1689-019-00

SITE INVESTIGATION REPORT - AREA 5

Department of Transportation
T.O. Number : 04-192201-01
Highway 880, Cypress Reconstruction
Oakland, California

August 1992

Prepared for :

Department of Transportation
District 4
San Francisco, California

Geo/Resource Consultants, Inc.

GEOLOGISTS / ENGINEERS / ENVIRONMENTAL SCIENTISTS
505 BEACH STREET, SAN FRANCISCO, CALIFORNIA 94133

Vinyl (PVC). The annular space was filled with No. 2/12 RMW sand to a depth of 3 feet bgs and bentonite pellets were placed to a depth of approximately 1.5 feet bgs. The remainder of the annular space was filled with cement grout and an underground locking monument well box was cemented into place.

The monitoring wells were developed on June 30, 1992 using the surge and bail technique. Approximately 50 gallons of water were purged from each well during development. Well development logs are included in Appendix C.

The monitoring wells were sampled on July 1, 1992. Prior to sampling, the water level was measured and each well was subsequently purged of 15 gallons of water. The ground-water parameters of pH, electrical conductivity, and temperature were measured on samples obtained during purging. Water sampling logs are included in Appendix C.

Development water and purge water were disposed of in 55-gallon U.S. DOT approved drums.

2.2 THOMAS A. SHORT COMPANY

On June 23 and 25, 1992, four soil borings (TSC/B-1, TSC/B-2, TSC/H-1, and TSC/W-1 were drilled near the existing USTs using a drill rig equipped with 8-inch diameter hollow-stem augers. In addition, two borings (TSA-1 and TSA-2) were drilled using a hand auger near the existing sump. The locations of the borings are shown in Figure 3. Borings TSC/B-1 and TSC/B-2 were terminated at 14 feet bgs. Boring TSC/H-1 was terminated at 18 feet bgs and boring TSC/W-1 was terminated at 20 feet bgs. Borings TSA-1 and TSA-2 were terminated at 1.8 and 3.5 feet bgs, respectively. Soil samples were collected generally at 2.0, 5.0, 8.0, and 14-feet bgs for borings TSC/B-1, TSC/B-2, TSC/H-1, and TSC/W-1. A soil sample was collected at 1 foot bgs in TSA-1 and at 1.0 and 3.0 feet bgs in TSA-2. Specific sampling locations are depicted in the lithologic logs included in Appendix B.

One ground-water sample was collected from boring TSC/H-1 at a depth of approximately 18 feet using the "Hydropunch" technique.

Upon completion of the soil and ground-water sampling, all borings, with the exception of TSC/W-1, were backfilled with cement grout and the cuttings were disposed of in 55-gallon U.S. DOT approved drums.

A 2-inch-diameter monitoring well was constructed at boring TSC/W-1. The well was screened between 5 feet and 20 feet bgs and was constructed of 0.020-inch slotted Polychloride Vinyl (PVC). The annular space was filled with No. 3 Monterey sand to a depth of 3 feet bgs and bentonite pellets were placed to a depth of approximately 1.5 feet bgs. The remainder of the annular space was filled with cement grout and an underground locking monument well box was cemented into place.

The monitoring well was developed on June 30, 1992, using the surge and bail technique. Approximately 50 gallons of water were purged from the well during development. Well development logs are included in Appendix C.

The monitoring well was sampled on July 1, 1992. Prior to sampling, the water level was measured and the well was subsequently purged of 15 gallons of water. Ground-water parameters including pH, electrical conductivity, and temperature were measured during purging. Water sampling logs are included in Appendix C.

Development water and purge water were disposed of in 55-gallon U.S. DOT approved drums.

2.3 AT & SF RAILROAD PROPERTY

On June 24 1992, nine soil borings (ATSF/B-1, ATSF/B-2, ATSF/B-3, ATSF/B-4, ATSF/B-5, ATSF/B-6, ATSF/B-7, ATSF/B-8, and ATSF/B-9) were drilled using a drill rig equipped with 8-inch diameter, hollow-stem augers. The locations of the borings are shown in Figure 4. Borings were generally terminated at 5.0 feet bgs. Soil samples were generally collected at 1.5, 3.0, and 5.0 feet bgs. Specific sampling locations are depicted in lithologic logs included in Appendix B.

3.0 FINDINGS

This section describes subsurface conditions encountered during the field investigation, as well as analytical findings.

3.1 SUBSURFACE CONDITIONS

Subsurface conditions at each site were evaluated from visual observations, lithologic logs, water level measurements and photoionization detector (PID) readings from the on-site HnU meter. These data are included in Appendices B and C.

3.1.1 Sutta Recycling

The area investigated at Sutta is underlain by light brown to gray silty sands, sands, silt/sand/gravel mixtures, silty clay, and sandy silty clay (See Appendix B). Clay-dominated materials were generally encountered at depths greater than 5 feet. Material overlying the clay was interpreted to be fill.

Ground water, as estimated by apparent saturated auger cuttings, was encountered at approximately 5 feet below ground surface. Water level readings collected on July 2, 1992, confirmed groundwater levels at 2.9 feet bgs at SR/W-1 and 14.0 at SR/W-2. These two readings were taken twice and the reason for the variance is not known.

HnU readings were obtained from each of the soil samples collected. Hydrocarbons vapors were measured at levels of 10 ppm or less for each sample tested.

3.1.2 Thomas A. Short Company

The area investigated at Thomas Short is underlain predominantly by light brown to black silty clay with the exception of TSC/A-1 and TSC/A-2 where gravelly sandy clay was encountered from the surface to the termination depth (See Appendix B). Soils contained rock fragments and debris at each boring location. The

presence of the rock fragments and debris at depth suggests that the material within the area of investigation is fill.

Wet soil conditions were generally observed at approximately 7 feet bgs. Free-standing ground water was measured in TSC/W-1 on July 1, 1992, at 12.7 feet bgs. Saturated soils were not observed in borings TSC/A-1 and TSC/A-2.

HnU readings were less than 10 ppm for all samples collected from TSC/W-1, TSC/H-1, TSC/A-1, and TSC/A-2. HnU readings peaked at 180 and 200 ppm for soil samples from TSC/B-1 and TSC/B-2, respectively. These levels were from soils collected at a depth of 14 feet bgs.

3.1.3 AT & SF Railroad

The area investigated at the AT & SF site is underlain by light brown to black gravel, sand, silty sand, and silty clay (See Appendix B). The majority of the soils encountered was interpreted to be fill.

During drilling, free-standing ground water was observed at approximately 4 to 5 feet bgs.

HnU readings indicated no levels above 0 ppm for all of samples screened.

3.2 ANALYTICAL FINDINGS

Soil and ground-water samples were submitted to CKY, Inc. (CKY) for chemical analyses based on site background and suspected contaminants. The analytical results are summarized on Tables 1, 2, and 3 and are included in Appendix D. The findings are briefly described below.

3.2.1 Sutta Recycling

Soil borings SR/B-1, SR/B-2, SR/B-3, SR/B-4, SR/W-1, and SR/W-2 were drilled to depths ranging from 4.5 to 18.0 feet bgs. Two to three soil samples were collected from the vadose zone at each boring location for a total of sixteen samples. Soil samples

Ground Water

Ground-water samples collected from SR/W-1 and SR/W-2 revealed some metals above State Action levels and MCLs but these samples were not filtered prior to analysis and probably represent metals within suspended solids rather than dissolved metals. Analysis for TRPH and volatile organics for SR/W-1 and SR/W-2, respectively, revealed concentrations at or below detection limits.

