# REPORT
# SITE INVESTIGATION
# OAKLAND BAY BRIDGE
## East Bay Span
## Oakland, California
## Volume I of II

**APEX Project No. 153DT**

**Contract No. 53U495**

**Task Order No. 04-04343K-01**

**Prepared For**

**STATE OF CALIFORNIA**
**DEPARTMENT OF TRANSPORTATION**
**DISTRICT 4**
**111 Grand Avenue**
**Oakland, CA 94623**

**PREPARED BY**

**APEX ENVIRONMENTAL RECOVERY, INC.**
**5772 Bolsa Avenue, Suite 230**
**Huntington Beach, California 92649**

**Nevin Murtha**
**Project Manager**

**Gerald L. Kirkpatrick**
**Project Manager**
**Registered Civil Engineer**
**(C-18500)**

APEX ENVIRONMENTAL RECOVERY
SMARTER SOLUTIONS FOR A CLEANER TOMORROW

**March 22, 1994**

SIGNATURE PAGE

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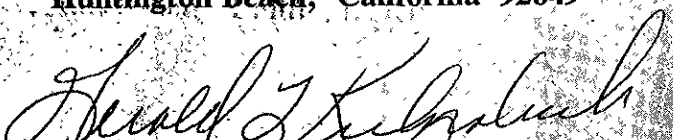

Gerald L. Kirkpatrick
Project Manager
Registered Civil Engineer (C-18500)

March 22, 1994

APEX ENVIRONMENTAL RECOVERY
SMARTER SOLUTIONS FOR A CLEANER TOMORROW

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## DISCLAIMER

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## INVESTIGATIVE SUMMARY

On October 17, 1989 the San Francisco Bay area experienced an earthquake of magnitude 7.1 on the Richter Scale. The epicenter of the quake was located in Loma Prieta about 60 miles southeast of San Francisco. In the epicentral area the ground motion lasted for about 5 to 7 seconds and about 10 to 15 seconds in Oakland. Following the earthshaking event, the California Department of Transportation (Caltrans) decided to retrofit portions of the bridge to higher seismic standards.

Caltrans contracted APEX Environmental Recovery, Inc. (APEX) to perform the environmental investigation for the project under Contract No. 53U495, Task Order No. 04-04343K-01. This investigation covers bents 24 through 36 of the east bay span of the bridge

The purpose of this investigation was to determine, for Caltrans, the potential presence of contaminated material in and around structure's columns, footings, and foundations scheduled to be modified. The contaminants of concern include total petroleum hydrocarbons (TRPH), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), organochlorine pesticides and polychlorinated biphenyl's (PCB's), and metals. The objective of the project was to evaluate foundation conditions in areas that are to be excavated for the presence of contaminants that could impact construction workers health and safety and provide data for soil disposal alternatives. The scope of work consisted of: 1) drilling a minimum of one soil boring at each of the columns and footing locations; 2) collecting soil samples at the surface and in approximately three-foot intervals thereafter to the termination of the borings; 3) collecting five surface soil samples; 4) collecting groundwater samples from some of the borings; 5) laboratory analysis of all soil and groundwater samples; and 6) preparing a report with our findings and conclusions. Caltrans provided APEX with specific drilling locations, specified sample collection depths, and analytical methods for each boring.

A total of twenty one borings were drilled to depths of between 4 and 17.5 feet below grade. In addition, five surface samples and four groundwater samples were collected

The soil and groundwater samples were analyzed for total petroleum hydrocarbons (TRPH), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), organochlorine pesticides, polychlorinated biphenyl's (PCB's), and CAC metals.

Soils encountered primarily consisted of sands, silty sands with gravel, and silts with gravel. These materials are presumed to be fill. Considerable debris including asphalt, concrete, and trash were encountered in several borings.

Groundwater was encountered at depths of between 1.5 and 9.5 feet below grade. Heaving sands and gravels were frequently encountered below groundwater.

Concentrations of TRPH ranged from below detection limit (4 ppm) to 7,800 ppm in sample B27C1-8. No VOCs were detected in any of the soil samples.

SVOCs were detected in four of the soil samples, B24C1-0, B26C1-0, B28C2-0, and B28C2-2. Compounds detected include naphthalene, 2 methyl naphthalene, acenaphthylene, dibenzofuran, fluorene, phenathrene, anthracene, fluoranthene, pyrene, benzo (a) anthracene, and benzo (a) pyrene, bis (2 ethylhexyl) phthalate, chrysene, benzo (b) fluoranthene, benzo (k) fluoranthene, and butylbenzylphalate. The highest concentration of a SVOC detected was 6080 ppm of acenaphthene in sample B26C1-0.

Organochlorine pesticides and PCB's were detected in thirteen samples, B24C1-0, B24C2-0, B25C1-0, B26C1-0, B26C1-3, B26C2-0, B27C1-0, B28C2-0, B28C2-2, B29C1-0, B30C2-0, B33C2-0 and B36C1-0. Beta BHC was detected in 12 samples, with concentrations ranging from 3.6 ppb to a maximum of 312 ppb (B28C2-0). The compound 4, 4 DDD was detected in four of the samples at concentrations ranging from 5.2 ppb to a maximum of 24 ppb (B30C2-0). The compound 4, 4 DDT was detected in seven of the samples at concentrations ranging from 4.8 ppb to a maximum of 32 ppb (B28C2-0). Aroclor was detected in nine samples. Concentrations ranged from 34 ppb to a maximum of 171 ppb (B30C2-0). Heptachlor Epoxide was detected in seven of the samples, with concentrations ranging from 6.9 ppb to a maximum of 54 ppb in sample B28C2-0.

Metals analysis detected concentrations of lead above the total threshold limit concentration (TTLC) in five samples, B24C1-0, B30C2-0, B36C1-0, 24/25 50S, and 32/33 50N. Concentrations of lead above ten times the soluble threshold limit concentration (STLC) were detected in 18 additional samples, B24C1-3, B24C2-0, B25C1-0, B26C1-0, B26C1-3, B26C2-0, B27C1-0, B27C2-3, B28C2-0, B28C2-2, B31C1-0, B31C2-2, B33C1-0, B33C2-0, B33C2-3, 24/25-50N, 26/27-50N, and 30 50N. A concentration of 49 ppm of total chromium was detected in sample B27C1-0. This sample has the potential to exceed the STLC for hexavalent chromium.

Based on these analyses for metals, Waste Extraction Tests (WET) were performed for lead on 23 samples. Samples B24C1-0, B24C2-0, B26C1-0, B27C1-0, B27C2-3, B28C2-0, B28C2-2, B30C2-0, B31C10, B33C1-0, B33C2-0, B33C2-3, B26C1-0, 24/25-50S, 26/27-50N, and 32/33 50N had concentrations of lead above the STLC of 5 ppm. Sample B27C1-0 was analyzed for chromium; a concentration of 0.29 ppm was detected. This indicates that hexavalent chromium is not present in a hazardous concentration in this sample.

In general, soil contamination appears to be primarily present in the first three feet of the soil horizon.

TRPH was detected in groundwater samples B24C1W AND B25C1W at concentrations of 0.2 ppm and 0.14 ppm, respectively. No VOCs, SVOCs, organochlorine pesticides or PCB's were detected in any of the samples.

Concentrations of antimony, cadmium, chromium, nickel, silver, and thallium above maximum contaminant levels (MCLs) were detected in all of the groundwater samples. All other metals were either not detected or detected in concentrations below the respective MCLs. Concentrations of metals detected may have been influenced by the presence of suspended solids, which is inherent in the groundwater sampling technique used.

# REPORT
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## 1.0 INTRODUCTION

### 1.1 Background

On October 17, 1989, the San Francisco Bay area experienced an earthquake of magnitude 7.1 on the Richter Scale. The epicenter of the quake was located in Loma Prieta about 60 miles southeast of San Francisco. In the epicentral area the ground motion lasted for about 5 to 7 seconds and about 10 to 15 seconds in Oakland. Highway damage occurred during the earthquake, affecting parts of the Oakland Bay Bridge. See Figure 1: Location Map.

Following the earthshaking event, the California Department of Transportation (Caltrans) decided to retrofit portions of the bridge to upgrade the systemic standards.

Caltrans contracted APEX Environmental Recovery, Inc. (APEX) to perform the subsurface environmental investigation for the project under Contract No. 53U495, Task Order No. 04-04343K-01. This investigation covers bents 24 through 36 of the east bay span.

### 1.2 Purpose and Objective

The purpose of this investigation was to determine for Caltrans the potential presence of contaminated material in and around structure columns, footings and foundations scheduled to be retrofit. The contaminants of concern include total petroleum hydrocarbons (TRPH), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), organochlorine pesticides, polychlorinated biphenyl's (PCB's), and metals. The objective of the project was to evaluate foundation conditions for the presence of contaminants that could impact construction workers' health and safety and provide data for soil disposal alternatives in areas that are to be excavated.

### 1.3 Scope of Work

The scope of work consisted of: 1) drilling a minimum of one soil boring at each of the columns and footing locations; 2) collecting soil samples at grade and in approximately three-foot intervals thereafter to the termination of the borings; 3) collecting five surface soil samples: 4) collecting groundwater samples from some of the borings, 5) laboratory analysis

of all soil and groundwater samples; and, 6) preparing a report with our findings and conclusions. Caltrans provided APEX with specific drilling locations and specified sample collection depths and analytical methods for each boring. Due to a laboratory error, analyses of some of the samples for volatile organic compounds (VOCs) were performed after the holding time for the samples had past. These borings were re-drilled. Replacement samples were collected and analyzed.

## 2.0 GEOLOGY AND HYDROLOGY

Geologically, the San Francisco bay is presently a very slowly subsiding sedimentary basin being infilled with the detritus derived from the Sacramento and San Joaquin River drainage systems. During Holocene time (<10,000 years before present) the bay basin has been subsiding and sediments commonly known as the 'Bay Mud' are being deposited under estuarine conditions. The Bay Mud consists of unconsolidated to partly consolidated, water-saturated, organic-rich silty marine clays, locally containing lenses and stringers of well sorted silt and sand as well as beds of peat. In most on-shore locations the Bay Mud is overlain by up to 20 feet of man made fill comprising of a mixture of rubble and hydraulically placed silty and clayey sands (Lew, 1990).

Underlying the Bay Mud is a thin (approximately 10 feet thick) veneer of alluvium consisting mainly of irregular bedded, moderately to poorly sorted silty to sandy clays, and granular deposits of medium to dense silty and clayey sands, sands and gravels. In the San Francisco Bay region and surrounding areas the Quaternary blanket sediment (Bay Mud & Alluvium) rests on bedrock comprising of the Jurassic-Cretaceous Franciscan Complex. (Schlocker, 1961).

## 3.0 INVESTIGATIVE METHODS

### 3.1 Subsurface Investigation

The drilling phase of the subsurface investigation consisted of soil test borings advanced by truck-mounted drill rig equipped with continuous flight hollow stem augers. In some cases, access was limited by low clearance. These borings were drilled using a hand auger. A detailed description of field procedures including soil sampling and groundwater sampling is presented in Appendix A: Field Procedures. As specified in Caltrans' Task Order, a total of 21 borings were drilled. See Table 1: Bent Boring and Sample Depths and Figures 2, 3, and 4: Soil Boring Location Maps. Each boring was logged and sampled by an APEX geologist working under the direct supervision of a California Registered Civil Engineer. A total of five surface soil samples and four groundwater samples were also collected.

## 3.2 Sampling Procedures

### 3.2.1 Soil Sampling

Soil samples were generally collected from the surface and at approximately three foot intervals thereafter until the termination of the boring. A modified California split-barrel sampler loaded with sample tubes was utilized to recover undisturbed samples from rig drilled borings. Samples were collected from the hand auger borings using a hand operated slide hammer sampler equipped with one sample tube. Surface samples were collected by manually driving a sample tube into the surface soils at the desired location. The samples were placed in a cooled ice chest and delivered to the laboratory with chain of custody documentation. A table which cross references the bent numbers and columns to the sample numbers and depths is presented on Table 1: Bent, Boring and Sample Locations. The borings, and the soil samples were numbered with the bent number and column number at which the boring was located. The soil sample numbers also contain the sample depth in feet. For example, B36C1-9 indicates a sample collected from bent 36 at column 1 and a depth of nine feet below grade. The boring logs are presented in Appendix B: Boring Logs. Surface soil samples were numbered with the numbers of the closest bent or two closest bents, and the distance and direction from the bridge that the sample was collected. For example, B24/25 50N indicates a surface soil sample collected 50 feet north of the area between bents 24 and 25.

### 3.2.2 Groundwater Sampling

Groundwater samples were collected using a disposable Teflon bailer lowered into the open bore holes. Groundwater sampling methods are included in Appendix A. The groundwater samples were numbered with the bent and column numbers at which the boring was located. For example B24C1-W indicates a water sample collected from bent 24 column 1. Each sample was labeled, logged on a Chain-of-Custody record, and placed in cold storage until delivered to the laboratory for analyses. The Chain-of-Custody documentation accompanied the samples to the laboratory.

### 3.3 Analytical Methods

The following analyses and analytical methods were implemented in the laboratories to determine the concentrations of the contaminants of concern:

| Soil Analyses | |
|---|---|
| Total Recoverable Petroleum Hydrocarbons | EPA Method 418.1 |
| Volatile Organic Compounds | EPA Method 8240 |
| Semivolatile Organic Compounds | EPA Method 8270 |
| Organochlorine Pesticides and PCB's | EPA Method 8080 |
| Title 22 Metals* | EPA Method 6010 and 7471 |
| Waste Extraction Test for Metals | EPA Method 7000 series |

* Samples collected from grade and three feet below grade were analyzed for arsenic, cadmium, chromium lead and zinc only.

| Groundwater Analyses | |
|---|---|
| Total Recoverable Petroleum Hydrocarbons | EPA Method 418.1 |
| Volatile Organic Compounds | EPA Method 8240 |
| Semivolatile Organic Compounds | EPA Method 8270 |
| Organochlorine Pesticides and PCB's | EPA Method 8080 |
| Title 22 Metals | EPA Method 200.7 |

## 4.0 FINDINGS

### 4.1 Subsurface Conditions

Soils encountered primarily consisted of sands, silty sands with gravel, and silts with gravel. These materials are presumed to be fill. Considerable debris including asphalt, concrete, and trash were encountered in several borings.

Groundwater was encountered at depths of between 1.5 and 9.5 feet below grade. Heaving sands and gravels were frequently encountered below groundwater.

### 4.2 Soil Test Results

The results of the laboratory analyses of the soil samples collected during this investigation are presented in Tables 2 through 7 and Appendix C: Laboratory Reports and Chain-of-Custody Records.

Concentrations of total recoverable petroleum hydrocarbons (TRPH) ranged from below detection limit (4 ppm) to 7,800 ppm in sample B27C1-8. Concentrations in excess of 1,000 ppm were detected in eight samples (Table 2: Analytical Summary for Soil - Total

Recoverable Petroleum Hydrocarbons). No VOCs were detected in any of the soil samples (Table 3: Analytical Summary for Soil - Volatile Organics).

Semivolatile organic compounds (SVOCs) were detected in four of the soil samples, B24C1-0, B26C1-0, B28C2-0, and B28C2-2. Naphthalene, 2 methyl naphthalene, acenaphthylene, dibenzofuran, fluorene, phenathrene, anthracene, fluoranthene, pyrene, benzo (a) anthracene, and benzo (a) pyrene, bis (2 ethylhexyl) phthalate, and chrysene were detected in samples B26C1-0 and B28C2-0. Naphthalene, 2 methyl naphthalene, acenaphthylene, dibenzofuran, fluorene, phenathrene, fluoranthene, pyrene were detected in sample B28C2-2. Sample B26C1-0 contained the higher concentrations of all the compounds listed above. Benzo (b) fluoranthene, and benzo (k) fluoranthene were detected in sample B26C1-0 at concentrations of 4,000 parts per billion (ppb) and 2,860 ppb, respectively. Anthracene, fluoranthene, and butylbenzylphalate were detected in sample B24C1-0. The highest concentration of a SVOC detected was 6080 ppm of acenaphthene in sample B26C1-0 (Table 4: Analytical Summary for Soil - Semivolatile Organics).

Organochlorine pesticides and PCB's were detected in thirteen samples, B24C1-0, B24C2-0, B25C1-0, B26C1-0, B26C1-3, B26C2-0, B27C1-0, B28C2-0, B28C2-2, B29C1-0, B30C2-0, B33C2-0 and B36C1-0. Beta BHC was detected in 12 samples, with concentrations ranging from 3.6 ppb to a maximum of 312 ppb (B28C2-0). The compound 4, 4 DDD was detected in four of the samples at concentrations ranging from 5.2 ppb to a maximum of 24 ppb (B30C2-0). The compound 4, 4 DDT was detected in seven of the samples at concentrations ranging from 4.8 ppb to a maximum of 32 ppb (B28C2-0). Aroclor was detected in nine samples. Concentrations ranged from 34 ppb to a maximum of 171 ppb (B30C2-0). Heptachlor Epoxide was detected in seven of the samples, with concentrations ranging from 6.9 ppb to a maximum of 54 ppb in sample B28C2-0 (Table 5: Analytical Summary for Soil - Organochlorine Pesticides and PCB's).

Metals analysis detected concentrations of lead above the total threshold limit concentration (TTLC) in samples B24C1-0, B30C2-0, B36C1-0, 24/25 50S, and 32/33 50N. Concentrations of lead above ten times the soluble threshold limit concentration (STLC) were detected in 18 additional samples, B24C1-3, B24C2-0, B25C1-0, B26C1-0, B26C1-3, B26C2-0, B27C1-0, B27C2-3, B28C2-0, B28C2-2, B31C1-0, B31C2-2, B33C1-0, B33C2-0, B33C2-3, 24/25-50N, 26/27-50N, and 30 50N. A concentration of 49 ppm of total chromium was detected in sample B27C1-0. This sample has the potential to exceed the STLC for hexavalent chromium. (Table 6: Analytical Summary for Soil - Title 22 Metals).

Based on these analyses for metals, Waste Extraction Tests (WET) were performed for lead on 23 samples. Samples B24C1-0, B24C2-0, B26C1-0, B27C1-0, B27C2-3, B28C2-0, B28C2-2, B30C2-0, B31C10, B33C1-0, B33C2-0, B33C2-3, B26C1-0, 24/25-50S, 26/27-50N, and 32/33 50N had concentrations of lead above the STLC of 5 ppm. Sample B27C1-0 was analyzed for chromium; a concentration of 0.29 ppm was detected. This indicates that

hexavalent chromium is not present in a hazardous concentration in this sample (Table 7 Analytical Summary for Soil - WET Extract for Metals).

### 4.3 Groundwater Test Results

The results of the laboratory analyses of the groundwater samples collected during this investigation are presented in Tables 8 through 12 and Appendix C: Laboratory Reports and Chain-of-Custody Records.

TRPH was detected in samples B24C1W AND B25C1W at concentrations of 0.2 ppm and 0.14 ppm, respectively. No TRPH was detected in sample B27C2W (Table 8: Analytical Summary for Groundwater - Total Recoverable Petroleum Hydrocarbons).

No VOCs, SVOCs, organochlorine pesticides or PCB's were detected in any of the samples (Table 9: Analytical Summary for Groundwater - Volatile Organics, Table 10 Analytical Summary for Groundwater - Semivolatile Organics and Table 11 Analytical Summary for Groundwater - Organochlorine Pesticides and PCB's).

Groundwater samples were analyzed for CAC metals; samples were filtered for suspended solids prior to analysis. Concentrations of antimony, cadmium, chromium, nickel, silver, and thallium above maximum contaminant levels (MCLs) were detected in all of the groundwater samples. All other metals were either not detected or detected in concentrations below the respective MCLs (Table 12: Analytical Summary for Groundwater - Tittle 22 Metals).

## 5.0 CONCLUSIONS

Soils encountered primarily consisted of sands, silty sands with gravel, and silts with gravel. This material is presumed to be fill. Considerable debris including asphalt, concrete, and trash were encountered in several borings.

Groundwater was encountered at depths of between 1.5 and 9.5 feet below grade. Heaving sands and gravels were frequently encountered below groundwater.

Concentrations of TRPH ranged from below detection limit (4 ppm) to 7,800 ppm in sample B27C1-8. Significant TRPH concentrations (above 100 ppm) were encountered primarily within three feet of the surface. However, some significant concentrations were detected as deep as 15 feet below the surface. No VOCs were detected in any of the soil samples.

SVOCs were detected in four of the soil samples, B24C1-0, B26C1-0, B28C2-0, and B28C2-2. Compounds detected include naphthalene, 2 methyl naphthalene, acenaphthylene, dibenzofuran, fluorene, phenathrene, anthracene, fluoranthene, pyrene, benzo (a) anthracene, and benzo (a) pyrene, bis (2 ethylhexyl) phthalate, chrysene, benzo (b) fluoranthene, benzo (k)

fluoranthene, and butylbenzylphalate. The highest concentration of a SVOC detected was 6080 ppm of acenaphthene in sample B26C1-0. All of the SVOCs detected were within 2 feet of the surface.

Organochlorine pesticides and PCB's were detected in thirteen samples, B24C1-0, B24C2-0, B25C1-0, B26C1-0, B26C1-3, B26C2-0, B27C1-0, B28C2-0, B28C2-2, B29C1-0, B30C2-0, B33C2-0 and B36C1-0. Beta BHC was detected in 12 samples, with concentrations ranging from 3.6 ppb to a maximum of 312 ppb (B28C2-0). The compound 4, 4 DDD was detected in four of the samples at concentrations ranging from 5.2 ppb to a maximum of 24 ppb (B30C2-0). The compound 4, 4 DDT was detected in seven of the samples at concentrations ranging from 4.8 ppb to a maximum of 32 ppb (B28C2-0). Aroclor was detected in nine samples. Concentrations ranged from 34 ppb to a maximum of 171 ppb (B30C2-0). Heptachlor Epoxide was detected in seven of the samples, with concentrations ranging from 6.9 ppb to a maximum of 54 ppb in sample B28C2-0. All of the organochlorine pesticides and PCB's detected were within 2 feet of the surface.

Metals analysis detected concentrations of lead above the total threshold limit concentration (TTLC) in five samples, B24C1-0, B30C2-0, B36C1-0, 24/25 50S, and 32/33 50N. The TTLC is the regulatory level for total concentrations of metals

The soluble threshold limit concentration (STLC) is the regulatory level for the soluble fraction of metals. The Waste extraction test (WET) which is performed to determine the STLC concentration of a metal involves a dilution factor of ten. Thus for a sample to have a concentration of a metal in excess of the STLC, the total concentration must exceed ten times the STLC. Concentrations of lead above ten times the STLC were detected in 18 samples, B24C1-3, B24C2-0, B25C1-0, B26C1-0, B26C1-3, B26C2-0, B27C1-0, B27C2-3, B28C2-0, B28C2-2, B31C1-0, B31C2-2, B33C1-0, B33C2-0, B33C2-3, 24/25-50N, 26/27-50N, and 30 50N. A concentration of 49 ppm of total chromium was detected in sample B27C1-0. This sample has the potential to exceed the STLC for hexavalent chromium. Analysis for hexavalent chromium was not performed.

Based on these analyses for metals, Waste Extraction Tests (WET) were performed for lead on 23 samples. Samples B24C1-0, B24C2-0, B26C1-0, B27C1-0, B27C2-3, B28C2-0, B28C2-2, B30C2-0, B31C10, B33C1-0, B33C2-0, B33C2-3, B26C1-0, 24/25-50S, 26/27-50N, and 32/33 50N had concentrations of lead above the STLC of 5 ppm. Sample B27C1-0 was analyzed for chromium; a concentration of 0.29 ppm was detected. This indicates that hexavalent chromium is not present in a hazardous concentration in this sample. All of the samples containing hazardous concentrations of metals were collected from within three feet of the surface.

TRPH was detected in groundwater samples B24C1W and B25C1W at concentrations of 0.2 ppm and 0.14 ppm, respectively. No VOCs, SVOCs, organochlorine pesticides or PCB's

were detected in any of the samples.
Concentrations of antimony, cadmium, chromium, nickel, silver, and thallium above maximum contaminant levels (MCLs) were detected in all of the groundwater samples. All other metals were either not detected or detected in concentrations below the respective MCLs. Metals concentrations may have been affected by the presence of suspended solids, which is inherent in the sampling technique used.

