1 The TPH + TOG were restricted on the surface - 1 to 3 inches

2. Barium + Lead.

3. PCB localized
A area - 1 mg/kg - highest
C area - 16 mg/kg - highest / surface
cost 5 foot x 10 foot having Prog
ionic conc.
at 16 foot. 1.18 mg/kg

ENVIRONMENTAL ASSESSMENT
SOUTHERN PACIFIC TRANSPORTATION COMPANY
744 HIGH STREET
OAKLAND, CALIFORNIA

CAM
Oil + - highest value 28 mg/L
PCB - was found - 078 ug/L etc - 0 649

September 5, 1989

Lead
PCB
Oil
TPH

Prepared for:

SOUTHERN PACIFIC TRANSPORTATION COMPANY
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San Francisco, California 94105

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# 1. INTRODUCTION

This environmental assessment report presents the results of Ecology and Environment, Inc.'s (E & E's) soil and groundwater investigation at the Southern Pacific Transportation Company's (SPTCo.'s) property located at 744 High Street in Oakland, California. This investigation was conducted in response to a request by the Alameda County Health Care Services Agency (ACHCSA) to characterize potential soil and groundwater contamination at the property. The ACHCSA request was prompted by the detection of total oil and grease (TOG), polychlorinated biphenyls (PCBs), lead, benzene, and a variety of volatile organic chemicals (VOCs) at levels that may require remediation in surface soils at the property. These constituents were detected during surface soil sampling that was performed in July 1988 by the owner of the former Scrap Metal Supply business that leased a portion of the property from SPTCo.

E & E's investigative activities consisted of reviewing the existing soils data for the property, identifying potential off-site sources of contamination, reconstructing the history of the site, drilling and sampling 12 boreholes, installing and sampling three groundwater monitoring wells, and performing a local groundwater level elevation survey.

The site history and the results of the July 1988 sampling activities are summarized in Section 2; the environmental assessment activities performed by E & E are described in Section 3; the analytical results are presented and discussed in Section 4; and the conclusions and recommendations are presented in Section 5.

12 Bore Holes
3 Ground water wells

# 2. BACKGROUND INFORMATION

In this section the site history, land use, regional environmental setting, sources of potential contamination, and results of previous on-site soil sampling are discussed.

## 2.1 SITE HISTORY AND SETTING

The SPTCo. property located at 744 High Street in Oakland, California, is situated in a light to heavy industrial area approximately 0.4 miles from the Alameda Estuary and San Leandro Bay (see Figure 2-1). The current property layout is shown in Figure 2-2. SPTCo. acquired the property in 1872 from the Contract and Finance Company. Use of the property, if any, prior to 1872 is unknown.

The property is currently occupied by two businesses, Scrap Metal Supply (SMS) and Kayak America Works (KAW). SMS is a metal recycler and occupies approximately 56,000 square feet in the southern part of the property. KAW is an auto body repair shop and occupies approximately 26,000 square feet in the northern part of the property. SMS began leasing the southern portion of the property from SPTCo. in 1956, and SPTCo. began leasing out the northern 26,000 square feet in 1966. Initially, the northern portion was used for a sheet metal plant.

The area in the vicinity of the property is underlain by alluvial deposits that consist predominantly of clays and silts, although layers of generally clayey sands and gravels occur throughout the subsurface. A near-surface clayey gravel layer approximately 5 feet thick was encountered at a depth of about 7 feet below ground surface beneath the property. The next generally coarse-grained layer reportedly occurs at a depth of about 40 feet below ground surface and it is separated from the near-surface coarse-grained layer by silty clay and clayey silt.

Saturated strata was encountered at a depth of approximately 10 feet below ground surface beneath the property. The groundwater flow

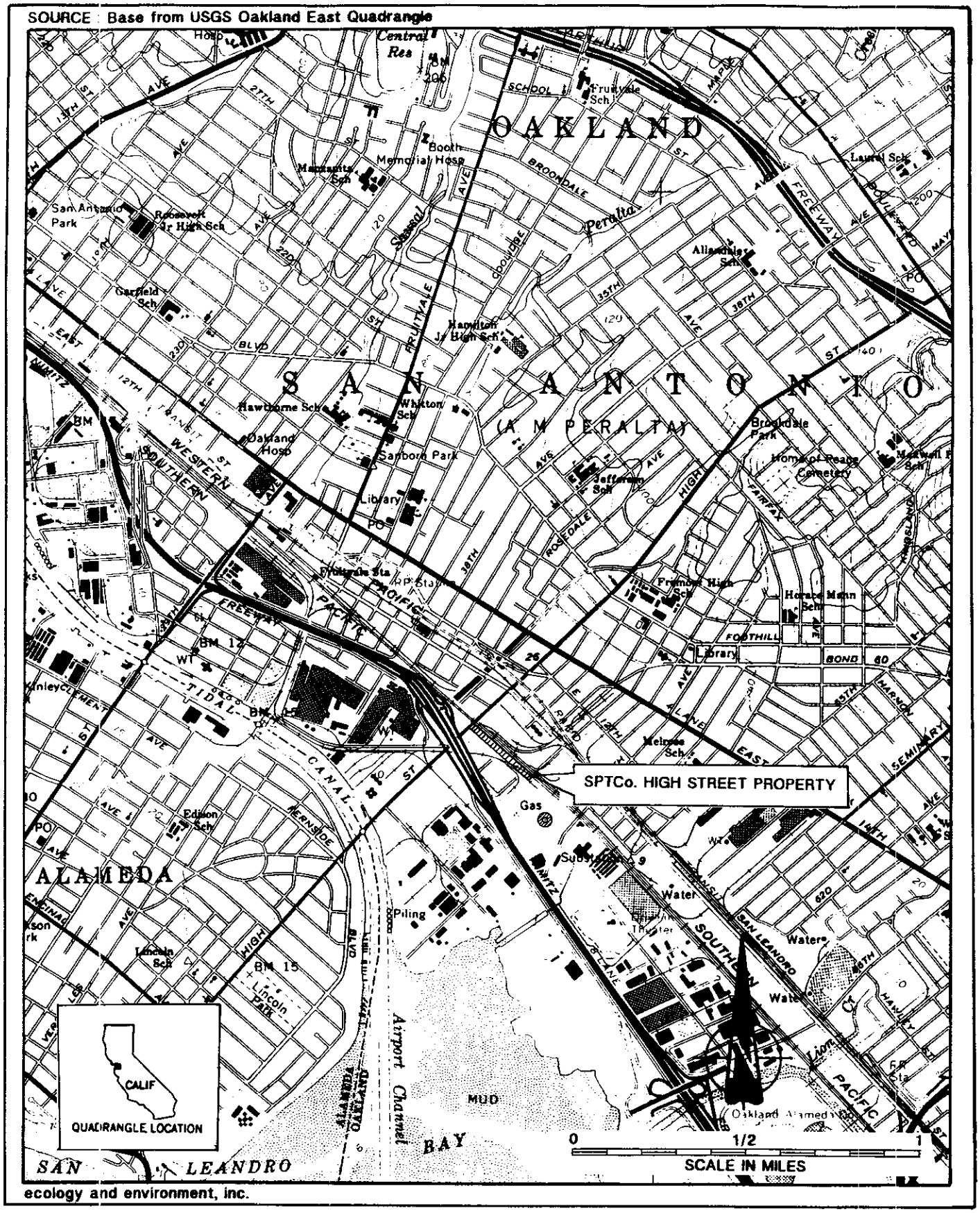



Figure 2-1 SOUTHERN PACIFIC TRANSPORTATION COMPANY
HIGH STREET PROPERTY LOCATION MAP

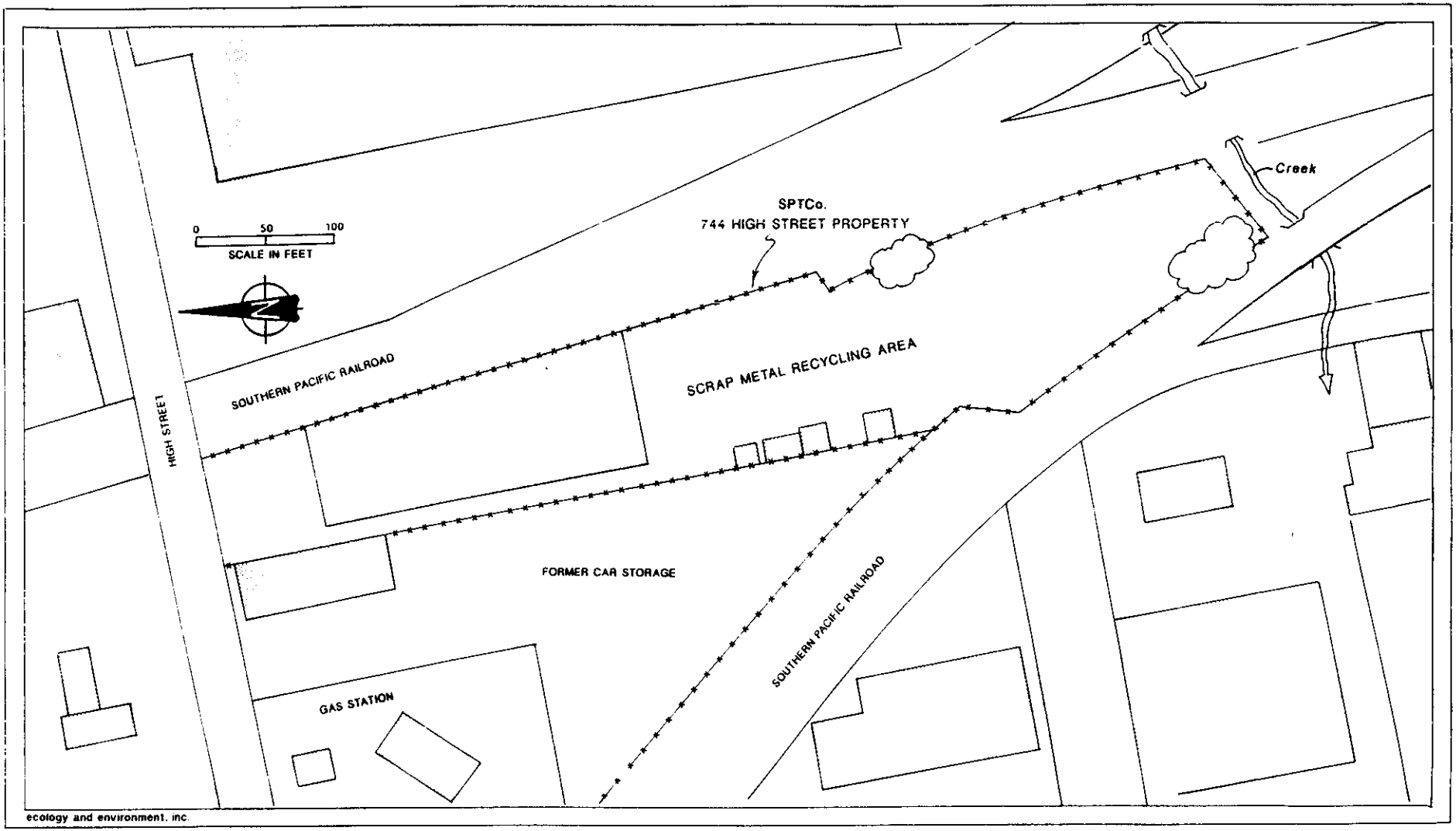



Figure 2-2 SPTCo. HIGH STREET PROPERTY
SITE LAYOUT

direction would be expected to be toward the southwest toward the Alameda Estuary and San Leandro Bay. The generally clayey nature of the coarser-grained layers preclude them from being reliable sources of water in the area. No drinking water supply wells have been identified within one mile of the property.

## 2.2 ANALYSIS OF EXISTING ON-SITE SOIL DATA

In July of 1988, at the request of the owner of the Scrap Metal Supply business, Property Commission Control (PCC) conducted soil sampling at the SPTCo. High Street property. A total of seven discrete surface soil samples were collected at the approximate locations shown on Figure 2-3. Samples from four locations were combined to yield one composite analysis (denoted as No. 4 on Figure 2-3). Samples from locations 1, 2, and 3 were analyzed individually. The resulting four samples were analyzed for TOG, PCBs, a variety of metals, and volatile organics. Analytical results are presented in Table 2-1 (only those metals that were detected in a sample are presented in the table).

The sample results reveal that surface soils at the Scrap Metal Supply business contain TOG, PCBs, and a variety of VOCs (primarily toluene, xylene, and other aromatic petroleum compounds). TOG occurred at levels above that which the ACHCSA considers a threat to groundwater quality or public health and safety (1,000 mg/kg) in three of the four analyses. PCBs occurred above the total threshold limit concentration (TTLC) of 50 mg/kg in one of the four analyses.

The detection of contaminants in surface soils at the property resulted in the ACHCSA requesting SPTCo. to develop and implement a Plan of Correction for the characterization and/or remediation of soil and/or groundwater contamination on the property.

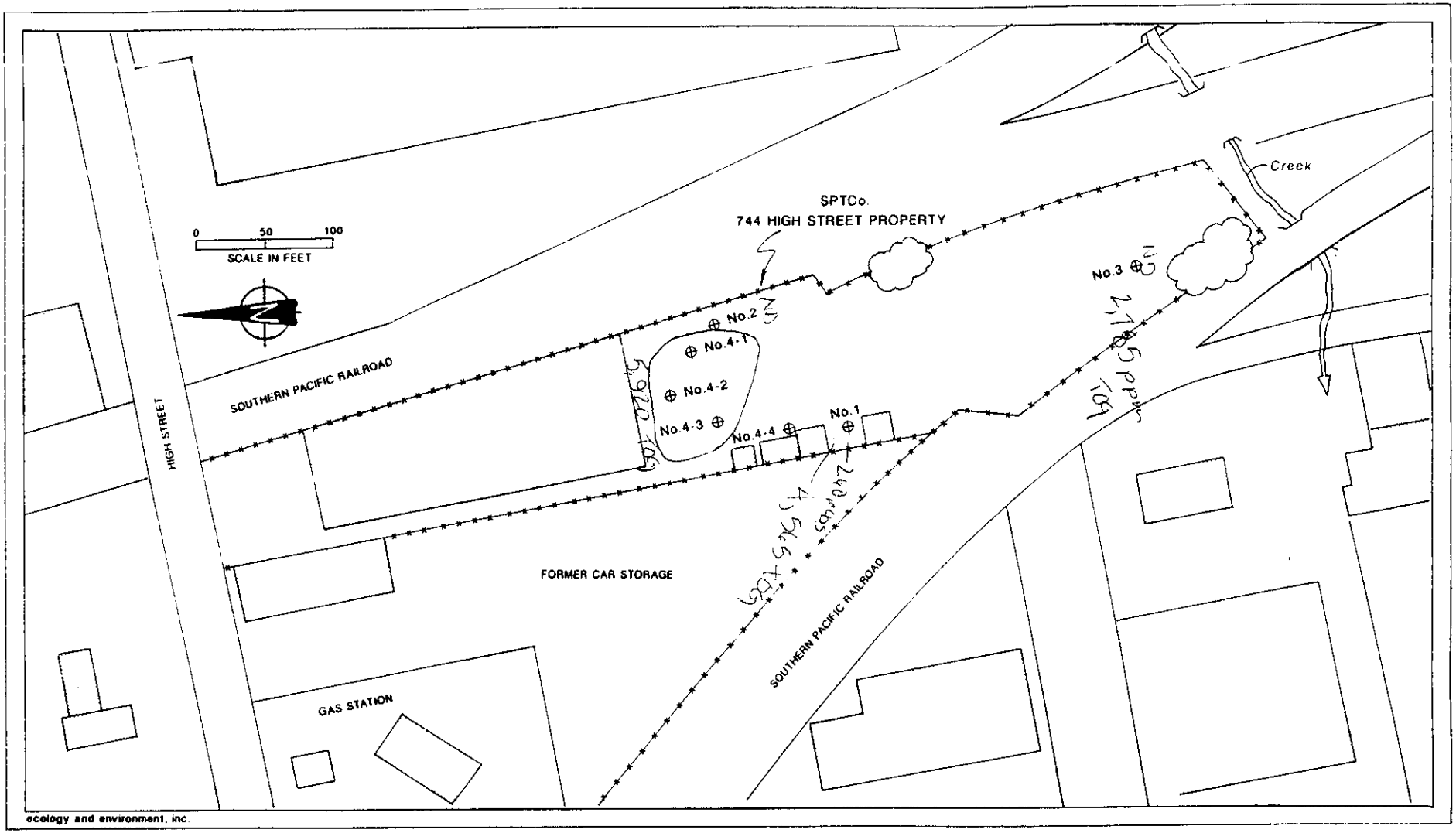



Figure 2-3 SPTCo. HIGH STREET PROPERTY
APPROXIMATE SAMPLE LOCATIONS
JULY 1988 SAMPLING

Table 2-1

SOIL SAMPLE RESULTS

July 1988 Sampling (mg/kg)

| Sample Number<br>Type | #1<br>Discrete | #2<br>Discrete | #3<br>Discrete | #4<br>Composite of<br>Four Locations |
|---|---|---|---|---|
| Depth | 8" | 12" | 12" | 0 to 6" |
| Total Oil and Grease | 4,565 | 58 | 2,785 | 5,920 |
| PCBs | 260 | ND | ND | 8.6 |
| Barium | 0.498 | <0.33 | <0.33 | 0.942 |
| Cadmium | 0.031 | ND | ND | 0.143 |
| Copper | 0.106 | ND | ND | 0.525 |
| Iron | 0.487 | 0.253 | 0.333 | 0.370 |
| Manganese | 0.561 | 0.082 | 0.489 | 6.98 |
| Nickel | <0.17 | ND | ND | 0.218 |
| Lead | <0.17 | ND | ND | 0.339 |
| Zinc | 3.61 | 0.553 | 0.610 | 27.1 |
| Trichlorofluoromethane | ND | ND | 1.0 | ND |
| Carbon Disulfide | 7.6 | 1.2 | 3.8 | ND |
| Methylene Chloride | 8.5 | 2.1 | 3.2 | ND |
| Chloroform | 1.5 | 0.9 | 0.7 | ND |
| Toluene | 1.3 | ND | ND | ND |
| Xylene | 1.3 | ND | ND | ND |
| 1-chloro-2-methylbenzene | <6.25 | <6.25 | <6.25 | ND |
| 1,2,3-Trimethyl-benzene | <6.25 | ND | ND | ND |
| 1,2,3-Trimethyl-benzene | <6.25 | ND | ND | ND |
| 1,2,4-Trimethyl-benzene | <6.25 | ND | ND | ND |
| 1-methyl-3-(methylethyl) benzene | ND | ND | ND | ND |

ND = Not Detected.

m/spea/t2-1

# 3. ENVIRONMENTAL ASSESSMENT ACTIVITIES

E & E's environmental assessment activities were designed to evaluate the subsurface extent of potential soil contamination at the site and to determine whether groundwater is contaminated. The environmental assessment activities were implemented in response to a letter request by the ACHCSA, dated March 2, 1989, for a Plan of Correction for the property. The Plan of Correction was submitted to the ACHCSA on April 26, 1989 and was subsequently verbally approved. The scope of work proposed in the Plan of Correction included drilling and sampling 12 soil boreholes, installing and sampling three groundwater monitoring wells, and performing a local groundwater level elevation survey.

Fig 3.1

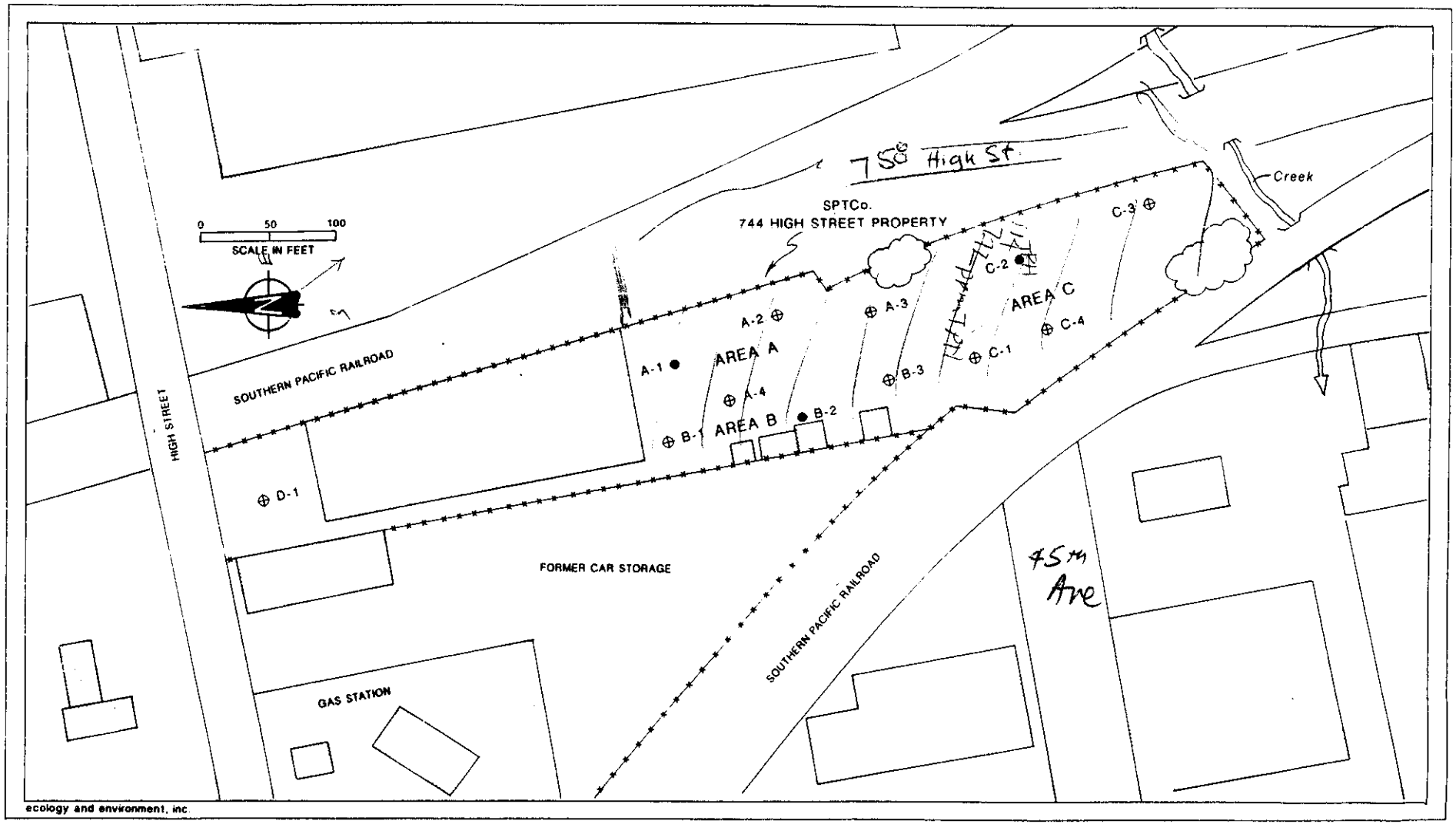
The field investigations proposed in the Plan of Correction were carried out between May 22, 1989, and May 26, 1989. Additional sampling, to augment the results of the initial characterization activities, was conducted on July 28, 1989. This sampling involved collecting and analyzing samples from trenches excavated adjacent to several previously drilled soil borings. A total of eight soil samples (including one duplicate) were collected on July 28, 1989.

## 3.1 SOIL SAMPLING

A total of 12 soil borings were drilled and sampled on the property at locations shown on Figure 3-1. Soil borings were drilled with a Mobile Drill B-53 rig using 6 7/8-inch-outside-diameter hollow-stem auger flights. Samples were collected from each borehole at 5-foot intervals with a 2-inch diameter, 1.5-foot-long, split-spoon sampler. The sampler was equipped with three, 6-inch-long brass sleeves. Soil boring details and samples collected are presented in Table 3-1. Lithologic logs of soil borings are presented in Appendix A.

For analysis, individual soil samples were composited according to a geographic compositing scheme (see Table 3-1). The soil borings were

composited laterally




⊕ SOIL BORING
● SOIL BORING AND MONITORING WELL

12 BORE HOLES
3 DEVELOPED TO WELLS. - SOIL SAMPLED/5'

Figure 3-1 SPTCo. HIGH STREET PROPERTY
SOIL BORING AND MONITORING WELL LOCATIONS

Table 3-1

SOIL SAMPLE COMPOSITING SCHEME

| Area | Composite Number | Discrete Samples | Sample Depth (feet) |
|---|---|---|---|
| A | 1 | A-1a[1] | 3.0 - 3.5 |
| | | A-2a | 1.0 - 1.5 |
| | | A-3a | 1.5 - 2.0 |
| | | A-4a | 1.5 - 2.0 |
| | 2 | A-1b | 5.5 - 6.0 |
| | | A-2b | 5.5 - 6.0 |
| | | A-3b | 5.5 - 6.0 |
| | | A-4b | 5.5 - 6.0 |
| | 3 | A-1c | 10.5 - 11.0 |
| | | A-2c | 10.5 - 11.0 |
| | | A-3c | 10.5 - 11.0 |
| | | A-4c | 10.5 - 11.0 |
| B | 4 | B-1a | 1.0 - 1.5 |
| | | B-2a | 1.5 - 2.0 |
| | | B-3a | 2.5 - 3.0 |
| | 5 | B-1b | 6.0 - 6.5 |
| | | B-2b | 5.5 - 6.0 |
| | | B-3b | 5.5 - 6.0 |
| | 6 | B-1c | 11.0 - 11.5 |
| | | B-2c | 10.5 - 11.0 |
| | | B-3c | 10.5 - 11.0 |
| C | 7 | C-1a | 3.5 - 4.0 |
| | | C-2a | 2.0 - 2.5 |
| | | C-3a | 2.5 - 3.0 |
| | | C-4a | 3.0 - 3.5 |
| | 8 | C-1b | 5.5 - 6.0 |
| | | C-2b | 6.0 - 6.5 |
| | | C-3b | 6.0 - 6.5 |
| | | C-4b | 5.5 - 6.0 |
| | 9 | C-1c | 10.5 - 11.0 |
| | | C-2c | 11.0 - 11.5 |
| | | C-3c | 10.5 - 11.0 |
| | | C-4c | 10.5 - 11.0 |
| D[4] | | D1a | 1.0 - 1.5 |
| | | D1b, D1c | 5.5 - 6.0 |
| | | D-1d | 5.5 - 6.0 |

1. "a" designation indicates samples from 0.5 - 1.0 feet.
2. "b" designation indicates samples from 5.5 - 6.0 feet.
3. "c" designation indicates samples from 10.5 - 11.0 feet.
4. Samples from this boring were analyzed individually.

divided into three groups based on geographic proximity. Area A included four soil borings (A-1, A-2, A-3, and A-4); area B included three soil borings (B-1, B-2 and B-3); area C included four soil borings (C-1, C-2, C-3, and C-4); and area D included one soil boring (D-1). Soil samples from similar depths from each boring in a specific area were composited in the laboratory for analysis. For example, in area C soil samples from a depth of 5 feet from borings C-1, C-2, C-3, and C-4 were composited to yield one analysis. The soil samples from boring D-1 were analyzed individually. This compositing scheme yielded a total of 13 analyses, including the analysis of one duplicate sample from a depth of 5 feet from boring D-1.

