst: GG

Aroclor 1016	ND	3300		µg/Kg	100	11/24/01
Aroclor 1221	ND	6700		µg/Kg	100	11/24/01
Aroclor 1232	ND	3300		µg/Kg	100	11/24/01
Aroclor 1242	ND	3300		µg/Kg	100	11/24/01
Aroclor 1248	ND	3300		µg/Kg	100	11/24/01
Aroclor 1254	ND	3300		µg/Kg	100	11/24/01
Aroclor 1260	27000	3300		µg/Kg	100	11/24/01
Aroclor 1262	ND	3300		µg/Kg	100	11/24/01
Aroclor 1268	ND	3300		µg/Kg	100	11/24/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to ~~matrix~~ interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 

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**Advanced Technology Laboratories**

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 47A

**Lab Order:** 054057

**Project:** FIELDSTONE-HG0371-096

**Collection Date:** 11/21/01 1:30:00 PM

**Lab ID:** 054057-017A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

**EPA 8082**

RunID: GC5\_011122A

BatchID: 6614

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1221	ND	67		µg/Kg	1.0	11/23/01
Aroclor 1232	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1242	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1248	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1254	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1260	170	33		µg/Kg	1.0	11/23/01
Aroclor 1252	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1258	ND	33		µg/Kg	1.0	11/23/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

**initials:** 

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# Advanced Technology Laboratories

Print Date: 11/26/01

<b>CLIENT:</b> GeoSyntec Consultants	<b>Client Sample ID:</b> 48A
<b>Lab Order:</b> 054057	
<b>Project:</b> FIELDSTONE - HG0371-096	<b>Collection Date:</b> 11/21/01 1:30:00 PM
<b>Lab ID:</b> 054057-018A	<b>Matrix:</b> Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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PCB BY GC/ECD		EPA 8082				
RunID: GC5_011122A	BatchID: 6614			PrepDate: 11/21/01		Analyst: GG
Aroclor 1016	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1221	ND	67		µg/Kg	1.0	11/23/01
Aroclor 1232	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1242	ND	33		µg/Kg	1.0	11/23/01
Aroclor 124.8	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1254	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1260	210	33		µg/Kg	1.0	11/23/01
Aroclor 1262	ND	33		µg/Kg	1.0	11/23/01
Aroclor 126.8	ND	33		µg/Kg	1.0	11/23/01

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike/Surrogate outside of limits due to matrix interference
	J - Analyte detected below quantitation limits	H - Samples exceeding analytical holding time
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	DO - Surrogate Diluted Out	M - Not Monitored. Highly Reactive

Initials: 

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**Advanced Technology Laboratories**

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants  
**Lab Order:** 054057

**Client Sample ID:** 50A

**Project:** FIELDSTONE - HG0371-096  
**Lab ID:** 054057-019A

**Collection Date:** 11/21/01 1:40:00 PM  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
<b>PCB BY GC/ECD</b>		<b>EPA 8082</b>				
RunID: <b>GC5_011122A</b>	BatchID: <b>6614</b>			PrepDate: <b>11/21/01</b>		Analyst: <b>GG</b>
Aroclor 1016	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1221	ND	67		µg/Kg	1.0	11/23/01
Aroclor 1232	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1242	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1248	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1254	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1260	540	33		µg/Kg	1.0	11/23/01
Aroclor 1262	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1268	ND	33		µg/Kg	1.0	11/23/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate Outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored, Highly Reactive

Initials: 



# Advanced Technology Laboratories

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 51A

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 1:40:00 PM

**Lab ID:** 054057-02OA

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

RunID: GC5\_011122A

BatchID: 6614

**EPA 8082**

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	660		µg/Kg	20	11/23/01
Aroclor 1221	ND	1300		µg/Kg	20	11/23/01
Aroclor 1232	ND	660		µg/Kg	20	11/23/01
Aroclor 1242	ND	660		µg/Kg	20	11/23/01
Aroclor 1248	ND	660		µg/Kg	20	11/23/01
Aroclor 1254	ND	660		µg/Kg	20	11/23/01
Aroclor 1260	1500	660		µg/Kg	20	11/23/01
Aroclor 1262	ND	660		µg/Kg	20	11/23/01
Aroclor 1268	ND	660		µg/Kg	20	11/23/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 HI - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 

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# Advanced Technology Laboratories

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 43B

**Lab Order:** 054057

**Project:** FIELDSTONE-HG0371-096

**Collection Date:** 11/21/01 2:00:00 PM

**Lab ID:** 054057-021A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

**EPA 8082**

RunID: GC5\_011122B

BatchID: 6615

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	6600		µg/Kg	200	11/25/01
Aroclor 1221	ND	13000		µg/Kg	200	11/25/01
Aroclor 1232	ND	6600		µg/Kg	200	11/25/01
Aroclor 1242	ND	6600		µg/Kg	200	11/25/01
Aroclor 1243	ND	6600		µg/Kg	200	11/25/01
Aroclor 1254	ND	6600		µg/Kg	200	11/25/01
Aroclor 1260	53000	6600		µg/Kg	200	11/25/01
Aroclor 1262	ND	6600		µg/Kg	200	11/25/01
Aroclor 1263	ND	6600		µg/Kg	200	11/25/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 I - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: GG

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Advanced Technology  
Laboratories

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**Advanced Technology Laboratories**

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 44B

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 12:00:00 PM

**Lab ID:** 054057-022A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

**EPA 8082**

RunID: GC5\_011122B

BatchID: 6615

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	160000		µg/Kg	5000	11/25/01
Aroclor 1221	ND	340000		µg/Kg	5000	11/25/01
Aroclor 1232	ND	160000		µg/Kg	5000	11/25/01
Aroclor 1242	ND	160000		µg/Kg	5000	11/25/01
Aroclor 1248	ND	160000		µg/Kg	5000	11/25/01
Aroclor 1254	ND	160000		µg/Kg	5000	11/25/01
Aroclor 1260	540000	160000		µg/Kg	5000	11/25/01
Aroclor 1262	ND	160000		µg/Kg	5000	11/25/01
Aroclor 1268	ND	160000		µg/Kg	5000	11/25/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored Highly Reactive

**Initials:** 



**Advanced Technology Laboratories**

Print Date: 11/26/01

**CLIENT;** GeoSyntec Consultants  
**Lab Order:** 054057

**Client Sample ID:** 49B

**Project:** FIELDSTONE - HG0371-096  
**Lab ID:** 054057-023A

**Collection Date:** 11/21/01 12:00:00 PM  
**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

**EPA 8082**

RunID: GC5\_011122B

BatchID: 6615

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1221	ND	67		µg/Kg	1.0	11/23/01
Aroclor 1232	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1242	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1248	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1254	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1260	66	33		µg/Kg	1.0	11/23/01
Aroclor 1262	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1268	ND	33		µg/Kg	1.0	11/23/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

**Initials:** 



# Advanced Technology Laboratories

Print Date: 11/26/01

**.CLIENT:** GeoSyntec Consultants

**Client Sample ID:.** 49A

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 2:10:00 PM

**Lab ID:** 054057-024A

**Matrix:** Soil

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

RunID: GC5\_011122B

BatchID: 6615

**EPA 8082**

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	330		µg/Kg	10	11/25/01
Aroclor 1221	ND	670		µg/Kg	10	11/25/01
Aroclor 1232	ND	330		µg/Kg	10	11/25/01
Aroclor 1242	ND	330		µg/Kg	10	11/25/01
Aroclor 1248	ND	330		µg/Kg	10	11/25/01
Aroclor 1254	ND	330		µg/Kg	10	11/25/01
Aroclor 1260	2000	330		µg/Kg	10	11/25/01
Aroclor 1262	ND	330		µg/Kg	10	11/25/01
Aroclor 1268	ND	330		µg/Kg	10	11/25/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored, Highly Reactive

**Initials:** 

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# Advanced Technology Laboratories

Print Date: 11/26/01

**CLIENT:** GeoSyntec Consultants

**Client Sample ID:** 49C

**Lab Order:** 054057

**Project:** FIELDSTONE - HG0371-096

**Collection Date:** 11/21/01 2:20:00 PM

**Lab ID:** 054057-025A

**Matrix:** Soil

Analyses	Result	Limit	Qnal	Units	DF	Date Analyzed
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PCB BY GC/ECD

EPA 8082

RunID: GC5\_011122B

BatchID: 6615

PrepDate: 11/21/01

Analyst: GG

Aroclor 1016	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1221	ND	67		µg/Kg	1.0	11/23/01
Aroclor 1232	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1242	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1248	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1254	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1260	43	33		µg/Kg	1.0	11/23/01
Aroclor 1262	ND	33		µg/Kg	1.0	11/23/01
Aroclor 1268	ND	33		µg/Kg	1.0	11/23/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method **Blank**  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 

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Advanced Technology  
Laboratories

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# Advanced Technology Laboratories

Print Date: 11/26/01

CLIENT: GeoSyntec Consultants  
 Lab Order: 054057

Client Sample ID: DECON

Project: FIELDSTONE - HG0371-096  
 Lab ID: 054057-026A

Collection Date: 11/21/01 2:40:00 PM  
 Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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**PCB BY GC/ECD**

RunID: **GC5\_01126A**

BatchID: **6638**

**EPA 8082**

PrepDate: **11/26/01**

Analyst: GG

Aroclor 1016	ND	1.0		µg/L	1.0	11/26/01
Aroclor 1221	ND	2.0		µg/L	1.0	11/26/01
Aroclor 1232	ND	1.0		µg/L	1.0	11/26/01
Aroclor 1242	ND	1.0		µg/L	1.0	11/26/01
Aioclor 1248	ND	1.0		µg/L	1.0	11/26/01
Aioclor 1254	ND	1.0		µg/L	1.0	11/26/01
Aioclor 1260	3.9	1.0		µg/L	1.0	11/26/01
Aroclor 1262	ND	1.0		µg/L	1.0	11/26/01
Aioclor 1268	ND	1.0		µg/L	1.0	11/26/01

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 B - Analyte detected in the associated Method Blank  
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference  
 H - Samples exceeding analytical holding time  
 E - Value above quantitation range  
 M - Not Monitored. Highly Reactive

Initials: 

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Advanced Technology  
 Laboratories

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**CLIENT:** GeoSyntec Consultants

Work Order: 054057

Project: FIELDSTONE. HG0371-096

# QC SUMMARY REPORT

Method Blank

Sample ID MB-6614 Batch ID: 6614 Test Name PCBs BY GC/ECD Units µg/Kg Analysis Date: 11/22/01 Prep Date: 11/21/01

MBLK SeqNo: 210147

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	33		0				0			
Aroclor 1221	ND	67		0				0			
Aroclor 1232	ND	33		0				0			
Aroclor 1242	ND	33		0				0			
Aroclor 1248	ND	33		0				0			
Aroclor 1254	ND	33		0				0			
Aroclor 1260	ND	33		0				0			
Aroclor 1262	ND	33		0				0			
Aroclor 1268	ND	33		0				0			

Sample ID MB.6615 Batch ID, 6615 Test Name PCBs BY GC/ECD Units µg/Kg Analysis Date: 11/25/01 Prep Date: 11/21/01

MBLK SeqNo: 210152

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	33		0				0			
Aroclor 1221	ND	67		0				0			
Aroclor 1232	ND	33		0				0			
Aroclor 1242	ND	33		0				0			
Aroclor 1248	ND	33		0				0			
Aroclor 1254	ND	33		0				0			
Aroclor 1260	ND	33		0				0			
Aroclor 1262	ND	33		0				0			
Aroclor 1268	ND	33		0				0			

Qualifiers: ND - Not Detected at the Reporting Limit    B - Analyte detected in the associated Method Blank    DO - Surrogate Diluted Out  
 J - Analyte detected below quantitation limits    M - Not Monitored. Highly Reactive  
 R - RPD outside accepted recovery limits    S - Spike/Surrogate outside of limits due to matrix interference

Initials:

All calculations are based on raw values.



CLIENT: GeoSyntec Consultants  
Work Order: 054057  
Project: FIELDSTONE - HG0371-096

# QC SUMMARY REPORT

Method Blank

Sample ID MB-6614 Batch ID: 6614 Test Name PCBs BY GC/ECD Units µg/Kg Analysis Date: 11/25/01 Prep Date: 11/21/01

Aroclor 1016	ND	33	0	0
Aroclor 1221	ND	67	0	0
Aroclor 1232	ND	33	0	0
Aroclor 1242	ND	33	0	0
Aroclor 1248	ND	33	0	0
Aroclor 1254	ND	33	0	0
Aroclor 1260	ND	33	0	0
Aroclor 1262	ND	33	0	0
Aroclor 1268	ND	33	0	0

Sample ID MB-6638 Batch ID: 6638 Test Name PCBs BY GC/ECD Units µg/L Analysis Date: 11/26/01 Prep Date: 11/26/01  
MBLK SeqNo: 210497

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0		0						0	
Aroclor 1221	ND	2.0		0						0	
Aroclor 1232	ND	1.0		0						0	
Aroclor 1242	ND	1.0		0						0	
Aroclor 1248	ND	1.0		0						0	
Aroclor 1254	ND	1.0		0						0	
Aroclor 1260	ND	1.0		0						0	
Aroclor 1262	ND	1.0		0						0	
Aroclor 1268	ND	1.0		0						0	

Qualifiers: ND - Not Detected at the Reporting Limit      B - Analyte detected in the associated Method Blank      DO - Surrogate Diluted Out  
 J - Analyte detected below quantitation limits      M - Not Monitored, Highly Reactive  
 R - RPD outside accepted recovery limits      S - Spike/Surrogate outside of limits due to matrix interference

Initials: \_\_\_\_\_

All calculations are based on raw values.



Advanced Technology Laboratories

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# Advanced Technology Laboratories

Date: 26-Nov-01

CLIENT: GeoSyntec Consultants  
Work Order: 054057  
Project: FIELDSTONE - HG0371-096

## QC SUMMARY REPORT Sample Matrix Spike

Sample ID	Batch ID	Test Name	Units	µg/Kg	Analysis Date	Prep Date						
MB-6615	6615	PCBs BY GC/ECD			11/23/01	11/21/01						
MS			SeqNo:	210093								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aroclor 1016	290	33	333.3	0	07	50	150	0				
Aroclor 1260	300	33	333.3	0	90	50	150	0				

Sample ID	Batch ID	Test Name	Units	µg/Kg	Analysis Date	Prep Date						
MB.6615	6615	PCBs BY GC/ECD			11/23/01	11/21/01						
MSD			SeqNo:	210094								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aroclor 1016	290	33	333.3	0	87	50	150	290	1	50		
Aroclor 1260	310	33	333.3	0	93	50	150	300	3	50		

Sample ID	Batch ID	Test Name	Units	µg/Kg	Analysis Date	Prep Date						
MB-6614	6614	PCBs BY GC/ECD			11/22/01	11/21/01						
MS			SeqNo:	210096								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aroclor 1016	290	33	333.3	0	87	50	150	0				
Aroclor 1260	290	33	333.3	0	87	50	150	0				

Sample ID	Batch ID	Test Name	Units	µg/Kg	Analysis Date	Prep Date						
MB.6614	6614	PCBs BY GC/ECD			11/22/01	11/21/01						
MSD			SeqNo:	210097								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aroclor 1016	190	33	333.3	0	57	50	150	290	40	50		
Aroclor 1260	300	33	333.3	0	90	50	150	290	3	50		

Qualifiers: ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 R - RPD outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank  
 M - Not Monitored, Highly Reactive  
 S - Spike/Surrogate outside of limits due to matrix interference  
 DO - Surrogate Diluted Out

Initials: 

All calculations are based on raw values.



Advance Technology  
Laboratories

32751

11mi Avenue

Signal Hill, CA 90807

Tel: 562 989-4045

Fax: 5 62 89-4040

CLIENT: GeoSyntec Consultants  
Work Order: 054057  
Project: FIELDSTONE- HG0371-096

# QC SUMMARY REPORT

## Sample Matrix Spike

Sample ID ME-6638 Batch ID: 6638 Test Name PCBs BY GC/ECD Units µg/L Analysis Date: 11/26/01 Prep Date: 11/26/01  
MS SeqNo: 210499

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	6.4	1.0	10	0	64	50	150	0			
Aroclor 1260	6.3	1.0	10	0	63	50	150	0			

Sample ID MB-6638 Batch ID: 6638 Test Name PCBs BY GC/ECD Units µg/L Analysis Date: 11/26/01 Prep Date: 11/26/01  
MSD SeqNo: 210500

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	6.3	1.0	10	0	63	50	150	6.4	1	50	
Aroclor 1260	6.2	1.0	10	0	62	50	150	6.3	2	50	

Qualifiers: ND - Not Detected at the Reporting Limit B - Analyte detected in the associated Method Blank DO - Surrogate Diluted Out  
J - Analyte detected below quantitation limits M - Not Monitored, Highly Reactive  
R - RPD outside accepted recovery limits S - Spike/Surrogate outside of limits due to matrix interference

Initials:

All calculations are based on raw values.



Advanced Technology Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

# Advanced Technology Laboratories

Date: 26-Nov-01

CLIENT: GeoSyntec Consultants  
Work Order: 054057  
Project: FIELDSTONE - HG0371-096

## QC SUMMARY REPORT Laboratory Control Spike - generic

Sample ID LCS-6615 Batch ID: 6615 Test Name PCBs BY GC/ECD Units µg/Kg Analysis Date: 11/23/01 Prep Date: 11/21/01

LCS												SeqNo: 210083
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aroclor 1016	280	33	333.3	0	84	50	150	0				
Aroclor 1260	290	33	333.3	0	87	50	150	0				

Sample ID LCS-6614 Batch ID: 6614 Test Name PCBs BY GC/ECD Units µg/Kg Analysis Date: 11/22/01 Prep Date: 11/21/01

LCS												SeqNo: 210095
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aroclor 1016	270	33	333.3	0	81	50	150	0				
Aroclor 1260	270	33	333.3	0	81	50	150	0				

Sample ID LCS.6614 Batch ID: 6614 Test Name PCBs BY GC/ECD Units µg/Kg Analysis Oate: 11/24/01 Prep Date: 11/21/01

LCS												SeqNo: 210136
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aroclor 1016	250	33	333.3	0	75	50	150	0				
Aroclor 1260	280	33	333.3	0	a4	50	150	0				

Sample ID LCS-6614 Batch ID. 6614 Test Name PCBs BY GC/ECD Units µg/Kg Analysis Date 11/25/01 Prep Date 11/21/01

LCS												SeqNo: 210155
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aroclor 1016	260	33	333.3	0	78	50	150	0				
Aroclor 1260	270	33	333.3	0	81	50	150	0				

Qualifiers: ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits  
R - WD outside accepted recovery limits

B \* Analyte detected in the associated Method Blank  
M - Not Monitored. Highly Reactive  
S - Spike/Surrogate outside of limits due to matrix interference

DO - Surrogate Diluted Out

Initials:

All calculations are based on raw values.





# American Environmental Testing Laboratory Inc.

2834 North Naomi Street Burbank, CA 91504 • DOHS NO. 1541, LACSD NO. 10181  
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840

## CHAIN OF CUSTODY RECORD

Page 1 of 2

COMPANY GeoSyntec PHONE (714) 969-0800  
 PROJECT MANAGER Eric Smalstig FAX (714) 969-0820  
 PROJECT NAME FIELDSTONE PROJECT # HR0371-096  
 SITE NAME AND ADDRESS \_\_\_\_\_

AETL JOB No. \_\_\_\_\_

SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	ANALYSIS REQUESTED	TEST INSTRUCTIONS & COMMENTS
13A		11/21/01	1140	SOIL	1-4oz.		X	*RUSH PCB RESULTS FOR ALL SAMPLES, BUT NO TRPH AND SIOC IN 48 HRS.
14A			1140				X	
15A			1146				X	
16A			1202				X	
17A			1202				X	
18A			1210				X	
19A			1220				X	
20A			1220				X	
16B			1220				X	
17B			1220				X	
19B			1235				X	
20B			1235				X	
43A			1255		1-8oz.		X X X	
44A			1300		1-8oz.		X X X	
45A			1320		1-8oz.		X X X	

### SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS 26 PROPERLY COOLED Y/N/NA \_\_\_\_\_  
 CUSTODY SEALS Y/N/NA \_\_\_\_\_ SAMPLES INTACT Y/N/NA \_\_\_\_\_  
 RECEIVED IN GOOD COND. Y/N \_\_\_\_\_ SAMPLES ACCEPTED Y/N \_\_\_\_\_

RELINQUISHED BY: 1. Brian Petty Signature: \_\_\_\_\_  
 Signature: Brian Petty Printed Name: \_\_\_\_\_  
 Date: 11/21/01 Time: \_\_\_\_\_  
 RECEIVED BY: 1. AETL Signature: \_\_\_\_\_  
 Signature: JARCOO Printed Name: \_\_\_\_\_  
 Date: 11/21/01 Time: 16:05

RELINQUISHED BY: 2. JARCOO Signature: \_\_\_\_\_  
 Signature: \_\_\_\_\_ Printed Name: \_\_\_\_\_  
 Date: 12/1/01 Time: 4:44

RELINQUISHED BY: 3. \_\_\_\_\_ Signature: \_\_\_\_\_  
 Signature: Diane Galvan Printed Name: \_\_\_\_\_  
 Date: 11/21/01 Time: 1645

TURN AROUND TIME

NORMAL  RUSH  SAME DAY  48 HRS.  72 HRS.