3.2.2 Thomas A. Short Company

Soil borings TSC/B-1, TSC/B-2, TSC/H-1, and TSC/W-1 were drilled to depths ranging from 14 to 20 feet bgs. Hand-auger borings TSA-1 and TSA-2 were completed to depths ranging from 1.8 to 3.5 feet bgs. One to three soil samples were collected from the unsaturated zone at each boring location for a total of fifteen samples. Soil samples from TSA-1 and TSA-2 were chemically analyzed for TRPH (EPA Method 418.1), Title 26 metals (EPA method 6010), and volatile organic compounds (EPA Method 8240). All other soil samples were chemically analyzed for TPH-G and TPH-D (8015 modified), Title 26 metals (EPA Method 6010), and BTEX (EPA Method 8020).

A "grab" ground-water sample was collected from TSC/H-1 and a ground-water sample was collected from monitoring well TSC/W-1 (for a total of two samples). The ground-water samples were chemically analyzed for TPH-G, TPH-D and BTEX.

Soils

Concentrations of TRPH and volatile organics were detected in all the hand-auger soil samples. The most significant concentration of TRPH and volatile organics was found to be associated with the sample collected from TSA-1 at 1 foot bgs (6,600 mg/kg TRPH, 200 microgram/kilogram (ug/kg) acetone; 63 ug/kg benzene; 220 ug/kg chlorobenzene, 25 ug/kg ethyl benzene; 14 ug/kg toluene, and 55 ug/kg xylene)

TPH-G , TPH-D, and/or BTEX were detected in at least one soil boring sample from all of the soil borings. The most significant hydrocarbon concentrations were detected as TPH-G at 5 feet in TSC/B-1 (1,500 mg/kg), at 2 feet in TSC/B-2 (14,000 mg/kg) and at 13.5 feet in TSC/B-2 (1,700 mg/kg). Relatively high BTEX concentrations were also present in these samples. Additionally, TPH-D was detected at 510 mg/kg and 700 mg/kg in TSC/B-1 at 5 feet bgs and TSC/B-2 at 5 feet bgs, respectively.

In general, metals were detected within background concentrations expected within an alluvial environment. However, the sample collected from 1 foot at TSC/A-1 contained 2,400 mg/kg. Several sample results exceeded ten times the STLC including copper in TSA-1 at 1 foot (560 mg/kg; STLC of 25 mg/kg) and lead at TSA-2 at 3 feet (210 mg/kg, STLC of 5 mg/l). Other elevated results include barium in TSA-1 at 1 foot at a concentration of 980 mg/kg (STLC 100 mg/kg) and cadmium in TSA-1 at 1 foot at a concentration of 9.2 mg/kg (STLC 1.0 mg/kg). Based on the aforementioned concentrations of barium, cadmium, lead, and copper, the corresponding samples were re-submitted for STLC analysis. Test results showed that lead exceeded the minimum STLC limit in the soil sample from TSA-2 at 3 feet with a concentration limit of 21 mg/l. All the other re-submitted test samples showed metal concentrations below STLC.

Ground Water

A "grab" ground-water sample collected from "Hydropunch" TSC/H-1 contained 16 mg/l TPH-G, 320 ug/l benzene, 100 ug/l toluene, 380 ug/l ethyl benzene, and 380 ug/l xylenes. TPH-D was not detected. Detectable concentrations of TPH-G, benzene, toluene, and xylenes were also found associated with the monitoring well ground-water sample from TSC/W-1 at 1.3 mg/l, 80 mg/l, 6 ug/l, non detectable (ND), and 15 ug/l, respectively. The lower concentration within the monitoring well probably represents the effects of purging prior to sampling.

The following metals detected in ground water sample SR/W-1 are determined to be in excess of their respective MCLs for drinking water: arsenic, barium, cadmium, lead, and mercury. Only the concentration of cadmium was found be in excess of the MCL for ground-water sample SR/W-2. However, it should be noted that the ground-water samples were not filtered prior to analysis and the results probably represent suspended solids.

4.2 THOMAS A. SHORT COMPANY

Soil

Concentrations of TRPH, TPH-G and TPH-D detected in soil borings TSA-1, TSA-2, TSC/B-1, and TSC/B-2 at Thomas Short may be considered hazardous waste (greater than 1,000 mg/kg) by the RWQCB.

Elevated concentrations of barium, cadmium, copper, and lead were detected in hand-auger soil samples. The measured lead value in TSA/A-2 at 3 feet was in excess of the STLC of 5.0 mg/l. The concentration of lead in sample TSA-1 at 1 foot exceeded the TTLC.

Ground Water

TPH-G/D was detected in ground water at Thomas Short in soil boring TSC/H-1 and monitoring well sample TSC/W-1 at 16.0 and 1.3 mg/l, respectively. The relative significance of this concentration, as viewed by CalEPA and RWQCB, is not known.

BTEX concentrations were detected in ground water at Thomas Short. Benzene and toluene concentrations from TSC/W-1 and the Benzene concentration from TSC/H-1 were in excess of MCLs.

4.3 AT & SF RAILROAD COMPANY

Soil

The concentration of TRPH found in soil boring ATSF/B-1 at the site classifies the material as a hazardous waste (greater than 1,000 mg/kg) by the RWQCB.

Ground Water

Hydrocarbons in ground water occur at low concentrations, thus, remediation of ground water is not anticipated. However, it is possible that one ground-water monitoring well will be required by Alameda County to monitor ground-water quality over a period of at least four quarters. The monitoring well installed during this investigation could be used for that purpose.

5.2 THOMAS A. SHORT COMPANY

Soil in proximity to the USTs at Thomas Short were found to contain elevated concentrations of TPH-G and TPH-D, as well as associated fuel additives of benzene, toluene, ethyl benzene, and xylenes. Concentrations of TPH-G, benzene, toluene, ethyl benzene, and xylenes were detected in ground water. Soils in proximity to the sump tank and former steam cleaning operation were found to contain elevated concentrations of TRPH and volatile organics, as well as metals.

Soil

Soil contamination exceeded 1,000 mg/kg in borings TSC/B-1 and TSC/B-2. Hydrocarbon concentrations are highest at 5 feet bgs in TSC/B-1 (14,000 mg/kg TPH-G) and at 5 feet and 13.5 feet bgs at TSC/B-1 (1,500 mg/kg and 1,700 mg/kg, respectively). However, ND or very low hydrocarbon concentrations were detected in borings TSC/H-1 and TSC/W-1. Based on the location of these borings relative to the USTs, and the occurrence of hydrocarbons with depth, it is not clear where leakage is occurring although leakage appears to be most prevalent on the south side of the tanks.

Based on the limited data available, potential soil contamination within the vadose zone is suspected to extend to at least the extent of the property in the west direction. For lack of additional data points, soil contamination is assumed to extend approximately 10 feet to the north and south. The existing building may inhibit remedial actions in the east direction. The depth of soil contamination within the vadose zone is estimated at 13 feet bgs. Based on these dimensions, approximately 3,460

cubic yards (4,500 tons) could require disposal at either a Class II landfill or recycling facility.

In addition, hazardous levels of lead were detected at both hand auger locations within the sump area. To determine the extent of contamination, additional data points are required. However, assuming that soil contamination is limited to the general sump area, an extent of 20 feet X 20 Feet X5 feet deep is assumed. Therefore, approximately 75 cubic yards (100 tons) may require disposal at a Class I landfill or recycling facility.