Three soil borings (A-1, B-2, and C-2) were completed as groundwater monitoring wells. Boreholes at these locations were drilled to a depth of 25 feet and samples were collected at 5-foot intervals to that depth. Boreholes that were not completed as monitoring wells were drilled and sampled to a depth of 10 feet, which was estimated to be the approximate depth of the water table. Soil samples below a depth of 10 feet from borings A-1, B-2, and C-2 were stored in the laboratory as discrete samples.

Following receipt of laboratory analytical results on July 14, 1989, for the soil and groundwater sampling that occurred in late May 1989, it was determined that several soil samples making up a composite should be analyzed individually for select parameters, since the composite results indicated that an individual result for a particular parameter could possibly exceed either the total threshold limit concentrations (TTLC) (California Code Regulations (CCR), Title 22, Chapter 30), 10 times the soluble threshold limit concentration (STLC CCR, Title 22, Chapter 30), or the state action level for total petroleum hydrocarbons (TPH). Unfortunately, all portions of individual samples making up a composite were used during compositing. It was therefore necessary to collect samples from as close to selected borings and depths as was possible.

On July 28, 1989, a total of eight soil samples were collected (including one duplicate) and analyzed as individual samples. The

samples were collected from the wall of a trench that was excavated with a backhole as close to the original soil boring as was possible. The samples collected were the shallowest samples from the soil borings in areas B and C.

## 3.2 MONITORING WELL INSTALLATION

Soil borings A-1, B-2, and C-3 (see Figure 3-1 for locations) were drilled to a depth of 25 feet and were completed as groundwater monitoring wells. Wells were completed with 2-inch inside diameter Schedule 40 PVC. The screen consisted of 0.020 inch factory manufactured slots with screen lengths of 15 feet. Monitoring well details are presented in Table 3-2 and a typical construction diagram is presented in Figure 3-2. The wells were completed to a depth of approximately 23 feet with the screen extending to about 8 feet. The intent was to screen across the water table to evaluate whether or not floating product was present. Depths to water appeared to range from 8 to 11 feet below ground surface at the time of drilling. Water levels in wells B-2 and C-2 after installation, however, were measured to be shallower than 8 feet, suggesting that the water-bearing zone screened may be partially confined. There was no evidence of floating product flowing into any of the wells during well development when the water level was lowered below the top of the screen.

In each monitoring well, a coarse-grained sand filter pack was installed so as to extend at least 1.5 feet above the top of the screen, and a bentonite pellet seal at least 1.5 feet thick was placed above the filter pack. The remainder of the annular space was filled with a cement grout. Each monitoring well was completed below grade and was enclosed in a christy box completed flush to the ground surface.

Following installation, each monitoring well was developed using a Teflon bailer. Development continued until either the water was clear and the water quality parameters temperature, specific conductance, and pH had stabilized, or the well repeatedly bailed dry. Parameters

Table 3-2

MONITORING WELL CONSTRUCTION DETAILS

| Well | Borehole Depth[1] | Bottom of Casing[1] | Screen Interval[1] | Top of Sand Pack[1] | Top of Bentonite Seal[1] |
|---|---|---|---|---|---|
| A-1 | 25.0 | 22.5 | 7.5 - 22.5 | 6.3 | 5.0 |
| B-2 | 25.0 | 23.0 | 8.0 - 23.0 | 6.5 | 5.0 |
| C-2 | 23.0 | 23.0 | 8.0 - 23.0 | 6.0 | 4.5 |

1. Feet below ground surface.

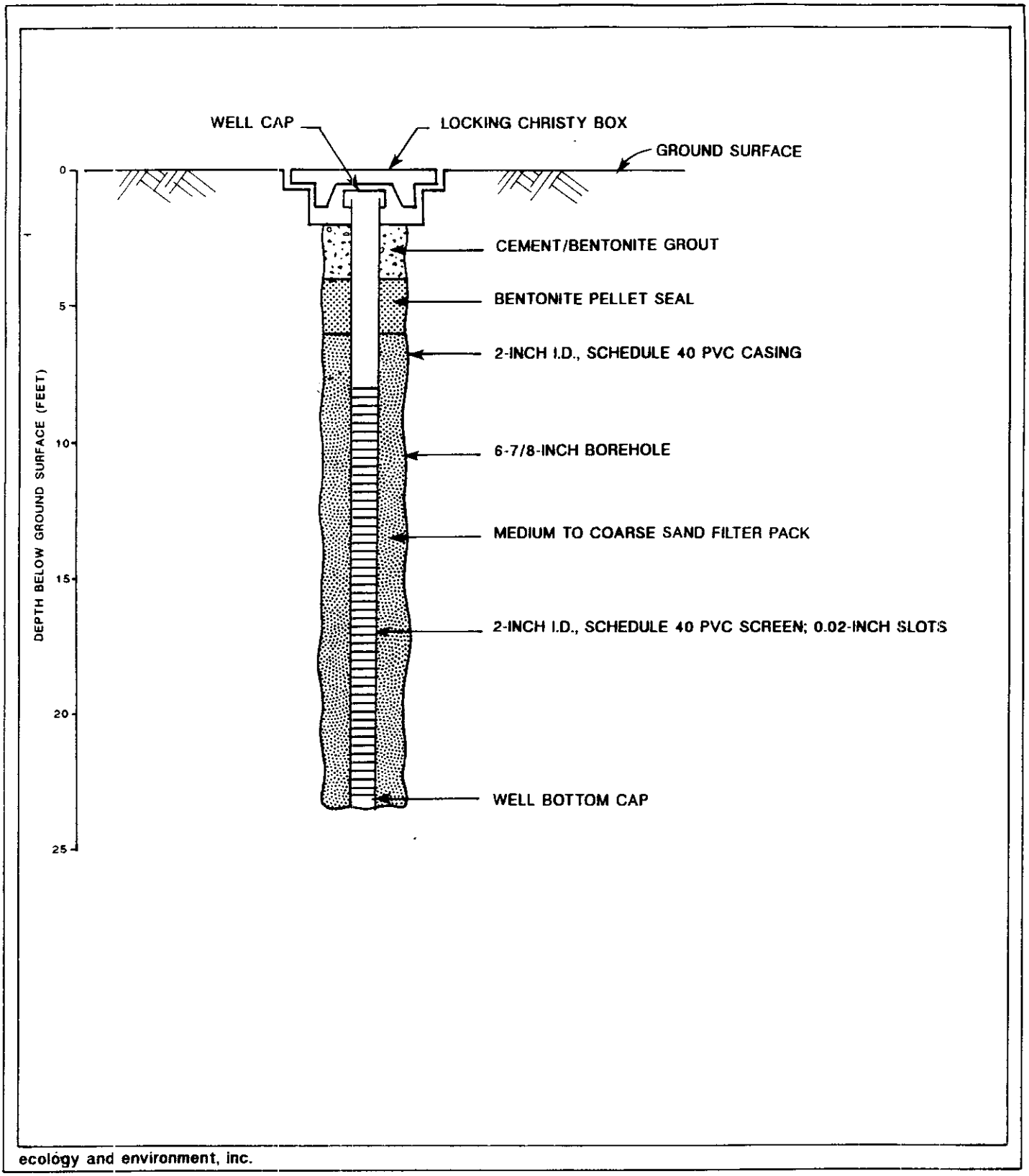



Figure 3-2 TYPICAL MONITORING WELL CONSTRUCTION DIAGRAM

measured during well development are presented in Table 3-3.

During development of monitoring well A-1, 62.5 gallons of groundwater were removed. The well bailed dry twice during development. The well initially bailed dry after 27.5 gallons of water were removed. It was allowed to recover for two hours, after which it bailed dry again after an additional 22.5 gallons of water had been removed. The temperature of the groundwater stabilized at approximately 64°F, the specific conductance stabilized at approximately 1,000 umhos/cm, and the pH was 6.

A total of 24.5 gallons of groundwater were removed from monitoring well B-2 during development. The well bailed dry twice during development, initially after 7.5 gallons of water had been removed and again after a cumulative total of 24.5 gallons had been removed. The well was allowed to recover for approximately 5 hours after it initially was bailed dry. After it bailed dry the second time, development was stopped even though the groundwater was still turbid. The temperature of the groundwater in B-2 averaged 62°F, the specific conductance was between 800 and 1,100 umhos/cm, and the pH was 6. The specific conductance appeared to increase with increasing turbidity.

A total of 9.5 gallons of water were removed from monitoring well C-2 during development. The well initially bailed dry after 7.5 gallons of water had been removed. It was allowed to recover for 3 hours; however, over this time period it was still not fully recovered and bailed dry again after only 2 more gallons of groundwater had been removed. At this time development was stopped. The temperature of the groundwater was about 63°F, the specific conductance was between about 1,300 and 1,500 umhos/cm, and the pH was 6. Continued development was not warranted due to the extremely low yield and the slow recovery rate.

To determine the groundwater flow direction and gradient at the SPTCo. High Street property, the groundwater level in each well was measured on May 26, 1989, and July 28, 1989. The elevation of each well, referenced to mean sea level, was determined to an accuracy of 0.01 feet by a

Table 3-3

WELL DEVELOPMENT WATER QUALITY OBSERVATIONS

| Well | Date | Time | Gallons Bailed | pH | EC | Temp. | Observations |
|---|---|---|---|---|---|---|---|
| A-1 | 5/25/89 | 0830 | 0 | 6 | 1416 | 67.4 | |
| | | 0911 | 10 | 6 | 1333 | 65.6 | water is turbid, brown |
| | | 0924 | 15 | 6 | 1279 | 68.3 | water is turbid, brown |
| | | 0937 | 20 | 6 | 1286 | 65.9 | was is turbid |
| | | 0949 | 25 | 6 | 1200 | 66.1 | water is turbid |
| | | 0959 | 27.5 | - | - | - | water is turbid |
| | | 1015 | | | | | start bailing again |
| | | 1020 | 30.5 | 6 | 1099 | 70.5 | stop bailing |
| | | 1240 | | | | | resume bailing |
| | | 1245 | 33 | 6 | 1067 | 70 | water is turbid |
| | | 1301 | - | 6 | 1062 | 77.2 | |
| | | 1304 | - | 6 | 975 | 67.3 | |
| | | 1305 | 41 | | | | |
| | | 1311 | 46 | 6 | 980 | 69 | |
| | | 1328 | 50 | 6 | 1067 | 71.5 | water is less turbid |
| | | 1541 | | | | | resume bailing |
| | | 1543 | | 6 | 1018 | 65 | |
| | | 1549 | | 6 | 1002 | 63.8 | |
| | | 1554 | | - | 935 | 63 | |
| | | 1558 | | - | 952 | 63.3 | moderately turbid |
| | | 1605 | 62.5 | - | 1059 | 64.7 | water is becoming clearer |
| B-2 | 5/25/89 | 1105 | 0 | 6 | 719 | 68.9 | |
| | | 1107 | 5 | 6 | 762 | 68.4 | |
| | | 1110 | - | 6 | 1066 | 71 | |
| | | 1118 | 7.5 | 6 | 1066 | 71 | |
| | | 1124 | - | 6 | 1222 | 71 | well bailed dry |
| | | 1449 | - | 6 | 750 | 65.9 | |
| | | 1455 | - | 6 | 901 | 64.2 | |
| | | 1458 | - | 6 | 865 | 62 | |
| | | 1459 | - | 6 | 1074 | 62 | |
| | | 1501 | - | 6 | 1163 | 62 | |
| | | 1508 | 24.5 | 6 | 1171 | 61.2 | water is very turbid, well bailed dry |
| C-2 | 5/25/89 | 1230 | 5 | 6 | 1564 | 70 | |
| | | 1232 | 7.5 | | | | well bailed dry |
| | | 1515 | | 6 | 1460 | 63.5 | water is clear |
| | | 1526 | | 6 | 1340 | 62.5 | |
| | | 1529 | 9.5 | - | - | - | well bailed dry |

m/spea/t3-3

surveyor licensed in California. Groundwater level elevations are summarized in Table 3-4. Measurements were made within about 1 hour of each other so that variations due to tidal fluctuations could be kept to a minimum. The results of the water level measurements are discussed in Section 3.4.2.

## 3.3 GROUNDWATER SAMPLING

Groundwater samples from each well were obtained on May 26, 1989. Samples were analyzed for TOC, PCBs, purgeable organics, priority pollutant metals, and TPH by E & E's Analytical Services Center (ASC). Sampling and shipment procedures followed EPA-approved protocol. In addition to samples from the three monitoring wells, a duplicate sample was collected from monitoring well A-1 and a blank was prepared. The duplicate and blank were analyzed for the same parameters as the environmental samples. Analytical results are discussed in Section 4.

Prior to evacuating the appropriate volumes of water from each well, the static water level was measured in all of the wells. Water levels were measured between 0836 and 0845 on May 26, 1989. Each monitoring well bailed dry during evacuation. Monitoring well A-1 bailed dry after 18 gallons had been evacuated. Monitoring well B-2 bailed dry after 22.5 gallons had been evacuated and monitoring well C-2 bailed dry after approximately 5 gallons had been evacuated. Each well was allowed to recover for approximately 2 hours prior to obtaining a sample.

## 3.4 HYDROGEOLOGIC ASSESSMENT

### 3.4.1 Stratigraphy

The stratigraphy to a depth of 25 feet beneath the SPTCo. High Street facility is generally uniform with the exception of the extreme southern portion of the property. The stratigraphic sequence encountered, from the surface down, typically consists of 1 to 3 feet of fill, 6 to 10 feet of fine-grained sediment ranging from clay to clayey silt, 3 to 10 feet of coarse-grained sediment consisting of clayey gravel or clayey

Table 3-4

GROUNDWATER LEVEL ELEVATIONS

| Well | Ground Surface Elevation[1] | May 26, 1989 | | July 28, 1989 | |
|---|---|---|---|---|---|
| | | Depth to Water (feet) | Groundwater Elevation[1] | Depth to Water (feet) | Groundwater Elevation[1] |
| A-1 | 15.57 | 7.10 | 8.47 | 8.30 | 7.27 |
| B-2 | 14.37 | 6.37 | 8.00 | 8.01 | 6.36 |
| C-2 | 15.30 | 11.24 | 4.06 | 14.72 | 0.58 |

1. Elevations are referenced to mean sea level.

coarse sandy gravel, and a lower fine-grained layer consisting primarily of clayey silt. Hydrogeologic cross sections are presented in Figures 3-3 and 3-4.

The surface fill generally is thickest in the southern portion of the site. The fill consists of a rubbly mixture of soil, wood debris, metal fragments, and broken pieces of plastic. The fill is underlain by black to dark gray to greenish gray clay that typically is stiff and locally was observed to be mottled, crumbly, and slightly silty.

In the northern portion of the site, the black to gray clay is underlain by tan to orange brown clayey silt to silty clay. To the south this brownish clayey silt was not encountered during drilling, and gray clay typically is underlain directly by clayey gravel or gravelly clay. Both the black to gray clay and the brownish clayey silt contains small rust-colored rootlets.

Throughout the site, with the exception of the extreme southern part, the near-surface predominantly clay deposits are underlain by poorly sorted, clayey coarse-grained sediments. These deposits range in thickness from 10 to 15 feet and typically consist of tan to orange-brown clayey gravel, clayey coarse sandy gravel, or clayey coarse sand. These coarse deposits are underlain by gray to gray and brown mottled stiff clayey silt with occasional thin layers of silty very fine sand. Small rust-colored rootlets occur throughout the clayey silt.

The sedimentary sequence penetrated in boring C-3, located in the extreme southern portion of the property, was distinct from that observed in other areas on the property. At this borehole, approximately 3 feet of dark brown, sandy gravelly fill was underlain by about 4 feet of orange gray-brown, clayey fine sandy silt with some gravel and very fine orange-tan clayey sand that extended to the bottom of the borehole.

In boreholes C-1 and C-2, thin layers (1 to 2 feet thick) of orange-tan

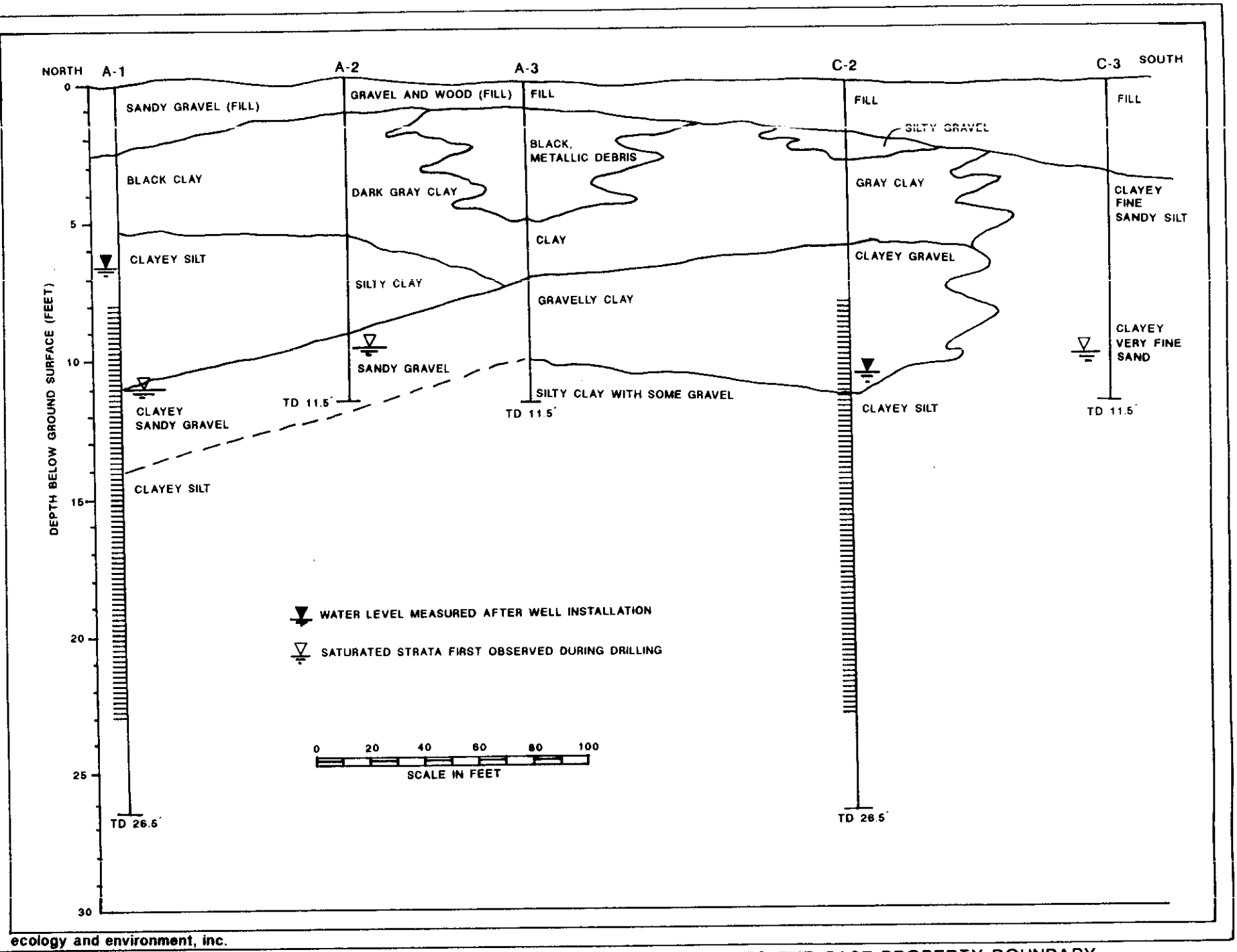



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Figure 3-3 HYDROGEOLOGIC CROSS-SECTION PARALLEL TO THE EAST PROPERTY BOUNDARY SPTCo. HIGH STREET PROPERTY

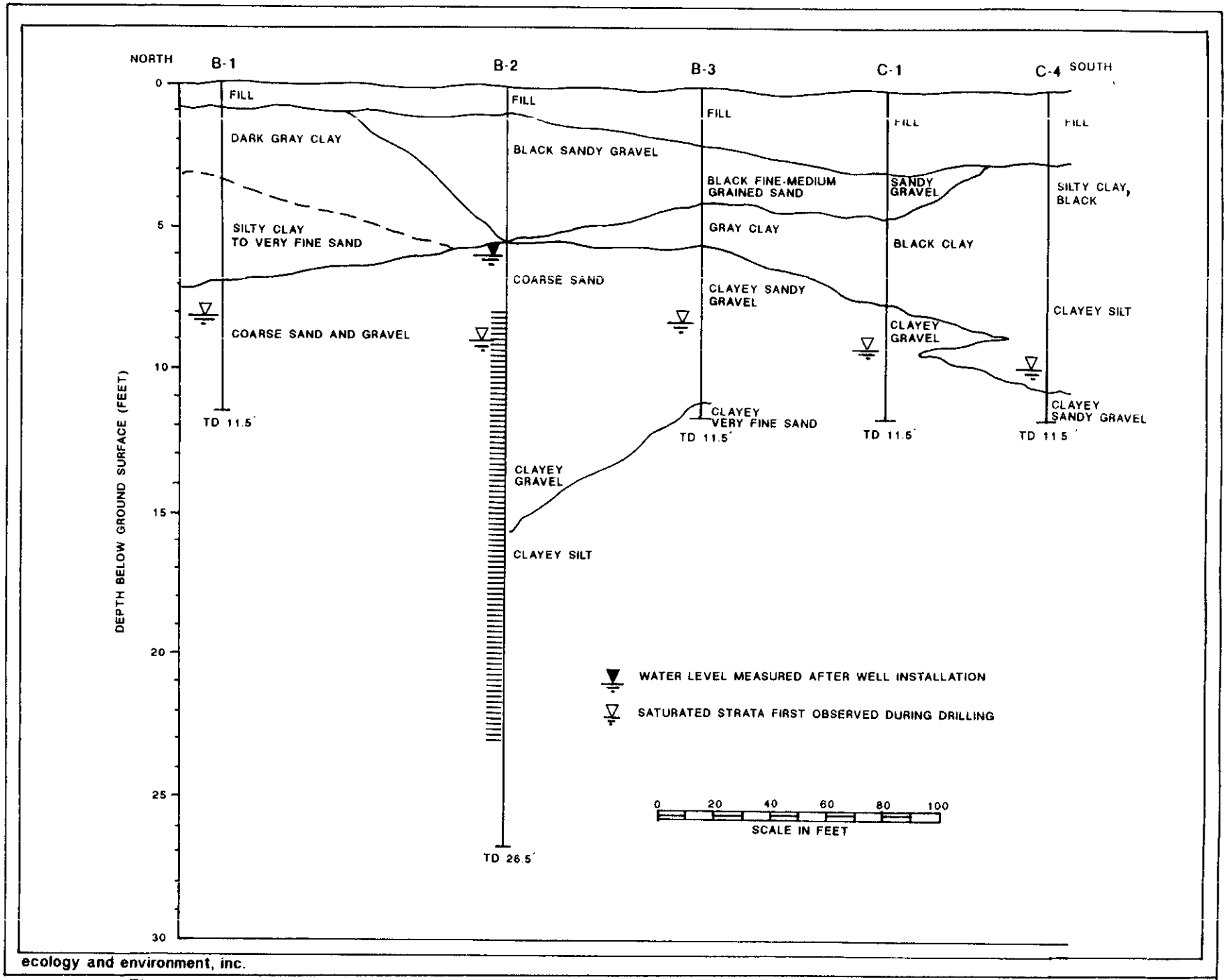


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Figure 3-4 HYDROGEOLOGIC CROSS-SECTION PARALLEL TO THE WEST PROPERTY BOUNDARY SPTCo. HIGH STREET BOUNDARY

sandy to clayey silty gravel were encountered beneath the fill and above the black to gray clay. These thin gravelly deposits do not appear to be widespread and are probably fill.

In boreholes A-3, B-2, and B-3, the surface fill was underlain by black metallic slag. In A-3 the slag consisted of fine to coarse-grained metallic debris. In B-2 it consisted of black sandy gravel with some wood that graded down into black metallic slag. In B-3 it consisted of black fine- to medium-grained slag. These areas represent debris resulting from past scrap metal recycling activities.

At a site located approximately 600 feet to the north of the SPTCo. property, two soil borings have been drilled to a depth of 240 feet. The coarse-grained layer consisting of clayey gravel to clayey coarse sandy gravel that occurs at a depth of approximately 10 feet beneath the SPTCo. property was also encountered in these nearby borings. Clayey materials predominated in the nearby 240 foot borings; however, coarser grained clayey to clean sands and gravels occurred in the approximate depth ranges of 8 to 18 feet, 40 to 80 feet, 120 to 140 feet, and 200 to 230 feet below ground surface.

At the SPTCo. High Street property, the three borings drilled to a depth of 25 feet penetrated into as much as 15 feet of clayey silt and silty clay beneath the clayey sand and gravel layer. None of the three borings penetrated through this lower fine-grained zone. The deeper borings drilled nearby indicate that another coarser-grained zone occurs at a depth of approximately 40 feet and that the clayey sand and gravel layer encountered at the SPTCo. property is separated from deeper permeable zones by as much as 25 feet of low permeability clayey silts and silty clays.

### 3.4.2 Hydrology

Saturated strata was encountered at a depth of approximately 10 feet below ground surface throughout most of the site during drilling. Saturated strata was not penetrated in boring D-1 at the north end of

the property so the depth to water in that area is greater than 11.5 feet (the depth of the bottom of the drive sampler when the 10 foot drive sample was collected). In boring C-2, the drill cuttings and drive sampler, to a depth of 26.5 feet did not appear wet, but only slightly moist, so it was difficult to determine when first water was encountered. This lack of water is reflected in the extremely low yield of monitoring well C-2, which bailed dry during development after only 7.5 gallons of water were removed.

The groundwater levels in monitoring wells A-1 and B-2 after installation and development were measured to be above the top of the screens, suggesting that they tap groundwater that is under pressure and that may be partially confined. In monitoring well C-2, the groundwater level was measured to be below the top of the screen and within the permeable zone (clayey gravel) tapped by the well (see Figures 3-3 and 3-4) indicating that the clayey gravel layer is not fully saturated and the groundwater in the well is unconfined.

The groundwater level elevations in the three monitoring wells suggest that there may be a southeasterly flow gradient beneath the property, although the water levels in A-1 and B-2 may not be comparable to the water level in C-2, because monitoring wells A-1 and B-2 appear to be confined and monitoring well C-2 appears to be unconfined.

The horizontal gradient between wells A-1 and B-2 is not less than 0.005 feet per foot. If the water levels in A-1, B-2, and C-2 are comparable, then the horizontal gradient between the northern and southern portions of the property is approximately 0.026 feet per foot in a southeasterly direction.

Between May 26, 1989, and July 28, 1989 the water levels in each well were observed to drop (see Table 3-4). The drops ranged from 1.20 feet in monitoring well A-1 to 3.48 feet in monitoring well C-2. These differences are too great to be attributable to variations caused by tidal fluctuations and probably reflect seasonal changes.

The extremely low yields in the three groundwater monitoring wells at the SPTCo. property indicate that the clayey sand and gravel layer beneath the property has a low hydraulic conductivity. The low hydraulic conductivity and the thin saturated thickness of this layer preclude it from being developed as a usable source of water for any uses in the area.

The shallow water-bearing zone in the vicinity of the SPTCo. property is separated from deeper water-bearing zones by as much as 25 feet of low permeability clayey silts and silty clays. Groundwater monitoring well C-2 indicates that this low permeability zone is virtually non-water bearing. This well was screened primarily in clayey silt. During development and sampling this well rapidly bailed dry and was very slow to recover. The extremely low permeability of this fine-grained zone would tend to prevent the downward migration of any contaminants from the shallow groundwater to deeper water-bearing zones.

