

FINAL REPORT

**RESULTS OF ADDITIONAL SOIL AND
GROUNDWATER INVESTIGATION**

**UPLAND PORTION OF SUBUNIT 2B,
RICHMOND FIELD STATION
RICHMOND, CALIFORNIA**

(TASK 4B, RWQCB ORDER NO. 01-102)

Prepared for
University of California Berkeley
Office of Capital Projects
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October 31, 2002

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October 31, 2002

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San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Subject: Results of Additional Soil and Groundwater Investigation, Upland Portion of Subunit 2B, Richmond Field Station, Richmond, California

Dear Mr. Felix:

In compliance with the California Regional Water Quality Control Board, San Francisco Bay Region's (RWQCB) Order No. 01-102, Task 4b, URS Corporation is pleased to submit the enclosed document titled *Results of Additional Soil and Groundwater Investigation, Upland Portion of Subunit 2B, Richmond Field Station, Richmond, California* on the behalf of the University of California, Berkeley.

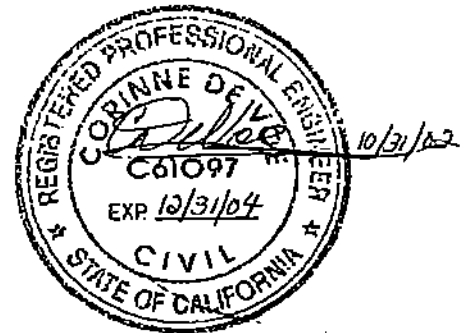
If you have any questions or need further information, please call me at (510) 874-3284.

Sincerely,

URS CORPORATION

Diane K. Mims
Project Manager

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Enclosure

Cc: Anna Moore, Environment, Health, & Safety, University of California, Berkeley
Michael Hryciw, Capital Projects, University of California, Berkeley
File

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The Richmond Field Station (RFS) is owned by the University of California, Berkeley (UC Berkeley) and is designated as Subunit 2 of the Meade Street Operable Unit. The RFS is located at 1301 S. 46th Street in Richmond, California as shown on Figure 1. Subunit 2 was divided by the California Regional Water Quality Control Board (RWQCB) into two subunits: Subunit 2A consists of the southeastern portion of the RFS for which UC Berkeley and Zeneca are named as joint responsible parties. Subunit 2B consists of the northern and western portion of the RFS for which UC Berkeley is named as the sole responsible party. The location of Subunit 2A and 2B and their respective boundaries are shown on Figure 2.

The site layout of the Meade Street Operable Unit is shown in Figure 3. The upland portion of Subunit 2B, the subject of this report, is located in the northern portion of the upland area of the RFS. A map showing the features within the upland portion of Subunit 2B is shown on Figure 4.

On the behalf of the University of California, Berkeley, URS Corporation (URS), UC Berkeley's environmental consultant, has prepared this report in compliance with Task 4b of the California Regional Water Quality Control Board, San Francisco Bay Region's Order No. 01-102 Site Cleanup Requirements (SCR) for Subunit 2B of the Meade Street Operable Unit.

The SCR Task 4b states:

"The dischargers shall submit a technical report, acceptable to the Executive Officer, which provides the results of investigations implemented as described in the technical report required in Task 4a. If necessary, the report shall propose additional soil and/or groundwater sampling in order completely define the extent of pollution in the upland portion of Subunit 2B."

This report presents the results from investigations performed by URS as described in "Workplan for Additional Soil and Groundwater Investigation, Upland Portion of Subunit 2B, Richmond Field Station" (Workplan), dated February 28, 2002. The Workplan was submitted to the RWQCB as required in Task 4a.

The objectives of the investigation performed under Task 4b were to delineate the extent of metals in the upland portion of Subunit 2B and develop information necessary to complete a Remedial Action Plan (RAP) for Subunit 2B that will be submitted to the RWQCB in January 2003 as required under Task 4c of the SCR. The investigation focused on areas of concern (AOCs) identified through previous sampling events that contain elevated concentrations of metals in the upland portion of Subunit 2B. These AOCs, defined by levels of unacceptable risk to human health or the environment, were identified in UC Berkeley's report titled "Human Health and Ecological Tiered Risk Evaluation, University of California Berkeley, Richmond Field Station/Stege Marsh" (risk assessment) dated November 21, 2001.

As discussed in the Workplan, additional investigations for AOCs within the upland portion of Subunit 2B have been prioritized to help focus resources on the highest priority areas. The additional investigations were performed in September 2002 in the high-priority areas, i.e., those with 1) Chemicals of concern (COC) exceedances of greater than five times the screening criteria, either the human health site specific target levels (H-SSTL) or ecological site specific target levels (E-SSTL), whichever is lower; 2) potential for migration; and 3) large aerial extent. Additional sampling will be performed in areas not fully delineated in November 2002. Other areas, that are considered low priority due to concentrations of COCs slightly above their SSTLs,

low percentage of detections, and/or low potential for migration will also be further investigated during November 2002.

1.1 REPORT ORGANIZATION

This report presents the results of additional soil and groundwater investigations in the upland portion of Subunit 2B as required under SCR Task 4b of Order No. 01-102.

This report is organized as follows:

- Section 2 describes the field activities including collection of field data, soil and groundwater sampling and the analysis of the samples collected;
- Section 3 discusses the results of the previous and current soil and groundwater investigations; and
- Section 4 discusses conclusions derived from data analysis and recommendations for additional characterization.

This section provides a summary of the field activities performed by URS during the recent investigation including:

- Collection and analysis of soil samples to further delineate the upland AOCs;
- Collection of Cone Penetrometer Testing (CPT) data to evaluate the stratigraphy in the area of the eastern property boundary for the design of the slurry wall;
- Collection and analysis of groundwater samples along the eastern property boundary to evaluate the potential migration of COCs from Subunit 1; and
- Installation of temporary piezometers to evaluate the groundwater flow direction.

2.1 SOIL SAMPLING

On September 9 and 10, 2002, URS collected 53 soil samples from 25 Geoprobe borings. The locations of the borings are shown on Figure 4. Curtis & Thomkins Laboratory in Berkeley, California, a state-certified analytical laboratory, analyzed the samples for priority pollutant metals by EPA Method 6010B and pH by EPA Method 9045C. Selected samples were analyzed for polychlorinated biphenyls (PCBs) by EPA Method 8082. The results for the metal analysis of soil samples are discussed below in Section 3.1. The metals and pH data are summarized in Table 1. The PCB results are presented in Table 2.

Of the six AOCs in the upland portion of Subunit 2B shown on Figure 4, four areas, AOC 3, AOC 4, AOC 6, and AOC 7, are considered high priority areas and additional samples were collected in these areas to delineate the extent of COCs. The number of borings and samples for the various AOCs is as follows:

	Name of Area	No. of Borings	No. of Samples Collected	No. of Samples Analyzed
AOC3	Forest Products	3	12	6
AOC4	Shell Manufacturing	9	36	18
AOC6	Heron Drive	3	12	10
AOC7	Mercury Fulminate	8	31	19

Soil samples were collected from two additional areas that were not covered in the Workplan submitted under Task 4a. Boring OW2-1 was drilled near Owl Way Drive adjacent to a storm drain line that drains into the western storm drain where elevated concentrations of PCBs have been detected. Boring NP1 was drilled in the area planned for construction of new research ponds to evaluate whether contaminants are present. Boring logs for each location are presented in Appendix A and the analytical data is presented in Table 1 and 2.

2.2 CPT INVESTIGATION

Cone Penetrometer Testing (CPT) was performed by Gregg In Situ, Inc. (Gregg) of Martinez, California at 100-foot intervals within the location proposed for the slurry wall to be constructed

along 46th Street. The construction of the slurry wall by Zeneca is a component of the remedial design for Subunit 1 of the Meade Street Operable Unit and is designed as an additional measure to prevent the migration of COCs across the property boundary. CPT data was collected within the proposed location of the slurry wall to evaluate the material into which the bottom of the slurry wall would be keyed.

In addition, CPT was performed at 50-foot intervals extending 200 feet north of the proposed slurry wall location. The purpose of CPT in this area was to evaluate the stratigraphy of the zone along the property boundary between the RFS and Zeneca Inc and identify sand channels that may serve as preferential pathways for COC migration. Groundwater samples were collected from selected sandy units identified using CPT to evaluate whether elevated concentrations of metals or volatile organic compounds (VOCs) are migrating across the property boundary from Subunit 1 to Subunit 2.

CPT results are discussed below in Section 3.2. Gregg's report of the CPT findings is presented in Appendix B. The CPT locations are shown on Figure 6.

2.3 GROUNDWATER SAMPLING

URS collected three grab groundwater samples from three borings within the 200-foot interval north of the proposed slurry wall location. The locations of the borings, PB13 through PB15, are shown on Figure 4. The borings were installed to a depth of 16 feet below ground surface (bgs) by Gregg. The CPT borings were correlated with the stratigraphy from the Geoprobe boring logs collected from adjacent locations. A log of boring PB13 is presented in Appendix A. PB13 was located adjacent to the location of CPT800. The log for CPT800 is shown in Appendix B. Logs of borings PB14 and PB15 are shown as CPT logs CPT725 and CPT650 in Appendix B.

In addition, two borings were installed along the northern portion of the property boundary on the west side of 46th Street approximately 375 feet south of the entrance to the RFS. Only one of the two borings, PB16, yielded groundwater. This location is just west of Lot 1 of Subunit 1 and is shown on Figure 4.

The analytical results for the groundwater samples are discussed below in Section 3.3. The metals results and VOC results are summarized in Tables 3 and 4, respectively.

2.4 TEMPORARY PIEZOMETERS

URS constructed three temporary piezometers at locations PB18 through PB20, which are shown on Figure 4. The three temporary piezometers were installed in order to determine the groundwater flow direction. The piezometers were constructed using ¾" PVC to a depth of 16 feet bgs. URS surveyed the top-of-casing and measured the depth to groundwater on August 27, 2002. Survey data and water level measurements are summarized in Table 5. The groundwater flow direction calculation results are discussed below in Section 3.4.

3.1 SOIL SAMPLING RESULTS

SSTLs for human and ecological receptors were developed and submitted to the RWQCB in a report titled "Human Health and Ecological Tiered Risk Evaluation, University of California, Berkeley" and dated November 2001. The SSTLs were used to identify areas that may pose unacceptable risk. The relevant receptors that apply to the subject area are the red-tailed hawk, ground squirrel, industrial workers, and construction workers. The analytical results for historical and recent soil samples were screened against the proposed SSTLs and are summarized in Table 6. Each of the AOCs is discussed below.

3.1.1 AOC3: Forest Products Area

AOC 3 is located in the vicinity of the Forest Products Area in the northeastern portion of the Site (Figure 4). The area-wide representative concentration for arsenic exceeded the H-SSTL for the commercial worker (27.3 mg/kg). This exceedance was primarily due to the elevated arsenic (66 mg/kg) detected in the surface soil sample collected from sample location FP104.

Of the six soil samples analyzed from three borings, one sample exceeded the H-SSTL for arsenic and one sample exceeded the E-SSTL for copper. At FP2-1 and FP2-2, the concentrations of arsenic in the surface samples are 55 mg/kg and 740 mg/kg, respectively. The sample analyzed for PCBs did not exceed the screening level. These locations are shown on Figure 4. There are no exceedances in the deeper samples suggesting that the COCs occur in the near surface soils (<2 feet bgs). Additional sampling of near-surface soil will be required to define the lateral extent of arsenic.

3.1.2 AOC4: Shell Manufacturing Area

AOC 4 is located in the former Shell Manufacturing Area in the central area of the RFS (Figure 4). Previous surface soil samples were found to contain elevated levels of arsenic, (maximum of 126 mg/kg), copper (maximum of 840 mg/kg), lead (maximum of 850 mg/kg), and mercury (maximum of 140 mg/kg) in excess of their lowest respective SSTLs for human health or ecological receptors. The SSTLs for arsenic, copper, lead, and mercury are 27.3 mg/kg, 412 mg/kg, 437 mg/kg, and 42 mg/kg, respectively.

Of the 17 soil samples analyzed from nine borings, one sample exceeded the H-SSTL for lead and two samples exceeded the E-SSTL for copper and/or chromium. At SM2-4, lead occurs at a concentration of 1,000 mg/kg in surface soil. At SM2-5, chromium and copper occur at concentrations of 170 mg/kg and 530 mg/kg, respectively. Copper occurs at a concentration of 520 mg/kg in surface soil at location SM2-6. The sample analyzed for PCBs did not exceed the screening level. These locations are shown on Figure 4.

Of eight previous or current samples with exceedances of H-SSTLs, six are of surface soil. The other two are from depths of 1.3 and 1.5 feet. This suggests that COCs occur in near-surface soil within the upper two feet.

The lateral extent of COCs in the southern portion of this area is defined as shown on Figure 6. Although B16SH, a previous exceedance, is not well enclosed by the additional sampling locations, the uncertainty of B16SH's location and the fact that SM2-1, -2, and -8 do not contain

exceedances indicates reasonable definition of the southern portion of the AOC. Additional sampling will be required to define the northern portion of AOC4.

3.1.3 AOC6: Heron Drive

AOC 6 is located along West Heron Drive adjacent to the former seawall in the south central area of the Site (Figure 4). Surface soil samples, collected by Jonas and Associates in 1991, were found to contain elevated levels of mercury (up to 97.8 mg/kg) in excess of the Tier 2 E-SSTL for the red-tail hawk (42 mg/kg).

Of the six recent soil samples analyzed from three borings, two samples exceeded the E-SSTL for mercury. The surface sample from location HD2-2 contained 87 mg/kg and the 1.5-foot-bgs sample from location HD2-3 contained 60 mg/kg. Two of the three samples analyzed for PCBs exceeded the screening level. At location HD2-1 the surface sample contained 7.1 mg/kg Aroclor 1254 and 1.1 mg/kg Aroclor 1260 and the sample from 4-ft-bgs contained 4.6 mg/kg Aroclor 1248. It should be noted that the most prevalent Aroclor reported in the marsh was 1242. These locations are shown on Figure 4.