## 6.0 REMEDIAL OPTIONS RECOMMENDATIONS

APEX's recommendations are based on information provided by this investigation and information provided to APEX by Caltrans. Due to the constraints of time and the Caltrans' intent to begin construction activities in the project area, APEX recommends that Caltrans remove the soil in the column and footing areas as planned for construction activities. Segregation of contaminated soil could significantly reduce disposal costs. The excavated soil should be transported to the appropriate disposal facilities. A review of the analytical data indicates that the excavated contaminated soil should be disposed of in Class I landfill.

Alternatives for treatment of petroleum hydrocarbon contaminated soil include, both on and offsite incineration, bioremediation, and thermal desorption. To perform these treatments onsite, sufficient room for the system and to store the soil would be required. The soil contaminated with petroleum hydrocarbons may be recycled after treatment or possibly used onsite for backfill.

Treatment of metals contaminated soil is not recommended due to the high cost. In addition, metals contamination can prevent effective treatment of petroleum hydrocarbon contaminated soil. A comparison of remedial options for soil is presented as Table 13.

Non-contaminated soil can be disposed of at a Class III landfill or used for backfill on site. The appropriate disposal site(s) should be determined by the analytical data and the selected landfill's current acceptance requirements. The landfills may require additional laboratory analyses to profile the soil for acceptance.

If dewatering is required, during construction activities, around the boring with groundwater identified at above the action levels, the water may require special environmental handling.

Hydrocarbon contaminated groundwater can be treated by passing through an activated carbon scrubber. This treatment frequently meets requirement for discharge to a sanitary sewer under a NPDES permit. Alternatively, air-stripping could be used to treat the groundwater. However, this method is less effective then carbon in removing the less volatile hydrocarbons. In addition, treatment of the resulting effluent airstream is usually required.

The onsite treatment of metals contaminated water is not recommended due to cost. Collection and stabilization of metals contaminated groundwater for the purpose of transportation to a treatment and disposal facility is recommended. The appropriate disposal method should be determined by the analytical data for the groundwater sample and the requirements of the selected disposal facility.

It should be noted that suspended solids present in the groundwater samples may have effected metals concentrations. If dewatering is required during construction activities, installation of a groundwater monitoring well and sampling for metals is recommended. More accurate analysis of metals concentrations may show them to fall within acceptable parameters allowing discharge to the sewer system or the bay under a NPDES permit. A comparison of remedial options for groundwater removed dirong dewatering is presented on Table 14.

## 7.0 REFERENCES

California Code of Regulations, Title 22, Chapter 11, Section 64445

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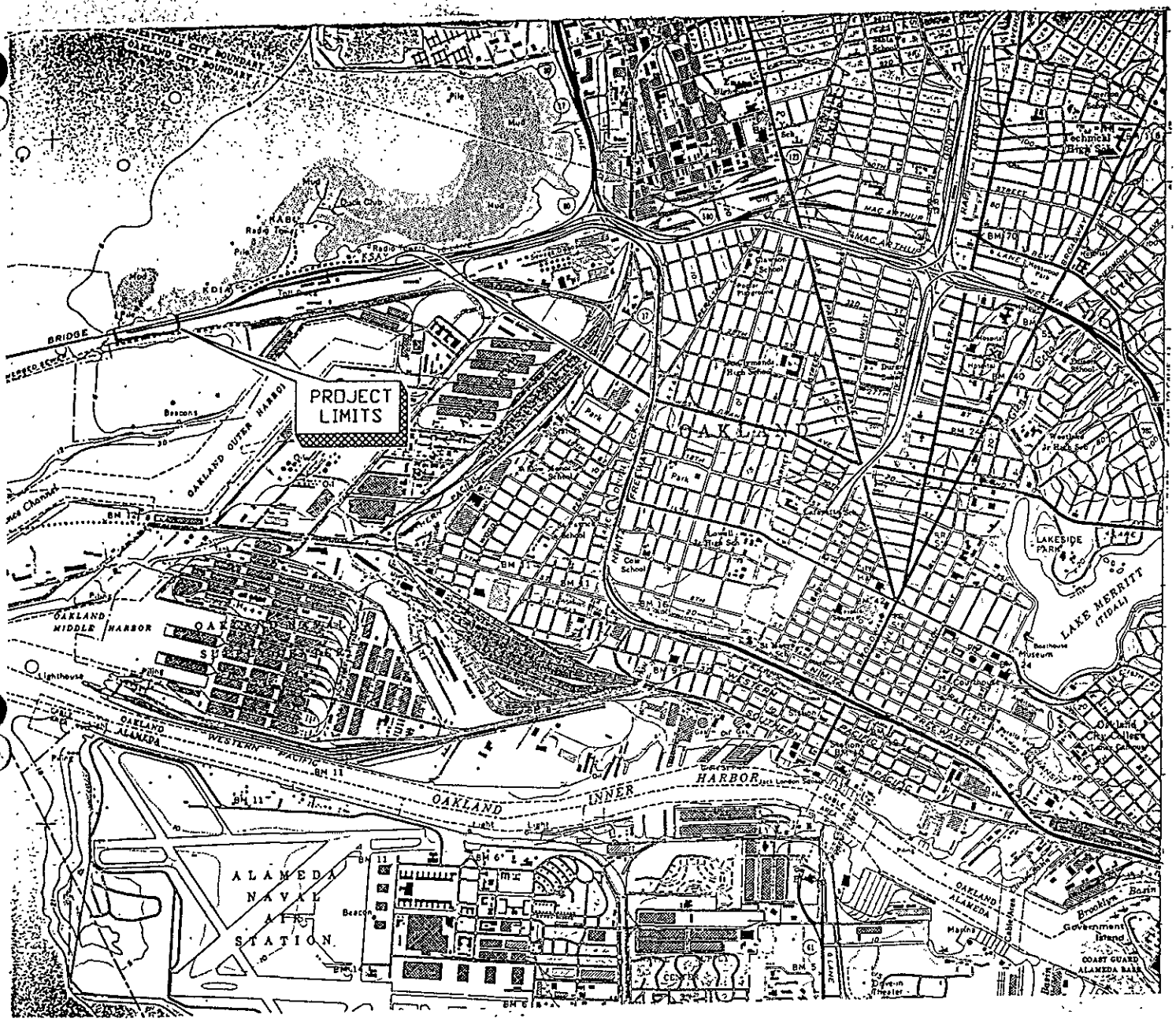



# FIGURE 1

## SITE LOCATION MAP
## OAKLAND BAY BRIDGE

PREPARED FOR
CAL. DEPART. OF TRANSPORTATION
DISTRICT 4
OAKLAND, CALIFORNIA

QUADRANGLE LOCATION

USGS MAP
OAKLAND WEST, QUADRANGLE

APEX ENVIRONMENTAL RECOVERY
SMARTER SOLUTIONS FOR A CLEANER TOMORROW

| | | | | |
|---|---|---|---|---|
| SCALE 1:3000 | APPROXIMATE SCALE IN FEET 0 3000 6000 | | NORTH | DRAWING NO. 153DTF1 |
| DRAWN BY | N. MURTHA | 01/19/94 | | |
| CHECKED BY | N. MURTHA | 01/19/94 | | |
| APPROVED BY | G. KIRKPATRICK | 01/19/94 | | |

**TABLE 1**
**Bent, Boring, and Sample Depths**
**OAKLAND BAY BRIDGE**
**Oakland, California**

| Bent No. | Column No. | Boring No. | Sample Depths |
|---|---|---|---|
| B24 | 1 | B24C1 | 0, 3 |
| B24 | 2 | B24C2 | 0, 7, 11 |
| B25 | 1 | B25C1 | 0, 7 |
| B25 | 2 | B25C2 | 3 |
| B26 | 1 | B26C1 | 0, 3 |
| B26 | 2 | B26C2 | 0 |
| B27 | 1 | B27C1 | 0, 5, 8 |
| B27 | 2 | B27C2 | 3, 7, 11 |
| B28 | 2 | B28C2 | 0, 2 |
| B29 | 1 | B29C1 | 0, 3, 16 |
| B29 | 2 | B29C2 | 0, 3, 16 |
| B30 | 1 | B30C1 | 0, 3 |
| B30 | 2 | B30C2 | 0, 3, 16 |
| B31 | 1 | B31C1 | 0, 3, 9, 15 |
| B31 | 2 | B31C2 | 0, 3, 15 |
| B32 | 1 | B32C1 | 0, 3, 9, 15 |
| B32 | 2 | B32C2 | 0, 3, 9 |
| B33 | 1 | B33C1 | 0, 3, 14 |
| B33 | 2 | B33C2 | 0, 3, 9 |
| B36 | 1 | B36C1 | 0, 3, 14 |
| B36 | 2 | B36C2 | 0, 3, 6 |

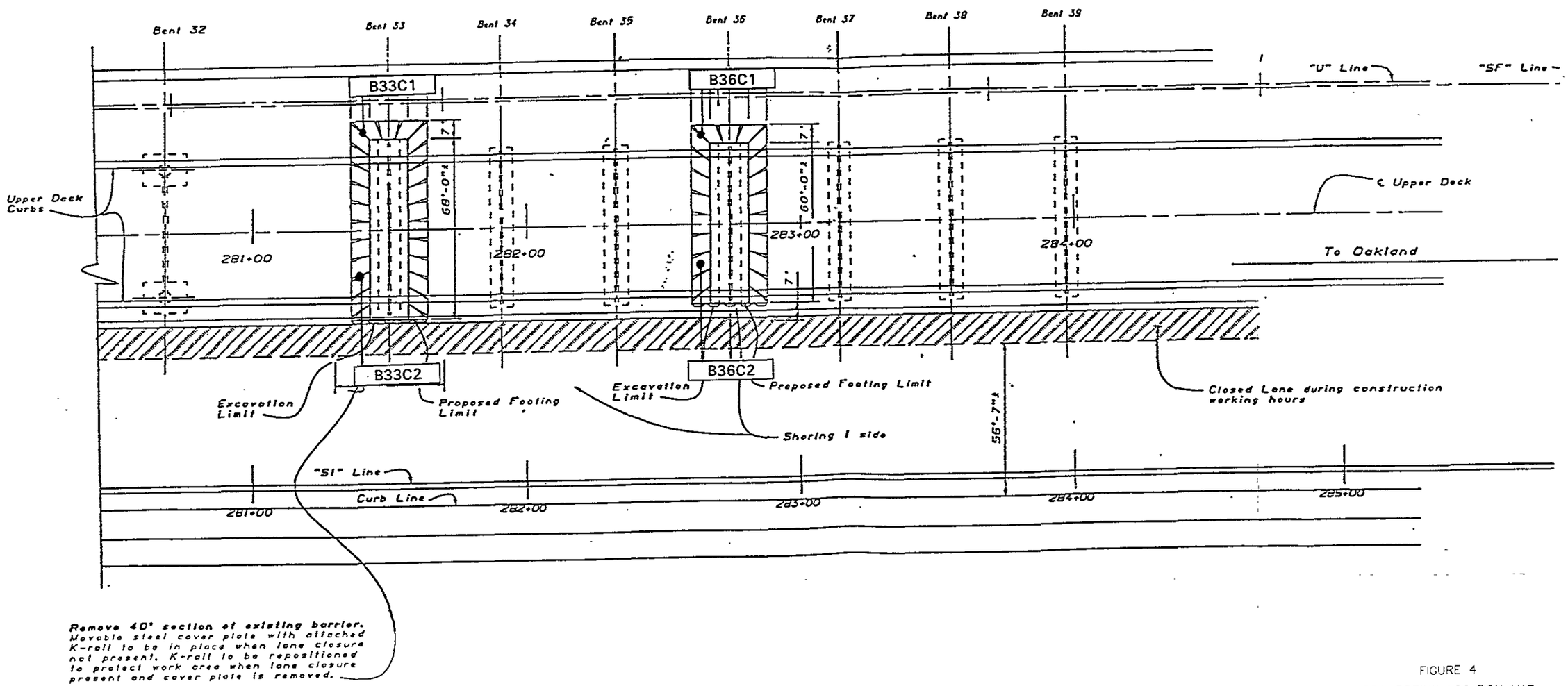



FIGURE 4

SOIL BORING LOCATION MAP
Oakland Bay Bridge (East Bay Spans)
Oakland, California

PREPARED FOR
CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 4

T.O.#04-04343K-01

APEX ENVIRONMENTAL RECOVERY
SMARTER SOLUTIONS FOR A CLEANER TOMORROW

| NOT TO SCALE | | | DRAWING NO. | 153DF4 |
|---|---|---|---|---|
| DRAWN BY | N. PATEL | 01/17/94 | | |
| CHECKED BY | N. MURTHA | 01/17/94 | | |
| APPROVED BY | G. KIRKPATRICK | 01/17/94 | | |

* TRPH

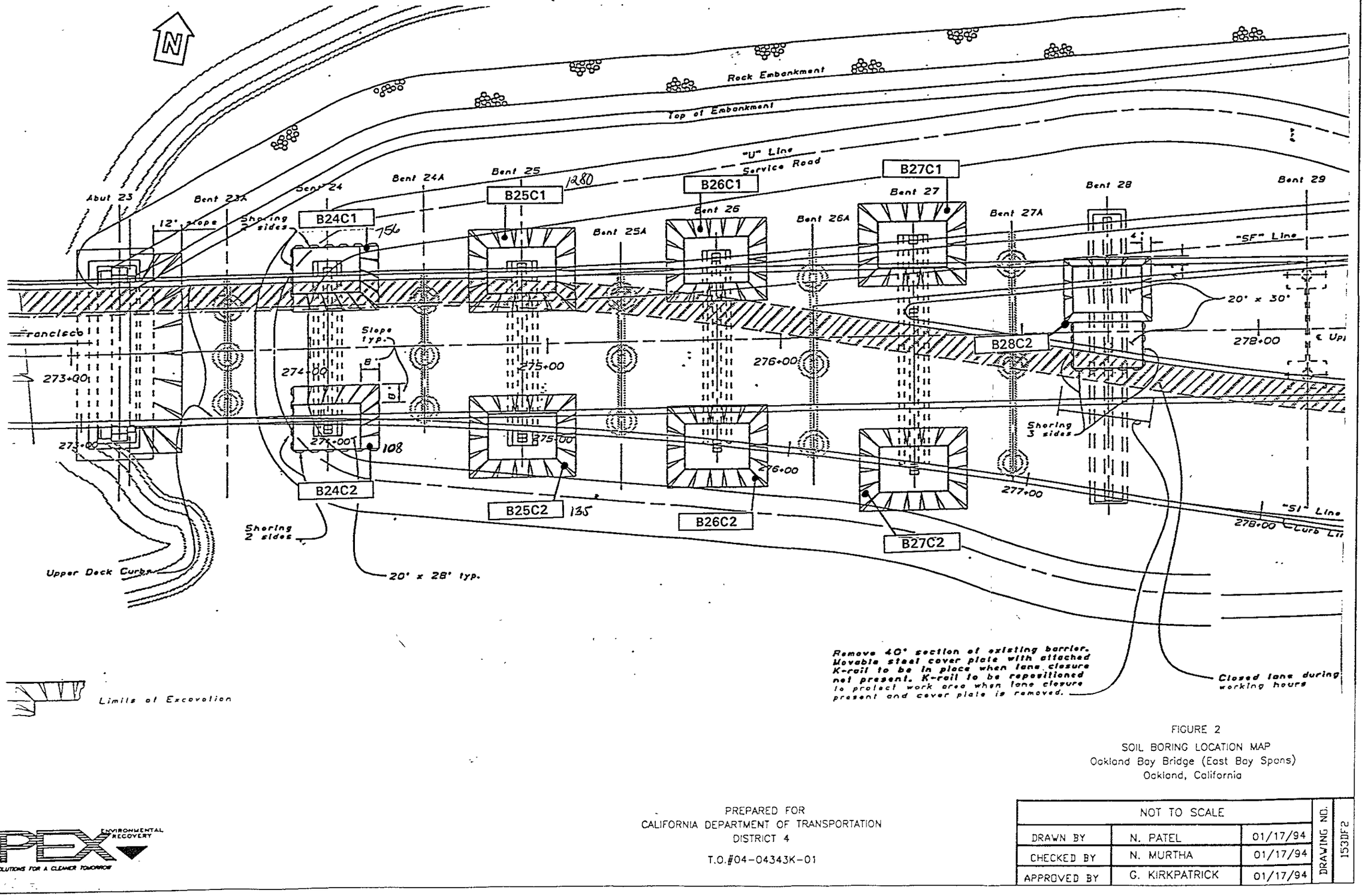



FIGURE 2

SOIL BORING LOCATION MAP
Oakland Bay Bridge (East Bay Spans)
Oakland, California

PREPARED FOR
CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 4

T.O.#04-04343K-01

| NOT TO SCALE | | | DRAWING NO. | 153DF2 |
|---|---|---|---|---|
| DRAWN BY | N. PATEL | 01/17/94 | | |
| CHECKED BY | N. MURTHA | 01/17/94 | | |
| APPROVED BY | G. KIRKPATRICK | 01/17/94 | | |

APEX ENVIRONMENTAL RECOVERY
SMARTER SOLUTIONS FOR A CLEANER TOMORROW

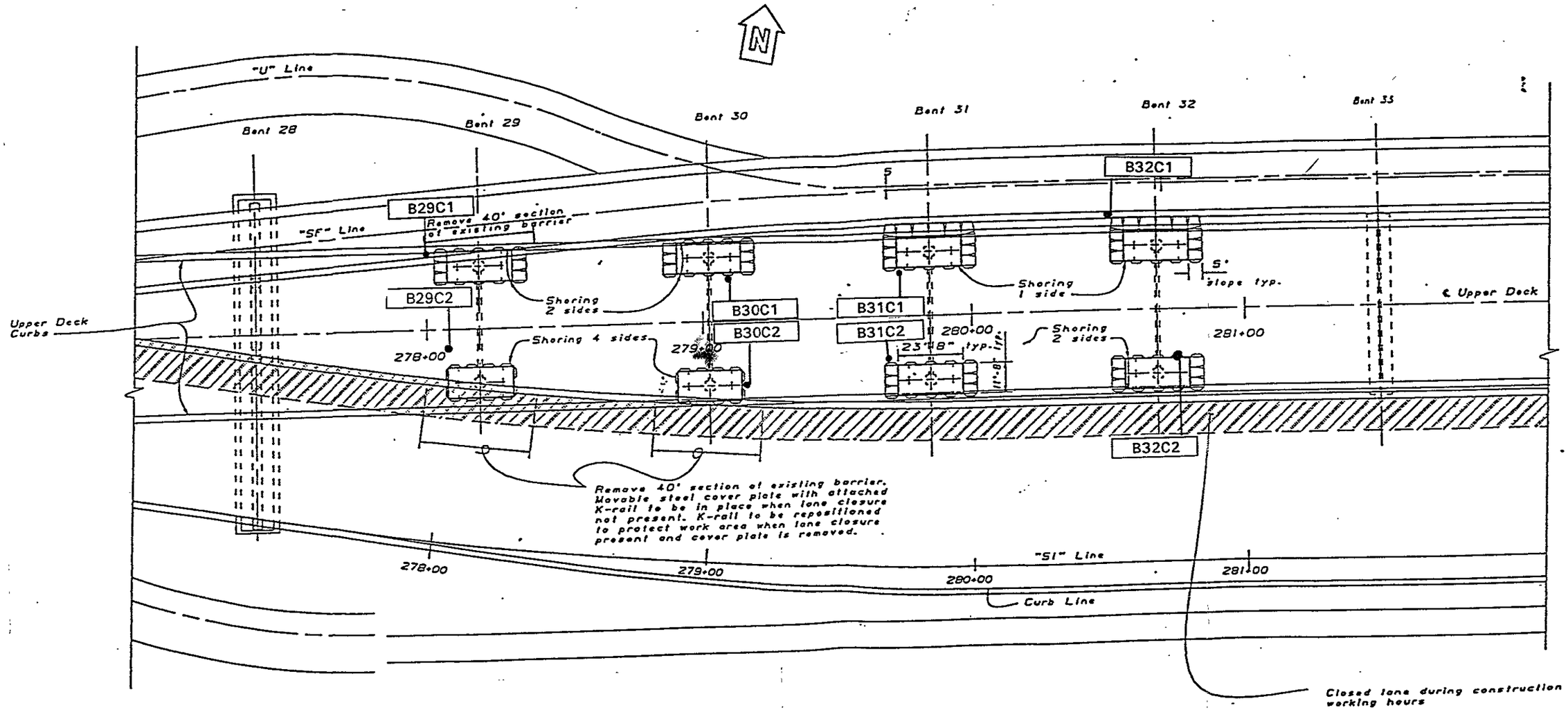



FIGURE 3

SOIL BORING LOCATION MAP
Oakland Bay Bridge (East Bay Spans)
Oakland, California

PREPARED FOR
CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 4

T.O.#04-04343K-01

| NOT TO SCALE | | | DRAWING NO. |
|---|---|---|---|
| DRAWN BY | N. PATEL | 01/17/94 | 153DF3 |
| CHECKED BY | N. MURTHA | 01/17/94 | |
| APPROVED BY | G. KIRKPATRICK | 01/17/94 | |

APEX ENVIRONMENTAL RECOVERY
SMARTER SOLUTIONS FOR A CLEANER TOMORROW

**TABLE 2**
**ANALYTICAL SUMMARY FOR SOIL**
**TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| Sample No. | Sample Date | 418.1 (ppm) |
|---|---|---|
| B24C1-0 | 12/30/93 | 600 |
| B24C1-3 | 12/30/93 | 756 |
| B24C2-0 | 12/30/93 | 108 |
| B24C2-7 | 12/30/93 | 50 |
| B25C1-0 | 12/30/93 | 588 |
| B25C1-7 | 12/30/93 | 1280 |
| B25C2-3 | 12/30/93 | 135 |
| B26C1-0 | 12/30/93 | 152 |
| B26C1-3 | 12/30/93 | 145 |
| B26C2-0 | 12/30/93 | 2340 |
| B27C1-0 | 12/30/93 | 400 |
| B27C1-5 | 12/30/93 | 6500 |
| B27C1-8 | 12/30/93 | 7800 |
| B27C2-3 | 12/30/93 | 940 |
| B27C2-7 | 12/30/93 | 8.4 |
| B27C2-11 | 12/30/93 | ND |
| B28C2-0 | 12/31/93 | 228 |
| B28C2-2 | 12/31/93 | 65 |
| B29C1-0 | 12/30/93 | 1300 |
| B29C1-3 | 12/30/93 | 11 |
| B29C1-16 | 12/30/93 | ND |
| B29C2-0 | 12/30/93 | 4100 |
| B29C2-3 | 12/30/93 | ND |
| B29C2-16 | 12/30/93 | ND |
| B30C1-0 | 12/29/93 | 34 |
| B30C1-3 | 12/29/93 | 4.4 |
| B30C2-0 | 12/30/93 | 2100 |
| B30C2-3 | 12/30/93 | ND |
| B30C2-16 | 12/30/93 | 4.4 |
| B31C1-0 | 12/29/93 | 42 |
| B31C1-3 | 12/29/93 | 12 |
| B31C1-9 | 12/29/93 | ND |
| B31C1-15 | 12/23/93 | ND |
| B31C2-0 | 12/29/93 | 3440 |
| B31C2-3 | 12/29/93 | 8.8 |
| B31C2-15 | 12/29/93 | ND |

Note: ND= Not Detected
NA = Not Analyzed

T.O. 04-04343K-01
Contract No. 53U495

**TABLE 2**
**ANALYTICAL SUMMARY FOR SOIL**
**TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| Sample No. | Sample Date | 418.1 (ppm) |
|---|---|---|
| B32C1-0 | 12/29/93 | 16 |
| B32C1-3 | 12/29/93 | ND |
| B32C1-9 | 12/29/93 | 21 |
| B32C1-15 | 12/29/93 | 244 |
| B32C2-0 | 12/31/93 | ND |
| B32C2-3 | 12/31/93 | 6 |
| B32C2-9 | 12/31/93 | 48 |
| B33C1-0 | 12/29/93 | 256 |
| B33C1-3 | 12/29/93 | ND |
| B33C1-14 | 12/29/93 | 4.8 |
| B33C2-0 | 12/31/93 | 316 |
| B33C2-3 | 12/31/93 | 22 |
| B33C2-9 | 12/31/93 | ND |
| B36C1-0 | 12/29/93 | 456 |
| B36C1-3 | 12/29/93 | ND |
| B36C1-14 | 12/29/93 | ND |
| B36C2-0 | 12/31/93 | 8 |
| B36C2-3 | 12/31/93 | 4 |
| B36C2-6 | 12/31/93 | ND |

