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**Removal Action Workplan  
Slag and Slag-Impacted Soil  
Soil Operable Unit S-6  
Union Pacific Curtis Park Railyard  
Sacramento, California**

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**UNION PACIFIC RAILROAD YARD**  
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( Dames & Moore )

Mr. James A. Levy, P.E.  
Manager, Environmental Site Remediation  
Union Pacific Railroad Company  
1600 Vernon Street  
Roseville, CA 95678

Ms. Frances E. Anderson  
Chief, Sacramento Responsible Party Unit  
Region 1, Department of Toxic Substances Control  
California Environmental Protection Agency  
10151 Croydon Way, Suite 3  
Sacramento, CA 95827  
Attn: Fernando Amador, P.E., Project Manager

Ms. Wendy L. Cohen, P.E.  
Senior Water Resources Control Engineer  
Central Valley Regional Water Quality Control  
Board  
3443 Routier Road  
Sacramento, CA 95827-3098

Mr. Jimmie Yee  
Mayor, City of Sacramento  
915 I Street, Room 205  
Sacramento, CA 95814  
Attn: Mr. Chuck Dalldorf

Reference Librarian  
Sacramento City College Library  
3835 Freeport Blvd.  
Sacramento, CA 95822

Land Park Community Association  
P.O. Box 188285  
Sacramento, CA 95818

City Clerk's Office  
915 I Street, Room 304  
Sacramento, CA 95814

Ralph Propper  
2749 Donner Way  
Sacramento, CA 95818

Ms. Marion Moe  
Sierra Curtis Neighborhood Associates  
2535 Donner Way  
Sacramento, CA 95818

Reference Librarian  
Belle Coledge Library  
5600 South Land Park Drive  
Sacramento, CA 95822

Mr. Robert Bylsma  
Union Pacific Railroad Company  
10031 Foothills Blvd., Suite 200  
Roseville, CA 95747

Ms. Ava R. Langston-Kenney  
Senior Planner, Department of Planning and  
Development  
City of Sacramento  
1231 I Street, Room 300  
Sacramento, CA 95814

Ms. Lauren Hammond  
City Council Member  
City of Sacramento  
915 I Street, Room 205  
Sacramento, CA 95814

Mr. John Juhrend  
Geo-Con, Inc.  
7801 Folsom Blvd., Suite 220  
Sacramento, CA 95826

# Department of Toxic Substances Control

Edwin F. Lowry, Director  
10151 Croydon Way, Suite 3  
Sacramento, California 95827-2106



Gray Davis  
Governor

John H. Hickox  
Agency Secretary  
California Environmental  
Protection Agency

## ADMINISTRATIVE RECORD UNION PACIFIC RAILROAD CO. SACRAMENTO SITE REMOVAL ACTION WORKPLAN for SLAG REMOVAL

This Administrative Record List is provided in accordance with Subpart I of the National Contingency Plan to identify all documents that are relied on or considered when approving the subject removal action workplan. An information repository has been established at the Department file room to contain the documents constituting the Administrative Record. The information is available for review by appointment at:

Department of Toxic Substances Control, Region 1  
10151 Croydon Way, Suite 3  
Sacramento, California 95827  
(916)255-3758

### Administrative Record List:

- 11778491 National Contingency Plan, U.S. Environmental Protection Agency.
- 11778492 Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, U.S. Environmental Protection Agency, October 1988.
- 11778493 Health and Safety Code Chapter 6.8
- 4. Battelle, 1995, Draft Final Report, Determination of the Bioavailability of soluble Arsenic and Arsenic in Slag Following Oral Administration in Microswine, December.
- 5. Dames & Moore, 1988, Phase I Remedial Investigation/Feasibility Study Report, Union Pacific Railroad yard, Sacramento, California, May.
- 6. Dames & Moore, 1990, Baseline Health Risk Assessment, Appendix F of the Draft Remedial Investigation Report, Union Pacific Railroad, Sacramento Shops Yard, March.
- 7. Dames & Moore, 1991, Remedial Investigation/Feasibility Study Report, Union Pacific Railroad Yard, Sacramento, California, May.

8. Dames & Moore, 1991, Revised baseline Health Risk Assessment, Union Pacific Railroad Yard, Sacramento, California, October.
9. Dames & Moore, 1991, Addendum Remedial Investigation/Feasibility Study Report, Union Pacific Railroad Yard, Sacramento, California, November.
10. Dames & Moore, 1992, Feasibility Study Supplement, Union Pacific Railroad Yard, Sacramento, California, October.
11. Dames & Moore, 1995, Air Monitoring Report, Soil Operable Unit S-5, Union Pacific Railroad Yard, Sacramento, California, February.
12. Dames & Moore, 1995, Final Remedial Action Plan, Union Pacific Railroad Yard, Sacramento California, June.
13. Dames & Moore, 1999, Assessment of Additional PAH Soil Impacts, Union Pacific Railroad Company Sacramento (Curtis Park) Railyard, letter report dated March 12.
14. Sacramento Regional Transit District, 1997, Final Environmental Impact Statement/Final Subsequent Environmental Impact Report, February.
15. Union Pacific Railroad Co., October 29, 1999 correspondence, Proposal to create Operable Unit S-06 for Regional Transit District project.
16. Department of Toxic Substances Control, November 29, 1999 correspondence, Approval of proposal for creation of Operable Unit S-6.
17. 1999 State of California Law, Senate Bill 120, Chapter 395

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**REMOVAL ACTION WORKPLAN  
SLAG AND SLAG-IMPACTED SOIL  
SOIL OPERABLE UNIT S-6  
UNION PACIFIC CURTIS PARK RAILYARD  
SACRAMENTO, CALIFORNIA**

<b>Section</b>	<b>Page</b>
1.0 INTRODUCTION .....	1
1.1 PURPOSE OF THE REMOVAL ACTION WORKPLAN.....	1
1.2 BACKGROUND .....	1
1.3 INFORMATION PRESENTED IN THE REMOVAL ACTION WORKPLAN .....	2
2.0 SITE DESCRIPTION .....	3
2.1 PHYSICAL DESCRIPTION.....	3
2.1.1 Location and Site Physiography .....	3
2.1.2 Surrounding Land Use .....	3
2.1.3 Site Geology and Hydrogeology.....	4
2.2 SITE HISTORY.....	4
3.0 SUMMARY OF OU S-6 INVESTIGATION FINDINGS .....	5
3.1 ACTIVE RAILYARD SOIL INVESTIGATION - 1991 .....	5
3.2 AIR MONITORING - 1994 .....	5
3.3 SLAG BALLAST INVESTIGATION .....	6
3.4 SOIL INVESTIGATION - SRTD PASSENGER STATIONS .....	7
4.0 HEALTH RISK ASSESSMENT.....	9
5.0 PROPOSED FUTURE LAND USE .....	11
5.1 CURRENT AND FUTURE LAND USES OF OU S-6 .....	11
5.2 REMEDIAL ACTION OBJECTIVES.....	11
5.2.1 Light Rail Corridor .....	12
5.2.2 Passenger Stations.....	12
6.0 ENGINEERING EVALUATION/COST ANALYSIS.....	14
6.1 OBJECTIVE.....	14
6.2 ALTERNATIVES .....	14
6.2.1 Light Rail Corridor .....	14
6.2.2 Passenger Stations.....	15
6.3 CONCLUSIONS .....	16
7.0 REMOVAL ACTION.....	17
7.1 EXCAVATION BASIS .....	17
7.2 EXCAVATION PLAN .....	17
7.2.1 Pre-Excavation Activities .....	18
7.2.2 Excavation and Waste Handling Activities.....	19
7.2.3 Post Excavation Activities .....	22
7.2.4 Contingency Plan for Unanticipated Contamination .....	23

**REMOVAL ACTION WORKPLAN  
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SOIL OPERABLE UNIT S-6  
UNION PACIFIC CURTIS PARK RAILYARD  
SACRAMENTO, CALIFORNIA**

**Table of Contents (Continued)**

8.0 SCHEDULE.....	25
9.0 REFERENCES .....	26

**LIST OF TABLES, FIGURES, AND APPENDICES**

**TABLES**

TABLE 1 – HISTORICAL SOIL ANALYTICAL DATA – OU S-6
TABLE 2 – CALCULATED VOLUMES AND TONNAGES OF EXCAVATED MATERIAL – OU S-6
TABLE 3 – ANALYTICAL DATA SUMMARY – OU S-6
TABLE 4 – SCREENING OF REMEDIAL ALTERNATIVES – OU S-6

**FIGURES**

FIGURE 1 – SITE LOCATION MAP
FIGURE 2 - LOCATION OF OU S-6
FIGURE 3 – TYPICAL MAINLINE CROSS SECTION
FIGURE 4 – PASSENGER STATION AREAS/STOCKPILE AND LOADING AREA
FIGURE 5 – PASSENGER AREA SAMPLE LOCATION MAP
FIGURE 6 – PASSENGER STATION EXCAVATION AREA AND CONFIRMATION SAMPLE MAP

**APPENDICES**

APPENDIX A – LABORATORY DATA
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**1.0 INTRODUCTION**

This Removal Action Workplan (RAW) has been prepared at the request of the California Environmental Protection Agency, Department of Toxic Substance Control (DTSC) to address removal of slag and slag-impacted soil from soil operable unit (OU) S-6 at the Union Pacific Railroad Company's (UPRR) Curtis Park railyard in Sacramento, California. Slag as railroad track ballast and soil impacted with slag will be removed as part of the relocation of UPRR's mainline to accommodate construction of the Sacramento Regional Transit District's (SRTD) southline extension of light rail. UPRR will relocate their mainline approximately 40-feet to the east of its current alignment in the adjacent OU S-5.

**1.1 PURPOSE OF THE REMOVAL ACTION WORKPLAN**

The purpose of the RAW is to present the conceptual plan for removal of slag and slag-impacted soil from the portion of OU S-6 where UPRR will be decommissioning their current mainline track and SRTD will be constructing their light rail track and passenger stations. The RAW also includes a summary of surface and subsurface investigation information and data for OU S-6, which has been used to develop the slag and soil removal plan.

**1.2 BACKGROUND**

Preparation of this RAW followed, and was based on, the outcome of three preceding activities or actions necessary to enable the removal action to be performed in the Curtis Park railyard in a timely manner. These activities or actions included:

- Creation of a new and separate soil operable unit (OU S-6) out of the original OU S-5 (the portion of the Curtis Park railyard containing the active switching yard and mainline track);
- Development of an estimate of the volume of slag and slag-impacted soil to be removed from OU S-6 per the agreement with SRTD; and
- Collection and analysis of data regarding potential impacts to surface and subsurface soil from railroad activities in areas of OU S-6 where future land use would be something other than the land use specified in the Remedial Action Plan (RAP) for OU S-5 (Dames & Moore, 1995b).

Creation of OU S-6 was requested in a letter from UPRR to DTSC dated October 29, 1999. The letter stated that creation of OU S-6 would facilitate the expedient remediation and certification of

this portion of the site and would allow SRTD to proceed with the development of the southline light rail extension. The DTSC approved the request and created OU S-6 in a letter to UPRR dated November 29, 1999.

In March 1999, Dames & Moore performed a reconnaissance of approximately six miles of UPRR's right-of-way (ROW) between R Street in midtown Sacramento and Meadowview Road in south Sacramento. The objective of this reconnaissance was to map the lateral and vertical extent of slag and slag-impacted soil in the portion of the ROW where UPRR's mainline would have to be relocated to facilitate construction of SRTD's light rail tracks. This information was used to develop an estimate of the volume of slag and slag-impacted soil that would have to be removed prior to construction of SRTD's track. The estimated volume of slag and slag-impacted soil to be removed from OU S-6 was derived from the total estimated slag volume for the entire SRTD acquisition.

This RAW presents chemical analysis data collected to assess impacts to soil for portions of OU S-6 where future land use will be different from the current land use in OU S-5. Two specific areas of OU S-6 will be developed as passenger stations for light rail and as such constitute a different land use than the remainder of OU S-6. In these areas concentrations of constituents of concern must meet the clean up objectives of the RAP. This data and its effect on future land use in OU S-6 is discussed in Section 5.0.

### **1.3 INFORMATION PRESENTED IN THE REMOVAL ACTION WORKPLAN**

In addition to this introduction, the RAW includes the following sections: Section 2.0 provides a description of the project site including the physical characteristics of the site and pertinent site history. Section 3.0 summarizes the findings of investigation of surface and subsurface soil in OU S-6. Section 4.0 presents a summary of the Health Risk Assessment for the railyard and discusses how the findings of that risk assessment and other toxicological studies apply to OU S-6. Section 5.0 discusses the current and future land uses in OU S-6, the remedial action objectives for OU S-6, and the effects of contamination in soil on future land use in OU S-6. Section 6.0 presents an Engineer's Evaluation/Cost Analysis for the remedial alternatives that were considered for implementation in OU S-6. Section 7.0 presents the conceptual excavation plan for slag removal in OU S-6 and Section 8.0 presents a proposed schedule. References are provided in Section 9.0.



## 2.0 SITE DESCRIPTION

This section provides a brief description of the physical characteristics of the site and pertinent historical information regarding site operations and activities. Detailed descriptions of the physical characteristics of the site and site history can be found in the Remedial Investigation/Feasibility Study (RI/FS) Report (Dames & Moore, 1988, 1991a), the Addendum RI/FS Report (Dames & Moore, 1991c), and the RAP (Dames & Moore, 1995b). Previous investigation activities are also described.

### 2.1 PHYSICAL DESCRIPTION

#### *2.1.1 Location and Site Physiography*

The Curtis Park Rail yard (including OU S-6) is located at 3675 West Pacific Avenue in Sacramento, California (Figure 1). The rail yard in its entirety encompasses approximately 94-acres. The rail yard is divided into a 31-acre active railcar switching yard (formerly designated as OU S-5) which comprises the western third of the property and an inactive yard of approximately 63-acres which comprises the eastern two-thirds of the property. The active rail yard contains the main track line along the west side of the yard and several sidings.

The portion of the active yard being acquired by SRTD for construction of the southline extension of light rail encompasses 6.738 acres of the western portion of the active rail yard and includes the current UPRR mainline. This portion of the active rail yard is what is now designated as OU S-6 (Figure 2).

The ground surface of OU S-6, like the rest of the rail yard, is relatively flat-lying with an elevation of approximately 25 feet above mean sea level. No structures or facilities other than the mainline and one unused siding are present in OU S-6.

#### *2.1.2 Surrounding Land Use*

The rail yard is located approximately one mile south of downtown Sacramento in a predominantly residential area of Sacramento. OU S-6 is surrounded by the following land uses:

- Sacramento City College is adjacent to the southwest side of OU S-6;
- residential development is adjacent to the west side of OU S-6 north of Sacramento City College;
- commercial development is adjacent to a small portion of the northwestern side of OU S-6;
- the active switching yard (OU S-5) is adjacent to the entire eastern side of OU S-6, and
- the northern and southern ends of OU S-6 terminate at the northern and southern ends of the Curtis Park rail yard.

### **2.1.3 Site Geology and Hydrogeology**

Historically, fill soil was placed on much of the Curtis Park railyard including the mainline and switching yard areas in order for the surface grade of the railyard property to be made relatively flat. The thickness of the fill ranges from approximately 1-foot in the southern portion of the site to upwards of 10-feet in the northwestern and north central portion of the. The nature of the fill material is described in the RI/FS Report, Addendum RI/FS Report, FS Supplement, and the RAP (Dames & Moore, 1991a, 1991b, 1992, and 1995b, respectively). Fill soil typically is a dark brown sandy silt/silty sand with minor clay and gravel. In OU S-6 the fill soil is overlain by railroad track ballast to a maximum thickness of approximately two feet.

Native soil beneath the fill is described in detail in several reports including the RI/FS Report (Dames & Moore, 1991a) and is generally described as silty clay grading to silty fine sand grading to fine sand in the first hydrostratigraphic zone (HSZ) or the saturated zone. The depth to the water table, or top of the first HSZ varies seasonally, but is approximately 25 to 30-feet below ground surface (bgs) in most onsite wells. A cemented soil layer referred to as a "hardpan" is commonly encountered in shallow native soil at a depth of approximately three to five feet bgs.

## **2.2 SITE HISTORY**

The Western Pacific Railroad established a railroad maintenance yard at the Curtis Park location in the early 1900s. The railyard was used to maintain and rebuild steam locomotives and boilers, refurbish rail cars, and assemble trains. UPRR purchased the operations in 1982, but discontinued maintenance yard operations at the site in 1983. Remaining buildings and structures in the maintenance yard were demolished by UPRR in 1985 and 1986. UPRR still maintains the mainline and switching yard operation in the active yard (OU S-6 and OU S-5, respectively).

Based on review of aerial photographs, the area of OU S-6 appears to have always been used for either a mainline or sidings. No structures are visible in the area of OU S-6 on any of the historical aerial photographs. The location of the mainline in the active railyard appears to have changed sometime between 1972 and 1976. In aerial photos from 1972 and earlier the mainline was located approximately 70-feet east of its current location, which is outside the boundaries of OU S-6. At that time the area of OU S-6 was occupied by several siding tracks.

### 3.0 SUMMARY OF OU S-6 INVESTIGATION FINDINGS

This section briefly describes the investigation of surface and subsurface soil and air monitoring performed in OU S-6 and summarizes the results of these investigations.

Previous site investigation included an evaluation of slag and soil in the active railyard as part of the remedial investigation during December 1991 and air monitoring in the active railyard in 1994. More recently, soil samples were collected and analyzed from the portions of OU S-6 where passenger stations are planned to be constructed. The results of these investigations are summarized below.

No investigation of groundwater has been performed in OU S-6 as no potential sources of impacts were identified in this part of the site and OU S-6 is cross to upgradient from the remainder of the site.

#### 3.1 ACTIVE RAILYARD SOIL INVESTIGATION - 1991

A total of nine locations in or near OU S-6 (OU S-5 at that time) were sampled in December 1991 (Dames & Moore, 1992). Samples were collected from surface materials (slag and/or soil) and subsurface soil and analyzed for total metals, purgeable hydrocarbons, and diesel range petroleum hydrocarbons. The results of these analyses are summarized in Table 1. As shown on Table 1, only two elevated detections of arsenic and one elevated detection of lead were reported. The two elevated detections of arsenic were for samples of surface or shallow soil. No detections of purgeable hydrocarbons or diesel range petroleum hydrocarbons were reported.

#### 3.2 AIR MONITORING - 1994

An air monitoring study was performed in the active railyard in 1994 (Dames & Moore, 1995a). The study was requested by the DTSC to evaluate airborne concentrations of particulates, arsenic, and lead due to normal railyard traffic (trains and other surface vehicles). Five locations around the perimeter of the railyard and one background location were monitored three times over a four month period from August through December 1994. The background station was located on top of Hughes Stadium at Sacramento City College west (and generally upwind) of the railyard. Wind direction and speed were also monitored during the study.

Particulate concentrations around the railyard perimeter ranged from a low of 2.2 micrograms per cubic meter ( $\text{ug}/\text{m}^3$ ) to a high of 165.9  $\text{ug}/\text{m}^3$ . Particulate concentrations for the background station ranged from 21.8 to 110.7  $\text{ug}/\text{m}^3$ . Some of the particulate concentrations exceeded state and federal standards for respirable particulate matter ( $\text{PM}_{10}$ ) of 50 and 150  $\text{ug}/\text{m}^3$ , respectively.

Arsenic concentrations were all reported as non-detect (ND) except for one background sample collected in the third round (12/94), which had an arsenic concentration of 0.0053 ug/m<sup>3</sup> and one of the railyard perimeter stations, also collected in the third round, which had an arsenic concentration of 0.0044 ug/m<sup>3</sup>. There is no promulgated air quality standard for arsenic.

Lead was reported in each railyard perimeter sample collected ranging from 0.008 to 0.0344 ug/m<sup>3</sup>. Lead was also reported for each background sample ranging from 0.008 to 0.02 ug/m<sup>3</sup>. All reported lead concentrations were significantly lower than the ambient air quality standard of 1.5 ug/m<sup>3</sup>.

### 3.3 SLAG BALLAST INVESTIGATION

As a part of the real estate transaction due diligence activities, OU S-6 was visually inspected for the presence of slag ballast. Ballast is the layer of rock that is laid down under track structures to provide drainage and structural support for the tracks. The slag at the Curtis Park railyard is a by-product of copper-ore smelting and is a source of metals including arsenic and lead. Slag ballast at the UPRR Curtis Park Railyard is actually a mixture of slag and natural rock ballast with the percentage of slag in the mixture ranging from 5 to 80% slag.

During the slag ballast investigation the lateral and vertical extent of slag in OU S-6 was assessed. Except for a very small segment at the northern end of OU S-6, slag ballast was observed to be present over the entire area of OU S-6. The vertical extent of slag was assessed in several locations by digging through to the base of the slag. The observations from the investigation and how they were used to develop the estimated volume of slag to be removed are discussed in the following paragraphs.

A typical rail line cross-section for the UPRR ROW based on the slag ballast investigation is shown on Figure 3. The cross-section identifies three types of materials that will be removed as part of the excavation activities: the slag ballast (D1 and D2), the collateral soil (D3), and the addendum soil (shown as 0.66 or 2/3-foot thick). The thickness of slag ballast under the tracks was observed to be 2 to 8-inches and the thickness of the slag ballast to the sides of the tracks was typically 0 to 2-inches. Collateral soil is the thin layer of soil (1 to 3-inches) immediately beneath the slag ballast that will be removed when the slag ballast is scraped off the ground. Addendum soil is defined as the 2/3-foot deep by 15-foot wide layer of soil that underlies ballast directly beneath the tracks. Together, these materials are collectively referred to as slag and slag-impacted soil.

Based on the areal extent of the slag in OU S-6 and the thickness of the slag ballast, collateral and addendum soil, approximately 7,600 cy or 10,500 tons of excavated material is estimated to be generated by the removal activities (Table 2). The volume actually removed may vary based on

variations in the thickness of the slag ballast. The basis for the volume of slag and slag-impacted soil to be removed is discussed in Section 7.0.

### **3.4 SOIL INVESTIGATION – SRTD PASSENGER STATIONS**

Two areas within OU S-6 are planned for construction of passenger loading and unloading stations. One passenger station, the City College Station, will be located in the southern portion of OU S-6 adjacent to Sacramento City College and the other, the 21<sup>st</sup> Street Station, will be partially located within the northern end of OU S-6 (Figure 4).