AOC6, based on the previous sample B8SH, appears to be defined on the west side but the north and eastern extents will require additional sampling. The southern extent of this AOC lies within Subunit 2A that will be remediated in 2003.

3.1.4 AOC7: Mercury Fulminate Area

AOC 7 is located in the former Mercury Fulminate Area in the south central area of the Site (Figures 4 and 5). The portion of the area south of the former seawall (see Figure 5) is within Subunit 2A and remediation of this portion of AOC 7 will be performed by UC Berkeley and Zeneca. During the continued remediation of Subunit 2A in summer 2003 UC Berkeley will also remediate the portion of AOC 7 north of the seawall in 2003 which allows for all mercury remediation to occur concurrently.

URS has performed substantial sampling within AOC 7 following the reporting of results in December 2000. The Jonas and Associates 1991 results were reviewed for the subsequent placement of URS sampling locations. Although the Jonas and Associates results were used in the definition of the AOC, they were not used to define the extent of the AOC because the sample locations were not surveyed and there is uncertainty regarding their location. The locations sampled by URS north of the former seawall since year 2000 are designated MF-107 through MF-113 and are shown on Figure 5.

In a summary of the Jonas and Associates 1991 analytical data, elevated concentrations were detected of arsenic (maximum 47 mg/kg, average 7 mg/kg), cadmium (maximum 437 mg/kg, average 24 mg/kg), copper (maximum 451 mg/kg, average 84 mg/kg) lead (maximum 1,140 mg/kg, average 109 mg/kg), mercury (maximum 630 mg/kg, average 37 mg/kg), and zinc (maximum 2,150 mg/kg, average 293 mg/kg). Concentrations for these metals exceed the H-SSTLs for either the commercial and/or the construction worker in six soil samples. The H-SSTL for arsenic is 27.3 mg/kg (commercial worker), cadmium is 147 mg/kg (commercial worker), lead is 750 mg/kg (commercial and construction worker), and mercury is 264 mg/kg (commercial worker). In addition, thirteen sample locations contained copper, mercury and/or

zinc above their respective Tier 2 E-SSTL for the red-tail hawk (412 mg/kg, 42 mg/kg and 760 mg/kg, respectively).

Figure 5 shows areas in the Mercury Fulminate Area where mercury exceeding the SSTL has been delineated. The locations, except one, with mercury exceeding the SSTL have also been vertically delineated. The exception is MF101 where the bottom sample at a depth of 6 feet bgs has a mercury concentration of 67 mg/kg.

Of the 17 recent soil samples analyzed from eight borings, four samples exceeded the E-SSTL and one sample exceeded the H-SSTL for mercury. In addition, one sample exceeded the H-SSTL for copper. Three of the exceedances are in surface soil at locations MF2-2 (44 mg/kg mercury), MF2-4 (670 mg/kg copper), and MF2-6 (200 mg/kg mercury). Neither of the two samples analyzed for PCBs exceeded the screening level. These locations are shown on Figures 4 and 5. The northern and eastern lateral extent of COCs does not appear to be defined.

The vertical extent of COCs is defined by the occurrence of a sample that does not exceed the SSTLs below the samples that do exceed an SSTL at eight of ten locations. The two locations not defined vertically are historical and the exact sampling location is unknown. However, in a previous round of sampling, an exceedance for mercury occurred at a depth of 5 feet bgs. During the recent round of sampling, location MF2-8 was located adjacent to MF-101. Samples were collected at depths of 6, 8, and 9.5 feet bgs. The mercury concentrations ranged from 360 mg/kg to 810 mg/kg. The vertical extent of mercury in this area has not been defined.

3.2 CPT RESULTS

On August 23, 2002, 13 CPT location were installed by Gregg to a depth of 25 feet as shown on Figure 4. Gregg's report describing the CPT program and results are in Appendix B.

Five of the locations are within the 600-foot-long area proposed for the construction of a slurry wall as part of Subunit 1 remedial measures. The locations are 200 feet, 315 feet, 400 feet, 500 feet, and 600 feet north of the south end of the planned slurry wall. CPT was performed at these locations to evaluate the stratigraphy at the base of the slurry wall, i.e., to determine whether sand units may be present at the base of the wall that would provide a poor foundation or allow leakage under the wall. The results shown in Appendix B indicate that the base of the slurry wall will be keyed into silt and clay.

UC Berkeley was concerned about the possibility of COCs migrating through subsurface sand channels across the property boundary within the area 200 feet north of the north end of the proposed slurry wall. CPT was used to identify the sand channels from which groundwater samples could be extracted for analysis. Therefore, URS directed Gregg to perform CPT at 8 locations at 25-foot intervals. The results shown in Appendix B indicate that several sandy channels occur within this area at depths of approximately 9 feet to 17 feet bgs. The results of the groundwater sampling are described below in the next section.

3.3 GROUNDWATER

The analytical results for dissolved metals and VOCs in groundwater, summarized in Tables 3 and 4. Metals are screened against 10 x USEPA California Toxics Rule Criteria and VOCs are screened against 10 x AWQC. None of the three groundwater samples collected along the

property boundary within the 200-foot area north of the planned slurry wall, contained metals or VOCs exceeding the screening levels. The groundwater sample collected from location PB16, west of 46th Street and Lot 1 on the Zeneca site, contained exceedances for copper (990 µg/L), nickel (780 µg/L), and zinc (7,300 µg/L). The screening levels for copper, nickel, and zinc are 31 µg/L, 82 µg/L, and 810 µg/L, respectively.

3.4 TEMPORARY PIEZOMETERS

Groundwater levels measured in the three temporary piezometers in August 2002 indicate that the groundwater flow direction is southwesterly in the southeastern portion of the RFS site adjacent to the Zeneca property boundary. The location of the piezometers and the approximate groundwater flow direction are shown on Figure 6.

Although the AOC's have been partially defined, based on the analytical, stratigraphic, and survey data collected during the environmental investigation discussed above, additional soil sampling is required to complete delineation of COCs in AOCs 3, 4, 6, and 7. Sixteen additional sampling locations are proposed to delineate the COCs in the four AOCs as shown on Figure 6 and discussed below. If exceedances are detected at these sample locations, additional samples will be collected for analysis at step-out intervals of approximately 25 feet until the AOCs have been fully delineated.

- All the exceedances in AOC3 (Forest Products Area) and AOC4 (Shell Manufacturing Area) were detected in surface soils. Therefore, only surface samples will be collected and analyzed to determine the extent of COCs. In AOC3 and AOC4 at least four locations will be sampled in each area as shown on Figure 6;
- In AOC6 (Heron Drive Area), mercury and PCBs exceeding the screening criteria were detected at a depth of 1.5 feet bgs. Therefore, soil samples will be collected at the ground surface and depths of 1.5 feet and 3 feet bgs at the six locations shown on Figure 6; and
- In AOC7 (Mercury Fulminate Area), samples will be collected from five locations shown on Figure 6 at the ground surface and a depth of 2 feet. In addition, at location MF101/MF2-8 where the vertical extent of mercury is undefined, we propose a boring with soil samples collected at depths of 8 feet (for confirmation), 10 feet, and 12 feet with samples from 14 feet and 16 feet held by the laboratory pending the results of the shallower soil samples.

In addition, RWQCB staff have requested that the additional sampling be performed to delineate COCs in the lower priority areas (as discussed in the Workplan), i.e., AOC1 and AOC2. Therefore, we propose the following:

- Samples from the ground surface and depths of 2 feet and 4 feet bgs will be collected from five Geoprobe borings in AOC1 at locations shown on Figure 6;
- Samples from the ground surface and depths of 2 feet and 4 feet bgs will be collected from five Geoprobe borings in AOC2 at locations shown on Figure 6; and
- Soil samples will be analyzed for priority pollutant metals by EPA Method 6010 and pH by EPA Method 9040/9045. In addition, the samples from AOC6 will be analyzed for PCBs by EPA Method 8082.

The next round of sampling is scheduled during November 2002 and will include both high and low priority AOC sites. Sampling will continue if needed during the following 2 months until all AOC's have been delineated. An addendum to this report will be prepared summarizing final sampling results and submitted as quickly as possible as this data is being used to complete the uplands remedial action plan due January 31, 2003 (Task 4c).

TABLES

TABLE 1
ANALYTICAL RESULTS FOR METALS AND pH IN SOIL
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

Location/Sample ID	Sample Depth (feet)	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	pH
II-SSTL (Industrial worker)			27.3		147	4,480	75,900	750	264	40,900	10,200	10,200	135	100,000	
II-SSTL (construction worker)		120		325	217	217	98,900	750	494	53,200	13,300	13,300	176	100,000	
E-SSTL				230	157	157	412	437	42	621				760	

AOC 3 - Forest Products Area

FP2-1	0	<2.0 UJ	55	0.4	2.1	33	170	38	3.0	34 J	0.61	<0.24	1.3	100	5.6
FP2-1	2	<2.9 UJ	14	0.48	1.5	34	20	11	0.23	51 J	0.46	<0.24	1.3	39	5.6
FP2-2	0	<2.8 UJ	6.5	0.29	3.4	24	740	39	1.2	27 J	1.1	<0.23	<0.23	61	6.3
FP2-2	2	<3.4 UJ	4.6	0.7	4.7	43	19	12	0.1	47 J	0.53	<0.28	<0.28	26	6.1
FP2-3	0	<2.1 UJ	2.9	0.45	3.4	11	13	15	0.49	21 J	0.28	<0.18	<0.18	37	6.9
FP2-3	2	<2.9 UJ	6.8	0.35	3.5	27	280	54	0.51	32 J	0.83	<0.24	<0.24	93	5.4

AOC 4 - Shell Manufacturing Area

SM2-1	0	<2.7	13	0.43	1.9	24	340 J	140 J	13	35	1.5	0.22	1.3	160	6
SM2-1	2	<3.2	5.8	0.58	1.4	56	21 J	19 J	0.71	65	0.41	<0.27	2.6	62	5.6
SM2-2	0	<3.1	6	0.71	0.96	32	19 J	22 J	5.4	82	2.3	<0.26	9.4	33	6
SM2-2	2	<3.2	4	0.55	1.1	57	11 J	14 J	0.087	66	0.49	<0.26	1.9	35	6.5
SM2-3	0	<3.0	6.4	0.59	1	35	55 J	88 J	1.4	43	1.6	<0.25	2.5	68	5.3
SM2-3	2	<3.2	5.7	0.55	1.1	64	13 J	13 J	0.096	55	<0.27	<0.27	<0.27	32	5.7
SM2-4	0	3.1	11	0.57	1.8	39	300 J	1000 J	4	38	1.6	0.24	0.94	130	5.9
SM2-4	2	<3.2	2.8	0.46	0.78	49	15 J	17 J	0.067	31	0.53	<0.27	<0.27	29	6.8
SM2-5	0	4.6	19	0.6	2.9	170	530 J	300 J	7.0	54	2.8	0.33	<0.28	300	5.5
SM2-5	2	<3.1	2.6	0.53	1.1	57	17 J	19 J	0.23	50	<0.26	<0.26	0.96	110	5.8
SM2-6	0	3.5	25	0.72	2.7	28	520 J	230 J	16	48	1.3	0.8	1.0	350	5.5
SM2-6	2	<3.0	5.7	0.55	1.1	63	17 J	17 J	0.14 U	55	<0.25	<0.25	<0.25	33	4.8
SM2-7	0	<2.4 UJ	6.7	0.42	1.6	23	330	110	10	38 J	1.5	<0.2	2.7	130	7.3
SM2-7	2	<2.8 UJ	1.9	0.37	0.67	25	10	6.3	0.053	23 J	0.53	<0.23	<0.23	22	6.6
SM2-8	0	<3.0 UJ	4.5	0.41	1.2	22	72	56	3.4	46 J	1.4	<0.25	2.7	99	6.7
SM2-8	2	<3.4 UJ	2.3	0.28	0.67	27	8.6	7.4	0.15	28 J	<0.28	<0.28	<0.28	15	5
SM2-9	0	<3.0 UJ	3.6	0.4	2.2	26	190	25	5.7	50 J	0.62	<0.25	1.3	480	4.7

AOC 6 - Hieron Drive Area

HD2-1	0	<3.0	6.5	0.58	1.2	26	75 J	79 J	24	43	0.69	<0.25	2.7	120	6.7
HD2-1	2	<0.28	3.5	0.55	0.93	42	12 J	12 J	0.85	40	<0.23	<0.23	0.25	31	6.8
HD2-1	4	na	na	na	na	na	na	na	3.8	na	na	na	na	na	na
HD2-1	7.5	na	na	na	na	na	na	na	0.074	na	na	na	na	na	na
HD2-2	0	<2.8	8.6	0.49	1.4	26	280 J	130 J	87	40	0.86	<0.23	1.4	170	6.3
HD2-2	2	<3.3	4.2	0.67	0.93	43	14 J	14 J	<0.022	42	<0.27	<0.27	0.86	25	6.4
HD2-2	4	na	na	na	na	na	na	na	1.3	na	na	na	na	na	na
HD2-3	0	<2.8	1.6	0.58	0.56	9.7	7.5 J	11 J	1.3	17	<0.24	<0.24	0.84	28	8.8

TABLE 1
ANALYTICAL RESULTS FOR METALS AND pH IN SOIL
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

Location/Sample ID	Sample Depth (feet)	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	pH
HD2-3	1.5	<3.4	9.7	0.6	1.1	31	82 J	140 J	60	41	1.6	<0.28	3.4	86	7.6
HD2-3	4	na	na	na	na	na	na	na	23	na	na	na	na	na	na
HD2-3	7.5	na	na	na	na	na	na	na	0.058	na	na	na	na	na	na