Deeper water-bearing zones in the vicinity of the SPTCo. property tend to contain substantial clay components and, as a result, the hydraulic conductivities and yields are low to moderate. There are no high yield, usable aquifers beneath the site to a depth of at least 240 feet.

No wells used for drinking water supply have been identified within a radius of 1 mile of the SPTCo. property. An industrial well has been located approximately 1,500 feet to the southeast of the property. The current status of this well is unknown. It was drilled in 1962 to a depth of 776 feet and reportedly was screened over virtually its entire length. The location of this well is lateral to the groundwater flow direction beneath the SPTCo. property and as a result it would not be a potential receptor of contamination migrating downgradient beneath the SPTCo. property.

# 4. ANALYTICAL RESULTS

The environmental assessment of the SPTCo. High Street property included both soil and groundwater sampling and analysis. Analytical reports and the quality assurance/quality control (QA/QC) evaluation are presented in Appendix B. Soil sampling and analysis was performed in two stages. Initially, individual samples from similar depths and areas were composited in the laboratory for analysis. The compositing scheme was described in detail in Section 3-1. The compositing resulted in 13 soil analyses (including one duplicate analysis) and included three composite analyses from four borings in area A, three composite analyses from three borings in area B, three composite analysis from four borings in area C, and four individual analyses from boring D. Soil samples were analyzed for TPH (EPA Method 418.1, modified for soils), TOC (EPA Method 413.1, modified for metals), priority pollutant metals (EPA Method 6010), PCBs (EPA Method 8080), and purgeable organics (EPA Method 8240).

The second stage of soil sampling and analysis involved collecting individual samples from depths near borings in areas where the composite results indicated that soluble concentrations of particular metals may potentially be present. This sampling included collecting near-surface samples near the borings in areas B and C. Analyses were dependent on the composite sample results. Individual samples from area B were analyzed for zinc, lead, nickel, copper, and barium; individual samples from area C were analyzed for cadmium, lead, nickel, barium, total petroleum hydrocarbons, and PCBs. Based on the individual sample results, California waste extraction tests (WET), (CCR, Title 22, Chapter 30) were performed on samples B-2A and C-3A. B-2A is being analyzed for zinc and lead and C-3A is being analyzed for lead.

Groundwater samples were collected from three monitoring wells that were installed on the property during this investigation. Groundwater samples were analyzed for TPH (EPA Method 418.1), TOG (EPA Method 413.1), priority pollutant metals (EPA Method 200.7), purgeable organics (EPA Method 624), and PCBs (EPA Method 625).

## 4.1 SOIL SAMPLE RESULTS

### 4.1.1 Inorganic Results

Inorganic analyses consisted of analysis for priority pollutant metals. Results of the initial sampling are presented in Table 4-1; results of the second sampling are presented in Table 4-2.

To determine the environmental significance of the metal results, concentrations have been compared to TTLC and STLC concentrations and also to average concentrations for the western United States presented in "Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States," 1984, U.S. Geological Survey Professional Paper 1270. Concentrations exceeding the TTLC would classify the soil as a hazardous waste for disposal purposes. To determine whether a sample exceeds the STLC criteria for a particular metal, a WET test must be performed. When comparing total concentrations of a particular metal to the STLC criteria, the 10-fold dilution involved in the WET test must be taken into consideration. For example, during the WET test, a 50-gram soil sample is extracted in a total volume of 500 ml of solution, so the original concentration is diluted 10 times, and then the extract is analyzed. The resulting extracted concentration, expressed in mg/l, is then compared to the STLC criteria. If the total concentration of a particular metal is 50 mg/kg, the 10-fold dilution would result in a maximum possible concentration in the extract solution of 5 mg/l (assuming 100% leachability). If the STLC criteria for that particular metal is 5 mg/l, then a total concentration equal to or greater than 50 mg/kg would be required for the STLC to be exceeded during the WET test. Therefore, as a screening tool to determine which total concentrations could potentially yield WET test results that equal or exceed the STLC, a total concentration in mg/kg that is at least 10 times the STLC criteria in mg/l must be present.

#### Arsenic

The concentrations of arsenic appear to be relatively uniform throughout

Table 4-1

INITIAL SOIL SAMPLE RESULTS - METALS
(mg/kg dry weight, ppm)

(TABLE 3-1) NSPTH 1-3' 2-4' 5'-6.5' 10' C, B, D all show Pb AT 10X STLC.

| Composite No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | - | - | - | - | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area | A | A | A | B | B | B | C | C | C | D | D | D | D | | |
| Depth (Feet) | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 5 (dup) | 10 | **STLC** | **TTLC** |
| **METALS:** | | | | | | | | | | | | | | | |
| Antimony | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | **15** | **500** |
| Arsenic | 3.52 | 3.44 | 2.99 | 8.79 | 3.11 | 3.24 | 3.39 | 4.70 | 2.71 | 9.54 | 1.86 | 2.27 | 3.01 | **5** | **500** |
| Barium | 186 | 108 | 187 | 347 | 182 | 116 | 63.5 | 367 | 141 | 1,500 | 217 | 137 | 153 | **100** | **10,000** |
| Beryllium | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | **0.75** | **75** |
| Cadmium | 1.08 | 1.17 | 1.01 | 1.70 | 1.15 | 1.16 | 0.58 | 3.14 | 2.00 | 3.06 | 1.08 | 1.20 | 1.63 | **1.0** | **100** |
| Chromium | 43.8 | 61.7 | 49.8 | 152 | 79.1 | 62.9 | 20.4 | 71.8 | 100 | 50.1 | 68.7 | 103 | 87.6 | **560** | **2,500** |
| $Cr^{6+}$ | ND | ND | 0.028 | 0.022 | 0.084 | 0.099 | ND | 0.012 | ND | 0.034 | ND | ND | 0.013 | **5** | **500** |
| Cobalt | 13.8 | 12.1 | 12.0 | 6.00 | 11.8 | 12.1 | 3.64 | 33.0 | 17.0 | 8.89 | 14.9 | 17.0 | 20.7 | **80** | **8,000** |
| Copper | 30.4 | 20.7 | 40.1 | 103 | 100 | 30.2 | 19.2 | 56.5 | 37.1 | 112 | 32.8 | 56.0 | 108 | **25** | **2,500** |
| Lead | 32.9 | 17.1 | 12.3 | 538 | 18.9 | 8.40 | 60.8 | 126 | 26.2 | 198 | 13.0 | 12.8 | 15.3 | **5** | **1,000** |
| Mercury | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | **0.2** | **20** |
| Molybdenum | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | **350** | **3,500** |
| Nickel | 52.5 | 130 | 95.5 | 35.0 | 115 | 92.2 | 29.6 | 161 | 140 | 53.8 | 94.5 | 141 | 186 | **20** | **2,000** |
| Selenium | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | **1.0** | **1,000** |
| Silver | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | **5** | **500** |
| Thallium | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | **7.0** | **700** |
| Vanadium | 36.0 | 40.8 | 34.2 | 29.6 | 41.8 | 32.4 | 10.2 | 41.9 | 56.4 | 27.5 | 44.2 | 44.7 | 54.4 | **24** | **2,400** |
| Zinc | 42.2 | 53.1 | 62.9 | 1,500 | 105 | 52.2 | 78.9 | 362 | 83.4 | 538 | 50.1 | 71.6 | 137 | **250** | **5,000** |

mbe/spea/t4-1

Table 4-2

INDIVIDUAL SOIL SAMPLE RESULTS - METALS

| Sample | Depth (feet) | Barium | Cadmium | Copper | Lead | Nickel | Zinc |
|---|---|---|---|---|---|---|---|
| B-1A | 2 | 453 | NA[1] | 193 | 356 | 121 | 1,990 |
| B-2A | 2 | 207 | NA | 113 | 425 | 30.2 | 3,400 |
| B-3A | 2.5 | 166 | | 46 | 82.5 | 16.3 | 178 |
| C-1A | 3 | 728 | 1.1 | NA | 491 | 76.7 | NA |
| C-2A | 2.5 | 331 | 3.7 | NA | 303 | 85.9 | NA |
| C-21A[2] | 2.5 | 336 | 5.6 | NA | 1110 | 86.7 | NA |
| C-3A | 2 | 112 | 0.7 | NA | 71.4 | 62.2 | NA |
| C-4A | 3 | 951 | 1.8 | NA | 187 | 180 | NA |
| TTLC | | 10,000 | 100 | 2,500 | 1,000 | 2,000 | 5,000 |
| STLC | | 100 | 1.0 | 25 | 5 | 20 | 250 |
| West U.S. Average | | 670 | - | 27 | 20 | 19 | 65 |

1. NA = Not analyzed.
2. C-21A is a duplicate of C-2A.

SOIL PB LEVEL = 6.7 PPM

B2A Pb - 6 mg/L

SURFACE TO 3' SHOW PB TTLC LEVELS AT 10X STLC LIMIT

COMPOSITE SC AT 5' SHOWS PB TTLC AT 12X

the SPTCo. High Street property. With the exception of the composite analysis of near-surface samples from area B and from the near-surface sample from boring D, the concentration of arsenic ranged from 4.70 mg/kg to 1.86 mg/kg. The highest concentration detected was 9.54 mg/kg and this occurred in the near-surface sample from boring D. Boring D was situated at the north end of the property in a location that was reportedly never used for metal recycling activities, and as such, was selected to represent soil unaffected by metal recycling activities on the property.

None of the concentrations of arsenic are high enough to yield soluble concentrations in excess of the STLC (5 mg/l) and the concentrations are either less than or very similar to the average concentration (7 mg/kg) found throughout the western United States.

In conclusion, none of the concentrations of arsenic detected indicates that former activities at the property resulted in the introduction of arsenic at levels above naturally occurring concentrations and that the concentrations present are not of environmental concern.

Barium

Concentrations of barium were observed to range from 63.5 mg/kg to 1,500 mg/kg throughout the property, although only three results exceeded the average concentration in the western United States of 670 mg/kg. Two composite results and one individual result were high enough that barium could potentially exceed the STLC. The two composites were from the near-surface samples from areas B and C. Subsequent sampling and analysis of individual samples for barium at each of the borings in areas B and C did not reveal concentrations that could exceed the STLC. The concentration detected in the near-surface sample from boring D (1,500 mg/kg) potentially could exceed the STLC.

Cadmium

Concentrations of cadmium were uniform throughout the property and only

one result (the composite of the samples from a depth of approximately 5 feet in area C) indicated that the concentrations could potentially be exceed the STLC. Since this result is a composite of four individual samples, however, and since individual concentrations from the property are lower than leachable concentrations, it is unlikely that individual samples making up the composite would contain concentrations of chromium that could potentially exceed the STLC.

Chromium

No concentrations of chromium were detected that could potentially exceed the STLC in soil samples throughout the property. Concentrations observed were close to the average concentration in the western United States of 56 mg/kg and concentrations observed in boring D, which was drilled in a location apparently not used for metal recycling activities, were similar to those results from locations where metal recycling activities occurred. In conclusion, chromium soils at the property are most likely naturally occurring and do not occur at levels that are of environmental concern.

Hexavalent Chromium

Hexavalent chromium does not occur at levels that are of environmental concern at the SPTCo. High Street property. Concentrations that could potentially exceed the STLC do not occur and the results from boring D are generally similar to the results from the area where metal recycling activities occurred.

Cobalt

Concentrations of cobalt that could potential exceed the STLC or concentrations that might be of environmental concern were not observed at the SPTCo. High Street property.

Copper

Concentrations of copper in two composite samples indicated that individual samples making up the composite could potentially contain concentrations that exceed the STLC. Subsequent sampling of the near surface individual samples from the three borings making up the composite, however, indicated that individual samples did not contain copper at concentrations that could exceed the STLC.

Results from the SPTCo. High Street property range from slightly below to slightly above the average concentration for the western United States of 27 mg/kg. The concentrations of copper observed at the SPTCo. High Street property do not appear to be of environmental concern.

Lead

During the initial sampling, lead was detected at concentrations that potentially exceed the STLC, in one individual analysis and in all of the composite analyses except those of samples from approximately 10 feet in areas A and B. In the individual analyses from boring D, the concentration in the near-surface sample was markedly higher than in the deeper samples. Similar trends were observed in the composite results from areas A and B. In area C, however, the highest composite lead concentration was observed in the analysis of samples from a depth of approximately 5 feet. Subsequent sampling and analysis of individual near-surface samples from borings in area C, however, indicated that the near-surface individual results, with the exception of boring C-3, were higher than the composite result of samples from 5 feet.

Individual samples from near the surface were collected from borings in areas B and C. The individual results show a large variation in concentrations, with a low concentration of 71.4 mg/kg to a high concentration of 1,100 mg/kg. The individual analyses indicate that the lead results are very difficult to reproduce. Individual sample C-2A and its field duplicate C-21A revealed concentrations of 303 mg/kg and 1,110 mg/kg, respectively, and a laboratory duplicate of C-21A resulted

in a concentration of 600 mg/kg. Results above 50 mg/kg represent concentrations that could potentially exceed the STLC. WET tests for lead were performed on two individual samples, B-2A and C-3A. B-2A contained 425 mg/kg lead and C-3A contained 71.4 mg/kg lead. The WET test results reveal an extractable concentration of 6.06 mg/l in B-2A. This concentration exceeds the STLC of 5.0 mg/l for lead. Several individual samples had total lead concentrations similar to B-2A (B-1A, C-1A, and C-3A) and extractable concentrations of lead in these samples might also be expected to exceed the STLC.

Although several near-surface samples contained lead in concentrations that could potentially exceed the STLC, soil samples from depths of 5 and 10 feet do not contain lead at concentrations that would indicate that the STLC could potentially be exceeded. The WET test result for individual sample C-3A indicated an extractable concentration of 2.16 mg/l, below the STLC of 5.0 mg/l. This sample contained a total lead concentration of 71.4 mg/kg. This concentration is similar to that which would be expected to be found in the individual samples making up the composite analyses from depths of 5 and 10 feet throughout the property.

NO. COMPOSITE #S FROM DEPTHS OF 5.5 - 6.5 FT SHOWED Pb AT 126 PPM.

In conclusion, total concentrations of lead in several near-surface individual samples were at levels that indicated that the STLC may be exceeded. Results from depths of 5 and 10 feet, however, reveal lead at concentrations below which the STLC would be expected to be exceeded. These results indicate that lead is not migrating significantly into the subsurface and concentrations detected at the surface are not a threat to groundwater in the area.

EXCEPT COMPOSITE & @ 126 PPM.

The generally decreasing concentrations observed with depth and the low levels detected in shallow groundwater (see Section 4.2.1) suggest that lead in soils at the property probably is not an environmental concern in terms of impacting groundwater quality.

- GROUNDWATER SEASONALLY FLUCTUATE BETWEEN 6-14'

Nickel

Soluble concentrations of nickel that could potentially exceed the STLC were not detected in any individual analyses from the SPTCo. High Street property. Nickel in several composite analyses indicated that concentrations that could potentially exceed the STLC may exist in an individual sample making up the composite, but the generally even distribution throughout the property suggests that markedly higher individual concentrations are not likely to occur.

Vanadium

Vanadium appears to be fairly evenly distributed throughout the property. The highest concentration detected (56.4 mg/kg) is less than the average concentration in the western United States (88 mg/kg). None of the concentrations observed on the SPTCo. High Street property indicate that concentrations that could potentially exceed the STLC occur. In conclusion, vanadium in soils does not appear to be an environmental concern at the SPTCo. High Street property.

Zinc

Zinc at a concentration that potentially could exceed the STLC was detected only in the composite analysis of near-surface samples from the borings in area A. This analysis was a composite of three individual samples. Resampling near the three borings in area B revealed one sample, B-2A, that could potentially contain concentrations that exceed the STLC. A WET test for zinc was performed on sample B-2A and revealed an extractable concentration of 268 mg/l. This concentration is slightly above the STLC of 250 mg/l for zinc. The total concentration of zinc in this sample is 3,400 mg/kg. This concentration was practically twice as high as any other total concentration detected. Concentrations detected from depths of 5 and 10 feet in composite analyses were low enough that individual samples making up a composite would not be expected to contain zinc at a level above 1,500 mg/kg, and thus extractable concentrations in samples from depths of 5 and 10 feet

would not be expected to exceed the STLC.

In conclusion, the occurrence of zinc at a concentration that resulted in an extractable concentration exceeding the STLC was extremely localized and restricted to the near surface. Concentrations detected in samples from 5 and 10 feet indicate that zinc is not migrating into the subsurface significantly and is not impacting the quality of groundwater.

### 4.1.2 Organic Results

Organic analyses included analysis for total petroleum hydrocarbons (TPH), total oil and grease (TOG), polychlorinated biphenyls (PCBs), and purgeable organics. Results of the initial sampling are presented in Table 4-3, results of the second sampling are presented in Table 4-4.

#### Total Oil and Grease

The highest concentrations of TOG occurred in the near-surface composite samples from area C and boring D. TOG at 2,800 mg/kg was detected in the near-surface composite from area C and 1,300 mg/kg was detected in the near-surface individual analysis from boring D. These two results are an order of magnitude higher than any other TOG result and compare closely with the concentration of TPHs detected.

#### Total Petroleum Hydrocarbons

The distribution of TPHs was generally similar to that of TOG. The highest concentrations occurred in the near-surface composite from area C (1,600 mg/kg) and the near-surface individual sample from boring D. TPH at 150 mg/kg in the composite of samples from 5 feet from area C was the only sample where detection at depth was greater than the near-surface samples, indicating that TPH is largely restricted to the top 2 to 3 feet throughout the property and that migration into the subsurface is minimal.

Table 4-3

INITIAL SOIL SAMPLE RESULTS - ORGANICS
(mg/kg dry weight, ppm)

| Composite No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | - | - | - | - | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area | A | A | A | B | B | B | C | C | C | D | D | D | D | | |
| Depth (Feet) | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 10 | 0 | 5 | 5 (dup) | 10 | STLC | TTLC |
| **GENERAL:** | | | | | | | | | | | | | | | |
| Oil & Grease | 25 | ND | ND | 15 | 44 | 41 | 2,800 | 220 | 26 | 1,300 | ND | ND | ND | | |
| TPH | 56 | ND | ND | ND | ND | ND | 1,600 | 150 | ND | 90 | ND | ND | ND | | |
| **PURGEABLE ORGANICS:** | | | | | | | | | | | | | | | |
| Meth. Chloride | <6* | <6* | ND | <6* | <6* | <6* | 6 | 7 | ND | <6* | 6 | <6* | <6* | | |
| Acetone | 84 | 55 | 38 | 30 | 58 | 56 | 73 | 83 | 23 | 120 | 74 | 21 | 15 | | |
| Trans, 1,2 DCE | ND | ND | ND | ND | ND | ND | ND | <6* | ND | ND | ND | ND | ND | | |
| Toluene | ND | ND | ND | ND | ND | ND | ND | <6* | ND | ND | ND | ND | ND | | |
| Ethyl Benzene | ND | ND | ND | ND | ND | ND | ND | <6* | ND | ND | ND | ND | ND | | |
| Xylenes | ND | ND | ND | ND | ND | ND | ND | 18 | ND | ND | ND | ND | ND | | |
| **PCBs:** | | | | | | | | | | | | | | | |
| PCB-1242 | 0.15 | <0.06* | <0.06* | ND | ND | ND | 2.3 | 0.77 | 0.30 | ND | ND | ND | ND | | |
| PCB-1254 | 0.19 | <0.06* | 0.087 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | |
| PCB-1260 | ND | ND | ND | ND | ND | ND | 14 | 2.6 | 0.88 | 0.09 | ND | ND | ND | | |
| TOTAL AROCLORS | 0.34 | tr | 0.092 | - | - | - | 16.3 | 3.37 | 1.18 | 0.09 | - | - | - | 5 | 50 |

TTLC = 50 STLC = 5

* Compound present but at a level below the measurable detection limit.

mbe/spea/t4-3

Table 4-4

INDIVIDUAL SOIL SAMPLE RESULTS - ORGANICS (mg/kg)

| Samples | Depth (feet) | TPH[1] | PCBs[2] |
|---|---|---|---|
| C-1A | 3 | ND[4] | 0.02 |
| C-2A | 2.5 | 114 | 0.18 |
| C-21A[3] | 2.5 | 772 | 0.46 |
| C-3A | 2 | 86 | ND |
| C-4A | 3 | 10 | 2.8 |
| TTLC | | | 50 |
| STLC | | | 5.0 |

1. TPH = Total Petroleum Hydrocarbons.
2. PCBs = Polychlorinated Biphenyls.
3. C-21A is a duplicate of C-2A.
4. ND = Not Detected.

RESULTS OF DISCRETE SAMPLING IN AREA C WHERE COMPOSITE SAMPLING FOUND 1100 PPM TPH.

11 COMPOSITE SAMPLES AT SURFACE FOUND: 2500 TOG, 1100 TPH AT 5' FOUND 220 TOG 150 TPH

Based on the TPH exceeding the state action level of 1,000 mg/kg in the near surface composite from area C, individual samples from similar depths were subsequently collected from near the borings in area C (see Table 4-4 for results). TPHs detected were greater than 100 mg/kg in only one of the four samples, C-2A. This sample and its duplicate, C-21A, had 114 mg/kg and 772 mg/kg, respectively, indicating how extremely variable TPH is in soils on the property. All of the individual results were substantially lower than the composite result. The individual samples were collected from trenches excavated as closely as possible to the original borehole, generally less than 1 foot away. This further indicates the extremely localized and variable nature of TPH on the property.

DISCRETES TAKEN AT 2.5' & COMPOSITE AT SURFACE

THOUGH CORRELATION SHOWN BETWEEN TPH & TOG FINDINGS, WHY WERE'NT SAMPLES EVALUATED FOR TOG

Purgeable Organics

Organic chemicals other than methylene chloride and acetone were detected only in the composite of 5-foot samples from area C. Methylene chloride and acetone were detected at similar low concentrations in all of the soil samples and they were most likely introduced in the laboratory. No known past activities at the property would have resulted in the widespread low-level distribution of these chemicals.

The organic chemicals detected in the composite of 5-foot samples from the borings in area C are common constituents of fuel (gasoline) or their breakdown products. The low concentrations indicate that subsurface gasoline contamination is not significant.

Polychlorinated Biphenyls

Three different aroclors were detected in soil samples from the SPTCo. High Street property, PCB-1242, 1254, and 1260. PCB-1242 was detected in area A and C, PCB-1254 was detected only in area A, and PCB-1260 was detected in area C and boring D. PCBs were not detected in samples from area B. For the purposes of the following discussion the different aroclors have been grouped together.

In areas A and C, total PCBs were detected in composite samples from all depths. In area A, PCBs were not detected at levels above 1 mg/kg. In area C, the highest concentration (16 mg/kg) was detected in the near-surface composite with the 5-foot and 10-foot composites containing progressively lower concentrations.

To further assess the distribution of PCBs in area C, individual near-surface samples were collected from trenches excavated as closely as possible to the original boring. Results of this resampling are presented in Table 4-4. The highest concentration detected was 2.8 mg/kg in sample C-4A. PCBs were not detected in sample C-3A and concentrations less than 1 mg/kg were detected in samples C-1A and C-2A. The lower PCB concentrations detected during the resampling, which were lower than those originally detected, indicate that PCBs are extremely localized on the property.

## 4.2 GROUNDWATER RESULTS

### 4.2.1 Inorganic Results

Groundwater samples were analyzed for Title 22 CCR metals. Results are presented in Table 4-5. In general, similar metals were detected in each sample. Metals detected included barium, copper, lead, and zinc, although copper was not detected in groundwater from monitoring well B-2. A duplicate was collected from monitoring well A-1. Hexavalent chromium, mercury, and nickel were detected in only one of the two samples analyzed from well A-1, so the occurrence of these three metals is questionable.

None of the metals in groundwater at the SPTCo. High Street property exceeds either federal or state drinking water standards.

### 4.2.2 Organic Results

Organic analyses included analysis for TOG, TPH, purgeable organics, and PCBs. Results are presented in Table 4-5.

Table 4-5

SPTCO. HIGH STREET - GROUNDWATER RESULTS

| Well No. | | May 26, 1989 Sampling A-1 | A-1 Dup | B-2 | C-2 | Blank | July 28, 1989 Sampling C-2 | C-2 Duplicate | State Standard | EPA Standard |
|---|---|---|---|---|---|---|---|---|---|---|
| **GENERAL:** | | | | | | | | | | |
| Oil & Grease | (mg/l) | 2.3 | 1.4 | 2.8 | 2.4 | 1.6 | | | | |
| TPH | (mg/l) | ND[1] | 1.4 | 1.5 | ND | ND | | | | |
| **METALS:** | | | | | | | | | | |
| Antimony | (mg/l) | ND | ND | ND | ND | ND | | | | |
| Arsenic | (mg/l) | ND | ND | ND | ND | ND | | | | 0.05 |
| Barium | (mg/l) | 0.086 | 0.072 | 0.037 | 0.027 | ND | | | 1.0 | 1.0 |
| Beryllium | (mg/l) | ND | ND | ND | ND | ND | | | | |
| Cadmium | (mg/l) | ND | ND | ND | ND | ND | | | | 0.01 |
| Chromium | (mg/l) | ND | ND | ND | ND | ND | | | .05 | 0.05 |
| $Cr^{6+}$ | (mg/l) | 0.063 | ND | ND | ND | ND | | | | |
| Cobalt | (mg/l) | ND | ND | ND | ND | ND | | | | |
| Copper | (mg/l) | 0.013 | 0.019 | ND | 0.014 | ND | | | 1 [2] | |
| Lead | (mg/l) | 0.030 | 0.024 | 0.006 | 0.019 | ND | | | .05 | 0.05 |
| Mercury | (mg/l) | 0.0012 | ND | ND | ND | ND | | | .002 | 0.002 |
| Molybdenum | (mg/l) | ND | ND | ND | ND | ND | | | | |
| Nickel | (mg/l) | 0.018 | ND | ND | ND | ND | | | | |
| Selenium | (mg/l) | ND | ND | ND | ND | ND | | | | 0.01 |
| Silver | (mg/l) | ND | ND | ND | ND | ND | | | | 0.05 |
| Thallium | (mg/l) | ND | ND | ND | ND | ND | | | | |
| Vanadium | (mg/l) | ND | ND | ND | ND | ND | | | | |
| Zinc | (mg/l) | 0.085 | 0.054 | 0.045 | 0.110 | ND | | | 5 [2] | |

mbe/spea/t4-5

5-40 - 2158

Table 4-5 (Cont.)

| Well No. | | May 26, 1989 Sampling A-1 | A-1 Dup | B-2 | C-2 | Blank | July 28, 1989 Sampling C-2 | C-2 Duplicate | State Standard | EPA Standard |
|---|---|---|---|---|---|---|---|---|---|---|
| **PCBS:** | | | | | | | | | | |
| PCB-1260 | (ug/l) | ND | ND | ND | 1.0 | ND | 0.61 | 0.78 | | ND |
| **PURGEABLE ORGANICS:** | | | | | | | | | | |
| Methylene Chloride | (ug/l) | 20 | 18 | <5* | <5* | 17 | | | 40 | |
| Acetone | (ug/l) | 14 | <10* | 31 | 55 | <10* | | | | |

mbe/spea/t4-5

1. ND = Not Detected.

Total Oil and Grease

Low levels of oil and grease were detected in groundwater from all of the monitoring wells. The maximum level detected was 2.8 mg/l. Oil and grease at 1.6 mg/l was also detected in the travel blank. This occurrence, at levels that were similar to those found in the environmental samples, suggest that the oil and grease may have been introduced either during sampling or in the laboratory.