The planned use of these areas as passenger loading and unloading stations, constitutes a different land use than the rest of OU S-6, which will continue to be used for rail traffic only. A discussion of land uses in OU S-6 and OU S-5 and the effects of contamination on them is provided in Section 5.0. Given that the land use in the passenger station areas is different than the rest of OU S-6, concentrations of constituents of concern (arsenic, lead, polynuclear aromatic hydrocarbons (PAHs), and total petroleum hydrocarbons (TPH)) in soil in these two areas must meet the remedial action objectives (RAOs) for restricted land use as specified in the RAP for the Curtis Park railyard (Dames & Moore, 1995b). The remainder of OU S-6 is not subject to the RAOs as long as the land use does not change.

In order to assess concentrations of constituents of concern (COCs) in soil in these areas, soil samples were collected from these areas and analyzed for the COCs. Soil samples were collected from six locations within the area designated for the City College station and three were collected from the 21<sup>st</sup> Street station location (Figure 5). Fewer locations were sampled in the 21<sup>st</sup> Street station area because only a portion of this station will lie within OU S-6. Most of this station will be outside and north of OU S-6. Selection of sampling locations was limited by the presence of fiber optic cables on both sides of the main line, other subsurface utilities, and a required minimum set back for work of 10-feet from active track.

In each sampling location soil samples were collected from three or four depth intervals (approximately 1, 3, 4 and 9 feet bgs). Samples of slag or other surface materials overlying shallow soil were not sampled as this material is planned for removal from OU S-6 regardless of the concentrations of COCs. A total of 30 soil samples were submitted to analytical laboratories for chemical analysis including:

- Arsenic and lead by EPA Method 6010B;
- PAHs by EPA Method 8270; and
- TPH by EPA Method 8015M (extractable).

Results of the above analyses are presented on Table 3. As shown on Table 3, the majority of samples analyzed for PAHs had no reported detections of PAHs. Total carcinogenic PAH concentrations exceeded the RAO of 0.042 mg/kg in only four samples (STNCC-03-1.0, STNCC-05-2.0, STNCC-05-4.0, and STN21-02-1.0) and arsenic concentrations exceeded the restricted RAO of 55 mg/kg in only seven samples (STNCC-01-1.0, STNCC-02-1.0, STNCC-03-1.0, STNCC-06-1.0, STN21-01-1.0, STN21-01-3.0, and STN21-02-1.0). With the exception of sample location STN21-01-3.0, all of the arsenic concentrations exceeding RAOs were in the upper one foot of soil. None of the reported lead concentrations exceeded applicable RAOs.

Six relatively low detections of TPH were reported (five were reported as motor oil and one as diesel). None of these detections exceeded the RAOs for TPH. Laboratory reports are included in Appendix A.

Based on these results it is anticipated that soil will have to be excavated in these areas in addition to the amount already planned for removal of slag in order to achieve the RAOs for carcinogenic PAHs and arsenic.

It is anticipated that soil confirmation samples will be collected if additional excavation is required to remove soil exceeding RAOs in the passenger station areas. Soil confirmation samples will be analyzed for the COCs to verify that the RAOs have been achieved for each excavation. A Sampling and Analysis Plan (SAP) describing confirmation sample collection, chemical analysis, and data evaluation procedures is included in Section 7.2.2. Stockpile management, transportation, and soil disposal are also discussed in Section 7.2.2. Detailed plans for these activities will be included in the forthcoming design report for slag removal.

#### 4.0 HEALTH RISK ASSESSMENT

Health risks for the entire Curtis Park railyard were evaluated by a Health Risk Assessment (HRA) (Dames & Moore, 1990 and 1991b) and were summarized in the RAP (Dames & Moore, 1995b). The exposure scenarios and possible exposure pathways evaluated during the risk assessment that could apply to potential receptors in OU S-6 (evaluated as part of OU S-5 in the RAP) are dermal contact with contaminated soil and inhalation of contaminated dust. Given the land use of OU S-6 once the light rail line is constructed and in operation, dermal contact with contaminated soil is less likely than inhalation of contaminated dust.

Assumptions for exposure frequency, duration, and time were made during the risk assessment in order to estimate health risks. These assumptions were applied to two categories of onsite receptors – full time residents (adult and child) and trespassers, which are short-term site occupants. These two receptor categories are also adequate to evaluate the two proposed land uses in OU S-6: rail corridor and passenger station construction and use.

The majority of OU S-6 will remain in use as a rail corridor. The only difference from the current use of the rail corridor is that there will be passenger traffic instead of freight traffic. This shift does not constitute a change in any of the exposure assumptions for the rail corridor. Therefore, there is no increased risk to human health.

There will be two potential receptors at the passenger stations that need to be evaluated: construction workers and light rail passengers. Both of these potential receptors have limited exposure duration. The construction worker will only be exposed during the initial stages of the passenger station construction. The passengers exposure would be limited to the brief periods during which they are waiting for and exiting from trains. In addition, because the station areas will be paved, there may be no direct exposure at all.

Given this, these exposures could conservatively be considered similar to the short-term receptor (trespasser) scenario used in the HRA. The assumptions for the frequency, duration, and time of exposure for a trespasser were 104 days per year for frequency; 8 years for duration, and 8 hours per day for exposure time). These assumptions, particularly the 8-hours per day of exposure are likely very conservative.

Based on the assumptions for a short-term receptor, the estimated lifetime cancer risk due to exposure to the chemicals with the highest contribution to cumulative cancer risks (arsenic and carcinogenic PAHs) was calculated in the HRA to be  $9 \times 10^{-6}$ .

It should be noted that site activities are not believed to be the only source of arsenic in soil at the site. Average background concentrations of arsenic in soil in the area of the site (approximately 8 mg/kg) represent a lifetime cancer risk of two in ten thousand ( $2 \times 10^{-4}$ ). Additionally, the primary source of arsenic due to site activities is slag. Metals in slag are bound tightly within the slag matrix and therefore are not readily separated from the slag (Walsh & Associates, 1992). Additional studies have shown that the arsenic in slag has no bioavailability (Battelle, 1995). This lack of bioavailability was not accounted for in the HRA, and the potential health risk from exposure to arsenic in slag may therefore have been overestimated by a factor of four (Dames & Moore, 1991b).



## 5.0 PROPOSED FUTURE LAND USE

This section presents a discussion of future land uses in OU S-6, the applicability of RAOs in the RAP to OU S-6, and the potential effects of soil contamination in OU S-6 on land uses in OU S-6.

### 5.1 CURRENT AND FUTURE LAND USES OF OU S-6

The current land use in OU S-6 is defined as railroad transportation along UPRR's mainline. No other land uses presently exist in OU S-6. With the construction and operation of SRTD's southline light rail extension, future land use for OU S-6 is planned to remain basically the same as it is today. The only anticipated change in future land use will be passenger loading and unloading in the two stations within OU S-6 as discussed in Section 4.0. The passenger stations fall under the general land use category described in the RAP as "restricted land use". The RAP presents the DTSC's description of restricted land use as follows:

*"mixed-use (non-residential) with a permanent deed restriction to prevent future land uses other than those specified and improper future excavation and disposal of contaminated materials. Clean-up levels (RAOs) should be based on conservative exposure scenarios and the land should be developed to prevent exposure to residual contaminated materials. This would be achieved through a combination of buildings, pavement, and controlled landscaping to cover the impacted soil."*

Though the land use in the active railyard (OU S-5) is by definition a restricted use, the RAP specifically excludes the active railyard from clean up to meet the RAOs for restricted land use due to UPRR's plan to indefinitely maintain the land use as industrial. Therefore, the light rail corridor portion of OU S-6 is also exempt from meeting restricted land use RAOs. Only the portions of OU S-6 planned for use as passenger stations must meet restricted land use RAOs for the constituents of concern. The RAOs are discussed in Section 5.2.

### 5.2 REMEDIAL ACTION OBJECTIVES

The RAOs for the COCs in soil applicable to OU S-6 are listed in the following table.

**Remedial Action Objectives  
Union Pacific Curtis Park Railyard  
Sacramento, California**

Constituent	Remedial Action Objective Restricted Land Use (mg/kg)	Remedial Action Objective Unrestricted Land Use (mg/kg)
Arsenic	55	8
Lead	950	220
PAHs (total carcinogenic)	0.042	0.042
PAHs (total non-carcinogenic)	100	100
TPH (diesel or gasoline)	1,000	1,000
BTEX	B=0.3, T=0.3, E=1.0, X=1.0	B=0.3, T=0.3, E=1.0, X=1.0

As discussed in Section 3.3, only the RAOs for arsenic and carcinogenic PAHs were exceeded in soil samples collected from the passenger station areas.

#### **5.2.1 Light Rail Corridor**

The existing soil contamination in OU S-6 (primarily arsenic and PAHs) is anticipated to have no effect on the future land use of OU S-6 as a light rail line. This is due primarily to the fact that light rail does not constitute a change in land use from the current land use and therefore does not necessitate clean-up to meet restricted RAOs. In addition, after slag and the 2/3-foot of addendum soil have been removed, new, non-slag ballast material will be placed over soil, which will effectively cover any residual contamination in shallow soil. This approach is more conservative than the plan for OU S-5 in the RAP. The RAP states that slag in OU S-5 will not be removed, but only covered as part of ongoing operations and maintenance of OU S-5. Slag removal along the mainline in OU S-6 is discussed further in Section 6.0.

#### **5.2.2 Passenger Stations**

The existing soil contamination in OU S-6 would have an effect on future land use in the portions of OU S-6 where the passenger stations will be located due to the presence of arsenic and PAHs at levels exceeding restricted RAOs. The recent soil sampling data indicate that arsenic and PAHs are present in concentrations exceeding the restricted use RAOs primarily in the upper one foot of soil in the areas proposed for the passenger station construction. In one location PAHs were present to 4-feet bgs (Table 3). The estimated volume of soil that exceeds the restricted use RAOs in the passenger station areas is approximately 1200 cubic yards (yds<sup>3</sup>) based on an anticipated excavation depth of 1.5 feet. Further discussion of excavation activities is provided in Section 7.2.2.

The sampling data also indicates that arsenic is present in concentrations exceeding the unrestricted use RAO across the entire area of both proposed passenger stations to depths as great as 9-feet bgs. The lead concentration in one City College station sample also exceeded the unrestricted use RAO.

## 6.0 ENGINEERING EVALUATION/COST ANALYSIS

This section presents an Engineering Evaluation/Cost Analysis (EE/CA) for remedial alternatives to address slag and slag-impacted soil in OU S-6. Alternatives were evaluated separately for both the light rail corridor portion of OU S-6 as well as the two areas proposed for construction of passenger stations.

### 6.1 OBJECTIVE

The objective of the EE/CA is to use information obtained from previous and follow-up investigations in OU S-6 in conjunction with an understanding of applicable remedial technologies to establish potentially feasible alternatives. These alternatives are then screened against the three following criteria as specified in the National Contingency Plan (NCP):

- Effectiveness;
- Implementability; and
- Cost.

In the screening exercise, each alternative is rated (poor, fair, good, excellent) under each of the three criteria. Based on the results of this screening, the alternative with the highest overall rating may be selected. However, another appropriate alternative may be selected as long as the applicable health protection requirements are still met.

### 6.2 ALTERNATIVES

This section briefly describes remedial alternatives for OU S-6. Alternatives for both the light rail corridor portion of OU S-6 and the areas proposed for construction of passenger stations were evaluated. The rating of each alternative with regard to the three criteria is presented in Table 4.

#### 6.2.1 *Light Rail Corridor*

The alternatives considered for the light rail corridor include:

- No action;
- RAP alternative for the active railyard (OU S-5) with institutional controls (deed restriction); and
- Removal of visible slag and slag-impacted soil.

The no action alternative for OU S-6 would provide for no future cover of slag in OU S-6. However, the effectiveness of this alternative would be good in that, as stated in the RAP, the concentrations of metals detected in soil in OU S-5 do not exceed the calculated risk-based allowable exposure concentrations. This is conservative in that exposure point concentrations were calculated without considering the low bioavailability of metals in slag. The implementability of this alternative is excellent by default. However, this alternative would not likely be acceptable to SRTD or DTSC. There are no costs associated with this alternative. Based on the lack of acceptance by SRTD or DTSC, this alternative was rejected.

The RAP alternative for the portion of OU S-5 which is now OU S-6 consists of periodic reballasting of track with rock (non-slag) ballast as part of ongoing railyard operation and maintenance. The effectiveness of this alternative is similar to the no action alternative until slag is eventually covered by reballasting with rock at which time the effectiveness is further improved. The implementability of this alternative is good in that it is achieved by ongoing O&M of tracks in the railyard. The alternative is already accepted by the DTSC, but is not likely to be accepted by SRTD. This alternative has no cost beyond that which will be expended by UPRR for normal track O&M. Though acceptable to the DTSC, this alternative was rejected based on SRTD's anticipated lack of acceptance.

The alternative consisting of removal of visible slag and slag-impacted soil as part of the relocation of UPRR's mainline prior to construction of SRTD's light rail provides greater effectiveness than either of the above alternatives because of the removal of the source of arsenic and lead. Any remaining impacted soil would be covered by new rock ballast by SRTD during construction of light rail thereby eliminating potential exposure to remaining concentrations. The implementability of this alternative is rated as fair due to the extensive removal action that will be required. The estimated cost of this alternative is approximately \$150,000 to remove slag and slag-impacted soil, transport it to the designated stockpile area in the Curtis Park railyard, and stockpile the soil. This alternative was retained as the accepted alternative.

#### ***6.2.2 Passenger Stations***

The alternatives considered for the passenger station areas include:

- No action;
- Removal of slag and slag-impacted soil to meet restricted use RAOs; and
- Removal of slag and slag-impacted soil to meet unrestricted use RAOs.

The no action alternative is the same as described for the light rail corridor. No slag or soil would be removed and therefore restricted use RAOs would not be achieved. The effectiveness of this alternative, though the RAOs would not be achieved, would be good due to the covering of impacts by the station. The implementability is rated as excellent by default though this alternative would not be acceptable to the DTSC as it would not be consistent with the RAP. There are no costs associated with the no action alternative therefore the cost criteria is rated as excellent. The no action alternative was rejected due to its anticipated lack of acceptance by DTSC.

Removal of slag and slag-impacted soil to meet restricted use RAOs as specified in the RAP would consist of the same removal of slag and slag-impacted soil as planned for the light rail corridor. However, based on the results of soil investigation performed in the passenger station areas, some additional soil may also need to be removed beneath the footprint of the stations to meet the restricted use RAOs. Confirmation sampling and analysis of soil following removal of

additional soil would be necessary to demonstrate that the RAOs had been attained. If the results of confirmation sample analysis demonstrate that the RAOs were not met by the additional excavation, then the excavation may have to be deepened further. For purposes of estimating costs to perform additional excavation to meet restricted use RAOs, an excavation depth of 1.5 feet beneath slag was assumed. The area and estimated volume of soil to be removed initially are discussed in Section 7.0. The effectiveness of this alternative is rated as good as it is consistent with the RAP and is anticipated to be acceptable to both SRTD and the DTSC. The cost of additional excavation to meet restricted RAOs is estimated to be approximately \$40,000. In addition to removal, transport, and stockpiling, this cost includes confirmation sampling and analysis and reporting. This alternative was retained as the accepted alternative as it meets the requirements of the RAP.

Removal of slag and slag-impacted soil to meet unrestricted use RAOs as specified in the RAP would consist of the same process described for restricted use RAOs. However, to attain unrestricted use RAOs, it is anticipated that soil removal in the passenger station areas may need to extend deeper. For purposes of estimating costs to perform additional excavation, an excavation depth of 3 feet was assumed. The area and estimated volume of soil to be removed initially are discussed in Section 7.0. The effectiveness of this alternative is rated as good to excellent as the greatest level of protection of human health is provided by meeting unrestricted RAOs in soil. The implementability is downgraded due to the anticipated additional soil excavation to meet unrestricted RAOs. The estimated cost of this alternative is approximately \$67,000. This alternative was rejected as the additional expenditure to attain unrestricted RAOs is not warranted given the type of land use in the passenger stations.

### 6.3 CONCLUSIONS

Based on the rating of each alternative as discussed in Section 6.2 and as shown on Table 4, removal of slag and slag-impacted soil is the selected alternative for the light rail corridor. The selected alternative for the passenger station areas is removal of slag and slag-impacted soil as proposed for the corridor, plus additional excavation of soil beneath the footprint of the stations as necessary to achieve the restricted use RAOs in soil.

## 7.0 REMOVAL ACTION

This section presents the conceptual removal action plan for slag and slag-impacted soil in OU S-6. The basis for the plan is presented, followed by a description of pre-removal, removal, and post-removal activities. Also included is a discussion of contingency plans for dealing with unanticipated areas of contamination, if encountered. Soil removal both along the light rail corridor and in passenger station areas is discussed.

### 7.1 EXCAVATION BASIS

The basis for the approach to excavation activities was developed through consideration of:

- 1) the agreement between SRTD and UPRR to remove slag and slag-impacted soil from the ROW,
- 2) existing soil analytical data,
- 3) the physical constraints on the work, and
- 4) public health and safety.

The agreement between SRTD and UPRR is that visible slag, a thin 2 to 3-inch thick layer of collateral soil beneath slag, and an additional amount of soil (addendum soil) beneath the slag approximately 2/3-foot thick and 15 feet wide will be removed from the portion of the ROW being purchased by SRTD. Based on the areal extent of the slag in OU S-6 and the thickness of the slag ballast, collateral and addendum soil, approximately 7,600 cy or 10,500 tons of excavated material is estimated to be generated by the removal activities. The volume and tonnage calculations for slag and slag-impacted soil to be removed in OU S-6 are presented in Table 2.

The soil analytical data was used to characterize soil in the passenger station areas with respect to the RAOs. Physical constraints include such things as the location of subsurface utilities and available stockpile areas, both in the ROW and in the Curtis Park railyard. Public health and safety concerns consist primarily of limiting airborne emissions during construction activities. A summary of the basis for excavation with these factors in mind is presented below.

As discussed in Section 5.0, activities proposed by this RAW will be conducted along UPRR's mainline in the active railyard. For purposes of this work a new operable unit, OU S-6, was created for the portion of the former OU S-5 that is being purchased by SRTD. As stated in the RAP, the active railyard is not subject to restricted land use RAOs unless the land use changes. Therefore, the only areas currently planned to meet the RAOs are the passenger station areas.

### 7.2 EXCAVATION PLAN

This section describes the pre-excavation, excavation, and post-excavation activities that will be conducted as part of this removal action.

### ***7.2.1 Pre-Excavation Activities***

The pre-excavation activities consist of tasks that need to be completed prior to contractor mobilization to the site. The tasks are described below.

#### ***Mainline Track Realignment***

To facilitate construction of SRTD's light rail tracks, UPRR will realign their mainline tracks. Prior to slag removal, UPRR will construct a new mainline track in OU S-5. The old mainline tracks will then be removed from OU S-6.

#### ***Waste Profiling***

The material to be excavated from OU S-6 must be profiled as directed by the disposal facility to ensure that the material meets the disposal facility's waste disposal criteria. The assumed disposal facility for slag and slag-impacted soil is East Carbon Development Corporation (ECDC) in East Carbon, Utah. If ECDC is selected as the disposal facility, the excavated material will be disposed of as a California Hazardous Waste. Additional soil excavated from the passenger station areas in OU S-6 could potentially be taken to a local disposal facility via trucks depending on the results of waste profiling of this soil.

#### ***Notifications***

Notifications include permits, agency notifications of work to be conducted, and community notification. A grading permit will be obtained by SRTD's contractor from the City of Sacramento and DTSC will be notified prior to any excavation. Community notification will be conducted through the distribution of a Fact Sheet that will invite the community to comment on this RAW and a public hearing. The public hearing will take place during the 30-day public comment period.

#### ***Design and Contractor Procurement***

The contractor conducting the removal action activities will be contracted by SRTD. The design document will include drawings and specifications that will outline the contractor schedule, health and safety, site preparation, earthwork activities, and waste handling procedures.

#### ***Health & Safety***

Prior to the start of field work a site-specific Health & Safety Plan (HSP) will be prepared that addresses field activities of both the contractor and construction oversight personnel. The HSP will address potential worker exposure to chemical and physical hazards associated with the removal action. The plan will be written to comply with Title 8, California Code of Regulations (CCR) Sections 3203 and 5192 and applicable sections of Title 8 CCR Subchapters 4 and 7.



### *Utility Clearance*

The limits of the excavation will be cleared for utilities by both Underground Service Alert (USA) and a subsurface utilities locator. UPRR personnel will be consulted for potential subsurface hazards. Two fiber optic cables owned by MCI and Sprint within OU S-6 will be relocated to OU S-5. At this time, other utilities that may be present within OU S-6 are unknown.

### *7.2.2 Excavation and Waste Handling Activities*

This section discusses all excavation and waste handling activities. Excavation and waste handling activities include removal of the slag and slag-impacted soil, transport to the designated stockpile area, stockpiling, and offsite transport of the excavated material to the disposal facility. Excavation and waste handling activities are discussed separately for the portion of OU S-6 to be occupied by the light rail tracks and the portion of OU S-6 to be developed as passenger stations.

#### *Excavation Activities – Light Rail Tracks*

Slag and slag-impacted soil will be excavated from the entire length of OU S-6 (Figure 2). Excavation equipment will be at the contractor's discretion but is anticipated to include a front end loader and/or a backhoe. The maximum depth of the excavation is dependent on the thickness of the slag and collateral soil (the thin zone where ballast has mixed with the underlying soil). An additional 2/3-foot of addendum soil will be removed following removal of slag and collateral soil. Removal of addendum soil will be limited to a 15-foot width directly beneath the UPRR mainline track. The total excavation depth will be visually determined in the field and is not anticipated to exceed 1-1/2 to 2 feet bgs. The excavated material will be temporarily stockpiled along the excavation, then loaded into dump trucks and covered for transportation to the designated stockpile area in OU S-5 (Figure 4).

#### *Excavation Activities – Passenger Station Areas*

Some additional excavation may be necessary in the passenger station areas to achieve restricted land use RAOs. Areas where additional excavation may occur are shown on Figure 6. Excavation in the areas is anticipated to follow the footprint of the station and extend initially approximately 1-1/2 feet below the slag. Additional soil excavated from these areas will be transported to the designated stockpile area and stockpiled separately from slag and slag-impacted soil.

#### *Soil Confirmation Sampling and Analysis Plan – Passenger Station Areas*

Following additional excavation in the passenger station areas, soil confirmation samples will be collected from the base of the excavation and analyzed for arsenic, lead, and PAHs. No other analyses will be performed unless there is other evidence (i.e. staining, odors, organic vapor monitoring instrument readings) to suggest that other impacts may exist.