SEE NOTE



# American Environmental Testing Laboratory Inc.

2834 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541, LACSD NO :10181  
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840

## CHAIN OF CUSTODY RECORD

COMPANY <b>Gabryntec</b>		PHONE		AETL JOB No.		Page ___ of ___	
PROJECT MANAGER		FAX		<b>ANALYSIS REQUESTED</b>			<b>TEST INSTRUCTIONS &amp; COMMENTS</b>
PROJECT NAME <b>FIELDSTONE</b>		PROJECT # <b>H60371-096</b>					
SITE NAME AND ADDRESS				TRPH SVOC TOTAL PB			
SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	
46A		11/21/01	1330	SOIL	1-4oz.		X
47A			1330				X
48A			1330				X
50A			1340				X
51A			1340				X
43B			1400		1-8oz.		X X X
44B			1400		1-8oz.		X X X
49B			1400		1-8oz.		X X X
49A			1410		1-8oz.		X X X
49C			1420		1-4oz.		X
DECON			1440		1-L amber		X
<b>SAMPLE RECEIPT - TO BE FILLED BY LABORATORY</b>				RELINQUISHED BY: 1. SAMPLER: <b>Brian Petty</b>		RELINQUISHED BY: 2. <b>J. Arceo</b>	
TOTAL NUMBER OF CONTAINERS		PROPERLY COOLED Y/N/NA		Signature: <i>Brian Petty</i>		Signature: <i>J. Arceo</i>	
CUSTODY SEALS Y/N/NA		SAMPLES INTACT Y/N/NA		Printed Name: <b>Brian Petty</b>		Printed Name:	
RECEIVED IN GOOD COND. Y/N		SAMPLES ACCEPTED Y/N		Date: 11/21/01 Time: 16:24		Date: 11/21/01 Time: 16:44	
<b>TURN AROUND TIME</b>				RECEIVED BY: 1. <b>Jool Arceo</b>		RECEIVED BY: 3. LABORATORY: <b>Jane Galvan</b>	
<input type="checkbox"/> NORMAL		<input type="checkbox"/> RUSH		Signature: <i>Jool Arceo</i>		Signature: <i>Jane Galvan</i>	
		<input checked="" type="checkbox"/> SAME DAY 24 HRS.		Printed Name: <b>Jool Arceo</b>		Printed Name: <b>Jane Galvan</b>	
		<input checked="" type="checkbox"/> 48 HRS.		Date: 11/21/01 Time: 16:05		Date: 11/21/01 Time: 16:45	
		<input type="checkbox"/> 72 HRS.					

\* RUSH THE PCB RESULTS FOR ALL SAMPLES BUT DO TRPH AND SVOC IN 48 HRS

# **PROJECT MANAGEMENT PLAN**

## **FIELDSTONE PROPERTY**

**CONSENT ORDER NO. HSA-CO 01/02-154**

Prepared for:

California Environmental Protection Agency  
Department of Toxic Substances Control  
Cypress, California

On Behalf of:

Hearthside Residential Corp.  
6 Executive Circle, Suite 250  
Irvine, California 92614

Prepared by:

GeoSyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, California 92648  
(714) 969-0800



20 February 2003

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Figure 3-1 Organization Chart  
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**APPENDICES**

Appendix A Summary of Modifications to Project Management Plan

## **1. INTRODUCTION**

### **1.1 Terms of Reference**

This document contains the Project Management Plan (PMP) for the Fieldstone Property (the Site) project in Orange County adjacent to Huntington Beach, California. This PMP was prepared in accordance with Section 5.2.2(a) of the Consent Order, Docket No. HAS-CO 01/02-154 entered into by Hearthside Residential Corp. (Hearthside) and the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). This PMP was prepared by GeoSyntec Consultants (GeoSyntec) on behalf of Hearthside for submittal to the DTSC.

### **1.2 Objectives**

The objectives of this PMP are to define the relationships and responsibilities for major tasks and project management items. This plan may be amended during the performance of the work required as part of the Consent Order, as needed, to further define relationships and/or responsibilities of the project participants.

### **1.3 Organization**

This PMP includes the following sections:

- Section 2, Project Description, provides a brief summary of the Fieldstone project;
- Section 3, Management Team and Organization, describes staff roles and responsibilities;
- Section 4, Work Breakdown Structure and Task Descriptions, defines the work tasks associated with the Fieldstone project; and
- Section 5, Project Schedule, describes the schedule used to initiate the project and a procedure for updating the schedule during the course of the project.

Tables, figures, and appendices are included at the end of this document.

## 2. PROJECT SUMMARY

The Fieldstone Property is an approximately 42-acre parcel located in an unincorporated area of Huntington Beach, California. The goal of the project is to remediate contamination encountered at the Site. During the performance of an environmental assessment of adjacent property, known as the Bolsa Chica Lowland, samples were also collected at the Fieldstone Property for analysis. Certain constituents (including polychlorinated biphenyls, PCBs, and petroleum hydrocarbons) were detected in Site soils.

Following the notification of the appropriate agencies, the Site owner, Hearthside, entered into a Consent Order with the DTSC. The Consent Order provides a framework for further evaluation of the Site, including characterization of the nature and extent of the contamination, potential risks posed by the contaminants to humans and ecological receptors, and evaluation methods to mitigate these risks through the implementation of remedial measures. Work includes analyzing historical data collected from the Site, performing fieldwork to provide additional data for analysis, and implementing an appropriate remedial action based on an evaluation of the data and feasible remedial alternatives.

Generally work will involve document review, historical Site activity evaluation, interviews, work plan preparation, site visits, field sampling, data compilation, summary report preparation, and project coordination meetings. This work will be handled by the Hearthside project team under the direction of the regulatory authority, the DTSC project team. The Hearthside project team, tasks, and schedule are described in the remaining sections of this PMP.

### 3. PROJECT ORGANIZATION

#### 3.1 Project Participants and Organization Chart

The project will be completed by a team consisting of representatives from Hearthsides (Respondent), GeoSyntec (Consultant), Technico Environmental (Consultant), and various subcontractors (e.g., chemical analytical laboratory). Staff from Hearthsides, GeoSyntec, Technico Environmental (Technico), and their subcontractors will work as an integrated team under the management and control of the Project Coordinator and Project Engineer.

The project organization chart is provided in Figure 3-1. It shows key project staff and their lines of coordination and management control. The roles and responsibilities of the key project participants are described in the next section.

#### 3.2 Roles & Responsibilities

The following is a description of the roles and responsibilities of the key staff shown in Figure 3-1. Details of activity-specific work will be specified, as needed, for each deliverable (e.g., workplans, feasibility studies).

- **Project Coordinator: Ray Pacini (Hearthsides).** Manages the project. Receives notices, comments, approvals, and related communications from DTSC. Reports to and interacts with the DTSC.
- **Project Engineer: Eric Smalstig, P.E (GeoSyntec).** Manages the project information, data management systems and operations, and submits and discusses project deliverables and Consent Order compliance issues.
- **Compliance Review: Bert Palmer, Ph.D., P.E., Paul Guptill, R.G., C.E.G., Jack Peng, Ph.D., C.I.H. (GeoSyntec) and Sohrab Kourosh, Ph.D., P.E. (Technico).** Provides technical review of project deliverables and advice to the Project Engineer. Dr. Palmer provides engineering peer review, Mr. Guptill provides geology peer review, and Dr. Peng oversees project Health and Safety. Dr. Kourosh provides technical compliance review for the project.

- **Engineering and Data Analysis: Mike Reardon, P.E. (GeoSyntec).** Team leader for site-specific engineering activities, including feasibility study, data analysis, and engineering report preparation.
- **Risk Assessment Coordinator: Chris Saranko, Ph.D. (GeoSyntec).** Manages and performs project risk assessment tasks.
- **Field Sampling Coordinator: Brian Petty (GeoSyntec).** Manages and performs field work activities associated with sampling, site visits, and feasibility evaluation. Acts as Site Health and Safety Officer.

The Project Coordinator and/or Project Engineer may, during the course of the project, amend parts of this plan. A table documenting the nature of the modification, if needed, and the date implemented will be tracked as part of Appendix A to this document.

Should a project task or related item require Emergency Response, it should be reported to the Project Coordinator, Mr. Ray Pacini, at (949) 250-7781.

## **4. WORK BREAKDOWN STRUCTURE AND TASK DESCRIPTIONS**

### **4.1 Work Breakdown Structure (WBS)**

The Project Work Breakdown Structure (WBS) List and Dictionary are provided in this section. Work will be managed in accordance with the WBS, including cost allocation and reporting, schedule control, filing, and document management.

### **4.2 WBS List**

The WBS elements were identified in the Consent Order. The following are the Work Element I WBS elements (Tasks):

- Task 1 – Identify Project Coordinator
- Task 2 – Identify Project Engineer
- Task 3 – Site Remediation and Strategy Meeting
- Task 4 – Monthly Summary Reports
- Task 5 – Focused Remedial Investigation Workplan
- Task 6 – Remedial Investigation Report
- Task 7 – Baseline Health and Ecological Risk Assessment
- Task 8 – Interim Screening and Evaluation of Technologies
- Task 9 – Treatability Studies (Possibly Not Warranted)
- Task 10 – Feasibility Study Workplan
- Task 11 – Feasibility Study Report
- Task 12 – Public Participation Plan
- Task 13 – Initial CEQA Study and Checklist
- Task 14 – Remedial Action Plan
- Task 15 – Remedial Design
- Task 16 – Deed Restriction Drafting
- Task 17 – Remedial Implementation and Report

Periodic meetings will be held during the course of performing these WBS tasks.

### 4.3 **WBS Dictionary**

The following are activities that are included in the various WBS elements listed above:

Document Control:

- Review-Document Control
- Filing

Information and Data Management:

- System Installation & Maintenance
- Data Entry
- Data Management

Project Management:

- DTSC Correspondence
- Staff Management

Quality Management:

- Quality Assurance
- Peer Review
- Quality Control

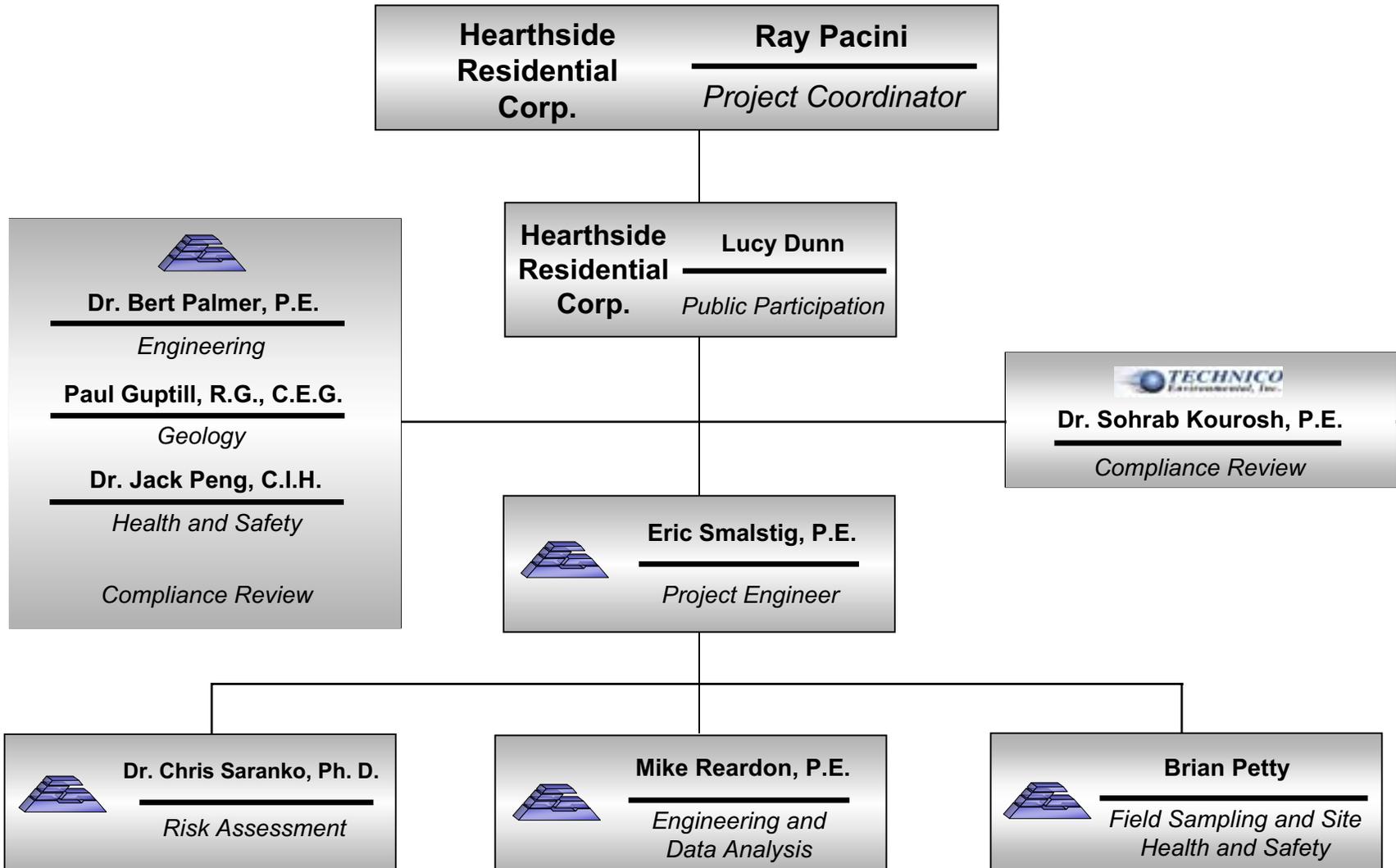
Should other tasks be required during the course of the project, modifications may be made to this plan. Modifications will be tracked in Appendix A of this document.

## **5. SCHEDULE**

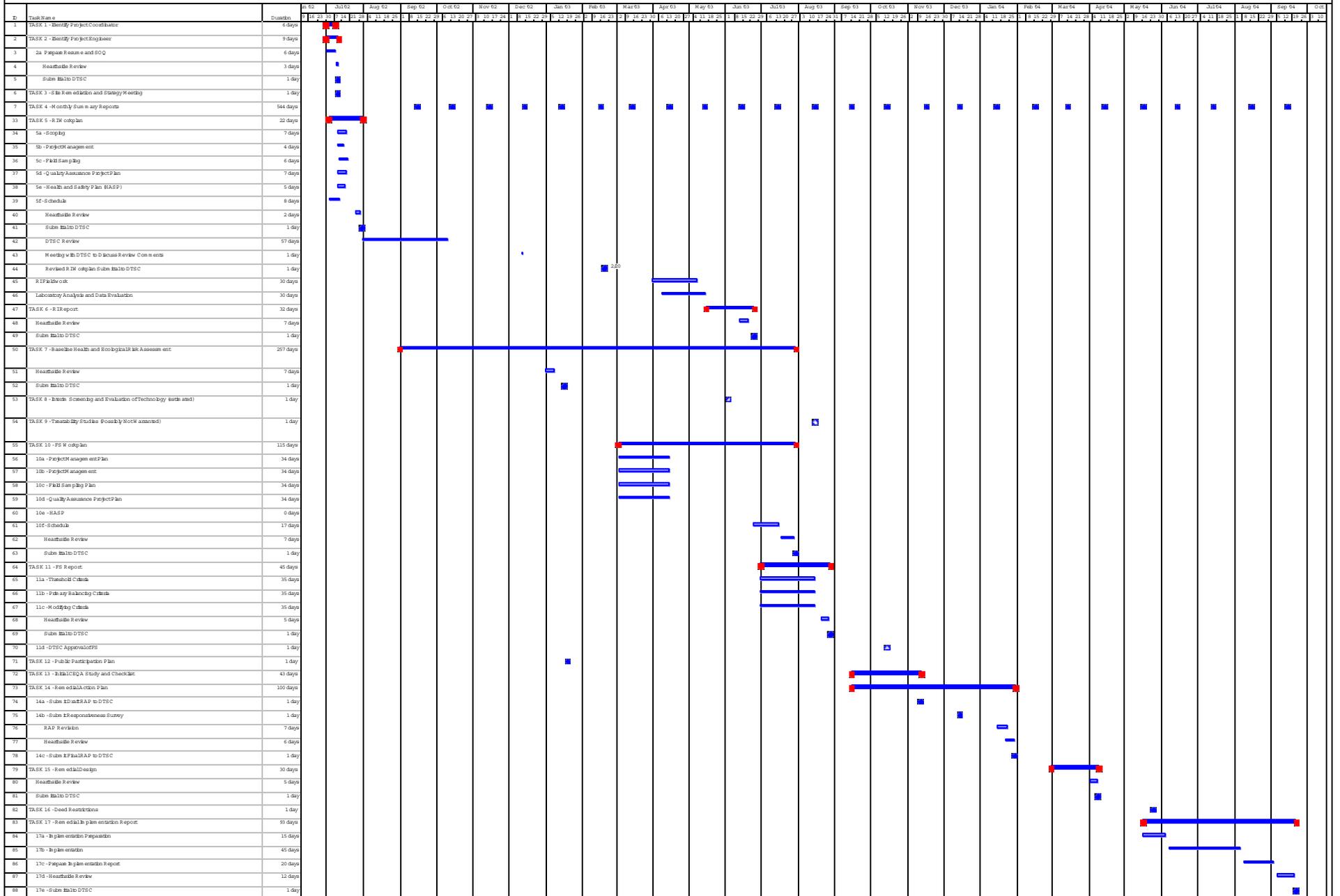
The baseline schedule is provided as Figure 5-1. Schedule management will be inputted into Microsoft Project software. Modifications to this schedule will be documented in Appendix A as the work proceeds.

# FIGURES

# Figure 3-1 Project Organization Chart Fieldstone Property Orange County, California



Initial Figure 5-1  
 Consent Order Timeline  
 Consent Order Signing: 1 July 2002  
 Fishstone Property  
 Orange County, California



**ATTACHMENT A**

**MODIFICATIONS TO  
PROJECT MANAGEMENT PLAN**

**FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**



# **HEALTH AND SAFETY PLAN**

## **FIELDSTONE PROPERTY**

### **CONSENT ORDER NO. HSA-CO 01/02-154**

Prepared for:

California Environmental Protection Agency  
Department of Toxic Substances Control  
Cypress, California

On Behalf of:

Hearthside Residential Corp.  
6 Executive Circle, Suite 250  
Irvine, California 92614

Prepared by:

GeoSyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, California 92648  
(714) 969-0800



20 February 2003

**HEALTH AND SAFETY PLAN**

**REMEDIAL INVESTIGATION**

**CONSENT ORDER, DOCKET NO. HAS-CO 01/02-154**

**FIELDSTONE PROPERTY**

**HUNTINGTON BEACH, CALIFORNIA**

This HASP, which must be kept on Site during work activities, addresses the safety and health hazards of each phase of Site operation, including the requirements and procedures for worker protection. Only the Site Health and Safety Officer (SHSO) can change or amend this document in agreement with the Environmental Health and Safety Coordinator (EHSC), Project Manager, Principal-in-Charge, and the Department of Toxic Substances Control. Major amendments (e.g., changes in personal protective equipment not provided for in this plan, addition of tasks, etc.) must be documented by indicating the amendment date shown on this page.

**Prepared by:** \_\_\_\_\_  
 SHSO \_\_\_\_\_ Date

**Reviewed by:** \_\_\_\_\_  
 EHSC \_\_\_\_\_ Date

**Approved by:** \_\_\_\_\_  
 Project Manager \_\_\_\_\_ Date

\_\_\_\_\_  
 Principal \_\_\_\_\_ Date

**Copy Cover Sheet to:** EHSC

Brief Description of Amendment	Date	Amendment

All Site workers must read this HASP. A pre-entry briefing conducted by the SHSO must be held prior to initiating this project. All sections of this HASP must be reviewed during this briefing. Any worker not in attendance at the initial meeting must be trained by the SHSO on the information covered in the pre-entry briefing meeting. ***Tailgate meetings must be held at the beginning of the work shift by the SHSO to discuss important safety and health issues concerning tasks performed on that day. A brief description of topics discussed in tailgate meetings must be documented in the Field Logbook.*** After reading the HASP and attending a pre-entry briefing, workers must sign the following acknowledgment statement.

I have read, understand, and agree with the information set forth in this HASP. I have also attended a pre-entry briefing. I agree to perform my work in accordance with this HASP.