Note: ND= Not Detected
NA = Not Analyzed

**TABLE 3**
**ANALYTICAL SUMMARY FOR SOIL**
**VOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8240 ANALYTE (ppm) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B24C1-0 12/30/93 | B24C1-3 12/30/93 | B24C2-0 12/30/93 | B24C2-7 1/20/94 | B24C2-11 1/20/94 | B25C1-0 12/30/93 |
| Acetone | ND | ND | ND | ND | ND | ND |
| Acrolein | ND | ND | ND | ND | ND | ND |
| Acrylonitrile | ND | ND | ND | ND | ND | ND |
| Benzene | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | ND | ND | ND | ND | ND | ND |
| Bromoform | ND | ND | ND | ND | ND | ND |
| Bromomethane | ND | ND | ND | ND | ND | ND |
| 2-Butanone (MEK) | ND | ND | ND | ND | ND | ND |
| Carbon Disulfide | ND | ND | ND | ND | ND | ND |
| Carbon Tetrachloride | ND | ND | ND | ND | ND | ND |
| Cholorobenzene | ND | ND | ND | ND | ND | ND |
| Chloroethane | ND | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | ND | ND | ND | ND | ND | ND |
| Chloroform | ND | ND | ND | ND | ND | ND |
| Chloromethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichlorabenzene | ND | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | ND | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | ND | ND | ND | ND | ND | ND |
| 2-Hexanone | ND | ND | ND | ND | ND | ND |
| Methylene chloride | ND | ND | ND | ND | ND | ND |
| 4-Methyl-2-pentanone(MIBK) | ND | ND | ND | ND | ND | ND |
| Styrene | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | ND | ND | ND |
| Tetrachloroethene | ND | ND | ND | ND | ND | ND |
| Toluene | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | ND | ND |
| Trichloroethene | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | ND | ND | ND | ND | ND | ND |
| Vinyl Acetate | ND | ND | ND | ND | ND | ND |
| Vinyl Chloride | ND | ND | ND | ND | ND | ND |
| Xylene (total) | ND | ND | ND | ND | ND | ND |

Notes: ND = Not Detected, NA = Not Analyzed,

**TABLE 3**
**ANALYTICAL SUMMARY FOR SOIL**
**VOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8240 ANALYTE (ppm) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B25C1-7 12/30/93 | B25C2-3 1/20/94 | B26C1-0 12/30/93 | B26C1-3 12/30/93 | B26C2-0 1/20/94 | B27C1-5 12/30/93 |
| Acetone | ND | ND | ND | ND | ND | ND |
| Acrolein | ND | ND | ND | ND | ND | ND |
| Acrylonitrile | ND | ND | ND | ND | ND | ND |
| Benzene | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | ND | ND | ND | ND | ND | ND |
| Bromoform | ND | ND | ND | ND | ND | ND |
| Bromomethane | ND | ND | ND | ND | ND | ND |
| 2-Butanone (MEK) | ND | ND | ND | ND | ND | ND |
| Carbon Disulfide | ND | ND | ND | ND | ND | ND |
| Carbon Tetrachloride | ND | ND | ND | ND | ND | ND |
| Cholorobenzene | ND | ND | ND | ND | ND | ND |
| Chloroethane | ND | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | ND | ND | ND | ND | ND | ND |
| Chloroform | ND | ND | ND | ND | ND | ND |
| Chloromethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichlorabenzene | ND | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | ND | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | ND | ND | ND | ND | ND | ND |
| 2-Hexanone | ND | ND | ND | ND | ND | ND |
| Methylene chloride | ND | ND | ND | ND | ND | ND |
| 4-Methyl-2-pentanone(MIBK) | ND | ND | ND | ND | ND | ND |
| Styrene | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | ND | ND | ND |
| Tetrachloroethene | ND | ND | ND | ND | ND | ND |
| Toluene | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | ND | ND |
| Trichloroethene | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | ND | ND | ND | ND | ND | ND |
| Vinyl Acetate | ND | ND | ND | ND | ND | ND |
| Vinyl Chloride | ND | ND | ND | ND | ND | ND |
| Xylene (total) | ND | ND | ND | ND | ND | ND |

Notes: ND = Not Detected, NA = Not Analyzed,

**TABLE 3**
**ANALYTICAL SUMMARY FOR SOIL**
**VOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8240 ANALYTE (ppm) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B27C1-0 12/30/93 | B27C1-8 12/30/93 | B27C2-3 1/20/94 | B27C2-7 12/30/93 | B27C2-11 1/20/94 | B28C2-2 12/31/93 |
| Acetone | ND | ND | ND | ND | ND | ND |
| Acrolein | ND | ND | ND | ND | ND | ND |
| Acrylonitrile | ND | ND | ND | ND | ND | ND |
| Benzene | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | ND | ND | ND | ND | ND | ND |
| Bromoform | ND | ND | ND | ND | ND | ND |
| Bromomethane | ND | ND | ND | ND | ND | ND |
| 2-Butanone (MEK) | ND | ND | ND | ND | ND | ND |
| Carbon Disulfide | ND | ND | ND | ND | ND | ND |
| Carbon Tetrachloride | ND | ND | ND | ND | ND | ND |
| Cholorobenzene | ND | ND | ND | ND | ND | ND |
| Chloroethane | ND | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | ND | ND | ND | ND | ND | ND |
| Chloroform | ND | ND | ND | ND | ND | ND |
| Chloromethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichlorabenzene | ND | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | ND | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | ND | ND | ND | ND | ND | ND |
| 2-Hexanone | ND | ND | ND | ND | ND | ND |
| Methylene chloride | ND | ND | ND | ND | ND | ND |
| 4-Methyl-2-pentanone(MIBK) | ND | ND | ND | ND | ND | ND |
| Styrene | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | ND | ND | ND |
| Tetrachloroethene | ND | ND | ND | ND | ND | ND |
| Toluene | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | ND | ND |
| Trichloroethene | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | ND | ND | ND | ND | ND | ND |
| Vinyl Acetate | ND | ND | ND | ND | ND | ND |
| Vinyl Chloride | ND | ND | ND | ND | ND | ND |
| Xylene (total) | ND | ND | ND | ND | ND | ND |

Notes: ND = Not Detected, NA = Not Analyzed,

**TABLE 3**
**ANALYTICAL SUMMARY FOR SOIL**
**VOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8240 ANALYTE (ppm) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B28C2-0 12/29/93 | B29C1-0 12/30/93 | B29C1-3 12/30/93 | B29C1-16 12/30/93 | B29C2-0 1/20/94 | |
| Acetone | ND | ND | ND | ND | ND | |
| Acrolein | ND | ND | ND | ND | ND | |
| Acrylonitrile | ND | ND | ND | ND | ND | |
| Benzene | ND | ND | ND | ND | ND | |
| Bromodichloromethane | ND | ND | ND | ND | ND | |
| Bromoform | ND | ND | ND | ND | ND | |
| Bromomethane | ND | ND | ND | ND | ND | |
| 2-Butanone (MEK) | ND | ND | ND | ND | ND | |
| Carbon Disulfide | ND | ND | ND | ND | ND | |
| Carbon Tetrachloride | ND | ND | ND | ND | ND | |
| Cholorobenzene | ND | ND | ND | ND | ND | |
| Chloroethane | ND | ND | ND | ND | ND | |
| 2-Chloroethyl vinyl ether | ND | ND | ND | ND | ND | |
| Chloroform | ND | ND | ND | ND | ND | |
| Chloromethane | ND | ND | ND | ND | ND | |
| 1,2-Dichlorabenzene | ND | ND | ND | ND | ND | |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | ND | |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | ND | |
| Dibromochloromethane | ND | ND | ND | ND | ND | |
| 1,1-Dichloroethane | ND | ND | ND | ND | ND | |
| 1,2-Dichloroethane | ND | ND | ND | ND | ND | |
| 1,1-Dichloroethene | ND | ND | ND | ND | ND | |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | ND | |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | ND | |
| 1,2-Dichloropropane | ND | ND | ND | ND | ND | |
| cis-1,3-Dichloropropene | ND | ND | ND | ND | ND | |
| trans-1,3-Dichloropropene | ND | ND | ND | ND | ND | |
| Ethylbenzene | ND | ND | ND | ND | ND | |
| 2-Hexanone | ND | ND | ND | ND | ND | |
| Methylene chloride | ND | ND | ND | ND | ND | |
| 4-Methyl-2-pentanone(MIBK) | ND | ND | ND | ND | ND | |
| Styrene | ND | ND | ND | ND | ND | |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | ND | ND | |
| Tetrachloroethene | ND | ND | ND | ND | ND | |
| Toluene | ND | ND | ND | ND | ND | |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | ND | |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | ND | |
| Trichloroethene | ND | ND | ND | ND | ND | |
| Trichlorofluoromethane | ND | ND | ND | ND | ND | |
| Vinyl Acetate | ND | ND | ND | ND | ND | |
| Vinyl Chloride | ND | ND | ND | ND | ND | |
| Xylene (total) | ND | ND | ND | ND | ND | |

Notes: ND = Not Detected, NA = Not Analyzed,

TABLE 3
ANALYTICAL SUMMARY FOR SOIL
VOLATILE ORGANICS
San Francisco - Oakland Bay Bridge
East Bay Spans

| 8240 ANALYTE (ppm) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B29C2-3 1/20/94 | B29C2-16 1/20/94 | B30C1-0 1/20/94 | B30C1-3 1/20/94 | B30C2-0 1/20/94 | B30C2-3 1/20/94 |
| Acetone | ND | ND | ND | ND | ND | ND |
| Acrolein | ND | ND | ND | ND | ND | ND |
| Acrylonitrile | ND | ND | ND | ND | ND | ND |
| Benzene | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | ND | ND | ND | ND | ND | ND |
| Bromoform | ND | ND | ND | ND | ND | ND |
| Bromomethane | ND | ND | ND | ND | ND | ND |
| 2-Butanone (MEK) | ND | ND | ND | ND | ND | ND |
| Carbon Disulfide | ND | ND | ND | ND | ND | ND |
| Carbon Tetrachloride | ND | ND | ND | ND | ND | ND |
| Cholorobenzene | ND | ND | ND | ND | ND | ND |
| Chloroethane | ND | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | ND | ND | ND | ND | ND | ND |
| Chloroform | ND | ND | ND | ND | ND | ND |
| Chloromethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichlorabenzene | ND | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | ND | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | ND | ND | ND | ND | ND | ND |
| 2-Hexanone | ND | ND | ND | ND | ND | ND |
| Methylene chloride | ND | ND | ND | ND | ND | ND |
| 4-Methyl-2-pentanone(MIBK) | ND | ND | ND | ND | ND | ND |
| Styrene | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | ND | ND | ND |
| Tetrachloroethene | ND | ND | ND | ND | ND | ND |
| Toluene | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | ND | ND |
| Trichloroethene | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | ND | ND | ND | ND | ND | ND |
| Vinyl Acetate | ND | ND | ND | ND | ND | ND |
| Vinyl Chloride | ND | ND | ND | ND | ND | ND |
| Xylene (total) | ND | ND | ND | ND | ND | ND |

Notes: ND = Not Detected, NA = Not Analyzed,

**TABLE 3**
**ANALYTICAL SUMMARY FOR SOIL**
**VOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8240 ANALYTE (ppm) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B30C2-16 1/20/94 | B31C1-0 1/20/94 | B31C1-3 1/20/94 | B31C1-9 1/20/94 | B31C1-15 1/20/94 | B31C2-0 1/20/94 |
| Acetone | ND | ND | ND | ND | ND | ND |
| Acrolein | ND | ND | ND | ND | ND | ND |
| Acrylonitrile | ND | ND | ND | ND | ND | ND |
| Benzene | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | ND | ND | ND | ND | ND | ND |
| Bromoform | ND | ND | ND | ND | ND | ND |
| Bromomethane | ND | ND | ND | ND | ND | ND |
| 2-Butanone (MEK) | ND | ND | ND | ND | ND | ND |
| Carbon Disulfide | ND | ND | ND | ND | ND | ND |
| Carbon Tetrachloride | ND | ND | ND | ND | ND | ND |
| Cholorobenzene | ND | ND | ND | ND | ND | ND |
| Chloroethane | ND | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | ND | ND | ND | ND | ND | ND |
| Chloroform | ND | ND | ND | ND | ND | ND |
| Chloromethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichlorabenzene | ND | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | ND | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | ND | ND | ND | ND | ND | ND |
| 2-Hexanone | ND | ND | ND | ND | ND | ND |
| Methylene chloride | ND | ND | ND | ND | ND | ND |
| 4-Methyl-2-pentanone(MIBK) | ND | ND | ND | ND | ND | ND |
| Styrene | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | ND | ND | ND |
| Tetrachloroethene | ND | ND | ND | ND | ND | ND |
| Toluene | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | ND | ND |
| Trichloroethene | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | ND | ND | ND | ND | ND | ND |
| Vinyl Acetate | ND | ND | ND | ND | ND | ND |
| Vinyl Chloride | ND | ND | ND | ND | ND | ND |
| Xylene (total) | ND | ND | ND | ND | ND | ND |

Notes: ND = Not Detected, NA = Not Analyzed,

**TABLE 3**
**ANALYTICAL SUMMARY FOR SOIL**
**VOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8240 ANALYTE | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B31C2-3 | B31C2-15 | B32C1-0 | B32C1-3 | B32C1-9 | B32C1-15 |
| (ppm) | 1/20/94 | 1/20/94 | 1/20/94 | 1/20/94 | 1/20/94 | 1/20/94 |
| Acetone | ND | ND | ND | ND | ND | ND |
| Acrolein | ND | ND | ND | ND | ND | ND |
| Acrylonitrile | ND | ND | ND | ND | ND | ND |
| Benzene | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | ND | ND | ND | ND | ND | ND |
| Bromoform | ND | ND | ND | ND | ND | ND |
| Bromomethane | ND | ND | ND | ND | ND | ND |
| 2-Butanone (MEK) | ND | ND | ND | ND | ND | ND |
| Carbon Disulfide | ND | ND | ND | ND | ND | ND |
| Carbon Tetrachloride | ND | ND | ND | ND | ND | ND |
| Cholorobenzene | ND | ND | ND | ND | ND | ND |
| Chloroethane | ND | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | ND | ND | ND | ND | ND | ND |
| Chloroform | ND | ND | ND | ND | ND | ND |
| Chloromethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichlorabenzene | ND | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | ND | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | ND | ND | ND | ND | ND | ND |
| 2-Hexanone | ND | ND | ND | ND | ND | ND |
| Methylene chloride | ND | ND | ND | ND | ND | ND |
| 4-Methyl-2-pentanone(MIBK) | ND | ND | ND | ND | ND | ND |
| Styrene | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | ND | ND | ND |
| Tetrachloroethene | ND | ND | ND | ND | ND | ND |
| Toluene | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | ND | ND |
| Trichloroethene | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | ND | ND | ND | ND | ND | ND |
| Vinyl Acetate | ND | ND | ND | ND | ND | ND |
| Vinyl Chloride | ND | ND | ND | ND | ND | ND |
| Xylene (total) | ND | ND | ND | ND | ND | ND |

Notes: ND = Not Detected, NA = Not Analyzed,

**TABLE 3**
**ANALYTICAL SUMMARY FOR SOIL**
**VOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8240 ANALYTE (ppm) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B32C2-0 12/31/93 | B32C2-3 12/31/93 | B32C2-9 12/31/93 | B33C1-0 12/29/93 | B33C1-3 12/29/93 | B33C1-14 1/20/94 |
| Acetone | ND | ND | ND | ND | ND | ND |
| Acrolein | ND | ND | ND | ND | ND | ND |
| Acrylonitrile | ND | ND | ND | ND | ND | ND |
| Benzene | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | ND | ND | ND | ND | ND | ND |
| Bromoform | ND | ND | ND | ND | ND | ND |
| Bromomethane | ND | ND | ND | ND | ND | ND |
| 2-Butanone (MEK) | ND | ND | ND | ND | ND | ND |
| Carbon Disulfide | ND | ND | ND | ND | ND | ND |
| Carbon Tetrachloride | ND | ND | ND | ND | ND | ND |
| Cholorobenzene | ND | ND | ND | ND | ND | ND |
| Chloroethane | ND | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | ND | ND | ND | ND | ND | ND |
| Chloroform | ND | ND | ND | ND | ND | ND |
| Chloromethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | ND | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | ND | ND | ND | ND | ND | ND |
| 2-Hexanone | ND | ND | ND | ND | ND | ND |
| Methylene chloride | ND | ND | ND | ND | ND | ND |
| 4-Methyl-2-pentanone(MIBK) | ND | ND | ND | ND | ND | ND |
| Styrene | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | ND | ND | ND |
| Tetrachloroethene | ND | ND | ND | ND | ND | ND |
| Toluene | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | ND | ND |
| Trichloroethene | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | ND | ND | ND | ND | ND | ND |
| Vinyl Acetate | ND | ND | ND | ND | ND | ND |
| Vinyl Chloride | ND | ND | ND | ND | ND | ND |
| Xylene (total) | ND | ND | ND | ND | ND | ND |

Notes: ND = Not Detected, NA = Not Analyzed,

**TABLE 3**
**ANALYTICAL SUMMARY FOR SOIL**
**VOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8240 ANALYTE (ppm) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B33C2-0 12/31/93 | B33C2-3 12/31/93 | B33C2-9 12/31/93 | B36C1-0 12/29/93 | B36C1-3 12/29/93 | B36C1-14 12/29/93 |
| Acetone | ND | ND | ND | ND | ND | ND |
| Acrolein | ND | ND | ND | ND | ND | ND |
| Acrylonitrile | ND | ND | ND | ND | ND | ND |
| Benzene | ND | ND | ND | ND | ND | ND |
| Bromodichloromethane | ND | ND | ND | ND | ND | ND |
| Bromoform | ND | ND | ND | ND | ND | ND |
| Bromomethane | ND | ND | ND | ND | ND | ND |
| 2-Butanone (MEK) | ND | ND | ND | ND | ND | ND |
| Carbon Disulfide | ND | ND | ND | ND | ND | ND |
| Carbon Tetrachloride | ND | ND | ND | ND | ND | ND |
| Cholorobenzene | ND | ND | ND | ND | ND | ND |
| Chloroethane | ND | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | ND | ND | ND | ND | ND | ND |
| Chloroform | ND | ND | ND | ND | ND | ND |
| Chloromethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichlorabenzene | ND | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | ND | ND |
| Dibromochloromethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1-Dichloroethene | ND | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | ND | ND | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropene | ND | ND | ND | ND | ND | ND |
| Ethylbenzene | ND | ND | ND | ND | ND | ND |
| 2-Hexanone | ND | ND | ND | ND | ND | ND |
| Methylene chloride | ND | ND | ND | ND | ND | ND |
| 4-Methyl-2-pentanone(MIBK) | ND | ND | ND | ND | ND | ND |
| Styrene | ND | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | ND | ND | ND |
| Tetrachloroethene | ND | ND | ND | ND | ND | ND |
| Toluene | ND | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | ND | ND |
| Trichloroethene | ND | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | ND | ND | ND | ND | ND | ND |
| Vinyl Acetate | ND | ND | ND | ND | ND | ND |
| Vinyl Chloride | ND | ND | ND | ND | ND | ND |
| Xylene (total) | ND | ND | ND | ND | ND | ND |

Notes: ND = Not Detected, NA = Not Analyzed,

**TABLE 3**
**ANALYTICAL SUMMARY FOR SOIL**
**VOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8240 ANALYTE (ppm) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B36C2-0 12/31/93 | B36C2-3 12/31/93 | B36C2-6 12/31/93 | | | |
| Acetone | ND | ND | ND | | | |
| Acrolein | ND | ND | ND | | | |
| Acrylonitrile | ND | ND | ND | | | |
| Benzene | ND | ND | ND | | | |
| Bromodichloromethane | ND | ND | ND | | | |
| Bromoform | ND | ND | ND | | | |
| Bromomethane | ND | ND | ND | | | |
| 2-Butanone (MEK) | ND | ND | ND | | | |
| Carbon Disulfide | ND | ND | ND | | | |
| Carbon Tetrachloride | ND | ND | ND | | | |
| Cholorobenzene | ND | ND | ND | | | |
| Chloroethane | ND | ND | ND | | | |
| 2-Chloroethyl vinyl ether | ND | ND | ND | | | |
| Chloroform | ND | ND | ND | | | |
| *Chloromethane* | ND | ND | ND | | | |
| 1,2-Dichlorabenzene | ND | ND | ND | | | |
| 1,3-Dichlorobenzene | ND | ND | ND | | | |
| 1,4-Dichlorobenzene | ND | ND | ND | | | |
| Dibromochloromethane | ND | ND | ND | | | |
| 1,1-Dichloroethane | ND | ND | ND | | | |
| 1,2-Dichloroethane | ND | ND | ND | | | |
| 1,1-Dichloroethene | ND | ND | ND | | | |
| cis-1,2-Dichloroethene | ND | ND | ND | | | |
| trans-1,2-Dichloroethene | ND | ND | ND | | | |
| 1,2-Dichloropropane | ND | ND | ND | | | |
| cis-1,3-Dichloropropene | ND | ND | ND | | | |
| trans-1,3-Dichloropropene | ND | ND | ND | | | |
| Ethylbenzene | ND | ND | ND | | | |
| 2-Hexanone | ND | ND | ND | | | |
| Methylene chloride | ND | ND | ND | | | |
| 4-Methyl-2-pentanone(MIBK) | ND | ND | ND | | | |
| Styrene | ND | ND | ND | | | |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | | | |
| Tetrachloroethene | ND | ND | ND | | | |
| Toluene | ND | ND | ND | | | |
| 1,1,1-Trichloroethane | ND | ND | ND | | | |
| 1,1,2-Trichloroethane | ND | ND | ND | | | |
| Trichloroethene | ND | ND | ND | | | |
| Trichlorofluoromethane | ND | ND | ND | | | |
| Vinyl Acetate | ND | ND | ND | | | |
| Vinyl Chloride | ND | ND | ND | | | |
| Xylene (total) | ND | ND | ND | | | |

Notes: ND = Not Detected, NA = Not Analyzed,

**TABLE 4**
**ANALYTICAL SUMMARY FOR SOIL**
**SEMIVOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

PRGS INDUSTRIAL SOILS

| 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | | 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | |
|---|---|---|---|---|---|---|---|---|---|
| | B24C1-0 12/30/94 | B24C1-3 12/30/94 | B24C2-0 12/30/94 | B24C2-7 12/30/94 | | B24C1-0 12/30/94 | B24C1-3 12/30/94 | B24C2-0 12/30/94 | B24C2-7 12/30/94 |
| N-Nitrosodimethylamine | NA | NA | NA | NA | 3-Nitroaniline | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | Acenaphthene | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND | 2,4-Dinitrophenol | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND | Dibenzofuran | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | 4-Nitrophenol | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND | Fluorene | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | Diethylphthalate | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND | 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND | 4-Nitroaniline | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND | 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND | N-Nitrosodiphenylamine | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND | 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND | Hexachlorobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND | Pentachlorophenol | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND | Phenanthrene | 1.05 | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | Anthracene | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND | Di-n-Butylphthalate | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND | Fluoranthene | 0.737 | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND | Benzidine | NA | NA | NA | NA |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND | Pyrene | 0.643 | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND | Butylbenzylphthalate | ND | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | ND | Benzo(a) Anthracene | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND | 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND | Chrysene | ND | ND | ND | ND |
| 2-Methynapthalene | ND | ND | ND | ND | Bis(2-Ethylhexyl) Phthalate | ND | ND | ND | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND | Di-n-Octyl Phthalate | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND | Benzo(b) Fluoranthene | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND | Benzo(k) Fluoranthene | ND | ND | ND | ND |
| 2-Chloronapththalene | ND | ND | ND | ND | Benzo(a) Pyrene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND | Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND | Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | Benzo(g,h,i) Perylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND | | | | | |

PRG's 27,000 PRG 20,000

NOTE: ND = Not Detected NA = Not Analyzed

T.O. 04-04343K-01
Contract No. 53U495

**TABLE 4**
**ANALYTICAL SUMMARY FOR SOIL**
**SEMIVOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | | 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | |
|---|---|---|---|---|---|---|---|---|---|
| | B24C2-11 12/30/94 | B25C1-0 12/30/94 | B25C1-7 12/30/94 | B25C2-3 12/30/94 | | B24C2-11 12/30/94 | B25C1-0 12/30/94 | B25C1-7 12/30/94 | B25C2-3 12/30/94 |
| N-Nitrosodimethylamine | NA | NA | NA | NA | 3-Nitroaniline | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | Acenaphthene | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND | 2,4-Dinitrophenol | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND | Dibenzofuran | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | 4-Nitrophenol | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND | Fluorene | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | Diethylphthalate | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND | 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND | 4-Nitroaniline | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND | 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND | N-Nitrosodiphenylamine | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND | 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND | Hexachlorobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND | Pentachlorophenol | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND | Phenanthrene | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | Anthracene | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND | Di-n-Butylphthalate | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND | Fluoranthene | ND | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND | Benzidine | NA | NA | NA | NA |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND | Pyrene | ND | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND | Butylbenzylphthalate | ND | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | ND | Benzo(a) Anthracene | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND | 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND | Chrysene | ND | ND | ND | ND |
| 2-Methynapthalene | ND | ND | ND | ND | Bis(2-Ethylhexyl) Phthalate | ND | ND | ND | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND | Di-n-Octyl Phthalate | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND | Benzo(b) Fluoranthene | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND | Benzo(k) Fluoranthene | ND | ND | ND | ND |
| 2-Chloronapththalene | ND | ND | ND | ND | Benzo(a) Pyrene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND | Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND | Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | Benzo(g,h,i) Perylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND | | | | | |

NOTE: ND = Not Detected NA=Not Analyzed

TABLE 4
ANALYTICAL SUMMARY FOR SOIL
SEMIVOLATILE ORGANICS
San Francisco - Oakland Bay Bridge
East Bay Spans

| 8270 ANALYTE (ppm) | Sample Number and Sample Date B26C1-3 12/30/94 | B26C2-0 12/30/94 | B27C1-0 12/30/94 | B27C1-5 12/30/94 | 8270 ANALYTE (ppm) | Sample Number and Sample Date B26C1-3 12/30/94 | B26C2-0 12/30/94 | B27C1-0 12/30/94 | B27C1-5 12/30/94 |
|---|---|---|---|---|---|---|---|---|---|
| N-Nitrosodimethylamine | NA | NA | NA | NA | 3-Nitroaniline | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | Acenaphthene | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND | 2,4-Dinitrophenol | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND | Dibenzofuran | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | 4-Nitrophenol | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND | Fluorene | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | Diethylphthalate | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND | 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND | 4-Nitroaniline | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND | 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND | N-Nitrosodiphenylamine | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND | 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND | Hexachlorobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND | Pentachlorophenol | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND | Phenanthrene | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | Anthracene | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND | Di-n-Butylphthalate | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND | Fluoranthene | ND | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND | Benzidine | NA | NA | NA | NA |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND | Pyrene | ND | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND | Butylbenzylphthalate | ND | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | ND | Benzo(a) Anthracene | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND | 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND | Chrysene | ND | ND | ND | ND |
| 2-Methynapthalene | ND | ND | ND | ND | Bis(2-Ethylhexyl) Phthalate | ND | ND | ND | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND | Di-n-Octyl Phthalate | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND | Benzo(b) Fluoranthene | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND | Benzo(k) Fluoranthene | ND | ND | ND | ND |
| 2-Chloronaphthalene | ND | ND | ND | ND | Benzo(a) Pyrene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND | Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND | Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | Benzo(g,h,i) Perylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND | | | | | |

NOTE: ND = Not Detected NA=Not Analyzed

**TABLE 4**
**ANALYTICAL SUMMARY FOR SOIL**
**SEMIVOLATILE ORGANICS**
***San Francisco - Oakland Bay Bridge***
**East Bay Spans**

| 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | | 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | |
|---|---|---|---|---|---|---|---|---|---|
| | B27C1-8 12/30/94 | B27C2-3 12/30/94 | B27C2-7 12/30/94 | B27C2-11 12/30/94 | | B27C1-8 12/30/94 | B27C2-3 12/30/94 | B27C2-7 12/30/94 | B27C2-11 12/30/94 |
| N-Nitrosodimethylamine | NA | NA | NA | NA | 3-Nitroaniline | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | Acenaphthene | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND | 2,4-Dinitrophenol | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND | Dibenzofuran | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | 4-Nitrophenol | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND | Fluorene | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | Diethylphthalate | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND | 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND | 4-Nitroaniline | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND | 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND | N-Nitrosodiphenylamine | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND | 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND | Hexachlorobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND | Pentachlorophenol | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND | Phenanthrene | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | Anthracene | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND | Di-n-Butylphthalate | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND | Fluoranthene | ND | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND | Benzidine | NA | NA | NA | NA |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND | Pyrene | ND | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND | Butylbenzylphthalate | ND | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | ND | Benzo(a) Anthracene | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND | 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND | Chrysene | ND | ND | ND | ND |
| 2-Methynapthalene | ND | ND | ND | ND | Bis(2-Ethylhexyl) Phthalate | ND | ND | ND | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND | Di-n-Octyl Phthalate | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND | Benzo(b) Fluoranthene | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND | Benzo(k) Fluoranthene | ND | ND | ND | ND |
| 2-Chloronapthalene | ND | ND | ND | ND | Benzo(a) Pyrene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND | Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND | Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | Benzo(g,h,i) Perylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND | | | | | |

NOTE: ND = Not Detected NA=Not Analyzed

TABLE 4
ANALYTICAL SUMMARY FOR SOIL
SEMIVOLATILE ORGANICS
San Francisco - Oakland Bay Bridge
East Bay Spans

| 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | |
|---|---|---|---|---|
| | B29C1-0 12/30/94 | B29C1-3 12/30/94 | B29C1-16 12/30/94 | B29C2-3 12/30/94 |
| N-Nitrosodimethylamine | NA | NA | NA | NA |
| Phenol | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND |
| 2-Methynapthalene | ND | ND | ND | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND |
| 2-Chloronapthhalene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND |

| 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | |
|---|---|---|---|---|
| | B29C1-0 12/30/94 | B29C1-3 12/30/94 | B29C1-16 12/30/94 | B29C2-3 12/30/94 |
| 3-Nitroaniline | ND | ND | ND | ND |
| Acenaphthene | ND | ND | ND | ND |
| 2,4-Dinitrophenol | ND | ND | ND | ND |
| Dibenzofuran | ND | ND | ND | ND |
| 4-Nitrophenol | ND | ND | ND | ND |
| 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Fluorene | ND | ND | ND | ND |
| Diethylphthalate | ND | ND | ND | ND |
| 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| 4-Nitroaniline | ND | ND | ND | ND |
| 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| N-Nitrosodiphenylamine | ND | ND | ND | ND |
| 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Hexachlorobenzene | ND | ND | ND | ND |
| Pentachlorophenol | ND | ND | ND | ND |
| Phenanthrene | ND | ND | ND | ND |
| Anthracene | ND | ND | ND | ND |
| Di-n-Butylphthalate | ND | ND | ND | ND |
| Fluoranthene | ND | ND | ND | ND |
| Benzidine | NA | NA | NA | NA |
| Pyrene | ND | ND | ND | ND |
| Butylbenzylphthalate | ND | ND | ND | ND |
| Benzo(a) Anthracene | ND | ND | ND | ND |
| 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| Chrysene | ND | ND | ND | ND |
| Bis(2-Ethylhexyl) Phthalate | ND | ND | ND | ND |
| Di-n-Octyl Phthalate | ND | ND | ND | ND |
| Benzo(b) Fluoranthene | ND | ND | ND | ND |
| Benzo(k) Fluoranthene | ND | ND | ND | ND |
| Benzo(a) Pyrene | ND | ND | ND | ND |
| Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Benzo(g,h,i) Perylene | ND | ND | ND | ND |

NOTE: ND = Not Detected NA=Not Analyzed

**TABLE 4**
**ANALYTICAL SUMMARY FOR SOIL**
**SEMIVOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | | 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | |
|---|---|---|---|---|---|---|---|---|---|
| | B29C2-16 12/30/94 | B30C1-3 12/29/94 | B30C2-3 12/30/94 | B30C2-16 12/30/94 | | B29C2-16 12/30/94 | B30C1-3 12/29/94 | B30C2-3 12/30/94 | B30C2-16 12/30/94 |
| N-Nitrosodimethylamine | NA | NA | NA | NA | 3-Nitroaniline | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | Acenaphthene | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND | 2,4-Dinitrophenol | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND | Dibenzofuran | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | 4-Nitrophenol | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND | Fluorene | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | Diethylphthalate | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND | 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND | 4-Nitroaniline | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND | 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND | N-Nitrosodiphenylamine | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND | 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND | Hexachlorobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND | Pentachlorophenol | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND | Phenanthrene | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | Anthracene | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND | Di-n-Butylphthalate | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND | Fluoranthene | ND | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND | Benzidine | NA | NA | NA | NA |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND | Pyrene | ND | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND | Butylbenzylphthalate | ND | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | ND | Benzo(a) Anthracene | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND | 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND | Chrysene | ND | ND | ND | ND |
| 2-Methynapthalene | ND | ND | ND | ND | Bis(2-Ethylhexyl) Phthalate | ND | ND | ND | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND | Di-n-Octyl Phthalate | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND | Benzo(b) Fluoranthene | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND | Benzo(k) Fluoranthene | ND | ND | ND | ND |
| 2-Chloronapththalene | ND | ND | ND | ND | Benzo(a) Pyrene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND | Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND | Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | Benzo(g,h,i) Perylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND | | | | | |

NOTE: ND = Not Detected NA=Not Analyzed

TABLE 4
ANALYTICAL SUMMARY FOR SOIL
SEMIVOLATILE ORGANICS
San Francisco - Oakland Bay Bridge
East Bay Spans

| 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | |
|---|---|---|---|---|
| | B31C1-3 12/29/93 | B31C1-9 12/29/93 | B31C1-15 12/29/93 | B32C2-0 12/31/93 |
| N-Nitrosodimethylamine | NA | NA | NA | NA |
| Phenol | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND |
| 2-Methynapthalene | ND | ND | ND | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND |
| 2-Chloronapthhalene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND |

| 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | |
|---|---|---|---|---|
| | B31C1-2 12/29/93 | B31C1-9 12/29/93 | B31C1-15 12/29/93 | B32C2-0 12/31/93 |
| 3-Nitroaniline | ND | ND | ND | ND |
| Acenaphthene | ND | ND | ND | ND |
| 2,4-Dinitrophenol | ND | ND | ND | ND |
| Dibenzofuran | ND | ND | ND | ND |
| 4-Nitrophenol | ND | ND | ND | ND |
| 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Fluorene | ND | ND | ND | ND |
| Diethylphthalate | ND | ND | ND | ND |
| 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| 4-Nitroaniline | ND | ND | ND | ND |
| 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| N-Nitrosodiphenylamine | ND | ND | ND | ND |
| 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Hexachlorobenzene | ND | ND | ND | ND |
| Pentachlorophenol | ND | ND | ND | ND |
| Phenanthrene | ND | ND | ND | ND |
| Anthracene | ND | ND | ND | ND |
| Di-n-Butylphthalate | ND | ND | ND | ND |
| Fluoranthene | ND | ND | ND | ND |
| Benzidine | NA | NA | NA | NA |
| Pyrene | ND | ND | ND | ND |
| Butylbenzylphthalate | ND | ND | ND | ND |
| Benzo(a) Anthracene | ND | ND | ND | ND |
| 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| Chrysene | ND | ND | ND | ND |
| Bis(2-Ethylhexyl) Phthalate | ND | ND | ND | ND |
| Di-n-Octyl Phthalate | ND | ND | ND | ND |
| Benzo(b) Fluoranthene | ND | ND | ND | ND |
| Benzo(k) Fluoranthene | ND | ND | ND | ND |
| Benzo(a) Pyrene | ND | ND | ND | ND |
| Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Benzo(g,h,i) Perylene | ND | ND | ND | ND |

NOTE: ND = Not Detected NA=Not Analyzed

**TABLE 4**
**ANALYTICAL SUMMARY FOR SOIL**
**SEMIVOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | | 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | |
|---|---|---|---|---|---|---|---|---|---|
| | B32C2-3 12/31/93 | B32C2-9 12/31/93 | B33C2-3 12/31/93 | B33C2-9 12/31/93 | | B32C2-3 12/31/93 | B32C2-9 12/31/93 | B33C2-3 12/31/93 | B33C2-9 12/31/93 |
| N-Nitrosodimethylamine | NA | NA | NA | NA | 3-Nitroaniline | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | Acenaphthene | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND | 2,4-Dinitrophenol | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND | Dibenzofuran | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | 4-Nitrophenol | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND | Fluorene | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | Diethylphthalate | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND | 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND | 4-Nitroaniline | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND | 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND | N-Nitrosodiphenylamine | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND | 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND | Hexachlorobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND | Pentachlorophenol | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND | Phenanthrene | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | Anthracene | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND | Di-n-Butylphthalate | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND | Fluoranthene | ND | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND | Benzidine | NA | NA | NA | NA |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND | Pyrene | ND | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND | Butylbenzylphthalate | ND | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | ND | Benzo(a) Anthracene | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND | 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND | Chrysene | ND | ND | ND | ND |
| 2-Methynapthalene | ND | ND | ND | ND | Bis(2-Ethylhexyl) Phthalate | ND | ND | ND | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND | Di-n-Octyl Phthalate | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND | Benzo(b) Fluoranthene | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND | Benzo(k) Fluoranthene | ND | ND | ND | ND |
| 2-Chloronapthalene | ND | ND | ND | ND | Benzo(a) Pyrene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND | Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND | Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | Benzo(g,h,i) Perylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND | | | | | |

NOTE: ND = Not Detected NA=Not Analyzed

TABLE 4
ANALYTICAL SUMMARY FOR SOIL
SEMIVOLATILE ORGANICS
San Francisco - Oakland Bay Bridge
East Bay Spans

| 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | | 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | |
|---|---|---|---|---|---|---|---|---|---|
| | B36C2-0 12/31/93 | B36C2-3 12/31/93 | B36C2-6 12/31/93 | B30C2-0 12/30/93 | | B36C2-0 12/31/93 | B36C2-3 12/31/93 | B36C2-6 12/31/93 | B30C2-0 12/30/93 |
| N-Nitrosodimethylamine | NA | NA | NA | NA | 3-Nitroaniline | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | Acenaphthene | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND | 2,4-Dinitrophenol | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND | Dibenzofuran | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | 4-Nitrophenol | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND | Fluorene | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | Diethylphthalate | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND | 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND | 4-Nitroaniline | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND | 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND | N-Nitrosodiphenylamine | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND | 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND | Hexachlorobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND | Pentachlorophenol | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND | Phenanthrene | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | Anthracene | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND | Di-n-Butylphthalate | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND | Fluoranthene | ND | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND | Benzidine | NA | NA | NA | NA |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND | Pyrene | ND | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND | Butylbenzylphthalate | ND | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | ND | Benzo(a) Anthracene | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND | 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND | Chrysene | ND | ND | ND | ND |
| 2-Methynapthalene | ND | ND | ND | ND | Bis(2-Ethylhexyl) Phthalate | ND | ND | ND | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND | Di-n-Octyl Phthalate | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND | Benzo(b) Fluoranthene | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND | Benzo(k) Fluoranthene | ND | ND | ND | ND |
| 2-Chloronapththalene | ND | ND | ND | ND | Benzo(a) Pyrene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND | Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND | Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | Benzo(g,h,i) Perylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND | | | | | |

NOTE: ND = Not Detected NA=Not Analyzed

TABLE 4
ANALYTICAL SUMMARY FOR SOIL
SEMIVOLATILE ORGANICS
San Francisco - Oakland Bay Bridge
East Bay Spans

| 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | | 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | |
|---|---|---|---|---|---|---|---|---|---|
| | B31C1-0 12/29/93 | B31C1-3 12/29/93 | B31C2-0 12/31/93 | B31C2-3 12/31/93 | | B31C1-0 12/29/93 | B31C1-3 12/29/93 | B31C2-0 12/31/93 | B31C2-3 12/31/93 |
| N-Nitrosodimethylamine | NA | NA | NA | NA | 3-Nitroaniline | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | Acenaphthene | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND | 2,4-Dinitrophenol | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND | Dibenzofuran | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | 4-Nitrophenol | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND | Fluorene | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | Diethylphthalate | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND | 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND | 4-Nitroaniline | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND | 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND | N-Nitrosodiphenylamine | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND | 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND | Hexachlorobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND | Pentachlorophenol | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND | Phenanthrene | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | Anthracene | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND | Di-n-Butylphthalate | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND | Fluoranthene | ND | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND | Benzidine | NA | NA | NA | NA |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND | Pyrene | ND | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND | Butylbenzylphthalate | ND | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | ND | Benzo(a) Anthracene | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND | 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND | Chrysene | ND | ND | ND | ND |
| 2-Methynapthalene | ND | ND | ND | ND | Bis(2-Ethylhexyl) Phthalate | ND | ND | ND | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND | Di-n-Octyl Phthalate | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND | Benzo(b) Fluoranthene | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND | Benzo(k) Fluoranthene | ND | ND | ND | ND |
| 2-Chloronapththalene | ND | ND | ND | ND | Benzo(a) Pyrene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND | Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND | Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | Benzo(g,h,i) Perylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND | | | | | |

NOTE: ND = Not Detected NA=Not Analyzed

TABLE 4
ANALYTICAL SUMMARY FOR SOIL
SEMIVOLATILE ORGANICS
San Francisco - Oakland Bay Bridge
East Bay Spans

| 8270 ANALYTE (ppm) | Sample Number and Sample Date B31C2-15 12/29/93 | B32C1-0 12/29/93 | B32C1-3 12/29/93 | B32C1-9 12/29/93 | 8270 ANALYTE (ppm) | Sample Number and Sample Date B31C2-15 12/29/93 | B32C1-0 12/29/93 | B32C1-3 12/29/93 | B32C1-9 12/29/93 |
|---|---|---|---|---|---|---|---|---|---|
| N-Nitrosodimethylamine | NA | NA | NA | NA | 3-Nitroaniline | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | Acenaphthene | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND | 2,4-Dinitrophenol | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND | Dibenzofuran | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | 4-Nitrophenol | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND | Fluorene | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | Diethylphthalate | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND | 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND | 4-Nitroaniline | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND | 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND | N-Nitrosodiphenylamine | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND | 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND | Hexachlorobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND | Pentachlorophenol | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND | Phenanthrene | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | Anthracene | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND | Di-n-Butylphthalate | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND | Fluoranthene | ND | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND | Benzidine | NA | NA | NA | NA |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND | Pyrene | ND | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND | Butylbenzylphthalate | ND | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | ND | Benzo(a) Anthracene | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND | 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND | Chrysene | ND | ND | ND | ND |
| 2-Methynapthalene | ND | ND | ND | ND | Bis(2-Ethylhexyl) Phthalate | ND | ND | ND | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND | Di-n-Octyl Phthalate | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND | Benzo(b) Fluoranthene | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND | Benzo(k) Fluoranthene | ND | ND | ND | ND |
| 2-Chloronapththalene | ND | ND | ND | ND | Benzo(a) Pyrene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND | Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND | Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | Benzo(g,h,i) Perylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND | | | | | |

NOTE: ND = Not Detected NA=Not Analyzed

TABLE 4
ANALYTICAL SUMMARY FOR SOIL
SEMIVOLATILE ORGANICS
San Francisco - Oakland Bay Bridge
East Bay Spans

| 8270 ANALYTE (ppm) | Sample Number and Sample Date B32C1-15 12/29/93 | B33C1-0 12/29/93 | B33C1-3 12/29/93 | B33C1-14 12/29/93 | 8270 ANALYTE (ppm) | Sample Number and Sample Date B32C1-15 12/29/93 | B33C1-0 12/29/93 | B33C1-3 12/29/93 | B33C1-14 12/29/93 |
|---|---|---|---|---|---|---|---|---|---|
| N-Nitrosodimethylamine | NA | NA | NA | NA | 3-Nitroaniline | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | Acenaphthene | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND | 2,4-Dinitrophenol | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND | Dibenzofuran | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | 4-Nitrophenol | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND | Fluorene | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | Diethylphthalate | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND | 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND | 4-Nitroaniline | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND | 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND | N-Nitrosodiphenylamine | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND | 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND | Hexachlorobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND | Pentachlorophenol | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND | Phenanthrene | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | Anthracene | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND | Di-n-Butylphthalate | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND | Fluoranthene | ND | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND | Benzidine | NA | NA | NA | NA |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND | Pyrene | ND | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND | Butylbenzylphthalate | ND | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | ND | Benzo(a) Anthracene | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND | 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND | Chrysene | ND | ND | ND | ND |
| 2-Methynapthalene | ND | ND | ND | ND | Bis(2-Ethylhexyl) Phthalate | ND | ND | ND | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND | Di-n-Octyl Phthalate | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND | Benzo(b) Fluoranthene | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND | Benzo(k) Fluoranthene | ND | ND | ND | ND |
| 2-Chloronaphthalene | ND | ND | ND | ND | Benzo(a) Pyrene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND | Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND | Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | Benzo(g,h,i) Perylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND | | | | | |

NOTE: ND = Not Detected NA=Not Analyzed

TABLE 4
ANALYTICAL SUMMARY FOR SOIL
SEMIVOLATILE ORGANICS
San Francisco - Oakland Bay Bridge
East Bay Spans

| 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | | 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | |
|---|---|---|---|---|---|---|---|---|---|
| | B36C1-0 12/29/93 | B36C1-3 12/29/93 | B36C1-14 12/29/93 | B33C1-14 12/29/93 | | B36C1-0 12/29/93 | B36C1-3 12/29/93 | B36C1-14 12/29/93 | B33C1-14 12/29/93 |
| N-Nitrosodimethylamine | NA | NA | NA | NA | 3-Nitroaniline | ND | ND | ND | ND |
| Phenol | ND | ND | ND | ND | Acenaphthene | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND | 2,4-Dinitrophenol | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND | Dibenzofuran | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | 4-Nitrophenol | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND | Fluorene | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND | Diethylphthalate | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND | 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND | 4-Nitroaniline | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND | 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND | N-Nitrosodiphenylamine | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND | 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND | Hexachlorobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND | Pentachlorophenol | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND | Phenanthrene | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND | Anthracene | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND | Di-n-Butylphthalate | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND | Fluoranthene | ND | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND | Benzidine | NA | NA | NA | NA |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND | Pyrene | ND | ND | ND | ND |
| Naphthalene | ND | ND | ND | ND | Butylbenzylphthalate | ND | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | ND | Benzo(a) Anthracene | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND | 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND | Chrysene | ND | ND | ND | ND |
| 2-Methynapthalene | ND | ND | ND | ND | Bis(2-Ethylhexyl) Phthalate | ND | ND | ND | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND | Di-n-Octyl Phthalate | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND | Benzo(b) Fluoranthene | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND | Benzo(k) Fluoranthene | ND | ND | ND | ND |
| 2-Chloronapththalene | ND | ND | ND | ND | Benzo(a) Pyrene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND | Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND | Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND | Benzo(g,h,i) Perylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND | | | | | |

NOTE: ND = Not Detected NA=Not Analyzed

**TABLE 4**
**ANALYTICAL SUMMARY FOR SOIL**
**SEMIVOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | |
|---|---|---|---|---|
| | B28C2-2 12/31/93 | B2631-0 12/30/93 | B28C2-0 12/31/93 | B29C2-0 12/30/93 |
| N-Nitrosodimethylamine | NA | NA | NA | NA |
| Phenol | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND |
| Naphthalene | 457 800 | 4590 800 | 2230 800 | ND |
| 4-Chloroaniline | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND |
| 2-Methynapthalene | 419 | 5480 | 1900 | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND |
| 2-Chloronapthhalene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND |

| 8270 ANALYTE (ppm) | Sample Number and Sample Date | | | |
|---|---|---|---|---|
| | B28C2-2 12/31/93 | B2631-0 12/30/93 | B28C2-0 12/31/93 | B29C2-0 12/30/93 |
| 3-Nitroaniline | ND | ND | ND | ND |
| Acenaphthene | ND | ND | ND | ND |
| 2,4-Dinitrophenol | ND | ND | ND | ND |
| Dibenzofuran | ND | ND | ND | ND |
| 4-Nitrophenol | ND | ND | ND | ND |
| 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Fluorene | 351 | ND PRGS | ND | ND |
| Diethylphthalate | ND | ND | ND | ND |
| 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| 4-Nitroaniline | ND | ND | ND | ND |
| 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| N-Nitrosodiphenylamine | ND | ND | ND | ND |
| 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Hexachlorobenzene | ND | ND | ND | ND |
| Pentachlorophenol | ND | ND | ND | ND |
| Phenanthrene | 1790 | 21800 | 8270 | ND |
| Anthracene | ND | 2880 19 | 826 19 | ND |
| Di-n-Butylphthalate | ND | ND | ND | ND |
| Fluoranthene | 1020 | 17400 | 4970 27,000 | ND |
| Benzidine | NA | NA | NA | NA |
| Pyrene | 906 | 15400 | 4130 20,000 | ND |
| Butylbenzylphthalate | ND | ND | ND | ND |
| Benzo(a) Anthracene | ND | 4220 2.6 | 1310 2.6 | ND |
| 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| Chrysene | ND | 4590 24 | 1420 24 | ND |
| Bis(2-Ethylhexyl) Phthalate | ND | ND | 777 140 | ND |
| Di-n-Octyl Phthalate | ND | ND | ND | ND |
| Benzo(b) Fluoranthene | ND | ND | ND | ND |
| Benzo(k) Fluoranthene | ND | 2860 26 | ND | ND |
| Benzo(a) Pyrene | ND | 1930 0.26 | 832 0.26 | ND |
| Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Benzo(g,h,i) Perylene | ND | ND | ND | ND |

NOTE: ND = Not Detected NA=Not Analyzed

TABLE 4
ANALYTICAL SUMMARY FOR SOIL
SEMIVOLATILE ORGANICS
San Francisco - Oakland Bay Bridge
East Bay Spans

| 8270 ANALYTE (ppm) | Sample Number and Sample Date B28C2-2 12/31/93 | B2631-0 12/30/93 | B28C2-0 12/31/93 | B29C2-0 12/30/93 |
|---|---|---|---|---|
| N-Nitrosodimethylamine | NA | NA | NA | NA |
| Phenol | ND | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | ND |
| Isophorone | ND | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | ND |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND |
| Naphthalene | 457 | 4590 800 | 2230 800 | ND |
| 4-Chloroaniline | ND | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | ND |
| 2-Methynapthalene | 419 | 5480 | 1900 | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | ND |
| 2-Chloronapthalene | ND | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | ND |

| 8270 ANALYTE (ppm) | Sample Number and Sample Date B28C2-2 12/31/93 | B2631-0 12/30/93 | B28C2-0 12/31/93 | B29C2-0 12/30/93 |
|---|---|---|---|---|
| 3-Nitroaniline | ND | ND | ND | ND |
| Acenaphthene | ND | ND | ND | ND |
| 2,4-Dinitrophenol | ND | ND | ND | ND |
| Dibenzofuran | ND | ND | ND | ND |
| 4-Nitrophenol | ND | ND | ND | ND |
| 2,4-Dinitrotoluene | ND | ND | ND | ND |
| Fluorene | 351 300 | ND | ND | ND |
| Diethylphthalate | ND | ND | ND | ND |
| 4-Chlorophenyl-Phenyl Ether | ND | ND | ND | ND |
| 4-Nitroaniline | ND | ND | ND | ND |
| 4,6-Dinitro-2-Methylphenol | ND | ND | ND | ND |
| N-Nitrosodiphenylamine | ND | ND | ND | ND |
| 4-Bromophenyl-Phenyl Ether | ND | ND | ND | ND |
| Hexachlorobenzene | ND | ND | ND | ND |
| Pentachlorophenol | ND | ND | ND | ND |
| Phenanthrene | 1790 | 21800 | 8270 | ND |
| Anthracene | ND | 2880 19 | 826 19 | ND |
| Di-n-Butylphthalate | ND | ND | ND | ND |
| Fluoranthene | 1020 | 17400 27,000 | 4970 | ND |
| Benzidine | NA | NA | NA | NA |
| Pyrene | 906 | 15400 29,000 | 4130 | ND |
| Butylbenzylphthalate | ND | ND | ND | ND |
| Benzo(a) Anthracene | ND | 4220 2.6 | 1310 2.6 | ND |
| 3,3'-Dichorobenzidine | ND | ND | ND | ND |
| Chrysene | ND | 4590 2.4 | 1420 2.4 | ND |
| Bis(2-Ethylhexyl) Phthalate | ND | ND | 777 | ND |
| Di-n-Octyl Phthalate | ND | ND | ND | ND |
| Benzo(b) Fluoranthene | ND | ND | ND | ND |
| Benzo(k) Fluoranthene | ND | 2860 26 | ND | ND |
| Benzo(a) Pyrene | ND | 1930 0.26 | 832 0.26 | ND |
| Indeno(1,2,3-cd) Pyrene | ND | ND | ND | ND |
| Dibenzo(a,h) Anthracene | ND | ND | ND | ND |
| Benzo(g,h,i) Perylene | ND | ND | ND | ND |

NOTE: ND = Not Detected NA=Not Analyzed

**TABLE 5**
**ANALYTICAL SUMMARY FOR SOIL**
**ORGANOCHLORINE PESTICIDES AND PCB'S**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8080 ANALYTE (ppb) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B24C1-0 12/30/93 | B24C1-3 12/30/93 | B24C2-0 12/30/93 | B24C2-7 12/30/93 | B24C2-11 12/30/93 | B25C1-0 12/30/93 |
| Alpha-BHC | ND | ND | ND | ND | ND | ND |
| Gamma-BHC (Lindane) | ND | ND | ND | ND | ND | ND |
| Beta-BHC | 112 | ND | ND | ND | ND | 11 |
| Heptachlor | ND | ND | ND | ND | ND | ND |
| Delta-BHC | ND | ND | ND | ND | ND | ND |
| Aldrin | ND | ND | ND | ND | ND | ND |
| Heptachlor Epoxide | 26 | ND | ND | ND | ND | ND |
| Endosulfan I | ND | ND | ND | ND | ND | ND |
| 4,4'-DDE | ND | ND | ND | ND | ND | ND |
| Dieldrin | ND | ND | ND | ND | ND | ND |
| Endrin | ND | ND | ND | ND | ND | ND |
| 4,4'-DDD | ND | ND | ND | ND | ND | ND |
| Endosulfan II | ND | ND | ND | ND | ND | ND |
| 4,4'-DDT | 25 | ND | ND | ND | ND | ND |
| Endrin Aldehyde | ND | ND | ND | ND | ND | ND |
| Endosulfan Sulfate | ND | ND | ND | ND | ND | ND |
| Methoxychlor | ND | ND | ND | ND | ND | ND |
| Chlordane | ND | ND | ND | ND | ND | ND |
| Toxaphene | ND | ND | ND | ND | ND | ND |
| Aroclor-1016 | ND | ND | ND | ND | ND | ND |
| Aroclor-1221 | ND | ND | ND | ND | ND | ND |
| Aroclor-1232 | ND | ND | ND | ND | ND | ND |
| Aroclor-1242 | ND | ND | ND | ND | ND | ND |
| Aroclor-1248 | ND | ND | ND | ND | ND | ND |
| Aroclor-1254 | ND | ND | ND | ND | ND | ND |
| Aroclor-1260 | 136 | ND | 38 | ND | ND | ND |
| Aroclor-1262 | ND | ND | ND | ND | ND | ND |

NOTE: ND=Not Detected, NA=Not Analyzed

T.O. 04-04343K-01
Contract No. 53U495

**TABLE 5**
**ANALYTICAL SUMMARY FOR SOIL**
**ORGANOCHLORINE PESTICIDES AND PCB'S**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8080 ANALYTE (ppb) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B25C1-7 12/30/93 | B25C2-3 12/30/93 | B26C1-0 12/30/93 | B26C1-3 12/30/93 | B26C2-0 12/30/93 | B27C1-0 12/30/93 |
| Alpha-BHC | ND | ND | ND | ND | ND | ND |
| Gamma-BHC (Lindane) | ND | ND | ND | ND | ND | ND |
| Beta-BHC | ND | ND | 208 1100 | 34 1100 | 29 1100 | 19 1100 |
| Heptachlor | ND | ND | ND | ND | ND | ND |
| Delta-BHC | ND | ND | ND | ND | ND | ND |
| Aldrin | ND | ND | ND | ND | ND | ND |
| Heptachlor Epoxide | ND | ND | 53 210 | 7 210 | 7.7 210 | 6.9 210 |
| Endosulfan I | ND | ND | ND | ND | ND | ND |
| 4,4'-DDE | ND | ND | ND | ND | ND | ND |
| Dieldrin | ND | ND | ND | ND | ND | ND |
| Endrin | ND | ND | ND | ND | ND | ND |
| 4,4'-DDD | ND | ND | ND | ND | ND | ND |
| Endosulfan II | ND | ND | ND | ND | ND | ND |
| 4,4'-DDT | ND | ND | ND | ND | ND | 4.8 5600 |
| Endrin Aldehyde | ND | ND | ND | ND | ND | ND |
| Endosulfan Sulfate | ND | ND | ND | ND | ND | ND |
| Methoxychlor | ND | ND | ND | ND | ND | ND |
| Chlordane | ND | ND | ND | ND | ND | ND |
| Toxaphene | ND | ND | ND | ND | ND | ND |
| Aroclor-1016 | ND | ND | ND | ND | ND | ND |
| Aroclor-1221 | ND | ND | ND | ND | ND | ND |
| Aroclor-1232 | ND | ND | ND | ND | ND | ND |
| Aroclor-1242 | ND | ND | ND | ND | ND | ND |
| Aroclor-1248 | ND | ND | ND | ND | ND | ND |
| Aroclor-1254 | ND | ND | ND | ND | ND | ND |
| Aroclor-1260 | ND | ND | 124 340 | ND | 34 340 | ND |
| Aroclor-1262 | ND | ND | ND | ND | ND | ND |

NOTE: ND=Not Detected, NA=Not Analyzed

T.O. 04-04343K-01
Contract No. 53U495

**TABLE 5**
**ANALYTICAL SUMMARY FOR SOIL**
**ORGANOCHLORINE PESTICIDES AND PCB'S**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8080 ANALYTE (ppb) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B27C1-5 12/30/93 | B27C1-8 12/30/93 | B27C2-3 12/30/93 | B27C2-7 12/30/93 | B27C2-11 12/30/93 | B28C2-0 12/31/93 |
| Alpha-BHC | ND | ND | ND | ND | ND | ND |
| Gamma-BHC (Lindane) | ND | ND | ND | ND | ND | ND |
| Beta-BHC | ND | ND | ND | ND | ND | 312 1100 |
| Heptachlor | ND | ND | ND | ND | ND | ND |
| Delta-BHC | ND | ND | ND | ND | ND | ND |
| Aldrin | ND | ND | ND | ND | ND | ND |
| Heptachlor Epoxide | ND | ND | ND | ND | ND | 54 210 |
| Endosulfan I | ND | ND | ND | ND | ND | ND |
| 4,4'-DDE | ND | ND | ND | ND | ND | ND |
| Dieldrin | ND | ND | ND | ND | ND | ND |
| Endrin | ND | ND | ND | ND | ND | ND |
| 4,4'-DDD | ND | ND | ND | ND | ND | ND |
| Endosulfan II | ND | ND | ND | ND | ND | ND |
| 4,4'-DDT | ND | ND | ND | ND | ND | 32 560 |
| Endrin Aldehyde | ND | ND | ND | ND | ND | ND |
| Endosulfan Sulfate | ND | ND | ND | ND | ND | ND |
| Methoxychlor | ND | ND | ND | ND | ND | ND |
| Chlordane | ND | ND | ND | ND | ND | ND |
| Toxaphene | ND | ND | ND | ND | ND | ND |
| Aroclor-1016 | ND | ND | ND | ND | ND | ND |
| Aroclor-1221 | ND | ND | ND | ND | ND | ND |
| Aroclor-1232 | ND | ND | ND | ND | ND | ND |
| Aroclor-1242 | ND | ND | ND | ND | ND | ND |
| Aroclor-1248 | ND | ND | ND | ND | ND | ND |
| Aroclor-1254 | ND | ND | ND | ND | ND | ND |
| Aroclor-1260 | ND | ND | ND | ND | ND | 170 340 |
| Aroclor-1262 | ND | ND | ND | ND | ND | ND |

NOTE: ND=Not Detected, NA=Not Analyzed

T.O. 04-04343K-01
Contract No. 53U495

**TABLE 5**
**ANALYTICAL SUMMARY FOR SOIL**
**ORGANOCHLORINE PESTICIDES AND PCB'S**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8080 ANALYTE (ppb) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B28C2-2 12/31/93 | B29C1-0 12/30/93 | B29C1-3 12/30/93 | B29C1-16 12/30/93 | B29C2-0 12/30/93 | B29C2-3 12/30/93 |
| Alpha-BHC | ND | ND | ND | ND | ND | ND |
| Gamma-BHC (Lindane) | ND | ND | ND | ND | ND | ND |
| Beta-BHC | 51 | 6.2 | ND | ND | ND | ND |
| Heptachlor | ND | ND | ND | ND | ND | ND |
| Delta-BHC | ND | ND | ND | ND | ND | ND |
| Aldrin | ND | ND | ND | ND | ND | ND |
| Heptachlor Epoxide | 15 | ND | ND | ND | ND | ND |
| Endosulfan I | ND | ND | ND | ND | ND | ND |
| 4,4'-DDE | ND | ND | ND | ND | ND | ND |
| Dieldrin | ND | ND | ND | ND | ND | ND |
| Endrin | ND | ND | ND | ND | ND | ND |
| 4,4'-DDD | 17 | ND | ND | ND | ND | ND |
| Endosulfan II | ND | ND | ND | ND | ND | ND |
| 4,4'-DDT | 10 | ND | ND | ND | ND | ND |
| Endrin Aldehyde | ND | ND | ND | ND | ND | ND |
| Endosulfan Sulfate | ND | ND | ND | ND | ND | ND |
| Methoxychlor | ND | ND | ND | ND | ND | ND |
| Chlordane | ND | ND | ND | ND | ND | ND |
| Toxaphene | ND | ND | ND | ND | ND | ND |
| Aroclor-1016 | ND | ND | ND | ND | ND | ND |
| Aroclor-1221 | ND | ND | ND | ND | ND | ND |
| Aroclor-1232 | ND | ND | ND | ND | ND | ND |
| Aroclor-1242 | ND | ND | ND | ND | ND | ND |
| Aroclor-1248 | ND | ND | ND | ND | ND | ND |
| Aroclor-1254 | ND | ND | ND | ND | ND | ND |
| Aroclor-1260 | 62 | ND | ND | ND | ND | ND |
| Aroclor-1262 | ND | ND | ND | ND | ND | ND |

NOTE: ND=Not Detected, NA=Not Analyzed

**TABLE 5**
**ANALYTICAL SUMMARY FOR SOIL**
**ORGANOCHLORINE PESTICIDES AND PCB'S**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8080 ANALYTE (ppb) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B29C2-16 12/30/93 | B30C1-0 12/29/93 | B30C1-3 12/29/93 | B30C2-0 12/30/93 | B30C2-3 12/30/93 | B30C2-16 12/30/93 |
| Alpha-BHC | ND | ND | ND | ND | ND | ND |
| Gamma-BHC (Lindane) | ND | ND | ND | ND | ND | ND |
| Beta-BHC | ND | ND | ND | 15 1100 | ND | ND |
| Heptachlor | ND | ND | ND | ND | ND | ND |
| Delta-BHC | ND | ND | ND | ND | ND | ND |
| Aldrin | ND | ND | ND | ND | ND | ND |
| Heptachlor Epoxide | ND | ND | ND | ND | ND | ND |
| Endosulfan I | ND | ND | ND | ND | ND | ND |
| 4,4'-DDE | ND | ND | ND | ND | ND | ND |
| Dieldrin | ND | ND | ND | ND | ND | ND |
| Endrin | ND | ND | ND | ND | ND | ND |
| 4,4'-DDD | ND | ND | ND | 24 7900 | ND | ND |
| Endosulfan II | ND | ND | ND | ND | ND | ND |
| 4,4'-DDT | ND | ND | ND | 8.4 5600 | ND | ND |
| Endrin Aldehyde | ND | ND | ND | ND | ND | ND |
| Endosulfan Sulfate | ND | ND | ND | ND | ND | ND |
| Methoxychlor | ND | ND | ND | ND | ND | ND |
| Chlordane | ND | ND | ND | ND | ND | ND |
| Toxaphene | ND | ND | ND | ND | ND | ND |
| Aroclor-1016 | ND | ND | ND | ND | ND | ND |
| Aroclor-1221 | ND | ND | ND | ND | ND | ND |
| Aroclor-1232 | ND | ND | ND | ND | ND | ND |
| Aroclor-1242 | ND | ND | ND | ND | ND | ND |
| Aroclor-1248 | ND | ND | ND | ND | ND | ND |
| Aroclor-1254 | ND | ND | ND | ND | ND | ND |
| Aroclor-1260 | ND | ND | ND | 171 340 | ND | ND |
| Aroclor-1262 | ND | ND | ND | ND | ND | ND |

NOTE: ND=Not Detected, NA=Not Analyzed

**TABLE 5**
**ANALYTICAL SUMMARY FOR SOIL**
**ORGANOCHLORINE PESTICIDES AND PCB'S**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8080 ANALYTE (ppb) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B31C1-0 12/29/93 | B31C1-3 12/29/93 | B31C1-9 12/29/93 | B31C1-15 12/29/93 | B31C2-0 12/29/93 | B31C2-3 12/29/93 |
| Alpha-BHC | ND | ND | ND | ND | ND | ND |
| Gamma-BHC (Lindane) | ND | ND | ND | ND | ND | ND |
| Beta-BHC | ND | ND | ND | ND | ND | ND |
| Heptachlor | ND | ND | ND | ND | ND | ND |
| Delta-BHC | ND | ND | ND | ND | ND | ND |
| Aldrin | ND | ND | ND | ND | ND | ND |
| Heptachlor Epoxide | ND | ND | ND | ND | ND | ND |
| Endosulfan I | ND | ND | ND | ND | ND | ND |
| 4,4'-DDE | ND | ND | ND | ND | ND | ND |
| Dieldrin | ND | ND | ND | ND | ND | ND |
| Endrin | ND | ND | ND | ND | ND | ND |
| 4,4'-DDD | ND | ND | ND | ND | ND | ND |
| Endosulfan II | ND | ND | ND | ND | ND | ND |
| 4,4'-DDT | ND | ND | ND | ND | ND | ND |
| Endrin Aldehyde | ND | ND | ND | ND | ND | ND |
| Endosulfan Sulfate | ND | ND | ND | ND | ND | ND |
| Methoxychlor | ND | ND | ND | ND | ND | ND |
| Chlordane | ND | ND | ND | ND | ND | ND |
| Toxaphene | ND | ND | ND | ND | ND | ND |
| Aroclor-1016 | ND | ND | ND | ND | ND | ND |
| Aroclor-1221 | ND | ND | ND | ND | ND | ND |
| Aroclor-1232 | ND | ND | ND | ND | ND | ND |
| Aroclor-1242 | ND | ND | ND | ND | ND | ND |
| Aroclor-1248 | ND | ND | ND | ND | ND | ND |
| Aroclor-1254 | ND | ND | ND | ND | ND | ND |
| Aroclor-1260 | ND | ND | ND | ND | ND | ND |
| Aroclor-1262 | ND | ND | ND | ND | ND | ND |

NOTE: ND=Not Detected, NA=Not Analyzed

**TABLE 5**
**ANALYTICAL SUMMARY FOR SOIL**
**ORGANOCHLORINE PESTICIDES AND PCB'S**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8080 ANALYTE (ppb) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B31C2-15 12/29/93 | B32C1-0 12/29/93 | B32C1-3 12/29/93 | B32C1-9 12/29/93 | B32C1-15 12/29/93 | B32C2-0 12/31/93 |
| Alpha-BHC | ND | ND | ND | ND | ND | ND |
| Gamma-BHC (Lindane) | ND | ND | ND | ND | ND | ND |
| Beta-BHC | ND | ND | ND | ND | ND | ND |
| Heptachlor | ND | ND | ND | ND | ND | ND |
| Delta-BHC | ND | ND | ND | ND | ND | ND |
| Aldrin | ND | ND | ND | ND | ND | ND |
| Heptachlor Epoxide | ND | ND | ND | ND | ND | ND |
| Endosulfan I | ND | ND | ND | ND | ND | ND |
| 4,4'-DDE | ND | ND | ND | ND | ND | ND |
| Dieldrin | ND | ND | ND | ND | ND | ND |
| Endrin | ND | ND | ND | ND | ND | ND |
| 4,4'-DDD | ND | ND | ND | ND | ND | ND |
| Endosulfan II | ND | ND | ND | ND | ND | ND |
| 4,4'-DDT | ND | ND | ND | ND | ND | ND |
| Endrin Aldehyde | ND | ND | ND | ND | ND | ND |
| Endosulfan Sulfate | ND | ND | ND | ND | ND | ND |
| Methoxychlor | ND | ND | ND | ND | ND | ND |
| Chlordane | ND | ND | ND | ND | ND | ND |
| Toxaphene | ND | ND | ND | ND | ND | ND |
| Aroclor-1016 | ND | ND | ND | ND | ND | ND |
| Aroclor-1221 | ND | ND | ND | ND | ND | ND |
| Aroclor-1232 | ND | ND | ND | ND | ND | ND |
| Aroclor-1242 | ND | ND | ND | ND | ND | ND |
| Aroclor-1248 | ND | ND | ND | ND | ND | ND |
| Aroclor-1254 | ND | ND | ND | ND | ND | ND |
| Aroclor-1260 | ND | ND | ND | ND | ND | ND |
| Aroclor-1262 | ND | ND | ND | ND | ND | ND |

NOTE: ND=Not Detected, NA=Not Analyzed

**TABLE 5**
**ANALYTICAL SUMMARY FOR SOIL**
**ORGANOCHLORINE PESTICIDES AND PCB'S**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8080 ANALYTE (ppb) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B32C2-3 12/31/93 | B32C2-9 12/31/93 | B33C1-0 12/29/93 | B33C1-3 12/29/93 | B33C1-14 12/29/93 | B33C2-0 12/31/93 |
| Alpha-BHC | ND | ND | ND | ND | ND | ND |
| Gamma-BHC (Lindane) | ND | ND | ND | ND | ND | ND |
| Beta-BHC | ND | ND | ND | ND | ND | 3.6 1100 |
| Heptachlor | ND | ND | ND | ND | ND | ND |
| Delta-BHC | ND | ND | ND | ND | ND | ND |
| Aldrin | ND | ND | ND | ND | ND | ND |
| Heptachlor Epoxide | ND | ND | ND | ND | ND | ND |
| Endosulfan I | ND | ND | ND | ND | ND | ND |
| 4,4'-DDE | ND | ND | ND | ND | ND | ND |
| Dieldrin | ND | ND | ND | ND | ND | ND |
| Endrin | ND | ND | ND | ND | ND | ND |
| 4,4'-DDD | ND | ND | ND | ND | ND | 5.2 7900 |
| Endosulfan II | ND | ND | ND | ND | ND | ND 5600 |
| 4,4'-DDT | ND | ND | ND | ND | ND | 5.6 |
| Endrin Aldehyde | ND | ND | ND | ND | ND | ND |
| Endosulfan Sulfate | ND | ND | ND | ND | ND | ND |
| Methoxychlor | ND | ND | ND | ND | ND | ND |
| Chlordane | ND | ND | ND | ND | ND | ND |
| Toxaphene | ND | ND | ND | ND | ND | ND |
| Aroclor-1016 | ND | ND | ND | ND | ND | ND |
| Aroclor-1221 | ND | ND | ND | ND | ND | ND |
| Aroclor-1232 | ND | ND | ND | ND | ND | ND |
| Aroclor-1242 | ND | ND | ND | ND | ND | ND |
| Aroclor-1248 | ND | ND | ND | ND | ND | ND |
| Aroclor-1254 | ND | ND | ND | ND | ND | ND |
| Aroclor-1260 | ND | ND | ND | ND | ND | 75 340 |
| Aroclor-1262 | ND | ND | ND | ND | ND | ND |