A total of eight confirmation samples are proposed to be collected from the City College station area and three from the 21<sup>st</sup> Street station area. The locations of confirmation samples are shown on Figure 6. The rationale for the number and location of confirmation samples is consistent with the approach used for Phase IIA excavations to remove metals and PAHs from the inactive railyard. The passenger station excavation areas were divided into 50 by 50-foot sections with a single soil sample collected from each section. In this case, the samples are not collected from the center of each section, but are staggered within the sections so that the locations alternate from the west side in one section to the east side in the adjacent section. This approach provides greater lateral coverage of the overall excavation as opposed to a single line of samples collected from the axis of the excavation.

Soil samples will be collected using either a hand-driven sampler fitted with stainless steel rings or by collecting soil with a clean trowel and filling an 8-ounce glass jar. If collected in rings, each ring will be capped and labeled, and placed in an ice chest cooled to a maximum of 4° centigrade. If collected in jars, each jar will be capped with a teflon-lined lid, labeled, and placed in an ice chest cooled to a maximum of 4° centigrade. Chain of custody documentation for each sample will be completed and will accompany the samples to the analytical laboratory. Sample analysis will be performed on a rush-turnaround basis (24 to 48-hours) in case additional excavation is indicated based on sample analysis results.

The results of analysis of confirmation samples will be used to determine if the restricted use RAOs have been met. The determination of whether the RAOs have been met in either of the excavations will be based on a direct comparison of each sample analysis result to the RAOs. If the concentrations of arsenic, lead or PAHs exceed restricted use RAOs, then an additional 6-inches to 1-foot of soil will be removed from the section that exceeds the RAO and another confirmation sample will be collected and analyzed. This procedure will be followed until the RAOs in each section are achieved. This approach is appropriate for relatively small data sets (i.e. where  $n < 20$ ), where a 95% confidence level is to be attained. When  $n = 8$  or 3, any one sample that exceeds the RAO comprises 17.5% or 33%, respectively, of the data. Therefore, in this case, it is more practical to excavate and resample until all samples meet the RAO.

#### *Onsite Transport of Excavated Materials*

Dump trucks will transport excavated materials to the designated stockpile area in OU S-5 of the Curtis Park railyard as shown on Figure 4. Trucks will follow prescribed routes from their point of loading to the stockpile area. These travel routes will be presented in the design report. Travel routes will be maintained with water spray to minimize dust generation.

### ***Stockpiling Activities***

Excavated materials will be stockpiled in the designated stockpile area in OU S-5 of the Curtis Park railyard (Figure 4). Soil will be stockpiled on visqueen. Stockpiles will be no greater than approximately 60-feet long, 40-feet wide, and 10-feet in height. This equates to a stockpile of approximately 400 yds<sup>3</sup>. Adequate room will be maintained around the stockpiles for movement of loading equipment. The stockpile area will be maintained with water spray to minimize dust generation during dumping, loading into railcars, and by general vehicular traffic in this area.

### ***Stockpile Profiling***

For stockpile profiling, each stockpile will be divided into four quadrants and sampled from four locations, within each quadrant. The four individual samples from each quadrant will be composited for a total of four composite samples per stockpile. The stockpile composite samples will be analyzed for the required constituents per the direction of the disposal facility. Stockpiles will be marked regarding their status and will not be released for loading and offsite transport until the results of analysis of stockpile samples are received and evaluated. If the results of analysis indicate that a stockpile contains hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA), the stockpile will be marked to show that treatment (stabilization) is required prior to loading. Any material that is treated for stabilization must be resampled following stabilization to confirm that the concentrations of the constituents of concern do not exceed RCRA hazardous levels.

Soil stockpiles from additional soil excavation in passenger station areas will be maintained separately from other stockpiles. If composite samples from these, or any, stockpiles pass Title 22 hazardous waste criteria (i.e. concentrations of metals are less than their respective total or soluble threshold limit concentrations) then this material may be disposed of at a local landfill as opposed to being transported out of state to ECDC.

### ***Loading Activities***

When a sufficient volume of excavated material has been stockpiled and cleared for offsite transport, rail cars will be staged in the loading area (Figure 4). Loading activities will be conducted using a front end loader equipped with a bucket scale. It will be the responsibility of the contractor to avoid overloading or significantly underloading railcars. Upon completion of loading, railcars will be covered with tarps and secured prior to offsite transport.

### ***Cross-Contamination Controls***

It will be the responsibility of the contractor to minimize the spread of contamination across the site. All loads will be covered and secured prior to leaving the excavation area and transporting to the designated stockpile area in OU S-5. Excess material on the sides of trucks will be removed in the loading area prior to travel to minimize spread of slag and slag-impacted soil.

### ***Dust Control***

Dust controls will be implemented during all field activities to minimize exposure of on-site personnel and off-site residents to potentially contaminated dust. At a minimum, a water truck and low-pressure controlled watering will be used to control dust during preliminary field activities and during excavation, loading and stockpiling activities. Air monitoring will be used to evaluate dust control measures. Air monitoring activities are discussed below.

### ***Air Monitoring***

Air monitoring will be conducted to ensure that no adverse impacts to air quality occur in the surrounding area during the excavation activities. High volume samplers, placed upwind and downwind of site activities will collect total suspended particulate (TSP) samples for TSP and arsenic and lead analyses. A meteorological station will monitor wind direction and wind velocity. Real-time dust monitoring will be performed by personnel overseeing removal activities using hand-held monitoring instruments.

### ***Waste Manifests and Bill-of-Lading Forms***

Manifests and bill-of-lading forms will be completed by UPRR's contractor for each railcar and/or truck.

### ***7.2.3 Post Excavation Activities***

Post excavation activities are conducted upon completion of excavation and off-site transport of the excavated materials. These activities include the following:

### ***Waste Manifests and Bill-of-Lading Forms***

The disposal facility will send waste manifests and bill-of-lading forms with confirmed weights of each load of material to UPRR for their records. Copies of these forms will be forwarded to SRTD by UPRR.

### ***Reporting***

Upon completion of all work, a Removal Action Report will be prepared and submitted to the DTSC. The Removal Action Report will include a description of field procedures, a tabular summary of analytical data (for the passenger station areas), the volume of slag and soil removed, chain-of-custody documentation, the laboratory data sheets, data quality assurance reports, and will describe any unanticipated contamination encountered and removed. A contingency plan for dealing with unanticipated contamination is presented in Section 7.2.4.

#### ***7.2.4 Contingency Plan for Unanticipated Contamination***

This section presents the contingency plan for addressing unanticipated soil contamination that may be encountered during excavation of slag in OU S-6. The purpose of this contingency plan is to provide a set of procedures to ensure that unanticipated contamination is handled in a manner consistent with the RAP while expediting actions in order to limit construction delays. With a DTSC-approved contingency plan in place prior to excavation of slag, unanticipated contamination can be addressed without stopping work to develop a plan and obtain DTSC approval. This contingency plan applies to excavation activities both where the light rail tracks will be constructed as well as the passenger station areas. Additionally, the contingency plan applies only to unanticipated contaminants addressed in the RAP where appropriate cleanup levels have been established.

The most likely contamination to be encountered during excavation of slag in the ROW is heavier-end petroleum hydrocarbons such as diesel or Bunker C fuel. The RAP sets forth RAOs for petroleum hydrocarbons as gasoline and diesel, but not for Bunker C. The RAO for diesel is 1,000 mg/kg and the RAO for gasoline is also 1,000 mg/kg (for any area outside the Oil House Area), however gasoline is not anticipated to be encountered in the ROW. Therefore, for the purposes of this contingency plan, any excavation to remove unanticipated petroleum hydrocarbon-impacted soil is based on the RAO for diesel of 1,000 mg/kg.

#### ***Identification and Assessment of Contamination***

Unanticipated contamination will typically be identified during excavation by either visual observation, detection of odors, or by monitoring with an organic vapor detection instrument. If unanticipated petroleum hydrocarbon contamination is encountered, a preliminary assessment of the lateral and vertical extent will be made. At a minimum, the preliminary assessment will consist of mapping and describing the location, nature, and observed extent of the contamination and photographing the contamination. Sampling and analysis of soil is not proposed unless the lateral and vertical extent is believed to be significantly greater than the excavation planned for removal of slag and addendum soil or if visual evidence of potential contamination is observed, but the nature of the contamination is not readily discernable (i.e. something other than petroleum hydrocarbons). In this case, a sample may be collected and analyzed on an expedited basis to identify the contamination and determine if removal is necessary or if the contamination can be left in place.

#### ***Excavation***

Petroleum hydrocarbon-impacted soil will be excavated using a backhoe or similar appropriate equipment. Excavations for unanticipated contamination will be managed consistent with the overall RAW (i.e. health and safety controls, dust control, and loading of soil into trucks).

Excavated materials will be transported to the stockpile area in the Curtis Park railyard and placed in a separate stockpile. Stockpiles of petroleum hydrocarbon-impacted soil will be maintained separately from the slag stockpiles in the event that profiling results indicate petroleum-impacted soil can be disposed of at an alternative disposal facility such as Forward in Manteca or other Class II landfill. Transportation, stockpiling, and stockpile profiling procedures will be the same as for slag and addendum soil.

If an excavation is five or more feet deep, the sidewalls will be sloped to a minimum 1:1 slope ratio to prevent collapse. All open excavations will be secured at the end of each work day using barricades and/or fencing, as appropriate.

#### ***Confirmation Sampling and Analysis Plan***

Following excavation of contaminated soil, confirmation samples will be collected from the excavation and analyzed for TPH by EPA Method 8015M. The number and location of confirmation samples will be determined in the field based on the extent of the contamination. Samples collection procedures will be the same as described for confirmation sampling in the passenger station areas. A minimum of one sample will be collected from the base of each excavation and one sample from the approximate midpoint of each sidewall (assuming excavations will be four-sided polygons. If contamination is relatively shallow and a given excavation does not exceed one foot in depth, then a minimum of one sample will be collected from the base and no sidewall samples will be collected. Soil sampling equipment will be washed with an appropriate detergent solution and rinsed with distilled water between each use.

Confirmation soil samples will be analyzed on a 24-hour rush turnaround basis so that decisions regarding further excavation or closing of an excavation can be made as soon as possible. The results of confirmation samples will be compared to the RAO for TPH as diesel of 1,000 mg/kg as specified in the RAP to determine if further excavation is necessary.

#### ***Reporting***

The results of excavation to remove unanticipated contamination and confirmation soil sampling results will be presented in the Removal Action Report described in Section 7.2.3.

## 8.0 SCHEDULE

Slag removal activities are anticipated to occur intermittently between the start of SRTD's light rail construction in April 2000 and the scheduled completion of UPRR track replacement and realignment activities by December 2000. Specific details regarding actual construction sequencing for the slag removal activities will be available after the SRTD construction contract is awarded in February 2000 and will be presented in the design document.

## 9.0 REFERENCES

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Tables

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**TABLE 1**  
**HISTORICAL SOIL ANALYTICAL DATA**  
**OPERABLE UNIT S-6**  
**UNION PACIFIC CURTIS PARK RAILYARD**  
**SACRAMENTO, CALIFORNIA**

Sample ID	ATB-13	ATB-14	ATB-14	ATB-15	ATB-16	ATB-17	ATB-18	ATB-19	ATB-20	ATS-20(1)
Date	12/16/91	12/16/91	12/16/91	12/16/91	12/16/91	12/16/91	12/16/91	12/16/91	12/16/91	01/08/92
Depth (ft)	4.50-5.00	5.50-6.00	10.50-11.00	5.50-6.00	5.50-6.00	2.00-3.00	3.00-3.50	3.50-4.00	2.50-3.00	(Surface)
<b>METALS (mg/kg)</b>										
Arsenic (As)	8.2	7.9	3.2	7.1	5.0	545.0	3.1	< 2.5	14.0	109
Lead (Pb)	40.0	8.1	6.2	7.0	6.0	5.8	9.0	8.0	6.0	811
<b>ORGANICS (mg/kg)</b>										
1,2-Dichlorobenzene	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	NA
1,3-Dichlorobenzene	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	NA
1,4-Dichlorobenzene	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	NA
Benzene	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	NA
Chlorobenzene	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	NA
Ethlybenzene	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	NA
Toluene	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	NA
Xylenes	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	NA

**NOTES:**

(1) Surface Sample. Sample analysis includes grain size >0.074 and <4.76 millimeters.

< = Constituent below detection limits.

NA = Not Analyzed.

TABLE 2  
CALCULATED VOLUMES AND TONNAGES OF EXCAVATED MATERIAL  
OPERABLE UNIT S-6  
UNION PACIFIC CURTIS PARK RAILYARD  
SACRAMENTO, CALIFORNIA

Station Number	W1 Width of Ballast (feet)	D1 Average Depth of Ballast (inches)	W2 Width of Ballast (feet)	D2 Average Depth of Ballast (inches)	D3 Average Depth of Collateral Soil to be Removed (inches)	Width of addendum soil to be removed (ft)	Volume of addendum soil to be removed (cy)	Volume of Collateral Soil to be removed (CY)	Length of Ballasted Section (feet)	Percent Slag (%)	Volume Slag (CY)	Percent Angular Gray Ballast (%)	Volume Gray Ballast (CY)	Percent White/Talc Ballast (%)	Volume White/Talc Ballast (CY)	Total Volume of Material (Slag, Ballast, Collateral Soil) to be removed (cubic yards)	Weight of Material to be removed (tons)	Number of Tracks to be Reassigned	
81+00	8	5	10	1	2	5	0.61	0.56	5	20%	0.15	40%	0.31	40%	0.31	1.33	1.69	1	
82+00	8	4	8	1	2	15	35.93	9.68	98	20%	2.42	60%	7.26	20%	2.42	21.78	27.83	1	
83+00	8	4	8	1	2	15	36.67	9.88	100	20%	2.47	60%	7.41	20%	2.47	22.22	28.40	1	
84+00	8	4	8	1	2	15	36.67	9.88	100	20%	2.47	60%	7.41	20%	2.47	22.22	28.40	1	
85+00	8	4	8	1	2	15	36.67	9.88	100	20%	2.47	60%	7.41	20%	2.47	22.22	28.40	1	
86+00	8	4	8	1	2	15	36.67	9.88	100	20%	2.47	60%	7.41	20%	2.47	22.22	28.40	2	
87+00	8	4	8	1	2	15	36.67	9.88	100	20%	2.47	60%	7.41	20%	2.47	22.22	28.40	2	
88+00	50	8	20	2	3	30	73.33	64.81	100	75%	101.85	20%	27.16	5%	6.79	200.62	294.04	2	
89+00	50	8	20	2	3	30	73.33	64.81	100	75%	101.85	20%	27.16	5%	6.79	200.62	294.04	2	
90+00	50	8	20	2	3	30	73.33	64.81	100	75%	101.85	20%	27.16	5%	6.79	200.62	294.04	3	
91+00	60	8	10	2	3	30	73.33	64.81	100	75%	115.74	20%	30.86	5%	7.72	219.14	323.04	3	
92+00	60	8	10	2	3	30	73.33	64.81	100	75%	115.74	20%	30.86	5%	7.72	219.14	323.04	2	
93+00	55	8	20	2	3	25	61.11	69.44	100	80%	118.52	15%	22.22	5%	7.41	217.59	322.69	2	
94+00	55	8	20	2	3	25	61.11	69.44	100	80%	118.52	15%	22.22	5%	7.41	217.59	322.69	2	
95+00	55	8	20	2	3	25	61.11	69.44	100	80%	118.52	15%	22.22	5%	7.41	217.59	322.69	2	
96+00	45	6	10	1	2	25	61.11	33.95	100	85%	73.46	15%	12.96	0%	0.00	120.37	182.33	1	
97+00	45	6	10	1	2	25	61.11	33.95	100	85%	73.46	15%	12.96	0%	0.00	120.37	182.33	1	
98+00	45	6	10	1	2	25	61.11	33.95	100	85%	73.46	15%	12.96	0%	0.00	120.37	182.33	1	
99+00	45	6	10	1	2	25	61.11	33.95	100	85%	73.46	15%	12.96	0%	0.00	120.37	182.33	1	
100+00	40	6	10	1	2	25	61.11	30.86	100	80%	61.73	20%	15.43	0%	0.00	108.02	161.67	1	
101+00	40	6	10	1	2	25	61.11	30.86	100	80%	61.73	20%	15.43	0%	0.00	108.02	161.67	1	
102+00	40	6	10	1	2	25	61.11	30.86	100	80%	61.73	20%	15.43	0%	0.00	108.02	161.67	1	
103+00	40	6	10	1	2	25	61.11	30.86	100	80%	61.73	20%	15.43	0%	0.00	108.02	161.67	1	
104+00	55	3	10	1	1	25	61.11	20.06	100	60%	32.41	25%	13.50	15%	8.10	74.07	105.58	1	
105+00	55	3	10	1	1	30	73.33	20.06	100	60%	32.41	25%	13.50	15%	8.10	74.07	105.58	1	
106+00	55	3	10	1	1	30	73.33	20.06	100	60%	32.41	25%	13.50	15%	8.10	74.07	105.58	1	
107+00	55	3	10	1	1	30	73.33	20.06	100	60%	32.41	25%	13.50	15%	8.10	74.07	105.58	1	
108+00	55	3	10	1	1	30	73.33	20.06	100	80%	43.21	15%	8.10	5%	2.70	74.07	111.05	1	
109+00	55	3	10	1	1	30	73.33	20.06	100	80%	43.21	15%	8.10	5%	2.70	74.07	111.05	1	
110+00	55	3	10	1	1	30	73.33	20.06	100	80%	43.21	15%	8.10	5%	2.70	74.07	111.05	1	
111+00	55	3	10	1	1	30	73.33	20.06	100	80%	43.21	15%	8.10	5%	2.70	74.07	111.05	1	
112+00	55	3	10	1	1	30	73.33	20.06	100	80%	43.21	15%	8.10	5%	2.70	74.07	111.05	1	
113+00	55	3	10	1	1	30	73.33	20.06	100	80%	43.21	15%	8.10	5%	2.70	74.07	111.05	1	
114+00	55	3	10	1	1	30	73.33	20.06	100	80%	43.21	15%	8.10	5%	2.70	74.07	111.05	1	
115+00	55	3	10	1	1	30	73.33	20.06	100	80%	43.21	15%	8.10	5%	2.70	74.07	111.05	1	
116+00	55	3	10	1	1	30	73.33	20.06	100	80%	43.21	15%	8.10	5%	2.70	74.07	111.05	1	
117+00	55	3	10	1	1	30	73.33	20.06	100	80%	43.21	15%	8.10	5%	2.70	74.07	111.05	1	
118+00	55	3	10	1	1	30	73.33	20.06	100	80%	43.21	15%	8.10	5%	2.70	74.07	111.05	1	
119+00	55	3	10	1	1	30	73.33	20.06	100	80%	43.21	15%	8.10	5%	2.70	74.07	111.05	1	
120+00	70	2	0	0	1	30	73.33	21.60	100	60%	25.93	15%	6.48	25%	10.80	64.81	91.15	1	
121+00	70	2	0	0	1	30	73.33	21.60	100	60%	25.93	15%	6.48	25%	10.80	64.81	91.15	1	
122+00	70	2	0	0	1	30	73.33	21.60	100	60%	25.93	15%	6.48	25%	10.80	64.81	91.15	1	
123+00	70	2	0	0	1	25	61.11	21.60	100	60%	25.93	15%	6.48	25%	10.80	64.81	91.15	1	
124+00	70	2	0	0	1	25	61.11	21.60	100	60%	25.93	15%	6.48	25%	10.80	64.81	91.15	1	
125+00	70	2	0	0	1	25	61.11	21.60	100	60%	25.93	15%	6.48	25%	10.80	64.81	91.15	1	
126+00	70	2	0	0	1	25	61.11	21.60	100	60%	25.93	15%	6.48	25%	10.80	64.81	91.15	1	
127+00	50	2	0	0	1	25	61.11	15.43	100	60%	18.52	15%	4.63	25%	7.72	46.30	65.10	1	
128+00	50	2	0	0	1	25	61.11	15.43	100	60%	18.52	15%	4.63	25%	7.72	46.30	65.10	2	
129+00	50	2	0	0	1	25	61.11	15.43	100	60%	18.52	15%	4.63	25%	7.72	46.30	65.10	2	
TOTAL:							3,068	1,370	(cy)	TOTAL:							4,518	6,632	
							3,851	1,720	(ton)								(slag, collateral soil, ballast)	(cy)	(ton)

Notes:

- Includes collateral soil, but not addendum soil
- Estimated Density of Pure Slag Ballast: 125 pcf or 1.69 tons/cy
- Estimated Density of Pure White Ballast: 85 pcf or 1.15 tons/cy
- Estimated Density of Soil: 93 pcf or 1.26 tons/cy
- Depth of Addendum Soil to be removed: 0.66 feet or 8 inches.

Total In-Place Volume Removed:

7,566 CY  
10,483 TON

**TABLE 3**  
**ANALYTICAL DATA SUMMARY**  
**OPERABLE UNIT S-6**  
**PASSENGER STATION AREA SOIL SAMPLING**  
**UNION PACIFIC CURTIS PARK RAILYARD**  
**SACRAMENTO, CALIFORNIA**

ANALYTE	RAO		CITY COLLEGE STATION AREA												
	Restricted Land Use	Unrestricted Land Use	Sample ID No.	STNCC-01-1.0	STNCC-01-3.0	STNCC-01-9.0	STNCC-02-1.0	STNCC-02-3.0	STNCC-02-7.0	STNCC-03-1.0	STNCC-03-3.0	STNCC-03-9.0	STNCC-04-1.0	STNCC-04-3.0	STNCC-04-4.0
			Sample Date Duplicate	12/22/99	12/22/99	12/22/99	12/22/99	12/22/99	12/22/99	12/22/99	12/22/99	12/22/99	12/22/99	1/3/00	1/3/00
			Units												STNCC-04-3.0
NON-CARCINOGENIC PAH (EPA 8270 SIM)															
Acenaphthene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Acenaphthylene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Anthracene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.018	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(g,h,i)perylene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.018	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoranthene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.040	<0.005	<0.005	<0.005	<0.005	<0.005
Fluorene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Naphthalene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenanthrene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	<0.005	<0.005	<0.005	<0.005	<0.005
Pyrene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.033	<0.005	<0.005	<0.005	<0.005	<0.005
Total ncPAH's	100		mg/kg	0.0225	0.0225	0.0225	0.0225	0.0225	0.0225	0.130	0.0225	0.0225	0.0225	0.0225	0.0225
CARCINOGENIC PAH (EPA 8270 SIM)															
Benz(a)anthracene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(a)pyrene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.014	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(b)fluoranthene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.045	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(k)fluoranthene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.015	<0.005	<0.005	<0.005	<0.005	<0.005
Chrysene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.023	<0.005	<0.005	<0.005	<0.005	<0.005
Dibenzo(a,h)anthracene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Indeno(1,2,3-cd)pyrene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.018	<0.005	<0.005	<0.005	<0.005	<0.005
Total cPAH's	0.042		mg/kg	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.131	0.0175	0.0175	0.0175	0.0175	0.0175
METALS (EPA 6010B)															
Arsenic	55	8	mg/kg	240	<5	47	150	<5	<5	190	31	<5	29	19	25
Lead	950	220	mg/kg	310	8.9	16	70	7.4	11	470	120	12	<5	5.6 j/lr	17 j/lr
TPH (EPA 8015M Extractable)															
Bunker Oil	NA		mg/kg	<13	<13	<13	<13	<13	<13	<26	<13	<13	<13	<13	<13
Diesel	1,000		mg/kg	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	5.8 x/l
Fuel Oil	NA		mg/kg	<13	<13	<13	<13	<13	<13	<26	<13	<13	<13	<13	<13
Hydraulic Oil	NA		mg/kg	<13	<13	<13	<13	<13	<13	<26	<13	<13	<13	<13	<13
Jet Fuel	NA		mg/kg	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1
Kerosene	NA		mg/kg	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1
Motor Oil	NA		mg/kg	22	<13	<13	<13	<13	<13	64	<13	<13	<13	<13	<13
Stoddard Solvent	NA		mg/kg	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1

**Notes:**

- RAO - Remedial Action Objective
- PAH - Polynuclear Aromatic Hydrocarbon
- TPH - Total Petroleum Hydrocarbon
- NA - Not Applicable
- jlm - Result was qualified by Dames & Moore QA/QC Group as estimated due to a matrix spike/matrix spike duplicate recovery failure.
- jlf - Result was qualified by Dames & Moore QA/QC Group as estimated due to field duplicate imprecision.
- xj - Chromatographic pattern not typical of diesel fuel as qualified by laboratory.