Ground Water

Hydrocarbons in ground water occur at relatively high concentrations, thus remediation and quarterly monitoring of ground water may be required by Alameda County near the UST locations. Due to the limited data points, it is not possible to delineate plume boundaries at this time.

5.3 AT & SF RAILROAD PROPERTY

Low levels of TRPH were detected in soil samples from eight of nine borings (non detect to 24 mg/kg). Elevated levels of TRPH, decreasing with depth, were found to be associated with boring ATSF/B-1. Elevated levels (close to or exceeding the STLC) of several metals, especially lead, were found to be associated with nine borings. No TTLCs for any metal analyzed was exceeded.

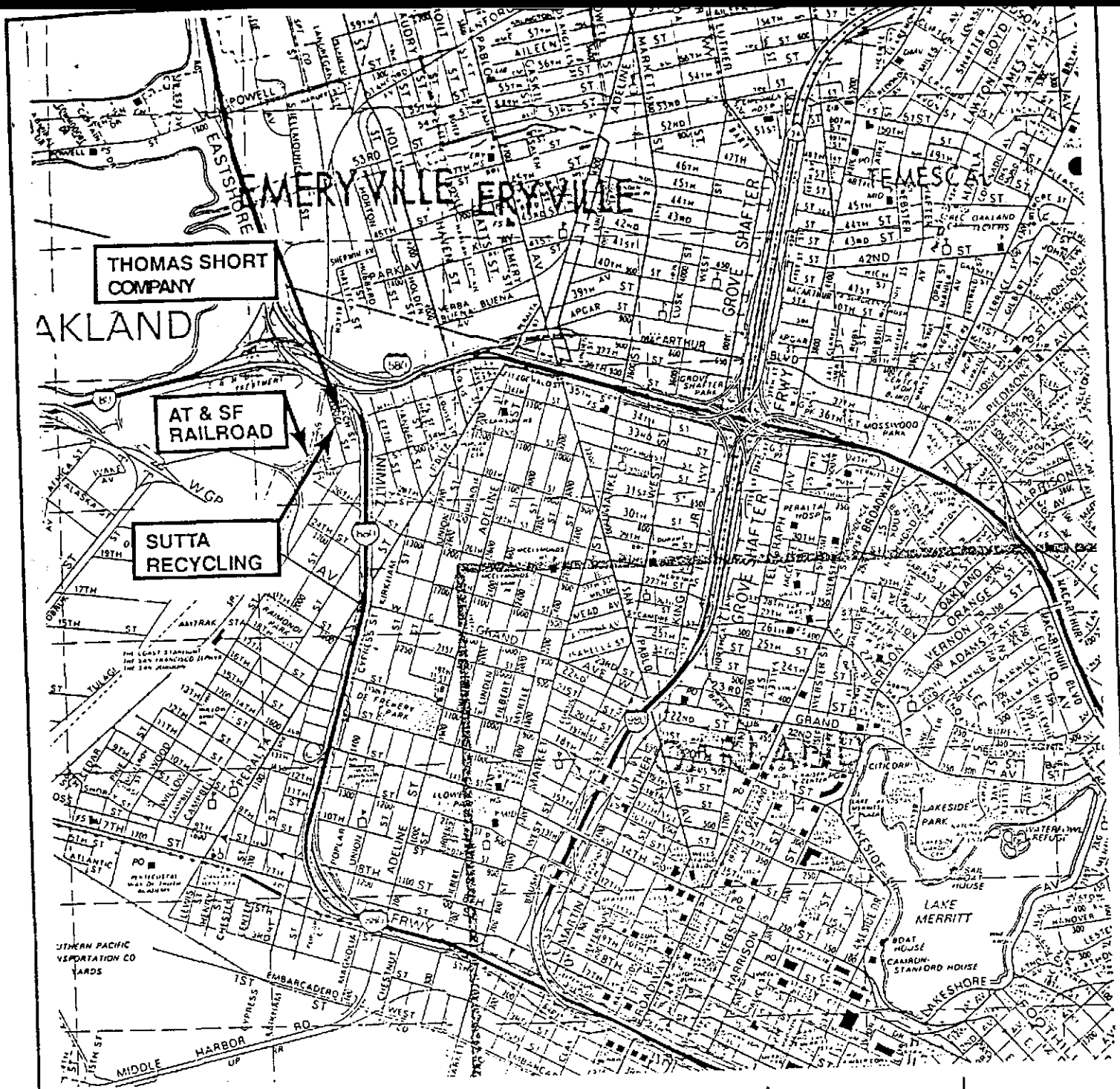
Based on limited TRPH data, potential soil contamination is suspected to extend approximately 10 feet in each direction from the ATSF/B-1 location. Depth to ground water is estimated at 5 feet bgs. Thus, 20 cubic yards (25 tons) could require disposal at either a Class II landfill or recycling facility. Until the results of the WET are known, it is unknown whether Class I disposal will be required at this location.

6.0 CONCLUSIONS

Four soil borings and two monitoring wells were drilled at Sutta to investigate potential leakage from a removed UST and potential contamination within the area of a proposed footing. Relatively low hydrocarbon and metal concentrations were detected in soil samples collected from all the borings. Therefore, remedial actions at this site do not appear necessary, based on the limited data.

Four soil borings, including one "Hydropunch" boring and one monitoring well, were drilled at Thomas Short to investigate potential leakage from two existing USTs and from the sump area behind the main building. Relatively high TRPH and lead concentrations were reported near the sump area. Relatively high TPH-G and TPH-D concentrations were reported in the area of the existing USTs, particularly to the south of the tanks. Based on the limited data available, volumes of soil requiring Class I or Class II landfill disposal is estimated for both the sump area and the UST area, respectively.

BTEX constituents occur at concentrations significantly over MCLs. Therefore, it is likely that ground-water remediation would be required at this site. Due to the limited data points, it is not possible to derive a volume of water requiring remediation.