Total Petroleum Hydrocarbons

Very low levels of TPHs were detected in groundwater from monitoring well B-2 and in the duplicate from monitoring well A-1. The detection of TPHs at a very low level (1.4 mg/l) in only one of two samples analyzed from monitoring well A-1 makes the environmental occurrence of TPHs in groundwater suspect.

Purgeable Organics

The only purgeable organic chemicals detected in groundwater were methylene chloride and acetone. Both occurred at low levels and also in the blank. Occurrences of both chemicals are most likely due to introduction in the laboratory.

Polychlorinated Biphenyls

During the groundwater sampling of May 26, 1989, Aroclor 1260 at 1.0 ug/l in monitoring well C-2 was the only PCB detected. The laboratory analytical data QA/QC report (see Appendix B), however, concluded that PCB groundwater results were suspect.

Because the recommended maximum contaminant level for PCBs in drinking water is zero, this well was resampled on July 28, 1989. During this sampling PCBs were detected in both the environmental sample (0.61 ug/l) and its duplicate (0.78 ug/l), confirming the detection of May 26, 1989.

Monitoring well C-2 is in area C where the highest levels of PCBs were detected in soil samples. The soil composite of samples from a depth of 10 feet (the approximate water table) in area C contained PCBs at 1.18 mg/kg.

# 5. CONCLUSIONS AND RECOMMENDATIONS

Subsurface soil and groundwater sampling at the SPTCo. High Street property revealed that generally low levels of a variety of contaminants are present at the site in apparently localized occurrences.

Analysis of soil samples for priority pollutant metals did not reveal any metals at levels that exceed the TTLC and, thus, none of the soils classify as hazardous waste for disposal purposes in terms of metal content. WET tests for lead indicate that the STLC may be exceeded in several samples from near the ground surface. Subsurface sample results, however, are lower and indicate that lead is not migrating into the subsurface and is not adversely impacting groundwater quality. A WET test for zinc, performed on one individual sample with a total zinc concentration markedly higher than other samples, revealed that the STLC was slightly exceeded. This markedly high concentration was from the near surface and appeared to be atypical. Subsurface zinc concentrations were substantially lower and indicated that zinc is not migrating into the subsurface and is not adversely impacting groundwater quality.

Organic chemicals commonly associated with gasoline, in particular toluene, ethylbenzene, total xylenes, and trans 1,2 dichloroethene, were detected in soils at very low levels in the composite of 5-foot samples from area C. The low levels and lack of similar chemicals in groundwater indicate that this occurrence is not a significant environmental concern.

TPHs were observed in the composite of near-surface samples in area C (1,600 mg/kg) and in the near-surface sample from boring D (900 mg/kg). These either are greater than or are very close to the California Water Resources Control Board action level for TPHs of 1,000 mg/kg. During the field activities, several small areas of oil-stained surface soils were observed that most likely had relatively high TPH levels. These

oil-stained surface soils were not necessarily sampled, however, since the focus of E & E's investigation was on evaluating the subsurface migration of contaminants. Data obtained concerning subsurface TPHs and the on-site observations of oil-stained surface soils suggests that the areas with high levels of TPHs are of limited extent both horizontally and vertically.

PCBs were detected in subsurface soil composite samples to a depth of 10 feet in both areas A and C. The concentrations in area A were less than 1 mg/kg and are not considered of environmental concern. Higher PCB concentrations were observed in area C with the near surface composite analysis (made up of four individual samples) containing 16.3 mg/kg. This implies that one of the individual samples making up the composite could potentially have a PCB concentration four times the reported level, or 65.2 mg/kg. A level such as this would exceed the state action level of 25 mg/kg for environmental settings similar to that at the SPTCo. High Street property.

The only constituent detected in groundwater of environmental concern are PCBs at a level approaching 1 ug/l. The RMCL for PCBs in drinking water is zero. This standard may not be applicable to the SPTCo. High Street property because the yields of water are so low as to preclude the shallow groundwater from being developed as a source for drinking water supply.

In conclusion, the occurrence of contaminants of environmental concern in soils at the SPTCo. High Street property appears to be restricted in both horizontal and vertical directions. The constituents of concern are primarily localized and near-surface occurrences of petroleum hydrocarbons and PCBs. Metal concentrations in soils do not appear to be at levels that are of environmental concern. The lack of gasoline-related constituents detected suggests that the petroleum hydrocarbons are primarily in the form of less volatile oils and greases. This conclusion is supported by the close correlation between TPH and TOG concentrations.

The only constituents detected in groundwater that may be of environmental concern are PCBs; however, its environmental significance will be dependent on the potential uses of the shallow groundwater at the property.

## Recommendations

Based on the data obtained during this investigation and on observations made in the field, E & E recommends that the following actions be taken:

1) o Excavate and remove any soil visibly stained with oil and also any material that appears to be metallic slag. Excavated soil or slag should be treated as a hazardous waste for disposal purposes.

2) o Determine, in conjunction with the appropriate agency, whether remediation is needed in terms of the PCBs detected in groundwater.

- CONTINUE GROUND WATER MONITORING

- EVALUATE AREA FOR BACKGROUND LEVELS OF Pb.

1 - DEFINE DEPTH & ZONES TO BE SCRAPED

## REFERENCE

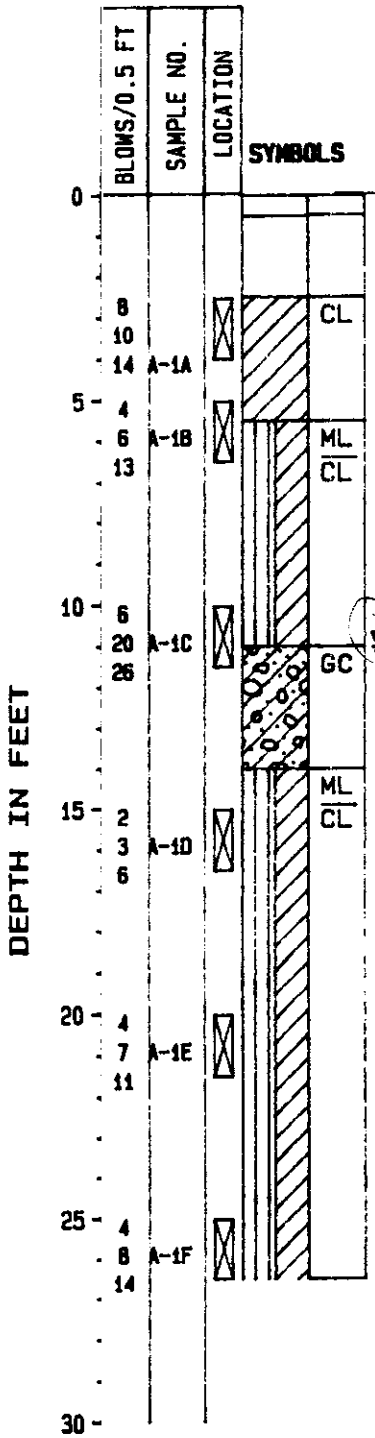
1. Shacklette, H.T. and Boerngen, J.G., 1984, "Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States," U.S. Geological Survey Professional Paper 1270.

m/spea/ref

# BORING A-1

DATE DRILLED: 5/23/89

DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: Split Spoon




| DESCRIPTION | NOTES |
|---|---|
| Concrete | |
| Black sandy gravel (fill) | |
| Black clay, stiff, mottled, little sand | Sampler would not drive past 1 ft, drilled to 2.5 ft to take sample<br>Sample is wet<br>HNu=14ppm |
| Tan to orange gray brown clayey silt to silty clay, moderately stiff | HNu=40 ppm<br>50% recovery<br>Cuttings wet at 7 ft |
| Tan brown clayey silt | |
| Tan to orange gray brown clayey sandy gravel, wet | HNu=8 ppm borehole<br>0 ppm breathing zone |
| Gray clayey silt, moist, stiff, mottled, with rootlets | Sampler is wet<br>HNu=3 ppm borehole,<br>0 ppm breathing zone |
| Gray and brown mottled clayey silt, stiff | HNu=0 ppm |
| Gray and brown mottled clayey silt, stiff | HNu=<1 ppm<br>Bottom of hole = 11.5 feet |

11 ft.

SP--HIGH

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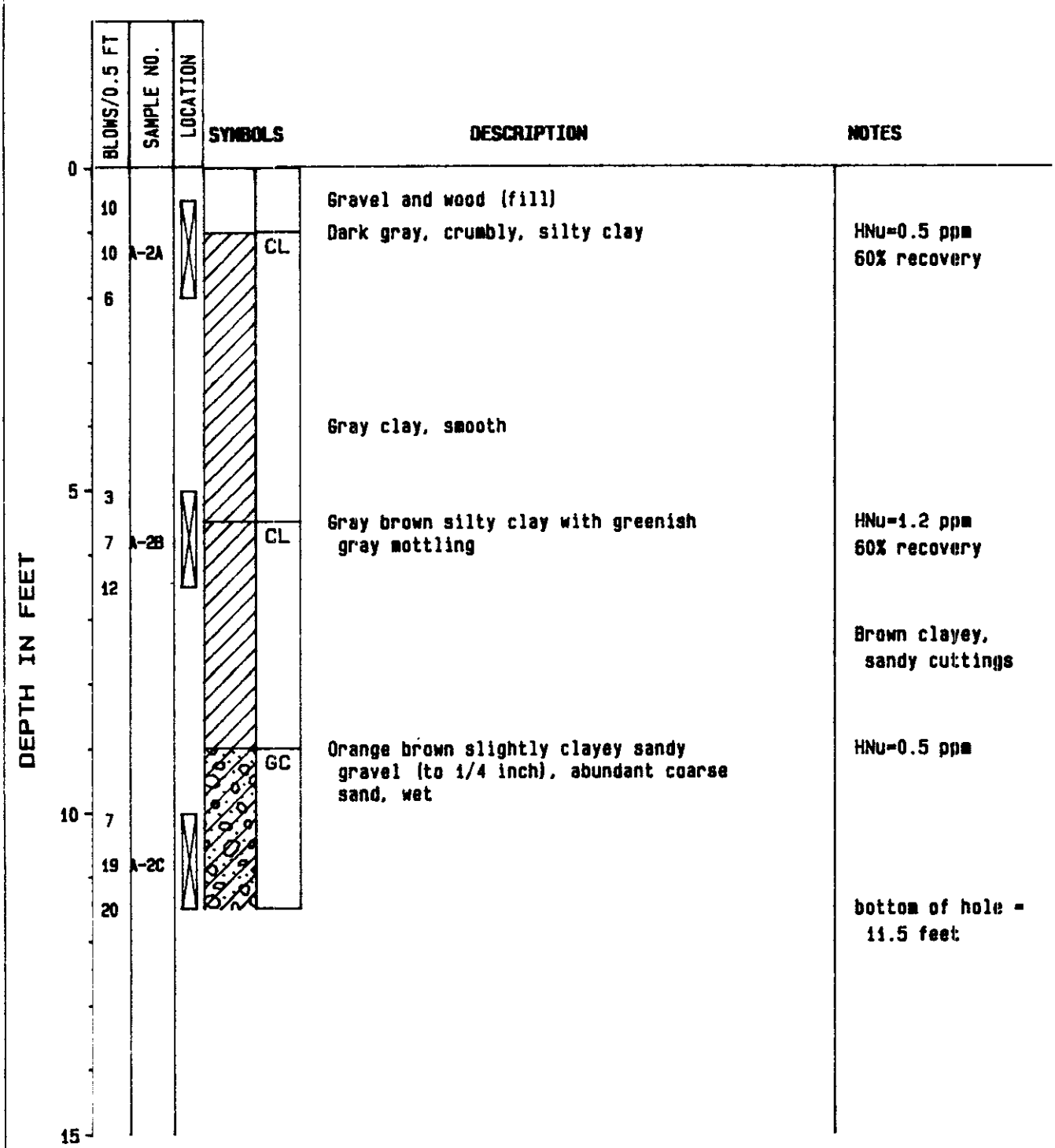
# BORING A-2

DATE DRILLED: 5/22/89

DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: Split Spoon




SP--HIGH

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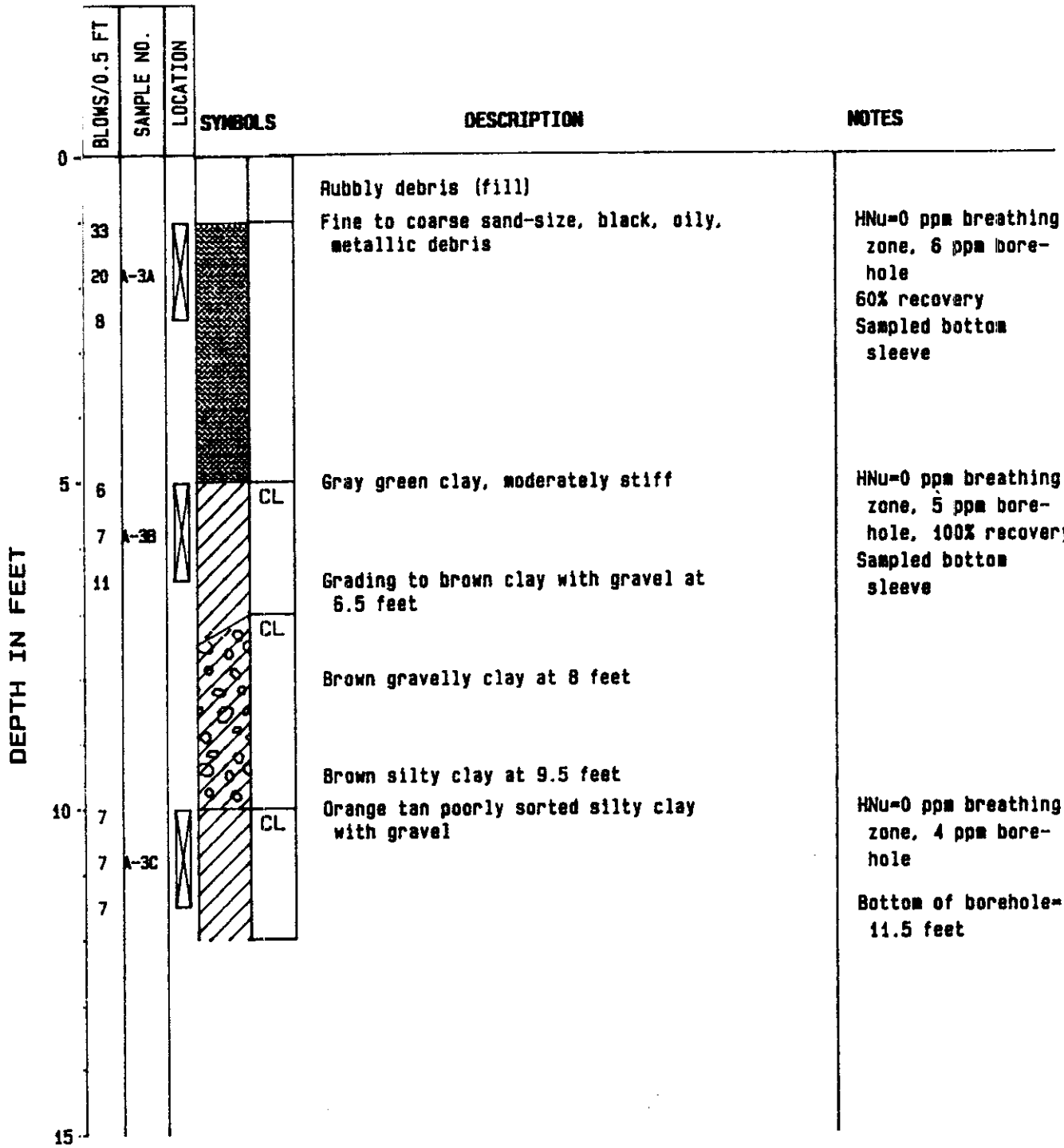
# BORING A-3

DATE DRILLED: 5/23/89

DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: Split Spoon




SP-HIGH

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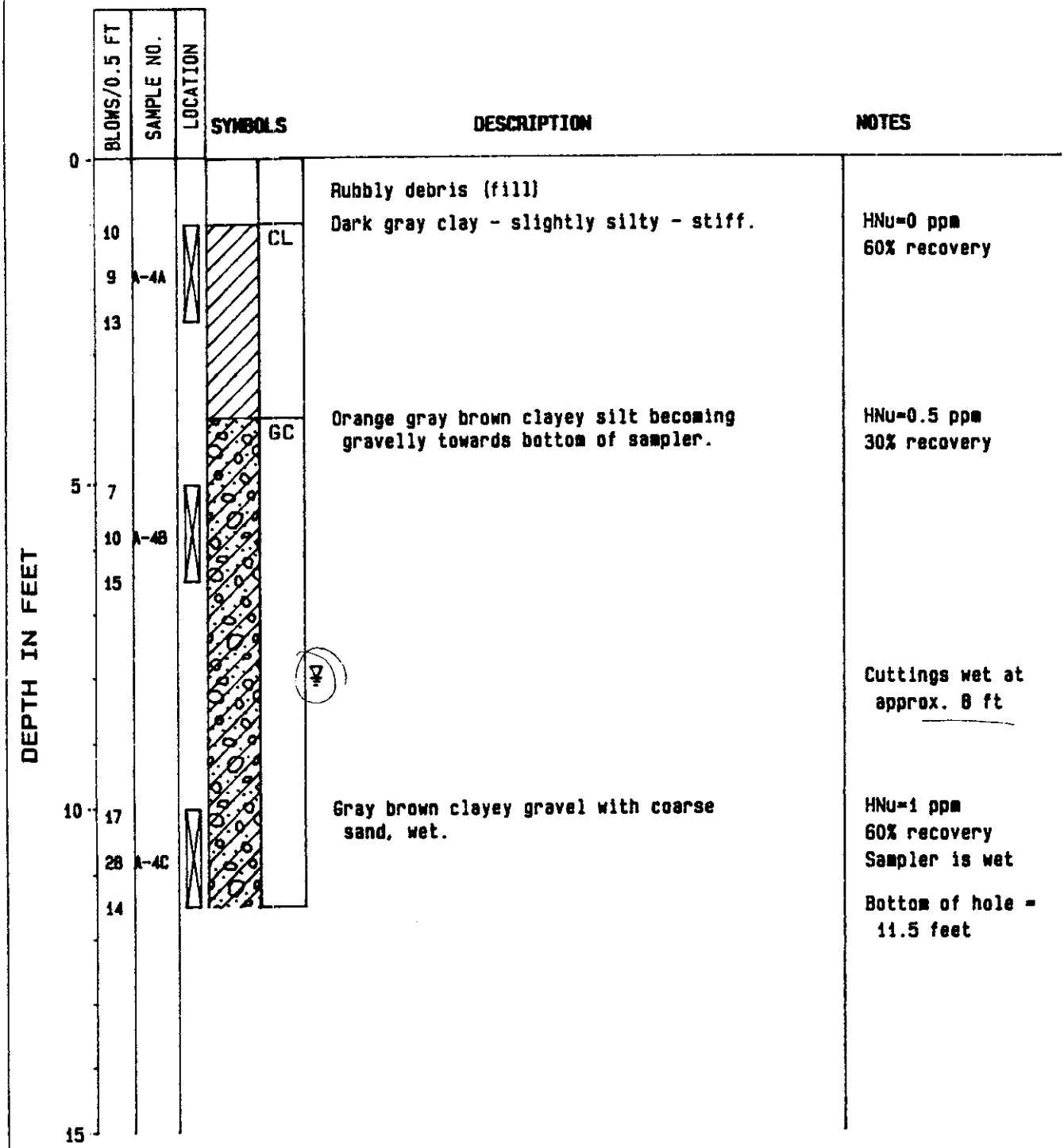
# BORING A-4

DATE DRILLED: 5/22/89

DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: Split Spoon




SP-HIGH

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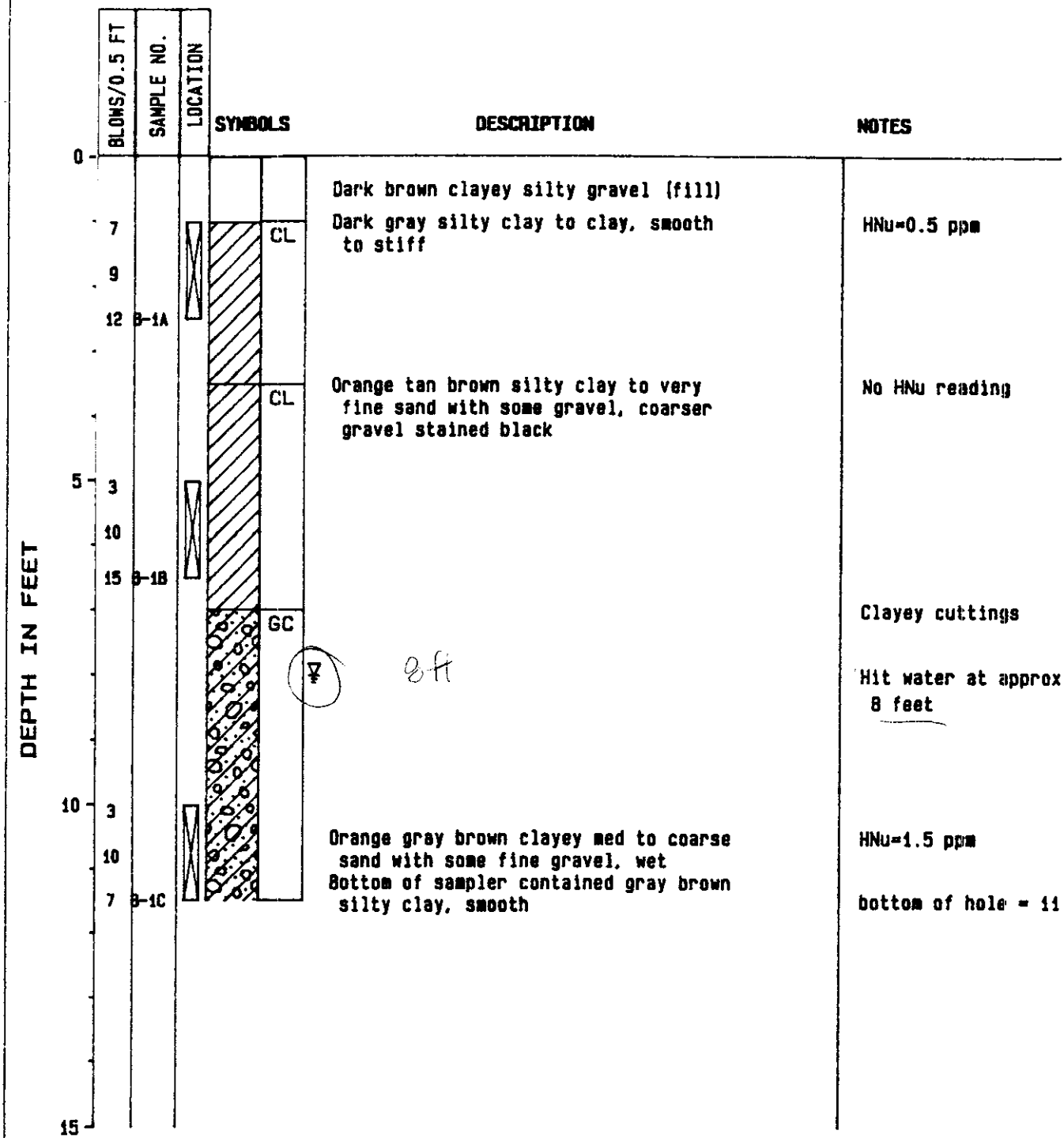
# BORING B-1

DATE DRILLED: 5/22/89

DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: Split Spoon




SP-HIGH

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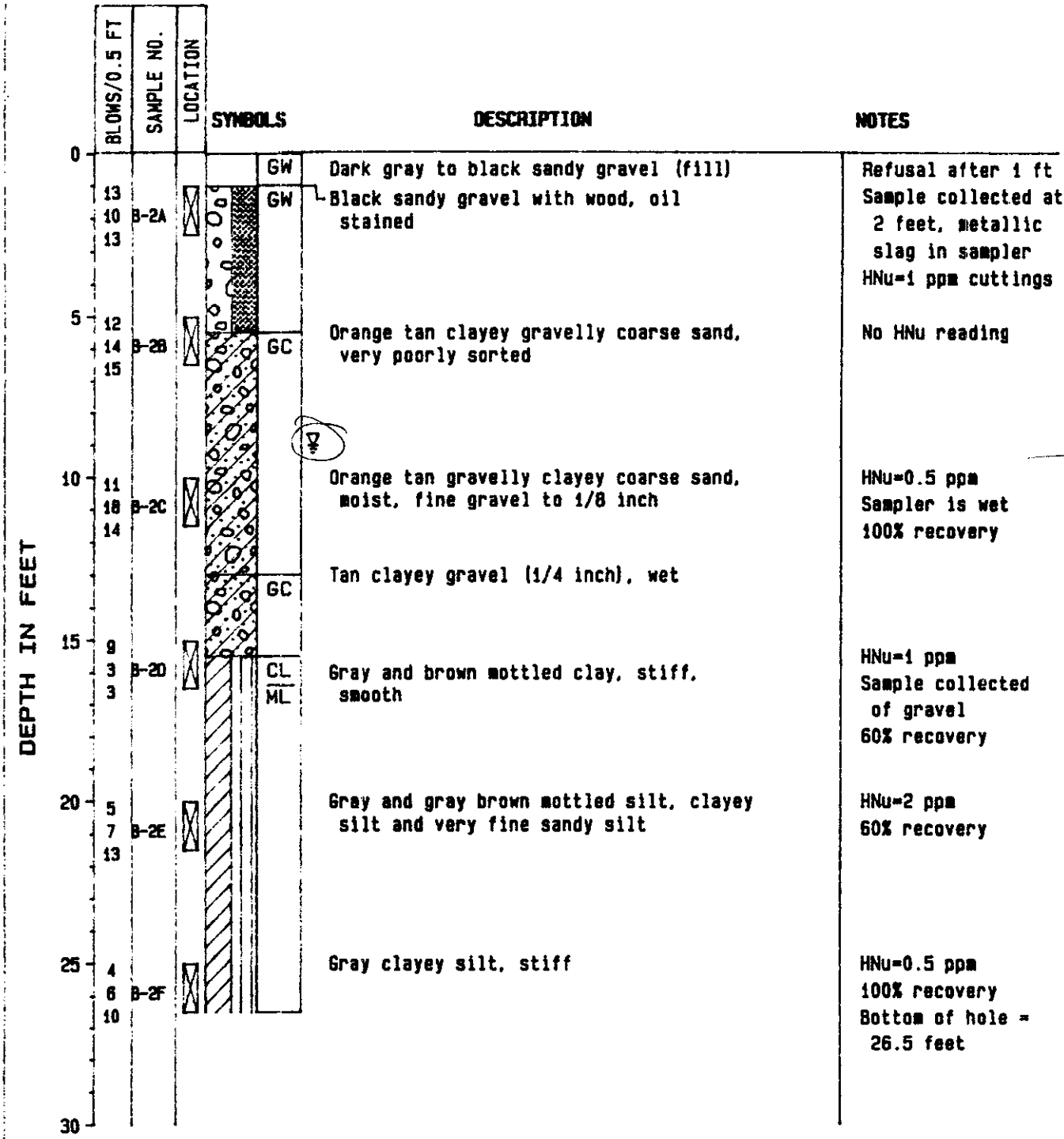
# BORING B-2