AOC7 - Mercury Fulminate Area

MF2-1	0	<3.3	0.88	0.56	0.49	7.7	5.9	15	1.3	18	0.46	<0.27	<0.27	33	6.6
MF2-1	2	<3.1	2.1	0.42	0.71	26	9.7	21	3.2	22	<0.26	<0.26	1.1	64	5.1
MF2-2	0	<2.4	1.9	0.37	0.63	21	13	11	44	20	0.26	<0.20	0.85	49	8.6
MF2-2	2	<3.5	2.8	0.71	0.99	35	17	16	0.52	58	<0.29	<0.29	1.4	32	8.8
MF2-3	0	<2.8	3.6	0.42	1.9	29	37	28	5.2	56	0.65	0.48	0.82	77	6.9
MF2-3	2	<2.7	1.6	0.42	0.76	25	12	8.3	6.6	25	<0.23	<0.23	0.31	21	5.4
MF2-4	0	<3.1	4	0.41	2	28	670	39	0.83	25	0.7	0.28	1.3	160	4.7
MF2-4	2	<3.0	1.9	0.2	0.77	25	47	10	<0.23	20	<0.25	<0.25	<0.25	82	5.6
MF2-5	0	<2.8	4.8	0.37	1.1	28	44	30	19	38	0.52	<0.24	1.2	76	6
MF2-5	2	<2.9	2.3	0.51	0.72	24	10	11	2.9	36	0.78	<0.24	2.6	17	6.2
MF2-6	0	<3.2	5.2	0.31	1.1	22	190	48	200	26	<0.27	<0.27	0.55	150	5.9
MF2-6	2	<3.1	2.7	0.27	0.79	27	6.1	15	2.7	19	<0.26	<0.26	0.43	18	5.3
MF2-7	0	<2.9	19	0.64	0.9	15	23 J	67 J	2.7	26	<0.24	<0.24	1.5	230	6.7
MF2-7	2	<3.2	1.4	0.55	0.53	27	10 J	9.2 J	0.22	25	<0.26	<0.26	<0.26	22	6.2
MF2-8	6	<3.7 UJ	6	0.46	5	37	47	13	370	53 J	<0.31	<0.31	<0.31	49	6.4
MF2-8	8	<3.2	5.6	0.45	5.6	54	32	17	810	65	0.57	<0.27	<0.27	56	7.2
MF2-8	9.5	<2.9	2.6	0.36	4.4	43	37	12	360	55	0.54	<0.24	<0.24	41	6.3

Owl Way

OW2-1	0	<2.9 UJ	4.6	0.28	3.4	22	80	40	2.1	29 J	0.35	<0.24	<0.24	71	6.5
OW2-1	8	<2.6 UJ	3.5	0.25	3.2	27	27	11	0.1	50 J	0.57	<0.22	<0.22	33	7.3

New Pond Area

NP1	0.5	<3.1 UJ	2.6	0.32	2	23	13	15	0.044	20 J	0.46	<0.26	<0.26	19	5.1
NP1	3	<3.3 UJ	2.4	0.25	2.8	24	15	9.9	0.16	44 J	0.35	<0.28	<0.28	21	5.2
NP1	6	<3.3 UJ	3.9	0.4	4.1	29	28	11	0.095 U	100 J	<0.28	<0.28	0.53	34	8.3
NP1	8	<3.1 UJ	3.7	0.46	4.4	35	22	11	0.1 U	54 J	<0.26	<0.26	<0.26	45	7.8

Note: 123 = SSTL exceedance
n.a. = not analyzed
Results reported in mg/kg

TABLE 2
ANALYTICAL RESULTS FOR PCBs IN SOIL/SEDIMENT
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

Screening Criteria	Sample Depth (feet)	Total PCBs	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
USEPA PRGs (Industrial)		1.0	0.29	1.0	1.0	1.0	1.0	1.0	1.0
Location/Sample ID									
AOC 3-Forest Products Area									
FP2- 1	0	0.150	<0.013	<0.026	<0.013	<0.013	<0.013	0.15 J	<0.013
AOC 4-Shell Manufacturing Area									
SM2- 1	0		<0.013	<0.025	<0.013	<0.013	<0.013	<0.013	<0.013
SM2- 4	0	0.047	<0.012	<0.025	<0.012	<0.012	<0.012	0.028	0.019
AOC 6-Heron Drive Area									
HD2- 1	0		<0.25	<0.5	<0.25	<0.25	<0.25	7.100	1.100
HD2- 1	4		<0.013	<0.026	<0.013	<0.013	4.600	<0.013	<0.013
HD2- 2	0	0.208	<0.013	<0.025	<0.013	<0.013	<0.013	0.150	0.058
AOC 7-Mercury Filminate Area									
MF2- 2	0	0.057	<0.013	<0.025	<0.013	<0.013	<0.013	0.033	0.024
MF2- 3	0	0.149	<0.013	<0.025	<0.013	<0.013	<0.013	0.100	0.049
MF2- 7	0	0.018	<0.013	<0.025	<0.013	<0.013	<0.013	<0.012	0.018
Owl Way									
OW2- 1	0		<0.013	<0.026	<0.013	<0.013	<0.013	<0.013	<0.013
OW2- 1	8		<0.013 UJ	<0.026 UJ	<0.013 UJ	<0.013 UJ	<0.013 UJ	<0.013 UJ	<0.013 UJ
New Pond Area									
NPI	0.5		<0.013	<0.025	<0.013	<0.013	<0.013	<0.013	<0.013

Notes: na = not analyzed
 E-123 = PRG exceedance
 EPA Method 8082; Results reported in mg/kg

TABLE 3
ANALYTICAL RESULTS FOR METALS IN GROUNDWATER
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

Location/Sample ID	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
10 X (1)	NA	360	NA	93	500	31	81	0.25	82	710	NA	NA	810
PB13	<60	17	<2.0	<5.0	<10	11	<3.0	<0.2	<20	13	<5.0	<5.0	<20
PB14	<60	22	<2.0	<5.0	<10	21	<3.0	<0.2	<20	15	<5.0	<5.0	<20
PB15	<60	8.1	<2.0	<5.0	<10	<10	<3.0	<0.2	<20	<5.0	<5.0	<5.0	<20
PB16	<60	<5.0	2.9	44	<10	<990	8.4	<0.2	<780	14	<5.0	64	<7300

Note: EPA Method 6010 (7471 for mercury); units = ug/L
123.53 = 10x (1) Exceedence
 PB13 through PB15 are located within 200' of the proposed slurry wall
 PB16 is located west of Zeneca's Lot 1 on 46th St.

(1) USEPA California Toxics Rule Criteria (Saltwater, Continuous Concentration)

**TABLE 4
ANALYTICAL RESULTS FOR VOCs IN GROUNDWATER
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION**

Location	PB13	PB14	PB15	PB16	Screening Value ^a
Parameter					
Freon 12	n.a.	n.a.	n.a.	n.a.	n.a.
Chloromethane	<1.0	<1.0	<1.0	<1.0	n.a.
Vinyl Chloride	<0.5	0.9	1.1	<0.5	n.a.
Bromomethane	<1.0	<1.0	<1.0	<1.0	n.a.
Chloroethane	<1.0	<1.0	<1.0	<1.0	n.a.
Trichlorofluoromethane	<1.0	<1.0	<1.0	<1.0	6400
Acetone	n.a.	n.a.	n.a.	n.a.	n.a.
Freon 113	<1.0	<1.0	<1.0	<1.0	n.a.
1,1-Dichloroethene	<0.5	<0.5	<0.5	<0.5	n.a.
Methylene Chloride	<20	<20	<20	<20	n.a.
Carbon Disulfide	n.a.	n.a.	n.a.	n.a.	n.a.
MTBE	n.a.	n.a.	n.a.	n.a.	n.a.
trans-1,2-Dichloroethene	<0.5	<0.5	<0.5	<0.5	n.a.
Vinyl Acetate	n.a.	n.a.	n.a.	n.a.	n.a.
1,1-Dichloroethane	<0.5	<0.5	<0.5	<0.5	n.a.
2-Butanone	n.a.	n.a.	n.a.	n.a.	n.a.
cis-1,2-Dichloroethene	0.8	1.1	1.3	<0.5	n.a.
2,2-Dichloropropane	n.a.	n.a.	n.a.	n.a.	n.a.
Chloroform	2.4	48	45	<1.0	n.a.
Bromochloromethane	n.a.	n.a.	n.a.	n.a.	n.a.
1,1,1-Trichloroethane	<0.5	<0.5	<0.5	<0.5	n.a.
1,1-Dichloropropene	n.a.	n.a.	n.a.	n.a.	n.a.
Carbon Tetrachloride	2.2	53	16	<0.5	n.a.
1,2-Dichloroethane	<0.5	6.3	8.7	<0.5	n.a.
Benzene	n.a.	n.a.	n.a.	n.a.	n.a.
Trichloroethene	19	64	55	7.7	n.a.
1,2-Dichloropropane	<0.5	<0.5	<0.5	<0.5	3040
Bromodichloromethane	<0.5	<0.5	<0.5	<0.5	n.a.
Dibromomethane	n.a.	n.a.	n.a.	n.a.	n.a.
4-Methyl-2-Pentanone	n.a.	n.a.	n.a.	n.a.	n.a.
cis-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5	n.a.
Toluene	n.a.	n.a.	n.a.	n.a.	5000
trans-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5	n.a.
1,1,2-Trichloroethane	<0.5	<0.5	<0.5	<0.5	n.a.
2-Hexanone	n.a.	n.a.	n.a.	n.a.	n.a.
1,3-Dichloropropane	n.a.	n.a.	n.a.	n.a.	3040
Tetrachloroethene	<0.5	0.6	11	0.6	450
Dibromochloromethane	<0.5	<0.5	<0.5	<0.5	6400
1,2-Dibromoethane	n.a.	n.a.	n.a.	n.a.	n.a.
Chlorobenzene	<0.5	1.8	3.7	<0.5	129
1,1,1,2-Tetrachloroethane	n.a.	n.a.	n.a.	n.a.	n.a.
Ethylbenzene	n.a.	n.a.	n.a.	n.a.	n.a.
m,p-Xylenes	n.a.	n.a.	n.a.	n.a.	n.a.
o-Xylene	n.a.	n.a.	n.a.	n.a.	n.a.
Styrene	n.a.	n.a.	n.a.	n.a.	n.a.
Bromoform	<0.5	<0.5	<0.5	<0.5	n.a.
Isopropylbenzene	n.a.	n.a.	n.a.	n.a.	n.a.
1,1,2,2-Tetrachloroethane	<0.5	<0.5	<0.5	<0.5	n.a.
1,2,3-Trichloropropane	n.a.	n.a.	n.a.	n.a.	n.a.
Propylbenzene	n.a.	n.a.	n.a.	n.a.	n.a.
Bromobenzene	n.a.	n.a.	n.a.	n.a.	n.a.
1,3,5-Trimethylbenzene	n.a.	n.a.	n.a.	n.a.	n.a.
2-Chlorotoluene	n.a.	n.a.	n.a.	n.a.	n.a.
4-Chlorotoluene	n.a.	n.a.	n.a.	n.a.	n.a.
tert-Butylbenzene	n.a.	n.a.	n.a.	n.a.	n.a.
1,2,4-Trimethylbenzene	n.a.	n.a.	n.a.	n.a.	n.a.
sec-Butylbenzene	n.a.	n.a.	n.a.	n.a.	n.a.

**TABLE 4
ANALYTICAL RESULTS FOR VOCs IN GROUNDWATER
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION**

Location	PB13	PB14	PB15	PB16	Screening Value ^a
Parameter					
Freon 12	n.a.	n.a.	n.a.	n.a.	n.a.
para-Isopropyl Toluene	n.a.	n.a.	n.a.	n.a.	n.a.
1,3-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5	129
1,4-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5	129
n-Butylbenzene	n.a.	n.a.	n.a.	n.a.	n.a.
1,2-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5	129
1,2-Dibromo-3-Chloropropane	n.a.	n.a.	n.a.	n.a.	n.a.
1,2,4-Trichlorobenzene	n.a.	n.a.	n.a.	n.a.	129
Hexachlorobutadiene	n.a.	n.a.	n.a.	n.a.	n.a.
Naphthalene	n.a.	n.a.	n.a.	n.a.	n.a.
1,2,3-Trichlorobenzene	n.a.	n.a.	n.a.	n.a.	n.a.