NOTE: ND=Not Detected, NA=Not Analyzed

**TABLE 5**
**ANALYTICAL SUMMARY FOR SOIL**
**ORGANOCHLORINE PESTICIDES AND PCB'S**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8080 ANALYTE (ppb) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B33C2-3 12/31/93 | B33C2-9 12/31/93 | B36C1-0 12/29/93 | B36C1-3 12/29/93 | B36C1-14 12/29/93 | B36C2-0 12/31/93 |
| Alpha-BHC | ND | ND | ND | ND | ND | ND |
| Gamma-BHC (Lindane) | ND | ND | ND | ND | ND | ND |
| Beta-BHC | ND | ND | 14 | ND | ND | ND |
| Heptachlor | ND | ND | ND | ND | ND | ND |
| Delta-BHC | ND | ND | ND | ND | ND | ND |
| Aldrin | ND | ND | ND | ND | ND | ND |
| Heptachlor Epoxide | ND | ND | ND | ND | ND | ND |
| Endosulfan I | ND | ND | ND | ND | ND | ND |
| 4,4'-DDE | ND | ND | ND | ND | ND | ND |
| Dieldrin | ND | ND | ND | ND | ND | ND |
| Endrin | ND | ND | ND | ND | ND | ND |
| 4,4'-DDD | ND | ND | 13 | ND | ND | ND |
| Endosulfan II | ND | ND | ND | ND | ND | ND |
| 4,4'-DDT | ND | ND | 26 | ND | ND | ND |
| Endrin Aldehyde | ND | ND | ND | ND | ND | ND |
| Endosulfan Sulfate | ND | ND | ND | ND | ND | ND |
| Methoxychlor | ND | ND | ND | ND | ND | ND |
| Chlordane | ND | ND | ND | ND | ND | ND |
| Toxaphene | ND | ND | ND | ND | ND | ND |
| Aroclor-1016 | ND | ND | ND | ND | ND | ND |
| Aroclor-1221 | ND | ND | ND | ND | ND | ND |
| Aroclor-1232 | ND | ND | ND | ND | ND | ND |
| Aroclor-1242 | ND | ND | ND | ND | ND | ND |
| Aroclor-1248 | ND | ND | ND | ND | ND | ND |
| Aroclor-1254 | ND | ND | ND | ND | ND | ND |
| Aroclor-1260 | ND | ND | 95 | ND | ND | ND |
| Aroclor-1262 | ND | ND | ND | ND | ND | ND |

NOTE: ND=Not Detected, NA=Not Analyzed

**TABLE 5**
**ANALYTICAL SUMMARY FOR SOIL**
**ORGANOCHLORINE PESTICIDES AND PCB'S**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8080 ANALYTE (ppb) | *Sample Number and Sample Date* | | | | | |
|---|---|---|---|---|---|---|
| | B36C2-3 12/31/93 | B36C2-6 12/31/93 | | | | |
| Alpha-BHC | ND | ND | | | | |
| Gamma-BHC (Lindane) | ND | ND | | | | |
| Beta-BHC | ND | ND | | | | |
| Heptachlor | ND | ND | | | | |
| Delta-BHC | ND | ND | | | | |
| Aldrin | ND | ND | | | | |
| Heptachlor Epoxide | ND | ND | | | | |
| Endosulfan I | ND | ND | | | | |
| 4,4'-DDE | ND | ND | | | | |
| Dieldrin | ND | ND | | | | |
| Endrin | ND | ND | | | | |
| 4,4'-DDD | ND | ND | | | | |
| Endosulfan II | ND | ND | | | | |
| 4,4'-DDT | ND | ND | | | | |
| Endrin Aldehyde | ND | ND | | | | |
| Endosulfan Sulfate | ND | ND | | | | |
| Methoxychlor | ND | ND | | | | |
| Chlordane | ND | ND | | | | |
| Toxaphene | ND | ND | | | | |
| Aroclor-1016 | ND | ND | | | | |
| Aroclor-1221 | ND | ND | | | | |
| Aroclor-1232 | ND | ND | | | | |
| Aroclor-1242 | ND | ND | | | | |
| Aroclor-1248 | ND | ND | | | | |
| Aroclor-1254 | ND | ND | | | | |
| Aroclor-1260 | ND | ND | | | | |
| Aroclor-1262 | ND | ND | | | | |

NOTE: ND=Not Detected, NA=Not Analyzed

**TABLE 6**
**ANALYTICAL SUMMARY FOR SOIL**
**TITLE 22 METALS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| Metal (ppm) | TTLC | 10 X | Sample Number and Sample Date | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 24/25 50N 12/30/93 | 24/25 50S 12/30/93 | 26/27 50N 12/30/93 | 32/33 50 N 12/29/93 | 3050N 12/30/93 | B24C1-0 12/30/93 | B24C1-3 12/30/93 | B24C2-0 12/30/93 | B25C1-0 12/30/93 |
| Antimony | 500 | 150 | NA | NA | NA | 35 | 30 | 7.3 | 42 | 34 | 34 |
| Arsenic | 500 | 50 | 5.1 | 3.6 | 6.2 | ND | ND | ND | 4.1 | 3.8 | 2.4 |
| Barium | 10000 | 1000 | NA | NA | NA | 141 | 198 | 11 | 122 | 78 | 182 |
| Beryllium | 75 | 7.5 | NA | NA | NA | ND | ND | ND | ND | ND | ND |
| Cadmium | 100 | 10 | 1.9 | 1.7 | 2.1 | 3.9 | 1.4 | ND | 0.92 | 0.87 | 0.84 |
| Chromium (Total) | 2500 | 560* | 34 | 18 | 22 | 3 | 32 | 13 | 15 | 19 | 12 |
| Cobalt | 8000 | 800 | NA | NA | NA | 5.7 | 4.3 | 2.5 | 8.4 | 4.6 | 11 |
| Copper | 2500 | 250 | NA | NA | NA | 87 | 41 | 7.5 | 26 | 35 | 33 |
| Lead | 1000 | 50 | 142 | 1790=HW | 353 | 1710 = HW | 650 | 11500 =HW | 136 | 410 | 82 |
| Mercury | 20 | 2 | NA | NA | NA | ND | ND | ND | ND | ND | ND |
| Molybdenum | 3500 | 3500 | NA | NA | NA | 2.6 | ND | ND | 1.2 | ND | ND |
| Nickel | 2000 | 200 | NA | NA | NA | 32 | 24 | 5.4 | 18 | 15 | 18 |
| Selenium | 100 | 10 | NA | NA | NA | ND | ND | ND | ND | ND | ND |
| Silver | 500 | 50 | NA | NA | NA | ND | ND | ND | ND | ND | ND |
| Thallium | 700 | 70 | NA | NA | NA | ND | ND | ND | ND | ND | ND |
| Vanadium | 2400 | 240 | NA | NA | NA | 18 | 16 | 3.6 | 24 | 15 | 24 |
| Zinc | 5000 | 2500 | 131 | 222 | 232 | 468 | 160 | 45 | 34 | 120 | 33 |

NOTE: ND = Not Detected NA=Not Analyzed

* Ten times the STLC for total Chromium is 5600 ppm which is greater than the TTLC. The actual STLC value is presented as a guideline.

**TABLE 6**
**ANALYTICAL SUMMARY FOR SOIL**
**TITLE 22 METALS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| Metal (ppm) | TTLC | 10 X | Sample Number and Sample Date | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | B25C1-7 12/30/93 | B25C2-3 12/30/93 | B26C1-0 12/30/93 | B26C1-3 12/30/93 | B26C2-0 12/30/93 | B27C1-0 12/30/93 | B27C1-5 12/30/93 | B27C2-3 12/30/93 | B28C2-0 12/31/93 |
| Antimony | 500 | 150 | 17 | 33 | 24 | 47 | 47 | NA | NA | NA | NA |
| Arsenic | 500 | 50 | ND | ND | ND | 3.3 | 2.9 | 2.2 | 4.3 | 2.3 | ND |
| Barium | 10000 | 1000 | 48 | 178 | 80 | 138 | 124 | NA | NA | NA | NA |
| Beryllium | 75 | 7.5 | ND | ND | ND | ND | ND | NA | NA | NA | NA |
| Cadmium | 100 | 10 | ND | 1.1 | 1.2 | 1.2 | 1.4 | 2.6 | 0.52 | 1.2 | 0.55 |
| Chromium (Total) | 2500 | 560* | 3.9 | 14 | 18 | 28 | 18 | 49 | 9.9 | 4.2 | 6.5 |
| Cobalt | 8000 | 800 | 3.8 | 10 | 5.6 | 11 | 11 | NA | NA | NA | NA |
| Copper | 2500 | 250 | 9.8 | 27 | 37 | 30 | 38 | NA | NA | NA | NA |
| Lead | 1000 | 50 | 11 | 31 | 930 | 124 | 89 | 299 | 17 | 372 | 923 |
| Mercury | 20 | 2 | ND | ND | ND | ND | ND | NA | NA | NA | NA |
| Molybdenum | 3500 | 3500 | ND | ND | ND | ND | ND | NA | NA | NA | NA |
| Nickel | 2000 | 200 | 7.1 | 18 | 21 | 25 | 19 | NA | NA | NA | NA |
| Selenium | 100 | 10 | ND | ND | ND | ND | ND | NA | NA | NA | NA |
| Silver | 500 | 50 | ND | ND | ND | ND | ND | NA | NA | NA | NA |
| Thallium | 700 | 70 | ND | ND | ND | ND | ND | NA | NA | NA | NA |
| Vanadium | 2400 | 240 | 11 | 25 | 15 | 33 | 28 | NA | NA | NA | NA |
| Zinc | 5000 | 2500 | 11 | 28 | 92 | 66 | 32 | 339 | 16 | 91 | 48 |

NOTE: ND = Not Detected NA=Not Analyzed

* Ten times the STLC for total Chromium is 5600 ppm which is greater than the TTLC. The actual STLC value is presented as a guideline.

**TABLE 6**
**ANALYTICAL SUMMARY FOR SOIL**
**TITLE 22 METALS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| Metal (ppm) | TTLC | 10 X | Sample Number and Sample Date | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | B28C2-2 12/31/93 | B29C1-0 12/30/93 | B29C1-3 12/30/93 | B29C1-16 12/30/93 | B29C2-0 12/30/93 | B29C2-3 12/30/93 | B30C1-0 12/29/93 | B30C1-3 12/29/93 | B30C2-0 12/30/93 |
| Antimony | 500 | 150 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Arsenic | 500 | 50 | ND | 4.4 | ND | ND | 2.6 | ND | ND | 2.2 | ND |
| Barium | 10000 | 1000 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Beryllium | 75 | 7.5 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cadmium | 100 | 10 | 0.65 | 1.9 | ND | ND | 1.6 | ND | 1 | ND | 3.3 |
| Chromium (Total) | 2500 | 560* | 11 | 19 | 15 | 8 | 23 | 12 | 18 | 12 | 26 |
| Cobalt | 8000 | 800 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Copper | 2500 | 250 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Lead | 1000 | 50 | 882 | 26 | 6.8 | 16 | 25 | 6.9 | 48 | 11 | 4520 = HW |
| Mercury | 20 | 2 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Molybdenum | 3500 | 3500 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Nickel | 2000 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Selenium | 100 | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silver | 500 | 50 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Thallium | 700 | 70 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Vanadium | 2400 | 240 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Zinc | 5000 | 2500 | 39 | 85 | 10 | 6 | 43 | 8.8 | 276 | 9.2 | 290 |

NOTE: ND = Not Detected NA=Not Analyzed

* Ten times the STLC for total Chromium is 5600 ppm which is greater than the TTLC. The actual STLC value is presented as a guideline.

**TABLE 6**
**ANALYTICAL SUMMARY FOR SOIL**
**TITLE 22 METALS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| Metal (ppm) | TTLC | 10 X | Sample Number and Sample Date | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | B30C2-3 12/30/93 | B31C1-0 12/29/93 | B31C1-3 12/29/93 | B31C1-9 12/29/93 | B31C1-15 12/29/93 | B31C2-0 12/29/93 | B31C2-3 12/29/93 | B31C1-0 12/29/93 | B32C1-3 12/29/93 |
| Antimony | 500 | 150 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Arsenic | 500 | 50 | ND | 3.5 | 4.1 | 3.2 | 2.7 | ND | 3.2 | 3.8 | ND |
| Barium | 10000 | 1000 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Beryllium | 75 | 7.5 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cadmium | 100 | 10 | ND | 1.1 | 0.59 | ND | ND | 1.3 | ND | 1.4 | ND |
| Chromium (Total) | 2500 | 560* | 12 | 6.2 | 20 | 20 | 17 | 11 | 12 | 30 | 17 |
| Cobalt | 8000 | 800 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Copper | 2500 | 250 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Lead | 1000 | 50 | 8.1 | 73 | 9.8 | 9.3 | 6.7 | 168 | 5.9 | 31 | 7.6 |
| Mercury | 20 | 2 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Molybdenum | 3500 | 3500 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Nickel | 2000 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Selenium | 100 | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silver | 500 | 50 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Thallium | 700 | 70 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Vanadium | 2400 | 240 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Zinc | 5000 | 2500 | 8.6 | 46 | 15 | 11 | 10 | 84 | 9.5 | 33 | 12 |

NOTE: ND = Not Detected NA=Not Analyzed

* Ten times the STLC for total Chromium is 5600 ppm which is greater than the TTLC. The actual STLC value is presented as a guideline.

TABLE 6
ANALYTICAL SUMMARY FOR SOIL
TITLE 22 METALS
San Francisco - Oakland Bay Bridge
East Bay Spans

| Metal (ppm) | TTLC | 10 X | Sample Number and Sample Date | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | B32C2-0 12/31/93 | B32C2-3 12/31/93 | B33C1-0 12/29/93 | B33C1-3 12/29/93 | B33C2-0 12/31/93 | B33C2-3 12/31/93 | B36C1-0 12/29/93 | B36C1-3 12/29/93 | B36C2-0 12/31/93 |
| Antimony | 500 | 150 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Arsenic | 500 | 50 | 2.9 | ND | 6.5 | 2.4 | 2.5 | ND | ND | 2.5 | 2.3 |
| Barium | 10000 | 1000 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Beryllium | 75 | 7.5 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cadmium | 100 | 10 | 0.56 | 0.52 | 1.4 | ND | 1.1 | ND | 1 | ND | ND |
| Chromium (Total) | 2500 | 560* | 15 | 12 | 17 | 18 | 11 | 15 | 25 | 17 | 15 |
| Cobalt | 8000 | 800 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Copper | 2500 | 250 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Lead | 1000 | 50 | 11 | 11 | 347 | 6.2 | 249 | 85 | 4510 =HW | 10 | 5.1 |
| Mercury | 20 | 2 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Molybdenum | 3500 | 3500 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Nickel | 2000 | 200 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Selenium | 100 | 10 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Silver | 500 | 50 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Thallium | 700 | 70 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Vanadium | 2400 | 240 | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Zinc | 5000 | 2500 | 11 | 8.1 | 48 | 11 | 114 | 12 | 191 | 12 | 11 |

NOTE: ND = Not Detected NA=Not Analyzed

* Ten times the STLC for total Chromium is 5600 ppm which is greater than the TTLC. The actual STLC value is presented as a guideline.

**TABLE 6**
**ANALYTICAL SUMMARY FOR SOIL**
**TITLE 22 METALS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| Metal (ppm) | TTLC | 10 X | Sample Number and Sample Date | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | B36C2-3 12/31/93 | B32C1-0 12/29/93 | | | | | | | |
| Antimony | 500 | 150 | NA | NA | | | | | | | |
| Arsenic | 500 | 50 | ND | 3.8 | | | | | | | |
| Barium | 10000 | 1000 | NA | NA | | | | | | | |
| Beryllium | 75 | 7.5 | NA | NA | | | | | | | |
| Cadmium | 100 | 10 | ND | 1.4 | | | | | | | |
| Chromium (Total) | 2500 | 560* | 16 | 30 | | | | | | | |
| Cobalt | 8000 | 800 | NA | NA | | | | | | | |
| Copper | 2500 | 250 | NA | NA | | | | | | | |
| Lead | 1000 | 50 | 5.9 | 32 | | | | | | | |
| Mercury | 20 | 2 | NA | NA | | | | | | | |
| Molybdenum | 3500 | 3500 | NA | NA | | | | | | | |
| Nickel | 2000 | 200 | NA | NA | | | | | | | |
| Selenium | 100 | 10 | NA | NA | | | | | | | |
| Silver | 500 | 50 | NA | NA | | | | | | | |
| Thallium | 700 | 70 | NA | NA | | | | | | | |
| Vanadium | 2400 | 240 | NA | NA | | | | | | | |
| Zinc | 5000 | 2500 | 11 | 33 | | | | | | | |

NOTE: ND = Not Detected NA=Not Analyzed

* Ten times the STLC for total Chromium is 5600 ppm which is greater than the TTLC. The actual STLC value is presented as a guideline.

**TABLE 7**
**ANALYTICAL SUMMARY FOR SOIL**
**WET TEST FOR METALS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| Sample No. | Sample Date | Analyte | EPA Analytical Method | Concentration | Detection Limit (ppm) |
|---|---|---|---|---|---|
| B24C1-0 | 12/30/93 | Lead | 7420 | 69 | 1.2 |
| B24C1-3 | 12/30/93 | Lead | 7420 | 2.8 | 0.12 |
| B24C2-0 | 12/30/93 | Lead | 7420 | 6.1 | 0.12 |
| B25C1-0 | 12/30/93 | Lead | 7420 | 1 | 0.12 |
| B26C1-0 | 12/30/93 | Lead | 7420 | 18 | 0.48 |
| B26C1-3 | 12/30/93 | Lead | 7420 | 3.2 | 0.12 |
| B26C2-0 | 12/30/93 | Lead | 7420 | 2.9 | 0.12 |
| B27C1-0 | 12/30/93 | Chromium | 7420 | 0.29 | 0.1 |
| B27C1-0 | 12/30/93 | Lead | 7420 | 8 | 0.12 |
| B27C2-3 | 12/30/93 | Lead | 7420 | 6 | 0.12 |
| B28C2-0 | 12/31/93 | Lead | 7420 | 96 | 1.2 |
| B28C2-2 | 12/31/93 | Lead | 7420 | 87 | 1.2 |
| B30C2-0 | 12/30/93 | Lead | 7420 | 80 | 1.2 |
| B31C1-0 | 12/29/93 | Lead | 7420 | 5.4 | 0.12 |
| B31C2-0 | 12/29/93 | Lead | 7420 | ND | 0.12 |
| B33C1-0 | 12/29/93 | Lead | 7420 | 7.6 | 0.12 |
| B33C2-0 | 12/31/93 | Lead | 7420 | 94 | 1.2 |
| B33C2-3 | 12/31/93 | Lead | 7420 | 69 | 1 |
| B36C1-0 | 12/29/93 | Lead | 7420 | 249 | 4.8 |
| 24/25-50N-0 | 12/30/93 | Lead | 7420 | 3.1 | 0.12 |
| 24/25-50S-0 | 12/30/93 | Lead | 7420 | 100 | 1.2 |
| 26/27-50N-0 | 12/30/93 | Lead | 7420 | 6.4 | 0.12 |
| 3050N-0 | 12/29/93 | Lead | 7420 | 26 | 0.48 |
| 32/3350-N-0 | 12/29/93 | Lead | 7420 | 59 | 1.2 |

75 ppm (=HW)

**TABLE 8**
**ANALYTICAL SUMMARY FOR GROUNDWATER**
**TOTAL RECOVERABLE PETROLEUM HYDROCARBONS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| Sample No. | Sample Date | 418.1 (ppm) |
|---|---|---|
| B24C1W | 12//30/93 | 0.2 |
| B25C1W | 12/30/93 | 0.14 |
| B27C2W | 12/30/93 | ND |

Note: ND= Not Detected
NA = Not Analyzed

**TABLE 9**
**ANALYTICAL SUMMARY FOR GROUNDWATER**
**VOLATILE ORGANICS**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8240 ANALYTE (ppm) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B24C1-W 12/30/93 | B25C1-W 12/30/93 | B27C2-W 12/30/93 | B32C1-W 12/29/93 | | |
| Acetone | ND | ND | ND | ND | | |
| Acrolein | ND | ND | ND | ND | | |
| Acrylonitrile | ND | ND | ND | ND | | |
| Benzene | ND | ND | ND | ND | | |
| Bromodichloromethane | ND | ND | ND | ND | | |
| Bromoform | ND | ND | ND | ND | | |
| Bromomethane | ND | ND | ND | ND | | |
| 2-Butanone (MEK) | ND | ND | ND | ND | | |
| Carbon Disulfide | ND | ND | ND | ND | | |
| Carbon Tetrachloride | ND | ND | ND | ND | | |
| Cholorobenzene | ND | ND | ND | ND | | |
| Chloroethane | ND | ND | ND | ND | | |
| 2-Chloroethyl vinyl ether | ND | ND | ND | ND | | |
| Chloroform | ND | ND | ND | ND | | |
| Chloromethane | ND | ND | ND | ND | | |
| 1,2-Dichlorabenzene | ND | ND | ND | ND | | |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | | |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | | |
| Dibromochloromethane | ND | ND | ND | ND | | |
| 1,1-Dichloroethane | ND | ND | ND | ND | | |
| 1,2-Dichloroethane | ND | ND | ND | ND | | |
| 1,1-Dichloroethene | ND | ND | ND | ND | | |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | | |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | | |
| 1,2-Dichloropropane | ND | ND | ND | ND | | |
| cis-1,3-Dichloropropene | ND | ND | ND | ND | | |
| trans-1,3-Dichloropropene | ND | ND | ND | ND | | |
| Ethylbenzene | ND | ND | ND | ND | | |
| 2-Hexanone | ND | ND | ND | ND | | |
| Methylene chloride | ND | ND | ND | ND | | |
| 4-Methyl-2-pentanone(MIBK) | ND | ND | ND | ND | | |
| Styrene | ND | ND | ND | ND | | |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | ND | | |
| Tetrachloroethene | ND | ND | ND | ND | | |
| Toluene | ND | ND | ND | ND | | |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | | |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | | |
| Trichloroethene | ND | ND | ND | ND | | |
| Trichlorofluoromethane | ND | ND | ND | ND | | |
| Vinyl Acetate | ND | ND | ND | ND | | |
| Vinyl Chloride | ND | ND | ND | ND | | |
| Xylene (total) | ND | ND | ND | ND | | |

Notes: ND = Not Detected, NA = Not Analyzed

TABLE 10
ANALYTICAL SUMMARY FOR GROUNDWATER
SEMIVOLATILE ORGANICS
San Francisco - Oakland Bay Bridge
East Bay Spans

| 8270 ANALYTE (ppm) | Sample Number and Sample Date B24C1-W 12/30/93 | B25C1-W 12/30/93 | B27C2-W 12/30/93 | 8270 ANALYTE (ppm) | Sample Number and Sample Date B24C1-W 12/30/93 | B25C1-W 12/30/93 | B27C2-W 12/30/93 |
|---|---|---|---|---|---|---|---|
| N-Nitrosodimethylamine | NA | NA | NA | 3-Nitroaniline | ND | ND | ND |
| Phenol | ND | ND | ND | Acenaphthene | ND | ND | ND |
| Bis(-2-Chloroethyl) Ether | ND | ND | ND | 2,4-Dinitrophenol | ND | ND | ND |
| 2-Chlorophenol | ND | ND | ND | Dibenzofuran | ND | ND | ND |
| 1,3-Dichlorobenzene | ND | ND | ND | 4-Nitrophenol | ND | ND | ND |
| 1,4-Dichlorobenzene | ND | ND | ND | 2,4-Dinitrotoluene | ND | ND | ND |
| Benzyl Alcohol | ND | ND | ND | Fluorene | ND | ND | ND |
| 1,2-Dichlorobenzene | ND | ND | ND | Diethylphthalate | ND | ND | ND |
| 2-Methylphenol | ND | ND | ND | 4-Chlorophenyl-Phenyl Ether | ND | ND | ND |
| Bis(2-Chloroisopropyl) Ether | ND | ND | ND | 4-Nitroaniline | ND | ND | ND |
| N-Nitroso-Di-n-propylamine | ND | ND | ND | 4,6-Dinitro-2-Methylphenol | ND | ND | ND |
| 4-Methylphenol | ND | ND | ND | N-Nitrosodiphenylamine | ND | ND | ND |
| Hexachloroethane | ND | ND | ND | 4-Bromophenyl-Phenyl Ether | ND | ND | ND |
| Nitrobenzene | ND | ND | ND | Hexachlorobenzene | ND | ND | ND |
| Isophorone | ND | ND | ND | Pentachlorophenol | ND | ND | ND |
| 2-Nitrophenol | ND | ND | ND | Phenanthrene | ND | ND | ND |
| 2,4-Dimethylphenol | ND | ND | ND | Anthracene | ND | ND | ND |
| Bis(-2-Chloroethoxy) Methane | ND | ND | ND | Di-n-Butylphthalate | ND | ND | ND |
| 2,4-Dichlorophenol | ND | ND | ND | Fluoranthene | ND | ND | ND |
| Benzoic Acid | ND | ND | ND | Benzidine | NA | NA | NA |
| 1,2,4-Trichlorobenzene | ND | ND | ND | Pyrene | ND | ND | ND |
| Naphthalene | ND | ND | ND | Butylbenzylphthalate | ND | ND | ND |
| 4-Chloroaniline | ND | ND | ND | Benzo(a) Anthracene | ND | ND | ND |
| Hexachlorobutadiene | ND | ND | ND | 3,3'-Dichorobenzidine | ND | ND | ND |
| 4-Chloro-3-Methylphenol | ND | ND | ND | Chrysene | ND | ND | ND |
| 2-Methynapthalene | ND | ND | ND | Bis(2-Ethylhexyl) Phthalate | ND | ND | ND |
| Hexachlorocyclopentadiene | ND | ND | ND | Di-n-Octyl Phthalate | ND | ND | ND |
| 2,4,6-Trichlorophenol | ND | ND | ND | Benzo(b) Fluoranthene | ND | ND | ND |
| 2,4,5-Trichlorophenol | ND | ND | ND | Benzo(k) Fluoranthene | ND | ND | ND |
| 2-Chloronapthalene | ND | ND | ND | Benzo(a) Pyrene | ND | ND | ND |
| 2-Nitroaniline | ND | ND | ND | Indeno(1,2,3-cd) Pyrene | ND | ND | ND |
| Dimethylphalate | ND | ND | ND | Dibenzo(a,h) Anthracene | ND | ND | ND |
| Acenaphthylene | ND | ND | ND | Benzo(g,h,i) Perylene | ND | ND | ND |
| 2,6-Dinitrotoluene | ND | ND | ND | | | | |