**TABLE 3**  
**ANALYTICAL DATA SUMMARY**  
**OPERABLE UNIT S-6**  
**PASSENGER STATION AREA SOIL SAMPLING**  
**UNION PACIFIC CURTIS PARK RAILYARD**  
**SACRAMENTO, CALIFORNIA**

ANALYTE	RAO		Sample ID No. Sample Date Duplicate	CITY COLLEGE STATION AREA								21 <sup>st</sup> STREET STATION AREA			
	Restricted Land Use	Unrestricted Land Use		STNCC-04-9.0 1/3/00	STNCC-05-2.0 1/3/00	STNCC-05-4.0 1/3/00	STNCC-05-9.0 1/3/00	STNCC-06-1.0 1/3/00	STNCC-06-3.0 1/3/00	STNCC-06-4.0 1/3/00	STNCC-06-9.0 1/3/00	STN21-01-1.0 12/22/99	STN21-01-3.0 12/22/99	STN21-01-9.0 12/22/99	STN21-02-1.0 12/22/99
			Units												
NON-CARCINOGENIC PAH (EPA 8270 SIM)															
Acenaphthene		mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Acenaphthylene		mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Anthracene		mg/kg	<0.005	0.007	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007
Benzo(g,h,i)perylene		mg/kg	<0.005	0.014	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	0.010
Fluoranthene		mg/kg	<0.005	0.085	0.030	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.037
Fluorene		mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Naphthalene		mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenanthrene		mg/kg	<0.005	0.051	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.029
Pyrene		mg/kg	<0.005	0.067	0.032	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.028
Total ncPAH's	100	mg/kg	0.0225	0.234	0.118	0.0225	0.0225	0.0225	0.0225	0.0225	0.0225	0.029	0.0225	0.121	
CARCINOGENIC PAH (EPA 8270 SIM)															
Benz(a)anthracene		mg/kg	<0.005	0.020	0.013	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.022
Benzo(a)pyrene		mg/kg	<0.005	0.021	0.018	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.018
Benzo(b)fluoranthene		mg/kg	<0.005	0.037	0.042	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	0.021
Benzo(k)fluoranthene		mg/kg	<0.005	0.015	0.013	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009
Chrysene		mg/kg	<0.005	0.029	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.018
Dibenzo(a,h)anthracene		mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Indeno(1,2,3-cd)pyrene		mg/kg	<0.005	0.014	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	0.010
Total cPAH's	0.042	mg/kg	0.0175	0.139	0.128	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0225	0.0175	0.0985	
METALS (EPA 8010B)															
Arsenic	55	8	mg/kg	6.4	21	33	25	310	7.2	11	<5	300	72	<1	55 µm
Lead	950	220	mg/kg	6.8	9.5	23	11	95	7.6	12	6.7	85	82	7.6	8.7
TPH (EPA 8015M Extractable)															
Bunker Oil	NA	mg/kg	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<130	<13	<13
Diesel	1,000	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1
Fuel Oil	NA	mg/kg	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<130	<13	<13
Hydraulic Oil	NA	mg/kg	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<130	<13	<13
Jet Fuel	NA	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1
Kerosene	NA	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1
Motor Oil	NA	mg/kg	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	280	<13	<13
Stoddard Solvent	NA	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1

**Notes:**

RAO - Remedial Action Objective  
PAH - Polynuclear Aromatic Hydrocarbon  
TPH - Total Petroleum Hydrocarbon  
NA - Not Applicable

µm - Result was qualified by Dames & Moore QA/QC Group as estimated due to a matrix spike/matrix spike duplicate recovery failure.

µf - Result was qualified by Dames & Moore QA/QC Group as estimated due to field duplicate imprecision.

x) - Chromatographic pattern not typical of diesel fuel as qualified by laboratory.

**TABLE 3**  
**ANALYTICAL DATA SUMMARY**  
**OPERABLE UNIT S-6**  
**PASSENGER STATION AREA SOIL SAMPLING**  
**UNION PACIFIC CURTIS PARK RAILYARD**  
**SACRAMENTO, CALIFORNIA**

ANALYTE	RAO		Sample ID No. Sample Date Duplicate	21 <sup>st</sup> STREET STATION AREA					
	Restricted Land Use	Unrestricted Land Use		STN21-02-5.0 12/22/99	STN21-02-9.0 12/22/99	STN21-03-1.0 1/3/00	STN21-03-3.0 1/3/00	STN21-03-9.0 1/3/00	STN21-03-10.0 1/3/00
				Units					STN21-03-9.0
NON-CARCINOGENIC PAH (EPA 8270 SIM)									
Acenaphthene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Acenaphthylene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Anthracene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(g,h,i)perylene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoranthene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluorene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Naphthalene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenanthrene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Pyrene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total ncPAH's		.100	mg/kg	0.0225	0.0225	0.0225	0.0225	0.0225	0.0225
CARCINOGENIC PAH (EPA 8270 SIM)									
Benz(a)anthracene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(a)pyrene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(b)fluoranthene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(k)fluoranthene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chrysene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dibenzo(a,h)anthracene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Indeno(1,2,3-cd)pyrene			mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total cPAH's		0.042	mg/kg	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175
METALS (EPA 60108)									
Arsenic	55	8	mg/kg	18 [Jm	<5	23	6.6	8.4	<5
Lead	950	220	mg/kg	11	9.7	71	23	23 [Jf	7.0 [Jf
TPH (EPA 8015M Extractable)									
Bunker Oil	NA		mg/kg	<13	<13	<26	<13	<13	<13
Diesel	1,000		mg/kg	<1	<1	<2	<1	<1	<1
Fuel Oil	NA		mg/kg	<13	<13	<26	<13	<13	<13
Hydraulic Oil	NA		mg/kg	<13	<13	<26	<13	<13	<13
Jet Fuel	NA		mg/kg	<1	<1	<2	<1	<1	<1
Kerosene	NA		mg/kg	<1	<1	<2	<1	<1	<1
Motor Oil	NA		mg/kg	<13	<13	74	<13	15	<13
Stoddard Solvent	NA		mg/kg	<1	<1	<2	<1	<1	<1

**Notes:**

RAO - Remedial Action Objective

PAH - Polynuclear Aromatic Hydrocarbon

TPH - Total Petroleum Hydrocarbon

NA - Not Applicable

[Jm - Result was qualified by Dames & Moore QA/QC Group as estimated due to a matrix spike/matrix spike duplicate recovery failure.

[Jf - Result was qualified by Dames & Moore QA/QC Group as estimated due to field duplicate imprecision.

x] - Chromatographic pattern not typical of diesel fuel as qualified by laboratory.

141014  
SCREENING OF REMEDIAL ALTERNATIVES

OU S-6

UNION PACIFIC CURTIS PARK RAILYARD  
SACRAMENTO, CALIFORNIA

ALTERNATIVE	RELATIVE EFFECTIVENESS	RELATIVE IMPLEMENTABILITY	RELATIVE COST	COMMENTS
<b>Light Rail Corridor</b>				
No Action	Fair to good. – similar to current conditions, but does not provide increased future protection.	Excellent - No action to implement, but not acceptable to SRTD or DTSC.	Excellent – no cost.	Alternative rejected. Does not satisfy requirements of DTSC or SRTD.
RAP/Railyard O&M	Good – provides same level of protection as current and future conditions in the active railyard (OU S-5).	Good – implemented as part of ongoing O&M of the active railyard. Slag covered as new ballast brought in periodically. Should be acceptable to DTSC and public.	Good – no additional cost beyond that for ongoing O&M of active railyard.	Alternative rejected. Does not satisfy requirements of SRTD.
Removal of Visible Slag and Addendum Soil	Good to excellent – removes source of As and Pb in soil and covers potentially impacted remaining soil with new rock ballast.	Fair to good – current plan between SRTD and UPRR.	Fair – approximately \$150,000 for removal, transport to stockpile area, and stockpiling.	Alternative retained.
<b>Passenger Stations</b>				
No Action	Good – similar to current conditions and paving would cover impacts.	Excellent - No action to implement, but not likely to be acceptable to DTSC or public.	Excellent – no cost.	Alternative rejected. Does not satisfy requirements of DTSC or public.
Removal to Restricted Use RAOs	Good – provides appropriate protection to occupants of passenger stations and workers.	Fair – will require additional soil excavation in these areas to meet restricted RAOs.	Fair – additional cost of approx. \$40,000 for excavation, transport to stockpile area, stockpiling, confirmation sampling and analysis, and reporting.	Alternative retained.
Removal to Unrestricted Use RAOs	Good to excellent – would provide greatest level of protection available by removing impacted soil to unrestricted use levels.	Fair – will require additional soil excavation beyond that required to meet restricted use RAOs.	Fair to poor – additional cost of approx. \$67,000 for excav, transport to stockpile area, stockpiling, confirm sampling and analysis, and reporting.	Alternative rejected – additional excavation to meet unrestricted RAOs not necessary for type of land use.

FIGURES





REFERENCE: USGS 7.5 Quadrangle; Sacramento East, 1967, Photorevised 1980  
and Sacramento West, 1967, Photorevised 1980



# **SITE LOCATION MAP** Removal Action Workplan Slag Removal in Operable Unit S-6 Union Pacific Railroad Curtis Park Railyard Sacramento, California

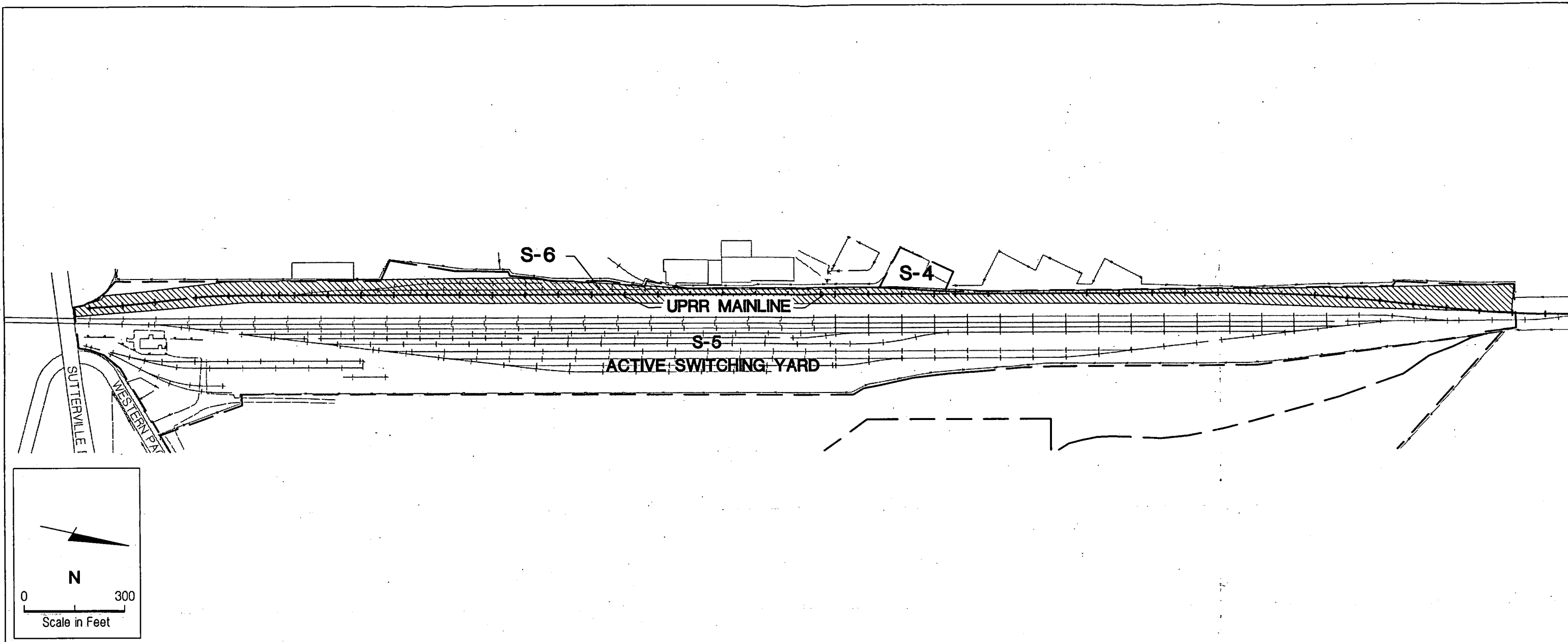


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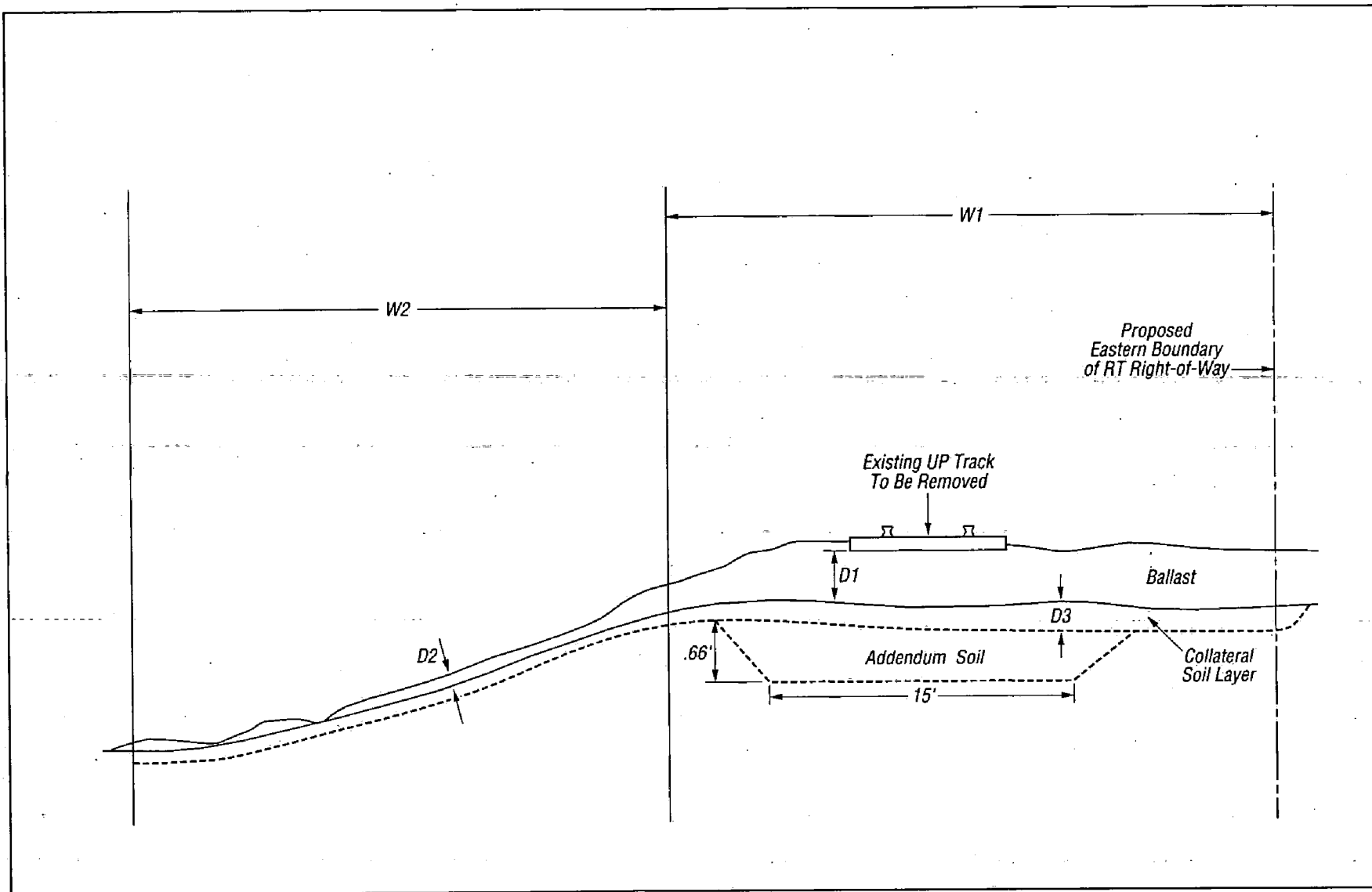
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FIGURE 1



- EXPLANATION**
- Soil Operable Unit Boundary
  - x-x- Fence
  - Portion of OU S-5 proposed for delineation as OU S-6

**LOCATION OF OU S-6**  
 Removal Action Workplan  
 Slag Removal in Operable Unit S-6  
 Union Pacific Curtis Park Railway  
 Sacramento, California  
 FIGURE 2



# TYPICAL MAINLINE CROSS SECTION

Removal Action Workplan

Slag Removal in Operable Unit S-6

Union Pacific Curtis Park Railyard - Sacramento, California



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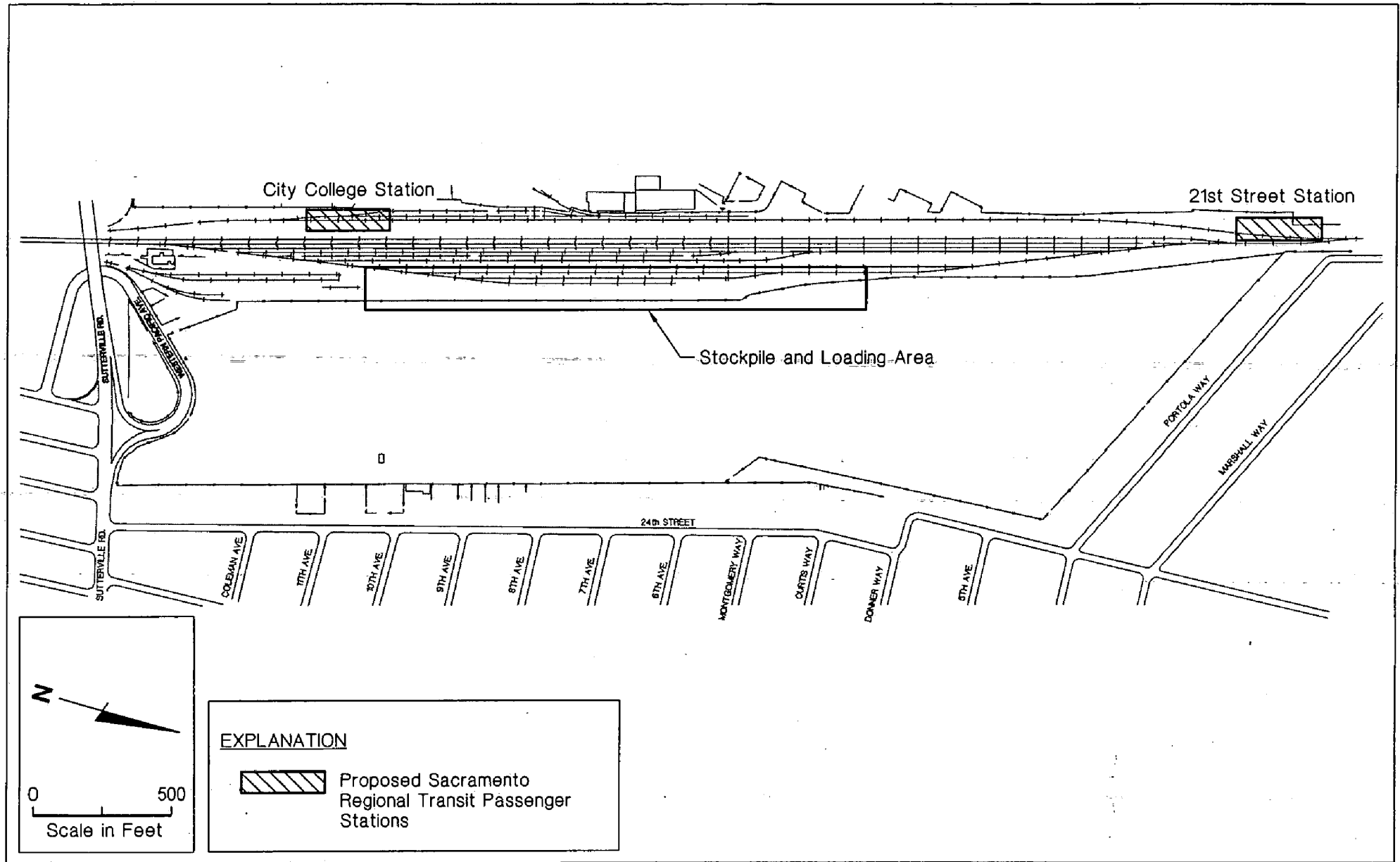
00173-195-044

djw

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1/7/00

FIGURE 3



## PASSENGER STATION AREAS/STOCKPILE AND LOADING AREA

Removal Action Workplan  
 Slag Removal in Operable Unit S-6  
 Union Pacific Curtis Park Railyard  
 Sacramento, CA