DATE DRILLED: 5/23/89

DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: Split Spoon




SP-HIGH

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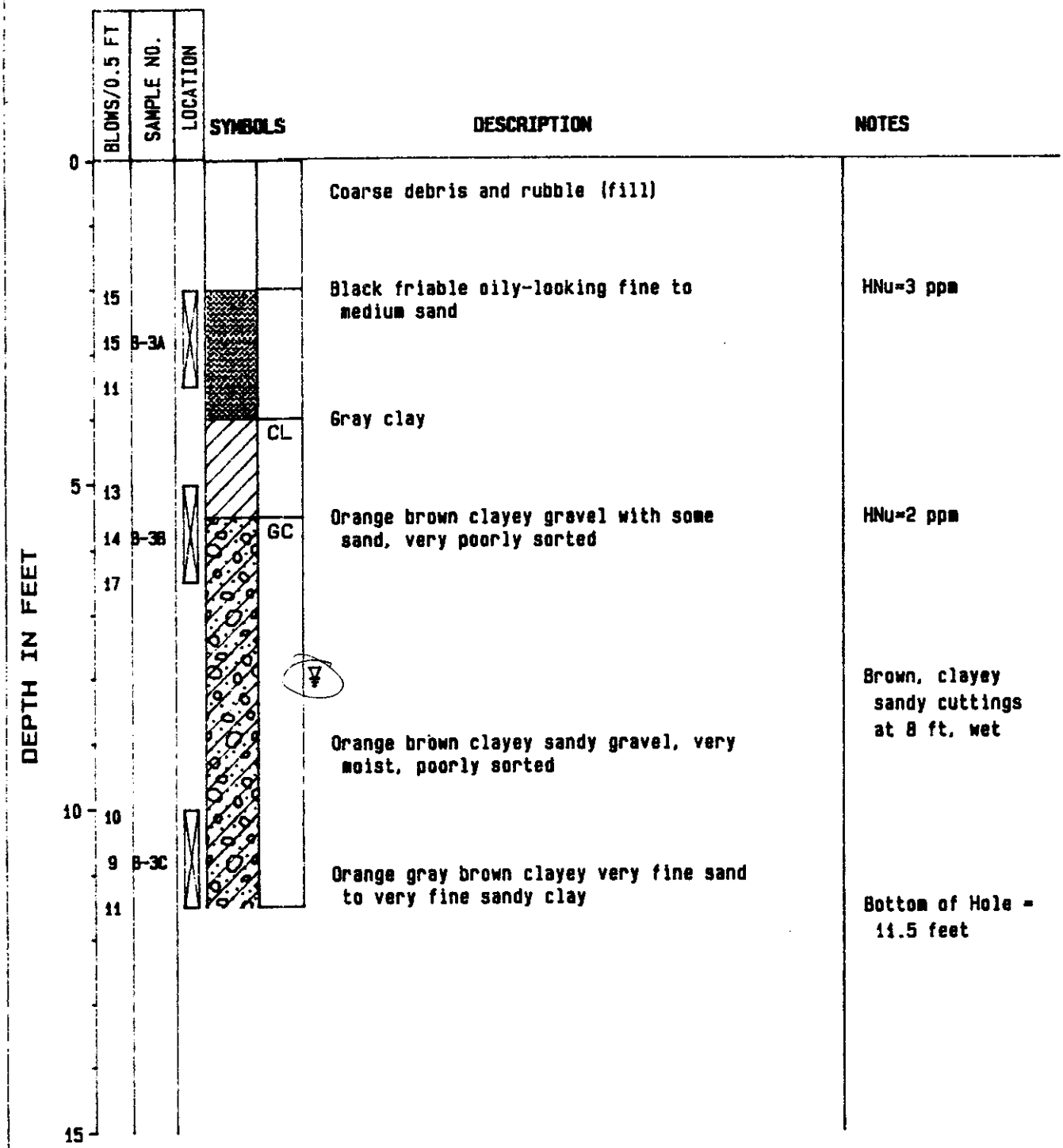
# BORING B-3

DATE DRILLED: 5/22/89

DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: Split Spoon




8 ft.

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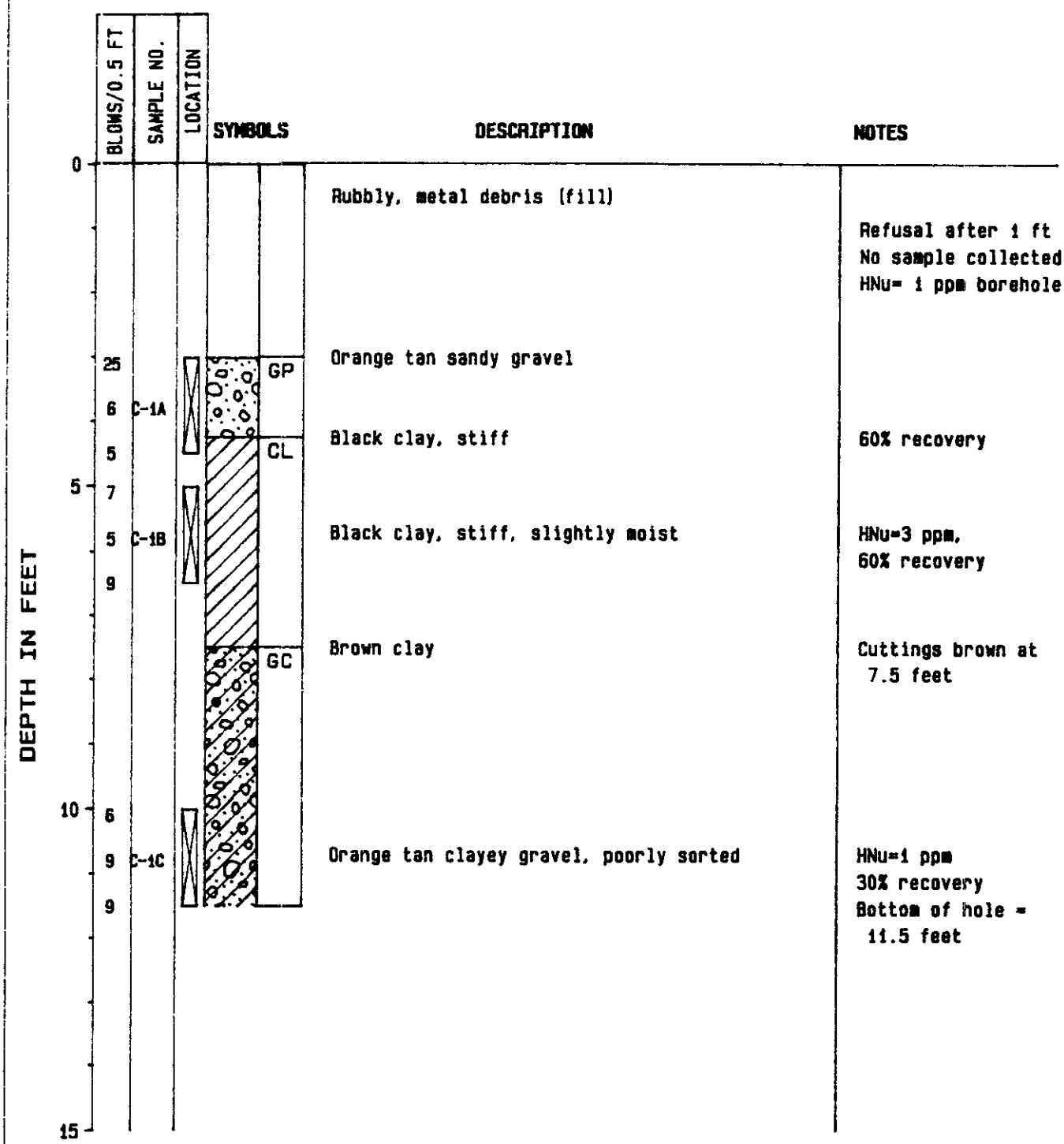
# BORING C-1

DATE DRILLED: 5/24/89

DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: Split Spoon




SP-HIGH

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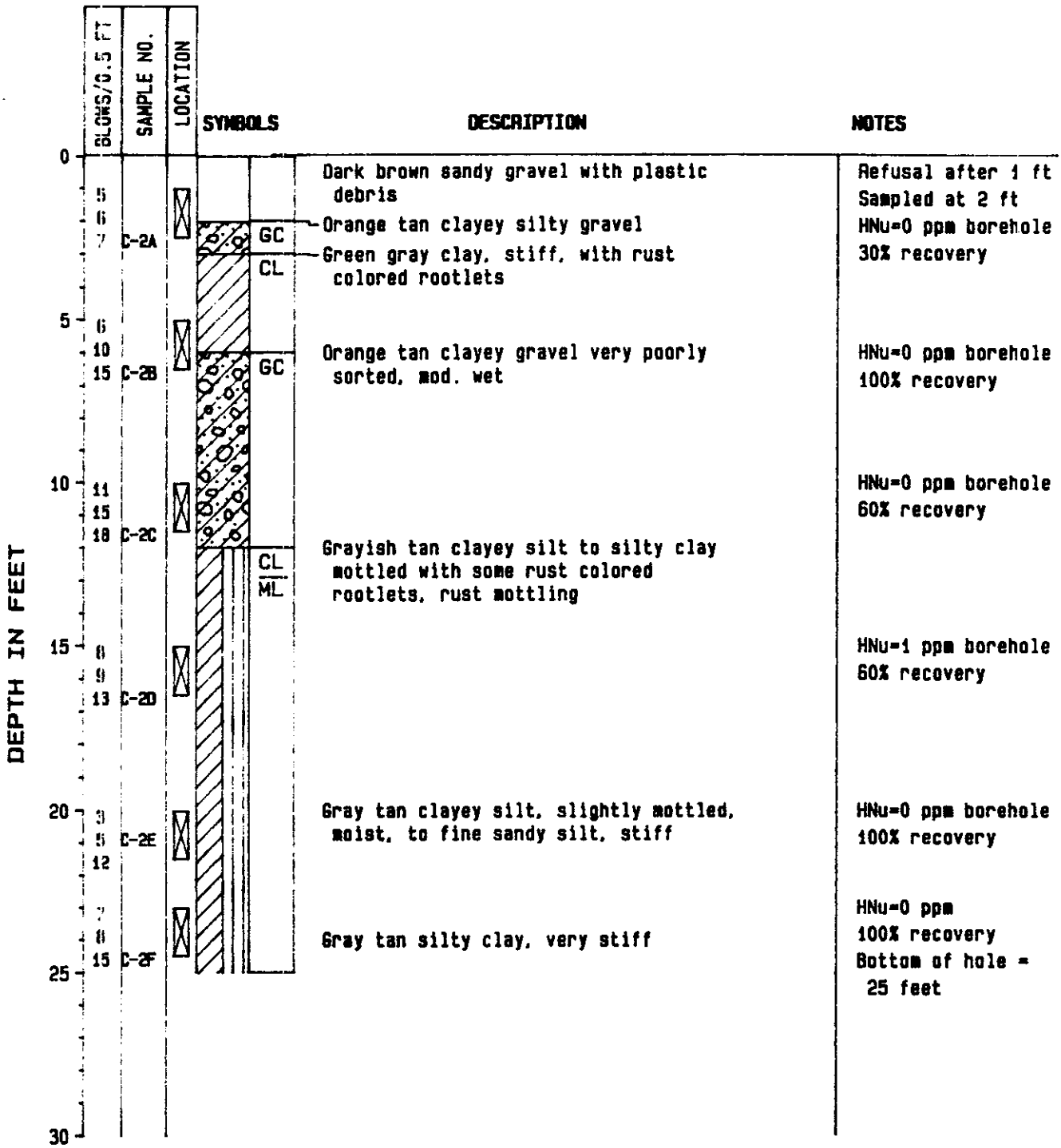
# BORING C-2

DATE DRILLED: 5/24/89

DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: Split Spoon

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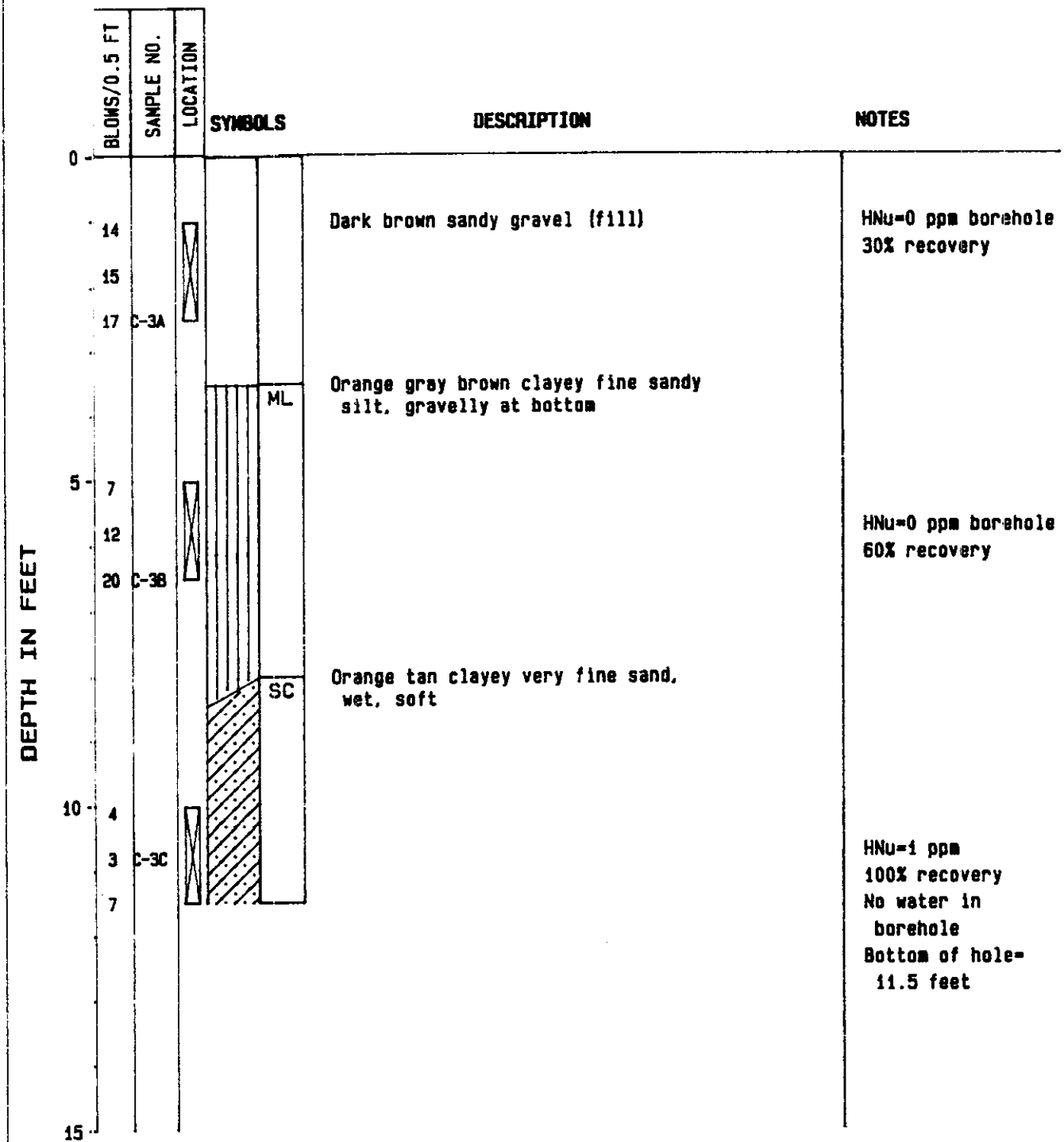
# BORING C-3

DATE DRILLED: 5/24/89

DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: Split Spoon




SP-HIGH

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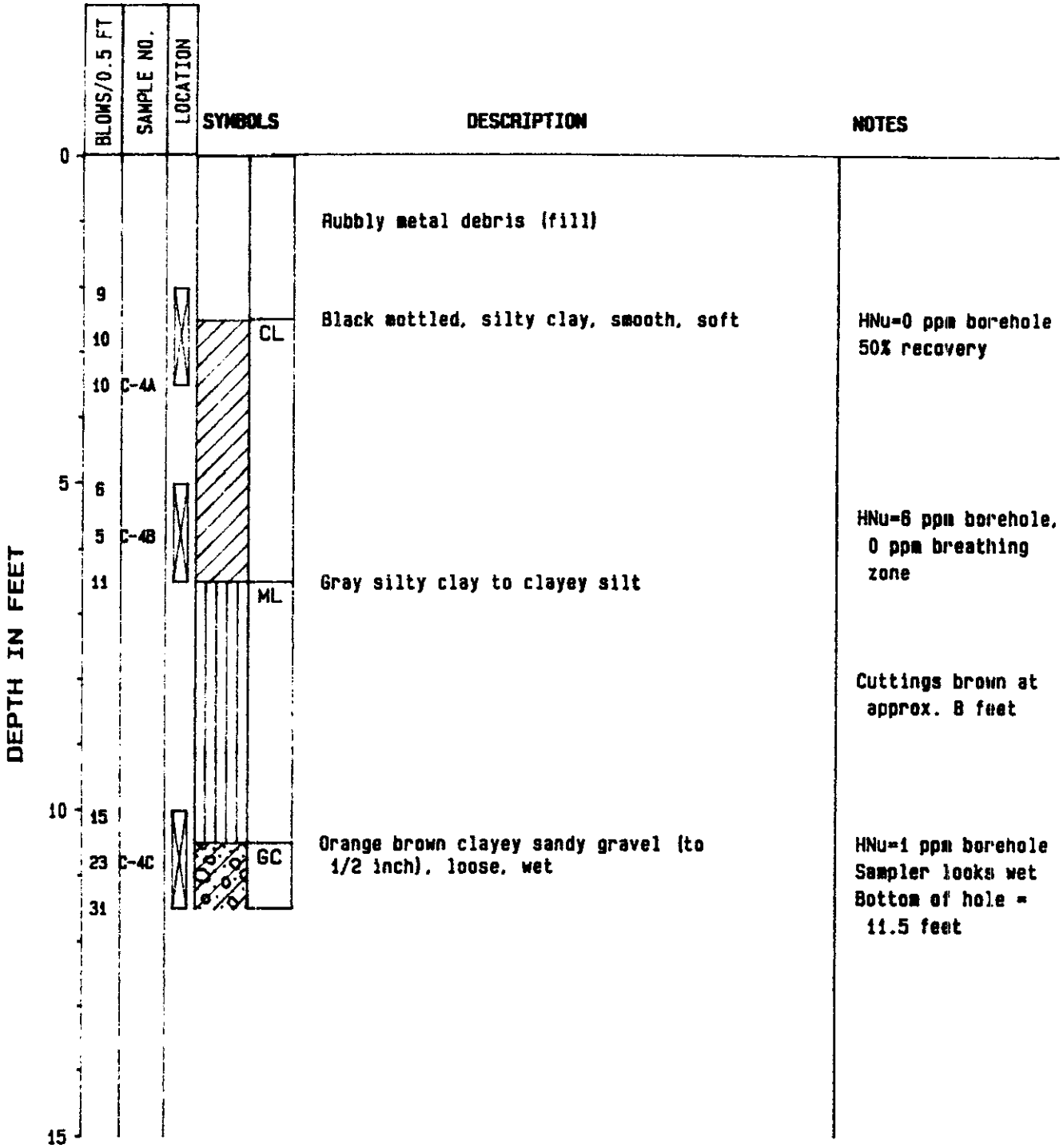
# BORING C-4

DATE DRILLED: 5/24/89

DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: Split Spoon



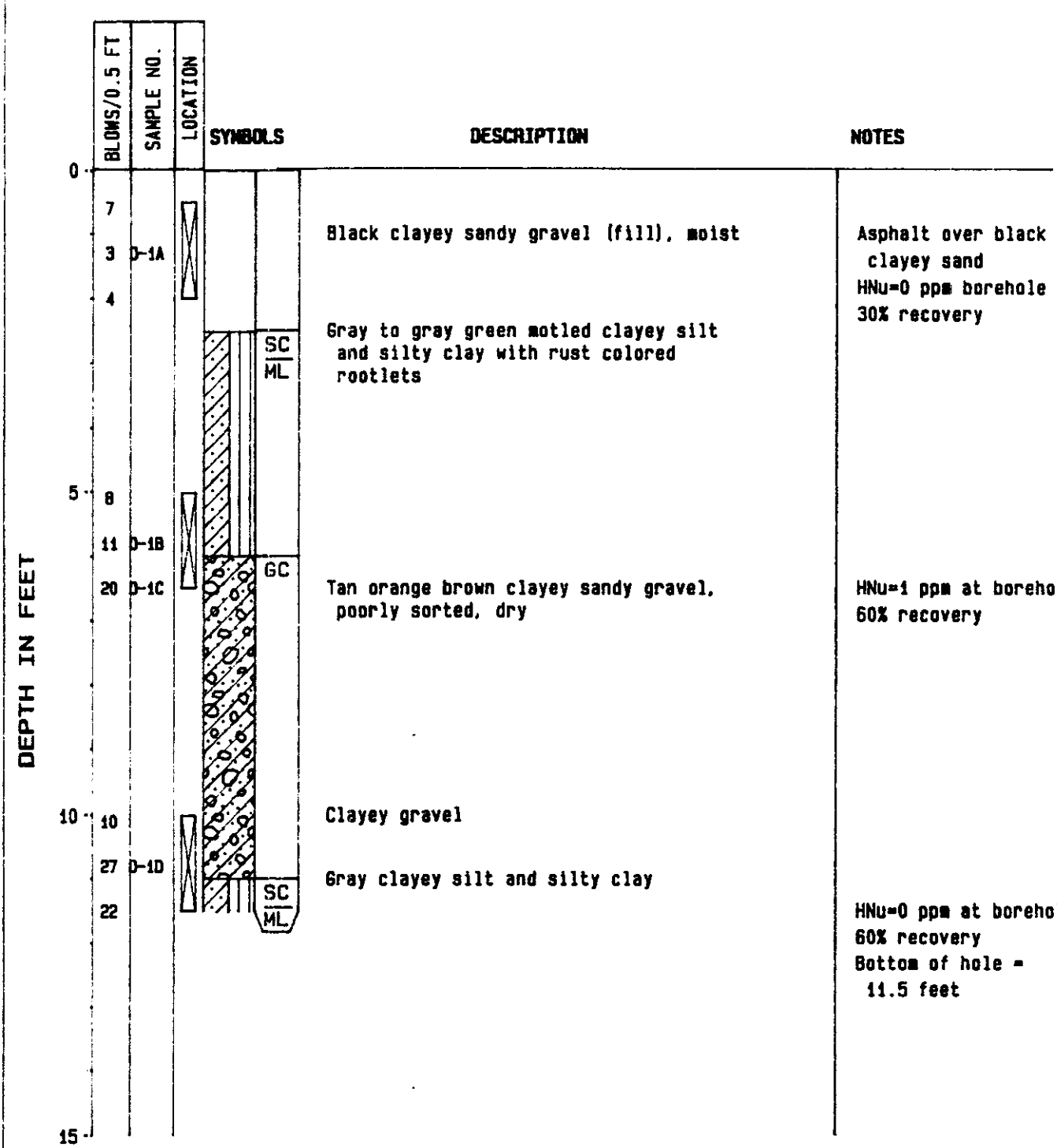

SP-HIGH

ecology and environment, inc. Oakland, California

# BORING D-1

DATE DRILLED: 5/24/89

DRILL METHOD: Hollow Stem Auger
SAMPLING METHOD: Split Spoon




SP--HIGH

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Appendix B

LABORATORY ANALYTICAL DATA QA/QC

Quality assurance/quality control (QA/QC) protocols for the analysis of the test parameters in groundwater and soil samples were performed to monitor laboratory precision and accuracy. Precision is tested by analyzing samples in replicate which provides a calculation of a relative percent difference (RPD). Accuracy is measured by spiking the sample with the same analyte or a similar compound (e.g., surrogate chemicals) and calculating a percent recovery (%R). These QA/QC results are presented along with the laboratory reports.

For the soil samples, oil and grease and total recoverable petroleum hydrocarbons were within precision and accuracy criteria. Therefore, these results, presented in Table 4-3, are considered valid.

The metals results presented in Table 4-1 had several parameters outside QC limits because of the heterogeneous nature of the soils. EPA methodology require QC limits for RPD to be +20% for concentrations five times above the method detection limit and %R to be 75-125% for acceptable QC limits. Antimony had a low %R of 49%, however, the sample results were all non-detected. This out of control recovery is considered acceptable. Precision QC for arsenic was outside the limits, however, this was due to the low concentration in the sample (less than five times the method detection limit). Arsenic results are, therefore, considered valid. Barium, chromium, copper, lead, and zinc were outside QC limits for precision because the results are not reproducable. Hexavalent chromium, copper, molybdenum, and zinc were outside QC limits for accuracy because the results are not reproduceable. Molybdenum results, however, are considered acceptable because the %R was 132% and sample concentrations were all <3.5 ug/kg.

The results presented on Table 4-3 for organic analysis of soils had QC teseting within acceptable limits except for method blanks. Methylene chloride blank concentrations were at trace levels (<5 ug/kg) and

acetone blank concentrations were at 11, 10, and 10 ug/kg. Sample results must be at least 10 times greater than the blank concentrations, therefore all methylene chloride and acetone results are considered invalid due to laboratory contamination.

For the groundwater sample results presented on Table 4-5, QC was acceptable for total oil and grease and total recoverable petroleum hydrocarbons. The travel blank contained 1.6 ug/l total oil and grease which may be attributable to field techniques and/or laboratory contamination. All of the total oil and grease groundwater results are approximately the same concentration as the travel blank and, therefore, the total oil and grease in groundwater should be considered of questionable validity.

Precision and accuracy for metals analysis in groundwater (see Table 4-5) were within QC criteria except for copper and zinc (RPD of 33% and 57%, respectively) and lead and selenium (%R of 73% and 60%, respectively). Results for these four metals should be considered suspect except for selenium because it was not detected in any sample.

Organic analysis of groundwater (Table 4-5) had several QC problems. PCB analysis was out of control for accuracy with a %R of 38%, therefore, PCB water results should be considered suspect. The results for methylene chloride and acetone are considered invalid because the method blanks had methylene chloride concentrations of <5 and 7 ug/l and acetone concentrations of 11 ug/l. This was due to laboratory contamination.

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# LABORATORY REPORT

FOR

SOUTHERN PACIFIC RAILROAD-HIGH STREET

S7/850/001

| | | | | | | |
|---|---|---|---|---|---|---|
| Job No.: 850.001 | | | RE: SP8030 | | | |
| Sample Date: 5/25/89 | | | P.O. No.: | | | |
| Date Received: 5/25/89 | | | Sampled By: E & E, Inc. | | | |
| Sample Type: Solid | | | Delivered By: Federal Express | | | |
| E & E Lab. No. 89- | 40611 | 40612 | 40613 | 40614 | 40615 | 40616 |
| Customer No. | Comp A 1A-4A | Comp A 1B-4B | Comp A 1C-4C | Comp B 1A-3A | Comp B 1B-3B | Comp B 1C-3C |
| Sample Identity | | | | | | |
| | Results in: mg/kg dry weight unless noted | | | | | |
| Oil and Grease | 25 | <6.0 | <6.0 | 15 | 44 | 41 |
| Total Recoverable Petroleum Hydrocarbons | 56 | <6.0 | <6.0 | <6.0 | <6.0 | <6.0 |
| Total Solids, % | 85 | 84 | 87 | 87 | 88 | 86 |

Analytical References:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Second Edition, U.S. EPA, 1982.