NOTE: ND = Not Detected NA=Not Analyzed

**TABLE 11**
**ANALYTICAL SUMMARY FOR GROUNDWATER**
**ORGANOCHLORINE PESTICIDES AND PCB'S**
**San Francisco - Oakland Bay Bridge**
**East Bay Spans**

| 8080 ANALYTE (ppb) | Sample Number and Sample Date | | | | | |
|---|---|---|---|---|---|---|
| | B24C1-W 12/30/93 | B25C1-W 12/30/93 | B27C2-W 12/30/93 | | | |
| Alpha-BHC | ND | ND | ND | | | |
| Gamma-BHC (Lindane) | ND | ND | ND | | | |
| Beta-BHC | ND | ND | ND | | | |
| Heptachlor | ND | ND | ND | | | |
| Delta-BHC | ND | ND | ND | | | |
| Aldrin | ND | ND | ND | | | |
| Heptachlor Epoxide | ND | ND | ND | | | |
| Endosulfan I | ND | ND | ND | | | |
| 4,4'-DDE | ND | ND | ND | | | |
| Dieldrin | ND | ND | ND | | | |
| Endrin | ND | ND | ND | | | |
| 4,4'-DDD | ND | ND | ND | | | |
| Endosulfan II | ND | ND | ND | | | |
| 4,4'-DDT | ND | ND | ND | | | |
| Endrin Aldehyde | ND | ND | ND | | | |
| Endosulfan Sulfate | ND | ND | ND | | | |
| Methoxychlor | ND | ND | ND | | | |
| Chlordane | ND | ND | ND | | | |
| Toxaphene | ND | ND | ND | | | |
| Aroclor-1016 | ND | ND | ND | | | |
| Aroclor-1221 | ND | ND | ND | | | |
| Aroclor-1232 | ND | ND | ND | | | |
| Aroclor-1242 | ND | ND | ND | | | |
| Aroclor-1248 | ND | ND | ND | | | |
| Aroclor-1254 | ND | ND | ND | | | |
| Aroclor-1260 | ND | ND | ND | | | |
| Aroclor-1262 | ND | ND | ND | | | |

NOTE: ND=Not Detected, NA=Not Analyzed

TABLE 12
ANALYTICAL SUMMARY FOR GROUNDWATER
TITLE 22 METALS
San Francisco - Oakland Bay Bridge
East Bay Spans

| Metal | Sample Number and Sample Date | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | B24C1W | B25C1W | B27C2W | | | | | | |
| (ppm) | 12/30/93 | 12/30/93 | 12/30/93 | | | | | | |
| Antimony | 0.75 | 0.35 | 0.57 | | | | | | |
| Arsenic | 0.001 | ND | ND | | | | | | |
| Barium | ND | ND | ND | | | | | | |
| Beryllium | ND | ND | ND | | | | | | |
| Cadmium | 0.08 | 0.08 | 0.06 | | | | | | |
| Chromium (Total) | 0.2 | 0.21 | 0.17 | | | | | | |
| Cobalt | 0.59 | 0.57 | 0.39 | | | | | | |
| Copper | 0.08 | 0.07 | 0.05 | | | | | | |
| Lead | 0.27 | 0.21 | 0.11 | | | | | | |
| Mercury | ND | ND | ND | | | | | | |
| Molybdenum | 0.22 | 0.17 | ND | | | | | | |
| Nickel | 0.61 | 0.59 | 0.36 | | | | | | |
| Selenium | 0.002 | ND | ND | | | | | | |
| Silver | 0.08 | 0.07 | 0.05 | | | | | | |
| Thallium | 0.76 | 0.74 | 0.54 | | | | | | |
| Vanadium | ND | ND | ND | | | | | | |
| Zinc | ND | ND | ND | | | | | | |

NOTE: ND = Not NA=Not Analyzed

## TABLE 13
## COMPARISON OF REMEDIAL OPTIONS FOR SOIL(1)

| OPTION | EFFECTIVENESS | LONG TERM LIABILITY | ESTIMATED COST | COMMENTS |
|---|---|---|---|---|
| Excavation and Disposal | Very effective in removing both hydrocarbons and metals. | Yes | $2,572,000.00 | This option can be rapidly implemented. It is also the only option that successfully handles the metals contamination. |
| Thermal Desorption | Very effective on hydrocarbons. Not effective on metals | No | $172,000.00 | This method would allow returning the soil to the site to be used as backfill. However it is not effective for metals. |
| Insitu Bioremediation | Unknown | No | Unknown | The effects of shallow brackish groundwater on insitu bioremediation have not been sufficiently studied. Extensive pilot testing would be required. In addition, remediation would have to be completed prior to starting construction activities. |
| Exsitu Bioremediation | Very effective on hydrocarbons. Limited effectiveness on metals. | No | $2,230,000.00 to $3,090,000.00 depending on results of pilot study | Exsitu bioremediation can successfully breakdown hydrocarbons in soil. In some cases, limited biochemical fixation of metals has been documented. This option would require extensive pilot testing and a fairly large area to perform the treatment. |

Notes: (1) This table is based on data collected during this investigation and on information provided by Caltrans. Costs are given as estimates for the purpose of comparison only. A volume of 17,142.3 tons was used for these estimates.

## TABLE 14
## COMPARISON OF REMEDIAL OPTIONS FOR GROUNDWATER REMOVED DURING DEWATERING(1)

| OPTION | EFFECTIVENESS | LONG TERM LIABILITY | COST | COMMENTS |
|---|---|---|---|---|
| Stabilization and Disposal | Very effective on both hydrocarbons and metals | Yes | $2.50 per gallon | This option can be rapidly implemented. It is also the only option that successfully handles the metals contamination. . |
| Carbon absorption | Very effective on hydrocarbons. Not effective on metals | No | $0.25 per gallon | This method might allow discharge of the water to the sewer system or the bay under a NPDES permit. Metals concentrations would have to fit RWQCB parameters |
| Air stripping | Very effective on volatile organics, less effective on semi-volatile hydrocarbons. Not effective on metals | No | Dependent on volume. Treatment unit cost of approximately $100,000 | The volatile component of the groundwater contamination does not appear to justify this method. In addition, treatment of the resulting effluent air stream would be required. Metals concentrations would have to fit RWQCB parameters |

Notes: (1) This table is based on data collected during this investigation and on information provided by Caltrans. Costs are given as estimates for the purpose of comparison only. The volume of water to be treated or disposed was not available at the time this table was assembles.

# Appendix A: Field Procedures

APEX ENVIRONMENTAL RECOVERY

SMARTER SOLUTIONS FOR A CLEANER TOMORROW

## APPENDIX A:
## Field Procedures

### A.1 Drilling Procedures

A truck-mounted drilling rig equipped with 6.00 inch outside diameter, continuous flight hollow-stem augers was used to complete the soil borings.

Soil samples were obtained at 1 foot below ground surface (bgs) and in 3-feet intervals thereafter until the termination of the borings. An additional sample at the bottom of each boring was also collected.

The borings were logged and sampled by an APEX geologist working under the direct supervision of a California State Registered Civil Engineer. The field geologists used the Unified Soil Classification System to log the samples.

To avoid cross-contamination of soil samples, all samplers were cleaned with decontaminant solution, rinsed with clean water, rinsed a third time in de ionized water, and allowed to air dry before obtaining each sample.

All augers were steam cleaned prior to use. Decontamination water and soil cuttings were collected and sealed in 55 gallon drums which were labeled with the boring number and date of collection. The boreholes were backfilled with bentonite chips.

### A.2 Soil Sampling

Soil samples were collected starting at the surface, and then depending on the depth of the boring at approximately 3 foot intervals to the termination of the boring. The hollow-stem auger drilling utilized a modified California split-barrel lined with three six-inch by two-inch diameter stainless steel sample retainers to obtain soil samples. At each sample depth, the sampler was advanced 18 inches driven by a 140 pound hammer with a 30 inch free fall. The hand auger was loaded with one sample retainer to collect soil samples from the hand augured borings.

The number of blows required to advance the auger was recorded for the evaluation of soil density and consistency. When three sleeves were used, the upper two stainless steel sample retainers were retained to describe soil lithology utilizing the Unified Soil Classification System (USCS) and to conduct field screening with an Organic Vapor Analyzer (OVA). The lower sample retainer was submitted for chemical analyses. Upon recovery, the ends of the

lower sample tube was covered with Teflon and sealed with plastic caps. Each sample was labeled, logged on a Chain-of-Custody record, and placed in cold storage until delivered to the laboratory for analyses. The Chain-of-Custody documentation accompanied the samples to the laboratory.

## A.3 Groundwater Sampling

Groundwater samples were collected when free flowing groundwater was encountered within the boreholes during drilling of the soil borings. Samples were collected using disposable Teflon bailer lowered into the open bore hole. The groundwater sample was then decanted from the bailer into appropriate sample containers. Each sample was labeled, logged on a Chain-of-Custody record, and placed in cold storage until delivered to the laboratory for analyses. The Chain-of-Custody documentation accompanied the samples to the laboratory.

# Appendix B: Boring Logs

APEX ENVIRONMENTAL RECOVERY

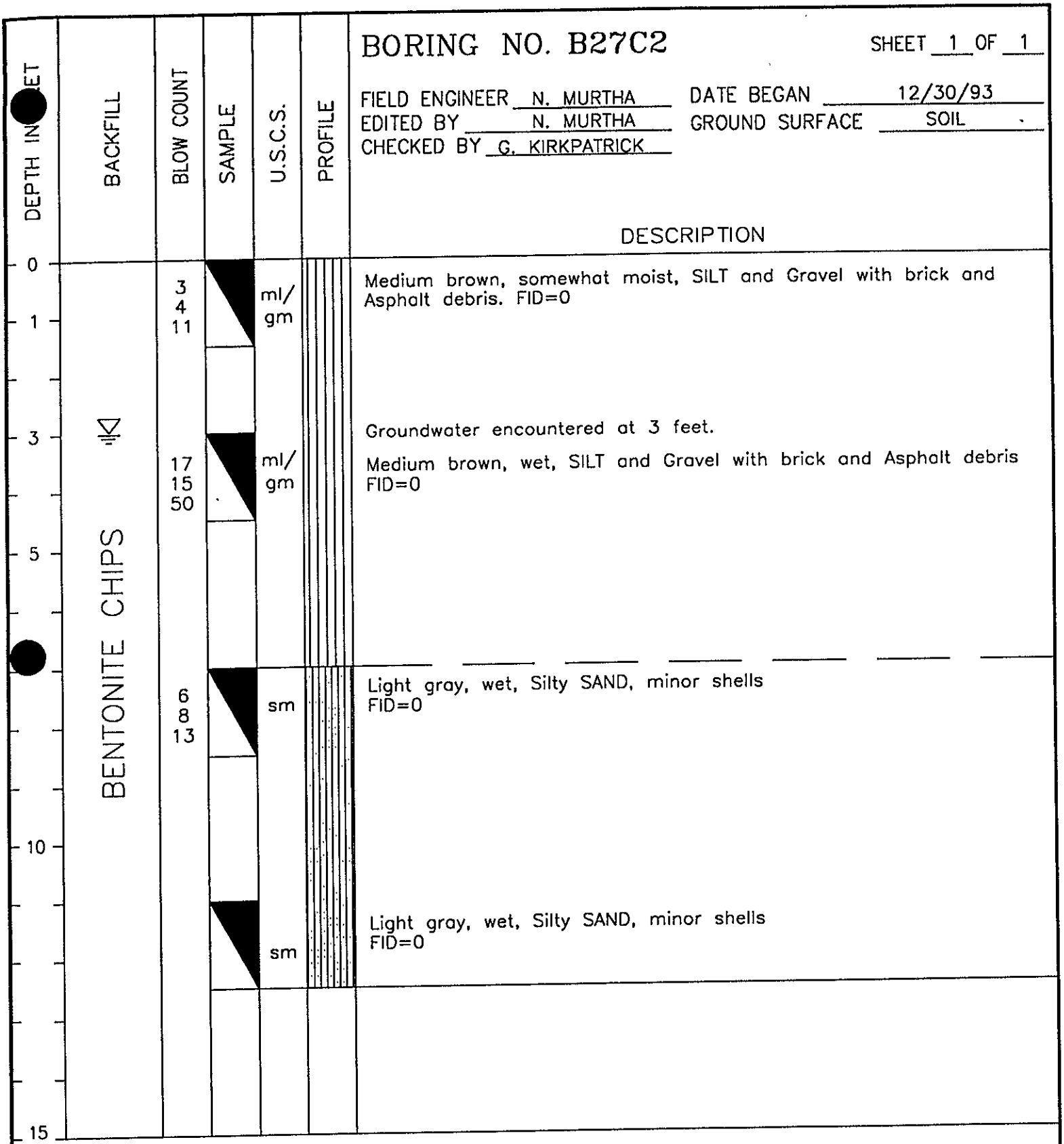
SMARTER SOLUTIONS FOR A CLEANER TOMORROW

# BORING NO. B27C2

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G. KIRKPATRICK

DATE BEGAN 12/30/93
GROUND SURFACE SOIL




NOTES:

TOTAL DEPTH 12.5 FEET.
6 INCH HOLLOW STEM AUGER

APEX ENVIRONMENTAL RECOVERY

CLIENT CALTRANS T.O.#04-04343K01
PROJECT NO. 153DT
LOCATION OAKLAND BAY BRIDGE

# BORING NO. B26C1

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/30/93
GROUND SURFACE SOIL

| DEPTH IN FEET | BACKFILL | BLOW COUNT | SAMPLE | U.S.C.S. | PROFILE | DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | BENTONITE CHIPS | 3<br>17<br>10 | | ml | | Dark brown, somewhat moist SILT with Sand, Gravel and trash debris, FID=0 |
| 3.5 | | 50 | | ml | | Dark brown, moist to wet, SILT with Sand, Gravel and trash debris. Insufficient sample for FID.<br>Groundwater encountered at 3.5 feet. |
| 5 | | | | | | Refusal at 4 feet, relocated 5' west, refusal again at 4 feet |
| 8 | | | | | | |
| 10 | | | | | | |

NOTES:

TOTAL DEPTH 4.0 FEET.
6 INCH HOLLOW STEM AUGER

APEX ENVIRONMENTAL RECOVERY

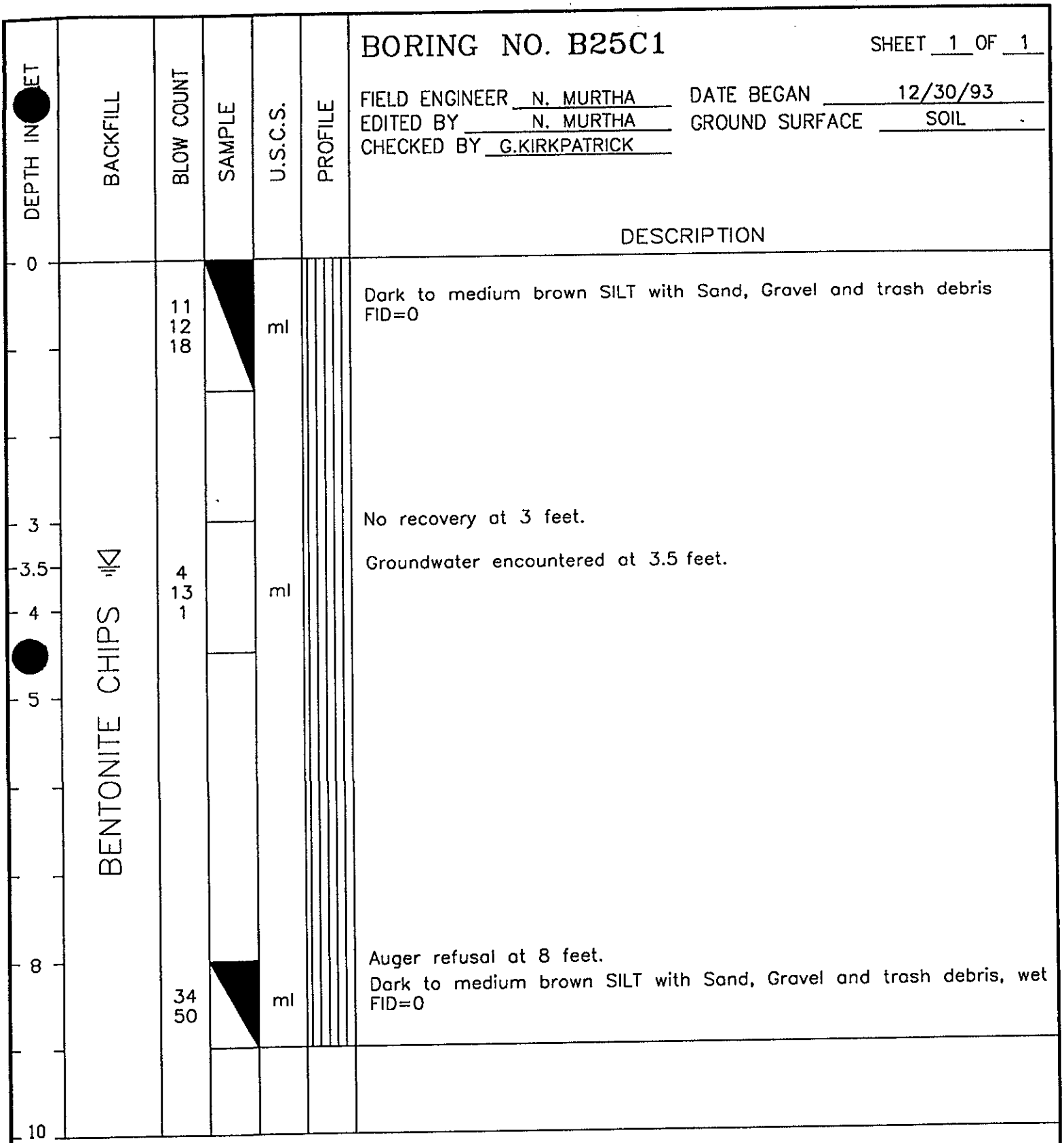
CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B25C1

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/30/93
GROUND SURFACE SOIL




TOTAL DEPTH 9.0 FEET.
6 INCH HOLLOW STEM AUGER

NOTES:

APEX ENVIRONMENTAL RECOVERY

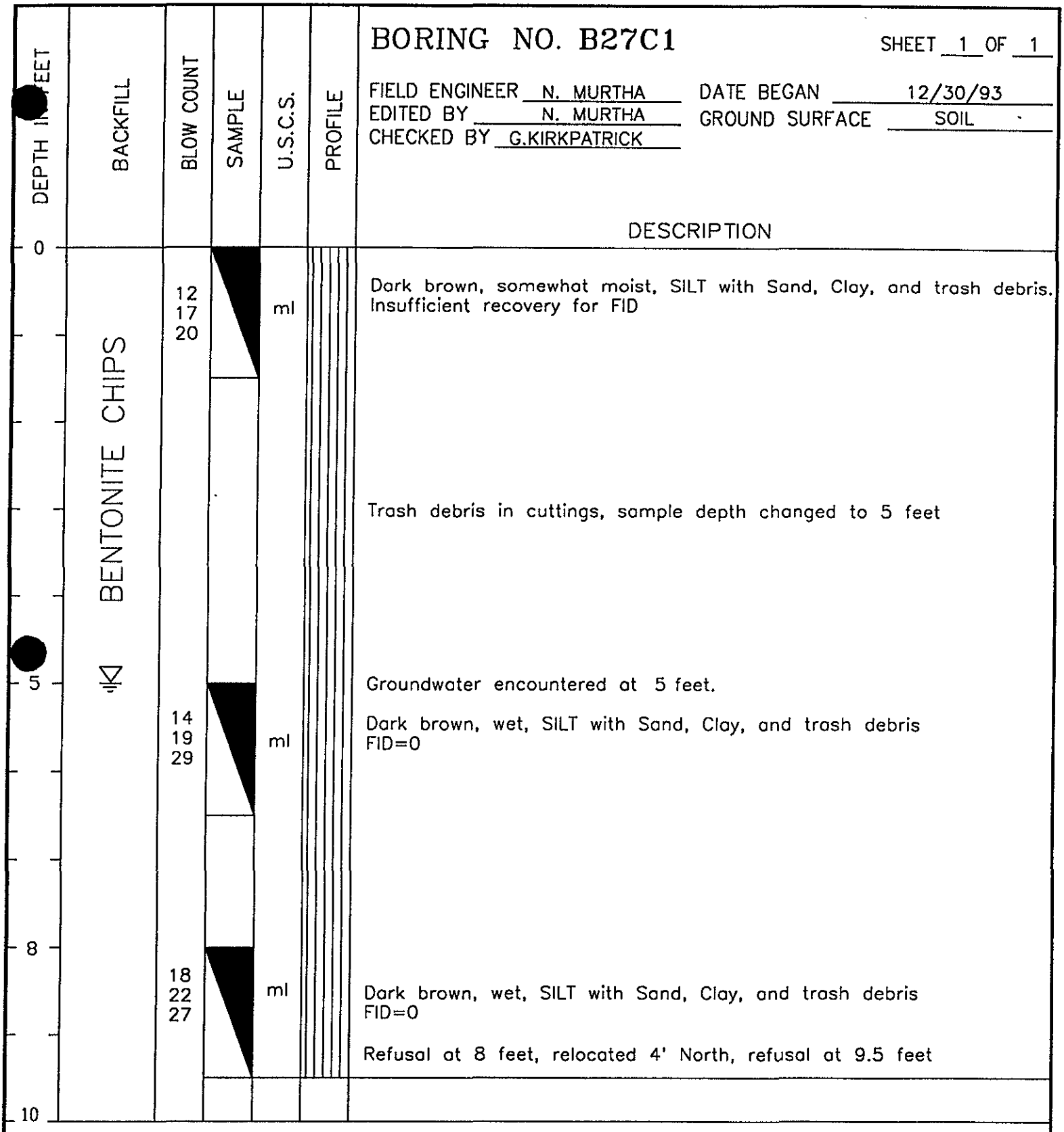
CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B27C1

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/30/93
GROUND SURFACE SOIL




NOTES:

TOTAL DEPTH 9.5 FEET.
6 INCH HOLLOW STEM AUGER

APEX ENVIRONMENTAL RECOVERY

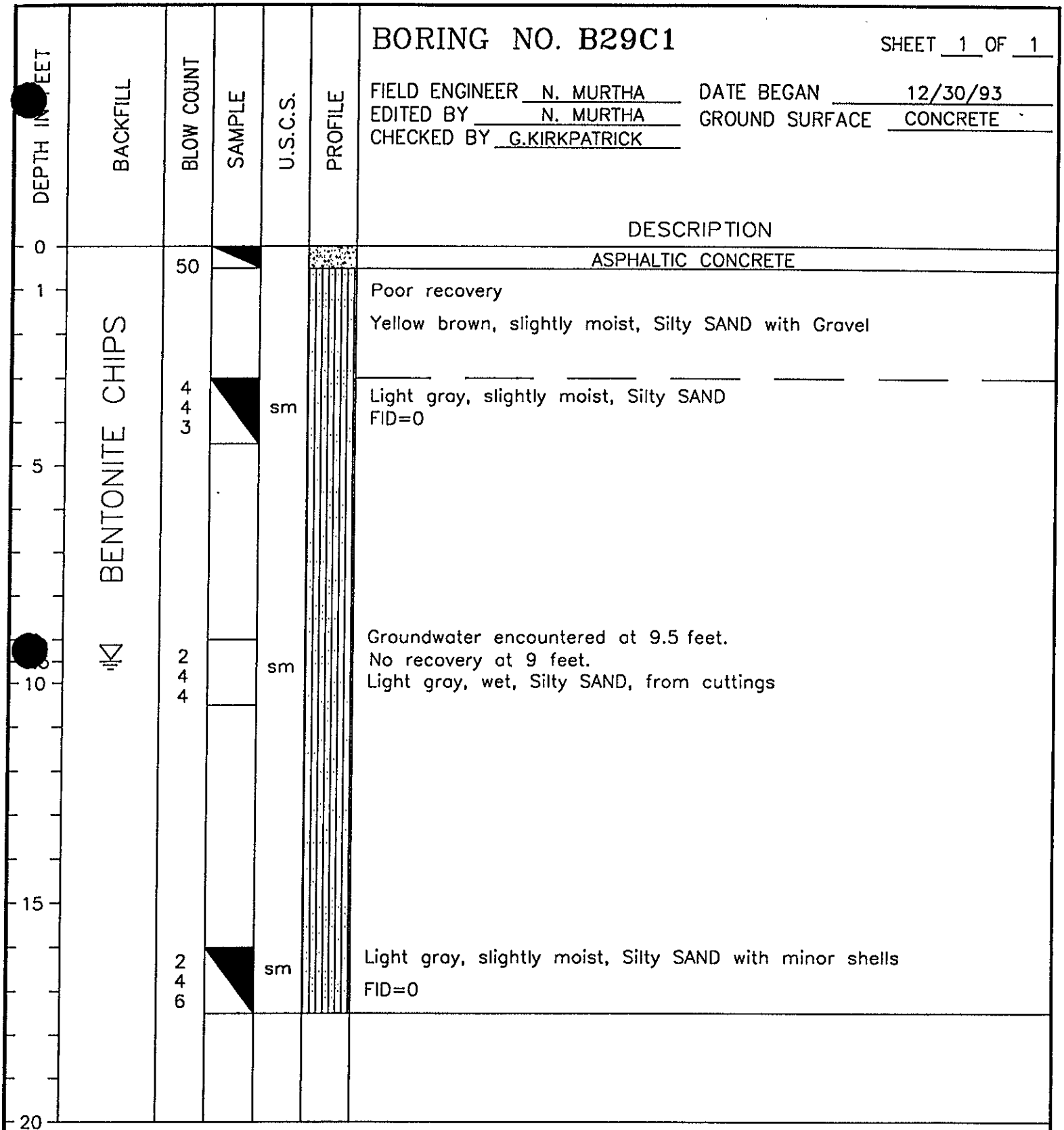
CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B29C1

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/30/93
GROUND SURFACE CONCRETE




NOTES:

TOTAL DEPTH 17.5 FEET.
6 INCH HOLLOW STEM AUGER

APEX ENVIRONMENTAL RECOVERY

CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B26C2

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/30/93
GROUND SURFACE SOIL

| DEPTH IN FEET | BACKFILL | BLOW COUNT | SAMPLE | U.S.C.S. | PROFILE | DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | BENTONITE CHIPS | 5<br>4<br>4 | | ml/<br>gm | | Medium brown, somewhat moist, SILT and Gravel<br>FID=0 |
| 3 | | 3<br>2<br>2 | | | | Groundwater encountered at 3 feet.<br>No recovery at 3 feet. |
| 5 | | | | | | |
| 8 | | | | | | Refusal at 8 feet due to heaving Sands and Gravel |
| 10 | | | | | | |

NOTES:

TOTAL DEPTH 8.0 FEET.
6 INCH HOLLOW STEM AUGER

APEX ENVIRONMENTAL RECOVERY

CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B25C2

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/30/93
GROUND SURFACE SOIL

| DEPTH IN FEET | BACKFILL | BLOW COUNT | SAMPLE | U.S.C.S. | PROFILE | DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | BENTONITE CHIPS | 6<br>10<br>11 | | sm | | Medium brown, somewhat moist, SILT with Gravel<br>FID=0 |
| 1 | | | | | | |
| 2.5 | | | | | | |
| 3 | | | | | | Groundwater encountered at 3 feet. |
| | | 6<br>6<br>10 | | sm | | Medium brown, wet, SILT with Asphalt debris<br>FID=0 |
| 5 | | | | | | |
| 8 | | | | | | Refusal at 8 feet |
| 10 | | | | | | |

NOTES:

TOTAL DEPTH 8.0 FEET.
6 INCH HOLLOW STEM AUGER

APEX ENVIRONMENTAL RECOVERY

CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B30C2

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/30/93
GROUND SURFACE SOIL

| DEPTH IN FEET | BACKFILL | BLOW COUNT | SAMPLE | U.S.C.S. | PROFILE | DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | BENTONITE CHIPS | 12<br>9<br>10 | | sm | | Light to medium gray, slightly moist, Silty SAND<br>FID=0 |
| 5 | | 3<br>3<br>4 | | sm | | Light to medium gray, slightly moist, Silty SAND<br>FID=0 |
| 8 | | | | | | Refusal at 8 feet, relocated 4' N and continued |
| 10 | | 2<br>2<br>3 | | sm | | Groundwater encountered at 9 feet.<br>No recovery at 9 feet. |
| 15 | | 36<br>25<br>25 | | sm | | Light gray, wet, Silty SAND<br>FID=0 |
| 20 | | | | | | |

NOTES:

TOTAL DEPTH 17.5 FEET.
6 INCH HOLLOW STEM AUGER

APEX ENVIRONMENTAL RECOVERY

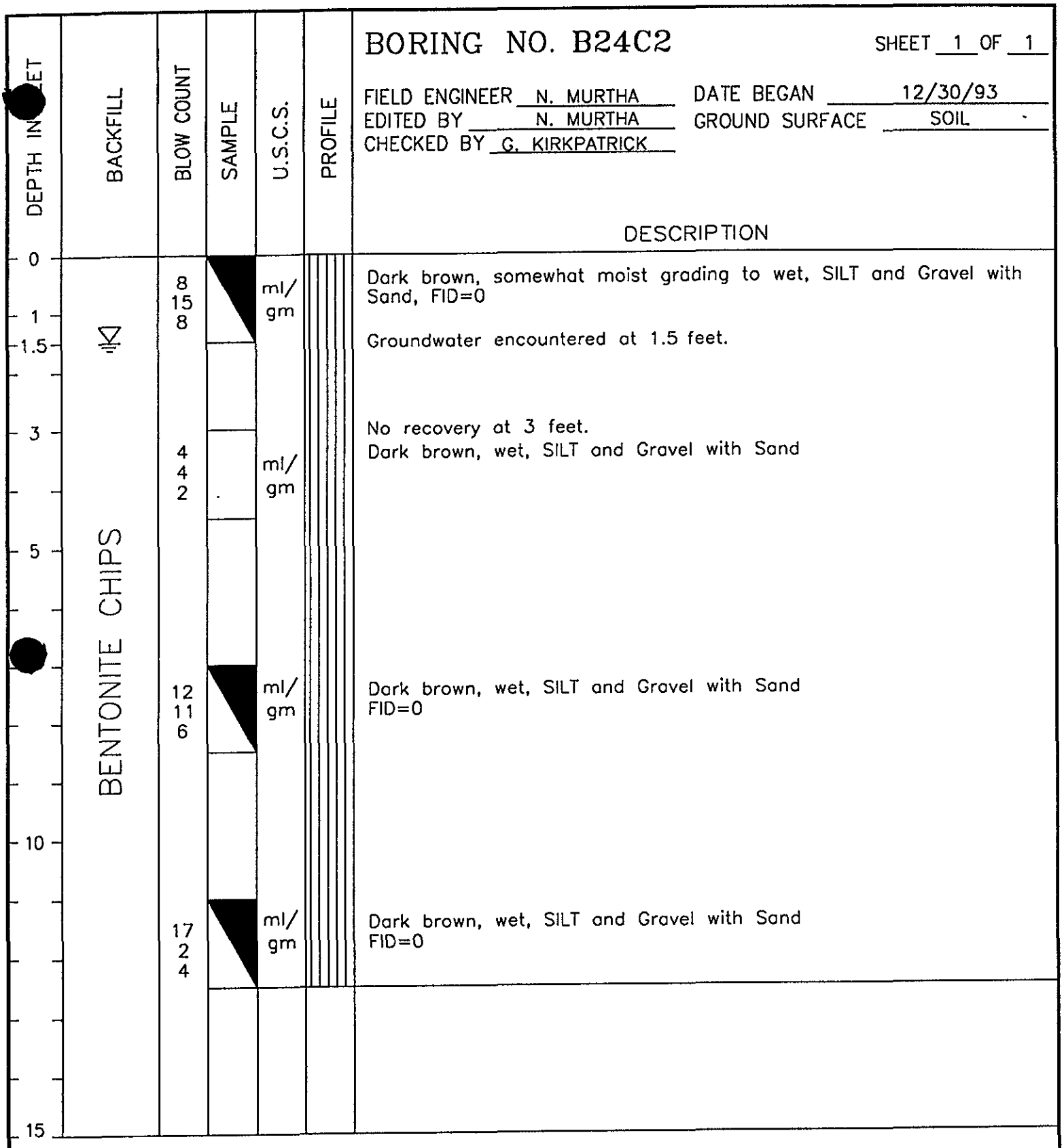
CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B24C2

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G. KIRKPATRICK

DATE BEGAN 12/30/93
GROUND SURFACE SOIL




NOTES:

TOTAL DEPTH 12.5 FEET.
6 INCH HOLLOW STEM AUGER

APEX ENVIRONMENTAL RECOVERY

CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B31C2

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/29/93
GROUND SURFACE SOIL

| DEPTH IN FEET | BACKFILL | BLOW COUNT | SAMPLE | U.S.C.S. | PROFILE | DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | BENTONITE CHIPS | 13<br>12<br>13 | | sm | | Light gray to yellow gray, slightly moist, Silty SAND with Gravel<br>FID=0 |
| 5 | | 3<br>4<br>5 | | sm | | Light gray to yellow gray, slightly moist, Silty SAND with Gravel<br>FID=0 |
| 10 | | 3<br>4<br>4 | | sm | | Groundwater encountered at 9 feet.<br>No recovery at 9 feet.<br>Light gray to yellow gray, wet, Silty SAND, from cuttings |
| 15 | | 27<br>30<br>38 | | sm | | Light gray to yellow gray, wet, Silty SAND with Gravel<br>FID=10 |
| 20 | | | | | | |

NOTES:

TOTAL DEPTH 16.5 FEET.
6 INCH HOLLOW STEM AUGER

APEX ENVIRONMENTAL RECOVERY

CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B31C1

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/29/93
GROUND SURFACE SOIL

| DEPTH IN FEET | BACKFILL | BLOW COUNT | SAMPLE | U.S.C.S. | PROFILE | DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | BENTONITE CHIPS | 5 6 7 | | sm | | Light gray, slightly moist, Silty SAND with Gravel FID=0 |
| 1 | | | | | | |
| | | 4 6 8 | | sm | | Light gray, slightly moist, Silty SAND FID=0 |
| 5 | | | | | | |
| | | | | | | Groundwater encountered at 9 feet. |
| 10 | | 4 7 6 | | sm | | Light gray, wet, Silty SAND with Gravel FID=0 |
| 15 | | 24 25 25 | | sm | | Light gray, wet, Silty SAND with Gravel, and minor shells FID=0 |
| 20 | | | | | | |

NOTES:

TOTAL DEPTH 16.5 FEET.
6 INCH HOLLOW STEM AUGER

APEX ENVIRONMENTAL RECOVERY

CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B32C1

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/29/93
GROUND SURFACE SOIL

| DEPTH IN FEET | BACKFILL | BLOW COUNT | SAMPLE | U.S.C.S. | PROFILE | DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | BENTONITE CHIPS | 3 5 9 | | sm | | Light gray, Silty SAND with Gravel and Asphalt debris FID=0 |
| 5 | | 3 7 4 | | sm | | Light gray, somewhat moist, Silty SAND FID=0 |
| 10 | | 6 7 7 | | sm | | Groundwater encountered at 9 feet. Light gray, wet, Silty SAND with minor shells FID=0 |
| 15 | | 8 10 11 | | sm | | Light gray, wet, Silty SAND with minor shells FID=0 |
| 20 | | | | | | |

NOTES:

TOTAL DEPTH 16.5 FEET.
6 INCH HOLLOW STEM AUGER

APEX ENVIRONMENTAL RECOVERY

CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B33C1

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/29/93
GROUND SURFACE SOIL

| DEPTH IN FEET | BACKFILL | BLOW COUNT | SAMPLE | U.S.C.S. | PROFILE | DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | BENTONITE CHIPS | 4 4 4 | | sm | | Dark gray brown, slightly moist, Silty SAND with Gravel and Asphalt debris, FID=0 |
| 1 | | | | | | |
| | | 2 3 3 | | sm | | Light gray, somewhat moist, Silty SAND FID=0 |
| 5 | | | | | | |
| | | 3 4 5 | | sm | | Groundwater encountered at 10 feet. No recovery at 9 feet. Dark gray brown, wet, Silty SAND with Gravel and Asphalt debris, from cuttings |
| 10 | | | | | | |
| | | 27 30 30 | | sm | | Dark gray brown, wet, Silty SAND with Gravel and Asphalt debris FID=0 |
| 15 | | | | | | |
| 20 | | | | | | |

TOTAL DEPTH 15.5 FEET.
6 INCH HOLLOW STEM AUGER

NOTES:

APEX ENVIRONMENTAL RECOVERY

CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B30C1

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/29/93
GROUND SURFACE SOIL

| DEPTH IN FEET | BACKFILL | BLOW COUNT | SAMPLE | U.S.C.S. | PROFILE | DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | BENTONITE CHIPS | 1 1 1 | | sm | | Light yellowish gray, slightly moist, Silty SAND FID=0 |
| 5 | | 6 5 5 | | sm | | Light yellowish gray, slightly moist, Silty SAND FID=0 |
| 10 | | 2 3 4 | | sm | | Groundwater encountered at 9 feet. No recovery at 9 feet. Light yellowish gray, wet, Silty SAND, from cuttings |
| 16 | | 22 16 10 | | sm | | No recovery at 16 feet due to heaving Sands. Light yellowish gray, wet, Silty SAND, from cuttings |
| 20 | | | | | | |

NOTES:

TOTAL DEPTH 17.5 FEET.
6 INCH HOLLOW STEM AUGER

APEX ENVIRONMENTAL RECOVERY

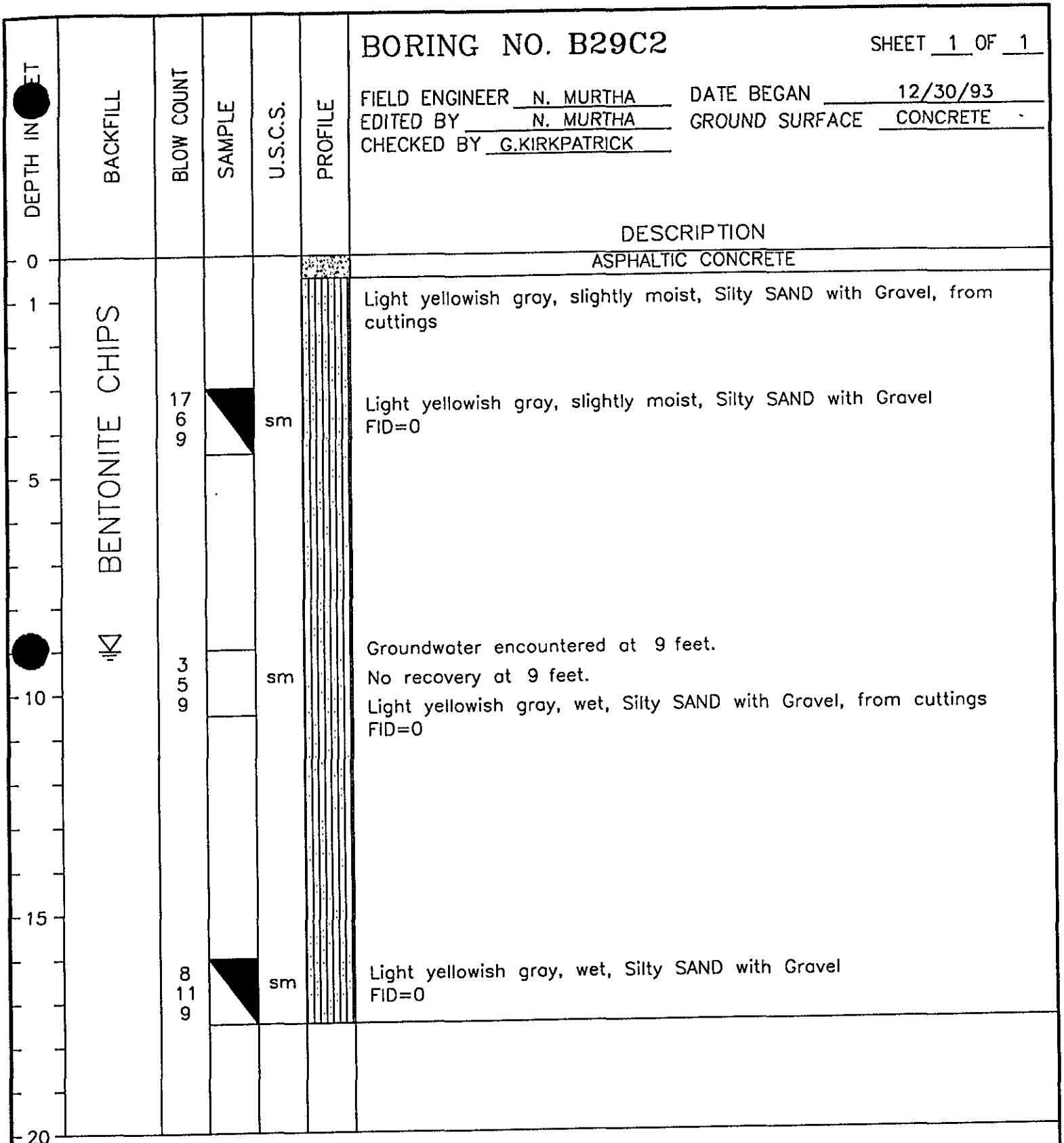
CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B29C2

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/30/93
GROUND SURFACE CONCRETE




TOTAL DEPTH 17.5 FEET.
6 INCH HOLLOW STEM AUGER

NOTES:

APEX ENVIRONMENTAL RECOVERY

CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B24C1

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/30/93
GROUND SURFACE SOIL

| DEPTH IN FEET | BACKFILL | BLOW COUNT | SAMPLE | U.S.C.S. | PROFILE | DESCRIPTION |
|---|---|---|---|---|---|---|
| 0 | BENTONITE CHIPS | 9<br>14<br>9 | | ml | | Dark brown, somewhat moist grading to wet, SILT with Sand and Gravel, some Asphalt debris observed, FID=0 |
| 2 | | | | | | Groundwater encountered at 2 feet. |
| | | 1<br>1<br>12 | | ml | | Dark brown, wet, SILT with Sand and Gravel, some Asphalt debris observed, FID=0 |
| 5 | | | | | | |
| 6 | | | | | | Refusal at 6 feet |
| 8 | | | | | | |
| 10 | | | | | | |

NOTES:

TOTAL DEPTH 6.0 FEET.
6 INCH HOLLOW STEM AUGER

APEX ENVIRONMENTAL RECOVERY

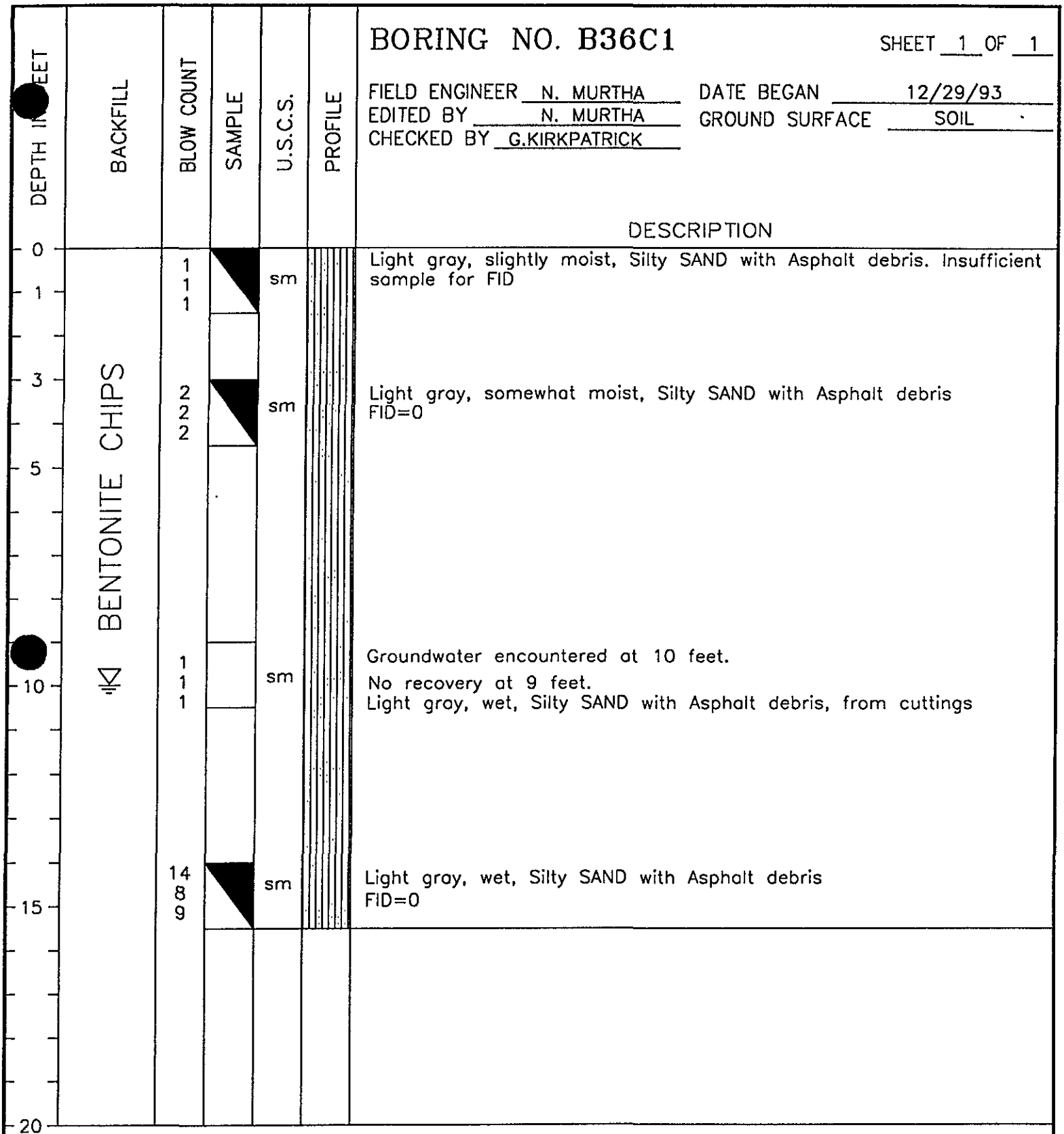
CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# BORING NO. B36C1

SHEET 1 OF 1

FIELD ENGINEER N. MURTHA
EDITED BY N. MURTHA
CHECKED BY G.KIRKPATRICK

DATE BEGAN 12/29/93
GROUND SURFACE SOIL




NOTES:

TOTAL DEPTH 15.5 FEET.
6 INCH HOLLOW STEM AUGER

APEX ENVIRONMENTAL RECOVERY

CLIENT CALTRANS T.O.# 04-04343K01
PROJECT NO. 153DT
LOCATION Oakland Bay Bridge

# Appendix C: Laboratory Reports and Chain-of Custody Records

See Volume II

APEX ENVIRONMENTAL RECOVERY

SMARTER SOLUTIONS FOR A CLEANER TOMORROW