Name	Date	Name	Date
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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- 4 Training/Medical Surveillance/Respirator Fit Test Records
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- 7 Emergency Response Procedures

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- 2 Hospital Location Map

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- B Weekly Health and Safety Inspection Checklist
- C Material Safety Data Sheets
- D Hazard Analysis

## **1. GENERAL**

### **1.1 Terms of Reference**

This Health and Safety Plan (HASP) was prepared by GeoSyntec Consultants (GeoSyntec) for the Remedial Investigation (RI) at the Fieldstone Property (the Site) in Huntington Beach, California. This HASP is Appendix B of the Remedial Investigation Workplan (RI Workplan). This HASP meets the requirement of Section 5.2.2(e) of the Consent Order entered into by Hearthside Residential Corp. and the Department of Toxic Substances Control. The purpose of the HASP is to define requirements and protocols for protecting personnel and the general public by controlling the risk to health and safety during each phase of implementation of the remedial investigation.

This HASP describes measures to be taken to protect of Site workers and the general public during on-Site work to implement the remedial investigation. The HASP includes federal and state requirements required by the Occupational Health and Safety Act such as those described in the Code of Federal Regulations (CFR) 29 CFR 1910 and the California Code of Regulations (CCR) 8 CCR 5192.

### **1.2 Scope of the Remedial Investigation**

The RI Workplan describes in detail the purpose and objectives of the project. In summary, the proposed remedial investigation involves:

- Collecting soil samples using direct push methodology from depths that may range from the surface to 6 ft below ground surface (bgs);
- Packing the samples for transfer to the laboratory; and
- Decontaminating the sampling equipment.

This HASP may also be used for future phases of the project. It will be updated, as needed, to reflect the scope of activities being performed at the site.

### **1.3 Safety Management**

Implementation of this HASP during activities at the Fieldstone Property is the responsibility of the Project Engineer and the Site Health and Safety Officer (SHSO). The SHSO assists the Project Engineer in carrying out this responsibility at the Site by enforcing the requirements of the HASP and by the authority to suspend work to protect health and safety. The SHSO or Project Engineer may suspend or limit work, or direct changes in work practices, if the HASP and/or other work practices being used are deemed to be inadequate to protect employee health and safety and environmental health.

The requirements and procedures in this HASP apply to personnel on the project work Site (defined in Section 4). This HASP includes specifics of programs for each of the following elements when applicable: (1) worker training; (2) medical surveillance; (3) establishment of work zones; (4) personal protective equipment (including respirator cartridge change-out schedule); (5) drum handling (for fuel, decontamination fluids, etc. as applicable); and (6) sanitation facilities to be used. No confined space issues are expected related to the scope of work.

### **1.4 Key Contact Personnel**

Mr. Ray Pacini, C.E.O. of Hearthside Residential Corp. (Hearthside), is the Project Coordinator. His business phone number is (949) 250-7781. Mr. Eric Smalstig, P.E., of GeoSyntec is the Fieldstone Project Engineer overseeing this work. His business phone number is (714) 969-0800. The Fieldstone SHSO will be Mr. Brian Petty of GeoSyntec. His business phone number is (714) 969-0800.

## **2. BACKGROUND**

### **2.1 General**

The following background material provides a brief description of the Site as it pertains to Health and Safety concerns. It is intended as an introduction to the project only, as it contains summary information. Additional information is contained within the body of the RI Workplan, and the reader is referred to that document for additional figures, tables, and details on the Site and contaminants. This HASP is included as Appendix C of the RI Workplan.

The Site is an undeveloped open space consisting of undulating, seasonal wetlands, and berms covered in part by low-lying vegetation. It is located at the end of Graham Street, northeast of the Bolsa Chica Lowlands in Huntington Beach, California.

### **2.2 Site Characterization Summary**

Site investigations have included field reconnaissance (e.g., site walks, photographing), soil sampling, and analysis. In addition, aerial photos have been reviewed. The horizontal and vertical extent of soil contamination has been partly characterized. Total polychlorinated biphenyl (PCB) as Aroclor 1260 (from non-detect [ND] to 3,220 milligrams per kilogram [mg/kg]) and Total Recoverable Petroleum Hydrocarbons (from ND to 2300 mg/kg) have been detected in soil at the Site. Table 2 also presents a summary of detected organics from previous Site soil sampling.

### **2.3 Data Collection Objectives**

The remedial investigation fieldwork performed at the Site will be conducted to gather more information for use in the Site's conceptual model and as a basis for future decisions. A Baseline Health and Ecological Risk Assessment will be prepared using the existing data and the data collected during the RI. The data will be evaluated and used when formulating the basis for future decision-making processes (e.g., remedial actions).

### **3. WORKER TRAINING**

#### **3.1 General**

Personnel assigned to perform remedial investigation work in the work zones at the Site (defined in Section 4) must meet 29 CFR 1910.120(e) and 8 CCR 5192(e) requirements, that include:

- 40-hour basic health and safety training;
- 8-hour supervisor training;
- 8-hour annual refresher training; and
- field experience requirements.

At least one person must have current First Aid/CPR training and be on-Site during project activities. Additionally, OSHA requires that specialized training be given when handling specific materials, and for hazards specific to the job.

The purposes of worker training are to: (1) educate workers about the potential health and safety hazards they may encounter at the Site; (2) provide the knowledge and skills necessary to minimize risk to worker health and safety; (3) provide thorough training in the proper use and potential limitations of safety and personal protective equipment; and (4) train workers to safely avoid or escape from emergencies.

Training is not required for personnel assigned to observe on-Site activities from outside the exclusion and contamination reduction zones. Decisions as to whether a person needs training shall be made by the SHSO.

### **3.2 Briefings and Tailgate Meetings**

Prior to initiating work on this project, the SHSO must brief personnel assigned to perform work at the Site on the health and safety requirements presented in this HASP. Sections of this HASP will be reviewed during this briefing, with discussion including: (1) work to be performed; (2) the chemical, physical, and biological hazards associated with the work to be performed; (3) health effects that could result from overexposure to the Chemicals of Potential Concern (defined in Section 5.1.1); (4) exposure limits for the Chemicals of Potential Concern; (5) methods of reducing exposure risks, including personal protective equipment, decontamination, evacuation routes, action levels, and smoking and eating restrictions; (6) emergency response procedures; and (7) chain of command. Each person shall be informed of the location of the nearest hospital and of the nearest working telephone. Workers not in attendance at the initial meeting must be briefed by the SHSO on the information covered in the pre-entry briefing meeting.

Tailgate meetings will be held at the beginning of the work shift by the SHSO to discuss important safety and health issues concerning tasks performed on that day. A brief description of topics discussed in tailgate meetings will be documented in the Field Logbook.

### **3.3 Visitors**

Visitors shall not be allowed to enter the Site unless they are made aware of the health and safety requirements at the Site, have the necessary training as outlined above, agree to comply with the requirements, and demonstrate the ability to comply. The aforementioned procedure may not ensure the health and safety of visitors. This HASP covers only GeoSyntec personnel and no extension of these coverages to other parties is expressed or implied.

## 4. SITE CONTROL

### 4.1 General

To control worker exposures to hazardous substances, Site control procedures must be implemented **before** the start of Site tasks.

### 4.2 Site Map and Hospital Route

A Site map is included in Figure 1. A map of the route to the nearest hospital is included in Figure 2. The following items are included on the Site map.

- General Wind Direction
- Approximate Area of Contamination
- Access Gate
- Refuge Location (Site meeting location for personnel if evacuation is required)

Changes may be made to the Site map by the SHSO, as needed, based on Site conditions. The Site map should be kept in the work area.

### 4.3 Buddy System

Personnel will not be permitted to engage in work operations alone (applicable to Hazardous Waste Operations as defined by 29 CFR Part 1910.120, Part A and CCR, Title 8, Section 5192, Hazardous Waste Operations and Emergency Response). However, the Buddy System is not required during each work task performed at the Site because immediate assistance will not be required due to the nature of the work (i.e., site walks, photography). A cellular telephone will be carried in the field to provide quick assistance to employees in the event of an emergency. The Buddy System includes maintaining visual contact with on-Site personnel.

#### **4.4 Work Zones**

To protect on-site personnel and sampling equipment, the entire Site will be designated the work zone. The existing fence around the Site will provide access control. A decontamination station will be present on the Site and have water and soap for decontamination procedures, if necessary.

#### **4.5 Site Access**

Access to the Site is controlled by a guard(s). Additionally, Site fencing prevents access to the general public. Only personnel that have read this HASP and are familiar with Site activities will be permitted access to the Site.

#### **4.6 Visitors**

Visitors to the Site must be escorted for their safety since they may be unfamiliar with the Site. Visitors must not be allowed past the Support Zone unless they read, understand, agree to comply with, and meet the requirements outlined in the HASP.

#### **4.7 Communications**

On-Site communications will be conducted through verbal communication and hand signals. Off-Site communications will be conducted through the use of cellular telephone.

- Key hand signals include:
- Hand gripping throat =“Out of Air; Can’t breathe”
- Grip partner’s wrist or both hands around waist =“Leave area immediately”
- Hands on top of head =“Need assistance”
- Thumbs up =“OK; I am all right; I understand”
- Thumbs down =“No; Negative”

#### **4.8 Safe Work Practices**

General Safe Work Practices that must be implemented during work activities at this Site are included in Attachment A.

#### **4.9 Inspections**

The SHSO must conduct weekly health and safety inspections. The inspections must be documented using the Weekly Health & Safety Inspection checklist included in Attachment B. The Weekly Health & Safety Inspection Checklist must be kept on file with project documents.

## **5. HAZARD ASSESSMENT**

### **5.1 General**

A hazard assessment has been performed considering the tasks to be carried out during implementation of the remedial investigation. As described previously in Section 1.3, the tasks are:

- Collecting soil samples with direct push methodologies;
- Packaging the samples; and
- Decontaminating the sampling equipment.

Quality assurance monitoring applies to each task in turn and is thus not separated as an individual task. The following sections identify chemical, physical, and biological hazards that may be encountered during implementation of the remedial investigation.

### **5.2 Chemical Hazards**

#### **5.2.1 Introduction**

Analytical results (shown in Table 2) from soil samples collected at the Site indicate that the PCB Aroclor 1260 is the potential chemical of concern.

Table 3 lists OSHA Permissible Exposure Limits (PELs) as well as a physical description and parameters, recommendations for personal protection, routes and symptoms of exposure, and first aid procedures, for PCBs. Attachment C contains general information on PCBs.

## 5.2.2 Chemicals of Potential Concern

### 5.2.2.1 General

The Chemical of Potential Concern is:

- PCBs

PCB was chosen to be a Chemical of Concern based on the following criteria:

- the chemical exceeds the pertinent EPA Region IX Preliminary Remediation goals for industrial Site use; or
- the chemical is a Class A carcinogen (i.e., known human carcinogens).

The following sections provide some relevant discussion of concerns related to the Chemical of Potential Concern. Information is from the NIOSH Pocket Guide to Chemical Hazards. Additional information can be found in Attachment C, which contains Material Safety Data Sheets (MSDS) for the Chemicals of Potential Concern.

### 5.2.2.2 PCBs

PCBs likely do not exist in their pure product state at the Site, meaning that the PCBs were likely deposited at the site in a manufactured oil mixture. The PCBs currently exist as a minute fraction of the site soil matrix. For purposes of this HASP, however, characteristics of the pure product state are listed.

Physical and Chemical Characteristics: PCBs in their pure product state are typically a colorless to light-colored, viscous liquid with a mild, hydrocarbon odor.

Action Level: The OSHA (and Cal-OSHA) PEL for PCBs is 1 mg/m<sup>3</sup> of skin contact over an 8-hour time weighted average (this is a pure product action level).

Personal Protection & Sanitation: Guidelines intended to supplement general safe work practices (Attachment A) include prevention of skin and eye contact, daily washing and changing, and removal of clothing if wet or contaminated.

First Aid Procedures:

**EYES:** If PCBs contact the eyes, immediately irrigate the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

**SKIN:** If PCB contacts the skin, promptly flush the contaminated skin with soap and water. If PCBs penetrate the clothing, promptly remove the clothing and flush the skin with water. If irritation persists after washing, get medical attention.

**BREATH:** If a person breathes large amounts of PCB contaminated dust, move the exposed person to fresh air at once. Although lighter weight PCBs may volatilize, as indicated by the MSDS for PCB in Attachment C, volatilization is not an inhalation pathway for the PCBs at the Site. Keep the affected person at rest. Get medical attention as soon as possible for respiratory assistance.

**SWALLOW:** If PCBs have been swallowed, get medical attention immediately.

Exposure Routes, Target Organs, and Symptoms: Primary exposure routes for PCBs are through inhalation, ingestion, and skin and/or eye contact. The target organs of particular concern for PCB exposure are the skin, eyes, liver, and reproductive system. Potential symptoms of exposure to PCBs include: eye irritation, chloracne, liver damage, reproductive effects, and cancer.

### **5.2.3 Chemical Hazard Analysis**

#### 5.2.3.1 Introduction

In addition to the specific chemical concerns discussed above, Attachment D presents an analysis of general chemical hazards as they apply to each of the three principal tasks of the remedial investigation. Included in Attachment D is a hazard mitigator sheet for each of the hazards identified. The following sections summarize identified chemical hazards and selected mitigation measures. More detail is provided in Attachment D.

#### 5.2.3.2 Inhalation

The lungs are vulnerable to chemical agents. Even substances that do not directly affect the lungs may pass through lung tissue into the bloodstream, where they are transported to other vulnerable areas of the body. Personnel must be able to recognize the presence of excessive dust, which may carry small amounts of the Chemicals of Potential Concern.

#### 5.2.3.3 Skin Absorption

Personnel must be aware of the Chemicals of Concern that can directly injure the skin or that can be absorbed into the bloodstream and subsequently transported to other organs (i.e., PCBs), and should be aware that skin absorption is enhanced by abrasions, cuts, heat, and moisture. Personnel will wear protective clothing, minimize contact with the waste material, and keep their hands away from their face.

### 5.2.4 General Considerations

The risk of chemical exposure during implementation of the remedial investigation is considered low for several reasons. Pure PCBs are not likely to be

encountered and PCB concentrations are generally low except for in isolated areas of soil. The project location is in an open field, thus providing natural ventilation. The use of personal protective clothing will prevent dermal exposures. Observation of general safe work practices (Attachment A) and proper decontamination of personnel and equipment (Section 9) will prevent accidental exposures to chemical contaminants once personal protective equipment has been removed. Additionally, PCBs are present in a soil matrix and have a low tendency to escape this matrix.

### **5.3 Physical Hazards**

The nature of the work and equipment to be used pose physical hazards which are listed below. Personnel at the Site should be familiar with safe operating procedures for equipment they use or supervise.

Attachment D presents an analysis of physical hazards as they apply to each of the three principal tasks of the remedial investigation. Included in Attachment D is a hazard mitigator sheet for each of the hazards identified. Additional detail is provided in Attachment D, but physical hazards may include:

- Drum Handling
- Eye Injury
- Hand/Foot Injury
- Heat Stress
- Heavy Equipment
- Lifting Heavy Loads
- Slipping/Tripping/Falling

### **5.4 Biological Hazards**

The hazard analysis presented in Attachment D also includes a review of biological hazards, and appropriate hazard mitigators for each identified hazard. The

known on-Site vegetation should not pose risks as skin allergens, but Site personnel should advise the SHSO of allergies to insects or vegetation prior to engaging in field activities. More detail is provided in Attachment D, but a potential site hazard could be:

- Insect/Vermin/Snake Bites

## **6. AIR MONITORING**

### **6.1 General**

Air monitoring for the Chemicals of Potential Concern is relative to several factors. First, there has been no previous record during fieldwork of air monitoring or airborne concentrations of contaminants above their respective PELs. Additionally, PCBs are unlikely to be present in air at concentrations that are near the PEL due to their low vapor pressure (0.0001 millimeters of mercury) and high boiling point (approximately 650 to 700 degrees Fahrenheit).

RI activities involve collecting small volumes of soil using techniques that will produce a little airborne dust. A TSI Dustrak Aerosol Monitor, Model 8250 (Dustrak) will be used to monitor the dust concentration in the air at the Site. The Dustrak will be placed in the breathing zone of the samplers in the area that is being sampled.

### **6.2 Action Levels and Guidelines**

Engineering controls (water) may be necessary if the dust concentration in air reaches  $1 \text{ mg/m}^3$  (the PEL for PCB skin contact). However, since dust may only contain fractions of PCBs, a continued dust level of  $1 \text{ mg/m}^3$  or greater for more than 20 minutes will warrant engineering controls.

## **7. MEDICAL SURVEILLANCE**

Personnel (including subcontractors and visitors) who enter the work zone must have completed appropriate medical monitoring requirements required under 29 CFR 1910.120(f) and 1910.134 and 8 CCR 5192(f) and 5144. Documentation of medical monitoring is the responsibility of each employer.

Table 4 documents that GeoSyntec personnel have received the appropriate medical monitoring according to the company EH&S Medical Monitoring Program. A project specific medical surveillance program will not be necessary for the tasks outlined in this HASP.

## 8. PERSONAL PROTECTIVE EQUIPMENT

This section of the HASP describes personal protective equipment (PPE) required to be worn by project personnel. Use of PPE must conform with the requirements of 29 CFR 1910.120(g) and 8 CCR 5192(g). The initial level of protection for the project is Modified Level D (see below). The level of protection will be upgraded or downgraded (by the SHSO) based conditions described in this section. PPE levels must be indicated in the Field Logbook.

The expected PPE levels for the three project tasks is Modified Level D. Sampling procedures should be arranged so as to minimize worker contact with the exposed waste material. However, due to the potential dermal exposure hazards presented by the PCBs, prior to sampling, personnel working within the exclusion zone shall wear the following level of PPE:

### Modified Level D

- Protective apparel (long sleeves and long pants)
- ANSI-Certified hard hat in vicinity of direct push drilling rig
- Nitrile gloves of appropriate weight ( $\geq 0.3$  mm thickness)
- Steel-toed safety boots
- Eye protection (safety glasses with side shields)

If dusty conditions at the Site persist, or if the Project Engineer or SHSO deem it necessary, the following level of PPE will be worn:

### Level C

- Respirator with Organic Vapor/HEPA cartridges
- Tyvek protective apparel
- Nitrile gloves of appropriate weight ( $> 0.3$  mm thickness)
- Steel-toed safety boots
- PVC, Neoprene, or rubber safety boots (in place of standard safety boots above) or outer boots (to cover the standard safety boots above)

- Eye protection (safety glasses with side shields)

If respirators are worn, usage must adhere to 29 CFR 1910.134 and 8 CCR 5144. Beards (i.e., facial hair interfering with the respirator seal) are not allowed. Respirator cartridges will be changed in accordance with manufacturer recommendations and with at least the following frequency: 1) daily when routinely used in atmospheres at or slightly above the action level; 2) weekly when routinely used in atmospheres below the action level; and 3) on the expiration date (if any) listed on the cartridge or canister. Additionally, if odor or irritation is detected in the face piece (i.e., breakthrough), halt work immediately and replace respirator cartridge. When cartridges are not in use, they will be stored in a sealed bag (e.g., “zip-lock”).

## **9. DECONTAMINATION**

### **9.1 General**

The decontamination area will be located in the Contamination Reduction Zone. Details of personnel and equipment decontamination and waste disposal are described below. Procedures are also described in the RI Workplan. Decontamination procedures must adhere to the requirements of 29 CFR 1910.120(k) and 8 CCR 5192(k).

### **9.2 Personnel Decontamination**

Decontamination procedures vary depending on the PPE level being worn. The procedures to be followed when arriving at the Contamination Reduction Zone in Modified Level D PPE are described in Table 5A. Procedures for Level C PPE are described in Table 5B.

### **9.3 Equipment Decontamination**

Equipment taken on-Site and used for sampling operations will be decontaminated before being taken off-Site. Personal protective gear, such as hard hats and safety glasses will be wiped free of dust and soil using a damp cloth or paper towel. Manufacturer recommendations for cleaning equipment will be followed.

Decontamination water will be contained for appropriate treatment and/or disposal, which may include evaporation. If elevated levels are detected in site soil samples, decontamination water will be sampled and analyzed to evaluate appropriate disposal alternatives. The analytical laboratory is responsible for disposing of soil waste that is generated via sampling.

#### **9.4 Personal Hygiene**

Field personnel shall refrain from smoking, eating, or drinking within the exclusion zone or contamination reduction zone. Personnel shall wash hands and face prior to smoking, eating, or drinking.

#### **9.5 Emergency Decontamination Procedures**

The decision of whether to decontaminate personnel in a medical emergency depends on the type or severity of the illness or injury. In some cases, immediate decontamination may be an essential part of life-saving first aid. In other cases, decontamination may aggravate the injury or delay life-saving treatment. If decontamination does not interfere with essential treatment, it should be performed. If decontamination would interfere with essential treatment, then:

- wrap the victim in blankets, plastic, or rubber to reduce contamination of other personnel;
- alert emergency and off-Site medical personnel to potential contamination and instruct them about specific decontamination procedures, if necessary; and
- send along site personnel familiar with the incident.