Supervising Analyst: M. Halinka

Date: 7/14/89

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# LABORATORY REPORT

FOR

SOUTHERN PACIFIC RAILROAD-HIGH STREET

S7/850/001.1

| | | | | | | |
|---|---|---|---|---|---|---|
| Job No.: 850.001 | | | RE: SP8030 | | | |
| Sample Date: 5/24, 25/89 | | | P.O. No.: | | | |
| Date Received: 5/25/89 | | | Sampled By: E & E, Inc. | | | |
| Sample Type: Solid | | | Delivered By: Federal Express | | | |
| E & E Lab. No. 89- | 40617 | 40618 | 40619 | 40620 | 40621 | 40622 |
| Customer No. | Comp C 1A-C4A | Comp C 1B-C4B | Comp C 1C-C4C | D-1A | D-1B | D-1C |
| Sample Identity | | | | | | |
| | Results in: mg/kg dry weight unless noted | | | | | |
| Oil and Grease | 2,800 | 220 | 26 | 1,300 | <6.0 | <6.0 |
| Total Recoverable Petroleum Hydrocarbons | 1,600 | 150 | <6.0 | 900 | <6.0 | <6.0 |
| Total Solids, % | 88 | 84 | 86 | 81 | 86 | 90 |

Analytical References:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Second Edition, U.S. EPA, 1982.

Supervising Analyst: M. Hahn

Date: 7/14/89

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# LABORATORY REPORT

FOR

SOUTHERN PACIFIC RAILROAD-HIGH STREET

S7/850/001.2

| | | | | | | |
|---|---|---|---|---|---|---|
| Job No.: 850.001 | | | RE: SP8030 | | | |
| Sample Date: 5/24/89 | | | P.O. No.: | | | |
| Date Received: 5/25/89 | | | Sampled By: E & E, Inc. | | | |
| Sample Type: Solid | | | Delivered By: Federal Express | | | |
| E & E Lab. No. 89- | 40623 | | | | | |
| Customer No. | D-1D | | | | | |
| Sample Identity | | | | | | |
| | Results in: mg/kg dry weight unless noted | | | | | |
| Oil and Grease | <6.0 | | | | | |
| Total Recoverable Petroleum Hydrocarbons | <6.0 | | | | | |
| Total Solids, % | 86 | | | | | |

Analytical References:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Second Edition, U.S. EPA, 1982.

Supervising Analyst: Y. Halmer

Date: 7/14/89

recycled paper

QUALITY CONTROL FOR PRECISION
RESULTS OF ANALYSIS OF REPLICATE
ANALYSES OF SOLID SAMPLES

S7/850/001.3

| Parameter | E & E Laboratory No. 89- | (mg/kg) | | Relative Percent Difference (RPD) |
|---|---|---|---|---|
| | | Original Analysis | Replicate Analysis | |
| Total Solids, % | 40619 | 86 | 86 | 0 |
| Oil and Grease | 40623 | <6.0 | <6.0 | - |
| Total Recoverable Petroleum Hydrocarbons | 40623 | <6.0 | <6.0 | - |

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED SOLID SAMPLES

S7/850/001.4

| Parameter | E & E Laboratory No. 89- | Original Value | Amount Added | Amount Determined | Percent Recovery |
|---|---|---|---|---|---|
| | | (mg/kg) | | | |
| Oil and Grease | 40623 | <6.0 | 980 | 1,000 | 102 |
| Total Recoverable Petroleum Hydrocarbons | 40623 | <6.0 | 980 | 1,100 | 112 |

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1

# LABORATORY REPORT

FOR

SOUTHERN PACIFIC RAILROAD-HIGH STREET

S7/850/001.5

| | | | | | | |
|---|---|---|---|---|---|---|
| Job No.: 850.001 | | | RE: SP8030 | | | |
| Sample Date: 5/25/89 | | | P.O. No.: | | | |
| Date Received: 5/25/89 | | | Sampled By: E & E, Inc. | | | |
| Sample Type: Solid | | | Delivered By: Federal Express | | | |
| E & E Lab. No. 89- | 40611 | 40612 | 40613 | 40614 | 40615 | 40616 |
| Customer No. | Comp A 1A-4A | Comp A 1B-4B | Comp A 1C-4C | Comp B 1A-3A | Comp B 1B-3B | Comp B 1C-3C |
| Sample Identity | | | | | | |
| | Results in: mg/kg dry weight unless noted | | | | | |
| Antimony | <7.00 | <7.10 | <6.90 | <6.90 | <6.80 | <7.00 |
| Arsenic | 3.52 | 3.44 | 2.99 | 8.79 | 3.11 | 3.24 |
| Barium | 186 | 108 | 187 | 347 | 182 | 116 |
| Beryllium | <0.240 | <0.240 | <0.230 | <0.230 | <0.230 | <0.230 |
| Cadmium | 1.08 | 1.17 | 1.01 | 1.70 | 1.15 | 1.16 |
| Chromium | 43.8 | 61.7 | 49.8 | 152 | 79.1 | 62.9 |
| Hexavalent Chromium | <0.012 | <0.012 | 0.028 | 0.022 | 0.084 | 0.099 |
| Cobalt | 13.8 | 12.1 | 12.0 | 6.00 | 11.8 | 12.1 |
| Copper | 30.4 | 20.7 | 40.1 | 103 | 100 | 30.2 |
| Lead | 32.9 | 17.1 | 12.3 | 538 | 18.9 | 8.40 |
| Mercury* | <0.12 | <0.12 | <0.11 | <0.11 | <0.11 | <0.12 |
| Molybdenum | <3.50 | <3.60 | <3.40 | <3.40 | <3.40 | <3.50 |
| Nickel | 52.5 | 130 | 95.5 | 35.0 | 115 | 92.2 |
| Selenium | <0.60 | <0.60 | <0.60 | <0.60 | <0.60 | <0.60 |
| Silver | <1.20 | <1.20 | <1.10 | <1.10 | <1.10 | <1.20 |
| Thallium | <0.60 | <0.60 | <0.60 | <0.60 | <0.60 | <0.60 |
| Vanadium | 36.0 | 40.8 | 34.2 | 29.6 | 41.8 | 32.4 |
| Zinc | 42.2 | 53.1 | 62.9 | 1,500 | 105 | 52.2 |

*analyzed one day beyond recommended holding time

Analytical References:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Second Edition, U.S. EPA, 1982.

Supervising Analyst: J. Halbrook

Date: 7/14/89

ecology and environment, inc.
International Specialists in the Environment

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# LABORATORY REPORT

FOR

SOUTHERN PACIFIC RAILROAD-HIGH STREET

S7/850/001.6

| | | | | | | |
|---|---|---|---|---|---|---|
| Job No.: 850.001 | | | RE: SP8030 | | | |
| Sample Date: 5/24, 25/89 | | | P.O. No.: | | | |
| Date Received: 5/25/89 | | | Sampled By: E & E, Inc. | | | |
| Sample Type: Solid | | | Delivered By: Federal Express | | | |
| E & E Lab. No. 89- | 40617 | 40618 | 40619 | 40620 | 40621 | 40622 |
| Customer No. | Comp C 1A-C4A | Comp C 1B-C4B | Comp C 1C-C4C | D-1A | D-1B | D-1C |
| Sample Identity | | | | | | |
| | Results In: mg/kg dry weight unless noted | | | | | |
| Antimony | <6.80 | <7.10 | <7.00 | <7.40 | <7.00 | <6.70 |
| Arsenic | 3.39 | 4.70 | 2.71 | 9.54 | 1.86 | 2.27 |
| Barium | 63.5 | 367 | 141 | 1,500 | 217 | 137 |
| Beryllium | <0.230 | <0.240 | <0.230 | <0.250 | <0.230 | <0.220 |
| Cadmium | 0.580 | 3.14 | 2.00 | 3.06 | 1.08 | 1.20 |
| Chromium | 20.4 | 71.8 | 100 | 50.1 | 68.7 | 103 |
| Hexavalent Chromium | <0.011 | 0.012 | <0.012 | 0.034 | <0.012 | <0.011 |
| Cobalt | 3.64 | 33.0 | 17.0 | 8.89 | 14.9 | 17.0 |
| Copper | 19.2 | 56.5 | 37.1 | 112 | 32.8 | 56.0 |
| Lead | 60.8 | 126 | 26.2 | 198 | 13.0 | 12.8 |
| Mercury* | <0.11 | <0.12 | <0.12 | <0.12 | <0.12 | <0.11 |
| Molybdenum | <3.40 | <3.60 | <3.50 | <3.70 | <3.50 | <3.30 |
| Nickel | 29.6 | 161 | 140 | 53.8 | 94.5 | 141 |
| Selenium | <0.60 | <0.60 | <0.60 | <0.60 | <0.60 | <0.60 |
| Silver | <1.10 | <1.20 | <1.20 | <1.20 | <1.20 | <1.10 |
| Thallium | <0.60 | <0.60 | <0.60 | <0.60 | <0.60 | <0.60 |
| Vanadium | 10.2 | 41.9 | 56.4 | 27.5 | 44.2 | 44.7 |
| Zinc | 78.9 | 362 | 83.4 | 538 | 50.1 | 71.6 |

*analyzed one day beyond recommended holding time

Analytical References:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Second Edition, U.S. EPA, 1982.

Supervising Analyst: J. Halinski

Date: 7/14/89

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# LABORATORY REPORT

FOR

SOUTHERN PACIFIC RAILROAD-HIGH STREET

S7/805/001.7

| | | | | | | |
|---|---|---|---|---|---|---|
| Job No.: 850.001 | | | RE: SP8030 | | | |
| Sample Date: 5/24/89 | | | P.O. No.: | | | |
| Date Received: 5/25/89 | | | Sampled By: E & E, Inc. | | | |
| Sample Type: Solid | | | Delivered By: Federal Express | | | |
| E & E Lab. No. 89- | 40623 | | | | | |
| Customer No. | D-1D | | | | | |
| Sample Identity | | | | | | |
| | Results in: mg/kg dry weight unless noted | | | | | |
| Antimony | <7.00 | | | | | |
| Arsenic | 3.01 | | | | | |
| Barium | 153 | | | | | |
| Beryllium | <0.230 | | | | | |
| Cadmium | 1.63 | | | | | |
| Chromium | 87.6 | | | | | |
| Hexavalent Chromium | 0.013 | | | | | |
| Cobalt | 20.7 | | | | | |
| Copper | 108 | | | | | |
| Lead | 15.3 | | | | | |
| Mercury* | <0.12 | | | | | |
| Molybdenum | <3.50 | | | | | |
| Nickel | 186 | | | | | |
| Selenium | <0.60 | | | | | |
| Silver | <1.20 | | | | | |
| Thallium | <0.60 | | | | | |
| Vanadium | 54.4 | | | | | |
| Zinc | 137 | | | | | |

*Analyzed one day beyond recommended holding time

Analytical References:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Second Edition, U.S. EPA, 1982.

Supervising Analyst: Ed Halinski

Date: 7/14/89

QUALITY CONTROL FOR PRECISION
RESULTS OF ANALYSIS OF REPLICATE
ANALYSES OF SOLID SAMPLES

S7/850/001.8

| Parameter | E & E Laboratory No. 89-40623 | (mg/kg) Original Analysis | (mg/kg) Replicate Analysis | Relative Percent Difference (RPD) |
|---|---|---|---|---|
| Antimony | | <7.00 | <7.00 | -- |
| Arsenic | | 3.01 | 2.15 | 33 |
| Barium | | 153 | 116 | 28 |
| Beryllium | | <0.230 | <0.230 | -- |
| Cadmium | | 1.63 | 1.52 | 7 |
| Chromium | | 87.6 | 67.2 | 26 |
| Hexavalent Chromium | | 0.013 | 0.012 | 8 |
| Cobalt | | 20.7 | 17.6 | 16 |
| Copper | | 108 | 38.4 | 95 |
| Lead | | 15.3 | 12.2 | 22 |
| Molybdenum | | <3.50 | <3.50 | -- |
| Nickel | | 186 | 160 | 15 |
| Selenium | | <0.60 | <0.60 | -- |
| Silver | | <1.20 | <1.20 | -- |
| Thallium | | <0.60 | <0.60 | -- |
| Vanadium | | 54.4 | 44.6 | 20 |
| Zinc | | 137 | 67.3 | 68 |

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED SOLID SAMPLES

S7/850/001.9

| Parameter | E & E Laboratory No. 89-40623 | Original Value | Amount Added | Amount Determined | Percent Recovery |
|---|---|---|---|---|---|
| | | (mg/kg) | | | |
| Antimony | | <7.00 | 57.0 | 28.1 | 49 |
| Arsenic | | 3.01 | 4.56 | 6.70 | 81 |
| Barium | | 153 | 228 | 415 | 115 |
| Beryllium | | <0.230 | 5.70 | 6.07 | 106 |
| Cadmium | | 1.63 | 5.70 | 7.38 | 101 |
| Chromium | | 87.6 | 22.8 | 105 | 76 |
| Hexavalent Chromium | | 0.013 | 0.12 | 0.024 | 9 |
| Cobalt | | 20.7 | 57.0 | 81.6 | 107 |
| Copper | | 38.4 | 29.1 | 85.7 | 162 |
| Lead | | 15.3 | 57.0 | 77.9 | 110 |
| Molybdenum | | <3.50 | 57.0 | 75.5 | 132 |
| Nickel | | 157 | 57.0 | 226 | 121 |
| Selenium | | <0.60 | 1.14 | 1.19 | 104 |
| Silver | | <1.20 | 5.70 | 5.94 | 104 |
| Thallium | | <0.60 | 5.70 | 6.70 | 118 |
| Vanadium | | 54.4 | 57.0 | 109 | 96 |
| Zinc | | 137 | 57.0 | 176 | 68 |

RESULTS OF SOIL ANALYSIS FOR PRIORITY POLLUTANT
PURGEABLE ORGANIC COMPOUNDS AND HSL COMPOUNDS BY GC/MS

(all results in ug/kg dry weight)

S7/850/001.10

| Compound | E & E Lab. No. 89- | 40611 | 40612 | 40613 | 40614 | 40615 |
|---|---|---|---|---|---|---|
| | Sample Identity | Comp A 1A-4A | Comp A 1B-4B | Comp A 1C-4C | Comp B 1A-3A | Comp B 1B-3B |
| chloromethane | | <12 | <12 | <11 | <11 | <11 |
| bromomethane | | <12 | <12 | <11 | <11 | <11 |
| vinyl chloride | | <12 | <12 | <11 | <11 | <11 |
| chloroethane | | <12 | <12 | <11 | <11 | <11 |
| methylene chloride | | <6* | <6* | <6 | <6* | <6* |
| acetone | | 84 | 55 | 38 | 30 | 58 |
| carbon disulfide | | <6 | <6 | <6 | <6 | <6 |
| 1,1-dichloroethene | | <6 | <6 | <6 | <6 | <6 |
| 1,1-dichloroethane | | <6 | <6 | <6 | <6 | <6 |
| trans-1,2-dichloroethene | | <6 | <6 | <6 | <6 | <6 |
| chloroform | | <6 | <6 | <6 | <6 | <6 |
| 1,2-dichloroethane | | <6 | <6 | <6 | <6 | <6 |
| 2-butanone | | <12 | <12 | <11 | <11 | <11 |
| 1,1,1-trichloroethane | | <6 | <6 | <6 | <6 | <6 |
| carbon tetrachloride | | <6 | <6 | <6 | <6 | <6 |
| vinyl acetate | | <12 | <12 | <11 | <11 | <11 |
| bromodichloromethane | | <6 | <6 | <6 | <6 | <6 |
| 1,2-dichloropropane | | <6 | <6 | <6 | <6 | <6 |
| trans-1,3-dichloropropene | | <6 | <6 | <6 | <6 | <6 |
| trichloroethene | | <6 | <6 | <6 | <6 | <6 |
| dibromochloromethane | | <6 | <6 | <6 | <6 | <6 |
| 1,1,2-trichloroethane | | <6 | <6 | <6 | <6 | <6 |
| benzene | | <6 | <6 | <6 | <6 | <6 |
| cis-1,3-dichloropropene | | <6 | <6 | <6 | <6 | <6 |
| 2-chloroethylvinyl ether | | <12 | <12 | <11 | <11 | <11 |
| bromoform | | <6 | <6 | <6 | <6 | <6 |
| 4-methyl-2-pentanone | | <12 | <12 | <11 | <11 | <11 |
| 2-hexanone | | <12 | <12 | <11 | <11 | <11 |
| tetrachloroethene | | <6 | <6 | <6 | <6 | <6 |
| 1,1,2,2-tetrachloroethane | | <6 | <6 | <6 | <6 | <6 |
| toluene | | <6 | <6 | <6 | <6 | <6 |
| chlorobenzene | | <6 | <6 | <6 | <6 | <6 |
| ethylbenzene | | <6 | <6 | <6 | <6 | <6 |
| styrene | | <6 | <6 | <6 | <6 | <6 |
| total xylenes | | <6 | <6 | <6 | <6 | <6 |

*Compound present below measurable detection limit.

RESULTS OF SOIL ANALYSIS FOR PRIORITY POLLUTANT
PURGEABLE ORGANIC COMPOUNDS AND HSL COMPOUNDS BY GC/MS

(all results in ug/kg dry weight)

S7/850/001.11

| Compound | E & E Lab. No. 89- | 40616 | 40617 | 40618 | 40619 | 40620 |
|---|---|---|---|---|---|---|
| | Sample Identity | Comp B 1C-3C | Comp C 1A-C4A | Comp C 1B-C4B | Comp C 1C-C4C | D-1A |
| chloromethane | | <12 | <11 | <12 | <12 | <12 |
| bromomethane | | <12 | <11 | <12 | <12 | <12 |
| vinyl chloride | | <12 | <11 | <12 | <12 | <12 |
| chloroethane | | <12 | <11 | <12 | <12 | <12 |
| methylene chloride | | <6* | 6 | 7 | <6 | <6* |
| acetone | | 56 | 73 | 83 | 23 | 120 |
| carbon disulfide | | <6 | <6 | <6 | <6 | <6 |
| 1,1-dichloroethene | | <6 | <6 | <6 | <6 | <6 |
| 1,1-dichloroethane | | <6 | <6 | <6 | <6 | <6 |
| trans-1,2-dichloroethene | | <6 | <6 | <6* | <6 | <6 |
| chloroform | | <6 | <6 | <6 | <6 | <6 |
| 1,2-dichloroethane | | <6 | <6 | <6 | <6 | <6 |
| 2-butanone | | <12 | <11 | <12 | <12 | <12 |
| 1,1,1-trichloroethane | | <6 | <6 | <6 | <6 | <6 |
| carbon tetrachloride | | <6 | <6 | <6 | <6 | <6 |
| vinyl acetate | | <12 | <11 | <12 | <12 | <12 |
| bromodichloromethane | | <6 | <6 | <6 | <6 | <6 |
| 1,2-dichloropropane | | <6 | <6 | <6 | <6 | <6 |
| trans-1,3-dichloropropene | | <6 | <6 | <6 | <6 | <6 |
| trichloroethene | | <6 | <6 | <6 | <6 | <6 |
| dibromochloromethane | | <6 | <6 | <6 | <6 | <6 |
| 1,1,2-trichloroethane | | <6 | <6 | <6 | <6 | <6 |
| benzene | | <6 | <6 | <6 | <6 | <6 |
| cis-1,3-dichloropropene | | <6 | <6 | <6 | <6 | <6 |
| 2-chloroethylvinyl ether | | <12 | <11 | <12 | <12 | <12 |
| bromoform | | <6 | <6 | <6 | <6 | <6 |
| 4-methyl-2-pentanone | | <12 | <11 | <12 | <12 | <12 |
| 2-hexanone | | <12 | <11 | <12 | <12 | <12 |
| tetrachloroethene | | <6 | <6 | <6 | <6 | <6 |
| 1,1,2,2-tetrachloroethane | | <6 | <6 | <6 | <6 | <6 |
| toluene | | <6 | <6 | <6* | <6 | <6 |
| chlorobenzene | | <6 | <6 | <6 | <6 | <6 |
| ethylbenzene | | <6 | <6 | <6* | <6 | <6 |
| styrene | | <6 | <6 | <6 | <6 | <6 |
| total xylenes | | <6 | <6 | 18 | <6 | <6 |

*Compound present below measurable detection limit.

RESULTS OF SOIL ANALYSIS FOR PRIORITY POLLUTANT
PURGEABLE ORGANIC COMPOUNDS AND HSL COMPOUNDS BY GC/MS

(all results in ug/kg dry weight)

S7/850/001.12

| Compound | E & E Lab. No. 89- | 40621 | 40622 | 40623 | Method Blank 1 | Method Blank 2 |
|---|---|---|---|---|---|---|
| | Sample Identity | D-1B | D-1C | D-1D | | |
| chloromethane | | <12 | <11 | <12 | <10 | <10 |
| bromomethane | | <12 | <11 | <12 | <10 | <10 |
| vinyl chloride | | <12 | <11 | <12 | <10 | <10 |
| chloroethane | | <12 | <11 | <12 | <10 | <10 |
| methylene chloride | | 6 | <6* | <6* | <5* | <5* |
| acetone | | 74 | 21 | 15 | 11 | 10 |
| carbon disulfide | | <6 | <6 | <6 | <5 | <5 |
| 1,1-dichloroethene | | <6 | <6 | <6 | <5 | <5 |
| 1,1-dichloroethane | | <6 | <6 | <6 | <5 | <5 |
| trans-1,2-dichloroethene | | <6 | <6 | <6 | <5 | <5 |
| chloroform | | <6 | <6 | <6 | <5 | <5 |
| 1,2-dichloroethane | | <6 | <6 | <6 | <5 | <5 |
| 2-butanone | | <12 | <11 | <12 | <10 | <10 |
| 1,1,1-trichloroethane | | <6 | <6 | <6 | <5 | <5 |
| carbon tetrachloride | | <6 | <6 | <6 | <5 | <5 |
| vinyl acetate | | <12 | <11 | <12 | <10 | <10 |
| bromodichloromethane | | <6 | <6 | <6 | <5 | <5 |
| 1,2-dichloropropane | | <6 | <6 | <6 | <5 | <5 |
| trans-1,3-dichloropropene | | <6 | <6 | <6 | <5 | <5 |
| trichloroethene | | <6 | <6 | <6 | <5 | <5 |
| dibromochloromethane | | <6 | <6 | <6 | <5 | <5 |
| 1,1,2-trichloroethane | | <6 | <6 | <6 | <5 | <5 |
| benzene | | <6 | <6 | <6 | <5 | <5 |
| cis-1,3-dichloropropene | | <6 | <6 | <6 | <5 | <5 |
| 2-chloroethylvinyl ether | | <12 | <11 | <12 | <10 | <10 |
| bromoform | | <6 | <6 | <6 | <5 | <5 |
| 4-methyl-2-pentanone | | <12 | <11 | <12 | <10 | <10 |
| 2-hexanone | | <12 | <11 | <12 | <10 | <10 |
| tetrachloroethene | | <6 | <6 | <6 | <5 | <5 |
| 1,1,2,2-tetrachloroethane | | <6 | <6 | <6 | <5 | <5 |
| toluene | | <6 | <6 | <6 | <5 | <5 |
| chlorobenzene | | <6 | <6 | <6 | <5 | <5 |
| ethylbenzene | | <6 | <6 | <6 | <5 | <5 |
| styrene | | <6 | <6 | <6 | <5 | <5 |
| total xylenes | | <6 | <6 | <6 | <5 | <5 |

*Compound present below measurable detection limit.

RESULTS OF SOIL ANALYSIS FOR PRIORITY POLLUTANT
PURGEABLE ORGANIC COMPOUNDS AND HSL COMPOUNDS BY GC/MS

(all results in ug/kg)

S7/850/001.13

| Compound | E & E Lab. No. 89- | Method Blank 3 | | | | |
|---|---|---|---|---|---|---|
| | Sample Identity | | | | | |
| chloromethane | | <10 | | | | |
| bromomethane | | <10 | | | | |
| vinyl chloride | | <10 | | | | |
| chloroethane | | <10 | | | | |
| methylene chloride | | <5* | | | | |
| acetone | | 10 | | | | |
| carbon disulfide | | <5 | | | | |
| 1,1-dichloroethene | | <5 | | | | |
| 1,1-dichloroethane | | <5 | | | | |
| trans-1,2-dichloroethene | | <5 | | | | |
| chloroform | | <5 | | | | |
| 1,2-dichloroethane | | <5 | | | | |
| 2-butanone | | <10 | | | | |
| 1,1,1-trichloroethane | | <5 | | | | |
| carbon tetrachloride | | <5 | | | | |
| vinyl acetate | | <10 | | | | |
| bromodichloromethane | | <5 | | | | |
| 1,2-dichloropropane | | <5 | | | | |
| trans-1,3-dichloropropene | | <5 | | | | |
| trichloroethene | | <5 | | | | |
| dibromochloromethane | | <5 | | | | |
| 1,1,2-trichloroethane | | <5 | | | | |
| benzene | | <5 | | | | |
| cis-1,3-dichloropropene | | <5 | | | | |
| 2-chloroethylvinyl ether | | <10 | | | | |
| bromoform | | <5 | | | | |
| 4-methyl-2-pentanone | | <10 | | | | |
| 2-hexanone | | <10 | | | | |
| tetrachloroethene | | <5 | | | | |
| 1,1,2,2-tetrachloroethane | | <5 | | | | |
| toluene | | <5 | | | | |
| chlorobenzene | | <5 | | | | |
| ethylbenzene | | <5 | | | | |
| styrene | | <5 | | | | |
| total xylenes | | <5 | | | | |

*Compound present below measurable detection limit.

QUALITY CONTROL FOR ACCURACY: PERCENT
RECOVERY OF SURROGATE SPIKES

S7/850/001.14

| Compound | E & E Laboratory No. 89- | Amount Added (ngs) | Amount Determined (ngs) | Percent Recovery |
|---|---|---|---|---|
| 1,2-dichloroethane-D4 | 40611 | 250 | 288 | 115 |
| | 40612 | 250 | 221 | 88 |
| | 40613 | 250 | 301 | 120 |
| | 40614 | 250 | 243 | 97 |
| | 40615 | 250 | 248 | 99 |
| | 40616 | 250 | 251 | 100 |
| | 40617 | 250 | 240 | 96 |
| | 40618 | 250 | 274 | 110 |
| toluene-D8 | 40611 | 250 | 272 | 109 |
| | 40612 | 250 | 209 | 84 |
| | 40613 | 250 | 276 | 110 |
| | 40614 | 250 | 260 | 104 |
| | 40615 | 250 | 265 | 106 |
| | 40616 | 250 | 265 | 106 |
| | 40617 | 250 | 263 | 105 |
| | 40618 | 250 | 283 | 113 |
| 4-bromofluorobenzene | 40611 | 250 | 258 | 103 |
| | 40612 | 250 | 216 | 86 |
| | 40613 | 250 | 283 | 113 |
| | 40614 | 250 | 254 | 102 |
| | 40615 | 250 | 260 | 104 |
| | 40616 | 250 | 253 | 101 |
| | 40617 | 250 | 243 | 97 |
| | 40618 | 250 | 238 | 95 |

These recoveries are acceptable to E & E, Inc. guidelines.