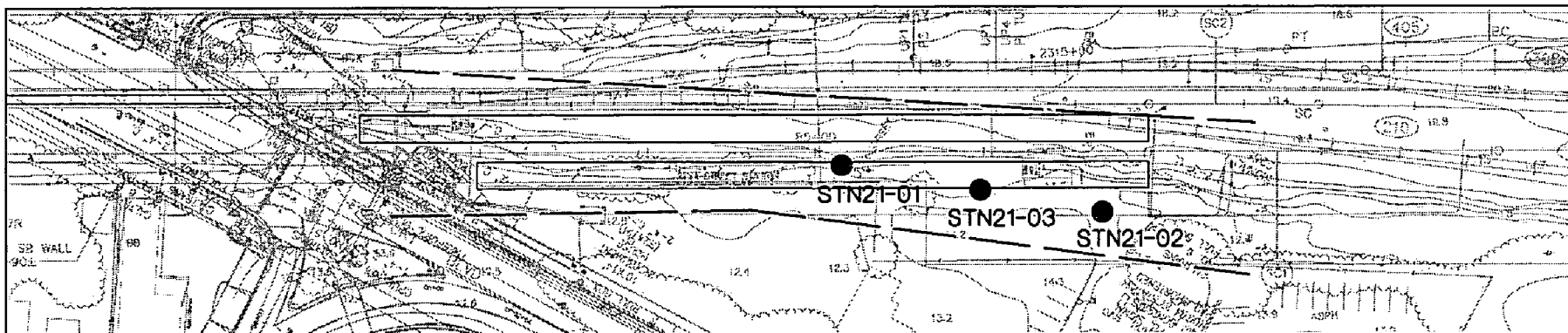


**DAMES & MOORE**

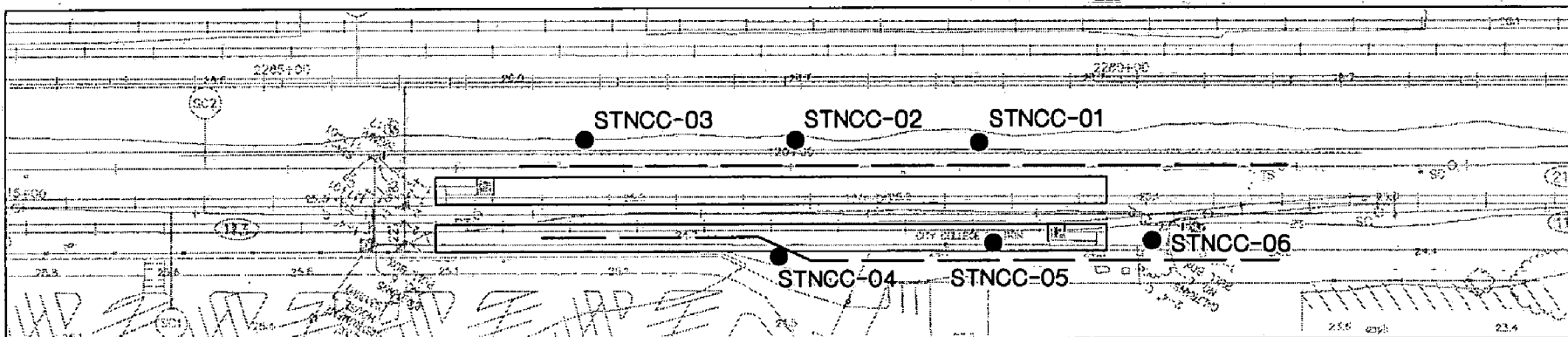
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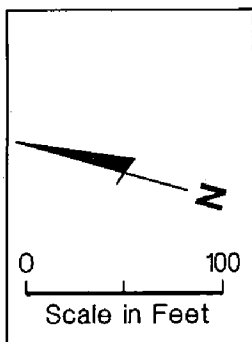
FIGURE 4



21st Street Station Sample Locations



City College Station Sample Locations



**EXPLANATION**

- Location of Geoprobe Sample Borehole
- MCI and Sprint Fiberoptic Underground Lines

**PASSENGER AREA SAMPLE LOCATION MAP**

Removal Action Workplan  
Slag Removal in Operable Unit S-6  
Union Pacific Curtis Park Rail yard  
Sacramento, CA

FIGURE 5



**DAMES & MOORE**

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00173-195-991217 1ea Jan 20, 2000 991217E.DWG



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# Appendix A

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**APPENDIX A**

**LABORATORY ANALYTICAL REPORTS**





# DAMES & MOORE

A DAMES & MOORE GROUP COMPANY

## DATA VALIDATION MEMO

8801 Folsom Boulevard, #200  
Sacramento, CA 95826  
Telephone - (916) 387-8800  
Fax - (916) 387-0802

**TO:** Jim Brake  
**FROM:** Sacramento QA/QC Group  
**DATE:** January 7, 2000  
**SUBJECT:** Summary of Data Validation Entech Reports 18320 and 18409 and Zymax Reports 18687 and 18743

**INFO:**  
**FILE:** 00173-195-044  
**SITE:** UPRR Sacramento – Right-of-Way

This report summarizes the findings of the limited validation of thirty soil samples that were collected on December 22, 1999 and January 3, 2000 for the Union Pacific Railroad – Right-of-Way project in Sacramento, California. These samples were identified as STNCC-01-1.0, STNCC-01-3.0, STNCC-01-9.0, STNCC-02-1.0, STNCC-02-3.0, STNCC-02-7.0, STNCC-03-1.0, STNCC-03-3.0, STNCC-03-9.0, STN21-01-1.0, STN21-01-3.0, STN21-01-9.0, STN21-02-1.0, STN21-02-5.0, STN21-02-9.0, STNCC-04-1.0, STNCC-04-3.0, STNCC-04-4.0, STNCC-04-9.0, STNCC-05-2.0, STNCC-05-4.0, STNCC-05-9.0, STNCC-06-3.0, STNCC-06-4.0, STNCC-06-9.0, STN21-03-1.0, STN21-03-3.0, STN21-03-9.0, and STN21-03-10.0. These samples were analyzed for Total Extractable Petroleum Hydrocarbons (EPA 8015M), Polynuclear Aromatic Hydrocarbons (EPA 8270-SIM), and Total Lead and Arsenic (EPA 6010). The data were reviewed in accordance with the Dames & Moore standard operating procedures presented in the approved QAPjP (Dames & Moore, 1996) and USEPA National Functional Guidelines for Laboratory Data Review, Organics and Inorganics (EPA, 1994).

### 1.0 Executive Summary

No data were rejected. All other sample holding times were met. Two arsenic detections were qualified as estimated due to matrix interferences. No significant differences were noted between field duplicate pair STNCC-06-3.0/STNCC-06-4.0. Significant differences were noted for lead results for field duplicate pairs, STNCC-04-3.0/STNCC-04-4.0 and STN21-03-9.0/STN21-03-10.0. These detections of lead have been qualified as estimated. Overall, these data are acceptable, as qualified, and are useable for their intended purpose.

### 2.0 Total Extractable Petroleum Hydrocarbons (EPA 8015M)

Thirty soil samples were submitted for Total Extractable Petroleum Hydrocarbons (EPA 8015M) analysis. The data were evaluated based on the following parameters. A leading check mark (✓) indicates an area of review in which all data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review, impacting data quality and usability.

- ✓ Data Completeness
- ✓ Holding Times and Preservation
- ✓ Blanks
- ✓ Laboratory Control Samples
- ✓ Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- ✓ System Monitoring Compounds (Surrogates)

- ✓ Field Duplicates
- ✓ Compound Identification and Quantitation

2.1 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

A sample from outside this project was utilized for MS/MSD analysis. Consequently, no assessment of matrix interferences can be made.

2.2 Compound Identification and Quantitation

Samples STNCC-03-1.0 (2x), STN21-01-3.0 (10x), and STN21-03-1.0 (2x) were diluted due to the presence of motor oil.

3.0 Total Arsenic and Lead (EPA 6010)

Thirty soil samples were submitted for total arsenic and lead (EPA 6010) analysis. The data were evaluated based on the following parameters. A leading check mark (✓) indicates an area of review in which all data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review, impacting data quality and usability.

- ✓ Data Completeness
- ✓ Holding Times and Preservation
- ✓ Blanks
- ✓ Laboratory Control Samples
- ✓ Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- ⊗ Field Duplicates
- ✓ Compound Identification and Quantitation

3.1 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Sample STN21-02-1.0 was utilized for MS/MSD analysis and the arsenic recoveries exceeded the upper control limit indicating a high bias. Arsenic detections for samples STN21-02-1.0 and STN21-02-5.0 were qualified as estimated (J).

3.2 Field Duplicates

Samples STNCC-04-3.0/STNCC-04-4.0, STNCC-06-3.0/STNCC-06-4.0, and STN21-03-9.0/STN21-03-10.0 represent field duplicate pairs. Duplicate imprecision was noted for lead results in pairs STNCC-04-3.0/STNCC-04-4.0 and STN21-03-9.0/STN21-03-10.0. These detections of lead have been qualified as estimated (J).

3.3 Compound Identification and Quantitation

All samples were diluted five-fold appropriate to the method.

4.0 Polynuclear Aromatic Hydrocarbons (EPA 8270-SIM)

Thirty soil samples were submitted for Polynuclear Aromatic Hydrocarbon (EPA 8270-SIM) analysis. The data were evaluated based on the following parameters. A leading check mark (✓) indicates an area of review in which all data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review, impacting data quality and usability.

- ✓ Data Completeness
- ✓ Holding Times and Preservation

- ✓ Blanks
- ✓ Laboratory Control Samples
- ✓ Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- ✓ System Monitoring Compounds (Surrogates)
- ✓ Field Duplicates
- ✓ Compound Identification and Quantitation

4.1 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Sample **STNCC-04-1.0** was utilized for MS/MSD analysis and all recoveries met acceptance criteria.

# Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

January 07, 2000

Jim Brake

Dames & Moore

8801 Folsom Boulevard, Suite 200

Sacramento, CA 95826

RECEIVED  
JAN 12 2000

BY:.....

Order: 18409

Date Collected: 1/3/00

Project Name: UP-SAC

Date Received: 1/4/00

Project Number:

P.O. Number: 00173-195-044

Project Notes: Report amended 1/7/00

On January 04, 2000, 15 samples were received under documented chain of custody. Results for the following analyses are attached:

Matrix

Test

Method

Solid

TPH, Extractable

EPA 8015 MOD. (Extractable)

Chemical analysis of these samples has been completed. Summaries of the data are contained on the following pages. USEPA protocols for sample storage and preservation were followed.

Entech Analytical Labs, Inc. is certified by the State of California (#2346). If you have any questions regarding procedures or results, please call me at 408-735-1550.

Sincerely,



Michelle L. Anderson  
Lab Director

# Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames &amp; Moore

8801 Folsom Boulevard, Suite 200

Sacramento, CA 95826

Attn: Jim Brake

Date: 1/7/00

Date Received: 1/4/00

Project Name: UP-SAC

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-001

Client Sample ID: STNCC-04-1.0

Sample Time: 9:15 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 101		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 101		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 101		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 101		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 101		Control Limits 65 - 135

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)



Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

CA ELAP# 1-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Jim Brake

Date: 1/7/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-001

Client Sample ID: STNCC-04-1.0

Sample Time: 9:15 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 101		Control Limits 65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 101		Control Limits 65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 101		Control Limits 65 - 135	

Comment: Report amended 1/7/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #1-2346)

  
Michelle L. Anderson, Laboratory Director

*Environmental Analysis Since 1983*

# Entech Analytical Labs, Inc.

CA ELAP# I-2346

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Dames &amp; Moore

8801 Folsom Boulevard, Suite 200

Sacramento, CA 95826

Attn: Jim Brake

Date: 1/7/00

Date Received: 1/4/00

Project Name: UP-SAC

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-002

Client Sample ID: STNCC-04-3.0

Sample Time: 9:20 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Bunker Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 72		Control Limits 65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Diesel	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 72		Control Limits 65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Fuel Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 72		Control Limits 65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Hydraulic Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 72		Control Limits 65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 72		Control Limits 65 - 135	


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Jim Brake

Date: 1/7/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-002

Client Sample ID: STNCC-04-3.0

Sample Time: 9:20 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 72		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 72		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 72		Control Limits 65 - 135

Comment: Report amended 1/7/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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Attn: Jim Brake

Date: 1/7/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-003

Client Sample ID: STNCC-04-4.0

Sample Time: 9:25 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	5.8	x	1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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Date: 1/7/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-003

Client Sample ID: STNCC-04-4.0

Sample Time: 9:25 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Comment: Report amended 1/7/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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Date: 1/7/00

Date Received: 1/4/00

Project Name: UP-SAC

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-004

Client Sample ID: STNCC-04-9.0

Sample Time: 9:45 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 79		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 79		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 79		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 79		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 79		Control Limits 65 - 135


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
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Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-004

Client Sample ID: STNCC-04-9.0

Sample Time: 9:45 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 79		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 79		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 79		Control Limits 65 - 135

Comment: Report amended 1/7/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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Sacramento, CA 95826

Attn: Jim Brake

Date: 1/7/00

Date Received: 1/4/00

Project Name: UP-SAC

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-005

Client Sample ID: STNCC-05-2.0

Sample Time: 9:58 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 89		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 89		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 89		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 89		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 89		Control Limits 65 - 135


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
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Sacramento, CA 95826  
Attn: Jim Brake


Date: 1/7/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409		Lab Sample ID: 18409-005		Client Sample ID: STNCC-05-2.0						
Sample Time: 9:58 AM		Sample Date: 1/3/00		Matrix: Solid						
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Kerosene	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 89		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Motor Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 89		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Stoddard Solvent	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 89		Control Limits 65 - 135

Comment: Report amended 1/7/00

DF = Dilution Factor      ND = Not Detected      DLR = Detection Limit Reported      PQL = Practical Quantitation Limit  
Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
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Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-006

Client Sample ID: STNCC-05-4.0

Sample Time: 10:02 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Bunker Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Diesel	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Fuel Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Hydraulic Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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Date: 1/7/00  
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Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-006

Client Sample ID: STNCC-05-4.0

Sample Time: 10:02 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
IPH as Kerosene	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
IPH as Motor Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
IPH as Stoddard Solvent	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135

Comment: Report amended 1/7/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-007

Client Sample ID: STNCC-05-9.0

Sample Time: 10:20 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
EPH as Bunker Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 86		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
EPH as Diesel	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 86		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
EPH as Fuel Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 86		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
EPH as Hydraulic Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 86		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
EPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 86		Control Limits 65 - 135

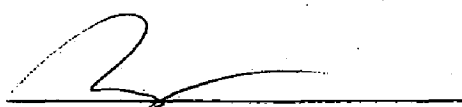
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ND = Not Detected

DLR = Detection Limit Reported

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Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-007

Client Sample ID: STNCC-05-9.0

Sample Time: 10:20 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Kerosene	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 86		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Motor Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 86		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Stoddard Solvent	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 86		Control Limits 65 - 135

Comment: Report amended 1/7/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
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Attn: Jim Brake

Date: 1/7/00  
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Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-008

Client Sample ID: STNCC-06-1.0

Sample Time: 10:37 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Bunker Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Diesel	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Fuel Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Hydraulic Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)



Michelle L. Anderson, Laboratory Director

*Environmental Analysis Since 1983*

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Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Jim Brake

Date: 1/7/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-008

Client Sample ID: STNCC-06-1.0

Sample Time: 10:37 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Kerosene	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Motor Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Stoddard Solvent	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Comment: Report amended 1/7/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
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Dames &amp; Moore

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Attn: Jim Brake

Date: 1/7/00

Date Received: 1/4/00

Project Name: UP-SAC

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-009

Client Sample ID: STNCC-06-3.0

Sample Time: 10:42 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Bunker Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 80		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Diesel	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 80		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Fuel Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 80		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Hydraulic Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 80		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 80		Control Limits 65 - 135


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-009

Client Sample ID: STNCC-06-3.0

Sample Time: 10:42 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 80		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 80		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 80		Control Limits 65 - 135

Comment: Report amended 1/7/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
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CA ELAP# 1-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
8801 Folsom Boulevard, Suite 200  
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Date: 1/7/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409		Lab Sample ID: 18409-010				Client Sample ID: STNCC-06-4.0				
Sample Time: 10:48 AM		Sample Date: 1/3/00				Matrix: Solid				
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Bunker Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Diesel	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Fuel Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Hydraulic Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #1-2346)

  
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525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

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Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-010

Client Sample ID: STNCC-06-4.0

Sample Time: 10:48 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135

Comment: Report amended 1/7/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
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525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames &amp; Moore

8801 Folsom Boulevard, Suite 200

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Attn: Jim Brake

Date: 1/7/00

Date Received: 1/4/00

Project Name: UP-SAC

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-011

Client Sample ID: STNCC-06-9.0

Sample Time: 11:02 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 92		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 92		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 92		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 92		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 92		Control Limits 65 - 135


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
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Date: 1/7/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-011

Client Sample ID: STNCC-06-9.0

Sample Time: 11:02 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
IPH as Kerosene	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 92		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
IPH as Motor Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 92		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
IPH as Stoddard Solvent	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 92		Control Limits 65 - 135

Comment: Report amended 1/7/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-012

Client Sample ID: STN21-03-1.0

Sample Time: 11:33 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		2	13	26	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 76		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		2	1	2	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 76		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		2	13	26	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 76		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		2	13	26	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 76		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		2	1	2	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 76		Control Limits 65 - 135


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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Project Name: UP-SAC

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-012

Client Sample ID: STN21-03-1.0

Sample Time: 11:33 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		2	1	2	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 76		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	74		2	13	26	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 76		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		2	1	2	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 76		Control Limits 65 - 135

Comment: Report amended 1/7/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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Date: 1/7/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409		Lab Sample ID: 18409-013				Client Sample ID: STN21-03-3.0				
Sample Time: 11:36 AM		Sample Date: 1/3/00				Matrix: Solid				
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Bunker Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Diesel	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Fuel Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Hydraulic Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

**Certified Analytical Report**

Order ID: 18409

Lab Sample ID: 18409-013

Client Sample ID: STN21-03-3.0

Sample Time: 11:36 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135

Comment: Report amended 1/7/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Jim Brake

Date: 1/7/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-014

Client Sample ID: STN21-03-9.0

Sample Time: 11:50 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 100		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 100		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 100		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 100		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 100		Control Limits 65 - 135


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
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Attn: Jim Brake

Date: 1/7/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-014

Client Sample ID: STN21-03-9.0

Sample Time: 11:50 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Kerosene	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 100		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Motor Oil	15		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 100		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Stoddard Solvent	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 100		Control Limits 65 - 135

Comment: Report amended 1/7/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #1-2346)

  
Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983



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Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Jim Brake

Date: 1/7/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-015

Client Sample ID: STN21-03-10.0

Sample Time: 11:58 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Bunker Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Diesel	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Fuel Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Hydraulic Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

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Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Jim Brake

Date: 1/7/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-015

Client Sample ID: STN21-03-10.0

Sample Time: 11:58 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	1/4/00	1/5/00	DS000102	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 87		Control Limits 65 - 135

Comment: Report amended 1/7/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
Michelle L. Anderson, Laboratory Director

*Environmental Analysis Since 1983*

# ntech Analytical Labs, Inc.

CA ELAP# I-2346

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Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Jim Brake

Date: 1/5/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409		Lab Sample ID: 18409-001			Client Sample ID: STNCC-04-1.0				
Sample Time: 9:15 AM		Sample Date: 1/3/00			Matrix: Solid				
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	29	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B
Lead	ND	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B

Order ID: 18409		Lab Sample ID: 18409-002			Client Sample ID: STNCC-04-3.0				
Sample Time: 9:20 AM		Sample Date: 1/3/00			Matrix: Solid				
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	19	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B
Lead	5.6	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B

Order ID: 18409		Lab Sample ID: 18409-003			Client Sample ID: STNCC-04-4.0				
Sample Time: 9:25 AM		Sample Date: 1/3/00			Matrix: Solid				
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	25	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B
Lead	17	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B

Order ID: 18409		Lab Sample ID: 18409-004			Client Sample ID: STNCC-04-9.0				
Sample Time: 9:45 AM		Sample Date: 1/3/00			Matrix: Solid				
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	6.4	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B
Lead	6.8	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B

Order ID: 18409		Lab Sample ID: 18409-005			Client Sample ID: STNCC-05-2.0				
Sample Time: 9:58 AM		Sample Date: 1/3/00			Matrix: Solid				
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	21	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B
Lead	9.5	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)



Michelle L. Anderson, Laboratory Director

Page 1 of 3

Environmental Analysis Since 1983

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Dames &amp; Moore

8801 Folsom Boulevard, Suite 200

Sacramento, CA 95826

Attn: Jim Brake

Date: 1/5/00

Date Received: 1/4/00

Project Name: UP-SAC

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409

Lab Sample ID: 18409-006

Client Sample ID: STNCC-05-4.0

Sample Time: 10:02 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	33	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B
Lead	23	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B

Order ID: 18409

Lab Sample ID: 18409-007

Client Sample ID: STNCC-05-9.0

Sample Time: 10:20 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	25	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B
Lead	11	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B

Order ID: 18409

Lab Sample ID: 18409-008

Client Sample ID: STNCC-06-1.0

Sample Time: 10:37 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	310	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B
Lead	95	5	1	5	mg/Kg	1/4/00	1/4/00	SM991225	EPA 6010B

Order ID: 18409

Lab Sample ID: 18409-009

Client Sample ID: STNCC-06-3.0

Sample Time: 10:42 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	7.2	5	1	5	mg/Kg	1/4/00	1/5/00	SM000102	EPA 6010B
Lead	7.6	5	1	5	mg/Kg	1/4/00	1/5/00	SM000102	EPA 6010B

Order ID: 18409

Lab Sample ID: 18409-010

Client Sample ID: STNCC-06-4.0

Sample Time: 10:48 AM

Sample Date: 1/3/00

Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	11	5	1	5	mg/Kg	1/4/00	1/5/00	SM000102	EPA 6010B
Lead	12	5	1	5	mg/Kg	1/4/00	1/5/00	SM000102	EPA 6010B


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
Michelle L. Anderson, Laboratory Director

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Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Jim Brake

Date: 1/5/00  
Date Received: 1/4/00  
Project Name: UP-SAC  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18409		Lab Sample ID: 18409-011			Client Sample ID: STNCC-06-9.0				
Sample Time: 11:02 AM		Sample Date: 1/3/00			Matrix: Solid				
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	ND	5	1	5	mg/Kg	1/4/00	1/5/00	SM000102	EPA 6010B
Lead	6.7	5	1	5	mg/Kg	1/4/00	1/5/00	SM000102	EPA 6010B

Order ID: 18409		Lab Sample ID: 18409-012			Client Sample ID: STN21-03-1.0				
Sample Time: 11:33 AM		Sample Date: 1/3/00			Matrix: Solid				
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	23	5	1	5	mg/Kg	1/4/00	1/5/00	SM000102	EPA 6010B
Lead	71	5	1	5	mg/Kg	1/4/00	1/5/00	SM000102	EPA 6010B

Order ID: 18409		Lab Sample ID: 18409-013			Client Sample ID: STN21-03-3.0				
Sample Time: 11:36 AM		Sample Date: 1/3/00			Matrix: Solid				
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	6.6	5	1	5	mg/Kg	1/4/00	1/5/00	SM000102	EPA 6010B
Lead	23	5	1	5	mg/Kg	1/4/00	1/5/00	SM000102	EPA 6010B

Order ID: 18409		Lab Sample ID: 18409-014			Client Sample ID: STN21-03-9.0				
Sample Time: 11:50 AM		Sample Date: 1/3/00			Matrix: Solid				
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	8.4	5	1	5	mg/Kg	1/4/00	1/5/00	SM000102	EPA 6010B
Lead	23	5	1	5	mg/Kg	1/4/00	1/5/00	SM000102	EPA 6010B

Order ID: 18409		Lab Sample ID: 18409-015			Client Sample ID: STN21-03-10.0				
Sample Time: 11:58 AM		Sample Date: 1/3/00			Matrix: Solid				
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	ND	5	1	5	mg/Kg	1/4/00	1/5/00	SM000102	EPA 6010B
Lead	7.0	5	1	5	mg/Kg	1/4/00	1/5/00	SM000102	EPA 6010B


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ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
Michelle L. Anderson, Laboratory Director

## STANDARD LAB QUALIFIERS (FLAGS)

All Entech lab reports now reference standard lab qualifiers. These qualifiers are noted in the adjacent column to the analytical result and are adapted from the U.S. EPA CLP program. The current qualifier list is as follows:

Qualifier (Flag)	Description
U	Compound was analyzed for but not detected
J	Estimated value for tentatively identified compounds or if result is below PQL but above MDL
N	Presumptive evidence of a compound (for Tentatively Identified Compounds)
B	Analyte is found in the associated Method Blank
E	Compounds whose concentrations exceed the upper level of the calibration range
D	Multiple dilutions reported for analysis; discrepancies between analytes may be due to dilution
X	Results within quantitation range; chromatographic pattern not typical of fuel

Intech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E  
Sunnyvale, CA 94086

### QUALITY CONTROL RESULTS SUMMARY

Laboratory Control Spikes

METHOD: EPA 6010

QC Batch #: SM991225

Matrix: Solid

Units: mg/kg

Date Analyzed: 12/30/99

Date Digested: 12/29/99 -01/04/00

Digestion Method: EPA 3050

Spiked Sample: Blank Spike

PARAMETER	Method #	MB mg/kg	SA mg/kg	SR mg/kg	SP mg/kg	SP %R	SPD mg/kg	SPD %R	RPD	QC LIMITS	
										RPD	%R
arsenic	6010	<1.0	50.	0.0	43.	85	45.	91	6.1	25.0	75-125
lead	6010	<1.0	50.	0.0	42.	84	49.	98	15.3	25.0	75-125

#### Definition of Terms:

na: Not Analyzed in QC batch

MB: Method Blank

SA: Spike Added

SR: Sample Result

SP: Spike Result

SP (%R): Spike % Recovery

SPD: Spike Duplicate Result

SPD (%R): Spike Duplicate % Recovery

Entech Analytical Labs, Inc.