## 10. EMERGENCY PREPAREDNESS AND RESPONSE

Due to the generally low mobility of PCBs and low level of contamination over the majority of the Site, no acute exposure is expected. Local emergency medical facilities and personnel are equipped and trained to accept and treat people contaminated with hazardous materials. A list of contacts and telephone numbers for the applicable local off-Site emergency responders is provided in Table 6. Table 7 contains guidelines that must be followed in the case of an emergency. The nature of the Site work and Chemicals of Concern should be reviewed with the off-Site responders before work begins on this project. Included as Figure 2 is a map and directions to the nearest hospital.

On-site personnel with current First Aid/CPR training must be identified. The following emergency response equipment is required for this project:

- Type ABC Fire Extinguisher;
- Portable eyewash kit with free-flowing fresh water;
- Adequate supply of cool, potable water for treatment of heat injuries; and
- First Aid Kit.

The emergency response communication system for the Site shall include:

- Verbal communication;
- Cellular telephone;
- Horn and/or siren; and
- Hand signals, which include:
  - Hand gripping throat =“Out of Air; Can’t breathe”
  - Grip partner’s wrist or both hands around waist =“Leave area immediately”
  - Hands on top of head =“Need assistance”
  - Thumbs up =“OK; I am all right; I understand”
  - Thumbs down =“No; Negative”

In the event of an injury accident, exposure resulting in illness or other bodily harm, a cellular telephone should be used to dial **911** for emergency assistance. Describe the injury or illness and answer questions asked by the person answering the telephone. Do not hang up until the other person hangs up.

If the injury or illness appears minor, the affected person may be driven to the hospital. The emergency ward of the hospital should be contacted while the person is en-route and informed that the person will be arriving, and informed of the nature of the illness or injury.

An agreed-upon method of communicating evacuation orders (such as use of horn or siren) must be established and explained to personnel at the pre-entry briefing (Section 3.2). In the case evacuation becomes necessary, personnel shall follow the established evacuation routes shown to the rally point (Figure 1) staying upwind of airborne hazards.

## **11. SPILL CONTAINMENT**

The tasks for this project likely involve drums containing decontamination solution. Workers must adhere to the hazard mitigator for drum handling in Attachment D and the requirements of 29 CFR 1910.120(j) and 8 CCR 5192(j). Past decontamination solutions have been analyzed by the laboratory and found to contain 3.9 µg of Aroclor 1260 per liter of solution. Due to the low concentration of PCBs in the decontamination solution and the open space at the Site, spill containment equipment is not necessary for this phase of the project.

## **12. HAZARD COMMUNICATION**

The following procedures must be followed for chemicals brought on-Site (e.g., decontamination solution):

- Labels on incoming primary chemical containers must not be defaced.
- Chemical reagent containers will not be left on-Site. They will be stored at an off-Site GeoSyntec facility.
- Workers must have received training on the hazards of these chemicals.
- A Material Safety Data Sheet (MSDS) for each chemical must be included as an attachment to the HASP.

### **13. DUST SUPPRESSION**

Particulates within the Site in the zones where the highest concentrations of contaminants exist are generally not likely to become airborne due to sampling. However, due both to the possibility of generation of contaminated dust, and to the generation of non-contaminated dust during sampling, dust suppression techniques will be available. A water supply will be available to suppress dust if airborne dust persists.

#### **14. SANITATION AND ILLUMINATION**

Sanitation facilities must be available for project personnel in accordance with OSHA 29 CFR Part 1910.120 (n(1)) and 8 CCR 5192(n). The sanitation facilities will be located off-Site at a nearby GeoSyntec facility in Huntington Beach, California. On-Site visitors will be provided access to off-Site sanitation facilities.

Field activities outlined in this HASP will be conducted during daylight hours only. Therefore, illumination will not be necessary.

# **TABLES**

**TABLE 1: Key Personnel and Health & Safety Responsibilities**

<i>Principal</i>	<i>Project Engineer</i>	<i>Site Health &amp; Safety Officer (SHSO)</i>	<i>Project Personnel</i>	<i>Environmental, Health &amp; Safety Coordinator (EHSC)</i>
<i>Dr. Bert Palmer, P.E.</i>	<i>Eric Smalstig, P.E.</i>	<i>Brian Petty</i>	<i>Mike Reardon, P.E.</i>	<i>Misty Yanok</i>
<ul style="list-style-type: none"> <li>• Approve this HASP and amendments, if any.</li> <li>• Assure that all elements of this HASP are implemented.</li> </ul>	<ul style="list-style-type: none"> <li>• Approve this HASP and amendments, if any.</li> <li>• Monitor the Field Logbooks for health and safety work practices employed.</li> <li>• Coordinate with SHSO so that emergency response procedures are implemented.</li> <li>• Verify corrective actions are implemented.</li> <li>• See to it that personnel receive this plan, are aware of its provisions, are aware of the potential hazards associated with site operations, are instructed in safe work practices, are familiar with emergency response procedures, and that this is documented.</li> <li>• Provide for appropriate monitoring, personal protective equipment, and decontamination materials.</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare and implement project (HASP) and amendments, if any, and report to the Project Manager for action if any deviations from the anticipated conditions exist, and authorize the cessation of work if necessary.</li> <li>• Confirm that site personnel meet the training and medical requirements.</li> <li>• Conduct pre-entry briefing and daily tailgate safety meetings.</li> <li>• Verify that all monitoring equipment and personal protective equipment is operating correctly according to manufacturer’s instructions and such equipment is utilized by on-site personnel. Calibrate or verify calibration of all monitoring equipment and record results.</li> <li>• Verify that decontamination procedures are being implemented.</li> <li>• Implement site emergency response and follow-up procedures.</li> <li>• Notify the EHSC in the event an emergency occurs.</li> <li>• Performs weekly inspections</li> </ul>	<ul style="list-style-type: none"> <li>• Provide verification of required health and safety training and medical surveillance prior to arriving at the site.</li> <li>• Notify the SHSO of any special medical conditions (e.g., allergies).</li> <li>• Attend pre-entry briefings and daily tailgate safety meetings.</li> <li>• Immediately report any accidents and/or unsafe conditions to the SHSO.</li> <li>• Be familiar with and abide by the HASP.</li> <li>• Individuals are responsible for their own safety.</li> </ul>	<ul style="list-style-type: none"> <li>• Review and audit HASP and amendments</li> <li>• Maintain a copy of the cover sheet of each completed HASP.</li> <li>• Notify Director of Environment, Health &amp; Safety in the event an emergency occurs.</li> <li>• Assist with the implementation of the corporate health and safety program.</li> <li>• Consult on health and safety issues.</li> </ul>

**TABLE 2**  
**ORGANIC DETECTS**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

Sample Date	Sample I.D.	Depth From (feet)	Depth To (feet)	Analyte	Result	Units	Res PRG	Ind. PRG
4/19/2000	CAR_26_2A	0	0.5	Bis(2-ethylhexyl)phthalate	0.056	mg/Kg	35	180
				Diethylphthalate	0.011	mg/Kg	49,000	100000
				Total phthalate esters	0.067	mg/Kg	NA	NA
				TPHDWO	48	mg/Kg	NA	NA
				Waste oil	55	mg/Kg	NA	NA
				Bis(2-ethylhexyl)phthalate	0.011	mg/Kg	35	180
				Total phthalate esters	0.011	mg/Kg	NA	NA
10/6/1998	R41C1-1	0	0.5	Total volatile solids	5.4	Percent	NA	NA
				TPH-Diesel	14	mg/Kg	NA	NA
				TPHDWO	33	mg/Kg	NA	NA
				4,4'-DDE	0.00048	mg/Kg	1.7	12
				BHC-beta	0.00695	mg/Kg	NA	NA
				Total DDT	0.00048	mg/Kg	1.7	12
				Butylbenzylphthalate	0.012	mg/Kg	12000	100,000
				Total phthalate esters	0.03	mg/Kg	NA	NA

**TABLE 2**  
**ORGANIC DETECTS**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

Sample Date	Sample I.D.	Depth From (feet)	Depth To (feet)	Analyte	Result	Units	Res PRG	Ind. PRG
10/1/1998	R42C1-1	0	0.5	Total volatile solids	7.7	Percent	NA	NA
				TPH-Diesel	28	mg/Kg	NA	NA
				TPHDWO	112	mg/Kg	NA	NA
				Oil and Grease	260	mg/Kg	NA	NA
				4,4'-DDD	0.024	mg/Kg	2.4	17
				4,4'-DDE	0.025	mg/Kg	1.7	12
				Total DDT	0.049	mg/Kg	1.7	12
				Benzo(g,h,i)perylene	0.019	mg/Kg	NA	NA
				Butylbenzylphthalate	0.033	mg/Kg	12000	100,000
				Chrysene	0.015	mg/Kg	62	290
				Fluoranthene	0.01	mg/Kg	2300	30000
				High MW PAHs	0.055	mg/Kg	NA	NA
				Pyrene	0.011	mg/Kg	2300	54000
				Total PAHs	0.055	mg/Kg	NA	NA
Total phthalate esters	0.087	mg/Kg	NA	NA				
10/1/1998	R47C1-1	0	0.5	Total volatile solids	4.6	Percent	NA	NA

**TABLE 2**  
**ORGANIC DETECTS**  
**FIELDSTONE PROPERTY**  
**ORANGE COUNTY, CALIFORNIA**

Sample Date	Sample I.D.	Depth From (feet)	Depth To (feet)	Analyte	Result	Units	Res PRG	Ind. PRG
				TPHDWO	29.5	mg/Kg	NA	NA
				BHC-gamma	0.00052	mg/Kg	NA	NA
				PCB 101	0.039	mg/Kg	0.22	1
				PCB 1260	2.8	mg/Kg	0.22	1
				PCB 138	0.22	mg/Kg	0.22	1
				PCB 153	0.24	mg/Kg	0.22	1
				PCB 170	0.17	mg/Kg	0.22	1
				Total PCB	2.8	mg/Kg	0.22	1
				Benzo(e)pyrene	0.0094	mg/Kg	0.062	0.29
				Butylbenzylphthalate	0.015	mg/Kg	12000	100,000
				Chrysene	0.0095	mg/Kg	62	290
				High MW PAHs	0.0189	mg/Kg	NA	NA
				Total PAHs	0.0189	mg/Kg	NA	NA
				Total phthalate esters	0.015	mg/Kg	NA	NA
10/7/1998	R47C1-2	2.5	6	Bis(2-ethylhexyl)phthalate	1.2	mg/Kg	35	180
10/7/1998	R47C1-2	2.5	6	Total phthalate esters	1.48	mg/Kg	NA	NA

**TABLE 2  
ORGANIC DETECTS  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**

Sample Date	Sample I.D.	Depth From (feet)	Depth To (feet)	Analyte	Result	Units	Res PRG	Ind. PRG
10/6/1998	R50C2-1	0	0.5	Total volatile solids	4.4	Percent	NA	NA
				TPH-Diesel	7.9	mg/Kg	NA	NA
				TPHDWO	13.9	mg/Kg	NA	NA
				4,4'-DDE	0.011	mg/Kg	1.7	12
				Total DDT	0.0165	mg/Kg	1.7	12
				Butylbenzylphthalate	0.0092	mg/Kg	12000	100,000
				Total phthalate esters	0.0332	mg/Kg	NA	NA
11/21/2001	44 (see RI Workplan Figure 2-9 for location)	0	0.5	Unknown hydrocarbon	2300	mg/kg	NA	NA

**TABLE 3: CONTAMINANT FACT SHEET - POLYCHLORINATED BIPHENYLS (54%)**

CAS Number: 11097-69-1		Molecular Weight: 326.0		Color: Colorless to Pale Yellow		Ionization Potential (eV): NA		Vapor Density (Air=1): NA																	
Synonyms: Chlorodiphenyl (54%); PCB		Physical State: Liquid or Solid		Odor: Mild hydrocarbon		Henry's Constant: NA		Vapor Pressure: 0.00006 (mmHg@20C)																	
<b>Fire Hazard</b> NFPA rating: 1 HMIS rating: 1		<b>Reactivity Hazard</b> NFPA rating: 0 HMIS rating: 0		<b>Health Hazard</b>		<b>NFPA rating: 2 HMIS rating: 2</b>																			
Flash Point(°F): NA LEL(%): NA UEL(%): NA  Fire Extinguishing Media: <input checked="" type="checkbox"/> Dry Chemical <input checked="" type="checkbox"/> Foam <input type="checkbox"/> Water Spray <input checked="" type="checkbox"/> CO <sub>2</sub>  Fire Extinguisher: <input type="checkbox"/> Class A <input type="checkbox"/> Class B <input type="checkbox"/> Class C <input type="checkbox"/> Class D <input checked="" type="checkbox"/> Class A/B/C  DOT: <input type="checkbox"/> Flammable Liquid <input type="checkbox"/> Combustible Liquid		Incompatibilities: <u>Strong oxidizers</u>     DOT: <input type="checkbox"/> Oxidizer <input type="checkbox"/> Water Reactive		Odor Threshold (mg/m <sup>3</sup> ): NA  IDLH (mg/m <sup>3</sup> ): 5  <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>TWA</th> <th>STEL</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>Source (mg/m<sup>3</sup>)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>OSHA PELs</td> <td>0.5</td> <td>NA</td> <td>NA</td> </tr> <tr> <td>ACGIH TLVs</td> <td>0.5</td> <td>NA</td> <td>NA</td> </tr> </tbody> </table>  Signs/Symptoms of Acute Exposure: <u>Irritation of eyes; chloracne</u>  DOT: <input type="checkbox"/> Poison			TWA	STEL	C	Source (mg/m <sup>3</sup> )				OSHA PELs	0.5	NA	NA	ACGIH TLVs	0.5	NA	NA	Carcinogenic: OSHA: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not listed  IARC: <input type="checkbox"/> Group 1 <input checked="" type="checkbox"/> Group 2A <input type="checkbox"/> Group 2B <input type="checkbox"/> Group 3 <input type="checkbox"/> Group 4 <input type="checkbox"/> Not listed  NTP: <input type="checkbox"/> Known <input checked="" type="checkbox"/> Anticipated <input type="checkbox"/> Process <input type="checkbox"/> Not listed  ACGIH: <input type="checkbox"/> A1 <input type="checkbox"/> A2 <input checked="" type="checkbox"/> A3 <input type="checkbox"/> A4 <input type="checkbox"/> A5 <input type="checkbox"/> Not listed  Skin Absorbable: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Skin Corrosive: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  DOT: <input type="checkbox"/> Corrosive			
	TWA	STEL	C																						
Source (mg/m <sup>3</sup> )																									
OSHA PELs	0.5	NA	NA																						
ACGIH TLVs	0.5	NA	NA																						
<b>Air Monitoring</b>																									
<b>Type</b>		<b>Brand/Model No.</b>				<b>Calibration Method/Media</b>																			
<input type="checkbox"/> Explosimeter																									
<input type="checkbox"/> PID																									
<input type="checkbox"/> FID																									
<input type="checkbox"/> Colorometric Tubes																									
<input type="checkbox"/> Chemical Monitor <input checked="" type="checkbox"/> Dust Monitor		TSI Dustrak				Factory calibrated																			
<input checked="" type="checkbox"/> Collection Medium/Sampling Pump		Gilian Pump/NIOSH#5503				Calibrate pump w/ media																			
<b>Protective Clothing</b>																									
<b>Glove Type/Brand (Breakthrough &gt;2 hrs unless noted):</b>		<input type="checkbox"/> Viton/North	<input type="checkbox"/> Viton/Best	<input type="checkbox"/> Silvershield/North	<input type="checkbox"/> 4H/Safety																				
		<input checked="" type="checkbox"/> Neoprene/Mapa	<input type="checkbox"/> Neoprene/Ans.Ed.	<input type="checkbox"/> Neoprene/BestUltraflex	<input type="checkbox"/> Neoprene/BestNeo.(30min)																				
		<input type="checkbox"/> PVC/Ans.Ed.	<input type="checkbox"/> PVC/BestHustler	<input type="checkbox"/> Nitrile/LabSafe.	<input type="checkbox"/> Nitrile/Ans.Ed.																				
		<input type="checkbox"/> Butyl/North	<input type="checkbox"/> PVA/Ans.Ed.	<input type="checkbox"/> Other																					
<b>If airborne dust persists &gt; 20 min. &gt; 1 mg/m<sup>3</sup> suit type indicated will be worn</b>																									
<b>Suit Type (Breakthrough &gt;1hr unless noted):</b>		<input type="checkbox"/> Tyvek	<input checked="" type="checkbox"/> Tyvek QC(20min)	<input checked="" type="checkbox"/> Tyvek/Saranex	<input type="checkbox"/> Tychem7500	<input type="checkbox"/> Tychem 9400	<input type="checkbox"/> Tychem 10,000	<input type="checkbox"/> Other																	
<b>Respiratory Protection</b>																									
<input checked="" type="checkbox"/> Air Purifying		<input type="checkbox"/> Air Supplied Only			Maximum Use Concentration (ppm): Half mask: OV/HEPA		Full face: OV/HEPA																		
Notes: Prepared by: Sherry Hall																									
Date: 16 January 1997, Rev. 31 January 2002																									

**TABLE 4**

**Training / Medical Surveillance / Respirator Fit Test Records**

<i>Name</i>	<i>EH&amp;S Category</i>	<i>Initial 40-Hour</i>	<i>Initial 24-Hour (if app.)</i>	<i>Annual 8-Hour Refresher</i>	<i>8-Hour Supervisor (if app.)</i>	<i>CPR/ First Aid<sup>1</sup> (initial or refresher)</i>	<i>Medical Surveillance<sup>2</sup></i>	<i>Annual Respirator Fit Test<sup>3</sup> (if app.)</i>	<i>Other:<sup>4</sup></i>
		<i>Date</i>	<i>Date</i>	<i>Date</i>	<i>Date</i>	<i>Date</i>	<i>Date</i>	<i>Date</i>	<i>Date</i>
<i>Dr. Bert Palmer, P.E.</i>	IV	4/7/87	NA	10/11/99	9/13/96	10/30/01	7/10/90	NA	
<i>Eric Smalstig, P.E.</i>	II	8/16/91	NA	3/15/02	9/13/96	4/11/02	5/15/02	3/31/99	
<i>Brian Petty</i>	I	8/23/01	NA	3/14/03	12/14/01	12/5/02	9/24/02	5/17/02	
<i>Mike Reardon, P.E.</i>	I	9/8/95	NA	3/14/03	3/17/98	3/20/03	3/11/03	8/7/02	
<i>Misty Yanok</i>	I	5/21/98	NA	3/14/03	7/11/00	3/20/03	3/6/03	5/17/02	
<i>Lauren Dage</i>	I	7/26/03	NA	NA	NA	NA	7/21/03	8/8/03	

**Footnotes:**

- 1 CPR Refresher: every year; First Aid Refresher: every three years.
- 2 Annual Medical Surveillance for EH&S Category I, Biannual Medical Surveillance for EH&S Categories II & III.
- 3 For EH&S Categories I & II only.
- 4 Could include task-specific training, project-specific training, or project-specific medical surveillance.