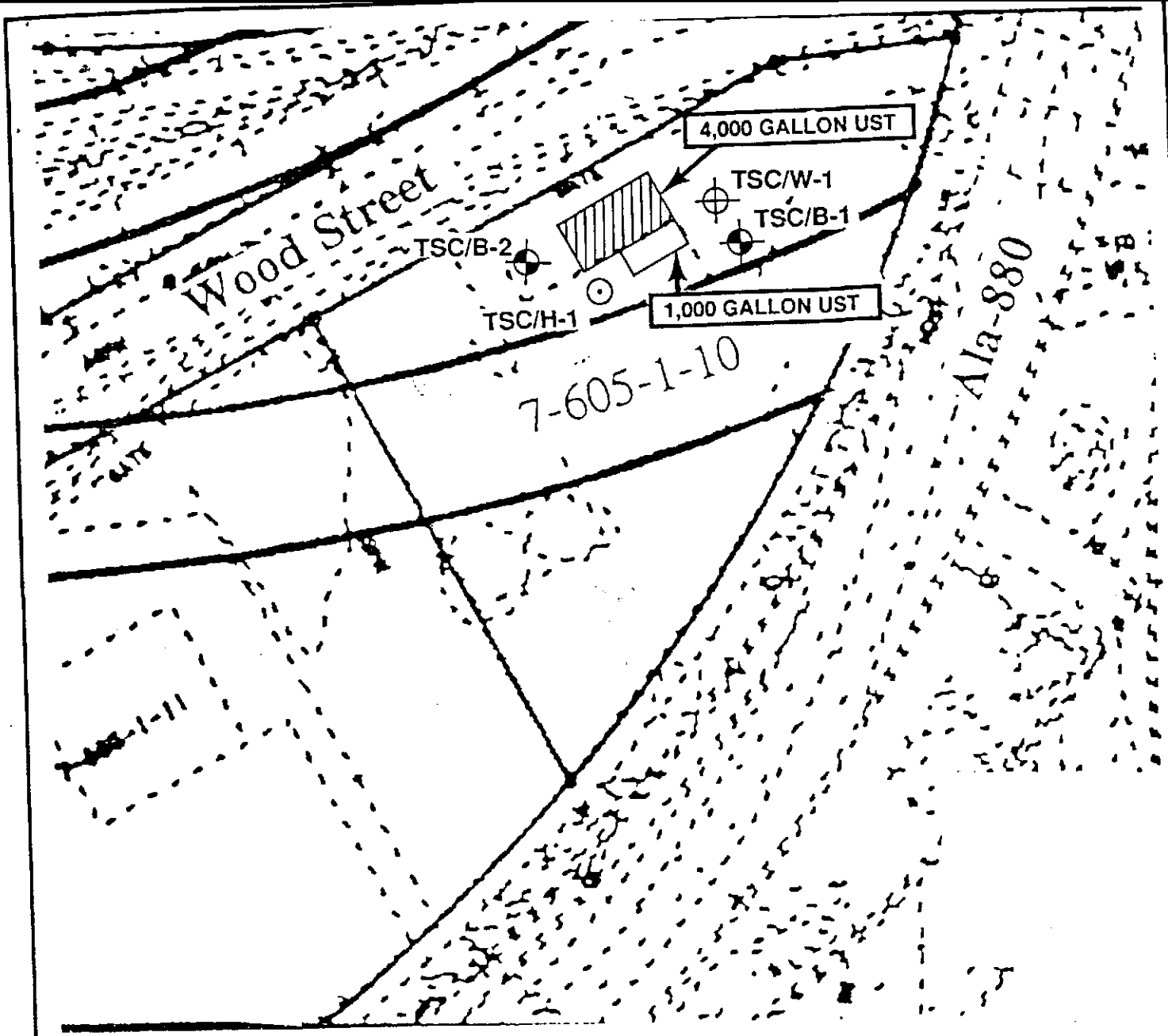
REFERENCE : Thomas Bros Maps,
Alameda, Contra Costa Counties

Geo/ Resource Consultants, Inc.
GEOLOGISTS / ENGINEERS / ENVIRONMENTAL SCIENTISTS
505 BEACH STREET, SAN FRANCISCO, CALIFORNIA 94133

VICINITY MAP - AREA 5
SITE INVESTIGATION REPORT
DEPARTMENT OF TRANSPORTATION
INTERSTATE 880
CYPRESS RECONSTRUCTION
OAKLAND, CALIFORNIA

FIGURE
1

Job No. 1689-019-00 Appr. [illegible] Date 7/23/92



Reference : Caltrans, May 4, 1992

EXPLANATION

TSC/B-1	●	Boring Location
TSC/H-1	⊙	Boring/Hydropunch Location
TSC/W-1	⊕	Monitoring Well Location

0 70

APPROXIMATE SCALE IN FEET

Geo/ Resource Consultants, Inc.
GEOLOGISTS / ENGINEERS / ENVIRONMENTAL SCIENTISTS
505 BEACH STREET, SAN FRANCISCO, CALIFORNIA 94133

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SITE PLAN - AREA 5
THOMAS A. SHORT COMPANY - PARCEL 21
D.O.T. - INTERSTATE 880
CYPRESS RECONSTRUCTION
OAKLAND, CALIFORNIA

FIGURE 3

TABLE 1
AREA 5

DOT - CYPRESS

SUMMARY OF ANALYTICAL RESULTS - SOIL

GENERAL

UNITS EPA No.	TRPH mg/kg 418.1	TPH-G mg/kg 8015m	TPH-D mg/kg 8015m	BENZENE ug/kg 8020	TOLUENE ug/kg 8020	ETHYL BENZENE ug/kg 8020	XYLENES ug/kg 8020	VOLATILE ORGANICS ug/kg 8240
THOMAS A. SHORT CO.								
-Hand Auger								
TSC/A-1-1	6,600(150)	-	-	-	-	-	-	*
TSC/A-2-1.5	66	-	-	-	-	-	-	**
TSC/A-2-3	180	-	-	-	-	-	-	***
-Boring								
TSC/B-1-5	-	1,500(500)	520	1,400(500)	2,400(500)	4,500(500)	8,400(500)	-
TSC/B-1-8	-	ND	ND	35	7	ND	ND	-
TSC/B1-13.5	-	ND	ND	20	7	10	30	-
TSC/B-2-5	-	14,000(500)	700	500(500)	10,000(500)	8,000(500)	60,000(500)	-
TSC/B-2-8	-	ND	ND	210	5	ND	ND	-
TSC/B-2-13.5	-	1,700(500)	ND	1,000(500)	1,500(500)	8,300(500)	36,000(500)	-
-Hydropunch								
TSC/H-1-2	-	ND	ND	ND	ND	ND	ND	-
TSC/H-1-5	-	ND	ND	ND	ND	ND	ND	-
TSC/H-1-8	-	6	ND	230	80	200	420	-
-Well								
TSC/W-1-5	-	ND	ND	10	ND	15	ND	-
TSC/W-1-8	-	ND	ND	ND	ND	ND	ND	-
TSC/W-1-14	-	24	ND	10	7	70	110	-
SUTTA RECYCLING								
-Boring								
SR/B-1-1.5	34	-	-	-	-	-	-	ND
SR/B-1-5	8	-	-	-	-	-	-	ND
SR/B-2-1.5	270	-	-	-	-	-	-	ND
SR/B-2-4	ND	-	-	-	-	-	-	ND
SR/B-3-1.5	-	-	ND	ND	90	180	700	-
SR/B-3-3	-	-	ND	ND	ND	ND	20	-
SR/B-3-7.5	-	-	ND	ND	ND	ND	ND	-
SR/B-4-1.5	-	-	ND	ND	ND	ND	ND	-
SR/B-4-4	-	-	ND	ND	ND	ND	ND	-
SR/B-4-7.5	-	-	ND	ND	10	8	40	-
-Well								
SR/W-1-1.5	-	-	ND	ND	ND	ND	ND	-
SR/W-1-4	-	-	ND	ND	ND	ND	ND	-
SR/W-1-7.5	-	-	ND	ND	ND	ND	ND	-
SR/W-2-1.5	210	-	-	-	-	-	-	ND
SR/W-2-4	5	-	-	-	-	-	-	ND
SR/W-2-7.5	ND	-	-	-	-	-	-	ND
DETECTION LIMIT	5	5	5.0	5	5	5	5	5-100

ND = Not Detected at Detection Limit on Laboratory Data Sheets

- = Not analyzed

( ) = Detection Limit

* = All Volatile Organics Not Detected, except Acetone (200 ug/kg), Benzene (63 ug/kg), Chlorobenzene (220 ug/kg), Ethylbenzene (25 ug/kg), Toluene (14 ug/kg) ,Xylene (55 ug/kg),1,2-DCB (260 ug/kg), 1,3-DCB (29 ug/kg) and 1,4-DCB (37 ug/kg)

** = All Volatile Organics Not Detected, except Benzene (7 ug/kg) and Chlorobenzene (33 ug/kg)

*** = All Volatile Organics Not Detected, except Benzene (52 ug/kg), Chlorobenzene (24 ug/kg), Ethylbenzene (43 ug/kg), Toluene (12 ug/kg) and Xylene (100 ug/kg)