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Sunnyvale, CA 94086

### QUALITY CONTROL RESULTS SUMMARY

Matrix Spike and Matrix Spike Duplicate

METHOD: EPA 6010

QC Batch #: SM991225

Matrix: Solid

Units: mg/kg

Date Analyzed: 12/30/99

Date Digested: 12/29/99 -01/04/00

Digestion Method: EPA 3050

Spiked Sample: 18367-002

PARAMETER	Method #	MB	SA	SR	SP	SP	SPD	SPD	RPD	QC LIMITS	
		mg/kg	mg/kg	mg/kg	mg/kg	%R	mg/kg	%R		RPD	%R
Arsenic	6010	<1.0	50.	15.1	51.	72	58.	85	12.3	25.0	64-115
Lead	6010	<1.0	50.	6.5	51.	88	50.	88	0.7	25.0	64-115

Calculated Recoveries Outside of Control Limits:

#### Definition of Terms:

na: Not Analyzed in QC batch

nc: Not Calculated

MB: Method Blank

SA: Spike Added

SR: Sample Result

SP: Spike Result

SP (%R): Spike % Recovery

SPD: Spike Duplicate Result

SPD (%R): Spike Duplicate % Recovery



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### QUALITY CONTROL RESULTS SUMMARY

Matrix Spike/Matrix Spike Duplicate

QC Batch #: DS000102

Matrix: Solid

Units: mg/Kg

Date analyzed: 01/05/99

Date extracted: 01/04/99

Quality Control Sample: 18409-004

PARAMETER	Method #	MB	SA	SR	SP	SP	SPD	SPD	RPD	QC LIMITS	
		mg/Kg	mg/Kg	mg/Kg	mg/Kg	%R	mg/Kg	%R		RPD	%R
Diesel	8015M	<1.0	25	ND	20	79	20	81	2.9	30	50-150

Hexacosane 79% 93% 86% 65-135

Calculated Recovery Outside of Control Limits:

#### Definition of Terms:

MB: Method Blank

na: Not Analyzed in QC batch

SA: Spike Added

SR: Sample Result

RPD(%): Duplicate Analysis - Relative Percent Difference

SP: Spike Result

SP (%R): Spike % Recovery

SPD: Spike Duplicate Result

SPD (%R): Spike Duplicate % Recovery

NC: Not Calculated

**QUALITY CONTROL RESULTS SUMMARY**  
Laboratory Control Spikes

QC Batch #: DS000102

Date analyzed: 01/05/00

Matrix: Solid

Date extracted: 01/04/00

Units: mg/Kg

Quality Control Sample: Blank Spike

PARAMETER	Method #	MB mg/Kg	SA mg/Kg	SR mg/Kg	SP mg/Kg	SP %R	SPD mg/Kg	SPD %R	RPD	RPD	QC LIMITS %R
Diesel	8015M	<1.0	25	ND	19	76	18	74	2.7	30	50-150

Hexacosane				92%	84%		77%				65-135
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**Definition of Terms:**

MB: Method Blank

na: Not Analyzed in QC batch

SA: Spike Added

SR: Sample Result

RPD(%): Duplicate Analysis - Relative Percent Difference

SP: Spike Result

SP (%R): Spike % Recovery

SPD: Spike Duplicate Result

SPD (%R): Spike Duplicate % Recovery

NC: Not Calculated

# QUALITY CONTROL RESULTS SUMMARY

Laboratory Control Spikes

METHOD: EPA 6010

Date Analyzed: 01/05/00

Date Digested: 01/04/00

Digestion Method: EPA 3050

Spiked Sample: Blank Spike

QC Batch #: SM000102

Matrix: Solid

Units: mg/kg

PARAMETER	Method #	MB mg/kg	SA mg/kg	SR mg/kg	SP mg/kg	SP %R	SPD mg/kg	SPD %R	RPD	QC LIMITS	
										RPD	%R
senic	6010	<1.0	50.	0.0	47.	94	45.	91	3.4	25.0	75-125
dmium	6010	<1.0	50.	0.0	44.	88	47.	94	6.5	25.0	75-125
romium	6010	<1.0	50.	0.0	51.	101	46.	93	9.0	25.0	75-125
pper	6010	<1.0	50.	0.0	49.	97	49.	99	1.7	25.0	75-125
ad	6010	<1.0	50.	0.0	46.	92	48.	96	4.9	25.0	75-125
ckel	6010	<1.0	50.	0.0	46.	91	47.	93	2.1	25.0	75-125
elenium	6010	<1.0	50.	0.0	43.	85	43.	86	1.3	25.0	75-125
nc	6010	<1.0	50.	0.0	45.	90	48.	95	6.3	25.0	75-125

## Definition of Terms:

na: Not Analyzed in QC batch

MB: Method Blank

SA: Spike Added

SR: Sample Result

SP: Spike Result

SP (%R): Spike % Recovery

SPD: Spike Duplicate Result

SPD (%R): Spike Duplicate % Recovery

## QUALITY CONTROL RESULTS SUMMARY

Matrix Spike and Matrix Spike Duplicate

METHOD: EPA 6010

QC Batch #: SM000102

Matrix: Solid

Units: mg/kg

Date Analyzed: 01/05/00

Date Digested: 01/04/00

Digestion Method: EPA 3050

Spiked Sample: 18409-009

PARAMETER	Method #	MB mg/kg	SA mg/kg	SR mg/kg	SP mg/kg	SP %R	SPD mg/kg	SPD %R	RPD	QC LIMITS	
										RPD	%R
Arsenic	6010	<1.0	50.	0.0	43.	86	32.	64	29.6	25.0	64-115
Cadmium	6010	<1.0	50.	0.0	38.	77	38.	77	0.0	25.0	70-100
Chromium	6010	<1.0	50.	32.8	112.	158	111.	157	0.2	25.0	68-112
Copper	6010	<1.0	50.	16.6	50.	67	50.	67	0.1	25.0	75-109
Lead	6010	<1.0	50.	7.6	49.	83	49.	84	0.8	25.0	64-115
Nickel	6010	<1.0	50.	54.6	83.	57	83.	56	0.7	25.0	72-112
Selenium	6010	<1.0	50.	0.0	45.	90	35.	70	24.7	25.0	67-103
Zinc	6010	<1.0	50.	24.8	66.	82	66.	82	0.2	25.0	69-119

Calculated Recoveries Outside of Control Limits:

Chromium

Copper

Nickel

## Definition of Terms:

na: Not Analyzed in QC batch

nc: Not Calculated

MB: Method Blank

SA: Spike Added

SR: Sample Result

SP: Spike Result

SP (%R): Spike % Recovery

SPD: Spike Duplicate Result

SPD (%R): Spike Duplicate % Recovery

# Custody Record

525 Delaney Ave, Sunnyvale, CA 94086

QUA-4124 0797

Client <b>Dames &amp; Moore</b>		Project Manager <b>Jim Brake</b>		Date <b>12-29-99</b>	Chain of Custody Number <b>28363</b>
Address <b>8801 Folsom Blvd. Suite 200</b>		Telephone Number (Area Code)/Fax Number <b>916-387-8800/916-387-0802</b>		Lab Number	Page <b>1</b> of <b>2</b>

City <b>Sacramento</b>	State <b>CA</b>	Zip Code <b>95826</b>	Site Contact <b>T. Joseph</b>	Lab Contact	Analysis (Attach list if more space is needed)
Project Name <b>WPSac</b>			Carrier/Waybill Number		

Contract/Purchase Order/Quote No. <b>00173-196-044</b>		Matrix		Containers & Preservatives		Total Lead	Total Arsenic	Special Instructions/ Conditions of Receipt <b>ROSH</b>										
Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Aqueous	Sed.	Soil				Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH				
STNCC-04-1.0	1/3/00	0915			X	X												18409
STNCC-04-3.0	↑	0920			↑	↑												001
STNCC-04-4.0		0925																002
STNCC-04-9.0		0945																003
STNCC-05-2.0		0958																004
STNCC-05-4.0		1002																005
STNCC-05-9.0		1020																006
STNCC-06-1.0		1037																007
STNCC-06-3.0		1042																008
STNCC-06-4.0		1048																009
STNCC-06-9.0		1102																010
STN21-03-1.0	↓	1133			↓	↓												011

Possible Hazard Identification			Sample Disposal			(A fee may be assessed if samples are retained longer than 3 months)		
<input type="checkbox"/> Non-Hazard	<input type="checkbox"/> Flammable	<input type="checkbox"/> Skin Irritant	<input type="checkbox"/> Poison B	<input type="checkbox"/> Unknown	<input type="checkbox"/> Return To Client	<input type="checkbox"/> Disposal By Lab	<input type="checkbox"/> Archive For _____ Months	

Turn Around Time Required		QC Requirements (Specify)	
<input checked="" type="checkbox"/> 24 Hours	<input type="checkbox"/> 48 Hours	<input type="checkbox"/> 7 Days	<input type="checkbox"/> 14 Days
<input type="checkbox"/> 21 Days	<input checked="" type="checkbox"/> Other <b>Rush</b>		
1. Relinquished By <b>[Signature]</b>	Date <b>1/3/00</b>	Time <b>1630</b>	1. Received By
2. Relinquished By	Date	Time	2. Received By
3. Relinquished By	Date	Time	3. Received By <b>[Signature]</b>
			Date <b>1/4/00</b>
			Time <b>910</b>

Comments  
\* Analytical Methods as per agreement w/ Dames & Moore

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy



# Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

December 27, 1999

Sandra Dittmar

Dames & Moore

8801 Folsom Boulevard, Suite 200

Sacramento, CA 95826

Order: 18320

Date Collected: 12/22/99

Project Name:

Date Received: 12/23/99

Project Number:

P.O. Number: 00173-195-044

Project Notes:

On December 23, 1999, 15 samples were received under documented chain of custody. Results for the following analyses are attached:

<u>Matrix</u>	<u>Test</u>	<u>Method</u>
Solid	Arsenic	EPA 6010B
	Lead	EPA 6010B
	TPH, Extractable	EPA 8015 MOD. (Extractable)

Chemical analysis of these samples has been completed. Summaries of the data are contained on the following pages. USEPA protocols for sample storage and preservation were followed.

Entech Analytical Labs, Inc. is certified by the State of California (#I-2346). If you have any questions regarding procedures or results, please call me at 408-735-1550.

Sincerely,



Michelle L. Anderson  
Lab Director

# ntech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Sandra Dittmar

Date: 12/27/99  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320      Lab Sample ID: 18320-001      Client Sample ID: STNCC-01-1.0

Sample Time: 11:40 AM      Sample Date: 12/22/99      Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	240	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B
Lead	310	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B

Order ID: 18320      Lab Sample ID: 18320-002      Client Sample ID: STNCC-01-3.0

Sample Time: 11:50 AM      Sample Date: 12/22/99      Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	ND	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B
Lead	8.9	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B

Order ID: 18320      Lab Sample ID: 18320-003      Client Sample ID: STNCC-01-9.0

Sample Time: 12:25 PM      Sample Date: 12/22/99      Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	47	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B
Lead	16	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B

Order ID: 18320      Lab Sample ID: 18320-004      Client Sample ID: STNCC-02-1.0

Sample Time: 1:05 PM      Sample Date: 12/22/99      Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	150	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B
Lead	70	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B


Order ID: 18320      Lab Sample ID: 18320-005      Client Sample ID: STNCC-02-3.0

Sample Time: 1:15 PM      Sample Date: 12/22/99      Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	ND	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B
Lead	7.4	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B

DF = Dilution Factor      ND = Not Detected      DLR = Detection Limit Reported      PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
Michelle L. Anderson, Laboratory Director

Page 1 of 3

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CA ELAP# I-2346

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Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Sandra Dittmar

Date: 12/27/99  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320		Lab Sample ID: 18320-006				Client Sample ID: STNCC-02-7.0			
Sample Time: 1:55 PM		Sample Date: 12/22/99				Matrix: Solid			
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	ND	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B
Lead	11	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B

Order ID: 18320		Lab Sample ID: 18320-007				Client Sample ID: STNCC-03-1.0			
Sample Time: 2:00 PM		Sample Date: 12/22/99				Matrix: Solid			
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	190	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B
Lead	470	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B

Order ID: 18320		Lab Sample ID: 18320-008				Client Sample ID: STNCC-03-3.0			
Sample Time: 2:10 PM		Sample Date: 12/22/99				Matrix: Solid			
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	31	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B
Lead	120	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B

Order ID: 18320		Lab Sample ID: 18320-009				Client Sample ID: STNCC-03-9.0			
Sample Time: 2:45 PM		Sample Date: 12/22/99				Matrix: Solid			
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	ND	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B
Lead	12	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B

Order ID: 18320		Lab Sample ID: 18320-010				Client Sample ID: STN21-01-1.0			
Sample Time: 3:15 PM		Sample Date: 12/22/99				Matrix: Solid			
Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	300	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B
Lead	85	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
Michelle L. Anderson, Laboratory Director

Page 2 of 3

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Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Sandra Dittmar

Date: 12/27/99  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-011

Client Sample ID: STN21-01-3.0

Sample Time: 3:30 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	72	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B
Lead	82	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B

Order ID: 18320

Lab Sample ID: 18320-012

Client Sample ID: STN21-01-9.0

Sample Time: 3:55 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	ND	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B
Lead	7.6	5	1	5	mg/Kg	12/23/99	12/27/99	SM991223	EPA 6010B

Order ID: 18320

Lab Sample ID: 18320-013

Client Sample ID: STN21-02-1.0

Sample Time: 4:15 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	55	5	1	5	mg/Kg	12/23/99	12/27/99	SM991224	EPA 6010B
Lead	8.7	5	1	5	mg/Kg	12/23/99	12/27/99	SM991224	EPA 6010B

Order ID: 18320

Lab Sample ID: 18320-014

Client Sample ID: STN21-02-5.0

Sample Time: 4:22 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	18	5	1	5	mg/Kg	12/23/99	12/27/99	SM991224	EPA 6010B
Lead	11	5	1	5	mg/Kg	12/23/99	12/27/99	SM991224	EPA 6010B

Order ID: 18320

Lab Sample ID: 18320-015

Client Sample ID: STN21-02-9.0

Sample Time: 4:25 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	DF	PQL	DLR	Units	PrepDate	Analysis Date	QC Batch ID	Method
Arsenic	ND	5	1	5	mg/Kg	12/23/99	12/27/99	SM991224	EPA 6010B
Lead	9.7	5	1	5	mg/Kg	12/23/99	12/27/99	SM991224	EPA 6010B


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
Michelle L. Anderson, Laboratory Director

# Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames &amp; Moore

8801 Folsom Boulevard, Suite 200

Sacramento, CA 95826

Attn: Sandra Dittmar

Date: 1/7/00

Date Received: 12/23/99

Project Name:

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-001

Client Sample ID: STNCC-01-1.0

Sample Time: 11:40 AM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 109		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 109		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 109		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 109		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 109		Control Limits 65 - 135

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

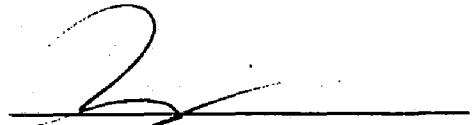
PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

REPLACEMENT PAGE

DATE 1/14/00

INITIALS STD

  
Michelle L. Anderson, Laboratory Director

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CA ELAP# I-2346

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Dames &amp; Moore

8801 Folsom Boulevard, Suite 200

Sacramento, CA 95826

Attn: Sandra Dittmar

Date: 1/7/00

Date Received: 12/23/99

Project Name:

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-001

Client Sample ID: STNCC-01-1.0

Sample Time: 11:40 AM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 109		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	22		1	13	13	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 109		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 109		Control Limits 65 - 135

Comment: Report amended 1/6/00

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

REPLACEMENT PAGE

DATE 1/14/00

INITIALS SJD

Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983

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Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Sandra Dittmar

Date: 1/7/00  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-002

Client Sample ID: STNCC-01-3.0

Sample Time: 11:50 AM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135
Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

REPLACEMENT PAGE

DATE 1/14/00

INITIALS SJD

Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983

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Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Sandra Dittmar

Date: 1/7/00  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-002

Client Sample ID: STNCC-01-3.0

Sample Time: 11:50 AM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Comment: Report amended 1/6/00

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

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DATE 1/14/00

INITIALS SD

Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Sandra Dittmar

Date: 1/7/00  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-003

Client Sample ID: STNCC-01-9.0

Sample Time: 12:25 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 87		Control Limits 65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 87		Control Limits 65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 87		Control Limits 65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 87		Control Limits 65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 87		Control Limits 65 - 135	

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported


PQL = Practical Quantitation Limit

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Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-003

Client Sample ID: STNCC-01-9.0

Sample Time: 12:25 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 87		Control Limits 65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 87		Control Limits 65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane	Surrogate Recovery 87		Control Limits 65 - 135	

Comment: Report amended 1/6/00

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #1-2346)

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CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
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Date: 1/7/00  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-004

Client Sample ID: STNCC-02-1.0

Sample Time: 1:05 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

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Date: 1/7/00  
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Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-004

Client Sample ID: STNCC-02-1.0

Sample Time: 1:05 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 99		Control Limits 65 - 135

Comment: Report amended 1/6/00

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
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525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Sandra Dittmar

Date: 1/7/00  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-005

Client Sample ID: STNCC-02-3.0

Sample Time: 1:15 PM.

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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CA-ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Sandra Dittmar

Date: 1/7/00  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-005

Client Sample ID: STNCC-02-3.0

Sample Time: 1:15 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Comment: Report amended 1/6/00

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

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DATE 1/14/00

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Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

CA ELAP# 1-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Sandra Dittmar

Date: 1/7/00  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph.