**TABLE 5A**  
**DECONTAMINATION PROCEDURES AND EQUIPMENT – MODIFIED LEVEL D**

	<b>Procedure</b>	<b>Equipment Needed</b>
Station 1	Deposit equipment on plastic drop cloth, or in plastic containers lined with plastic trash bags	Various size containers, plastic trash bags, plastic drop cloth
Station 2	Scrub outer boot covers and gloves with decontamination solution	Containers (20 to 30 gal), decontamination solution, long-handled scrub brushes
Station 3	Rinse off decontamination solution from Station 2 using copious amounts of water	Containers (20 to 30 gal), water, long-handled scrub brushes
Station 4	Remove tape around boots and gloves and deposit in containers lined with plastic trash bag	Containers (20 to 30 gal), plastic trash bags
Station 5	Remove boot covers and outer gloves and deposit in containers lined with plastic trash bag	Containers (20 to 30 gal), plastic trash bags, bench or stool
Station 6	Remove splash suit. Deposit in container lined with plastic trash bag.	Containers (20 to 30 gal), plastic trash bags, bench or stool
Station 7	Remove inner gloves and deposit in container lined with plastic trash bag	Containers (20 to 30 gal), plastic trash bags

**TABLE 5B****DECONTAMINATION PROCEDURES AND EQUIPMENT — LEVEL C**

	<b>Procedure</b>	<b>Equipment Needed</b>
Station 1	Deposit equipment on plastic drop cloth, or in plastic containers lined with plastic trash bags	Various size containers, plastic trash bags, plastic drop cloth
Station 2	Scrub outer boot covers and gloves with decontamination solution	Containers (20 to 30 gal), decontamination solution, long-handled scrub brushes
Station 3	Rinse off decontamination solution from Station 2 using copious amounts of water	Containers (20 to 30 gal), water, long-handled scrub brushes
Station 4	Remove tape around boots and gloves and deposit in containers lined with plastic trash bag	Containers (20 to 30 gal), plastic trash bags
Station 5	Remove boot covers and outer gloves and deposit in containers lined with plastic trash bag	Containers (20 to 30 gal), plastic trash bags, bench or stool
Station 6	Wash chemical-resistant splash suit, gloves, and safety boots. Scrub with long-handled scrub brush and decontamination solution.	Containers (20 to 30 gal), decontamination solution, long-handled scrub brushes
Station 7	Rinse off decontamination solution using copious amounts of water	Containers (20 to 30 gal), water, long-handled scrub brushes
Station 8	Worker's respirator cartridges are exchanged, new outer gloves and boot covers donned, and joints taped. Worker returns to duty	Respirator cartridges, tape, boot covers, gloves
Station 9	Remove safety boots and deposit in container lined with plastic trash bag	Containers (20 to 30 gal), plastic trash bags, bench or stool, boot jack
Station 10	Remove splash suit. Deposit in container lined with plastic trash bag	Table
Station 11	Wash inner gloves with decontamination solution	Basin or bucket, decontamination solution, small table
Station 12	Rinse inner gloves with water	Water, basin or bucket, small table
Station 13	Remove air purifying respirator. Deposit in container lined with plastic trash bag	Containers (20 to 30 gal), plastic trash bags
Station 14	Remove inner gloves and deposit in container lined with plastic trash bag	Containers (20 to 30 gal), plastic trash bags
Station 15	Remove inner clothing. Place in container lined with plastic trash bag	Containers (20 to 30 gal), plastic trash bags
Station 16	Shower if highly toxic, skin-corrosive, or skin absorbable materials are known or suspected to be present	Water, soap, small table, basin or bucket, field showers, towels
Station 17	Put on clean clothes	Dressing shelter, tables, chairs, lockers, clothes

**TABLE 6  
EMERGENCY RESPONSE CONTACTS\***

Name	Telephone Numbers	Date of Pre-Emergency Notification
Fire Department	911	5 August 2002 (expected)
Hospital – Huntington Beach Hospital and Medical Center	(714) 842-1473	5 August 2002 (expected)
Police Department	911	5 August 2002 (expected)
Fieldstone Project Engineer – Eric Smalstig	(714) 969-0800	31 July 2002
Fieldstone Health and Safety – Brian Petty	(714) 969-0800	31 July 2002
Fieldstone DTSC Project Manager – Yasser Aref	(714) 484-5349	31 July 2002

\* To be completed before site activities are initiated.

**WRITTEN DIRECTIONS TO HOSPITAL:**

See Figure 2 for map and directions to the hospital.

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**TABLE 7**  
**EMERGENCY RESPONSE PROCEDURES**

- The SHSO (or alternate) should be immediately notified via the on-site communication system. The SHSO assumes control of the emergency response.
- If applicable, the SHSO must notify off-site emergency responders (i.e., fire department, hospital, police department, etc.) and must inform the response team as to the nature and location of the emergency on site.
- If applicable, the SHSO evacuates the site. Site workers should move to their respective refuge stations using the evacuation routes provided on the Site Map.
- For small fires, flames should be extinguished using the fire extinguisher. Large fires should be handled by the local fire department.
- In an unknown situation or if responding to toxic gas emergencies, appropriate PPE should be donned as determined by the SHSO.
- If chemicals are accidentally spilled or splashed into eyes or of skin, use eyewash and/or shower. Emergency eyewash and shower must be available on-site.
- Before continuing site operations after an emergency involving toxic gases, air monitoring equipment must be utilized to verify that the site is safe.
- An injured worker must be decontaminated appropriately.
- If a worker is injured, first aid will be administered by workers certified in first aid.

# FIGURES

WINTERSBURG CHANNEL



LEGEND

-  Fence Line
-  Approximate Area of Contamination
-  Access Gate
-  Refuge Location

Note: Wind direction fluctuates. A wind sock will be placed on site during field activities to gauge wind direction.



300 0 300 Feet



PROJECT:	FIELDSTONE	
TITLE:	SITE AREA MAP Huntington Beach, California	
FIGURE:	1	DOCUMENT NO.: 02-21
PROJECT:	HR0653	DATE: 20 FEB 2003



Go north on Graham until Slater Ave.  
 Turn right onto Slater.  
 Proceed east on Slater for approximately 3 miles to Beach Blvd.  
 Turn right onto Beach.  
 Proceed south on Beach until Newman.  
 Turn left onto Newman. Hospital is on the corner of Beach and Newman



 <p><b>Fieldstone Hospital Location</b> Huntington Beach, California</p>	<p><b>Huntington Beach Hospital and Medical Center</b> 17772 Beach Blvd. Huntington Beach, Ca 92647</p>	<hr/> <hr/> <hr/>
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# **ATTACHMENTS**

## ATTACHMENT A

### GENERAL SAFE WORK PRACTICES

- Minimize contact with excavated or contaminated materials. Do not place equipment on the ground. Do not sit or kneel on potentially contaminated surfaces.
- Smoking, eating, or drinking after entering the work zone and before decontamination must not be allowed. Use of illegal drugs and alcohol are prohibited. Workers taking prescribed medication that may cause drowsiness should not be operating heavy equipment, and should be prohibited from performing tasks where Level C, B, or A personal protective equipment is required.
- Practice good housekeeping. Keep everything orderly and out of potentially harmful situations.
- Communication devices should be tested daily to ensure their working condition.
- Use of contact lenses on-site must not be allowed when working near contaminants.
- The following conditions must be observed when operating a motor vehicle.
  - Wearing of seat belts is mandatory
  - During periods of rain, fog, or other adverse weather conditions, the use of headlights is mandatory
  - A backup warning system or use of vehicle horn is mandatory when the vehicle is engaged in a backward motion
  - All posted traffic signs and directions from flagmen must be observed
  - Equipment and/or samples transported in vehicles must be secured from movement
- In an unknown situation, always assume the worst conditions.
- Be observant of your immediate surroundings and the surroundings of others. It is a team effort to notice and warn of impending dangerous situations. Withdrawal from a hazardous situation to reassess procedures is the preferred course of action.
- Conflicting situations may arise concerning safety requirements and working conditions and must be addressed and resolved rapidly by the Health & Safety Officer and Project Manager to relieve any motivations or pressures to circumvent established safety policies.
- Unauthorized breaches of specified safety protocol must not be allowed. Workers unwilling or unable to comply with the established procedures must be discharged.

# ATTACHMENT B WEEKLY HEALTH & SAFETY INSPECTION CHECKLIST

Project: _____ Date: _____	
Inspected by: _____	
Category	Observations/Corrective Actions (NA if Not Applicable)
Pre-entry briefing records are current	
Tailgate meeting records are current	
Training/medical surveillance/respiratory protection records are current	
Site map is posted	
Buddy system is implemented	
Work zones are identified	
Site access is controlled	
Visitors are being escorted	
On-site/off-site communications are in working order	
Safe work practices are being implemented	
Any additional hazards incurred?	
Air monitoring equipment is in working condition	
Air monitoring records are being recorded in field logbook	
Air monitoring calibration records are being recorded in field logbook	
PPE storage area is neat and organized	
Standard operating procedures are being implemented	
Housekeeping at decontamination zone is appropriate	
Decontamination procedures are being implemented	
Emergency response equipment is in working condition	
Route to hospital is posted	
Confined space entry program is being implemented	
Spill containment equipment is available	
Chemical inventory is up to date	
Material safety data sheets are available	
Primary and secondary containers are properly labeled	
Housekeeping at the chemical storage area is appropriate	

**ATTACHMENT C**

**Material Safety Data Sheets**

- **PCB**



Section 1 - Chemical Product and Company Identification

54.

Material Name: Polychlorinated Biphenyls (PCBs)

CAS Number: 1336-36-3

Chemical Formula: Unspecified or Variable

Structural Chemical Formula:  $(C_{12}H_{10-x}Cl_x)$

Synonyms: AROCLOR: AROCLOR 1221; AROCLOR 1232; AROCLOR 1242; AROCLOR 1248; AROCLOR 1254; AROCLOR 1260; AROCLOR 1262; AROCLOR 1268; AROCLOR 2565; AROCLOR 4465; AROCLOR 5442; 1,1'-BIPHENYL, CHLORO DERIVS; BIPHENYL, POLYCHLORO-; CHLOPHEN; CHLOREXTOL; CHLORINATED BIPHENYL; CHLORINATED DIPHENYL; CHLORINATED DIPHENYLENE; CHLORO 1,1-BIPHENYL; CHLORO 1,1-BIPHENYL-; CHLORO BIPHENYL; CLOPHEN; CLOPHEN A 60; DYKANOL; FPA PESTICIDE CHEMICAL CODE 017801; FENCLOR; FENCLOR 42; INERTEEN; KANECHLOR; KANECHLOR 300; KANECHLOR 400; MONTAR; MONTER; NOFLAMOL; PCB; PCBs; PHENOCHLOR; PHENOCLOR; POLYCHLORINATED BIPHENYL; POLYCHLORINATED BIPHENYLS; POLYCHLORINATED BIPHENYLS (PCB'S); POLYCHLOROBIPHENYL; PYRALENE; PYRANOL; SANTOTHERM; SANTOTHERM FR; SOVOL; THERMINOL; THERMINOL FR-1

General Use: Used as dielectric fluids in transformers and capacitors. Prior to 1972, were used as hydraulic and other industrial fluids (e.g., in vacuum pumps, as lubricants and cutting oils). in paints, inks and fire retardants.

Also used in heat transfer systems; gas-transmission turbines; carbonless reproducing paper; adhesives; as plasticizer in epoxy paints; fluorescent light ballasts; wax extenders; coolants; dedusting agents, pesticide extenders; surface treatment and coatings; sealants; caulking material.

This is one of a group of once widely used industrial chemicals whose high stability conhibited both to their commercial usefulness and the long term deleterious environmental health effects. Consequently their use has been phased out. Their manufacture in the U.S.A. was discontinued in 1977.

Section 2 - Composition / Information on Ingredients

Name	CAS	%
polychlorinated biphenyls(PCB's)	1336-36-3	100

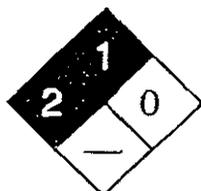
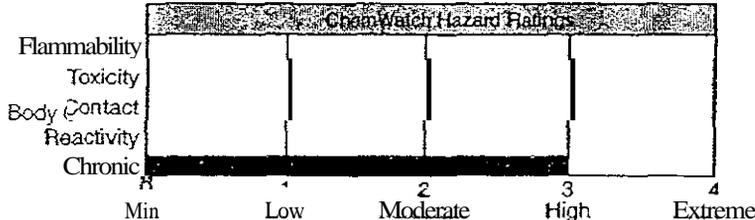
OSHA PEL  
No data found.

NIOSH REL  
No data found.

ACGIH TLV  
No data found

Section 3 - Hazards Identification

HMIS	
2	Health
1	Flammability
0	Reactivity



Fire Diamond

ANSI Signal Word  
**Warning!**

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Oily liquid, white crystalline solid, or hard resin. Severely irritating. Suspect cancer hazard. Chronic: chloracne, GI disturbances, neurological symptoms, liver enlargement, menstrual changes, bronchitis. Possible reproductive and teratogenic effects.

## Potential Health Effects

**Primary Entry Routes:** inhalation, skin contact ingestion

**Target Organs:** skin, liver, eyes, mucous membranes, respiratory system

**Acute Effects**

**Inhalation:** Not normally a hazard due to nonvolatile nature of product. Inhalation of vapor is more likely at higher than normal temperatures.

The vapor/mist is discomfoting and may be extremely toxic if inhaled.

**Eye:** The vapor/liquid is moderately discomfoting and may be harmful to the eyes

**Skin:** The liquid is harmful to the skin, it is rapidly absorbed and is capable of causing skin reactions.

Exposure to material may result in a dermatitis, described as chloracne, a persistent acneiform characterized by comedones (white-, and black- heads), keratin cysts, and inflamed papules with hyperpigmentation and an anatomical distribution frequently involving the skin under the eyes and behind the ears. It occurs after acute or chronic exposure to a variety of chlorinated aromatic compounds by skin contact, ingestion or inhalation and may appear within days and months following the first exposure. Other dermatological alterations including hypertrichosis (the growth of excess hair), an increased incidence of actinic or solar elastosis (the degeneration of elastic tissue within muscles or loss of dermal elasticity produced by the effects of sunlight), and Peyrone's disease (a rare progressive scarring of the penile membrane).

**Ingestion:** Considered an unlikely route of entry in commercial/industrial environments.

The material is moderately discomfoting to the gastrointestinal tract and may be harmful if swallowed in large quantity.

Ingestion may result in nausea, pain, vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

Digestion may lead to nausea, vomiting, abdominal pain, anorexia, jaundice and liver damage, coma and death.

Headache, dizziness, lethargy, depression, nervousness, loss of libido, muscle, joint pains may be found.

Symptoms appear after a latent period of 5 to 6 months.

PCB's may appear in breast milk of exposed mothers and in newborn infants.

**Carcinogenicity:** NTP - Class 2B. Reasonably anticipated to be a carcinogen, sufficient evidence of carcinogenicity from studies in experimental animals; IARC - Group 2A, Probably carcinogenic to humans; OSHA - Not listed; NIOSH - Not listed, ACGIH - Not listed; EPA - Class B2, Probable human carcinogen based on animal studies; MAK - Not listed.

**Chronic Effects:** People occupationally exposed to PCB's have relatively high PCB residue levels in blood plasma.

Symptoms include chloracne dermatitis and degreasing the skin, pigmentation of skin and nails, excessive eye discharge, swelling of eyelids, transient visual disturbances, distinctive hair follicles, edema of the face and hands. In common with other polyhalogenated aromatic hydrocarbons, the chlorinated biphenyls exhibit dioxin-like behavior. Polyhalogenated aromatic hydrocarbons (PHAHs) comprise two major groups.

The first group represented by the halogenated derivatives of dibenzodioxins (the chlorinated form is PCDD), dibenzofurans (PCDF) and biphenyls (PCB) exert their toxic effect (as hepatotoxicants, reproductive toxicants, immunotoxicants and procarcinogens) by interaction with a cytosolic protein known as the Ah receptor. In guinea pigs the Ah receptor is active in a mechanism which "pumps" PHAH into the cell whilst in humans the reverse appears to me. This, in part, may account for species differences often cited in the literature. This receptor exhibits an affinity for the planar members of this group and carries these to the cellular nucleus where they bind, reversibly, to specific genomes on DNA.

This results in the regulation of the production of certain proteins which elicit the toxic response. The potency of the effect is dependent on the strength of the original interaction with the Ah receptor and is influenced by the degree of substitution by the halogen and the position of such substitutions on the parent compound.

The most potent molecule is 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) while the coplanar PCBs (including mono-ortho coplanars) possess approximately 1% of this potency. Nevertheless, all are said to exhibit "dioxin-like" behavior and in environmental and health assessments it has been the practice to assign each a TCDD-equivalence value.

The most subtle and important biological effects of the PHAHs are the effects on endocrine hormones and vitamin homeostasis. TCDD mimics the effect of thymxin (a key metamorphosis signal during maturation) and may disrupt patterns of embryonic development at critical stages. Individuals from exposed wildlife populations have been observed to have altered sexual development, sexual dysfunction as adults and immune system suppression.

Immunotoxic effects of the PHAHs (including the brominated congener, PBB) have been the subject of several studies.

No clear pattern emerges in human studies however with T-cell numbers and function (a blood marker for immunological response) increasing in some and decreasing in others.

Three incidences have occurred which have introduced abnormally high levels of dioxin or dioxin-like congeners to humans. The explosion at a trichlorophenol-manufacturing plant in Seveso, Italy distributed TCDD across a large area of the country-side, whilst rice-oil contaminated with heat-transfer PCBs (and dioxin-like contaminants) has been consumed by two groups, on separate occasions (one in Yusho, Japan and another in Yu-cheng, Taiwan). The only symptom which can unequivocally be related to all these exposures is the development of chloracne, a disfiguring skin condition, following each incident. Contaminated oil poisonings also produced eyedischarge, swelling of eyelids and visual disturbances. The Babies born up to 3 years after maternal exposure (so-called "Yusho-babies") were characteristically brown skinned, colored gum and nails and (frequently) produced eye-discharges. Delays in

intellectual development have been noted. It has been estimated that Yu-cheng patients consumed an average level of 0.06 mg/kg body weight/day total FCB and 0.0002 mg/kg/day of PCDF before the onset of symptoms after 3 months. When the oil was withdrawn after 6 months they had consumed 1 gm total PCB containing 3.8 mg PCDF.

**Preliminary data** from the Yusho cohort suggests a six-fold excess of liver cancer mortality in males and a three-fold excess in women.

Recent findings from Seveso indicate that the biological effects of low level exposure (BELLEs), experienced by a cohort located at a great distance from the plant, may be hormetic, i.e. may be protective AGAINST the development of cancer.

TCDD induces carcinogenic effects in the laboratory in all species, strains and sexes tested. These effects are dose-related and occur in many organs.

Exposures as low as 0.001 ug/kg body weight/day produce carcinoma.

Several studies implicate PCBs in the development of liver cancer in workers as well as multi-site cancers in animals.

The second major group of PHAH consists of the non-planar FCB congeners which possess two or more ortho-substituted halogens. These have been shown to produce neurotoxic effects which are thought to reduce the concentration of the brain neurotransmitter, dopamine, by inhibiting certain enzyme-mediated processes.

The specific effect elicited by both classes of PHAH seems to depend on the as much on the developmental status of the organism at the time of the exposure as on the level of exposure over a lifetime.

### Section 4 - First Aid Measures

**Inhalation:** Remove to fresh air.

Lay patient down. Keep warm and rested.

If breathing is shallow or has stopped, ensure clear airway and apply resuscitation. Transport to hospital or doctor.

**Eye Contact:** Immediately hold the eyes open and flush continuously for at least 15 minutes with fresh running water.

Ensure irrigation under eyelids by occasionally lifting the upper and lower lids.

Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

**Skin Contact:** Immediately remove all contaminated clothing, including footwear (after rinsing with water).

Wash affected areas thoroughly with water (and soap if available).

Seek medical attention in event of irritation.

**Ingestion:** Contact a Poison Control Center. DO NOT induce vomiting. Observe the patient carefully. Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. Give water (or milk) to rinse out mouth. Then provide liquid slowly and as much as casualty can comfortably drink. Transport to hospital or doctor without delay.

**After first aid, get appropriate in-plant, paramedic, or community medical support.**

**Notes to Physicians:** Treat symptomatically. If large amounts are ingested, gastric lavage is suggested. For splash in the eyes, a petrolatum-based ophthalmic ointment may be applied to the eye to relieve the irritating effects of PCBs.

If electrical equipment arcs over, PCB dielectric fluids may decompose to produce hydrogen chloride (HCl), a respiratory irritant. [Monsanto] Preplacement and annual medical examinations of workers, with emphasis on liver function, skin condition, reproductive history, is recommended.

### Section 5 - Fire-Fighting Measures

**Flash Point:** > 141 °C

**Autoignition Temperature:** 240 °C

EL: Not applicable

E L Not applicable

**Extinguishing Media:** Foam. Alcohol stable foam.

Dry chemical powder.

**General Fire Hazards/Hazardous Combustion Products:** Noncombustible liquid.

POLLUTANT -contain spillage.

Decomposes on heating and produces acrid black soot and toxic fumes of aldehydes, hydrogen chloride (HCl), chlorides and extremely toxic polychlorinated dibenzofuran (PCDF), polychlorinated dibenzodioxin (PCDD).

**Fire Incompatibility:** Reacts vigorously with chlorine (Cl<sub>2</sub>).

**Fire-Fighting Instructions:** POLLUTANT -contain spillage. Noncombustible.

Clear area of personnel and move upwind.

Contact fire department and tell them location and nature of hazard.

Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or waterways.

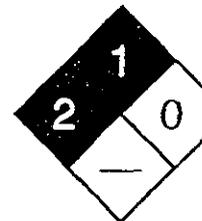
Use fire fighting procedures suitable for surrounding area.

Cool fire-exposed containers with water spray from a protected location.

Avoid spraying water onto liquid pools.

If safe to do so, remove containers from path of fire.

Equipment should be thoroughly decontaminated after use.



Fire Diamond

## Section 6 - Accidental Release Measures

**Small Spills:** POLLUTANT -contain spillage. Clean up all spills immediately.

**Environmental hazard** - contain spillage.

Avoid breathing vapors and contact with skin and eyes.

Wear protective clothing, impervious gloves and safety glasses.

Contain spill with sand, earth or vermiculite.

Wipe up and absorb small quantities with vermiculite or other absorbent material.

Place spilled material in clean, dry, sealable, labeled container.

**Large Spills:** POLLUTANT -contain spillage. Clear area of personnel.

Contact fire department and tell them location and nature of hazard.

Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or waterways.

Stop leak if safe to do so.

Contain spill with sand, earth or vermiculite.

Collect recoverable product into labeled containers for recycling.