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY OF SURROGATE SPIKES (Cont.)

S7/850/001.15

| Compound | E & E Laboratory No. 89- | Amount Added (ngs) | Amount Determined (ngs) | Percent Recovery |
|---|---|---|---|---|
| 1,2-dichloroethane-D4 | 40619 | 250 | 258 | 103 |
| | 40620 | 250 | 246 | 98 |
| | 40621 | 250 | 256 | 102 |
| | 40622 | 250 | 255 | 102 |
| | 40623 | 250 | 244 | 98 |
| | Method Blank1 | 250 | 261 | 104 |
| | Method Blank2 | 250 | 235 | 94 |
| | Method Blank3 | 250 | 241 | 96 |
| toluene-D8 | 40619 | 250 | 230 | 92 |
| | 40620 | 250 | 266 | 106 |
| | 40621 | 250 | 254 | 102 |
| | 40622 | 250 | 257 | 103 |
| | 40623 | 250 | 246 | 98 |
| | Method Blank1 | 250 | 254 | 102 |
| | Method Blank2 | 250 | 249 | 100 |
| | Method Blank3 | 250 | 248 | 99 |
| 4-bromofluorobenzene | 40619 | 250 | 223 | 89 |
| | 40620 | 250 | 252 | 101 |
| | 40621 | 250 | 251 | 100 |
| | 40622 | 250 | 278 | 111 |
| | 40623 | 250 | 245 | 98 |
| | Method Blank1 | 250 | 255 | 102 |
| | Method Blank2 | 250 | 248 | 99 |
| | Method Blank3 | 250 | 245 | 98 |

These recoveries are acceptable to E & E, Inc. guidelines.

QUALITY CONTROL FOR ACCURACY AND PRECISION:
PERCENT RECOVERY AND RELATIVE PERCENT DIFFERENCE (RPD)
OF SOIL MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE (MSD)
(Sample #40617)

S7/850/001.16

| Compound | (ngs) | | | | Percent Recovery | | RPD |
|---|---|---|---|---|---|---|---|
| | Original Result | Amount Added | Amount Determined MS | Amount Determined MSD | MS | MSD | |
| 1,1-Dichloroethene | <6 | 250 | 216 | 244 | 86 | 98 | 13 |
| Trichloroethene | <6 | 250 | 199 | 231 | 80 | 92 | 14 |
| Chlorobenzene | <6 | 250 | 270 | 303 | 108 | 121 | 11 |
| Toluene | <6 | 250 | 251 | 341 | 100 | 136 | 31 |
| Benzene | <6 | 250 | 257 | 304 | 103 | 122 | 17 |

These recoveries and RPDs are within E & E, Inc. limits.

ECOLOGY AND ENVIRONMENT'S, INC.

A N A L Y T I C A L  S E R V I C E S  C E N T E R

RESULTS OF SOIL ANALYSIS FOR PRIORITY POLLUTANT
POLYCHLORINATED BIPHENYLS

(all results in mg/kg dry weight)

S7/850/001.17

| Compound | E & E Lab. No. 89- | 40611 | 40612 | 40613 | 40614 | 40615 |
|---|---|---|---|---|---|---|
| | Sample Identity | Comp A 1A-4A | Comp A 1B-4B | Comp A 1C-4C | Comp B 1A-3A | Comp B 1B-3B |
| PCB-1242 | | 0.15 | <0.06* | <0.06* | <0.06 | <0.06 |
| PCB-1254 | | 0.19 | <0.06* | 0.087+ | <0.06 | <0.06 |
| PCB-1221 | | <0.06 | <0.06 | <0.06 | <0.06 | <0.06 |
| PCB-1232 | | <0.06 | <0.06 | <0.06 | <0.06 | <0.06 |
| PCB-1248 | | <0.06 | <0.06 | <0.06 | <0.06 | <0.06 |
| PCB-1260 | | <0.06 | <0.06 | <0.06 | <0.06 | <0.06 |
| PCB-1016 | | <0.06 | <0.06 | <0.06 | <0.06 | <0.06 |

*compound present below measurable detection limit
+sample identification best fit as PCB-1254

ECOLOGY AND ENVIRONMENT'S, INC.
A N A L Y T I C A L  S E R V I C E S  C E N T E R

RESULTS OF SOIL ANALYSIS FOR PRIORITY POLLUTANT
POLYCHLORINATED BIPHENYLS

(all results in mg/kg dry weight)

S7/850/001.18

| Compound | E & E Lab. No. 89- | 40616 | 40617 | 40618 | 40619 | 40620 |
|---|---|---|---|---|---|---|
| | Sample Identity | Comp B 1C-3C | Comp C 1A-C4A | Comp C 1B-C4B | Comp C 1C-C4C | D-1A |
| PCB-1242 | | <0.06 | 2.3 | 0.77 | 0.30 | <0.06 |
| PCB-1254 | | <0.06 | <0.60 | <0.12 | <0.06 | <0.06 |
| PCB-1221 | | <0.06 | <0.60 | <0.12 | <0.06 | <0.06 |
| PCB-1232 | | <0.06 | <0.60 | <0.12 | <0.06 | <0.06 |
| PCB-1248 | | <0.06 | <0.60 | <0.12 | <0.06 | <0.06 |
| PCB-1260 | | <0.06 | 14 | 2.6 | 0.88 | 0.09+ |
| PCB-1016 | | <0.06 | <0.60 | <0.12 | <0.06 | <0.06 |

+sample identification best fit as PCB-1260

ECOLOGY AND ENVIRONMENT'S, INC.
A N A L Y T I C A L  S E R V I C E S  C E N T E R

RESULTS OF SOIL ANALYSIS FOR PRIORITY POLLUTANT
POLYCHLORINATED BIPHENYLS

(all results in mg/kg dry weight)

S7/850/001.19

| Compound | E & E Lab. No. 89- | 40621 | 40622 | 40623 | Method Blank | |
|---|---|---|---|---|---|---|
| | Sample Identity | D-1B | D-1C | D-1D | | |
| PCB-1242 | | <0.06 | <0.06 | <0.06 | <0.05 | |
| PCB-1254 | | <0.06 | <0.06 | <0.06 | <0.05 | |
| PCB-1221 | | <0.06 | <0.06 | <0.06 | <0.05 | |
| PCB-1232 | | <0.06 | <0.06 | <0.06 | <0.05 | |
| PCB-1248 | | <0.06 | <0.06 | <0.06 | <0.05 | |
| PCB-1260 | | <0.06 | <0.06 | <0.06 | <0.05 | |
| PCB-1016 | | <0.06 | <0.06 | <0.06 | <0.05 | |

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED SOIL SAMPLES

S7/850/001.20

| Parameter | E & E Laboratory No. 89-40623 | Original Value | Amount Added | Amount Determined | Percent Recovery |
|---|---|---|---|---|---|
| | | (mg/kg) | | | |
| PCB 1242 | | <0.06 | 10 | 11 | 110 |

10542

850001

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## CHAIN-OF-CUSTODY RECORD



| Project No.: | Project Name: | Project Manager: |
|---|---|---|
| SP-8030 | Southern Pacific - High Street | Colin May |

Samplers: (Signatures) Robert H. Enkeboll, Ron Anderson

Field Team Leader: Bob Enkeboll

| STATION NUMBER | DATE | TIME | SAMPLE TYPE COMP | SAMPLE TYPE GRAB | SAMPLE TYPE AIR | SAMPLE INFORMATION / EXPECTED COMPOUNDS (Concentration)* | STATION LOCATION | NUMBER OF CONTAINERS | PCBs | Total Oil + Grease | Total Petrol. Hydroc. q.s. diesel | Purgeable Organics | Title 22 CCR Metals | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A-1A | 5/23 | | | X | | Lows | 3.5 to 4.0 | 1 | X | X | X | X | X | Composite with A-2A, A-3A, A-4A |
| A-1B | 5/23 | | | X | | | 6.0 to 6.5 | 1 | X | X | X | X | X | Composite with A-2B, A-3B, A-4B |
| A-1C | 5/23 | | | X | | | 11.0 to 11.5 | 1 | X | X | X | X | X | Composite with A-2C, A-3C, A-4C |
| A-1D | 5/23 | | | X | | 40624 | 16.0 to 16.5 | 1 | X | X | X | X | X | Archive Sample |
| A-1E | 5/23 | | | X | | 25 | 21.0 to 21.5 | 1 | X | X | X | X | X | Archive Sample |
| A-1F | 5/23 | | | X | | 40626 | 26.0 to 26.5 | 1 | X | X | X | X | X | Archive Sample |
| A-2A | 5/22 | | | X | | | 1.0 to 1.5 | 1 | X | X | X | X | X | Composite with A-1A, A-3A, A-4A |
| A-2B | 5/22 | | | X | | | 6.0 to 6.5 | 1 | X | X | X | X | X | Composite with A-1B, A-3B, A-4B |
| A-2C | 5/22 | | | X | | | 11.0 to 11.5 | 1 | X | X | X | X | X | Composite with A-1C, A-3C, A-4C |
| A-3A | 5/23 | | | X | | | 2.0 to 2.5 | 1 | X | X | X | X | X | Composite with A-1A, A-2A, A-4A |
| A-3B | 5/23 | | | X | | | 6.0 to 6.5 | 1 | X | X | X | X | X | Composite with A-1B, A-2B, A-4B |
| A-3C | 5/23 | | | X | | | 11.0 to 11.5 | 1 | X | X | X | X | X | Composite with A-1C, A-2C, A-4C |
| ~~A-4A~~ | | | | | | | | | | | | | | |

| Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Ship Via: |
|---|---|---|---|---|---|---|
| B. Enkeboll | 5/24/89; 1608 | FED. EXP. | | | | Federal Express |
| Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | BL/Airbill Number: 4518273281 |
| Relinquished By: (Signature) FED. EXP. | Date/Time: 5/25-89 | Received For Laboratory By: (Signature) Rick Marsh | Relinquished By: (Signature) | Date/Time: | Received For Laboratory By: (Signature) | Date: 5/24/89 |

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

*See CONCENTRATION RANGE on back of form.

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## CHAIN-OF-CUSTODY RECORD



Project No.: SP-8030
Project Name: Southern Pacific High Street
Project Manager: Colin May
Samplers: (Signatures) Robert H. Enkeboll
Field Team Leader: Bob Enkeboll

| STATION NUMBER | DATE | TIME | SAMPLE TYPE COMP | GRAB | AIR | SAMPLE INFORMATION / EXPECTED COMPOUNDS (Concentration)* | STATION LOCATION | NUMBER OF CONTAINERS | PCB's | Total Oil & Grease | Total Petroleum Hydrocarbons - as diesel | Purgeable Organics | Title 22 CAM Metals | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A-4A | 5/22 | | | X | | Lows | 2.0 to 2.5 | 1 | X | X | X | X | X | Composite with A-1A, A-2A, A-3A |
| A-4B | 5/22 | | | X | | | 6.0 to 6.5 | 1 | X | X | X | X | X | Composite with A-1B, A-2B, A-3B |
| A-4C | 5/22 | | | X | | | 11.0 to 11.5 | 1 | X | X | X | X | X | Composite with A-1C, A-2C, A-3C |
| B-1A | 5/22 | | | X | | | 1.0 to 1.5 | 1 | X | X | X | X | X | Composite with B-2A, B-3A |
| B-1B | 5/22 | | | X | | | 6.0 to 6.5 | 1 | X | X | X | X | X | Composite with B-2B, B-3B |
| B-1C | 5/22 | | | X | | | 11.0 to 11.5 | 1 | X | X | X | X | X | Composite with B-2C, B-3C |
| B-2A | 5/23 | | | X | | | 2.0 to 2.5 | 1 | X | X | X | X | X | Composite with B-1A, B-3A |
| B-2B | 5/23 | | | X | | | 6.0 to 6.5 | 1 | X | X | X | X | X | Composite with B-1B, B-3B |
| B-2C | 5/23 | | | X | | | 11.0 to 11.5 | 1 | X | X | X | X | X | Composite with B-1C, B-3C |
| B-2D | 5/23 | | | X | | 40627 | 16.0 to 16.5 | 1 | X | X | X | X | X | Archive Sample |
| B-2E | 5/23 | | | X | | 128 | 21.0 to 21.5 | 1 | X | X | X | X | X | Archive Sample |
| B-2F | 5/23 | | | X | | 40629 | 26.0 to 26.5 | 1 | X | X | X | X | X | Archive Sample |

| Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received By: (Signature) |
|---|---|---|---|---|---|
| B. Enkeboll | 5/24/89 1600 | FED. EXP. | | | |
| Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Relinquished By (Signature) | Date/Time: | Received By: (Signature) |
| | | | | | |
| Relinquished By: (Signature) | Date/Time: | Received For Laboratory By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received For Laboratory By: (Signature) |
| FED. EXP. | 5/25/89 | Jack Marsh | | | |

Ship Via: Federal Express
B/L/Airbill Number: 4518273281
Date: 5/24/89

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files
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...ational Specialists in the Environment

## CHAIN-OF-CUSTODY RECORD



| Project No.: | Project Name: | Project Manager: |
|---|---|---|
| SP-8030 | Southern Pacific High Street | Colin May |

Samplers: (Signatures) Robert H. Enkeboll, Ron Anderson

Field Team Leader: Bob Enkeboll

| STATION NUMBER | DATE | TIME | SAMPLE TYPE COMP | SAMPLE TYPE GRAB | SAMPLE TYPE AIR | SAMPLE INFORMATION / EXPECTED COMPOUNDS (Concentration)* | STATION LOCATION | NUMBER OF CONTAINERS | PCBs | Total Oil & Grease | Total Pet. Hydro. as diesel | Purgeable Organics | Title 22 CAM Metals | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-3A | 5/22 | | | X | | Low | 2.0 to 3.5 | 1 | X | X | X | X | X | Composite with B-1A, B-2A, ~~B-4A~~ |
| B-3B | 5/22 | | | X | | | 6.0 to 6.5 | 1 | X | X | X | X | X | Composite with B-1B, B-2B, ~~B-4B~~ |
| B-3C | 5/22 | | | X | | | 11.0 to 11.5 | 1 | X | X | X | X | X | Composite with B-1c, B-2c, ~~B-4c~~ |
| C-1A | 5/24 | | | X | | | | 1 | X | X | X | X | X | Composite with C-2A, C-3A, C-4A |
| C-1B | 5/24 | | | X | | | | 1 | X | X | X | X | X | Composite with C-2B, C-3B, C-4B |
| C-1C | 5/24 | | | X | | | | 1 | X | X | X | X | X | Composite with C-2C, C-3C, C-4C |
| C-2A | 5/24 | | | X | | | | 1 | X | X | X | X | X | Composite with C-1A, C-3A, C-4A |
| C-2B | 5/24 | | | X | | | | 1 | X | X | X | X | X | Composite with C-1B, C-3B, C-4B |
| C-2C | 5/24 | | | X | | | | 1 | X | X | X | X | X | Composite with C-1C, C-3C, C-4C |
| C-2D | 5/24 | | | X | | | | 1 | X | X | X | X | X | Archive Sample |
| C-2E | 5/24 | | | X | | | | 1 | X | X | X | X | X | Archive Sample |
| C-2F | 5/24 | | | X | | | | 1 | X | X | X | X | X | Archive Sample |

40630 | 31 | 40632

| Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received By: (Signature) |
|---|---|---|---|---|---|
| B. Enkeboll | 5/24/89 1608 | FED. EXP. | | | |
| Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received By: (Signature) |
| | | | | | |
| Relinquished By: (Signature) | Date/Time: | Received For Laboratory By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received For Laboratory By: (Signature) |
| FED. EXP. | 5/25/89 | Rob Marsh | | | |

Ship Via: Federal Express

BL/Airbill Number: 4518273281

Date: 5/24/89

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

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## CHAIN-OF-CUSTODY RECORD



| Project No.: | Project Name: | Project Manager: |
|---|---|---|
| SP-8030 | Southern Pacific High Street | Colin S. Moy |

Samplers: (Signatures) Bob Enkeboll

Field Team Leader: Bob Enkeboll

| STATION NUMBER | DATE | TIME | SAMPLE TYPE COMP | SAMPLE TYPE GRAB | SAMPLE TYPE AIR | SAMPLE INFORMATION — EXPECTED COMPOUNDS (Concentration)* | STATION LOCATION | NUMBER OF CONTAINERS | PCBs | Lead | Oil & Grease | Tot. Petr. Hydroc. as diesel | Purgeable Organics | Title 22 Cd & Metals | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C-3A | 5/24 | | | X | | Lab | | 1 | X | X | X | X | X | | Composite with C-2A, C-1A, C-4A |
| C-3B | 5/24 | | | X | | | | 1 | X | X | X | X | X | | Composite with C-1B; C-2B, C-4B |
| C-3C | 5/24 | | | X | | | | 1 | X | X | X | X | X | | Composite with C-1C; C-2C, C-4C |
| C-4A | 5/24 | | | X | | | | 1 | X | X | X | X | X | | Composite with C-1A, C-2A, C-3A |
| C-4B | 5/24 | | | X | | | | 1 | X | X | X | X | X | | Composite with C-1B, C-2B, C-3B |
| C-4C | 5/24 | | | X | | | | 1 | X | X | X | X | X | | Composite with C-1C, C-2C, C-3C |
| D-1A | 5/24 | | | X | | 40620 | | 1 | X | X | X | X | X | | analyze individually |
| D-1B | 5/24 | | | X | | 21 | | 1 | X | X | X | X | X | | analyze individually |
| D-1C | 5/24 | | | X | | 22 | | 1 | X | X | X | X | X | | analyze individually |
| D-1D | 5/24 | | | X | | 40623 | | 1 | X | X | X | X | X | | analyze individually |

| Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Ship Via: |
|---|---|---|---|---|---|---|
| B Enkeboll | 5/24/89; 1608 | FED. EXP. | | | | Federal Express |
| Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | |
| | | | | | | BL/Airbill Number: 4518273281 |
| Relinquished By: (Signature) FED. EXP. | Date/Time: 5/25/89 | Received For Laboratory By: (Signature) Rich Marsh | Relinquished By: (Signature) | Date/Time: | Received For Laboratory By: (Signature) | Date: 5/24/89 |

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Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

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# LABORATORY REPORT

FOR

SOUTHERN PACIFIC RAILROAD - HIGH STREET

S8/850/002

| | | | | | | |
|---|---|---|---|---|---|---|
| Job No.: 850.002 | | | RE: SP8030 | | | |
| Sample Date: 5/26/89 | | | P.O. No.: | | | |
| Date Received: 5/30/89 | | | Sampled By: E & E, Inc. | | | |
| Sample Type: Water | | | Delivered By: Federal Express | | | |
| E & E Lab. No. 89- | 40759 | 40760 | 40761 | 40762 | 40763 | |
| Customer No. | A-1 | A-2 | A-3 | B-2 | C-2 | |
| Sample Identity | | | | | | |
| | Results In: mg/L unless noted | | | | | |
| Oil and Grease | 2.3 | 1.4 | 1.6 | 2.8 | 2.4 | |
| Total Recoverable Petroleum Hydrocarbons | <1.0 | 1.4 | <1.0 | 1.5 | <1.0 | |

Analytical References:

"Methods for the Chemical Analysis of Water and Wastes," EPA-600/4-79-020, March 1983.

Supervising Analyst: M. Halm

Date: 7/14/89

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# LABORATORY REPORT

FOR

SOUTHERN PACIFIC RAILROAD - HIGH STREET

S8/850/002.1

| | | | | | | |
|---|---|---|---|---|---|---|
| Job No.: 850.002 | | | RE: SP8030 | | | |
| Sample Date: 5/26/89 | | | P.O. No.: | | | |
| Date Received: 5/30/89 | | | Sampled By: E & E, Inc. | | | |
| Sample Type: Water | | | Delivered By: Federal Express | | | |
| E & E Lab. No. 89- | 40759 | 40760 | 40761 | 40762 | 40763 | |
| Customer No. | A-1 | A-2 | A-3 | B-2 | C-2 | |
| Sample Identity | | | | | | |
| | Results in: mg/L unless noted | | | | | |
| Barium | 0.086 | 0.072 | <0.010 | 0.037 | 0.027 | |
| Hexavalent Chromium | 0.063 | <0.010 | <0.010 | <0.010 | <0.010 | |
| Cobalt | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | |
| Molybdenum | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | |
| Vanadium | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | |

Analytical References:

"Methods for the Chemical Analysis of Water and Wastes," EPA-600/4-79-020, March 1983.

Supervising Analyst: G. Hahn Jr

Date: 7/14/89

ECOLOGY AND ENVIRONMENT'S, INC.
A N A L Y T I C A L  S E R V I C E S  C E N T E R

RESULTS OF WATER ANALYSES
FOR PRIORITY POLLUTANT METALS

(all results in mg/L)

S8/850/002.2

| | E & E Lab. No. 89- | 40759 | 40760 | 40761 | 40762 | 40763 |
|---|---|---|---|---|---|---|
| | Sample Identity | A-1 | A-2 | A-3 | B-2 | C-2 |
| Antimony | | <0.060 | <0.060 | <0.060 | <0.060 | <0.060 |
| Arsenic | | <0.010 | <0.005 | <0.005 | <0.005 | <0.010 |
| Beryllium | | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| Cadmium | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Chromium | | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| Copper | | 0.013 | 0.019 | <0.010 | <0.010 | 0.014 |
| Lead | | 0.030 | 0.024 | <0.005 | 0.006 | 0.019 |
| Mercury | | 0.0012 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Nickel | | 0.018 | <0.015 | <0.015 | <0.015 | <0.015 |
| Selenium | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Silver | | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| Thallium | | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Zinc | | 0.085 | 0.054 | <0.010 | 0.045 | 0.110 |

QUALITY CONTROL FOR PRECISION
RESULTS OF ANALYSIS OF REPLICATE
ANALYSES OF WATER SAMPLES

S8/850/002.3

| Parameter | E & E Laboratory No. 89-40763 | (mg/L) Original Analysis | (mg/L) Replicate Analysis | Relative Percent Difference (RPD) |
|---|---|---|---|---|
| Antimony | | <0.060 | <0.060 | -- |
| Arsenic | | <0.010 | <0.010 | -- |
| Barium | | 0.027 | 0.027 | 0 |
| Beryllium | | <0.002 | <0.002 | -- |
| Cadmium | | <0.005 | <0.005 | -- |
| Chromium | | <0.010 | <0.010 | -- |
| Hexavalent Chromium | | <0.010 | <0.010 | -- |
| Cobalt | | <0.010 | <0.010 | -- |
| Copper | | 0.014 | 0.010 | 33 |
| Lead | | 0.019 | 0.016 | 17 |
| Molybdenum | | <0.010 | <0.010 | -- |
| Nickel | | <0.015 | <0.015 | -- |
| Selenium | | <0.005 | <0.005 | -- |
| Silver | | <0.010 | <0.010 | -- |
| Thallium | | <0.005 | <0.005 | -- |
| Vanadium | | <0.010 | <0.010 | -- |
| Zinc | | 0.110 | 0.061 | 57 |

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED WATER SAMPLES

S8/850/002.4

| Parameter | E & E Laboratory No. 89-40763 | Original Value | Amount Added | Amount Determined | Percent Recovery |
|---|---|---|---|---|---|
| | | (mg/L) | | | |
| Antimony | | <0.060 | 0.50 | 0.436 | 87 |
| Arsenic | | <0.010 | 0.04 | 0.039 | 98 |
| Barium | | 0.027 | 2.0 | 1.85 | 91 |
| Beryllium | | <0.002 | 0.05 | 0.044 | 88 |
| Cadmium | | <0.005 | 0.05 | 0.043 | 86 |
| Chromium | | <0.010 | 0.20 | 0.171 | 86 |
| Hexavalent Chromium | | <0.010 | 1.0 | 0.104 | 104 |
| Cobalt | | <0.010 | 0.50 | 0.448 | 90 |
| Copper | | 0.014 | 0.25 | 0.221 | 83 |
| Lead | | 0.019 | 0.04 | 0.048 | 73 |
| Molybdenum | | <0.010 | 0.50 | 0.454 | 91 |
| Nickel | | <0.015 | 0.50 | 0.439 | 88 |
| Selenium | | <0.005 | 0.01 | 0.006 | 60 |
| Silver | | <0.010 | 0.05 | 0.040 | 80 |
| Thallium | | <0.005 | 0.05 | 0.039 | 78 |
| Vanadium | | <0.010 | 0.50 | 0.450 | 90 |
| Zinc | | 0.110 | 0.50 | 0.498 | 78 |

ECOLOGY AND ENVIRONMENT'S, INC.
A N A L Y T I C A L  S E R V I C E S  C E N T E R

RESULTS OF WATER ANALYSIS FOR PRIORITY POLLUTANT
POLYCHLORINATED BIPHENYLS

(all results in ug/L)

S8/850/002.5

| Compound | E & E Lab. No. 89- | 40759 | 40760 | 40761 | 40762 | 40763 |
|---|---|---|---|---|---|---|
| | Sample Identity | A-1 | A-2 | A-3 | B-2 | C-2 |
| PCB-1242 | | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| PCB-1254 | | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| PCB-1221 | | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| PCB-1232 | | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| PCB-1248 | | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| PCB-1260 | | <0.50 | <0.50 | <0.50 | <0.50 | 1.0 |
| PCB-1016 | | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |

ECOLOGY AND ENVIRONMENT'S, INC.