Laboratory Analyses performed by CKY

TABLE 2
AREA 5

DOT - CYPRESS

SUMMARY OF ANALYTICAL RESULTS - SOIL

METALS

UNITS EPD No.	ANTIMONY mg/kg 6010	ARSENIC mg/kg 6010	BARIUM mg/kg 6010	BERYLLIUM mg/kg 6010	CADMIUM mg/kg 6010	CHROMIUM TOTAL mg/kg 6010	COBALT mg/kg 6010	COPPER mg/kg 6010	LEAD mg/kg 6010	MERCURY mg/kg 6010	MOLYBDENUM mg/kg 6010	NICKEL mg/kg 6010	SELENIUM mg/kg 6010	SILVER mg/kg 6010	THALLIUM mg/kg 6010	VANADIUM mg/kg 6010	ZINC mg/kg 6010
THOMAS A. SHORT CO.																	
-Hand Auger																	
TSC/A-1-1	11	28	980	0.73	9.2	57	12	560	2,400**	0.28	6.3	65	ND	ND	ND	38	1,600
WET	-	-	8.6(0.05)mg/l	-	0.12(0.01)mg/l	-	-	0.03 (0.01)mg/l	-	-	-	-	-	-	-	-	-
TSC/A-2-1.5	ND	15	530	0.89	4.2	17	11	21	49	0.09	0.80	20	ND	ND	18	30	62
TSC/A-2-3	7	18	18	0.82	8.3	47	19	48	210	0.26	0.70	66	ND	ND	ND	48	550
	-	-	-	-	-	-	-	-	21(0.10)mg/l	-	-	-	-	-	-	-	-
SUTTA RECYCLING																	
-Boring																	
SR/B-1-1.5	ND	ND	43	ND	0.60	30	5	13	41	0.10	1.6	28	ND	ND	14	23	40
SR/B-1-5	ND	24	99	ND	2.1	28	6.4	23	53*	0.07	2.4	28	ND	ND	19	30	79
WET	-	-	-	-	-	-	-	-	0.15(0.10)mg/l	-	-	-	-	-	-	-	-
SR/B-2-1.5	ND	10	26	ND	0.75	34	5	10	ND	ND	1.7	26	ND	ND	25	26	18
SR/B-2-4	ND	32	59	ND	3	59	10	30	12	0.26	3.6	52	ND	ND	22	46	60
SR/B-3-1.5	ND	19	50	ND	1.9	44	11	15	9.8	0.05	2.9	48	ND	ND	23	38	37
SR/B-3-3	ND	10	23	ND	0.69	29	4.4	7.8	ND	ND	1	21	ND	ND	18	19	15
SR/B-3-7.5	ND	26	26	ND	0.61	41	7.3	18	ND	0.07	2.8	39	ND	ND	17	35	42
SR/B-4-1.5	ND	20	150	ND	3.3	55	11	30	ND	0.08	3	62	ND	ND	48	35	52
SR/B-4-4	ND	28	110	ND	2.2	28	9	36	34	0.08	3.9	44	ND	ND	28	43	50
SR/B-4-7.5	ND	25	40	ND	ND	38	6.5	18	ND	0.06	2.4	32	ND	ND	22	35	37
-Well																	
SR/W-1-1.5	ND	33	210	ND	3.6	47	12	38	ND	0.07	3.3	45	ND	ND	45	52	63
SR/W-1-4	ND	34	140	ND	3.7	44	11	33	ND	0.10	4	50	11	ND	39	41	60
SR/W-1-7.5	ND	35	250	0.59	4.1	52	14	42	ND	0.06	3.8	57	11	ND	55	58	75
WET	-	-	-	-	-	-	-	-	-	-	-	-	0.28(0.20)mg/l	-	-	-	-
SR/W-2-1.5	ND	ND	49	ND	0.5	36	4.1	9.1	ND	0.05	1.3	21	ND	ND	ND	24	15
SR/W-2-4	ND	23	99	ND	0.72	40	7.8	15	ND	0.09	2	31	ND	ND	11	33	30
SR/W-2-7.5	ND	24	30	ND	ND	41	7.5	18	ND	0.05	3	43	ND	ND	18	34	44
TTLC(mg/kg)	500	500	10,000	75	100	2,500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000
STLC(mg/L)	15	5.0	100	0.75	1.0	560	80	25	5.0	0.2	350	20	1.0	5	7.0	24	250
Detection Limit	5.0	10	2.5	0.50	0.50	0.50	1.0	0.50	5.0	0.05	0.50	2.5	10	0.50	10	1.0	0.50

NOTES: ND = Not Detected at Detection Limit on Laboratory Data Sheets
( ) = Detection Limit
TTLC = Total Threshold Lomit Concentration (mg/kg)
STLC = Soluble Threshold Limit Concentration (mg/l)
* = Concentration values greater than 10x STLC values, according to CCR Title 22
** = Concentration values greater than TTLC values, according to CCR Title 22
Laboratory Analyses performed by CKY

TABLE 3
AREA 5

DOT - CYPRESS

SUMMARY OF ANALYTICAL RESULTS - GROUND WATER

	EPD No.	TSC/H-1	TSC/W-1	SR/W-1	SR/W-2	DETECTION LIMIT	MCLs
Antimony	6010	-	-	0.21	ND	0.10	NA
Arsenic	6010	-	-	0.76	ND	0.20	0.050
Barium	6010	-	-	8.3	0.93	0.05	1.0
Beryllium	6010	-	-	0.02	ND	0.01	NA
Cadmium	6010	-	-	0.26	0.02	0.01	0.010
Chromium	6010	-	-	1.8	0.17	0.01	NA
Cobalt	6010	-	-	0.42	0.04	0.02	NA
Copper	6010	-	-	0.84	0.13	0.01	1.0
Lead	6010	-	-	0.89	ND	0.10	0.005
Mercury	6010	-	-	0.003	ND	0.0002	0.002
Molybdenum	6010	-	-	0.10	0.08	0.01	NA
Nickel	6010	-	-	2	0.23	0.05	NA
Selenium	6010	-	-	ND	ND	0.20	0.010
Silver	6010	-	-	ND	ND	0.01	0.050
Thallium	6010	-	-	0.54	ND	0.20	NA
Vanadium	6010	-	-	1.6	0.18	0.02	NA
Zinc	6010	-	-	3.2	0.24	0.01	NA
TPH-G (mg/L)	8015m	16	1.3	-	-	1.0	NA
TPH-D (mg/L)	8015m	ND	ND(1.0 mg/kg)	-	-	5.0 mg/kg	NA
Benzene (ug/L)	602	320	80	ND	-	1	1
Toluene (ug/L)	602	100	6	ND	-	1	100
Ethyl Benzene (ug/L)	602	380	ND	ND	-	1	680
Xylenes (ug/L)	602	380	15	ND	-	1	1750
Volatile Organics (ug/L)	624	-	-	-	ND	1 - 10	NL

NOTES: ND = Not Detected at Detection Limit on Laboratory Data Sheets

- = Not analyzed

TRPH = Total Recoverable Petroleum Hydrocarbons

TPH-G = Total Petroleum Hydrocarbons as Gasoline

TPH-D = Total Petroleum Hydrocarbons as Diesel

MCLs = State Maximum Concentration Levels, Primary and Secondary, provided for comparison purposes only, State Action Levels included