Absorb remaining product with sand, earth or vermiculite.

Collect residues and seal in labeled drums for disposal.

After clean-up operations, decontaminate and launder all protective clothing and equipment before storing and reusing.

If equipment is grossly contaminated, decontaminate and destroy.

If contamination of drains or waterways occurs, advise emergency services.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

## Section 7 - Handling and Storage

**Handling Precautions:** Do not allow clothing wet with material to stay in contact with skin. Use good occupational work practices. Observe manufacturer's storing and handling recommendations.

Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Avoid all personal contact, including inhalation.

Wear protective clothing and gloves when handling containers.

Avoid physical damage to containers.

Use in a well-ventilated area and use only in completely enclosed system.

Avoid contact with incompatible materials.

When handling, DO NOT eat, drink or smoke.

Wash hands with soap and water after handling.

Work clothes should be laundered separately: NOT at home.

**Recommended Storage Methods:** Packaging as recommended by manufacturer.

Check that containers are clearly labeled.

Metal can or metal drum or Steel drum with plastic liner.

Regulatory Requirements: Follow applicable OSHA regulations.

## Section 8 - Exposure Controls/ Personal Protection

**Engineering Controls:** Provide adequate ventilation in warehouse or closed storage areas.

If inhalation risk of overexposure exists, wear NIOSH-approved organic-vapor respirator.

In confined spaces where there is inadequate ventilation, wear full-face air supplied breathing apparatus.

**Personal Protective Clothing/Equipment**

**Eyes:** Safety glasses with side shields; chemical goggles.

Full face shield.

Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

**Hands/Feet:** impervious gloves or Viton gloves or Polyethylene gloves or PVC gloves.

Protective footwear.

**Other:** impervious protective clothing. Overalls. Impervious apron.

Eyewash unit.

Ensure there is ready access to a safety shower.

## Section 9 - Physical and Chemical Properties

**Appearance/General Info:** Clear, colorless to yellow-green, mobile oily to viscous liquid, or sticky to hard resin, or white crystalline solid, depending on degree of chlorination. Slightly soluble in glycerol and glycols. Soluble in organic solvents and lipids. Viscosity range: 71 - 2500 Saybolt unit sec. at 38 °C. PCBs are resistant to chemical and biological degradation and because of their solubility in fats and oils they tend to be concentrated in living organisms. The highly chlorinated PCBs are retained in animal's bodies longer and seems to delay the excretion of the lower chlorinated PCB's. They have become widely dispersed in the world-wide environment and in the food-chain since their introduction in 1929. They are now recognized internationally to be a major environmental pollutant, their persistence causing ecological damage via water pollution. Consequently loss of PCBs to the environment is to be avoided at all costs.

**Physical State:** Liquid

**Vapor Pressure (kPa):** Negligible

**Formula Weight:** 188.66 - 395

**Specific Gravity (H<sub>2</sub>O=1, at 4 °C):** 1.18 - 1.8

**Water Solubility:** Solubility in water extremely low

**Evaporation Rate:** Non Vol. at 38 °C

**pH:** Not applicable

**pH (1% Solution):** Not applicable.

**Boiling Point Range:** 340 °C (644 °F) to 375 °C (707 °F)

**Decomposition Temperature (°C):** 375-550

## Section 10 - Stability and Reactivity

**Stability/Polymerization:** Product is considered stable. Hazardous polymerization will not occur.

**Storage Incompatibilities:** Avoid storage with oxidizers. Segregate from chlorine.

Avoid contamination of water, foodstuffs, feed or seed.

## Section 11 - Toxicological Information

Unless otherwise specified data extracted from RTECS - Registry of Toxic Effects of Chemical Substances

### TOXICITY

Oral (human) LD<sub>50</sub>: 500 mg/kg

Oral (rat) LD<sub>50</sub>: 3980 mg/kg

see NIOSH, RTECS TQ1350000, for additional data.

### IRRITATION

Nil reported

## Section 12 - Ecological Information

**Environmental Fate:** PCBs are mixtures of different congeners of chlorobiphenyl and the relative importance of the environmental fate mechanisms generally depends on the degree of chlorination. In general, the persistence of PCBs increases with an increase in the degree of chlorination. Mono-, di- and trichlorinated biphenyls (Aroclor 1221 and 1232) biodegrade relatively rapidly, tetrachlorinated biphenyls (Aroclors 1016 and 1242) biodegrade slowly, and higher chlorinated biphenyls (Aroclors 1238, 1254, and 1260) are resistant to biodegradation. Although biodegradation of higher chlorinated congeners may occur very slowly on an environmental basis, no other degradation mechanism have been shown to be important in natural water and soil system; therefore, biodegradation may be the ultimate degradation process in water and soil. If released to soil, PCBs experience tight adsorption with adsorption generally increasing with the degree of chlorination. PCBs will generally not leach significantly in aqueous soil systems; the higher chlorinated congeners will have a lower tendency to leach than the lower chlorinated congeners. In the presence of organic solvents PCBs may leach quite rapidly through soil. Vapor loss from soil surfaces appears to be an important fate mechanism with the rate of volatilization decreasing with increasing chlorination. Although the volatilization rate may be low, the total loss by volatilization over time may be significant because of persistence and stability. Enrichment of the low Cl PCBs occurs in the vapor phase relative to the original Aroclor; the residue will be enriched in the PCBs containing high Cl content. If released to water, adsorption to sediment and suspended matter will be an important fate process; PCB concentrations in sediment and suspended matter have been shown to be greater than in the associated water column. Although adsorption can immobilize PCBs (especially the higher chlorinated congeners) for relatively long periods of time, eventual resolution into the water column has been shown to occur. The PCB composition in the water will be enriched in the lower chlorinated PCBs because of their greater water solubility, and the least water soluble PCBs (highest Cl content) will remain adsorbed. In the absence of adsorption, PCBs volatilize relatively rapidly from water. However, strong PCB adsorption to sediment significantly competes with volatilization, with the higher chlorinated PCBs having longer half-lives than the lower chlorinated PCBs. Although the resulting volatilization rate may be low, the total loss by volatilization over time may be significant because of persistence and stability PCBs have been shown to bioconcentrate significantly in aquatic organisms. If released to the atmosphere, PCBs will primarily exist in the vapor-phase; the tendency to become associated with the particulate-phase will increase as the degree of chlorination of the PCB increases. The dominant atmospheric transformation process is probably the vapor-phase reaction with hydroxyl radicals which has estimated half-lives ranging from 12.9 days for monochlorobiphenyl to 1.31 years for heptachlorobiphenyl. Physical removal from the atmosphere, which is very important environmentally, is accomplished by wet and dry deposition.

Ecotoxicity: Aquatic toxicity: 0.278 ppm/96 hr/bluegill/TLM/fresh water 0.05 ppm/336-1080 hr/pinfish/TLM/salt water; Waterfowl toxicity: LD<sub>50</sub> 2000 ppm (mallard duck); Food chain concentration potential: High  
 Henry's Law Constant:  $5 \times 10^3$   
 BCF: bioconcentrate in tissue  
 Biochemical Oxygen Demand (BOD): very low  
 Soil Sorption Partition Coefficient:  $K_{oc} = 510$  to  $1.33 \times 10^4$

### Section 13 - Disposal Considerations

**Disposal:** Recycle wherever possible. Consult manufacturer for recycling options.

Follow applicable federal, state, and local regulations.

Due to their environmental persistence and potential health hazards, PCBs cannot be disposed of in landfills or dumped at sea. The only environmentally acceptable method for the disposal of PCBs is by high temperature incineration.

All wastes and residues containing PCBs (e.g., wiping cloths, absorbent material, used disposable protective gloves, contaminated clothing, etc.) should be collected, placed in proper containers, labelled and disposed of in accordance with applicable regulations.

### Section 14 - Transport Information

#### DOT Transportation Data (49 CFR 172.101):

Shipping Name ; POLYCHLORINATED

Additional Shipping Information: PCB'S

BIPHENYLS

Hazard Class: 9

ID No.: 2315

Packing Group: II

Label: Miscellaneous Dangerous Goods[9]

### Section 15 - Regulatory Information

☐PA Regulations:

RCRA 40 CFR: Not listed

CERCLA 40 CFR 302.4: Listed per CWA Section 311(b)(4); per CWA Section 307(a) 1 lb (0.454 kg)

SARA 40 CFR 372.65: Listed

SARA EHS 40 CFR 355: Not listed

TSCA: Listed

### Section 16 - Other Information

Research Date: ..... 1999-11 Review Date: ..... 2000-07

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CAS # 1336-36-3

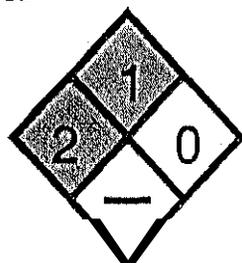
Warning!

1 3

### PCB's

*arochlor; chlorinated biphenyls; chlorinated diphenyl; chlorinated diphenylenc; phenoclor*

Oily liquid, white crystalline solid, or hard resin. Severely irritating. Suspect cancer hazard. Chronic: chloracne. GI disturbances, neurological symptoms, liver enlargement, menstrual changes, bronchitis. Possible reproductive and teratogenic effects.



### Personal Protective Equipment

8



Goggles



Gloves



Full Suit



Boots



Check to see if respirator required?

### Emergency Procedures



#### First Aid

4

Inhalation: Remove to fresh air, support breathing. Eyes/Skin: Remove contaminated clothing. Flush eyes with medical grade mineral or olive oil followed by plenty of water. Thoroughly wash skin with soap and water. Ingestion: Do not induce vomiting.



#### Fire

5

Combustible. Use water as fog, dry chemical, or carbon dioxide. Do not scatter with a high pressure water stream. Firefighters should protect against thermal decomposition products which are more toxic than PCBs themselves.



#### Spills & Leaks

6

Notify safety personnel, isolate and ventilate area, deny entry, stay upwind. Shut off heat and ignition sources. Take up with inert material such as sand or vermiculite. Cleanup crew should protect against exposure.

### Target Organs



Eyes



Skin



Respiratory



Nervous



Liver



Repro- ductive

3 9 10

Consult MSDS 0683 for more information

# ATTACHMENT D HAZARD ANALYSIS

Tasks	
① collecting soil samples	⑤
② packaging/transferring soil samples	⑥
③ sample equipment decontamination	⑦

	①	②	③	④	⑤	⑥	⑦	⑧
<b>I. Chemical Hazards</b>								
Fire								
Inhalation	X	X	X					
Reactivity								
Skin absorption	X	X						
<b>II. Physical Hazards</b>								
Cold Stress								
Compressed Gas Cylinder								
Drilling								
Drowning								
Drum Handling			X					
Electrocution								
Excavation/Trenching								
Eye Injury	X	X	X					
Hand/Foot Injury	X	X	X					
Heat Stress	X	X	X					
Heavy Equipment	X							
Lifting Heavy Loads			X					
Noise								
Portable Power/Hand Tool								
Radiation Exposure								
Slipping/Tripping/Falling	X	X	X					
Other:								
<b>III. Biological Hazards</b>								
Allergic Reaction to Poisonous Plants								
Insect/Vermmin/Snake Bites	X	X	X					
Medical Waste								
Other:								

**Instructions:** For each task, place an " X in the blank corresponding to associated hazards.

## HAZARD MITIGATORS – *INHALATION* (Organic Vapor/Dust)

**Applies to Task:**  ①     ②     ③     ④     ⑤     ⑥     ⑦     ⑧

- Be aware that the lungs are extremely vulnerable to chemical agents. Even substances that do not directly affect the lungs may pass through lung tissue into the bloodstream, where they are transported to other vulnerable areas of the body.
- Know the odor and odor threshold of the chemicals of concern. Some toxic chemicals present in the atmosphere may not be detected by human senses (i.e., they may be odorless and colorless, and their toxic effects may not produce any immediate symptoms).
- Use engineering controls to reduce vapor concentrations (e.g., ventilation) or dusty atmospheres (e.g., dust suppression techniques).
- Wear respiratory protection as indicated by air monitoring results and/or as required by the Health and Safety Plan.

## HAZARD MITIGATORS - *SKIN ABSORPTION*

Applies to Task:  ①     ②     ③     ④     ⑤     ⑥     ⑦     ⑧

- Be aware of chemicals of concern that can directly injure the skin or that can be absorbed into the bloodstream and subsequently transported to other organs.
- Know that skin absorption is enhanced by abrasions, cuts, heat, and moisture.
- Do not wear contact lenses in contaminated atmospheres (since they may trap chemicals against the eye surface). The eye is particularly vulnerable because airborne chemicals can dissolve in its moist surface and be carried to the rest of the body through the bloodstream (capillaries are very close to the surface of the eye).
- Keep hands away from face.
- Minimize contact with liquid and solid chemicals.
- Wear protective clothing (e.g., suits and gloves) as required by the Health and Safety Plan.

## HAZARD MITIGATORS -DRUM HANDLING

Applies to Task:  ①  ②  ③  ④  ⑤  ⑥  ⑦  ⑧

- Use only drums and containers that meet the appropriate DOT, OSHA, and EPA regulations.
- Be aware of the potential hazards of the contents of drums or containers before handling.
- Inspect the integrity of the drum or container before moving. Any drum or container lacking integrity shall be overpacked.
- Consider any unlabeled drum or container as containing a hazardous substance and leave alone until contents are properly identified and labeled.
- Organize site operations to minimize the amount of drum or container movement.
- Never stand on drums or containers.
- Know that bulging drums or containers are an indication of pressure build-up. Pressure can be relieved slowly by carefully loosening the bung. If the possibility of fire or explosion exists, protective shield should be used, and/or remote opening devices.
- Utilize drum/container handling equipment whenever possible. The equipment utilized should have a sufficiently rated load capacity, and should be able to operate smoothly on the available surface.
- Use proper lifting and moving techniques to prevent back injuries, if handling equipment is not available.
- Have a clear view of the available pathway when moving drums. If needed, an additional person should be available to provide guidance.
- Set up drum/container staging areas to safely identify and classify contents for proper shipment. Staging areas shall be provided with adequate ingress and egress routes.
- Label and identify drums and containers as to their contents when moved to the staging areas.
- Cease all site operations immediately if site activities uncover buried drums or containers. The SHSO must be notified. The SHSO will evacuate the site. All unknown situations must be evaluated before site activities are resumed. The services of a specialized contractor trained in handling unknown contaminants may be needed. If, after evaluating the situation, only a portion of the site is effected, that area shall be barricaded and work may continue at other portions of the site.

## HAZARD MITIGATORS - *EYE INJURY*

Applies to Task:  ①       ②       ③       ④       ⑤       ⑥       ⑦       ⑧

- Wear appropriate eye protection according to the task at hand (e.g., goggles if liquid splash could occur, welding lenses, etc.).
- Minimize the amount of vapor or particulate matter generated, if possible.
- Avoid touching the face and eyes
- Flush eye with water for at least 15 minutes if chemicals do get into the eye. Then get medical attention as soon as possible.

**HAZARD MITIGATORS - *HAND/FOOT INJURY***

**Applies to Task:**  ①     ②     ③     ④     ⑤     ⑥     ⑦     ⑧

- Be aware of “pinch points” when working with tools and heavy equipment.
- Use proper lifting techniques to avoid dropping heavy loads on hands and feet.
- Be aware of moving machinery and heavy equipment in the work area.
- Wear protective gloves as required in the Health and Safety Plan.
- Wear steel-toed boots as required in the Health and Safety Plan.

## HAZARD MITIGATORS – HEAT STRESS

Applies to Task:  ①     ②     ③     ④     ⑤     ⑥     ⑦     ⑧

- Be able to recognize and treat heat stress, and to identify the signs and symptoms of heat stress (e.g., muscle spasms, dizziness, lack of perspiration).
- Maintain an optimal level of physical fitness. Fit individuals may acclimatize more readily to temperatures.
- Adjust work and rest schedules as needed. Establish a work regimen that will provide adequate rest periods for cooling down. This may require additional shifts of workers.
- Provide shelter or shaded areas (77<sup>N</sup> F is best) to protect personnel during rest periods
- Maintain worker's body fluids at normal levels to ensure that the cardiovascular system functions adequately. Daily fluid intake must equal the approximate amount of water lost in sweat. Workers are encouraged to *drink* more than the amount required to satisfy thirst, because thirst is not an adequate indicator of adequate salt and fluid replacement.
- Remove impermeable protective garments during rest periods.
- Do not assign other tasks to personnel during rest periods
- Provide cooling devices, when necessary, to aid natural body heat exchange during prolonged work or severe heat exposure. Effect devices include field showers or hose-down areas; as well as cooling jackets, vests, or suits.

## HAZARD MITIGATORS – *HEAVY EQUIPMENT*

Applies to Task:  ①  ②  ③  ④  ⑤  ⑥  ⑦  ⑧  ⑨  ⑩

- Apply Hazard Mitigators for motor vehicles when utilizing heavy equipment (where applicable).
- Remember, heavy equipment has the right-of-way over regular vehicles and pedestrians. Yield to heavy equipment.
- Listen for warning signals on heavy equipment.
- Perform a visual inspection and walk around parked heavy equipment before moving to assure that equipment is in good condition and that there are no personnel on the ground that could be injured or objects that could be damaged by vehicle movement.
- Use hand rails and footholds when mounting and dismounting equipment,
- Follow appropriate equipment startup procedures. Brakes, steering, clutches and controls shall be tested.
- Pay attention to workers on the ground who may be in the path and provide warning prior to moving the equipment.
- Permit no one to ride on, or in, heavy equipment. This includes any portion of a backhoe, bulldozer, forklift or the back of a pickup truck, except in locations specifically designed for passenger use and approved by the SHSO.
- Locate and flag underground utilities and buried cables, whenever possible, prior to intrusive activities (such as excavation and drilling).
- Keep haulage vehicles under positive control at all times while operating. Vehicles shall be kept in gear when descending grades.
- Do not use heavy equipment on slopes with steepness exceeding 3H:1V unless operations are consistent with manufacturer's recommendations (if the Owner's Manual is not with the equipment or does not specify slope operating procedures, see the SHSO).
- Operate equipment with booms, blades, buckets, beds, etc., lowered or in a stable position while on slopes. Safety cables tethered to appropriate anchors shall be used for equipment working on steep slopes, where appropriate. The use of cables and anchors must be approved by the SHSO.

## HAZARD MITIGATORS – HEAWEQUIPMENT

Applies to Task:  ①  ②  ③  ④  ⑤  ⑥  ⑦  ⑧  ⑨  ⑩

- Use rollover protection and seat belts
- Lower hydraulic systems (e.g., blades, rippers, etc.) to the ground, set brakes, and shut down equipment if malfunction occurs which impairs the ability to control a piece of equipment.
- Suspend in slings or support by hoists or jacks heavy equipment in need of repair. The equipment must also be blocked or cribbed before workers are permitted to work underneath. Working under heavy equipment can pose a crushing hazard.
- Shut off motors, do not allow smoking, and use proper dispensing equipment when refueling gasoline-operated equipment to prevent fire hazards.
- Wear hearing protection if required.
- Maintain eye contact with the heavy equipment operator when working near equipment.
- Be aware of changes in sound of equipment which may indicate a change in direction or activity.

## HAZARD MITIGATORS – *LIFTING HEAVY LOADS*

Applies to Task:  ①  ②  ③  ④  ⑤  ⑥  ⑦  ⑧

- Know and practice proper lifting techniques.
- Limit continuous lifting of weights to 50 pounds or less. Lifts of heavier weights are permitted on an interim basis. Help shall be obtained for lifting of loads greater than 50 pounds. Mechanical equipment should be used on heavy materials when possible. If mechanical assistance is not available, adequate manpower to maintain the 50-pound limit per employee will be required.
- Do not lift more weight than can be handled comfortably, regardless of load weight. If necessary, help should be requested to lift a load so that the lifting is comfortable.
- Use drum dollies when moving drums or barrels.
- Inspect objects for grease or slippery substances before they are lifted to ensure that the object will not slip.
- Do not carry long, bulky or heavy objects without first verifying that the way is clear and that vision is unobstructed. This ensures that other persons or objects will not be struck by the load.
- Do not carry loads that cannot be seen over or around
- Make sure workers are physically suited for the job before assigning jobs requiring heavy and/or frequent lifting. A person's lifting ability is not necessarily indicated by his height or weight.
- Before lifting an object, consideration should be given to how the object will be set down without pinching or crushing hands or fingers. For example, to place an object on a bench or table, the object should be set on the edge and pushed far enough onto the support so it will not fall. The object can then be released gradually as it is set down, and pushed in place with the hands and body from in front of the object.
- When two or more persons are handling the same object, one should "call the signals". All the persons on the lift should know who this person is and should warn him if anyone in the crew is about to relax his grip.
- Proper lifting includes:
  - *Feet* - Feet should be parted, with one foot alongside the object being lifted and one behind. Feet should be comfortably spread to give greater stability. The rear foot should be in position for the upward thrust of the lift.