^a USEPA National Recommended Ambient Water Quality Criteria; Saltwater Aquatic Life Protection; Chronic ; Units = ug/L(ppb)

Note:

EPA Method 8260B, Units = ug/L

n.a. = not analyzed

Table 5
Groundwater Levels in Temporary Piezometers
Upland Portion of Subunit 2B
Richmond Field Station

Location	Date	Depth to Groundwater (ft)	Elevation (Top of Casing) (ft)	Groundwater Elevation (ft)
PB18	9/10/2002	9.82	13.61	3.79
PB19	9/10/2002	8.83	12.48	3.65
PB20	9/10/2002	8.57	13.31	4.74

TABLE 6
ANALYTICAL RESULTS FOR METALS FROM HISTORICAL AND CURRENT INVESTIGATIONS
UPLAND PORTION OF SUBUNIT 2B
RICIMOND FIELD STATION

Location/Sample ID	Sample Depth (feet)	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
II-SSTL (Industrial worker)	120	27.3	120	147	325	4,480	75,900	750	264	40,900	10,200	10,200	176	100,000
II-SSTL (construction worker)														100,000
E-SSTL														100,000

AOC 3 - Forest Products Lab

Driver Is present II-SSTL - construction worker

FP1-101-B	0	<4	4.5	0.33	1.8	29	28	19	0.37	27	0.73	<0.33	1.3	73
FP1-101-B	2	<3.4	3.3	0.34	1.7	37	12	7	0.063	33	0.3	<0.28	1.1	28
FP1-102-B	0	<3.1	3.2	0.79	1.5	12	19	11	0.41	17	<2.6	<2.6	0.51	52
FP1-102-B	2	<3.3	2.3	0.29	0.96	26	12	4.7	0.51	23	0.33	<0.27	0.88	23
FP1-103-B	2	<3.1	3.7	0.37	1.4	39	11	5.3	0.07	36	0.4	<0.26	1	23
FP1-104-B	0	<3.4	6.7	0.39	1.8	46	34	8.3	1.2	54	0.55	<0.28	1.2	55
FP1-104-B	4	<3.4	27	0.31	1.4	31	29	4.5	0.45	50	0.52	<0.28	1.1	39
FP1-105-B	2	<3.4	3.6	0.39	1.4	28	17	9.1	<0.044	25	<0.28	<0.28	0.62	31
FP1-106-B	0	<4.3	3.4	0.51	0.88	33J	18	5.3	1.3	52J	<0.36	<0.36	<0.36	24
FP1-106-B	4	<3.5	3.6	0.17	1.2	33J	20	8.3	0.17	120J	0.68	<0.29	2.2	29
FP1-106-B	6	<3.5	6.5	0.47	2	35	30	6.1	<0.048	70J	<0.29	<0.29	1.2	37

Round 2 - Summer 2002

FP2-1	0	<2.9	5.8	0.4	2.1	33	170	38	3	34	0.61	<0.24	1.3	100
FP2-1	2	<2.9	14	0.48	1.5	34	20	11	0.23	51	0.46	<0.24	1.3	39
FP2-2	0	<2.8	6.5	0.29	3.4	24	39	39	1.2	27	1.1	<0.23	<0.23	61
FP2-2	2	<3.4	4.6	0.7	4.7	43	19	12	0.1	47	0.53	<0.28	<0.28	26
FP2-3	0	<2.1	2.9	0.45	3.4	11	13	15	0.49	21	0.28	<0.18	<0.18	37
FP2-3	2	<2.9	6.8	0.35	3.5	27	280	54	0.51	32	0.83	<0.24	<0.24	93

AOC 4 - Shell Manufacturing Area

Driver Is copper and mercury E-SSTL

PC-101-B	0	<3.3	3.7J	0.18	1.2	34	550	15	<0.43	22	0.61J	<0.27	0.91J	42
PC-101-B	2	<3.8	3	0.4	1.4	39	320	4.2	1	40	0.5	<0.32	0.43J	150
PC-101-B	5	<3.6	3.6	0.47	1.9	42	88	4.8	<0.45	110	0.73	<0.3	1J	170
SH-101-B	0	<3.6	3.2J	0.49	1.7	30	840	6.4	<0.40	26	0.49J	<0.3	1J	140
SH-101-B	2	<3.8	4.3J	0.33	1.8	57	56	6.1	<0.5	47	0.69J	<0.32	<0.32	100
SH-101-B	5	<3.4	3.1J	0.19	0.96	27	12	2.4	<0.45	41	0.34J	<0.28	0.45J	28
SH-102-B	0	<3.7	28	0.15	4.1	20	440	850	2.6	36	2.5	1.9	1.5J	130
SH-102-B	2	<3.8	3.3	0.4	1.6	50	16	7.4	<0.49	45	0.77	<0.31	0.36	34
SH-102-B	5	<3.3	3.8	0.29	1.5	42	17	3.1	<0.42	46	0.79	<0.27	1.9J	32
B32-5-90	0-3	na	na	na	na	na	na	na	1.4	na	na	na	na	na
B35-5-90	0-3	na	na	na	na	na	na	na	3	na	na	na	na	na
B37-5-90	0-3	na	na	na	na	na	na	na	0.73	na	na	na	na	na
B38-5-90	0-3	na	na	na	na	na	200	na	2.5	na	na	na	na	170
B39-5-90	0-3	na	na	na	na	na	160	na	6.7	na	na	na	na	180
B40-5-90	0-3	na	na	na	na	na	na	na	2.7	na	na	na	na	na
B41-5-90	0-3	na	na	na	na	na	na	na	0.34	na	na	na	na	na
B42-5-90	0-3	na	na	na	na	na	na	na	0.16	na	na	na	na	na
B43-5-90	0-3	na	na	na	na	na	na	na	1.6	na	na	na	na	na

TABLE 6
ANALYTICAL RESULTS FOR METALS FROM HISTORICAL AND CURRENT INVESTIGATIONS
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

Location/Sample ID	Sample Depth (feet)	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
II-SSTL (Industrial worker)		27.3	130		147	4,480	75,900	750	264	40,900	10,200	10,200	135	100,000
II-SSTL (construction worker)					325	217	98,900	750	494	53,300	13,300	13,300	176	100,000
E-SSTL					230	157	412	437	42	621				760
B44	5-90	na	na	na	na	na	na	na	1	na	na	na	na	na
B45	5-90	na	na	na	na	na	na	na	6.1	na	na	na	na	na
B01	2-91	na	<0.9	na	2.3	64.1	187	81.3	1.1	na	<9	na	na	125
B02	2-91	na	3.4	na	1.2	27.7	3.4	37.1	3.31	na	<3.6	na	na	40.8
B03	2-91	na	3	na	1.6	19.2	12.6	7.4	0.12	na	<0.7	na	na	10.9
B04	2-91	na	2.4	na	0.86	16.1	10.5	6.4	<0.11	na	<0.7	na	na	10.2
B05	2-91	na	9.7	na	1.4	25.1	18.1	6.3	<0.11	na	<0.74	na	na	43.8
B06	2-91	na	7.1	na	1.6	24.6	17	5.4	<0.11	na	<0.73	na	na	42.6
B09	2-91	na	6.3	na	1.9	14.8	70.5	187	18.8	na	<0.7	na	na	132
B10	2-91	na	7.4	na	2.2	20.9	188	87.4	40.2	na	<0.72	na	na	260
B11	2-91	na	<8.7	na	3	28.9	291	313	7.74	na	<8.7	na	na	437
B12	2-91	na	3.2	na	<0.77	34.2	24.3	8.9	0.57	na	<0.72	na	na	35.7
B13	2-91	na	2.8	na	0.87	28	34.8	9.2	0.3	na	<0.76	na	na	43.2
B14	2-91	na	3.2	na	0.87	22.5	22.5	12.9	2.48	na	<0.71	na	na	54.7
B15	2-91	na	126	na	4.2	25.9	408	741	6.42	na	<8.6	na	na	366
B15	2-91	na	1.9	na	5.1	71.2	32.3	6.5	0.3	na	<9.3	na	na	48.4
B15	2-91	na	2.7	na	2.9	58	54.3	9.7	0.26	na	<9.2	na	na	65.7
B15	2-91	na	<8.8	na	2.5	69.8	25.3	4.2	0.11	na	<8.8	na	na	58.7
B15	2-91	na	3.2	na	1.7	63.3	62.7	4.2	0.11	na	<9	na	na	89.3
B15	2-91	na	1.7	na	1.9	43.3	25.5	3.2	0.25	na	<9.5	na	na	48.5
B16	2-91	na	3.6	na	0.88	22.4	25.5	9.3	1.17	na	<0.76	na	na	71.4
B18	2-91	na	2.8	na	0.96	31.2	29.8	40.1	2.27	na	<0.71	na	na	60.7
Round 2 - Summer 2002														
SM2-1	0	<2.7	13	0.43	1.9	24	340	140	13	35	1.5	0.22	1.3	160
SM2-1	2	<3.2	5.8	0.58	1.4	56	21	19	0.71	65	0.41	<0.27	2.6	62
SM2-2	0	<3.1	6	0.71	0.96	32	19	22	5.4	82	2.3	<0.26	9.4	33
SM2-2	2	<3.2	4	0.55	1.1	57	11	14	0.087	66	0.49	<0.26	1.9	35
SM2-3	0	<3.0	6.4	0.59	1	35	55	88	14	43	1.6	<0.25	2.5	68

TABLE 6
ANALYTICAL RESULTS FOR METALS FROM HISTORICAL AND CURRENT INVESTIGATIONS
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

Location/Sample ID	Sample Depth (feet)	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
II-SSTL (Industrial worker)		27.3			3147	4,480	75,900	750	264	40,900	10,200	10,200	135	100,000
II-SSTL (construction worker)		120			325	217	98,900	750	494	53,200	13,300	13,300	176	100,000
E-SSTL					230	157	412	437	42	621				760
SM2- 3	2	<3.2	5.7	0.55	1.1	64	13	13	0.096	55	<0.27	<0.27	<0.27	32
SM2- 4	0	3.1	11	0.57	1.8	39	300	1000	4	38	1.6	0.24	0.94	130
SM2- 4	2	<3.2	2.8	0.46	0.78	49	15	17	0.067	31	0.53	<0.27	<0.27	29
SM2- 5	0	4.6	19	0.6	2.9	170	530	300	7.9	54	2.8	0.33	<0.28	300
SM2- 5	2	<3.1	2.6	0.53	1.1	57	17	19	0.23	50	<0.26	<0.26	0.96	110
SM2- 6	0	3.5	25	0.72	2.7	28	520	230	16	48	1.3	0.8	1	350
SM2- 6	2	<3.0	5.7	0.55	1.1	63	17	17	0.14	55	<0.25	<0.25	<0.25	33
SM2- 7	0	<2.4	6.7	0.42	1.6	23	330	110	10	38	1.5	<0.2	2.7	130
SM2- 7	2	<2.8	1.9	0.37	0.67	25	10	6.3	0.053	23	0.53	<0.23	<0.23	22
SM2- 8	0	<3.0	4.5	0.41	1.2	22	72	56	3.4	46	1.4	<0.25	2.7	99
SM2- 8	2	<3.4	2.3	0.28	0.67	27	8.6	7.4	0.15	28	<0.28	<0.28	<0.28	15
SM2- 9	0	<3.0	3.6	0.4	2.2	26	190	25	5.7	50	0.62	<0.25	1.3	480

AOC 6 - Heron Drive Area

Driver is mercury E-SSTL

Location/Sample ID	Sample Depth (feet)	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
B07 SH	1.3	na	3	na	<0.76	17.8	38.9	20.6	80.1	na	<0.73	na	na	47.6
B08 SH	1.3	na	6.5	na	1.6	20.7	181	121	97.8	na	<0.7	na	na	114
Round 2 - Summer 2002														
IID2- 1	0	<3.0	6.5	0.58	1.2	26	75	79	24	43	0.69	<0.25	2.7	120
IID2- 1	2	<2.8	3.5	0.55	0.93	42	12	12	0.85	40	<0.23	<0.23	0.25	31
IID2- 1	4	na	na	na	na	na	na	na	3.8	na	na	na	na	na
IID2- 1	7.5	na	na	na	na	na	na	na	0.074	na	na	na	na	na
IID2- 2	0	<2.8	8.6	0.49	1.4	26	200	130	34.87	40	0.86	<0.23	1.4	170
IID2- 2	2	<3.3	4.2	0.67	0.93	43	14	14	1.8	42	<0.27	<0.27	0.86	25
IID2- 2	4	na	na	na	na	na	na	na	<0.022	na	na	na	na	na
IID2- 3	0	<2.8	1.6	0.58	0.56	9.7	7.5	11	1.3	17	<0.24	<0.24	0.84	28
IID2- 3	1.5	<3.4	9.7	0.6	1.1	31	82	140	60	41	1.6	<0.28	3.4	86
IID2- 3	4	na	na	na	na	na	na	na	23	na	na	na	na	na
IID2- 3	7.5	na	na	na	na	na	na	na	0.038	na	na	na	na	na

AOC 7 - Mercury Fulminate Area

Driver is mercury, cadmium, copper, and lead E-SSTL and arsenic II-SSTL

Round 1

Location/Sample ID	Sample Depth (feet)	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
MF- 101-B-	0	<5.2	9.7 J	0.33	2.1	24	84	59	15.45	37	1.5 J	0.93	1.2 J	430
MF- 101-B-	2	<3.8	3.3 J	0.51	0.85	24	9.8	8.3	5.5	52	1.1 J	<0.31	3.4 J	17
MF- 101-B-	5	<3.7	9.6 J	0.46	1.7	40	23	5.5	5.8	85	<0.31 UJ	<0.31	0.67 J	38
MF- 102-B-	0	<3.3	2.2	0.37	1.5	16 J	370	5.7	3.6	14 J	<0.27	<0.27	0.41	380
MF- 102-B-	3	<3.8	2.5	0.46	0.8	25 J	12	5.7	23	47 J	0.82	<0.31	2.8	20
MF- 102-B-	6	<180	14	<6.1	<16	33	29	<9.2	0.11	210 J	<15	<0.31	<15	<61
MF- 102-B-	13	<3.6	1.6	0.2	1	48 J	16	4.6	1.1	36 J	<0.3	<0.3	0.68	33
MF- 103-B-	0	<3.5	6.7 J	0.2	1.6	19	140	130	50	23	0.82 J	1.1	0.72 J	290
MF- 103-B-	2	<3.8	2.2 J	0.44	1.3	21	16	4.8	11	59	0.69 J	<0.32	2.5 J	130
MF- 103-B-	5	<3.8	6.1 J	0.47	1.6	37	25	4.5	13	57	<0.32 UJ	<0.32	<0.32 UJ	43
MF- 105-B-	0	<3.6	3.3 J	0.42	0.71	23	9.6	5.2	4.6	41	0.65 J	<0.3	1.2 J	16