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-006

Client Sample ID: STNCC-02-7.0

Sample Time: 1:55 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 82		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 82		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 82		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 82		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 82		Control Limits 65 - 135

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported


PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #1-2346)

REPLACEMENT PAGE

DATE 1/14/00

INITIALS STD

  
Michelle L. Anderson, Laboratory Director

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CA ELAP# 1-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

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Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-006

Client Sample ID: STNCC-02-7.0

Sample Time: 1:55 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 82		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 82		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 82		Control Limits 65 - 135

Comment: Report amended 1/6/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

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Date: 1/7/00  
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Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-007

Client Sample ID: STNCC-03-1.0

Sample Time: 2:00 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		2	13	26	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		2	1	2	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		2	13	26	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		2	13	26	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		2	1	2	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported


PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

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Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-007

Client Sample ID: STNCC-03-1.0

Sample Time: 2:00 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		2	1	2	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	64		2	13	26	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		2	1	2	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Comment: Report amended 1/6/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
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DATE 1/4/00

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CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
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Attn: Sandra Dittmar

Date: 1/7/00  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-008

Client Sample ID: STNCC-03-3.0

Sample Time: 2:10 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

REPLACEMENT PAGE

DATE 1/14/00

INITIALS SJD

Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Sandra Dittmar

Date: 1/7/00  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-008

Client Sample ID: STNCC-03-3.0

Sample Time: 2:10 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Comment: Report amended 1/6/00


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
Michelle L. Anderson, Laboratory Director

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525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

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8801 Folsom Boulevard, Suite 200  
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Attn: Sandra Dittmar

Date: 1/7/00  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-009

Client Sample ID: STNCC-03-9.0

Sample Time: 2:45 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 95		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 95		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 95		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 95		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 95		Control Limits 65 - 135

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-009

Client Sample ID: STNCC-03-9.0

Sample Time: 2:45 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 95		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 95		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 95		Control Limits 65 - 135

Comment: Report amended 1/6/00

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames &amp; Moore

8801 Folsom Boulevard, Suite 200

Sacramento, CA 95826

Attn: Sandra Dittmar

Date: 1/7/00

Date Received: 12/23/99

Project Name:

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-010

Client Sample ID: STN21-01-1.0

Sample Time: 3:15 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported


PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

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INITIALS SSD

  
Michelle L. Anderson, Laboratory Director

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CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

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Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-010

Client Sample ID: STN21-01-1.0

Sample Time: 3:15 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 96		Control Limits 65 - 135

Comment: Report amended 1/6/00

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported


PQL = Practical Quantitation Limit

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Michelle L. Anderson, Laboratory Director

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525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
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Attn: Sandra Dittmar

Date: 1/7/00  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-011

Client Sample ID: STN21-01-3.0

Sample Time: 3:30 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		10	13	130	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 114		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		10	1	10	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 114		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		10	13	130	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 114		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		10	13	130	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 114		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		10	1	10	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 114		Control Limits 65 - 135

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

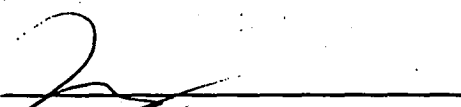
PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

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DATE 1/14/00

INITIALS STD

  
Michelle L. Anderson, Laboratory Director

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CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Sandra Dittmar

Date: 1/7/00  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-011

Client Sample ID: STN21-01-3.0

Sample Time: 3:30 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		10	1	10	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 114		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	280		10	13	130	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 114		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		10	1	10	mg/Kg	12/23/99	12/27/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 114		Control Limits 65 - 135

Comment: Report amended 1/6/00

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

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Date: 1/7/00  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-012

Client Sample ID: STN21-01-9.0

Sample Time: 3:55 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

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525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames &amp; Moore

8801 Folsom Boulevard, Suite 200

Sacramento, CA 95826

Attn: Sandra Dittmar

Date: 1/7/00

Date Received: 12/23/99

Project Name:

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-013

Client Sample ID: STN21-02-1.0

Sample Time: 4:15 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

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Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-012

Client Sample ID: STN21-01-9.0

Sample Time: 3:55 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 90		Control Limits 65 - 135

Comment: Report amended 1/6/00

DF = Dilution Factor

ND = Not Detected

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Sacramento, CA 95826

Attn: Sandra Dittmar

Date: 1/7/00

Date Received: 12/23/99

Project Name:

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-013

Client Sample ID: STN21-02-1.0

Sample Time: 4:15 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 97		Control Limits 65 - 135

Comment: Report amended 1/6/00

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

REPLACEMENT PAGE

DATE 1/14/00

INITIALS ASD

Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames &amp; Moore

8801 Folsom Boulevard, Suite 200

Sacramento, CA 95826

Attn: Sandra Dittmar

Date: 1/7/00

Date Received: 12/23/99

Project Name:

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-014

Client Sample ID: STN21-02-5.0

Sample Time: 4:22 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Bunker Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 105		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Diesel	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 105		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Fuel Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 105		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Hydraulic Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 105		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
PH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 105		Control Limits 65 - 135

F = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

REPLACEMENT PAGE

DATE 1/14/00

INITIALS SDD

Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames & Moore  
8801 Folsom Boulevard, Suite 200  
Sacramento, CA 95826  
Attn: Sandra Dittmar

Date: 1/7/00  
Date Received: 12/23/99  
Project Name:  
Project Number:  
P.O. Number: 00173-195-044  
Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-014

Client Sample ID: STN21-02-5.0

Sample Time: 4:22 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 105		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 105		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 105		Control Limits 65 - 135

Comment: Report amended 1/6/00

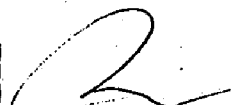
DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

  
Michelle L. Anderson, Laboratory Director

REPLACEMENT PAGE

DATE 1/14/00

INITIALS SJD

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames &amp; Moore

8801 Folsom Boulevard, Suite 200

Sacramento, CA 95826

Attn: Sandra Dittmar

Date: 1/7/00

Date Received: 12/23/99

Project Name:

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-015

Client Sample ID: STN21-02-9.0

Sample Time: 4:25 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Bunker Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Fuel Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Hydraulic Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Jet Fuel (JP-5)	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
						Surrogate Hexacosane		Surrogate Recovery 93		Control Limits 65 - 135

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

REPLACEMENT PAGE

DATE 1/14/00

INITIALS SJD

Michelle E. Anderson, Laboratory Director

Environmental Analysis Since 1983

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CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Dames &amp; Moore

8801 Folsom Boulevard, Suite 200

Sacramento, CA 95826

Attn: Sandra Dittmar

Date: 1/7/00

Date Received: 12/23/99

Project Name:

Project Number:

P.O. Number: 00173-195-044

Sampled By: Trevor Joseph

## Certified Analytical Report

Order ID: 18320

Lab Sample ID: 18320-015

Client Sample ID: STN21-02-9.0

Sample Time: 4:25 PM

Sample Date: 12/22/99

Matrix: Solid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Kerosene	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
Surrogate Hexacosane							Surrogate Recovery 93		Control Limits 65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	ND		1	13	13	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
Surrogate Hexacosane							Surrogate Recovery 93		Control Limits 65 - 135	

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Stoddard Solvent	ND		1	1	1	mg/Kg	12/23/99	12/24/99	DS991211	EPA 8015 MOD. (Extractable)
Surrogate Hexacosane							Surrogate Recovery 93		Control Limits 65 - 135	

Comment: Report amended 1/6/00

DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

REPLACEMENT PAGE

DATE 1/14/00

INITIALS SJD

Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983



## QUALITY CONTROL RESULTS SUMMARY

Laboratory Control Spikes

METHOD: EPA 6010

QC Batch #: SM991223

Matrix: Solid

Units: mg/kg

Date Analyzed: 12/27/99

Date Digested: 12/23/99

Digestion Method: EPA 3050

Spiked Sample: Blank Spike

PARAMETER	Method #	MB mg/kg	SA mg/kg	SR mg/kg	SP mg/kg	SP %R	SPD mg/kg	SPD %R	RPD	QC LIMITS	
										RPD	%R
Arsenic	6010	<1.0	50.	0.0	45.	90	46.	91	1.3	25.0	75-125
	6010	<1.0	50.	0.0	48.	95	48.	96	0.5	25.0	75-125

## Definition of Terms:

na: Not Analyzed in QC batch

MB: Method Blank

SA: Spike Added

SR: Sample Result

SP: Spike Result

SP (%R): Spike % Recovery

SPD: Spike Duplicate Result

SPD (%R): Spike Duplicate % Recovery

Entech Analytical Labs, Inc.

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Sunnyvale, CA 94086

**QUALITY CONTROL RESULTS SUMMARY**

Matrix Spike and Matrix Spike Duplicate  
METHOD: EPA 6010

QC Batch #: SM991223

Matrix: Solid

Units: mg/kg

Date Analyzed: 12/27/99

Date Digested: 12/23/99

Digestion Method: EPA 3050

Spiked Sample: 18311-001

PARAMETER	Method #	MB mg/kg	SA mg/kg	SR mg/kg	SP mg/kg	SP %R	SPD mg/kg	SPD %R	RPD	QC LIMITS	
										RPD	%R
Arsenic	6010	<1.0	50.	0.0	32.	65	28.	57	13.3	25.0	64-115
Lead	6010	<1.0	50.	23.7	78.	109	75.	103	4.0	25.0	64-115

Calculated Recoveries Outside of Control Limits:

Arsenic

**Definition of Terms:**

na: Not Analyzed in QC batch

nc: Not Calculated

MB: Method Blank

SA: Spike Added

SR: Sample Result

SP: Spike Result

SP (%R): Spike % Recovery

SPD: Spike Duplicate Result

SPD (%R): Spike Duplicate % Recovery

QUALITY CONTROL RESULTS SUMMARY

Laboratory Control Spikes  
METHOD: EPA 6010

QC Batch #: SM991224  
Matrix: Solid  
Units: mg/kg

Date Analyzed: 12/27/99  
Date Digested: 12/23/99  
Digestion Method: EPA 3050  
Spiked Sample: Blank Spike

PARAMETER	Method #	MB	SA	SR	SP	SP	SPD	SPD	RPD	QC LIMITS	
		mg/kg	mg/kg	mg/kg	mg/kg	%R	mg/kg	%R		RPD	%R
Arsenic	6010	<1.0	50.	0.0	43.	87	44.	88	1.6	25.0	75-125
	6010	<1.0	50.	0.0	45.	90	48.	96	6.7	25.0	75-125

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike Duplicate % Recovery

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E  
Sunnyvale, CA 94086

### QUALITY CONTROL RESULTS SUMMARY

Matrix Spike and Matrix Spike Duplicate

METHOD: EPA 6010

QC Batch #: SM991224

Matrix: Solid

Units: mg/kg

Date Analyzed: 12/27/99

Date Digested: 12/23/99

Digestion Method: EPA 3050

Spiked Sample: 18320-013

PARAMETER	Method #	MB mg/kg	SA mg/kg	SR mg/kg	SP mg/kg	SP %R	SPD mg/kg	SPD %R	RPD	RPD	QC LIMITS	
											RPD	%R
Arsenic	6010	<1.0	50.	55.2	130.	149	125.	139	4.0	25.0		64-115
Lead	6010	<1.0	50.	8.7	63.	108	64.	110	1.4	25.0		64-115

Calculated Recoveries Outside of Control Limits:

Arsenic

#### Definition of Terms:

na: Not Analyzed in QC batch

nc: Not Calculated

MB: Method Blank

SA: Spike Added

SR: Sample Result

SP: Spike Result

SP (%R): Spike % Recovery

SPD: Spike Duplicate Result

SPD (%R): Spike Duplicate % Recovery

QUALITY CONTROL RESULTS SUMMARY  
Laboratory Control Spikes

QC Batch #: DS991211

Matrix: Solid

Units: mg/Kg

Date analyzed: 12/23/99

Date extracted: 12/23/99

Quality Control Sample: Blank Spike

PARAMETER	Method #	MB mg/Kg	SA mg/Kg	SR mg/Kg	SP mg/Kg	SP %R	SPD mg/Kg	SPD %R	RPD	RPD	QC LIMITS %R
Diesel	8015M	<1.0	25	ND	20	80	20	81	0.8	30	35-126
Hexacosane				93%	91%		92%				65-135

## Definition of Terms:

MB: Method Blank

na: Not Analyzed in QC batch

SA: Spike Added

SR: Sample Result

RPD(%): Duplicate Analysis - Relative Percent Difference

SP: Spike Result

SP (%R): Spike % Recovery

SPD: Spike Duplicate Result

SPD (%R): Spike Duplicate % Recovery

NC: Not Calculated

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E  
Sunnyvale, CA 94086

### QUALITY CONTROL RESULTS SUMMARY

Matrix Spike/Matrix Spike Duplicate

QC Batch #: DS991211

Matrix: Solid

Units: mg/Kg

Date analyzed: 12/23/99

Date extracted: 12/23/99

Quality Control Sample: 18301-002

PARAMETER	Method #	MB	SA	SR	SP	SP	SPD	SPD	RPD	QC LIMITS	
		mg/Kg	mg/Kg	mg/Kg	mg/Kg	%R	mg/Kg	%R		RPD	%R
Diesel	8015M	<1.0	25	0.0	18	74	17	68	7.9	30	35-126

Hexacosane

171%

79%

79%

65-135

Calculated Recovery Outside of Control Limits:

High surrogate recovery due to the surrogate being added to the sample twice.

#### Definition of Terms:

MB: Method Blank

na: Not Analyzed in QC batch

SA: Spike Added

SR: Sample Result

RPD(%): Duplicate Analysis - Relative Percent Difference

SP: Spike Result

SP (%R): Spike % Recovery

SPD: Spike Duplicate Result

SPD (%R): Spike Duplicate % Recovery

NC: Not Calculated

# Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • Telephone: (408) 735-1550 (800) 287-1799 • Fax: (408) 735-1554

## Chain of Custody/Analysis Work Order

Client: Dames & Moore

Address: 8801 Folsom Blvd. STE 200

SACRAMENTO, CA 95827

Contact: ~~XXXXX~~ SANDRA DUMATZ

Telephone #: (916) 387-8800

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

Turn Around: 24 hr

Project ID: ~~11-11-11-11~~ 00173-195-044

Purchase Order #: ~~00173-195-044~~

Sampler/Company: \_\_\_\_\_ Telephone #: \_\_\_\_\_

Trevor Joseph/Dames & Moore  
916-387-8800

Special Instructions/Comments  
Analytical Methods as per agreement  
with Dames & Moore

### LAB USE ONLY

Samples arrived chilled and intact:

Yes \_\_\_\_\_ No \_\_\_\_\_

Notes: \_\_\_\_\_

### Sample Information

**RUSH**

### Requested Analysis

Lab #	Sample ID	Grab/ Composite	Matrix	Date Collected	Time Collected	Pres.	Sample Container	TPH	PAHs	Total Lead	Total Arsenic				
001	STNCC-01-10	GAS	SOIL	12/22/99	1140	—	ACETATE SLEEVE	X		X	X				
002	STNCC-01-30	↑	↑	↑	1150	↑	↑	↑		↑	↑				
003	STNCC-01-70	↑	↑	↑	1225	↑	↑	↑		↑	↑				
004	STNCC-02-10	↑	↑	↑	1305	↑	↑	↑		↑	↑				
005	STNCC-02-30	↑	↑	↑	1315	↑	↑	↑		↑	↑				
006	STNCC-02-70	↑	↑	↑	1355	↑	↑	↑		↑	↑				
007	STNCC-03-10	↑	↑	↑	1400	↑	↑	↑		↑	↑				
008	STNCC-03-30	↓	↓	↓	1410	↓	↓	↓		↓	↓				

Relinquished By: [Signature]

Received By: FEDEX

Date: 12/22/99

Time: 1800

Relinquished By: \_\_\_\_\_

Received By: \_\_\_\_\_

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

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

Relinquished By: \_\_\_\_\_

Received By: [Signature]

Date: 12/23/99

Time: 1130

# Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • Telephone: (408) 735-1550 (800) 287-1799 • Fax: (408) 735-1554

## Chain of Custody/Analysis Work Order

Client: Dames & Moore  
 Address: 8801 Folsom Blvd. STE 200  
SACRAMENTO CA 95827  
 Contact: ~~William Dittmar~~ SANDRA DITTMAR  
 Telephone #: (916) 387-8800  
 Date Received: \_\_\_\_\_  
 Turn Around: 24 hr

Project ID: UP-Sac Phase II A RA  
 Purchase Order #: 00173-195-044

Sampler/Company: \_\_\_\_\_ Telephone #: \_\_\_\_\_  
 Trevor Joseph / Dames & Moore  
 916-387-8800  
 Special Instructions/Comments  
 Analytical methods as per agreement  
 with Dames & Moore

### LAB USE ONLY

Samples arrived chilled and intact:

Yes \_\_\_\_\_ No \_\_\_\_\_

Notes: \_\_\_\_\_

### Sample Information

**RUSH**

### Requested Analysis

Lab #	Sample ID	Grab/ Composite	Matrix	Date Collected	Time Collected	Pres.	Sample Container	TPH	PH	Wetness Total Lead	Total Arsenic				
009	STNCC-03-9.0	GRAB	SOIL	12/22/99	1445	—	ACETATE SLEEVE	X		X	X				
010	STN21-01-3.0	↑	↑	↑	1515	↑	↑	↑		↑	↑				
011	STN21-01-3.0				1530										
012	STN21-01-9.0				1555										
013	STN21-02-1.0				1615										
014	STN21-02-5.0				1622										
015	STN21-02-9.0	↓	↓	↓	1625	↓	↓	↓		↓	↓				

Relinquish By: [Signature]

Received By: FED EX

Date: 12/22/99

Time: 1800

Relinquish By: \_\_\_\_\_

Received By: \_\_\_\_\_

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

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

Relinquish By: \_\_\_\_\_

Received By: [Signature]

Date: 12/23/99

Time: 1130





## REPORT OF ANALYTICAL RESULTS

Client: Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18687-1  
Collected: 12/22/99  
Received: 12/23/99  
Matrix: Soil

Project: UP Sacramento

Sample Description:  
STNCC-01-1.0  
Analyzed: 12/24/99  
Method: EPA 8270 (SIM)

Project Number: 00173-195-044  
Collected by: Trevor Joseph

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery 80

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

VSD #5  
18687-1n.xls  
JMM/rl/dz/rb

RECEIVED  
JAN 04 2000

BY: .....

Submitted by,  
ZymaX envirotechnology, inc.

*John MacMurphey*

John MacMurphey  
Laboratory Director

Client: Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18687-2  
Collected: 12/22/99  
Received: 12/23/99  
Matrix: Soil

Project: UP Sacramento

Project Number: 00173-195-044  
Collected by: Trevor Joseph

Sample Description:  
STNCC-01-3.0  
Analyzed: 12/24/99  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery 74

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

*John MacMurphey*  
John MacMurphey  
Laboratory Director

MSD #5  
18687-2n.xls  
JMM/rl/dz/rb



## REPORT OF ANALYTICAL RESULTS

Client: Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18687-3  
Collected: 12/22/99  
Received: 12/23/99  
Matrix: Soil

Project: UP Sacramento

Sample Description:  
STNCC-01-9.0

Project Number: 00173-195-044

Analyzed: 12/24/99

Collected by: Trevor Joseph

Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery 73

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

*Marvin Kassirer*  
John MacMurphey  
Laboratory Director

MSD #5  
18687-3n.xls  
JMM/rl/dz/rb



## REPORT OF ANALYTICAL RESULTS

Client: Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18687-4  
Collected: 12/22/99  
Received: 12/23/99  
Matrix: Soil

Project: UP Sacramento

Project Number: 00173-195-044  
Collected by: Trevor Joseph

Sample Description:  
STNCC-02-1.0  
Analyzed: 12/24/99  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery	72
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ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

*Maram Kassin For*  
John MacMurphey  
Laboratory Director

MSD #5  
18687-4n.xls  
JMM/rl/dz/rb



## REPORT OF ANALYTICAL RESULTS

Client: Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18687-5  
Collected: 12/22/99  
Received: 12/23/99  
Matrix: Soil

Project: UP Sacramento  
Project Number: 00173-195-044  
Collected by: Trevor Joseph

Sample Description:  
STNCC-02-3.0  
Analyzed: 12/24/99  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND
Percent Surrogate Recovery		67

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

MSD #5  
18687-5n.xls  
JMM/rl/dz/rb

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director



## REPORT OF ANALYTICAL RESULTS

Client: Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18687-6  
Collected: 12/22/99  
Received: 12/23/99  
Matrix: Soil

Project: UP Sacramento

## Sample Description:

Project Number: 00173-195-044  
Collected by: Trevor Joseph

STNCC-02-7.0  
Analyzed: 12/24/99  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery 84

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

*John MacMurphey*

John MacMurphey  
Laboratory Director

MSD #5  
18687-6n.xls  
JMM/rl/dz/rb



## REPORT OF ANALYTICAL RESULTS

**Client:** Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

**Lab Number:** 18687-7  
**Collected:** 12/22/99  
**Received:** 12/23/99  
**Matrix:** Soil

**Project:** UP Sacramento  
**Project Number:** 00173-195-044  
**Collected by:** Trevor Joseph

**Sample Description:** STNCC-03-1.0  
**Analyzed:** 12/24/99  
**Method:** EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	0.016
Benz (a) anthracene	0.005	0.013
Benzo (b) fluoranthene	0.005	0.045
Benzo (k) fluoranthene	0.005	0.015
Benzo (a) pyrene	0.005	0.014
Benzo (ghi) perylene	0.005	0.018
Chrysene	0.005	0.023
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	0.040
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	0.018
Naphthalene	0.005	ND
Phenanthrene	0.005	0.013
Pyrene	0.005	0.033

Percent Surrogate Recovery. 71

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director

MSD #5  
18687-7n.xls  
JMM/rl/dz/rb



## REPORT OF ANALYTICAL RESULTS

Client: Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18687-8  
Collected: 12/22/99  
Received: 12/23/99  
Matrix: Soil

Project: UP Sacramento  
Project Number: 00173-195-044  
Collected by: Trevor Joseph

Sample Description:  
STNCC-03-3.0  
Analyzed: 12/24/99  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery	87
----------------------------	----

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

*Marion Kassirer For*  
John MacMurphey  
Laboratory Director

MSD #5  
18687-8n.xls  
JMM/rl/dz/rb





## REPORT OF ANALYTICAL RESULTS

Client: Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18687-9  
Collected: 12/22/99  
Received: 12/23/99  
Matrix: Soil

Project: UP Sacramento  
Project Number: 00173-195-044  
Collected by: Trevor Joseph

Sample Description: STNCC-03-9.0  
Analyzed: 12/24/99  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery	79
----------------------------	----

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

*John MacMurphey*  
John MacMurphey  
Laboratory Director

MSD #5  
18687-9n.xls  
JMM/rl/dz/rb



## REPORT OF ANALYTICAL RESULTS

Client: Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18687-10  
Collected: 12/22/99  
Received: 12/23/99  
Matrix: Soil

Project: UP Sacramento  
Project Number: 00173-195-044  
Collected by: Trevor Joseph

Sample Description:  
STN21-01-1.0  
Analyzed: 12/24/99  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
POLYNUCLEAR AROMATIC HYDROCARBONS		
Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND
Percent Surrogate Recovery		69

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

MSD #5  
1868710n.xls  
JMM/rl/dz/rb

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director



## REPORT OF ANALYTICAL RESULTS

Client: Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18687-11  
Collected: 12/22/99  
Received: 12/23/99  
Matrix: Soil

Project: UP Sacramento  
Project Number: 00173-195-044  
Collected by: Trevor Joseph

Sample Description:  
STN21-01-3.0  
Analyzed: 12/24/99  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	0.005
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	0.009
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	0.005
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery	55
----------------------------	----

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

*John MacMurphey*  
John MacMurphey  
Laboratory Director

MSD #5  
1868711n.xls  
JMM/rl/dz/rb



## REPORT OF ANALYTICAL RESULTS

Client: Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18687-12  
Collected: 12/22/99  
Received: 12/23/99  
Matrix: Soil

Project: UP Sacramento

Project Number: 00173-195-044  
Collected by: Trevor Joseph

Sample Description:  
STN21-01-9.0  
Analyzed: 12/24/99  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
POLYNUCLEAR AROMATIC HYDROCARBONS		
Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benzo (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND
Percent Surrogate Recovery		71

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

MSD #5  
1868712n.xls  
JMM/rl/dz/rb

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director



## REPORT OF ANALYTICAL RESULTS

Client: Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18687-13  
Collected: 12/22/99  
Received: 12/23/99  
Matrix: Soil

Project: UP Sacramento  
Project Number: 00173-195-044  
Collected by: Trevor Joseph

Sample Description:  
STN21-02-1.0  
Analyzed: 12/24/99  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	0.007
Benz (a) anthracene	0.005	0.022
Benzo (b) fluoranthene	0.005	0.021
Benzo (k) fluoranthene	0.005	0.009
Benzo (a) pyrene	0.005	0.016
Benzo (ghi) perylene	0.005	0.010
Chrysene	0.005	0.018
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	0.037
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	0.010
Naphthalene	0.005	ND
Phenanthrene	0.005	0.029
Pyrene	0.005	0.028

Percent Surrogate Recovery 64

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

*John MacMurphey*  
John MacMurphey  
Laboratory Director

MSD #5  
1868713n.xls  
JMM/rl/dz/rb

Client: Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18687-14  
Collected: 12/22/99  
Received: 12/23/99  
Matrix: Soil

Project: UP Sacramento  
Project Number: 00173-195-044  
Collected by: Trevor Joseph

Sample Description:  
STN21-02-5.0  
Analyzed: 12/24/99  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND
Percent Surrogate Recovery		67

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

MSD #5  
1868714n.xls  
JMM/rl/dz/rb

Submitted by,  
ZymaX envirotechnology, inc.