Laboratory Analyses performed by CKY

LOG OF BORING TSC/B-1

Equipment Hollow Stem Auger

Elevation N.A. Date 6/25/92

Laboratory Analysis	Blows/ft.	OVA Readings	Hnu Readings (ppm)	Depth (ft.)	Sample pnts.	
	31		1	0		SILTY CLAY (CL) light brown, damp; loose to medium dense, rock fragments
	3		60	5		color changes to black, damp to moist, very soft, organics
	2		17			wet
	24		180	10		color changes to gray, moist to wet, trace rock fragments
				15		Boring terminated @ 14.0 feet. Ground water was not encountered @ time of drilling.
				20		
				25		
				30		

Fill

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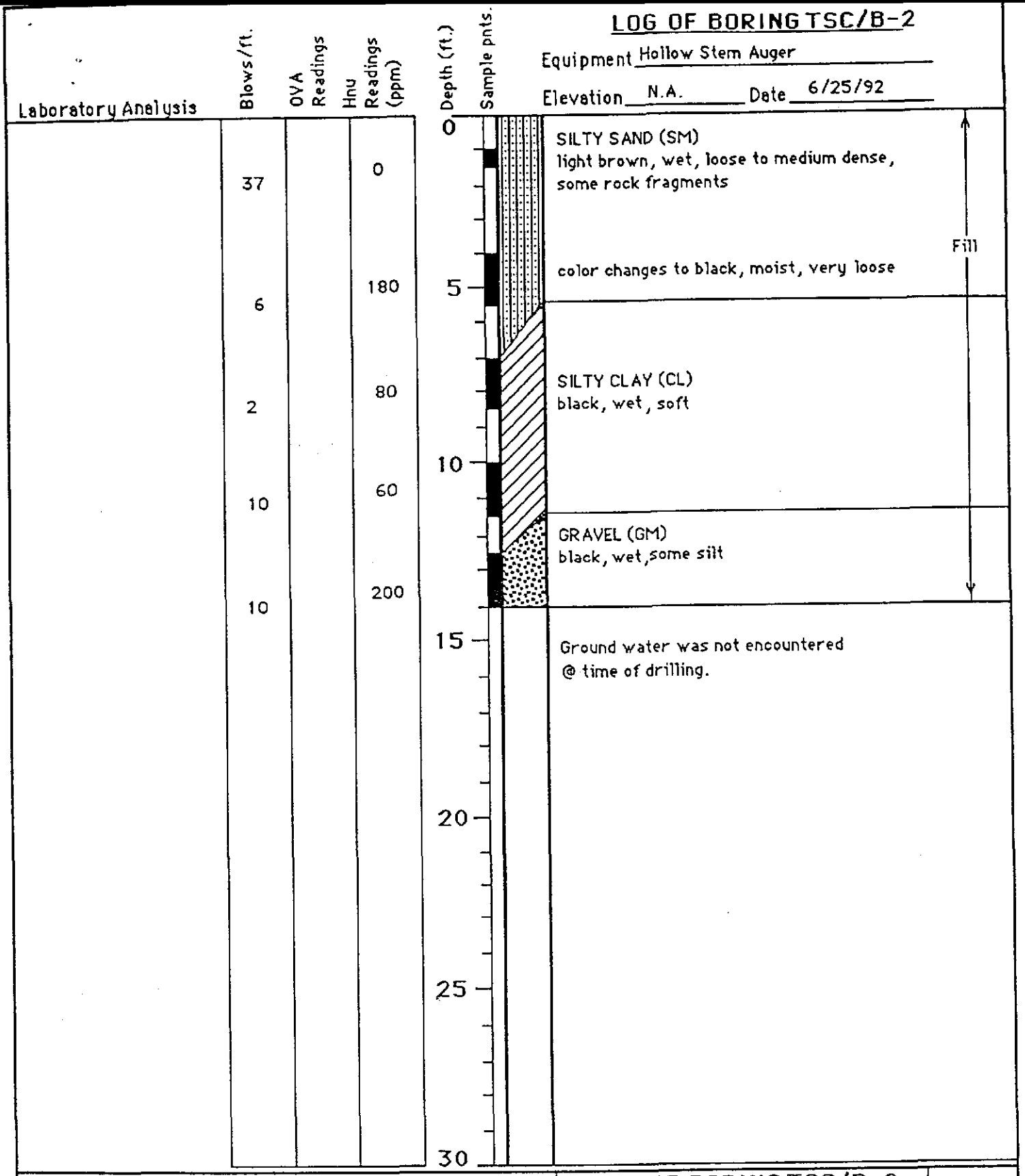
LOG OF BORING TSC/B-1
SITE INVESTIGATION REPORT
DEPARTMENT OF TRANSPORTATION
INTERSTATE 880
CYPRESS RECONSTRUCTION
OAKLAND, CALIFORNIA

FIGURE
B-7

LOG OF BORING TSC/B-2

Equipment Hollow Stem Auger

Elevation N.A. Date 6/25/92



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LOG OF BORING TSC/B-2
SITE INVESTIGATION REPORT
DEPARTMENT OF TRANSPORTATION
INTERSTATE 880
CYPRESS RECONSTRUCTION
OAKLAND, CALIFORNIA

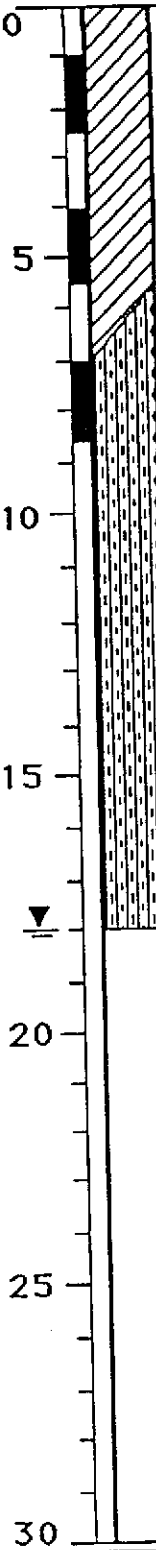
FIGURE
B-8

LOG OF BORING TSC/H-1

Equipment Hollow Stem Auger

Elevation N.A. Date 6/25/92

Laboratory Analysis	Blows/ft.	OVA Readings	Hnu Readings (ppm)	Depth (ft.)	Sample pnts.
	54		0	0	
	3			5	
	2		0	10	
				15	
				20	
				25	
				30	



SILTY CLAY (CL)
light brown, dry, loose to medium dense, rock fragments

damp

Fill

SILT (OL)
black-gray, wet to saturated, very soft

Boring terminated @ 18.0 feet.
Ground water encountered @ 18.0 feet @ time of drilling.