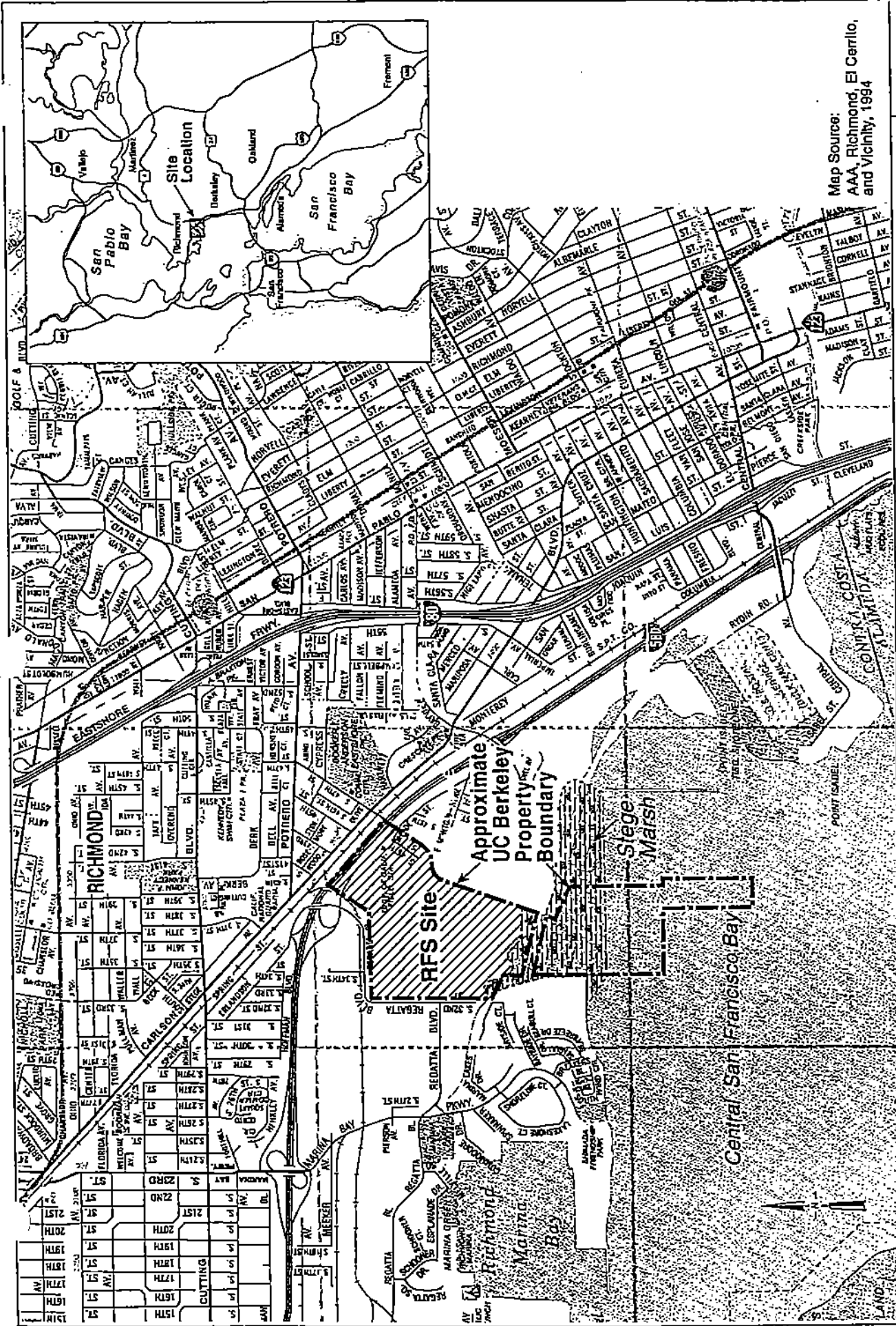
TABLE 6
ANALYTICAL RESULTS FOR METALS FROM HISTORICAL AND CURRENT INVESTIGATIONS
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

Location/Sample ID	Sample Depth (feet)	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
II-SSTL (Industrial worker)		27.3	120		147	4,480	75,900	750	264	40,900	10,200	10,200	135	100,000
II-SSTL (construction worker)					325	217	98,900	750	491	53,200	13,300	13,300	176	100,000
E-SSTL					230	157	412	337	42	621				760
Historical														
B1	5-90	na	na	na	na	na	na	na	3.5	na	na	na	na	na
B2	5-90	na	na	na	na	na	na	na	9.6	na	na	na	na	na
B3	5-90	na	na	na	na	na	na	na	3.3	na	na	na	na	na
B4	5-90	na	na	na	na	na	na	na	4.8	na	na	na	na	na
B5	5-90	na	na	na	na	na	na	na	19	na	na	na	na	na
B6	5-90	na	na	na	na	na	na	na	22	na	na	na	na	na
B7	5-90	na	na	na	na	na	na	na	28	na	na	na	na	na
B8	5-90	na	na	na	na	na	na	na	20	na	na	na	na	na
B9	5-90	na	na	na	na	na	na	na	61	na	na	na	na	na
B10	5-90	na	na	na	na	na	na	na	90	na	na	na	na	na
B11	5-90	na	na	na	na	na	na	na	25	na	na	na	na	na
B12	5-90	na	na	na	na	na	53	na	180	na	na	na	na	na
B13	5-90	na	na	na	na	na	na	na	7.4	na	na	na	na	na
B14	5-90	na	na	na	na	na	na	na	8.1	na	na	na	na	na
B15	5-90	na	na	na	na	na	na	na	27	na	na	na	na	na
B17	5-90	na	na	na	na	na	na	na	140	na	na	na	na	na
B18	5-90	na	na	na	na	na	57	na	630	na	na	na	na	640
B19	5-90	na	na	na	na	na	na	na	27	na	na	na	na	na
B20	5-90	na	na	na	na	na	na	na	20	na	na	na	na	na
B21	5-90	na	na	na	na	na	na	na	44	na	na	na	na	na
B22	5-90	na	na	na	na	na	na	na	11	na	na	na	na	na
B23	5-90	na	na	na	na	na	na	na	2.2	na	na	na	na	na
B24	5-90	na	na	na	na	na	na	na	41.3	na	na	na	na	na
B25	5-90	na	na	na	na	na	na	na	0.46	na	na	na	na	na
B26	5-90	na	na	na	na	na	na	na	0.8	na	na	na	na	na
B27	5-90	na	na	na	na	na	na	na	1.2	na	na	na	na	na
B28	5-90	na	na	na	na	na	na	na	0.29	na	na	na	na	na
B29	5-90	na	na	na	na	na	na	na	0.1	na	na	na	na	na
B30	5-90	na	na	na	na	na	na	na	4.4	na	na	na	na	na
B31	5-90	na	na	na	na	na	na	na	6.7	na	na	na	na	na
B33	5-90	na	na	na	na	na	na	na	0.41	na	na	na	na	na
B34	5-90	na	na	na	na	na	na	na	7	na	na	na	na	na
B46	5-90	na	na	na	na	na	na	na	1.4	na	na	na	na	na
B47	5-90	na	na	na	na	na	na	na	4.7	na	na	na	na	na
B48	5-90	na	na	na	na	na	na	na	0.41	na	na	na	na	na

TABLE 6
ANALYTICAL RESULTS FOR METALS FROM HISTORICAL AND CURRENT INVESTIGATIONS
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

Location/Sample ID	Sample Depth (feet)	Antimony	Arsenic	Bismuth	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
Round 1 - Summer 2002														
II-SSTL (industrial worker)														
II-SSTL (construction worker)														
E-SSTL														
D1 MF 2-91	1.3	na	9.3	na	0.98	32.9	102	91.5	1.3	na	<0.88	na	na	21.4
D1 MF 2-91	1.5	na	na	na	4.97	52.4	209	388	4.39	na	<8.9	na	na	na
D2 MF 2-91	4	na	na	na	5.3	36.5	159	697	2.6	na	<9.9	na	na	na
D2 MF 2-91	6.5	na	3.2	na	1.6	51	44	7.4	0.46	na	<10	na	na	68.8
D3 MF 2-91	9	na	1.1	na	2	53.7	29.2	5	<0.12	na	<0.96	na	na	57.4
D2 MF 2-91	11.5	na	1.3	na	0.82	45.8	22.7	4.3	1.63	na	<8.9	na	na	63.9
D2 MF 2-91	14	na	2.3	na	2.5	35	34.7	5.6	2.03	na	<0.88	na	na	53.2
D3 MF 2-91	1.3	na	0.2	na	92	46.5	451	1140	11	na	<0.9	na	na	na
Round 3 - Summer 2002														
MF2- 1	0	<3.3	0.88	0.56	0.49	7.7	5.9	15	1.3	18	0.46	<0.27	<0.27	33
MF2- 1	2	<3.1	2.1	0.42	0.71	26	9.7	21	3.2	22	<0.26	<0.26	1.1	64
MF2- 2	0	<2.4	1.9	0.37	0.63	21	13	11	na	30	0.26	<0.20	0.85	49
MF2- 2	2	<3.5	2.8	0.71	0.99	35	17	16	0.52	58	<0.29	<0.29	1.4	32
MF2- 3	0	<4.8	3.6	0.42	1.9	29	37	28	5.2	56	0.65	0.48	0.82	77
MF2- 3	2	<2.7	1.6	0.42	0.76	25	12	8.3	6.6	25	<0.23	<0.23	0.31	31
MF2- 4	0	<3.1	4	0.11	2	28	na	30	0.83	25	0.7	0.28	1.3	160
MF2- 4	2	<3.0	1.9	0.2	0.77	25	47	10	<0.23	20	<0.25	<0.25	<0.25	82
MF2- 5	0	<2.8	4.8	0.37	1.1	28	44	50	19	38	0.52	<0.24	1.2	76
MF2- 5	2	<2.9	2.3	0.51	0.72	24	10	11	2.9	36	0.78	<0.24	2.6	17
MF2- 6	0	<3.2	5.2	0.31	1.1	32	190	48	na	26	<0.27	<0.27	0.55	150
MF2- 6	2	<3.1	2.7	0.27	0.79	27	6.1	15	2.7	19	<0.26	<0.26	0.43	18
MF2- 7	0	<2.9	19	0.64	0.9	15	23	67	0.22	26	<0.24	<0.24	1.5	230
MF2- 7	2	<3.2	1.4	0.55	0.53	27	10	9.2	2.7	25	<0.26	<0.26	<0.26	22
MF2- 8	6	<3.7	6	0.46	5	37	47	13	na	53	<0.31	<0.31	<0.31	49
MF2- 8	8	<3.2	5.6	0.45	5.6	54	32	17	na	65	0.57	<0.27	<0.27	56
MF2- 8	9.5	<2.9	2.6	0.36	4.4	43	37	12	na	55	0.54	<0.24	<0.24	41
Owl Way														
Round 1 - Summer 2002														
OW2- 1	0	<2.9 UJ	4.6	0.28	3.4	22	80	40	2.1	29 J	0.35	<0.24	<0.24	71
OW2- 1	8	<2.6 UJ	3.5	0.25	3.2	27	27	11	0.1	50 J	0.57	<0.22	<0.22	33
New Pond Area														
Round 1 - Summer 2002														
NPI- 1	0.5	<3.1 UJ	2.6	0.32	2	23	13	15	0.044	30 J	0.46	<0.26	<0.26	19
NPI- 1	3	<3.3 UJ	2.4	0.25	2.8	24	15	9.9	0.16	44 J	0.35	<0.28	<0.28	21
NPI- 1	6	<3.3 UJ	3.9	0.4	4.1	29	28	11	0.095	100 J	<0.28	<0.28	0.53	34
NPI- 1	8	<3.1 UJ	3.7	0.46	4.4	35	22	11	0.1	54 J	<0.26	<0.26	<0.26	45

Note: [S-123] = SSTL exceedance
EPA Method 6010 (7470 for mercury); units = mg/kg
n.a. = not analyzed