*John MacMurphey*  
John MacMurphey  
Laboratory Director



## REPORT OF ANALYTICAL RESULTS

**Client:** Dave Wheeldon  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

**Lab Number:** 18687-15  
**Collected:** 12/22/99  
**Received:** 12/23/99  
**Matrix:** Soil

**Project:** UP Sacramento  
**Project Number:** 00173-195-044  
**Collected by:** Trevor Joseph

**Sample Description:** STN21-02-9.0  
**Analyzed:** 12/24/99  
**Method:** EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery	60
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ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

MSD #5  
1868715n.xls  
JMM/rl/dz/rb

Submitted by,  
ZymaX envirotechnology, inc.

*Marion K... Fol*  
John MacMurphey  
Laboratory Director



QUALITY ASSURANCE REPORT  
SPIKE RESULTS

Client:  
ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401

Lab Number: LCS SS2323  
Collected:  
Received:  
Matrix: Soil

Project:  
Project Number:  
Collected by:

Sample Description:  
Laboratory Control Spike  
Analyzed: 12/23/99  
Method: EPA 8270 (SIM)

CONSTITUENT	Amount Spiked mg/kg	Amount Recovered mg/kg	Percent Recovery
-------------	------------------------	---------------------------	---------------------

POLYNUCLEAR AROMATIC HYDROCARBONS

Benzo (a) pyrene	0.080	0.055	69
Benzo (b) fluoranthene	0.080	0.053	66
Naphthalene	0.080	0.050	63
Phenanthrene	0.080	0.074	93
Fluorene	0.080	0.056	70
Percent Surrogate Recovery			77


ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2323  
MSD #5  
SS2323qn.xls  
JMM/sw/dz

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director

Additional pg.  
1/5/00 SSD





QUALITY ASSURANCE REPORT  
SPIKE DUPLICATE RESULTS

Client:  
ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401

Lab Number: LCSD SS2323  
Collected:  
Received:  
Matrix: Soil

Project:  
Project Number:  
Collected by:

Sample Description:  
Laboratory Control Spike Duplicate  
Analyzed: 12/23/99  
Method: EPA 8270 (SIM)

CONSTITUENT	Amount Spiked mg/kg	Amount Recovered mg/kg	Percent Recovery	Relative Percent Difference*
-------------	------------------------	---------------------------	---------------------	---------------------------------

POLYNUCLEAR AROMATIC HYDROCARBONS

Benzo (a) pyrene	0.080	0.054	68	2
Benzo (b) fluoranthene	0.080	0.057	71	7
Naphthalene	0.080	0.048	60	4
Phenanthrene	0.080	0.069	86	7
Fluorene	0.080	0.057	71	2
Percent Surrogate Recovery			76	

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717


\*Relative Percent Difference of the spike and spike duplicate

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2323  
MSD #5  
SS2323qn.xls  
JMM/sw/dz

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director

Additional pg  
1/5/00 STD



QUALITY ASSURANCE REPORT  
BLANK RESULTS

Client:  
ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401

Lab Number: BLK SS2323  
Collected:  
Received:  
Matrix: Soil

Project:  
Project Number:  
Collected by:

Sample Description:  
Method Blank  
Analyzed: 12/23/99  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND
Percent Surrogate Recovery		65

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 12/23/99.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director

SS2323  
MSD #5  
SS2323bn.xls  
JMM/sw/dz

Additional pg  
1/5/00 STD

# Chain of Custody Record

phone 805.544.4696  
fax 805.544.8226



Zymax 71 Zaca Lane  
San Luis Obispo, CA 93401

IA-4124

Client <b>Dames &amp; Moore</b>		Project Manager <b>Dave Wheelon</b>		Date <b>12-22-99</b>	Chain Of Custody Number <b>42158</b>
Address <b>8801 Folsom Blvd. Suite 200</b>		Telephone Number (Area Code)/Fax Number <b>916-387-8800</b>		Lab Number	Page <b>1</b> of <b>1</b>
City <b>Sacramento</b>	State <b>CA</b>	Zip Code <b>95826</b>	Site Contact <b>Trevor Joseph</b>		
Object Name <b>UPSac</b>			Carrier/Waybill Number		

Contract/Purchase Order/Quote No.

**00173-195-044**

Sample I.D. No. and Description	Date	Time	Sample Type	Total Volume	Containers		Preservative	Condition on Receipt	PAHs	Analysis									
					Type	No.													
INCC-01-1.0	12/22/99	1140	Soil		ACETATE SLEEVE	1	—	cold, wet	X										
INCC-01-3.0	↑	1150	↑		↑	1	↑		↑										
INCC-01-9.0		1225																	
INCC-02-1.0		1305																	
INCC-02-3.0		1315																	
INCC-02-7.0		1335																	
INCC-03-1.0		1400																	
INCC-03-3.0		1410																	
INCC-03-9.0		1445																	
IN21-01-1.0		1515																	
IN21-01-3.0		1530																	
IN21-01-9.0		1555																	
IN21-07-1.0		1615																	
IN21-07-3.0		1622																	
IN21-07-9.0		1625																	

Special Instructions

**Standard Level 2 deliverable as agreement**

Possible Hazard Identification		Sample Disposal	
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		
Minimum Around Time Required <input type="checkbox"/> Normal <input checked="" type="checkbox"/> Rush	QC Level <input type="checkbox"/> I. <input type="checkbox"/> II. <input type="checkbox"/> III.	Project Specific (Specify)	
Relinquished By <b>[Signature]</b>	Date <b>12/22/99</b>	Time <b>1800</b>	1. Received By <b>[Signature]</b>
Relinquished By	Date	Time	2. Received By
Relinquished By	Date	Time	3. Received By

Comments



## REPORT OF ANALYTICAL RESULTS

Client: Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18743-1  
Collected: 01/03/00  
Received: 01/04/00  
Matrix: Soil

Project: UPSAC  
Project Number: 00173-195-044  
Collected by: CEF

Sample Description:  
STNCC-04-1.0  
Analyzed: 01/04/00  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND
Percent Surrogate Recovery		73

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

RECEIVED  
JAN 10 2000

BY:.....

Submitted by,  
ZymaX envirotechnology, inc.

John MacMurphey  
Laboratory Director

SS2332  
MSD #5  
18743-1n.xls  
JMM/jgt/dz/am/ll



## REPORT OF ANALYTICAL RESULTS

Client: Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18743-2  
Collected: 01/03/00  
Received: 01/04/00  
Matrix: Soil

Project: UPSAC  
Project Number: 00173-195-044  
Collected by: CEF

Sample Description:  
STNCC-04-3.0  
Analyzed: 01/04/00  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery 78

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2332  
MSD #5  
18743-2n.xls  
JMM/jgt/dz/am/ll

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director



## REPORT OF ANALYTICAL RESULTS

Client: Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18743-3  
Collected: 01/03/00  
Received: 01/04/00  
Matrix: Soil

Project: UPSAC

Project Number: 00173-195-044  
Collected by: CEF

Sample Description:  
STNCC-04-4.0  
Analyzed: 01/04/00  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
POLYNUCLEAR AROMATIC HYDROCARBONS		
Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND
Percent Surrogate Recovery		70

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director

SS2332  
MSD #5  
18743-3n.xls  
JMM/jgt/dz/am/ll



## REPORT OF ANALYTICAL RESULTS

Client: Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18743-4  
Collected: 01/03/00  
Received: 01/04/00  
Matrix: Soil

Project: UPSAC  
Project Number: 00173-195-044  
Collected by: CEF

Sample Description:  
STNCC-04-9.0  
Analyzed: 01/05/00  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery 69

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717.

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2332  
MSD #5  
18743-4n.xls  
JMM/jgt/dz/am/ll

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director



## REPORT OF ANALYTICAL RESULTS

Client: Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18743-5  
Collected: 01/03/00  
Received: 01/04/00  
Matrix: Soil

Project: UPSAC  
Project Number: 00173-195-044  
Collected by: CEF

Sample Description:  
STNCC-05-2.0  
Analyzed: 01/05/00  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
POLYNUCLEAR AROMATIC HYDROCARBONS		
Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	0.007
Benz (a) anthracene	0.005	0.020
Benzo (b) fluoranthene	0.005	0.037
Benzo (k) fluoranthene	0.005	0.015
Benzo (a) pyrene	0.005	0.021
Benzo (ghi) perylene	0.005	0.014
Chrysene	0.005	0.029
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	0.085
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	0.014
Naphthalene	0.005	ND
Phenanthrene	0.005	0.051
Pyrene	0.005	0.067
Percent Surrogate Recovery		97

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director

SS2332  
MSD #5  
18743-5n.xls  
JMM/jgt/dz/am/ll





## REPORT OF ANALYTICAL RESULTS

Client: Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18743-6  
Collected: 01/03/00  
Received: 01/04/00  
Matrix: Soil

Project: UPSAC  
Project Number: 00173-195-044  
Collected by: CEF

Sample Description: STNCC-05-4.0  
Analyzed: 01/05/00  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	0.017
Benz (a) anthracene	0.005	0.013
Benzo (b) fluoranthene	0.005	0.042
Benzo (k) fluoranthene	0.005	0.013
Benzo (a) pyrene	0.005	0.018
Benzo (ghi) perylene	0.005	0.017
Chrysene	0.005	0.022
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	0.030
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	0.017
Naphthalene	0.005	ND
Phenanthrene	0.005	0.012
Pyrene	0.005	0.032

Percent Surrogate Recovery 88

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director

SS2332  
MSD #5  
18743-6n.xls  
JMM/jgt/dz/am/ll



## REPORT OF ANALYTICAL RESULTS

Client: Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18743-7  
Collected: 01/03/00  
Received: 01/04/00  
Matrix: Soil

Project: UPSAC  
Project Number: 00173-195-044  
Collected by: CEF

Sample Description: STNCC-05-9.0  
Analyzed: 01/05/00  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
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## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery 76

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2332  
MSD #5  
18743-7n.xls  
JMM/jgt/dz/am/ll

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director



## REPORT OF ANALYTICAL RESULTS

Client: Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18743-8  
Collected: 01/03/00  
Received: 01/04/00  
Matrix: Soil

Project: UPSAC  
Project Number: 00173-195-044  
Collected by: CEF

Sample Description:  
STNCC-06-1.0  
Analyzed: 01/05/00  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery 81

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2332  
MSD #5  
18743-8n.xls  
JMM/jgt/dz/am/ll

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director



## REPORT OF ANALYTICAL RESULTS

Client: Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18743-9  
Collected: 01/03/00  
Received: 01/04/00  
Matrix: Soil

Project: UPSAC  
Project Number: 00173-195-044  
Collected by: CEF

Sample Description:  
STNCC-06-3.0  
Analyzed: 01/05/00  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND
Percent Surrogate Recovery		80

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2332  
MSD #5  
18743-9n.xls  
JMM/jgt/dz/am/ll

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director



## REPORT OF ANALYTICAL RESULTS

Client: **Jim Brake**  
**Dames & Moore**  
**8801 Folsom Blvd., Ste. 200**  
**Sacramento, CA 95826**

Lab Number: **18743-10**  
Collected: **01/03/00**  
Received: **01/04/00**  
Matrix: **Soil**

Project: **UPSAC**  
Project Number: **00173-195-044**  
Collected by: **CEF**

Sample Description:  
**STNCC-06-4.0**  
Analyzed: **01/05/00**  
Method: **EPA 8270 (SIM)**

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery	92
----------------------------	----

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2332  
MSD #5  
1874310n.xls  
JMM/jgt/dz/am/ll

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director



## REPORT OF ANALYTICAL RESULTS

Client: Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18743-11  
Collected: 01/03/00  
Received: 01/04/00  
Matrix: Soil

Project: UPSAC  
Project Number: 00173-195-044  
Collected by: CEF

Sample Description:  
STNCC-06-9.0  
Analyzed: 01/05/00  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
-------------	---------------	-------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery	81
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ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director

SS2332  
MSD #5  
1874311n.xls  
JMM/jgt/dz/am/ll



## REPORT OF ANALYTICAL RESULTS

**Client:** Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

**Lab Number:** 18743-12  
**Collected:** 01/03/00  
**Received:** 01/04/00  
**Matrix:** Soil

**Project:** UPSAC  
**Project Number:** 00173-195-044  
**Collected by:** CEF

**Sample Description:**  
STN21-03-1.0  
**Analyzed:** 01/05/00  
**Method:** EPA 8270 (SIM)

CONSTITUENT	PQL * mg/kg	RESULT ** mg/kg
-------------	----------------	--------------------

## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery 84

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2332  
MSD #5  
1874312n.xls  
JMM/jgt/dz/am/ll

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director



## REPORT OF ANALYTICAL RESULTS

Client: Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18743-13  
Collected: 01/03/00  
Received: 01/04/00  
Matrix: Soil

Project: UPSAC  
Project Number: 00173-195-044  
Collected by: CEF

Sample Description:  
STN21-03#3.0  
Analyzed: 01/05/00  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
POLYNUCLEAR AROMATIC HYDROCARBONS		
Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND
Percent Surrogate Recovery		69

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

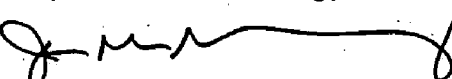
\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2332  
MSD #5  
1874313n.xls  
JMM/jgt/dz/am/II

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director





## REPORT OF ANALYTICAL RESULTS

Client: Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18743-14  
Collected: 01/03/00  
Received: 01/04/00  
Matrix: Soil

Project: UPSAC  
Project Number: 00173-195-044  
Collected by: CEF

Sample Description:  
STN21-03-9.0  
Analyzed: 01/05/00  
Method: EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
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## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery 71

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2332  
MSD #5  
1874314n.xls  
JMM/jgt/dz/am/ll

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director



## REPORT OF ANALYTICAL RESULTS

Client: **Jim Brake**  
**Dames & Moore**  
**8801 Folsom Blvd., Ste. 200**  
**Sacramento, CA 95826**

Lab Number: **18743-15**  
Collected: **01/03/00**  
Received: **01/04/00**  
Matrix: **Soil**

Project: **UPSAC**  
Project Number: **00173-195-044**  
Collected by: **CEF**

Sample Description:  
**STN21-03-10.0**  
Analyzed: **01/05/00**  
Method: **EPA 8270 (SIM)**

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
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## POLYNUCLEAR AROMATIC HYDROCARBONS

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery		80
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ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director

SS2332  
MSD #5  
1874315n.xls  
JMM/jgt/dz/am/ll



QUALITY ASSURANCE REPORT  
MATRIX SPIKE RESULTS

Client: Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18743-1 MS  
Collected: 01/03/00  
Received: 01/04/00  
Matrix: Soil

Project: UPSAC  
Project Number: 00173-195-044  
Collected by: CEF

Sample Description:  
STNCC-04-1.0  
Analyzed: 01/04/00  
Method: EPA 8270 (SIM)

CONSTITUENT	Amount Spiked mg/kg	Amount Recovered mg/kg	Original Amount mg/kg	Percent Recovery
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POLYNUCLEAR AROMATIC HYDROCARBONS

Benzo (a) pyrene	0.080	0.062	ND	78
Benzo (b) fluoranthene	0.080	0.054	ND	68
Naphthalene	0.080	0.048	ND	60
Phenanthrene	0.080	0.064	ND	80
Fluorene	0.080	0.062	ND	78
Percent Surrogate Recovery				70

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2332  
MSD #5  
18743-1m.xls  
JMM/jgt/dz/am/ll

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director



QUALITY ASSURANCE REPORT  
MATRIX SPIKE DUPLICATE RESULTS

Client: Jim Brake  
Dames & Moore  
8801 Folsom Blvd., Ste. 200  
Sacramento, CA 95826

Lab Number: 18743-1 MSD  
Collected: 01/03/00  
Received: 01/04/00  
Matrix: Soil

Project: UPSAC  
Project Number: 00173-195-044  
Collected by: CEF

Sample Description:  
STNCC-04-1.0  
Analyzed: 01/04/00  
Method: EPA 8270 (SIM)

CONSTITUENT	Amount Spiked mg/kg	Amount Recovered mg/kg	Percent Recovery	Relative Percent Difference*
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POLYNUCLEAR AROMATIC HYDROCARBONS

Benzo (a) pyrene	0.080	0.075	94	19
Benzo (b) fluoranthene	0.080	0.068	85	23
Naphthalene	0.080	0.060	75	22
Phenanthrene	0.080	0.084	105	27
Fluorene	0.080	0.073	91	16
Percent Surrogate Recovery			77	

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\*Relative Percent Difference of the spike and spike duplicate

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2332  
MSD #5  
18743-1m.xls  
JMM/jgt/dz/am/ll

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director



QUALITY ASSURANCE REPORT  
SPIKE RESULTS

**Client:**  
ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401

**Lab Number:** LCS SS2332  
**Collected:**  
**Received:**  
**Matrix:** Soil

**Project:**  
  
**Project Number:**  
**Collected by:**

**Sample Description:**  
Laboratory Control Spike  
**Analyzed:** 01/04/00  
**Method:** EPA 8270 (SIM)

CONSTITUENT	Amount Spiked mg/kg	Amount Recovered mg/kg	Percent Recovery
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POLYNUCLEAR AROMATIC HYDROCARBONS

Benzo (a) pyrene	0.080	0.067	84
Benzo (b) fluoranthene	0.080	0.063	79
Naphthalene	0.080	0.055	69
Phenanthrene	0.080	0.077	96
Fluorene	0.080	0.070	88

Percent Surrogate Recovery 73

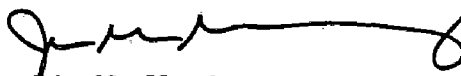
ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2332  
MSD #5  
SS2332qn.xls  
JMM/sw/dz/am/ll

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director

**QUALITY ASSURANCE REPORT  
BLANK RESULTS**



**Client:**  
ZymaX envirotechnology, inc.  
71 Zaca Lane, Suite 110  
San Luis Obispo, CA 93401

**Lab Number:** BLK SS2332  
**Collected:**  
**Received:**  
**Matrix:** Soil

**Project:**  
  
**Project Number:**  
**Collected by:**

**Sample Description:**  
Method Blank  
**Analyzed:** 01/04/00  
**Method:** EPA 8270 (SIM)

CONSTITUENT	PQL* mg/kg	RESULT** mg/kg
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**POLYNUCLEAR AROMATIC HYDROCARBONS**

Acenaphthene	0.005	ND
Acenaphthylene	0.005	ND
Anthracene	0.005	ND
Benz (a) anthracene	0.005	ND
Benzo (b) fluoranthene	0.005	ND
Benzo (k) fluoranthene	0.005	ND
Benzo (a) pyrene	0.005	ND
Benzo (ghi) perylene	0.005	ND
Chrysene	0.005	ND
Dibenzo (a,h) anthracene	0.005	ND
Fluoranthene	0.005	ND
Fluorene	0.005	ND
Indeno (1,2,3-cd) pyrene	0.005	ND
Naphthalene	0.005	ND
Phenanthrene	0.005	ND
Pyrene	0.005	ND

Percent Surrogate Recovery	96
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ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

\*PQL - Practical Quantitation Limit

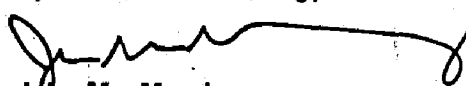
\*\*Results listed as ND would have been reported if present at or above the listed PQL.

Note: Extracted by EPA 3550 on 01/04/00.

Note: Analyzed in the Selected Ion Monitoring (SIM) mode.

SS2332  
MSD #5  
SS2332bn.xls  
JMM/jgt/dz/am/ll

Submitted by,  
ZymaX envirotechnology, inc.

  
John MacMurphey  
Laboratory Director



# Chain of Custody Record

805.544.4696  
805.544.8726

Zymar  
71 Race Lane  
San Luis Obispo, CA  
93401



QUA-4124 0797

Client <b>Dames &amp; Moore</b>		Project Manager <b>Jim Brake</b>		Date <b>1-3-00</b> <del>12-29-99</del>	Chain of Custody Number <b>28364</b>
Address <b>8801 Folsom Blvd. Suite 200</b>		Telephone Number (Area Code)/Fax Number <b>916-387-8800 / 916-387-0802</b>		Lab Number <b>18783</b>	Page <b>1</b> of <b>2</b>

City <b>Sacramento</b>	State <b>CA</b>	Zip Code <b>95826</b>	Site Contact <b>T. Joseph</b>	Lab Contact	Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt
Project Name <b>UPsac</b>			Carrier/Waybill Number			

Contract/Purchase Order/Quote No. 00173-195-044			Matrix			Containers & Preservatives						Conditions of Receipt	
Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		
STNCC-04-1.0	1/3/00	0915			X	X						X	18783-1
STNCC-04-3.0	CA	0920			↑	↑						↑	4-2
STNCC-04-4.0		0925											-3
STNCC-04-9.0		0945											-4
STNCC-05-2.0		0958											-5
STNCC-05-4.0		1002											-6
STNCC-05-9.0		1020											-7
STNCC-06-1.0		1037											-8
STNCC-06-3.0		1042											-9
STNCC-06-4.0		1048											-10
STNCC-06-9.0		1102											-11
STN21-03-1.0	N	1133			↓	↓						↓	-12

Possible Hazard Identification	Sample Disposal	(A fee may be assessed if samples are retained longer than 3 months)
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	

Turn Around Time Required	QC Requirements (Specify)
<input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 7 Days <input type="checkbox"/> 14 Days <input type="checkbox"/> 21 Days <input checked="" type="checkbox"/> Other <b>Rush</b>	

1. Relinquished By <b>[Signature]</b>	Date <b>1/3/00</b>	Time <b>1630</b>	1. Received By	Date	Time
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By <b>Roberta Logan</b>	Date <b>1-4-00</b>	Time <b>1030</b>

Comments <b>Standard level 2 deliverable as agreement</b>
DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field