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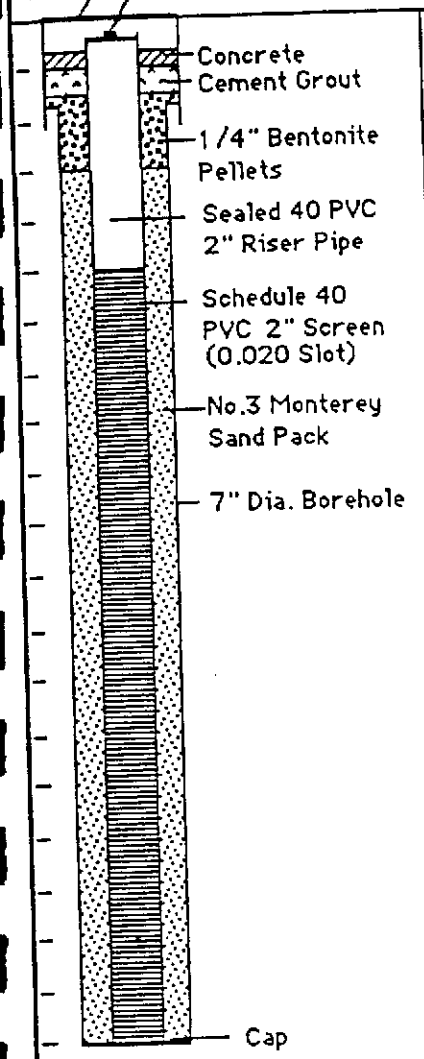
LOG OF BORING TSC/H-1
SITE INVESTIGATION REPORT
DEPARTMENT OF TRANSPORTATION
INTERSTATE 880
CYPRESS RECONSTRUCTION
OAKLAND, CALIFORNIA

FIGURE
B-9

LOG OF BORING TSC/W-1

Equipment Hollow Stem Auger

Elevation N.A. Date 6/23/92



Blows/ft.	Hnu Readings (ppm)	Depth (ft.)	Sample pnts.	Description
32	2	0		SILTY CLAY (CL) light brown, slightly moist, medium dense, rock fragments, debris (concrete)
3	2	5		color changes to dark brown, very soft
				color changes to black, wet, very soft
3	6			
		10		Fill
8	4			
			▼	color changes to light brown, some rock fragments, very stiff
30	7	15		
		20		Boring terminated @ 20.0 feet. Ground water encountered @ 12.7 feet
		25		
		30		

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LOG OF BORING TSC/W-1
SITE INVESTIGATION REPORT
DEPARTMENT OF TRANSPORTATION
INTERSTATE 880
CYPRESS RECONSTRUCTION
OAKLAND, CALIFORNIA

FIGURE B-10

LOG OF BORING TSA-1

Equipment Hand Auger

Elevation N.A. Date 6/23/92

Laboratory Analysis	Blows/ft.	OVA Readings	Hnu Readings (ppm)	Depth (ft.)	Sample pnts.	
				0		8" CONCRETE PAD
						GRAVELLY SANDY CLAY (CL) black to dark gray, moist to wet, soft to firm, gravel to 6" dia.
				5		Boring terminated @ 1.8 feet. Ground water was not encountered @ time of drilling.
				10		
				15		
				20		
				25		
				30		

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LOG OF BORING TSA-1
SITE INVESTIGATION REPORT
DEPARTMENT OF TRANSPORTATION
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CYPRESS RECONSTRUCTION
OAKLAND, CALIFORNIA

FIGURE
B-11

LOG OF BORING TSA-2

Equipment Hand Auger

Elevation N.A. Date 6/23/92

Laboratory Analysis	Blows/ft.	OVA Readings	Hnu Readings (ppm)	Depth (ft.)	Sample pnts.	
				0		10" CONCRETE PAD
						GRAVELLY SANDY CLAY (CL) dark brown to black, moist to wet, soft, gravel to 3" dia.
				5		Boring terminated @ 3.5 feet. Ground water was not encountered @ time of drilling.
				10		
				15		
				20		
				25		
				30		

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LOG OF BORING TSA-2
SITE INVESTIGATION REPORT
DEPARTMENT OF TRANSPORTATION
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OAKLAND, CALIFORNIA

FIGURE
B-12

TPH-d

borings around USTs

EPA METHOD Mod. 8015
TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

CLIENT:	Geo/Resource	**DATE REC'D:**	06/26/92
PROJECT:	Dot Cypress	**DATE EXTRACTED:**	06/30/92
CONTROL NO:	N9206-29	**DATE ANALYZED:**	06/30/92
MATRIX:	Soil		

SAMPLE ID:	CONTROL NO:	RESULTS (mg/kg)	H-C RANGE	DETECTION LIMIT
TSC/H-1-2	N9206-29-2	ND	N.A.	5.0
TSC/H-1-5	N9206-29-3	ND	N.A.	5.0
TSC/H-1-8	N9206-29-4	ND	N.A.	5.0
TSC/B-1-5	N9206-29-6	520	C12-C24	5.0
TSC/B-1-8	N9206-29-7	ND	N.A.	5.0
TSC/B-1-13.5	N9206-29-8	ND	N.A.	5.0
TSC/W-1-5	N9206-29-9	ND	N.A.	5.0
TSC/W-1-8	N9206-29-10	ND	N.A.	5.0
TSC/W-1-14	N9206-29-11	ND	N.A.	5.0
TSC/B-2-5	N9206-29-12	700	C12-C24	5.0
TSC/B-2-8	N9206-29-13	ND	N.A.	5.0
TSC/B-2-13.5	N9206-29-14	ND	N.A.	5.0
CDF/W-2-5	N9206-29-16	ND	N.A.	5.0
CDF/W-2-8	N9206-29-17	ND	N.A.	1.0
CDF/B-5-2	N9206-29-18	ND	N.A.	1.0
CDF/B-5-4	N9206-29-19	ND	N.A.	1.0
CDF/B-5-7	N9206-29-20	ND	N.A.	1.0
CDF/B-4-3	N9206-29-21	ND	N.A.	1.0
CDF/B-4-5	N9206-29-22	ND	N.A.	1.0
CDF/B-4-7	N9206-29-23	3800	C12-C24	10
CDF/B-3-2	N9206-29-24	ND	N.A.	10
CDF/B-3-4	N9206-29-25	ND	N.A.	10
CDF/B-3-7	N9206-29-26	ND	N.A.	10

TPH-g

EPA METHOD 5030/Mod. 8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE & TRAP

CLIENT:	Geo/Resource	**DATE REC'D:**	06/26/92
PROJECT:	Dot Cypress	**DATE ANALYZED:**	06/29/92
CONTROL NO:	N9206-29	**MATRIX:**	Soil

SAMPLE ID:	CONTROL NO:	RESULTS (mg/kg)	DET. LIMIT (mg/kg)	% SURRO RECOVERY
TSC/H-1-2	N9206-29-2	ND	5.0	96
TSC/H-1-5	N9206-29-3	ND	5.0	96
TSC/H-1-8	N9206-29-4	6	5.0	80
TSC/B-1-5	N9206-29-6	1500	500	92
TSC/B-1-8	N9206-29-7	ND	5.0	72
TSC/B-1-13.5	N9206-29-8	ND	5.0	80
TSC/W-1-5	N9206-29-9	ND	5.0	104
TSC/W-1-8	N9206-29-10	ND	5.0	75
TSC/W-1-14	N9206-29-11	24	5.0	96
TSC/B-2-5	N9206-29-12	14000	500	92
TSC/B-2-8	N9206-29-13	ND	5.0	80
TSC/B-2-13.5	N9206-29-14	1700	500	93

QUALITY CONTROL DATA

CLIENT: Geo/Resource
PROJECT: Dot Cypress
CONTROL NO: N9206-29

METHOD EPA M8015G
MATRIX: Soil

SAMPLE ID: N9206-29

COMPOUND	SAMPLE RESULTS (mg/kg)	AMOUNT SPIKED (mg/kg)	% REC.	DUP. % REC.	RPD
Gasoline	ND	2	65	75	14

QUALITY CONTROL DATA

CLIENT: Geo/Resource
PROJECT: Dot Cypress
CONTROL NO: N9206-29

METHOD EPA M8015G
MATRIX: Soil

SAMPLE ID: N9206-29-10

COMPOUND	SAMPLE RESULTS (mg/kg)	AMOUNT SPIKED (mg/kg)	% REC.	DUP. % REC.	RPD
Gasoline	ND	2	110	120	9