Map Source:
AAA, Richmond, El Cerrillo,
and Vichity, 1994

UNIVERSITY OF CALIFORNIA,
BERKELEY
RICHMOND FIELD STATION
SITE LOCATION MAP

Project No. 51-09967067.00
University of California
Richmond Field Station



51-09967067.00-000091081402.gps

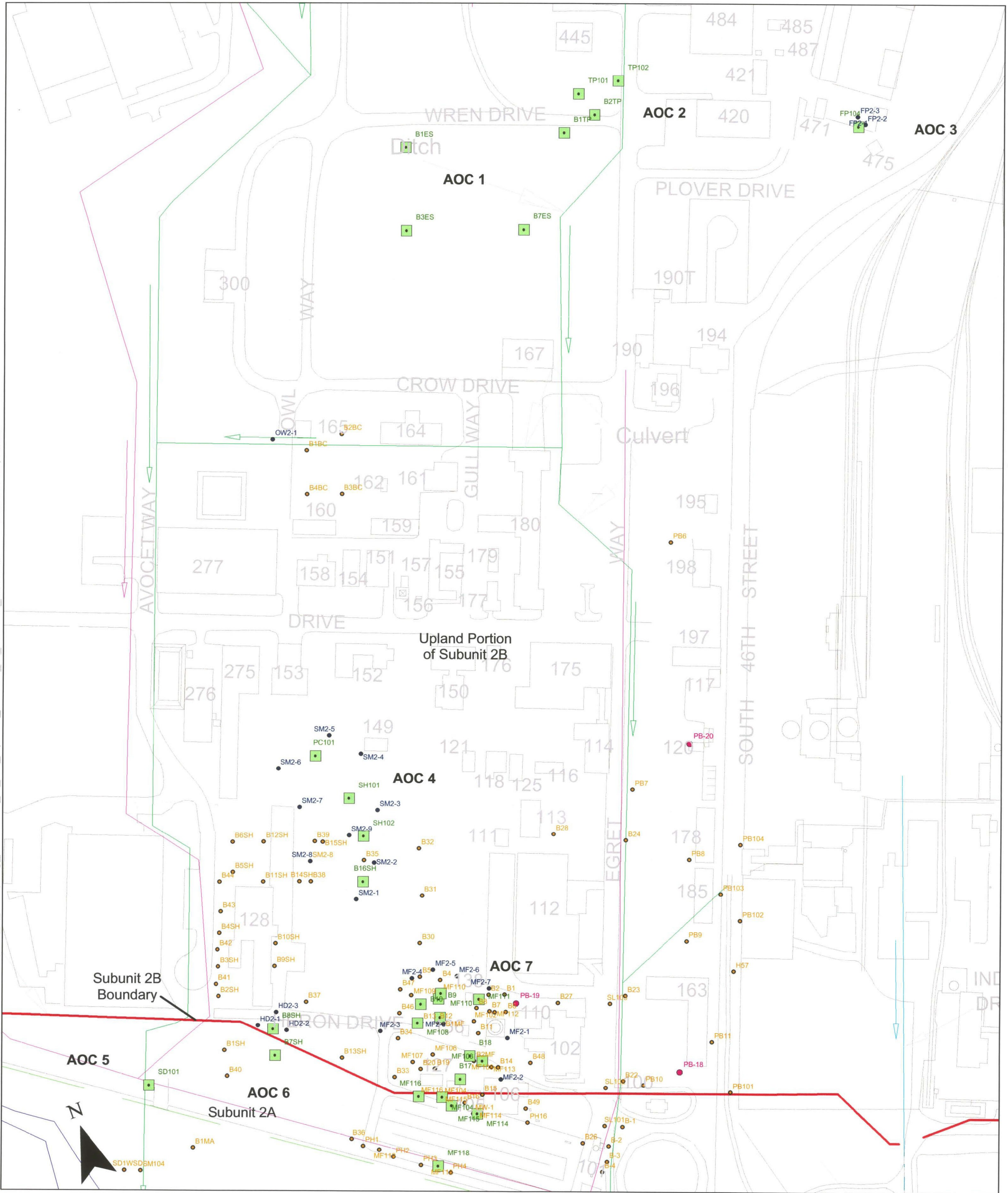


LEGEND

- Zeneca Property (Subunit 1)
- Richmond Field Station Property (Subunit 2 & Offshore Property)

		University of California, Berkeley Richmond Field Station	
		URS	
Project No. 20814100		Subunits 2A and 2B Locations and Boundaries	
		October 2002	not to scale
		Figure 2	

L:\Projects\26814100_UCB_RFS\MXD\Figure 4 Sampling Locations in the Upland Portion of Subunit 2B.mxd October 25, 2002



Legend

- SSTL Exceedance
- Temporary Piezometer
- Soil Sampling Locations (Summer 2002)
- Previous Sampling Locations



URS	University of California, Berkeley Richmond Field Station	Sampling Locations in the Upland Portion of Subunit 2B	Figure 4
	26814100		



L:\Projects\26814100_UCB_RFS\MXD\Figure_3_Site_Layout_Meade_St_Operable_Unit.mxd October 31, 2002

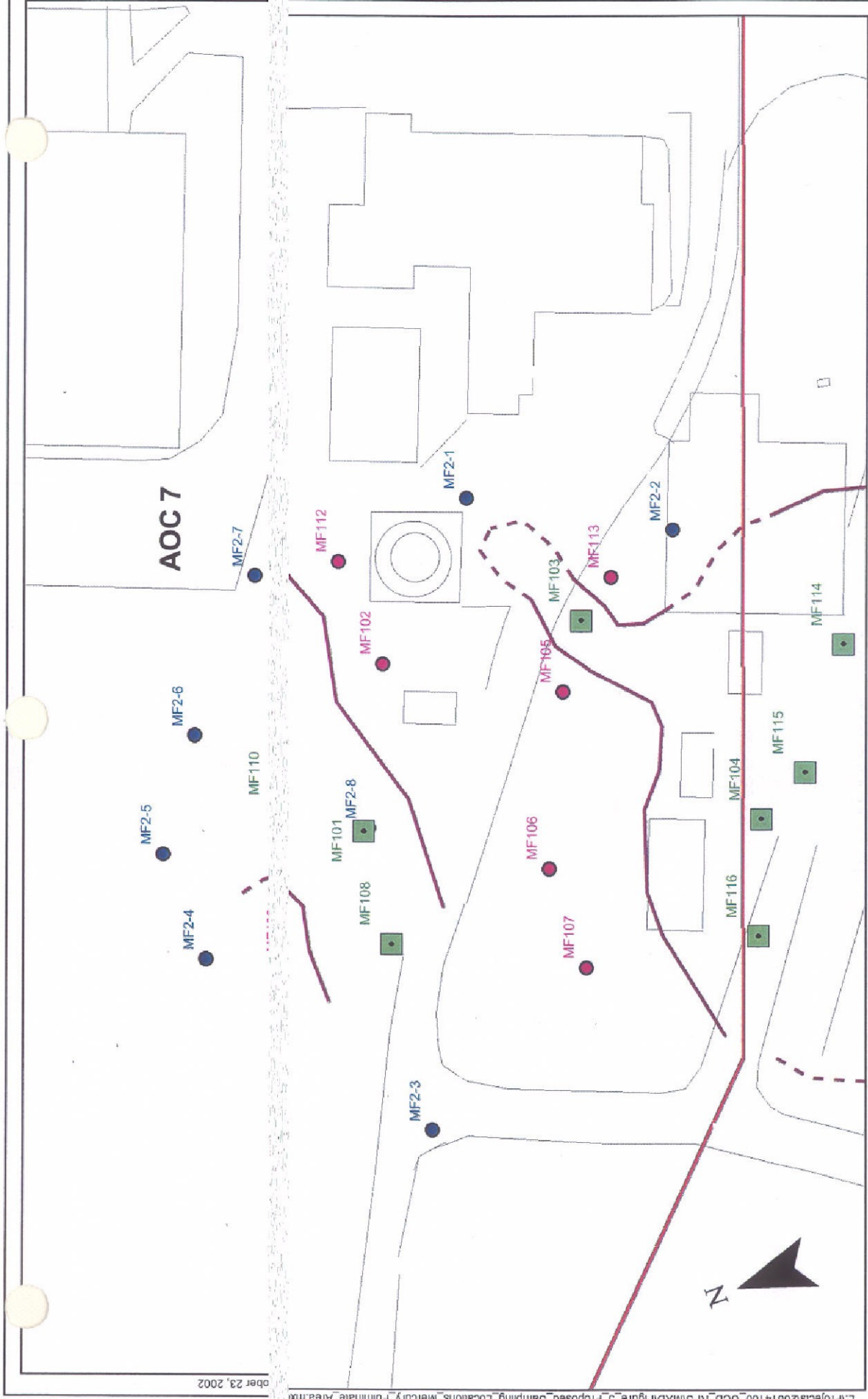
University of California, Berkeley
Richmond Field Station

26814100



Site Layout,
Meade St. Operable Unit

Figure
3



October 23, 2002

L:\Projects\26814100_UCB_RF\SMX\DX\Figure_5_Proposed_Sampling_Locations_Mercury_Fulminate_Area.mxd

Legend

SSSL Exceedance Boundaries

- - - Uncertain
- Defined

SSSL Exceedance

- Soil Sampling Locations (Summer 2002)
- Previous Sample Location Below SSSL



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Richmond Field Station
26814100

Sampling Locations in the Mercury Fulminate Area













Appendix A
Boring Logs

Elevation, feet	Depth, feet	SAMPLES			Graphic Log	MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number	Headspace PID, ppm			
1	2	3	4	5	6	7	8




COLUMN DESCRIPTIONS

- 1 Elevation:** Elevation in feet referenced to mean sea level (MSL) or site datum.
- 2 Downhole Depth:** Distance in feet below the ground surface.
- 3 Sample Interval:** Graphic depiction of field sampling depths and intervals from which laboratory samples were collected; sampler symbols are explained below.
- 4 Lab ID Number:** Identification number of samples collected for possible chemical analysis.
- 5 Headspace PID:** Photo-ionization device field sample headspace reading, in parts per million (ppm).
- 6 Graphic Log:** Graphic depiction of subsurface material encountered; typical symbols are explained below.
- 7 Material Description:** Description of material encountered; may include color, moisture, grain size, and density/consistency.
- 8 Field Notes:** Comments and observations regarding drilling or sampling made by driller or URS field personnel.





TYPICAL MATERIAL GRAPHIC SYMBOLS

 SAND	 CLAY, low to medium plasticity	 SILT	 GRAVEL
 SAND with SILT	 CLAY, high plasticity	 SILTY CLAY	 SILTY GRAVEL
 SILTY SAND	 CLAYEY SAND	 CLAYEY SILT	 Cinders

TYPICAL SAMPLER GRAPHIC SYMBOLS

-  Recovery in geoprobe continuous core sampler
-  No recovery zone in geoprobe sampler
-  Sample retained for possible chemical testing

OTHER GRAPHIC SYMBOLS

-  First water encountered at during drilling
-  Water level measured at completion of drilling
-  Water level measured after 24 hrs
-  Inferred contact due to no recovery or gradational change in lithology

GENERAL NOTES

- Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive; actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
- Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

Project: UC Berkeley Richmond Field Station

Project Location: Richmond, California

Project Number: 26814100

Log of Boring FP2-1

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	20.95 feet MSL
Groundwater Levels(s)	Dry ATD	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Forest Products Area, In drainage swale	Borehole Completion	Backfilled with grout to ground surface		

Elevation, feet	Depth, feet	SAMPLES			Graphic Log	MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number	Headspace PID, ppm			
0	0	FP2-1-0'				SILT, brown, dry	
20	2	FP2-1-2'				SANDY CLAY, reddish brown, dry, some rounded gravel to 1/2 inch dia.	
15	4	FP2-1-4'					
0	7.5	FP2-1-7.5'					
						BOTTOM OF BORING AT 8 FEET	
10	10						
5	15						
0	20						
25	25						

Report: ENV_3P5SW_SOLON: File: BERKRICH.GPJ: 10/17/2002 FP2-01



Project: UC Berkeley Richmond Field Station

Project Location: Richmond, California

Project Number: 26814100

Log of Boring FP2-2

Sheet 1 of 1

Date(s) Drilled	9/10/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	21.56 feet MSL
Groundwater Levels(s)	Dry ATD	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Forest Products Area	Borehole Completion	Backfilled with grout to ground surface		

Elevation, feet	Depth, feet	SAMPLES			Graphic Log	MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number	Headspace PID, ppm			
0		FP2-2-0'				SILT, dark brown, dry	
-20		FP2-2-2'				CLAY, light brown, damp, trace silt	
-5		FP2-2-4'				SANDY CLAY, light brown, moist	
-15		FP2-2-7.5'				GRAVELLY CLAY, light brown, moist, gravel to 1/2 inch dia.	
						BOTTOM OF BORING AT 8 FEET	
-10							
-15							
-5							
-20							
0							
-25							

Report: ENV_3PFSM_SOLON; File: BERKRICH.GPJ; 10/17/2002 FP2-02

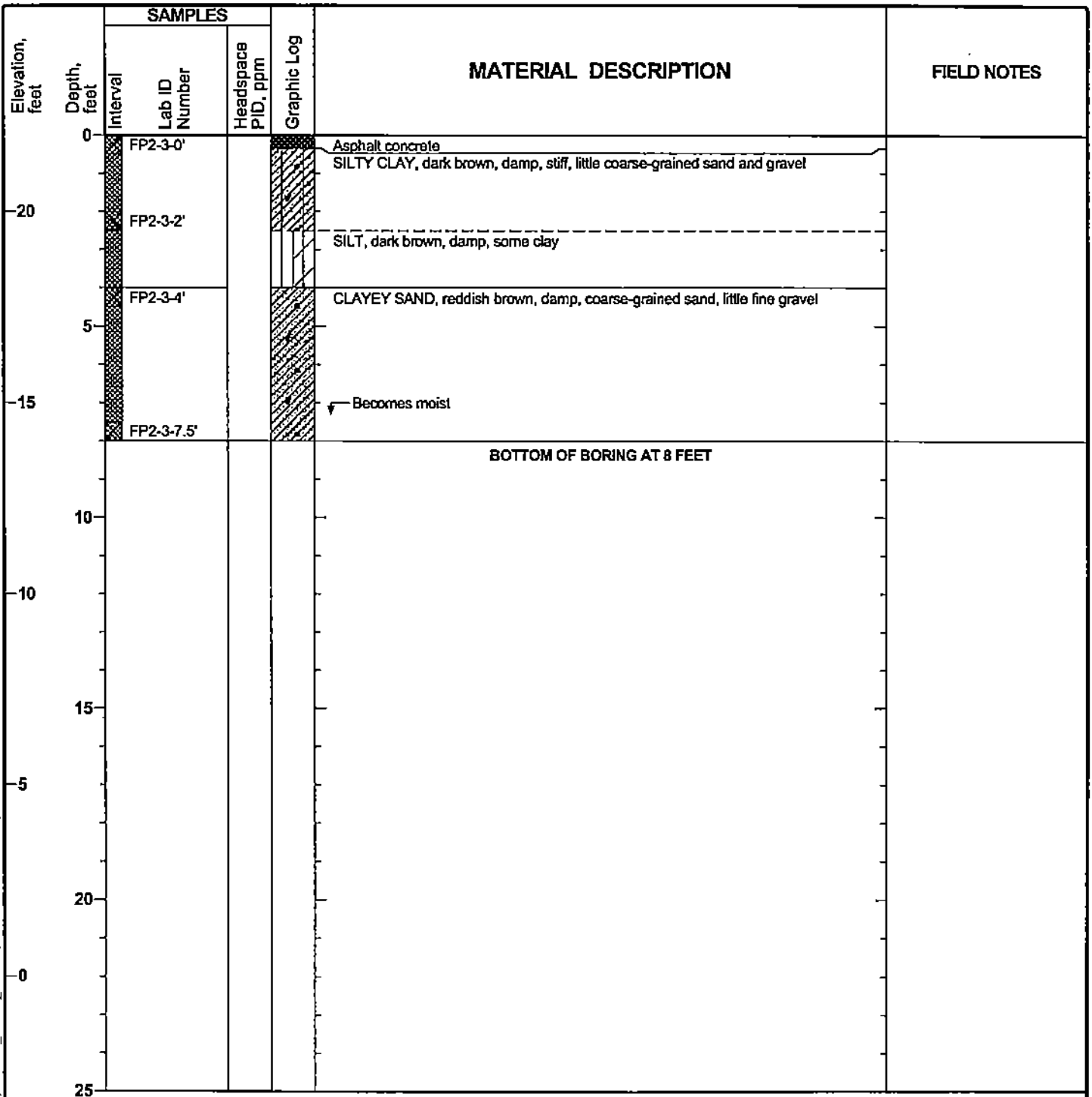


Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring FP2-3

Sheet 1 of 1

Date(s) Drilled	9/10/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	22.00 feet MSL
Groundwater Levels(s)	Dry ATD	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Forest Products Area	Borehole Completion	Backfilled with grout to ground surface		