## HAZARD MITIGATORS – *LIFTING HEAVY LOADS*

Applies to Task:  ①  ②  ③  ④  ⑤  ⑥  ⑦  ⑧

- *Back* - Use the sit-down position and keep the back straight, but remember that “straight” does not mean “vertical“. A straight back keeps the spine, back muscles, and organs of the body in correct alignment. It minimizes the compression of the abdomen that can cause a hernia.
- *Arms and Elbows* - The load should be drawn close, and the arms and elbows should be tucked into the side of the body. When the arms are held away from the body, they lose much of their strength and power. Keeping the arms tucked in also helps keep body weight centered.
- *Palm* - The palm grip is one of the most important elements of lifting. The fingers and the hand are extended around the object to be lifted. Use the full palm; fingers alone have very little power.
- *Chin* - Tuck in the chin so the neck and head continue the straight back line. Keep the spine straight and firm.
- *Body Weight* - Position the body so its weight is centered over the feet. This provides a more powerful line of thrust and assures better balance. Start the lift with a thrust of the rear foot. Shift hand position so the object can be boosted after knees are bent. Straighten knees as object is lifted or shifted to the shoulders. To change direction, lift the object to a carrying position, and turn the entire body, including the feet. Do not twist your body. In repetitive work, both the person and the material should be positioned so that the worker will not have to twist his body when moving the material. If the object is too heavy to be handled by one person, get help.

## HAZARD MITIGATORS - *SLIPPING/TRIPPING/FALLING*

Applies to Task:  ①     ②     ③     ④     ⑤     ⑥     ⑦     ⑧

- Wear the proper footwear for the task at hand.
- Pay attention to the environment and use caution when moving about on site.
- Follow the easiest **and** safest path to the destination.
- Follow good housekeeping procedures.
- Remove objects that pose tripping hazards where practicable.
- Prevent water accumulation where practicable.

## HAZARD MITIGATORS – *INSECT/VERMIN/SNAKE BITES*

Applies to Task:  ①     ②     ③     ④     ⑤     ⑥     ⑦     ⑧

- Be able to recognize insects/vermin/snakes indigenous to the site location.
- Advise the Health & Safety Officer if you have allergies to any insects prior to engaging in any field activities.
- Include the following controls:
  - Boots, hoods, netting, gloves, masks, or other personal protection.
  - Repellents.
  - Drainage or spraying of breeding areas.
  - Burning or destruction of nests.
  - Smudge pots and aerosols for protecting small areas.
  - Elimination of unsanitary conditions which propagate insects or vermin.
  - Extermination measures.
  - Inoculation.
- Report any bites or stings to the Health & Safety Officer and seek first aid immediately.

**QUALITY ASSURANCE  
PROJECT PLAN  
FIELDSTONE PROPERTY  
CONSENT ORDER NO. HSA-CO 01/02-154**

Prepared for:

California Environmental Protection Agency  
Department of Toxic Substances Control  
Cypress, California

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23 May 2003

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2-2 Sample Analyses Flowchart

## **1. INTRODUCTION**

### **1.1 Terms of Reference**

This Quality Assurance Project Plan (QAPP) was prepared by GeoSyntec Consultants (GeoSyntec) for the Remedial Investigation (RI) at the Fieldstone Property (the Site) in Orange County, California. This QAPP meets the requirements of Section 5.2.2(d) of the Consent Order. This QAPP is designed to address project organization and responsibilities with respect to the RI and to provide data quality objectives and quality control procedures for sampling and analysis.

### **1.2 Project Background**

The Fieldstone Property is an approximately 42-acre parcel located in an unincorporated area of Orange County adjacent to Huntington Beach, California. The goal of the project is to identify and remediate contamination encountered at the Site. During the performance of an environmental assessment of adjacent property, known as the Bolsa Chica Lowland, samples were also collected at the Fieldstone Property for analysis. Certain constituents (including polychlorinated biphenyls, PCBs, and petroleum hydrocarbons) were detected in Site soils.

Following the notification of the appropriate agencies, the Site owner, Hearthside Residential Corp. (Hearthside), entered into a Consent Order with the Department of Toxic Substances Control (DTSC). The Consent Order provides a framework for further evaluation of the Site, including characterization of the nature and extent of the contamination, potential risks posed by the contaminants to humans and ecological receptors, and evaluation methods to mitigate these risks through the implementation of remedial measures. Work includes analyzing historical data collected from the Site, performing fieldwork to provide additional data for analysis, and implementing an appropriate remedial action based on an evaluation of the data and feasible remedial alternatives.

### **1.3 Remedial Investigation Workplan and QAPP Objectives**

Refer to the RI Workplan for a more complete description of the overall project objectives. The objective of this QAPP is to describe a procedure for validation of project data and, upon implementation, yield data that are suitable for use in characterizing the Site and evaluating appropriate remedial alternatives. This document

serves as guidance for using historic data and obtaining additional data that will be used in future phases of the project. Soil sampling at the Site will be conducted according to the procedures outlined in Section 5, Field Sampling Plan, of the RI Workplan and according to the procedures outlined in this document.

#### **1.4 Organization of the Document**

This QAPP includes the following sections:

- Section 2, Project Organization and Responsibilities, provides a summary of the roles of key individuals involved in the project;
- Section 3, Data Quality Objectives, describes the design for the data collection process;
- Section 4, Sampling Locations and Procedures, provides a brief summary of the field sampling activities;
- Section 5, Sample Custody and Holding Times, addresses the holding and transfer of samples;
- Section 6, Analytical Procedures, outlines the analytical procedures that will be used to collect data;
- Section 7, Calibration Procedures and Frequency, describes the procedures that will be used to calibrate data collection tools;
- Section 8, Quality Control Samples, provides a description of the quality control samples that will be used;
- Section 9, Corrective Actions, describes procedures for maximizing data collection efforts;
- Section 10, Preventative Maintenance, provides a description of techniques that prevent loss of time or delay due to malfunctions; and
- Section 11, Data Reduction, Validation, and Reporting, describes the methods for effectively presenting and analyzing the data.

Tables and figures are included at the end of this document.

## **2. PROJECT ORGANIZATION AND RESPONSIBILITIES**

### **2.1 General**

The organization chart for this project is presented as Figure 2-1. Ray Pacini of Hearthside is the Project Coordinator, and Eric Smalstig, P.E. of GeoSyntec is the Project Engineer for this Site. For additional information on project organization and responsibilities, refer to the Project Management Plan (PMP). The PMP defines the relationships and responsibilities for major tasks and project management items.

### **2.2 Field Sampling**

GeoSyntec personnel will perform the field sampling activities outlined in Section 5 of the RI Workplan. Figure 2-2 presents a flowchart for the sample analyses based on sampling categories. The tasks that will be performed during field sampling include:

- implementation of Fieldstone Health and Safety Plan;
- marking sample locations;
- soil, surface water, and groundwater sampling;
- equipment and PPE decontamination; and
- sample documentation and transport arrangements.

### **2.3 Laboratory Analysis**

Laboratory analyses will be performed by a State certified analytical laboratory (likely B.C. Laboratories located in Bakersfield, California, and Advanced Technologies Laboratories, ATL, located in Signal Hill, California) and their subcontractors. For quality assurance (QA) verification purposes described later in this document, certain samples will be split between the two laboratories with each laboratory analyzing the samples. ATL provided a majority of the analytical testing in previous phases of the site remedial investigation. Both laboratories possess current State of California Certifications. These laboratories may also subcontract certain analyses to other State certified laboratories. Each laboratory, and its analytical responsibilities, will be clearly indicated on sample results documentation.

### 3. DATA MANAGEMENT

#### 3.1 Data Quality Objectives

The Data Quality Objectives (DQO) process is a planning process from which qualitative and quantitative statements are derived in relation to a particular data collection event (or group of events). Performing the DQO process is generally one of the prerequisite steps to data collection. The DQO process is described in EPA guidance (EPA, 2000). The steps of the DQO process are:

- State the Problem
- Identify the Decision
- Identify Inputs to the Decision
- Define the Study Boundaries
- Develop a Decision Rule
- Specify Tolerable Limits on Decision Errors
- Optimize the Design for Obtaining Data

The steps of the DQO process are summarized below for the Fieldstone project.

- State the Problem: In order to evaluate whether PCBs and other contaminants pose a potential risk to human health and/or the environment, data regarding concentrations and distributions of PCBs and other contaminants in the soil, surface water, and groundwater are needed.
- Identify the Decision: Determine whether PCBs, and other contaminants, present at the site pose an unacceptable risk to human health and/or the environment, and requires development of remedial alternatives to mitigate the risks or requires no action.
- Identify Inputs to the Decision: Surface water, groundwater, and additional soil samples will be collected and analyzed for PCBs, and other contaminants, from areas of the site.
- Define the Study Boundaries: Debris piles, surface water, stormwater drainage courses, groundwater, and previously uncharacterized locations will be sampled. Soil samples from the debris piles and previously uncharacterized locations will be collected from 0 to 6 inches bgs, 24 to 30 inches bgs, 48 to 54 inches bgs, and 72 to 78 inches bgs. Surface water samples will be collected from areas of ponded water. Stormwater drainage course samples will be collected

from 0 to 6 inches bgs. Groundwater samples will be collected from the Semi-perched aquifer.

- Develop a Decision Rule: If the concentrations of PCBs, or other contaminants, at the site pose an unacceptable risk to human health and/or the environment, then a Feasibility Study will be performed to evaluate potential remedial alternatives to mitigate the risks. However, if it is determined that there is an acceptable risk to human health and environment, then no further action would be required. Specify Tolerable Limits on Decision Errors: Tolerable limits are evaluated for decision errors to identify acceptable consequences.
- Optimize the Design for Obtaining Data: This step is addressed to identify options for satisfying DQO.

### 3.2 **Primary Data Quality Objective**

According to analysis of historical data and Site conditions, the following conclusions were reached to define the DQO for the Fieldstone project:

- Historical sampling efforts have provided data that indicates that Aroclor 1260 contamination is primarily present in the soil close to the ground surface. Only one (44B) of the 10 highest Aroclor 1260 concentrations was from a sample collected below the 6 in. to 12 in. below ground surface (bgs) soil interval (collected at 2 ft bgs); and
- Historical data indicates that, although low values (ranging from non-detect (ND) to 2300 mg/kg) of petroleum hydrocarbons and other chemicals have been detected in soil samples from the Site, the PCB Aroclor 1260 is the primary chemical of concern.

Therefore, the Primary DQO for this Site is to:

- characterize the Fieldstone property with respect to contamination and to provide quantitatively and qualitatively valid data for use as inputs in models used to make risk-based decisions for handling contamination at the Site.

### **3.3 Secondary Data Quality Objectives**

The Secondary DQO is to comply with the following RI-derived waste requirement:

- Incidental investigation-derived waste (IDW), including decontamination wastes, generated during the Focused RI is disposed of appropriately.

The secondary DQO will be achieved by following a DQO process that involves:

- sampling the IDW;
- analytically evaluating the composition of IDW;
- consulting applicable regulations and standards; and
- disposing of the IDW in a manner that complies with applicable regulations and standards

### **3.4 Performance Requirements for Laboratory Analyses**

EPA SW-846 testing methods will be used. For PCB Aroclors, EPA Method 8082 will be used to quantify the concentration of PCBs in Site soil and water samples. Results of the EPA Method 8082 will be reported by the laboratory along with Quality Assurance (QA) results. EPA Method 8280A will be used to quantify the concentration of Dioxins and Furans in Site soil samples. Results of the EPA Method 8280A will be reported by the laboratory along with Quality Assurance (QA) results. EPA Method 1668A (a GC/ECD methodology) will be used to quantify the concentration of 209 PCB Congeners in Site soil samples. Results of the EPA Method 1668A will be reported by the laboratory along with Quality Assurance (QA) results. EPA Method 6010B/7000 will be used to quantify the concentration of California Title 22 Metals in Site soil samples. Results of the EPA Method 6010B/7000 will be reported by the laboratory along with Quality Assurance (QA) results. EPA Method 8310 will be used to quantify the concentration of polycyclic aromatic hydrocarbons (PAH) in Site soil samples. Results of the EPA Method 8310 will be reported by the laboratory along with Quality Assurance (QA) results.

### **3.5 Quantitation Limits, Precision, and Accuracy Goals**

For soil samples analyzed for PCBs using EPA Method 8082, the laboratories can achieve a practical quantitation limit (PQL) of approximately 0.033 mg/kg. In the event of sample interference, an upper bound for the quantitation limit for acceptance of data as valid for purposes of this RI will be set at 0.18 mg/kg. This value, discussed with the DTSC, is below the EPA Region 9 Residential Preliminary Remediation Goal of 0.22 mg/kg. If the 0.18 mg/kg upper limit is not met, attempts will be made to remove the interference that is causing the elevated limit. If this is not possible, the data will be flagged with a notation with the type of interference, if possible. Samples having non-detect values at a quantitation limit above 0.18 mg/kg will be deemed invalid, and additional samples will be collected. Samples analyzed for PCB congeners using EPA Method 1668A will also have 0.18 mg/kg as an upper quantitation limit for the sum of congeners. The analytical laboratory will provide detection limits along with the data for Dioxins and Furans, Metals, and PAH.

Data will be analyzed to meet data quality objectives. Data are accepted and rejected based on the DQO. If the data may be affected by variability and accuracy indicators defined in the EPA method, such as low recovery for spikes or surrogates, further evaluation will be performed. Audits will be initiated when DQO are not being met.

Comparability is being measured in several ways. Data from the two different laboratories are being verified using split samples. Data from this sampling event are being compared to past data via confirmation sampling. At least one field blind duplicate will also be used to evaluate results from each of the laboratories.

Laboratory Quality Control (QC) Reports will be reported along with the laboratory data. The Laboratory QA/QC reports will be analyzed for anomalies. Laboratory data will be evaluated for conformance to method performance criteria and industry standards. Table 3-1 presents a checklist of the laboratory QA/QC parameters that may be evaluated. In addition, the data may be analyzed statistically.

## **4. SAMPLING LOCATIONS AND PROCEDURES**

### **4.1 Sampling Locations**

Refer to Section 5 of the RI Workplan for sampling locations. Locations were chosen to satisfy the DQO for the RI. As additional locations may be identified based on the results of the RI testing, the Workplan may be amended. The sample locations will be staked and surveyed, as needed, to allow re-sampling and verification of sample test data.

### **4.2 Sampling Procedures**

Standard Operating Procedures (SOPs) will be used to collect soil samples as part of the project work. Refer to Section 5 of the RI Workplan for sampling procedures. Adoption of and adherence to SOPs is a qualitative method to improve data quality. These procedures may be expanded/updated, as needed, in the future through amendments to the Workplan.

### **4.3 Sampling Duration**

The sampling activities are anticipated to occur between 7 July 2003 to 15 August 2003. Internal supervision and oversight will be performed. DTSC may also be present during this time period to oversee the work and collect additional QC samples.

## **5. SAMPLE CUSTODY AND HOLDING TIMES**

Samples will be labeled as described in Section 5 of the RI Workplan. Samples will be tracked using chain-of-custody procedures, and they will also be recorded in a field logbook.

Sample custody will be recorded on the chain-of-custody form. Special notices, if any, will be recorded on that form, and a copy will accompany the laboratories' analytical report. Samples are anticipated to be delivered to the laboratory for analysis within 3 days of the time that they are collected. Table 5-1 presents upper limits for acceptable holding times for the test methods being utilized during the RI.

## **6. ANALYTICAL PROCEDURES**

Soil and water samples will be analyzed for PCBs using EPA Method 8082. The results will be reported as concentrations Aroclor(s). A select few of the soil samples will also be analyzed for PCB Congeners by EPA Method 1668A, dioxins and furans by EPA Method 8280A, and California Title 22 Metals by EPA 6010B/7000. The groundwater samples will be analyzed for PCB by EPA Method 8082 and PAH by EPA Method 8310.

Depending on the sample results the decontamination solution will also be analyzed for PCBs using EPA Method 8082.

The laboratories selected for this work are certified to perform the requested analyses. The laboratories will strictly adhere to state and federal requirements of the methods requested.

## 7. CALIBRATION PROCEDURES AND FREQUENCY

### 7.1 Laboratory Analyses

Laboratories will perform instrument calibration according to instrumentation specification and method requirements. Calibration, such as five-point calibration, of the equipment used to perform the soil sample analysis according to EPA Method 8082, EPA Method 1668A, EPA Method 8280A, EPA Method 6010B/7000, and EPA Method 8310 will be conducted based on method performance. The equipment will be calibrated using internal standards, and one of the standards will be at or below the reporting limit (0.18 mg/kg for PCBs and method-specified for Dioxins and Furans). The calibrations should be checked by the laboratory at least daily and the results noted in the analytical report. Deviations from the expected calibration range will be specially noted in the data narrative.

## 8. QUALITY CONTROL SAMPLES

### 8.1 General

The quality control procedures for soil sampling as part of this RI workplan includes preparing spilt samples and duplicate samples. The criteria for acceptable data quality are described in the following sections.

### 8.2 Split Samples

Five samples will be split and analyzed by separate laboratories using EPA Method 8082. The results from these samples will be compared using the relative percent difference (RPD) measure for precision. The RPD is calculated as follows:

$$RPD = \frac{S - D}{\left(\frac{S + D}{2}\right)} * 100\% \quad (1)$$

Using equation 1, the RPD is calculated for S, the sample result, and D, the duplicate sample result. Samples may be re-evaluated if the RPD is greater than 20%.

RPD for spilt samples will be evaluated by collecting 5 split samples to be analyzed by two laboratories (likely B.C. Laboratories and ATL). The split samples will be sampled and analyzed using the same procedures and the numerical laboratory results (S and D in equation 1) will be used to evaluate the RPD for the split samples. This data allows for the evaluation of repeatability between samples and laboratories.

### 8.3 Duplicate Samples

A sample of each media sampled will be collected and split into aliquots and sent to the same laboratory. The results will be compared using the RPD measure for precision (equation 1). Samples may be re-evaluated if the RPD is greater than 20%.

## **9. CORRECTIVE ACTIONS**

### **9.1 General**

Overall, the data set will be considered valid if 80% of the data falls within laboratory-specified QA criteria, as well as the QC criteria specified in Section 8. Where possible, corrective actions will be taken to improve data quality based on QA/QC results. Corrective actions in the field relate to inspections of equipment, procedures, and field data. Corrective actions may also relate to laboratory analysis.

### **9.2 Soil Sampling Corrective Actions**

Corrective actions in the field may involve one or more of the following:

- decommissioning field equipment based on ineffectiveness, data review anomalies associated with the equipment, or signs of contamination; and
- re-sampling.

Corrective actions made in the field will be noted in the field logbook.

### **9.3 Laboratory Sample Receiving**

The laboratory will inspect the incoming samples to verify that they meet sample container and documentation requirements. The laboratory may request re-sampling if the samples are not received according to methods outlined in Section 5 of the RI Workplan.

### **9.4 Sample Holding Times**

The laboratory will notify the Project Engineer if samples exceed the holding times presented in Table 5-1, and the sampling locations may be re-sampled.

## **9.5 Instrument Calibration**

Sample results associated with calibrations that do meet the requirements of the method will not be reported by the laboratory. The instrument will be recalibrated and/or demonstrated prior to samples being reanalyzed.

## **9.6 Method QC**

Method QC procedures will meet requirements specified by the method or the DQO, or else be subject to corrective action by the laboratory.

## **9.7 Detection and Dilutions**

If detection limits or dilution factors prevent meeting the DQO, the laboratory will contact the Project Engineer. Re-analysis or resampling may be justified based on the DQO.

## **9.8 Data Interpretation**

During data review, the Project Engineer may encounter results that do not correlate well with expectations, with other results, and with results from other methods performed on the same samples. This may trigger inquiries to raw data, such as chromatograms, that are not normally provided with the results. If laboratory duplicates do not show acceptable precision, procedures and records will be reviewed. Resampling may be necessary if the data set falls below the 80% validated criteria.

## **9.9 Notification of Noncompliance**

The RI Report will contain a narrative discussing data review. The Project Engineer will inquire into problems associated with the data.

## **10. PREVENTATIVE MAINTENANCE**

### **10.1 General**

Preventative maintenance activities are performed in order to prevent loss of data due to malfunctions or delay. Critical functions are identified for field and laboratory purposes.

### **10.2 Field Activities**

Critical functions include:

- carrying extra sample containers; and
- having a backup plan for acquiring necessary items in case of malfunction (i.e., rental agencies for broken or malfunctioning equipment).

### **10.3 Laboratory Activities**

Critical functions are included in the laboratory QAPP, and may include:

- having emergency analytical equipment service capabilities;
- having backup instrumentation;
- using another certified laboratory; and/or
- following routine maintenance schedules.

## **11. DATA REDUCTION, VALIDATION, AND REPORTING**

The laboratory will review the data according to its QA/QC Plan and internal QAPP. The laboratory data will be reviewed by project personnel with respect to the DQO. Inquiries into the data may be made and the data will be analyzed according to this QAPP. The results provided by the laboratory that meet QA/QC review and satisfy the DQO for this project will be reported in the RI Report. Additionally, descriptions of rejected data or data quality issues will be included in the RI Report.