EPA METHOD - 8020
BTEX

CLIENT:	Geo/Resource	**DATE REC'D:**	06/25/92
PROJECT:	Dot Cypress	**DATE ANALYZED:**	06/30/92
CONTROL NO:	N9206-29	**MATRIX TYPE:**	Soil

		RESULTS (ug/kg)				% SURRO
SAMPLE ID:	CONTROL NO:	Benz	Tol	Et Benz	Xyls	RECOVERY
TSC/H-1-2	N9206-29-2	ND	ND	ND	ND	96
TSC/H-1-5	N9206-29-3	ND	ND	ND	ND	96
TSC/H-1-8	N9206-29-4	230	80	200	420	80
TSC/B-1-5	N9206-29-6#	1400	2400	4500	8400	92
TSC/B-1-8	N9206-29-7	35	7	ND	ND	72
TSC/B-1-13.5	N9206-29-8	20	7	10	30	80
TSC/W-1-5	N9206-29-9	10	ND	15	ND	104
TSC/W-1-8	N9206-29-10	ND	ND	ND	ND	75
TSC/W-1-14	N9206-29-11	10	7	70	110	96
TSC/B-2-5	N9206-29-12#	500	10000	8000	60000	92
TSC/B-2-8	N9206-29-13	210	5	ND	ND	80
TSC/B-2-13.5	N9206-29-14#	1000	1500	8300	36000	93
DETECTION LIMIT		5	5	5	5	

Detection Limit is 500 ug/kg for all compounds

QUALITY CONTROL DATA

CLIENT: Geo/Resource
PROJECT: Dot Cypress
CONTROL NO: N9206-29

METHOD EPA 8020
MATRIX: Soil

SAMPLE ID: N9206-29-2

COMPOUND	SAMPLE RESULTS (ug/kg)	AMOUNT SPIKED (ug/kg)	% REC.	DUP. % REC.	RPD
Benzene	ND	20	105	115	9
Toluene	ND	20	85	95	11
Ethyl Benzene	ND	20	95	75	24
Xylene	ND	40	110	100	10

QUALITY CONTROL DATA

CLIENT: Geo/Resource
PROJECT: Dot Cypress
CONTROL NO: N9206-29

METHOD EPA 8020
MATRIX: Soil

SAMPLE ID: N9206-29-10

COMPOUND	SAMPLE RESULTS (ug/kg)	AMOUNT SPIKED (ug/kg)	% REC.	DUP. % REC.	RPD
Benzene	ND	20	120	110	9
Toluene	ND	20	80	85	6
Ethyl Benzene	ND	20	80	80	0
Xylene	ND	40	103	93	10

4449

EPA METHOD 5030/Mod. 8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE & TRAP

CLIENT:	Geo/Reosource	**DATE REC'D:**	07/02/92
PROJECT:	Dot Cypress	**DATE ANALYZED:**	07/06/92
CONTROL NO:	N9207-03	**MATRIX:**	Water

SAMPLE ID:	CONTROL NO:	RESULTS (mg/L)	DET. LIMIT (mg/L)	% SURRO RECOVERY
TSC-W-1	N9207-03-1	1.3	1.0	80
~~[illegible]~~	~~[illegible]~~	~~ND~~	~~1.0~~	~~65~~

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EPA METHOD Mod. 8015
TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

CLIENT:	Geo/Resource	DATE REC'D:	07/02/92
PROJECT:	Dot Cypress	DATE EXTRACTED:	07/03/92
CONTROL NO:	N9207-03	DATE ANALYZED:	07/03/92
MATRIX:	Water		

SAMPLE ID:	CONTROL NO:	RESULTS (mg/L)	H-C RANGE
TSC-W-1	N9207-03-1	ND	N.A.
~~FS-W-1~~	~~N9207-03-2~~	~~ND~~	~~N.A.~~
PP800/0-1	~~N9207-03-3~~	ND	N.A.
~~CBF-W-1~~	~~N9207-03-5~~	~~ND~~	~~N.A.~~

DETECTION LIMIT: 1.0 mg/kg

EPA METHOD 5030/Mod. 8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE & TRAP

CLIENT:	Geo/Resource	**DATE REC'D:**	06/26/92
PROJECT:	Dot Cypress	**DATE ANALYZED:**	06/29/92
CONTROL NO:	N9206-29	**MATRIX:**	Water

SAMPLE ID:	CONTROL NO:	RESULTS (mg/L)	DET. LIMIT (mg/L)	% SURRO RECOVERY
TSC/H-1	N9206-29-5	16	1.0	96

EPA METHOD Mod. 8015
TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

CLIENT:	Geo/Resource	**DATE REC'D:**	06/26/92
PROJECT:	Dot Cypress	**DATE EXTRACTED:**	07/01/92
CONTROL NO:	N9206-29	**DATE ANALYZED:**	07/01/92
MATRIX:	Water		

SAMPLE ID:	CONTROL NO:	RESULTS (mg/L)	H-C RANGE
TSC/H-1	N9206-29-5	ND	N.A.

DETECTION LIMIT: 5.0 mg/kg

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QUALITY CONTROL DATA

CLIENT: Geo/Resource
PROJECT: Dot Cypress
CONTROL NO: N9206-29

METHOD EPA M8015D
MATRIX: Water

SAMPLE ID: Blank

COMPOUND	SAMPLE RESULTS (mg/L)	AMOUNT SPIKED (mg/L)	% REC.	DUP. % REC.	RPD
Diesel	ND	500	98	96	2

QUALITY CONTROL DATA

CLIENT: Geo/Resource
PROJECT: Dot Cypress
CONTROL NO: N9206/29

METHOD EPA M8015G
MATRIX: Water

SAMPLE ID: Blank

COMPOUND	SAMPLE RESULTS (mg/L)	AMOUNT SPIKED (mg/L)	% REC.	DUP. % REC.	RPD
Gasoline	ND	2	80	70	13

EPA METHOD - 8020
BTEX

CLIENT:	Geo/Resource	**DATE REC'D:**	06/26/92
PROJECT:	Dot Cypress	**DATE ANALYZED:**	06/29/92
CONTROL NO:	N9206/29	**MATRIX TYPE:**	Water

		RESULTS (ug/L)				% SURRO
SAMPLE ID:	CONTROL NO:	Benz	Tol	Et Benz	Xyls	RECOVERY
TSC/H-1	N9206-29-5	320	100	380	380	96
DETECTION LIMIT		1	1	1	1	

QUALITY CONTROL DATA

CLIENT: Geo/Resource
PROJECT: Dot Cypress
CONTROL NO: N9206-29

METHOD EPA 8020
MATRIX: Water

SAMPLE ID: Blank

COMPOUND	SAMPLE RESULTS (ug/kg)	AMOUNT SPIKED (ug/kg)	% REC.	DUP. % REC.	RPD
Benzene	ND	20	85	75	13
Toluene	ND	20	70	75	7
Ethyl Benzene	ND	20	85	80	6
Xylene	ND	40	98	98	0

EPA METHOD - 8020
BTEX

CLIENT:	Geo/Resource	**DATE REC'D:**	07/02/92
PROJECT:	Dot Cypress	**DATE ANALYZED:**	07/06/92
CONTROL NO:	N9207-03	**MATRIX TYPE:**	Water

		RESULTS (ug/L)				% SURRO
SAMPLE ID:	CONTROL NO:	Benz	Tol	Et Benz	Xyls	RECOVERY
TSC-W-1	N9207-03-1	80	6	ND	15	80
DETECTION LIMIT		1	1	1	1	