Report: ENV_3P5W_SOLON; File: BERKRICH.GPJ; 10/17/2002 FP2-03



Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring SM2-1

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	12.83 feet MSL
Groundwater Levels(s)	Dry to 7.4 ft bgs ATD and after 24 hrs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Shell Manufacturing Area	Borehole Completion	Backfilled with grout to ground surface		

Elevation, feet	Depth, feet	SAMPLES			MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number	Headspace PID, ppm		
0			SM2-1-0'		CLAY, very dark brown, dry, hard	
			SM2-1-2'		↓ Becomes dark gray, with decomposed sandstone fragments and white chalk-like particles	
			SM2-1-4'		CLAY, grayish brown, dry, medium stiff	
					SILTY CLAY, brown, damp	
			SM2-1-7.5'		SANDY CLAY, brown, wet, coarse-grained sand, little fine gravel	
					BOTTOM OF BORING AT 8 FEET	
	10					
	0					
	15					
	5					
	20					
	-10					
	25					

Report: ENV_3PS/W_SOLON; File: BERKRICH.GPJ; 10/17/2002 SM2-01

Project: UC Berkeley Richmond Field Station

Project Location: Richmond, California

Project Number: 26814100

Log of Boring SM2-2

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	13.49 feet MSL
Groundwater Levels(s)	Dry to 7.3 ft bgs ATD and after 24 hrs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Shell Manufacturing Area	Borehole Completion	Backfilled with grout to ground surface		

Elevation, feet	Depth, feet	SAMPLES			MATERIAL DESCRIPTION	FIELD NOTES	
		Interval	Lab ID Number	Headspace PID, ppm			Graphic Log
0	0		SM2-2-0'				
	2.5		SM2-2-2'			SILT, grayish brown, dry, very hard, some angular gravel	
	5		SM2-2-4'			SILTY CLAY, light brown, damp, soft	
	7.5		SM2-2-7.5'				
	8	BOTTOM OF BORING AT 8 FEET					
	10						
	15						
	20						
	25						

Report: ENV_3PS/W_SCLDN; File: BERKRICH.GPJ; 10/17/2002; SM2-02

Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring SM2-3
 Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	14.52 feet MSL
Groundwater Levels(s)	Dry to 7.4 ft bgs ATD and after 24 hrs		Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner	
Location	Shell Manufacturing Area		Borehole Completion	Backfilled with grout to ground surface	

Elevation, feet	Depth, feet	SAMPLES			MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number	Headspace PID, ppm		
0	0	SM2-3-0'			GRAVELLY CLAY, reddish brown, damp, fine gravel, some coarse-grained sand	
		SM2-3-2'				
-10	5	SM2-3-4'				
		SM2-3-7.5'				
					BOTTOM OF BORING AT 8 FEET	
-5	10					
0	15					
-5	20					
-10	25					

Report: ENV_3PSW_SOLON; File: BERKRICH.GPJ; 10/17/2002 SM2-03



Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring SM2-4

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	15.08 feet MSL
Groundwater Levels(s)	Dry to 7.1 ft bgs ATD and after 24 hrs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Shell Manufacturing Area	Borehole Completion	Backfilled with grout to ground surface		

Elevation, feet	Depth, feet	SAMPLES			Graphic Log	MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number	Headspace PID, ppm			
15	0		SM2-4-0'			CLAY, brown, dry, hard	
			SM2-4-2'				
10	5		SM2-4-4'				
			SM2-4-7.5'				
					SILTY CLAY, brown, moist, stiff		
					BOTTOM OF BORING AT 8 FEET		
5	10						
0	15						
-5	20						
	25						

Report: ENV_3P5/W_SOLON; File: BERKRICH.GPJ; 10/17/2002 SM2-04

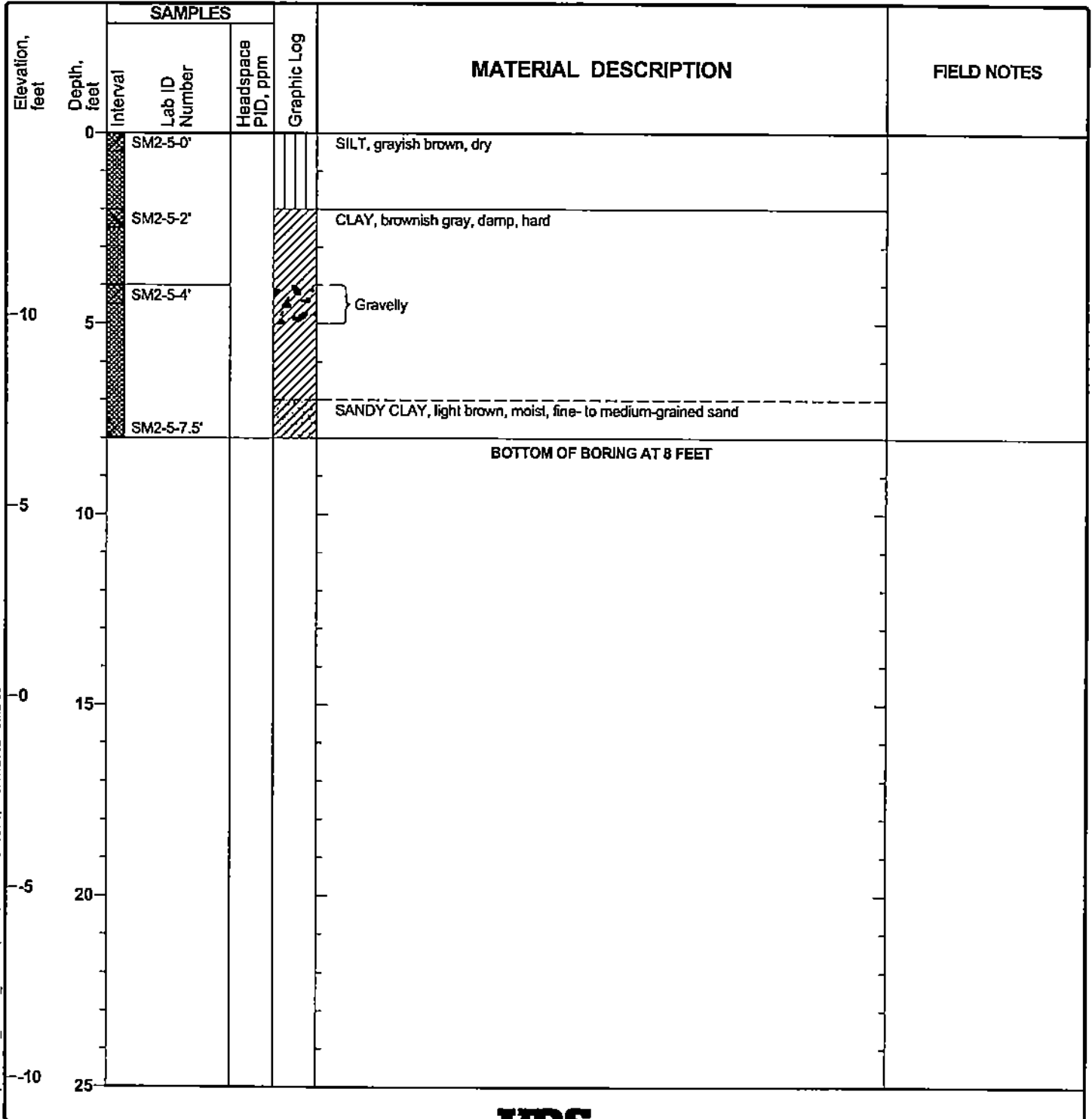


Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring SM2-5

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	14.79 feet MSL
Groundwater Levels(s)	Dry to 6.8 ft bgs ATD and after 24 hrs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Shell Manufacturing Area		Borehole Completion	Backfilled with grout to ground surface	



Report: ENV_3PSW_SOLON; File: BERKRICH.GPJ; 10/17/2002 SM2-05



Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring SM2-6

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	14.07 feet MSL
Groundwater Levels(s)	Dry to 6.9 ft bgs ATD and after 24 hrs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Shell Manufacturing Area		Borehole Completion	Backfilled with grout to ground surface	

Elevation, feet	Depth, feet	SAMPLES			MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number	Headspace PID, ppm		
0	0		SM2-6-0'			
	2		SM2-6-2'			
10	5		SM2-6-4'			
	7.5		SM2-6-7.5'			
					BOTTOM OF BORING AT 8 FEET	
5	10					
	15					
0	20					
	25					

Report: ENV_3PSW_SOLON; File: BERKRICH.GPJ; 10/17/2002 SM2-06

Project: UC Berkeley Richmond Field Station

Project Location: Richmond, California

Project Number: 26814100

Log of Boring SM2-7

Sheet 1 of 1

Date(s) Drilled	9/10/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	13.98 feet MSL
Groundwater Levels(s)	Dry ATD	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Shell Manufacturing Area		Borehole Completion	Backfilled with grout to ground surface	

Elevation, feet	Depth, feet	SAMPLES		MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number		
0		SM2-7-0'		GRAVELLY SILT, brown, dry, gravel to 1/4 inch	
		SM2-7-2'		No gravel SILTY CLAY, light brown, dry, hard	
10	5	SM2-7-4'		SILTY SAND, light brown, dry, fine- to coarse-grained sand, little gravel to 1/4 inch dia.	
		SM2-7-7.5'		SILT, light brown, damp, some clay	
5	10			BOTTOM OF BORING AT 8 FEET	
0	15				
-5	20				
-10	25				

Report: ENV_3P5W_SOLON; File: BERKRICH.GPJ; 10/17/2002 SM2-07



Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring SM2-9

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	14.06 feet MSL
Groundwater Levels(s)	Dry ATD	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Shell Manufacturing Area	Borehole Completion	Backfilled with grout to ground surface		

Elevation, feet	Depth, feet	SAMPLES			MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number	Headspace PID, ppm		
0	0	SM2-9-0'			SILT, dark brown, dry	
		SM2-9-2'			SILTY CLAY, grayish brown, dry, medium stiff	
10	5	SM2-9-4'			SILTY CLAY, grayish brown, dry, medium stiff, some coarse-grained sand and fine gravel	
		SM2-9-7.5'			SILTY CLAY, light brown, moist	
					BOTTOM OF BORING AT 8 FEET	
-5	10					
0	15					
-5	20					
-10	25					

Report: ENV_3P3SAW_SOLON; File: BERKRICH.GPJ; 10/17/2002 SM2-09



Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring HD2-1

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	9.85 feet MSL
Groundwater Levels(s)	Dry to 7 ft bgs ATD and after 24 hrs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Heron Drive Area	Borehole Completion	Backfilled with grout to ground surface		

Elevation, feet	Depth, feet	SAMPLES		Graphic Log	MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number			
0	0	HD2-1-0'			GRAVELLY SILT [FILL]	
		HD2-1-2'			SILTY CLAY, brown, dry, very hard, some concretions	
		HD2-1-4'			GRAVELLY SILT, brown, dry, hard	
		HD2-1-7.5'			CLAYEY SAND, brown, moist, coarse-grained sand	
					BOTTOM OF BORING AT 8 FEET	
0	10					
-5	15					
-10	20					
-15	25					

Report: ENV_3PS/W_ SOLOM; File: BERKRICH.GPJ; 10/17/2002 HD2-01



Project: UC Berkeley Richmond Field Station

Project Location: Richmond, California

Project Number: 26814100

Log of Boring HD2-2

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	9.01 feet MSL
Groundwater Levels(s)	Dry to 7 ft bgs ATD and after 24 hrs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Heron Drive Area	Borehole Completion	Backfilled with grout to ground surface		

Elevation, feet	Depth, feet	SAMPLES			MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number	Headspace PID, ppm		
0	0	HD2-2-0'			<p>CLAY, gray, dry, hard</p> <p>↓ Becomes light brown and gray, with little coarse-grained sand and fine rounded gravel</p> <p>SILTY CLAY, light brown, damp</p> <p>GRAVELLY CLAY, brown, damp, rounded gravel to 1/4 inch dia.</p> <p>BOTTOM OF BORING AT 8 FEET</p>	
	2	HD2-2-2'				
5	5	HD2-2-4'				
	7.5	HD2-2-7.5'				
0	10					
	15					
	20					
	25					