A N A L Y T I C A L  S E R V I C E S  C E N T E R

RESULTS OF WATER ANALYSIS FOR PRIORITY POLLUTANT
POLYCHLORINATED BIPHENYLS

(all results in ug/L)

S8/850/002.6

| Compound | E & E Lab. No. 89- | Method Blank | | | | |
|---|---|---|---|---|---|---|
| | Sample Identity | | | | | |
| PCB-1242 | | <0.50 | | | | |
| PCB-1254 | | <0.50 | | | | |
| PCB-1221 | | <0.50 | | | | |
| PCB-1232 | | <0.50 | | | | |
| PCB-1248 | | <0.50 | | | | |
| PCB-1260 | | <0.50 | | | | |
| PCB-1016 | | <0.50 | | | | |

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED WATER SAMPLES

S8/850/002.7

| Parameter | E & E Laboratory No. 89-40759 | Original Value | Amount Added | Amount Determined | Percent Recovery |
|---|---|---|---|---|---|
| | | (ug/L) | | | |
| PCB 1242 | | <0.50 | 50 | 19 | 38 |

RESULTS OF WATER ANALYSIS FOR PRIORITY POLLUTANT
PURGEABLE ORGANIC COMPOUNDS AND HSL COMPOUNDS BY GC/MS

(all results in ug/L)

S8/850/002.8

| Compound | E & E Lab. No. 89- | 40759 | 40760 | 40761 | 40762 | 40763 |
|---|---|---|---|---|---|---|
| | Sample Identity | A-1 | A-2 | A-3 | B-2 | C-2 |
| chloromethane | | <10 | <10 | <10 | <10 | <10 |
| bromomethane | | <10 | <10 | <10 | <10 | <10 |
| vinyl chloride | | <10 | <10 | <10 | <10 | <10 |
| chloroethane | | <10 | <10 | <10 | <10 | <10 |
| methylene chloride | | 20 | 18 | 17 | <5* | <5* |
| acetone | | 14 | <10* | <10* | 31 | 55 |
| carbon disulfide | | <5 | <5 | <5 | <5 | <5 |
| 1,1-dichloroethene | | <5 | <5 | <5 | <5 | <5 |
| 1,1-dichloroethane | | <5 | <5 | <5 | <5 | <5 |
| trans-1,2-dichloroethene | | <5 | <5 | <5 | <5 | <5 |
| chloroform | | <5 | <5 | <5 | <5 | <5 |
| 1,2-dichloroethane | | <5 | <5 | <5 | <5 | <5 |
| 2-butanone | | <10 | <10 | <10 | <10 | <10 |
| 1,1,1-trichloroethane | | <5 | <5 | <5 | <5 | <5 |
| carbon tetrachloride | | <5 | <5 | <5 | <5 | <5 |
| vinyl acetate | | <10 | <10 | <10 | <10 | <10 |
| bromodichloromethane | | <5 | <5 | <5 | <5 | <5 |
| 1,2-dichloropropane | | <5 | <5 | <5 | <5 | <5 |
| trans-1,3-dichloropropene | | <5 | <5 | <5 | <5 | <5 |
| trichloroethene | | <5 | <5 | <5 | <5 | <5 |
| dibromochloromethane | | <5 | <5 | <5 | <5 | <5 |
| 1,1,2-trichloroethane | | <5 | <5 | <5 | <5 | <5 |
| benzene | | <5 | <5 | <5 | <5 | <5 |
| cis-1,3-dichloropropene | | <5 | <5 | <5 | <5 | <5 |
| 2-chloroethylvinyl ether | | <10 | <10 | <10 | <10 | <10 |
| bromoform | | <5 | <5 | <5 | <5 | <5 |
| 4-methyl-2-pentanone | | <10 | <10 | <10 | <10 | <10 |
| 2-hexanone | | <10 | <10 | <10 | <10 | <10 |
| tetrachloroethene | | <5 | <5 | <5 | <5 | <5 |
| 1,1,2,2-tetrachloroethane | | <5 | <5 | <5 | <5 | <5 |
| toluene | | <5 | <5 | <5 | <5 | <5 |
| chlorobenzene | | <5 | <5 | <5 | <5 | <5 |
| ethylbenzene | | <5 | <5 | <5 | <5 | <5 |
| styrene | | <5 | <5 | <5 | <5 | <5 |
| total xylenes | | <5 | <5 | <5 | <5 | <5 |

*Compound present below measurable detection limit.

RESULTS OF WATER ANALYSIS FOR PRIORITY POLLUTANT
PURGEABLE ORGANIC COMPOUNDS AND HSL COMPOUNDS BY GC/MS

(all results in ug/L)

S8/850/002.9

| Compound | E & E Lab. No. 89- | Method Blank 1 | Method Blank 2 | | | |
|---|---|---|---|---|---|---|
| | Sample Identity | | | | | |
| chloromethane | | <10 | <10 | | | |
| bromomethane | | <10 | <10 | | | |
| vinyl chloride | | <10 | <10 | | | |
| chloroethane | | <10 | <10 | | | |
| methylene chloride | | <5* | 7 | | | |
| acetone | | 11 | <10 | | | |
| carbon disulfide | | <5 | <5 | | | |
| 1,1-dichloroethene | | <5 | <5 | | | |
| 1,1-dichloroethane | | <5 | <5 | | | |
| trans-1,2-dichloroethene | | <5 | <5 | | | |
| chloroform | | <5 | <5 | | | |
| 1,2-dichloroethane | | <5 | <5 | | | |
| 2-butanone | | <10 | <10 | | | |
| 1,1,1-trichloroethane | | <5 | <5 | | | |
| carbon tetrachloride | | <5 | <5 | | | |
| vinyl acetate | | <10 | <10 | | | |
| bromodichloromethane | | <5 | <5 | | | |
| 1,2-dichloropropane | | <5 | <5 | | | |
| trans-1,3-dichloropropene | | <5 | <5 | | | |
| trichloroethene | | <5 | <5 | | | |
| dibromochloromethane | | <5 | <5 | | | |
| 1,1,2-trichloroethane | | <5 | <5 | | | |
| benzene | | <5 | <5 | | | |
| cis-1,3-dichloropropene | | <5 | <5 | | | |
| 2-chloroethylvinyl ether | | <10 | <10 | | | |
| bromoform | | <5 | <5 | | | |
| 4-methyl-2-pentanone | | <10 | <10 | | | |
| 2-hexanone | | <10 | <10 | | | |
| tetrachloroethene | | <5 | <5 | | | |
| 1,1,2,2-tetrachloroethane | | <5 | <5 | | | |
| toluene | | <5 | <5 | | | |
| chlorobenzene | | <5 | <5 | | | |
| ethylbenzene | | <5 | <5 | | | |
| styrene | | <5 | <5 | | | |
| total xylenes | | <5 | <5 | | | |

*Compound present below measurable detection limit.

QUALITY CONTROL FOR ACCURACY: PERCENT
RECOVERY OF SURROGATE SPIKES

S8/850/002.10

| Compound | E & E Laboratory No. 89- | Amount Added (ug/L) | Amount Determined (ug/L) | Percent Recovery |
|---|---|---|---|---|
| 1,2-dichloroethane-D4 | 40759 | 50 | 45 | 90 |
| | 40760 | 50 | 43 | 86 |
| | 40761 | 50 | 42 | 84 |
| | 40762 | 50 | 50 | 100 |
| | 40763 | 50 | 48 | 96 |
| | Method Blank 1 | 50 | 47 | 94 |
| | Method Blank 2 | 50 | 48 | 96 |
| toluene-D8 | 40759 | 50 | 54 | 108 |
| | 40760 | 50 | 50 | 100 |
| | 40761 | 50 | 50 | 100 |
| | 40762 | 50 | 54 | 108 |
| | 40763 | 50 | 48 | 96 |
| | Method Blank 1 | 50 | 51 | 102 |
| | Method Blank 2 | 50 | 51 | 102 |
| 4-bromofluorobenzene | 40759 | 50 | 44 | 88 |
| | 40760 | 50 | 44 | 88 |
| | 40761 | 50 | 44 | 88 |
| | 40762 | 50 | 53 | 106 |
| | 40763 | 50 | 49 | 98 |
| | Method Blank 1 | 50 | 50 | 100 |
| | Method Blank 2 | 50 | 50 | 100 |

These recoveries are acceptable to E & E, Inc. guidelines.

QUALITY CONTROL FOR PRECISION
RESULTS OF ANALYSIS OF REPLICATE
ANALYSES OF WATER SAMPLES

S8/850/002.11

| Compound | E & E Lab. No. 89-40761 | ug/L | | Relative Percent Difference (RPD) |
|---|---|---|---|---|
| | | Original Analysis | Replicate Analysis | |
| chloromethane | | <10 | <10 | -- |
| bromomethane | | <10 | <10 | -- |
| vinyl chloride | | <10 | <10 | -- |
| chloroethane | | <10 | <10 | -- |
| methylene chloride | | 17 | 20 | 16 |
| acetone | | <10* | <10* | -- |
| carbon disulfide | | <5 | <5 | -- |
| 1,1-dichloroethene | | <5 | <5 | -- |
| 1,1-dichloroethane | | <5 | <5 | -- |
| trans-1,2-dichloroethene | | <5 | <5 | -- |
| chloroform | | <5 | <5 | -- |
| 1,2-dichloroethane | | <5 | <5 | -- |
| 2-butanone | | <10 | <10 | -- |
| 1,1,1-trichloroethane | | <5 | <5 | -- |
| carbon tetrachloride | | <5 | <5 | -- |
| vinyl acetate | | <10 | <10 | -- |
| bromodichloromethane | | <5 | <5 | -- |
| 1,2-dichloropropane | | <5 | <5 | -- |
| trans-1,3-dichloropropene | | <5 | <5 | -- |
| trichloroethene | | <5 | <5 | -- |
| dibromochloromethane | | <5 | <5 | -- |
| 1,1,2-trichloroethane | | <5 | <5 | -- |
| benzene | | <5 | <5 | -- |
| cis-1,3-dichloropropene | | <5 | <5 | -- |
| 2-chloroethylvinyl ether | | <10 | <10 | -- |
| bromoform | | <5 | <5 | -- |
| 4-methyl-2-pentanone | | <10 | <10 | -- |
| 2-hexanone | | <10 | <10 | -- |
| tetrachloroethene | | <5 | <5 | -- |
| 1,1,2,2-tetrachloroethane | | <5 | <5 | -- |
| toluene | | <5 | <5 | -- |
| chlorobenzene | | <5 | <5 | -- |
| ethylbenzene | | <5 | <5 | -- |
| styrene | | <5 | <5 | -- |
| total xylenes | | <5 | <5 | -- |

**ecology and environment, inc.** 850.002

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## CHAIN-OF-CUSTODY RECORD

Page 1 of 1

| Project No.: | Project Name: | Project Manager: |
|---|---|---|
| SP-8030 | Southern Pacific High Street | Colin May |
| **Samplers: (Signatures)** | | **Field Team Leader:** |
| Bob Enkeboll | | Bob Enkeboll |

| STATION NUMBER | DATE | TIME | SAMPLE TYPE COMP | SAMPLE TYPE GRAB | SAMPLE TYPE AIR | SAMPLE INFORMATION / EXPECTED COMPOUNDS (Concentration)* | STATION LOCATION | NUMBER OF CONTAINERS | Purgeable Organics | PCBs | Metals | Total Oil & Grease | Total Petroleum Hydrocarbons | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A-1 | 5/26 | | | X | | Low | A-1 | 5 | X | X | X | X | X | |
| B-2 | 5/26 | | | X | | Low | B-2 | 5 | X | X | X | X | X | |

| Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Ship Via: |
|---|---|---|---|---|---|---|
| Bob Enkeboll | 5/26/89 4:30 | | | | | Federal Express |
| Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | BL/Airbill Number: 4518273270 |
| Relinquished By: (Signature) F.E. Express | Date/Time: 5-27-89/0830 | Received For Laboratory By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received For Laboratory By: (Signature) | Date: 5/26/89 |

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Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

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## CHAIN-OF-CUSTODY RECORD



| Project No.: | Project Name: | Project Manager: |
|---|---|---|
| SP8030 | Southern Pacific High Street | Colin Moy |

Samplers: (Signatures) Bob Enkeboll

Field Team Leader: Bob Enkeboll

| STATION NUMBER | DATE | TIME | SAMPLE TYPE: COMP | GRAB | AIR | SAMPLE INFORMATION: EXPECTED COMPOUNDS (Concentration)* | STATION LOCATION | NUMBER OF CONTAINERS | Purgeable Organics | PCBs | Metals | Total Oil & Grease | Total Petroleum Hydrocarbons | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~A-1~~ | 5/26 | | | X | | low | ~~A-1~~ | ~~5~~ | X | X | X | X | X | Note TPH denotes: Total Petroleum Hydrocarbons |
| A-2 | ↓ | | | X | | ↓ | A-2 | 5 | X | X | X | X | X | |
| A-3 | | | | X | | | A-3 | 5 | X | X | X | X | X | |
| ~~B-2~~ | | | | X | | | ~~B-2~~ | ~~5~~ | X | X | X | X | X | |
| C-2 | | | | X | | | C-2 | 5 | X | X | X | X | X | |

| Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Ship Via: |
|---|---|---|---|---|---|---|
| Bob Enkeboll | 5/26/89 4:30 | | | | | Federal Express |
| Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | BL/Airbill Number: 4518273270 |
| Relinquished By: (Signature) Fed. Express | Date/Time: 5-27-89 0930 | Received For Laboratory By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received For Laboratory By: (Signature) | Date: 5/26/89 |

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# LABORATORY REPORT

FOR

SOUTHERN PACIFIC TRANSPORT

S10/927/001

| | | | | | | |
|---|---|---|---|---|---|---|
| Job No.: 927.001 | | | RE: SP 8050 | | | |
| Sample Date: 7/25, 28/89 | | | P.O. No.: | | | |
| Date Received: 7/29/89 | | | Sampled By: E & E, Inc. | | | |
| Sample Type: Solid | | | Delivered By: Federal Express | | | |
| E & E Lab. No. 89- | 45954 | 45955 | 45956 | 45957 | 45958 | 45959 |
| Customer No. | B-1A | B-2A | B-3A | C-1A | C-2A | C-3A |
| Sample Identity | | | | | | |
| | Results in: mg/kg dry weight unless noted | | | | | |
| Total Solids, % | 82 | 89 | 89 | 82 | 83 | 94 |
| Total Recoverable Petroleum Hydrocarbons | NR | NR | NR | <6.1 | 140 | 92 |

NR: Analysis not requested

Analytical References:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Second Edition, U.S. EPA, 1982.

Supervising Analyst: [signature]

Date: 8/17/89

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# LABORATORY REPORT

FOR

SOUTHERN PACIFIC TRANSPORT

S10/927/001.1

| | | | | | | |
|---|---|---|---|---|---|---|
| Job No.: 927.001 | | | RE: SP 8050 | | | |
| Sample Date: 7/28/89 | | | P.O. No.: | | | |
| Date Received: 7/29/89 | | | Sampled By: E & E, Inc. | | | |
| Sample Type: Solid | | | Delivered By: Federal Express | | | |
| E & E Lab. No. 89- | 45960 | 45961 | | | | |
| Customer No. | C-4A | C-21A | | | | |
| Sample Identity | | | | | | |
| | Results in: mg/kg dry weight unless noted | | | | | |
| Total Solids, % | 78 | 86 | | | | |
| Total Recoverable Petroleum Hydrocarbons | 13 | 900 | | | | |

Analytical References:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Second "Edition, U.S. EPA, 1982.

Supervising Analyst: Gary Hahn

Date: 8/17/89

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# LABORATORY REPORT

FOR

SOUTHERN PACIFIC TRANSPORT

S10/927/001.2

| | | | | | | |
|---|---|---|---|---|---|---|
| Job No.: 927.001 | | | RE: SP 8050 | | | |
| Sample Date: 7/25, 28/89 | | | P.O. No.: | | | |
| Date Received: 7/29/89 | | | Sampled By: E & E, Inc. | | | |
| Sample Type: Solid | | | Delivered By: Federal Express | | | |
| E & E Lab. No. 89- | 45954 | 45955 | 45956 | 45957 | 45958 | 45959 |
| Customer No. | B-1A | B-2A | B-3A | C-1A | C-2A | C-3A |
| Sample Identity | | | | | | |
| | Results in: mg/kg dry weight unless noted | | | | | |
| Barium | 552 | 232 | 186 | 888 | 399 | 119 |
| Cadmium | NR | NR | NR | 1.39 | 4.48 | 0.780 |
| Copper | 235 | 127 | 51.7 | NR | NR | NR |
| Lead | 434 | 478 | 92.7 | 599 | 365 | 76.0 |
| Nickel | 148 | 33.9 | 18.3 | 93.4 | 103 | 66.2 |
| Zinc | 2,420 | 3,800 | 200 | NR | NR | NR |

NR: Analysis not requested

Analytical References:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Second Edition, U.S. EPA, 1982.

Supervising Analyst: [signature]

Date: 8/17/89

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# LABORATORY REPORT

FOR

SOUTHERN PACIFIC TRANSPORT

S10/927/001.3

| | | | | | | |
|---|---|---|---|---|---|---|
| Job No.: 927.001 | | | RE: SP 8050 | | | |
| Sample Date: 7/28/89 | | | P.O. No.: | | | |
| Date Received: 7/29/89 | | | Sampled By: E & E, Inc. | | | |
| Sample Type: Solid | | | Delivered By: Federal Express | | | |
| E & E Lab. No. 89- | 45960 | 45961 | | | | |
| Customer No. | C-4A | C-21A | | | | |
| Sample Identity | | | | | | |
| | Results in: mg/kg dry weight unless noted | | | | | |
| Barium | 1,220 | 391 | | | | |
| Cadmium | 2.26 | 6.52 | | | | |
| Lead | 240 | 1,290 | | | | |
| Nickel | 231 | 101 | | | | |

Analytical References:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Second Edition, U.S. EPA, 1982.

Supervising Analyst: [signature]

Date: 8/17/89

recycled paper

QUALITY CONTROL FOR PRECISION
RESULTS OF ANALYSIS OF REPLICATE
ANALYSES OF SOLID SAMPLES

S10/927/001.4

| Parameter | E & E Laboratory No. 89- | (mg/kg) | | Relative Percent Difference (RPD) |
|---|---|---|---|---|
| | | Original Analysis | Replicate Analysis | |
| Total Solids, % | 45960 | 78 | 77 | 1.3 |
| | 45958 | 83 | 82 | 1.2 |
| Barium | 45961 | 391 | 207 | 62 |
| Cadmium | 45961 | 6.52 | 3.85 | 51 |
| Lead | 45961 | 1,290 | 686 | 61 |
| Nickel | 45961 | 101 | 103 | 2.0 |

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A N A L Y T I C A L  S E R V I C E S  C E N T E R

RESULTS OF SOIL ANALYSIS FOR PRIORITY POLLUTANT
POLYCHLORINATED BIPHENYLS

(all results in mg/kg dry weight)

S10/927/001.5

| Compound | E & E Lab. No. 89-- | 45957 | 45958 | 45959 | 45960 | 45961 |
|---|---|---|---|---|---|---|
| | Sample Identity | C-1A | C-2A | C-3A | C-4A | C-21A |
| PCB-1242 | | <0.024 | <0.024 | <0.021 | <0.205 | <0.023 |
| PCB-1254 | | <0.024 | <0.024 | <0.021 | 3.6 | <0.023 |
| PCB-1221 | | <0.024 | <0.024 | <0.021 | <0.205 | <0.023 |
| PCB-1232 | | <0.024 | <0.024 | <0.021 | <0.205 | <0.023 |
| PCB-1248 | | <0.024 | <0.024 | <0.021 | <0.205 | <0.023 |
| PCB-1260 | | 0.024 | 0.22 | <0.021 | <0.205 | 0.53 |
| PCB-1016 | | <0.024 | <0.024 | <0.021 | <0.205 | <0.023 |

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A N A L Y T I C A L  S E R V I C E S  C E N T E R

RESULTS OF SOIL ANALYSIS FOR PRIORITY POLLUTANT
POLYCHLORINATED BIPHENYLS

(all results in mg/kg)

S10/927/001.6

| Compound | E & E Lab. No. 89-- | Method Blank | | | | |
|---|---|---|---|---|---|---|
| | Sample Identity | | | | | |
| PCB-1242 | | <0.02 | | | | |
| PCB-1254 | | <0.02 | | | | |
| PCB-1221 | | <0.02 | | | | |
| PCB-1232 | | <0.02 | | | | |
| PCB-1248 | | <0.02 | | | | |
| PCB-1260 | | <0.02 | | | | |
| PCB-1016 | | <0.02 | | | | |

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A N A L Y T I C A L  S E R V I C E S  C E N T E R

RESULTS OF WATER ANALYSIS FOR PRIORITY POLLUTANT
POLYCHLORINATED BIPHENYLS

(all results in ug/L)

S10/927/001.7

| Compound | E & E Lab. No. 89- | 45962 | 45963 | Method Blank | | |
|---|---|---|---|---|---|---|
| | Sample Identity | C-2 | C-21 | | | |
| PCB-1242 | | <0.50 | <0.50 | <0.50 | | |
| PCB-1254 | | <0.50 | <0.50 | <0.50 | | |
| PCB-1221 | | <0.50 | <0.50 | <0.50 | | |
| PCB-1232 | | <0.50 | <0.50 | <0.50 | | |
| PCB-1248 | | <0.50 | <0.50 | <0.50 | | |
| PCB-1260 | | 0.61 | 0.78 | <0.50 | | |
| PCB-1016 | | <0.50 | <0.50 | <0.50 | | |

QUALITY CONTROL FOR ACCURACY AND PRECISION:
PERCENT RECOVERY AND RELATIVE PERCENT DIFFERENCE (RPD)
OF SOIL MATRIX SPIKE (MS) AND MATRIX SPIKE DUPLICATE (MSD)
(Sample #45960)

S10/927/001.8

| Compound | Original Result | Amount Added | Amount Determined | | Percent Recovery | | RPD |
|---|---|---|---|---|---|---|---|
| | | | MS | MSD | MS | MSD | |
| PCB-1242 | <0.205 | 1.7 | 1.8 | 1.5 | 106 | 88 | 18 |

11004

927

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A-27

# CHAIN-OF-CUSTODY RECORD

Page 1 of 1

| Project No.: | Project Name: | Project Manager: |
|---|---|---|
| SP8050 | SPTCo. - High Street | C. MOY |

Samplers: (Signatures) Colin S. Moy, Denise Sanguay

Field Team Leader: C. MOY

| STATION NUMBER | DATE | TIME | SAMPLE TYPE: GRAB | SAMPLE TYPE: AIR | SAMPLE INFORMATION: EXPECTED COMPOUNDS (Concentration)* | STATION LOCATION | NUMBER OF CONTAINERS | Barium | Copper | Nickel | Lead | Zinc | Cadmium | TPH (Reversible) | PCBs | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B-1A | 7/25/89 | 1155 | X | | Low | 1.5 feet | 1 | X | X | X | X | X | | | | |
| B-2A | 7/28/89 | 1015 | X | | | 2.5 feet | 1 | ↓ | ↓ | ↓ | ↓ | ↓ | | | | |
| B-3A | ↓ | 1023 | X | | | 2.5 feet | 1 | ↓ | ↓ | ↓ | ↓ | ↓ | | | | |
| C-1A | | 1035 | X | | | 3 feet | 1 | X | | X | X | | X | X | X | |
| C-2A | | 1100 | X | | | 3 feet | 1 | ↓ | | ↓ | ↓ | | ↓ | ↓ | ↓ | |
| C-3A | | 1053 | X | | | 2 feet | 1 | ↓ | | ↓ | ↓ | | ↓ | ↓ | ↓ | |
| C-4A | | 1045 | X | | | 3 feet | 1 | ↓ | | ↓ | ↓ | | ↓ | ↓ | ↓ | |
| C-21A | | 1105 | X | | | 3 feet | 1 | ↓ | | ↓ | ↓ | | ↓ | ↓ | ↓ | |
| C-2 | | 1130 | X | | water; 1 ppb PCBs | | 2 | | | | | | | | X | |
| C-21 | ↓ | 1130 | X | | " " " | | 2 | | | | | | | | X | |

Note: flush TAT noted on bottle by cooler. METALS 3 DAYS TPH 7 DAYS PCBs 7/29/89

| Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Ship Via: |
|---|---|---|---|---|---|---|
| Colin S. Moy | 1500 / 7-28-89 | FEDEX | | | | FEDEX - Sat. Delivery |
| Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received By: (Signature) | BL/Airbill Number: 9870772284 |
| Relinquished By: (Signature) | Date/Time: | Received For Laboratory By: (Signature) | Relinquished By: (Signature) | Date/Time: | Received For Laboratory By: (Signature) | Date: 7/28/89 |

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

*See CONCENTRATION RANGE on back of form.

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# LABORATORY REPORT

FOR

SOUTHERN PACIFIC TRANSPORT

| | | | |
|---|---|---|---|
| JOB NO: | 927.002 | P.O. NO: | |
| SAMPLE DATE: | 07/28/89 | RE: | SP8050 |
| DATE RECEIVED: | 07/29/89 | SAMPLED BY: | E & E, Inc. |
| SAMPLE TYPE: | Solid | DELIVERED BY: | Federal Express |

| E & E LAB NO. 89- | 46418 | 46419 |
|---|---|---|
| CLIENT SAMPLE ID- | B-2A 45955 | C-3A 45959 |

Results in: mg/L unless noted

Results of Chemical Analysis of Extracts from California WET Test

| | | |
|---|---|---|
| Lead | 6.06 | 2.16 |
| Zinc | 268 | NR |

NR: Analysis not requested

Analytical Reference: California Administrative Code, Title 22, Chapter 30, "Minimum Standards for Management of Hazardous and Extremely Hazardous Waste", 1984.

Supervising Analyst: Gary Johnson

Date: 8/18/89

CERTIFIED

TO: Madulla Logan, Alameda County Hazardous Materials Unit
Richard Hiett, Regional Water Quality Control Board
John Bacon, owner of 750 High Street, Oakland

FROM: M. Papineau on behalf of John Bacon

DATE: November 8, 1993

SUBJECT: 750 High Street, Oakland, California (Economy Lumber)

This note is to confirm our meeting appointment for Tuesday November 9, 1993 at 2 P.M. at the Alameda County Health Department office at 80 Swan Way in Oakland. The purpose of the meeting is to review the status of environmental investigation and remediation at 750 High Street and consideration case closure.

**Certified Engineering & Testing® Company**

Environmental Consultants & Laboratory Services

7000 Marina Boulevard
4th Floor
Brisbane, CA 94005
415-742-9500
Fax 415-742-1033

Boston
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A SHB GROUP COMPANY

CERTIFIED
IN CALIFORNIA FORMERLY
earth metrics
7000 MARINA BOULEVARD, 4TH FLOOR, BRISBANE, CA 94005 FAX 415-742-1033

TO: MS. MADULLA LOGAN DATE: 11/8/93

COMPANY: ALAMEDA COUNTY HAZARDOUS MATERIALS

FAX NUMBER: (510) 568-3706 569 4757

FROM: M. PAPINEAU

CONFIDENTIAL: ☐ YES ☒ NO

TOTAL PAGES SENT (INCLUDING THIS PAGE): 4

REGARDING: Meeting 11/9/93 at Alameda County 80 Swan Way 2 P.M.

IF THERE ARE ANY PROBLEMS WITH RECEIPT OF THIS TELEFAX,
PLEASE CALL 415-742-9900

CHRONOLOGY

750 High Street, Oakland, California

| Date | Index | Event/Activity |
|---|---|---|
| 5/26/89 | | Ground water sampling event #1 by Ecology & Environment (E & E) on behalf of Southern Pacific Transportation Company (SPTC) |
| 7/28/89 | | Ground-water sampling event #2 by E & E for SPTC |
| 12/4/89 | | Ground-water sampling event #3 by E & E for SPTC |
| 4/30/90 | 1 | First day of soil excavation by IT Corporation |
| 5/8/90 | 1 | Second day of soil excavation |
| 6/12/90 | 1 | Off-haul of 161 cubic yards of petroleum-affected soil from 744 High Street |
| 6/25/90 | | Ground-water sampling event #4 by E & E for SPTC |
| 7/16/90 | 2 | Report of Post-Excavation Sampling by E & E for SPTC |
| 9/6/90 | 3 | Ground-water sampling event # 5 by E & E for SPTC |
| 10/4/90 | 3 | Report of Ground-Water Sampling Event #5 by E & E |
| 2/5/92 | 4 | Letter to Mr. Bacon from Lester Feldman |
| 4/8/92 | 5 | Ground-water sampling event #6 for well C-5 only by Earth Metrics Incorporated for Mr. John Bacon |
| 6/16/92 | 6 | Level Two Environmental Site Assessment by Certified Engineering & Testing Company, Inc. (CERTIFIED) for John Bacon |
| 5/18/93 | 7 | Revised summary letter and request for review of same by Mr. Britt Johnson (Alameda County Hazardous Materials Unit by CERTIFIED on behalf of John Bacon |

CONTINUED ON PAGE TWO

| Date | Index | Event/Activity |
|---|---|---|
| 8/19/93 | 8 | Ground-water sampling event #7 by CERTIFIED for Mr. John Bacon |
| 9/3/93 | 8 | Report of Ground-Water Sampling Event #6 by CERTIFIED |

END