# **TABLES**

**TABLE 3-1  
 EXAMPLE LABORATORY DATA QA/QC CHECKLIST  
 FIELDSTONE PROPERTY  
 ORANGE COUNTY, CALIFORNIA**

**PCB Compounds - EPA Method 8082**

Lab Report #	Batch	Hold Times	Sample Condition	MB	LCS	LCSD	MS	MSD	Surrogates	Notes

notes:

- 1)
- 2)
- 3)

**TABLE 5-1  
SAMPLE HOLD TIME LIMITS  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**

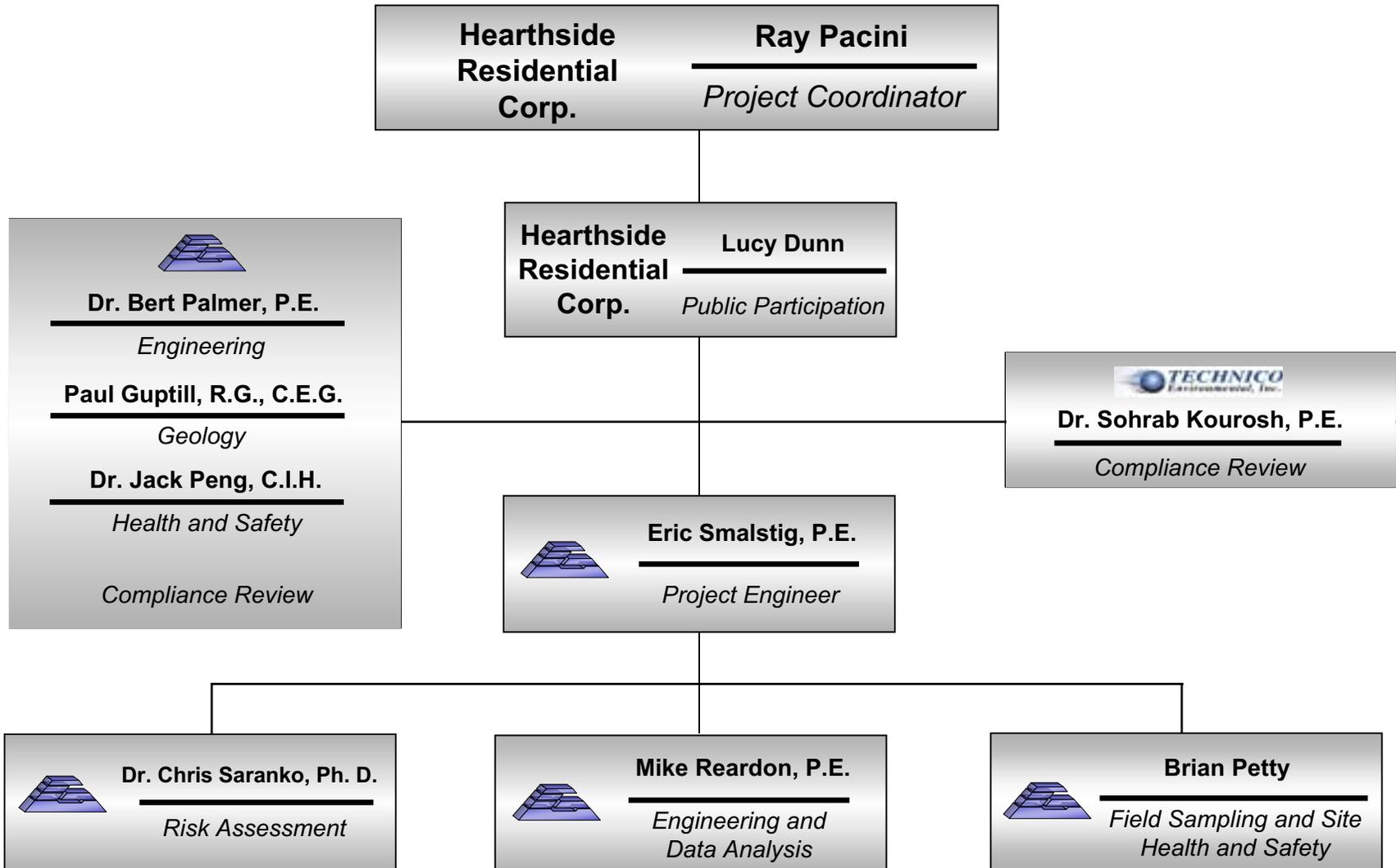
<b>TARGET ANALYTE</b>	<b>METHOD</b>	<b>MAXIMUM SAMPLE HOLD TIME</b>	<b>MAXIMUM SAMPLE EXTRACT HOLD TIME</b>
PCB	EPA 8082	14 days	40 days
PCB Congeners	EPA 1668A	14 days	40 days
Dioxins/ Furans	EPA 8280A	1 year	40 days
PAH	EPA 8310	14 days	40 days
Metals	EPA 6010B	6 months	NA
Metals (Mercury)	EPA 7000	28 days	NA

Notes:

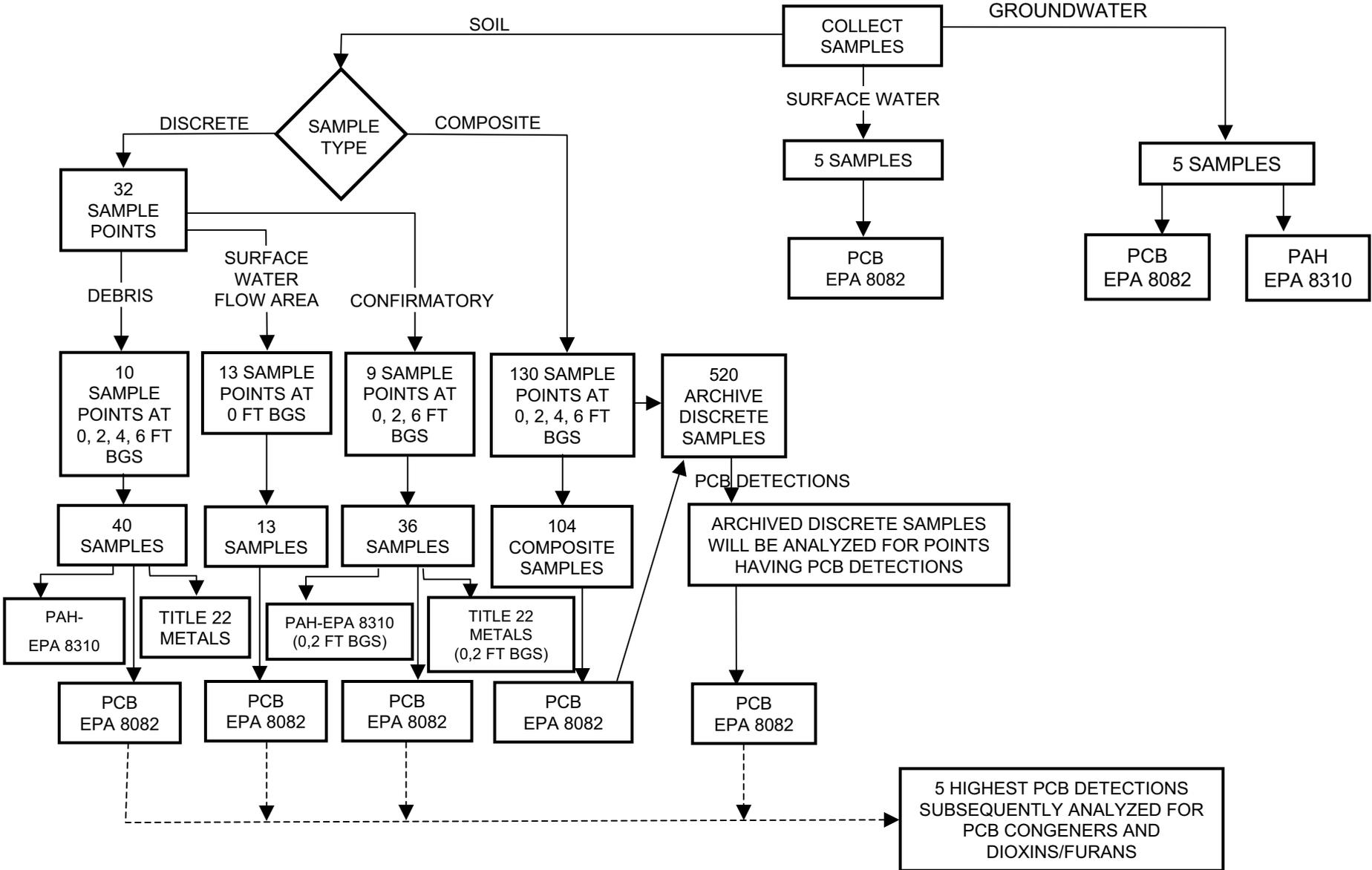
PCB – Polychlorinated Biphenyl  
PAH – Polycyclic Aromatic Hydrocarbons  
Metals – California Title 22 Metals  
NA – Not Applicable

# FIGURES

# Figure 2-1 Project Organization Chart Fieldstone Property Orange County, California



**FIGURE 2-2  
SAMPLE ANALYSES FLOWCHART  
FIELDSTONE PROPERTY  
ORANGE COUNTY, CALIFORNIA**



**APPENDIX E**

**OIL WELL ABANDONMENT DOCUMENTATION**

FORM 159

RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
DIVISION OF OIL AND GAS

REPORT OF WELL ABANDONMENT

Long Beach California

August 9, 1973

Mr. L. C. Graves, Agent  
SIGNAL OIL AND GAS COMPANY  
P.O. Box 191  
Huntington Beach, CA 92648

DEAR SIR:

Your report of abandonment of Well No. "~~North Boise~~" 75 (059-02605),  
Sec. 28, T. 38, R. 11W, S.B. B. & M., ~~Huntington Beach~~ field,  
~~Orange~~ County, dated July 10, 1973, received July 23, 1973,  
has been examined in conjunction with records filed in this office.

A review of the reports and records shows that the requirements of this Division,  
which are based on all information filed with it, have been fulfilled.

ADS:rf

cc - Conservation Comm.  
Orange County Dept. of Bldg. & Safety  
Dept. of Oil Field Control

JOHN F. MATTHEWS, JR.  
State Oil and Gas Supervisor

By *[Signature]*  
Deputy Supervisor

BLANKET BOND

059-02605  
DIVISION OF OIL AND GAS  
RECEIVED  
NOV 27 1946

STATE OF CALIFORNIA  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL AND GAS

Notice of Intention to Drill New Well  
This notice must be given and surety bond filed before drilling begins

LOS ANGELES, CALIFORNIA

AMINDIL USA, Inc.

\_\_\_\_\_ Calif. \_\_\_\_\_ 19\_\_\_\_

DIVISION OF OIL AND GAS

"NORTH BOLSA" 75

In compliance with Section 3203, Chapter 93, Statutes of 1939, notice is hereby given that it is our intention to commence the work of drilling well No. \_\_\_\_\_, Sec. \_\_\_\_\_, T. \_\_\_\_\_, *JLW*

R. \_\_\_\_\_, B. & M., \_\_\_\_\_ Field, \_\_\_\_\_ County.

Lease consists of \_\_\_\_\_

The well is \_\_\_\_\_ feet N. or S., and \_\_\_\_\_ feet E. or W. from \_\_\_\_\_  
(Give location in distance from section corners or other corners of legal subdivision)

The elevation of the derrick floor above sea level is \_\_\_\_\_ feet.  
ground

We estimate that the first productive oil or gas sand should be encountered at a depth of about \_\_\_\_\_ feet

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	Landed or Cemented

Well is to be drilled with rotary tools.  
cable

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing.

Address \_\_\_\_\_

(Name of Operator)

Telephone number \_\_\_\_\_

By *R. S. Johnston*

ADDRESS NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

MAP	MAP BOOK	CARDS	BOND	FORMS	
26 <i>JLW</i>	<i>JLW</i>	<i>encl</i>	<i>Encl</i>	114	121
				<i>encl</i>	<i>encl</i>

FORM 150

RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
DIVISION OF OIL AND GAS

REPORT OF WELL ABANDONMENT

----- Long Beach ----- California

----- September 26, 1973 -----

Mr. L. C. Graves, Agent  
-----  
SIGNAL OIL AND GAS COMPANY  
-----  
P.O. Box 191  
-----  
Huntington Beach, CA 92648  
-----

WATER-FLOOD PROJECT  
HUNTINGTON BEACH FIELD  
NORTH AREA  
LOWER ASHTON ZONE

DEAR SIR:

Your report of abandonment of Well No. "North Bolsa" 74-A (059-02604),  
Sec. 33, T. 5S, R. 11W, S.B. B. & M., Huntington Beach field,  
Orange County, dated 8/3/73, received 8/21/73,  
has been examined in conjunction with records filed in this office.

A review of the reports and records shows that the requirements of this Division,  
which are based on all information filed *with* it, have been fulfilled.

FOH:rf

cc-Conservation Comm.  
Dept. of Water Resources  
Regional Water Quality Control Board  
Project File  
H. G. Osborne

JOHN F. MATTHEWS, JR.  
State Oil and Gas Supervisor

BLANKET BOND

By W. L. Dugger / FOH  
Deputy Supervisor

CALIFORNIA STATE PRINTING OFFICE

STATE OF CALIFORNIA  
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

059-02604  
DIVISION OF OIL AND GAS  
RECEIVED  
02/12/03

Notice of Intention to Drill New Well

This notice must be given and surety bond filed before drilling begins.

ANIMOil USA, INC.

Los Angeles

Calif.

February 11, 1903

1903

DIVISION OF OIL AND GAS

Los Angeles

Calif.

"NORTH BOLSA" 74-A

In compliance with Section 3203, Chapter 93, Statutes of 1939, notice is hereby given that it is our intention to commence the work of drilling well No. "Regulation" 74-A, Sec. 28, T. 1 N., R. 11 W., S. 10 E., B. & M., Washington Beach Field, Orange County.

Lease consists of parts of Sections 17, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

The well is 225 feet N. or S., and 481 feet E. or W. from [location] (Give location in distance from section corners or other corners of legal subdivision)

The elevation of the ~~ground~~ <sup>derrick floor</sup> above sea level is 115 feet.

We estimate that the first productive oil or gas sand should be encountered at a depth of about 200 feet.

We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	Landed or Cemented
12 5/8"	41.00	Grade 1 Steel, Weld	200'	Cemented
8 5/8"	26.00	Grade 1 Steel, Weld	350'	Cemented
6 5/8" Heavy	26.00	Grade 1 Seamless	350'	Landed

Cementing and completion depths to be determined by electrical log.

Well is to be drilled with rotary tools.

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing.

Address: P. O. Box 5000 West, Sta. Los Angeles 33, California

Signal Oil and Gas Company (Name of Operator)

Telephone number MI - 6411

By D. S. Johnston, C.C.P.

ADDRESS NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

MAP	MAP BOOK	CARDS	BOND	FORMS	
				114	121
21.	10-27-44	encl	Endorsement 10-25-46	encl	encl

FORM 159

RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF CONSERVATION  
DIVISION OF OIL AND GAS

REPORT OF WELL ABANDONMENT

----- Long Beach ----- California

----- September 26, 1973 -----

Mr. L. C. Graves, Agent  
SIGNAL OIL AND GAS COMPANY  
P. O. Box 191  
Huntington Beach, CA 92648

DEAR SIR:

Your report of abandonment of Well No. "North Boise" 65-A (059-02344),  
Sec. 28, T. 5S, R. 11W, S.E. B. & M., Huntington Beach field,  
Orange County, dated 8/3/73, received 8/31/73,  
has been examined in conjunction with records filed in this office.

A review of the reports and records shows that the requirements of this Division,  
which are based on all information filed with it, have been fulfilled.

ADScrf

cc - Conservation Comm.  
Orange County Dept. of Bldg. & Safety  
Dept. of Oilfield Control

JOHN F. MATTHEWS, JR.  
State Oil and Gas Supervisor

BLANKET BOND

By W.A. Ferguson  
Deputy Supervisor

STATE OF CALIFORNIA  
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL AND GAS

Notice of Intention to Drill New Well  
This notice must be given and surety bond filed before drilling begins

059-02544

AMINOIL USA, INC.

Los Angeles Calif. April 10 19 45

DIVISION OF OIL AND GAS

Los Angeles Calif.

"NORTH BOLSA" 65-A

In compliance with Section 3203, Chapter 93, Statutes of 1939, notice is hereby given that it is our intention to commence the work of drilling well No. "Signal-Bolsa" 65-A, Sec. 28, T. 5 S. R. 11 W.

R. 11 W., S. B. B. & M., Huntington Beach Field, Orange County.

Lease consists of Parts of sections 27, 28, 29, 33 and 34; T. 5 S., R. 11 W.

The well is 4305 feet N. of ~~1/4~~ and 2910 feet E. of ~~1/4~~ W. from S.W. corner of Plot "C" (Standard-Bolsa Lease)

The elevation of the Kelly bushing above sea level is 17 feet.

We estimate that the first productive oil or gas sand should be encountered at a depth of about 3870 feet.

We propose to use the following strings of casing, either cementing or landing them as herein indicated:

Size of Casing, Inches	Weight, Lb. Per Foot	Grade and Type	Depth	Landed or Cemented
12 3/4	41.5#	Grade B Elec. Weld	600'	Cemented
8 5/8	32#	K-40 & J-55 Seamless	4605'	Cemented
6 5/8" liner	24#	J-55 Seamless	4855'	Landed

Cementing and completion depths to be determined by electrical log.

Well is to be drilled with rotary tools.

It is understood that if changes in this plan become necessary we are to notify you before cementing or landing casing.

Address: P.O. Box 5840, Metropolitan Station Los Angeles 55, California

SIGNAL OIL AND GAS COMPANY

(Name of Operator)

Telephone number Michigan 8311

By: *R. S. Johnston*

ADDRESS NOTICE TO DIVISION OF OIL AND GAS IN DISTRICT WHERE WELL IS LOCATED

MAP	MAP BOOK	CARDS	BOND	FORMS	
				114	121
26	10-16-44	17			

**Consent Order Compliance Checklist**  
**Docket No. HSA-CO 01/02-154**  
**Fieldstone Property**  
**Orange County, California**  
**(Updated 21 July 2003)**

DELIVERABLE NO.	ITEM	C.O. SECTION	COMPLIANCE DATE	SUBMITTAL DATE
1a	Identification of Project Coordinator	6.1	11 July 02	8 July 02
1b	Identification of Project Engineer	6.2	16 July 02	11 July 02
2	Remedial Investigation Workplan	5.2.2	31 July 02 *Rev. 1: 20 Feb 03 **Rev. 2: 23 May 03 *** Rev. 3: NA	31 July 02 *20 Feb 03 **23 May 03 ***21 July 03
2a	Project Management Plan	5.2.2 (a)	31 July 02	31 July 02 *20 Feb 03
2b	Health and Safety Plan	5.2.2 (e)	31 July 02	31 July 02 *20 Feb 03
2c	Quality Assurance Program Plan	5.2.2 (d)	31 July 02	31 July 02 **23 May 03
3	Public Participation Plan	5.8	----	10 Feb 03
4	Remedial Investigation Report	5.5	TBD	
5	Interim Screening and Evaluation Document	5.3	TBD	
6	Baseline Health and Ecological Risk Workplan		TBD	
7	Baseline Health and Ecological Risk Assessment	5.6	TBD	
8	Feasibility Study Workplan	5.2.2	TBD	
9	Feasibility Study Report	5.7	TBD	
10	Initial Study and Checklist	5.9	TBD	
11	Remedial Action Plan	5.10	TBD	
11a	Responsiveness Summary	5.10	TBD	
12	Remedial Design	5.11	TBD	
13	Implementation Report	5.13	TBD	
14	O&M Workplan	5.15	TBD	
<b>PERIODIC SUBMITTALS</b>				
MS-1	Monthly Summary Report	6.3	31 July 02	31 July 02
MS-2	Monthly Summary Report	6.3	15 Sep 02	10 Sep 02
MS-3	Monthly Summary Report	6.3	15 Oct 02	15 Oct 02
MS-4	Monthly Summary Report	6.3	15 Nov 02	15 Nov 02
MS-5	Monthly Summary Report	6.3	15 Dec 02	12 Dec 02
MS-6	Monthly Summary Report	6.3	15 Jan 03	13 Jan 03
MS-7	Monthly Summary Report	6.3	15 Feb 03	11 Feb 03
MS-8	Monthly Summary Report	6.3	15 Mar 03	6 Mar 03
MS-9	Monthly Summary Report	6.3	15 April 03	1 April 03
MS-10	Monthly Summary Report	6.3	15 May 03	13 May 03
MS-11	Monthly Summary Report	6.3	15 June 03	10 June 03
MS-12	Monthly Summary Report	6.3	15 July 03	7 July 03

TBD = To Be Determined based on review and implementation of RI Workplan.