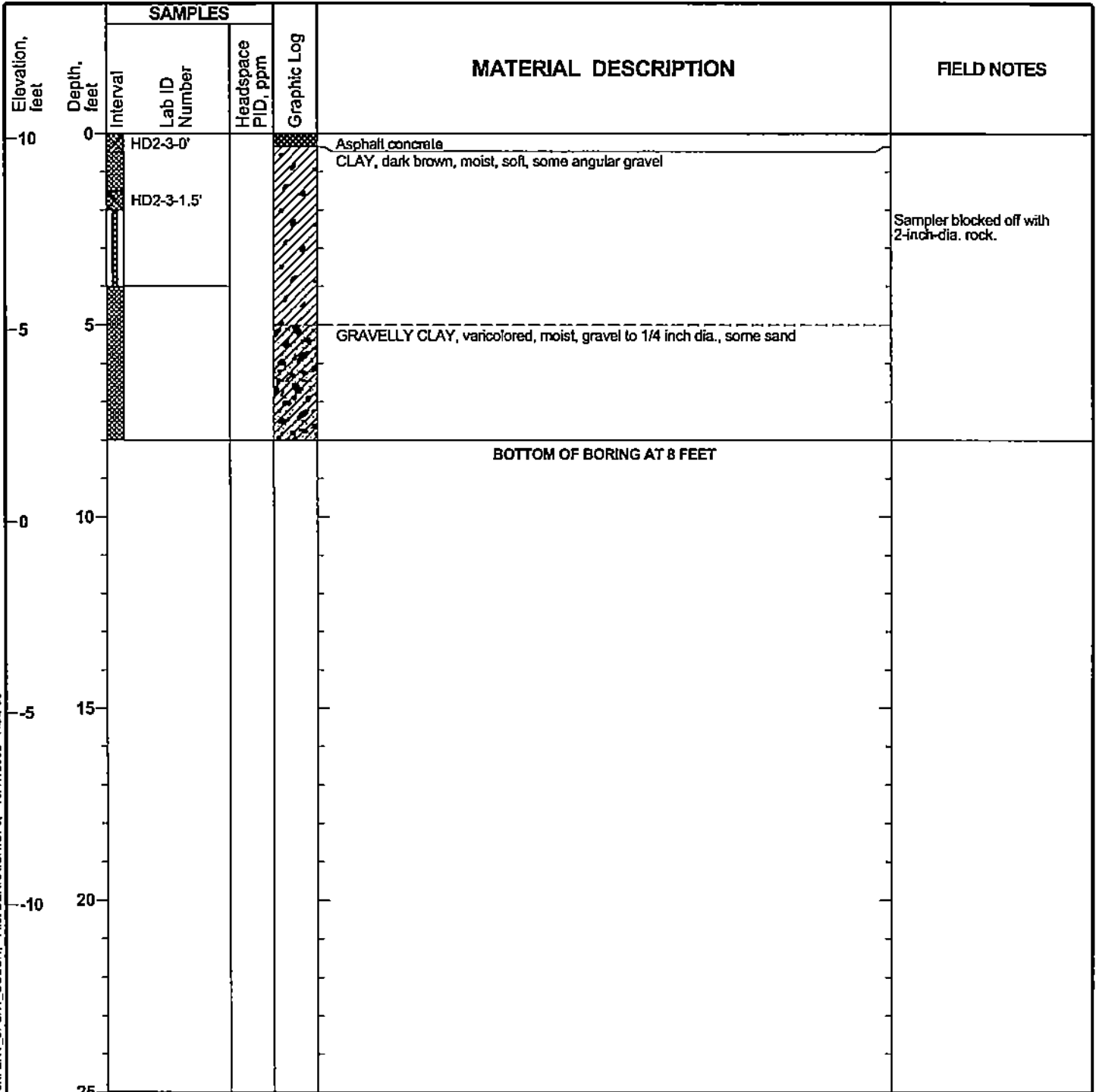
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Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring HD2-3

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	10.13 feet MSL
Groundwater Levels(s)	Dry to 7.2 ft bgs ATD and after 24 hrs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Heron Drive Area	Borehole Completion	Backfilled with grout to ground surface		



Report: ENV_3PSW_SOLON; File: BERKRICH.GPJ; 10/17/2002 HD2-33

Project: UC Berkeley Richmond Field Station

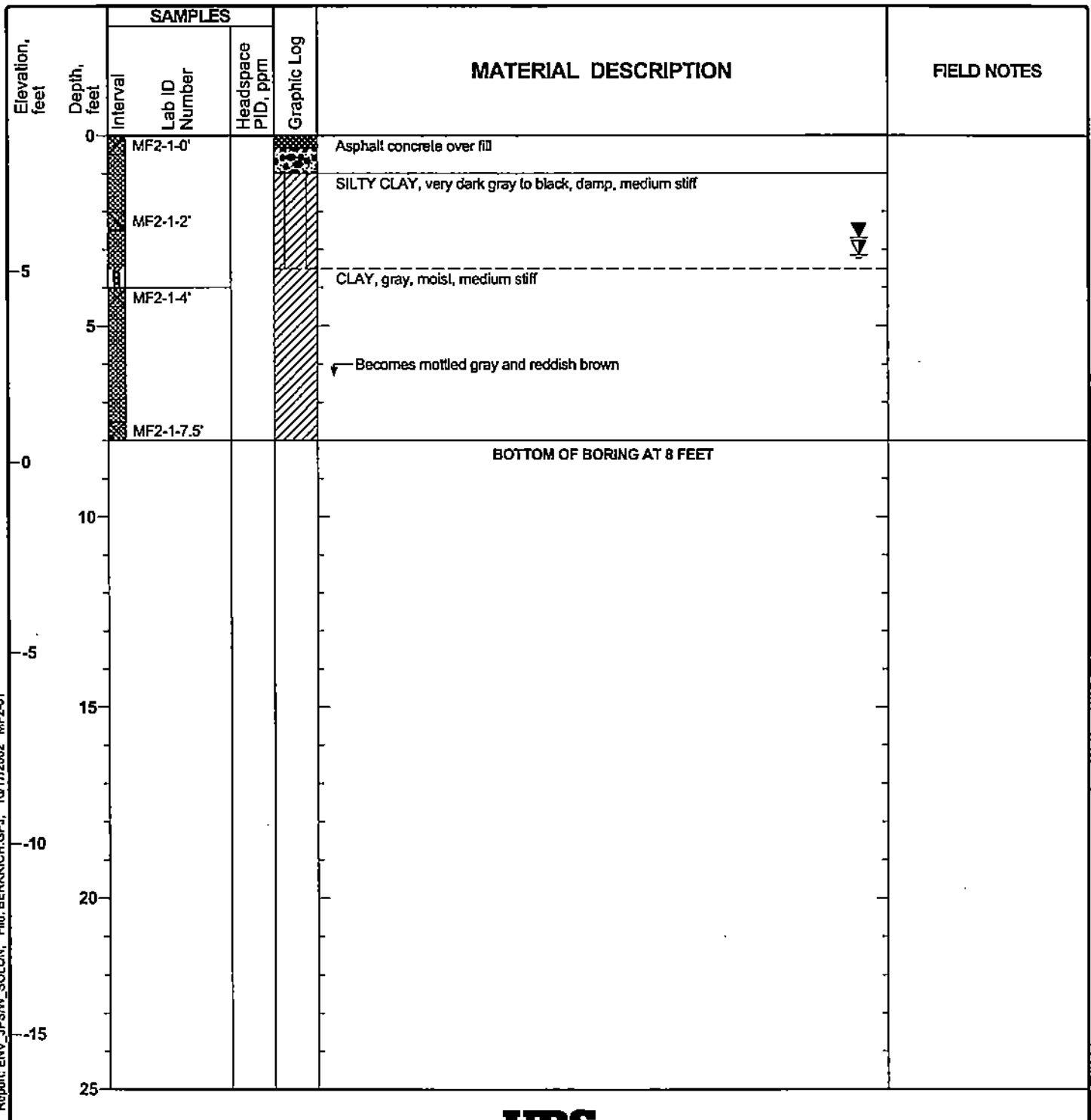
Project Location: Richmond, California

Project Number: 26814100

Log of Boring MF2-1

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	8.57 feet MSL
Groundwater Levels(s)	Completion: 2.7 ft 24 hrs: 3.15 ft bgs		Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner	
Location	Mercury Fulminate Area		Borehole Completion	Backfilled with grout to ground surface	



Report: ENV_3PSIW_SOLON; File: BERKRICH.GPJ; 10/17/2002 MF2-01

Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring MF2-2

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	7.63 feet MSL
Groundwater Levels(s)	Dry to 5.5 ft bgs ATD (hole caved)	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Mercury Fulminate Area	Borehole Completion	Backfilled with grout to ground surface		

Elevation, feet	Depth, feet	SAMPLES			MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number	Headspace PID, ppm		
0		MF2-2-0'			GRAVEL [FILL]	
					CLAY, dark gray, moist, medium stiff, some organic material	
-5		MF2-2-2'				
-5		MF2-2-4'				
					← Becomes gray and brown	Borehole caved to 5.5 ft.
-8		MF2-2-7.5'				
					BOTTOM OF BORING AT 8 FEET	
-10						
-15						
-20						
-25						

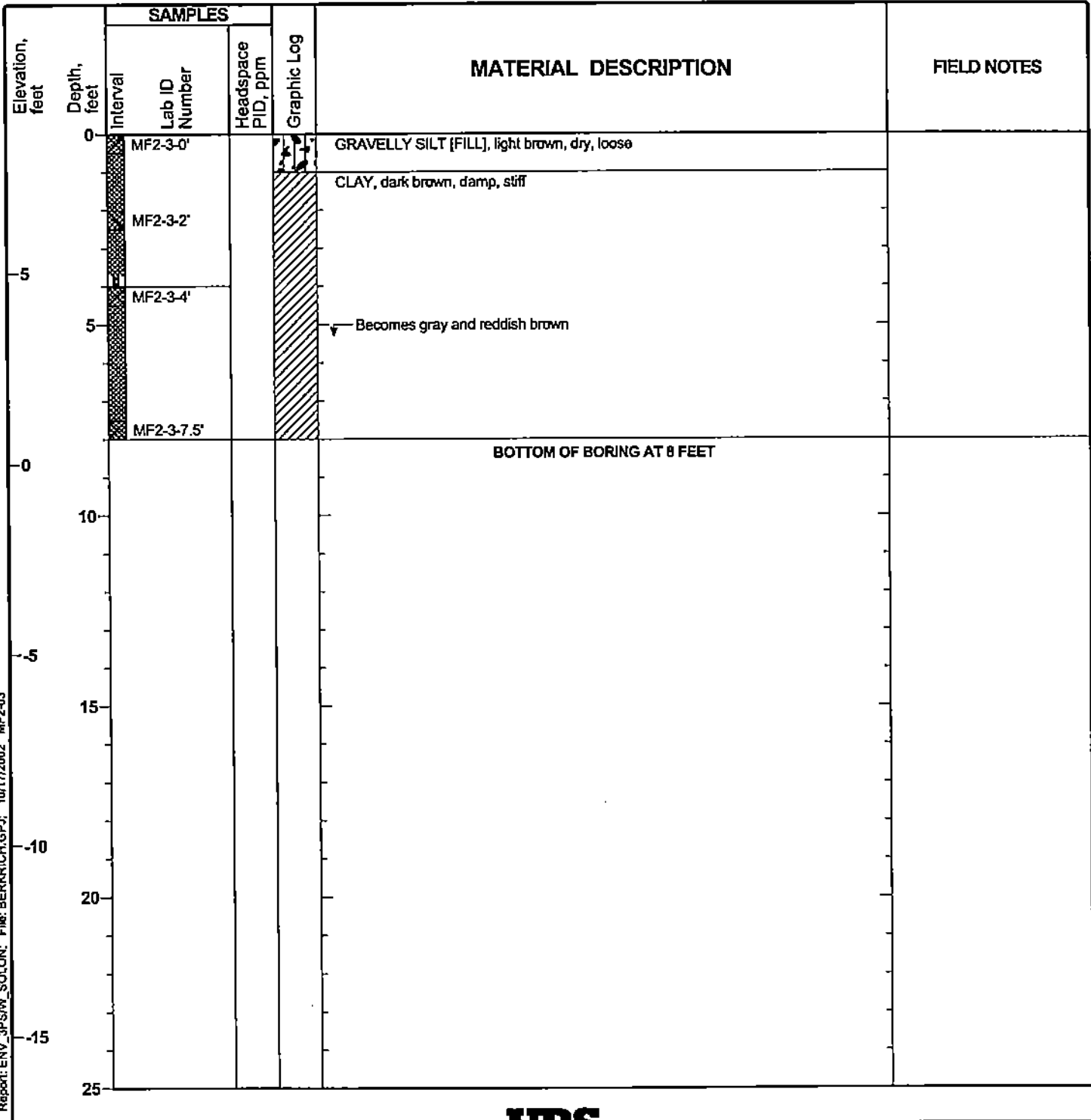
Report: ENV_3PFSM_SOLON; File: BERKRICH.GPJ; 10/17/2002 MF2-02

Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring MF2-3

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	8.65 feet MSL
Groundwater Levels(s)	Dry to 7 ft bgs ATD and after 24 hrs		Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner	
Location	Mercury Fulminate Area		Borehole Completion	Backfilled with grout to ground surface	



Report: ENV_3P5W_SOLON; File: BERKRICH.GPJ; 10/17/2002 MF2-03

Project: UC Berkeley Richmond Field Station

Project Location: Richmond, California

Project Number: 26814100

Log of Boring MF2-4

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	9.79 feet MSL
Groundwater Levels(s)	Dry to 7.3 ft bgs ATD and after 24 hrs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Mercury Fulminate Area	Borehole Completion	Backfilled with grout to ground surface		

Elevation, feet	Depth, feet	SAMPLES		Graphic Log	MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number			
0	0	MF2-4-0'			CLAY, gray, damp, stiff	
		MF2-4-2'				
5	5	MF2-4-4'				
		MF2-4-7.5'				
		BOTTOM OF BORING AT 8 FEET				
0	10					
5	15					
-10	20					
-15	25					

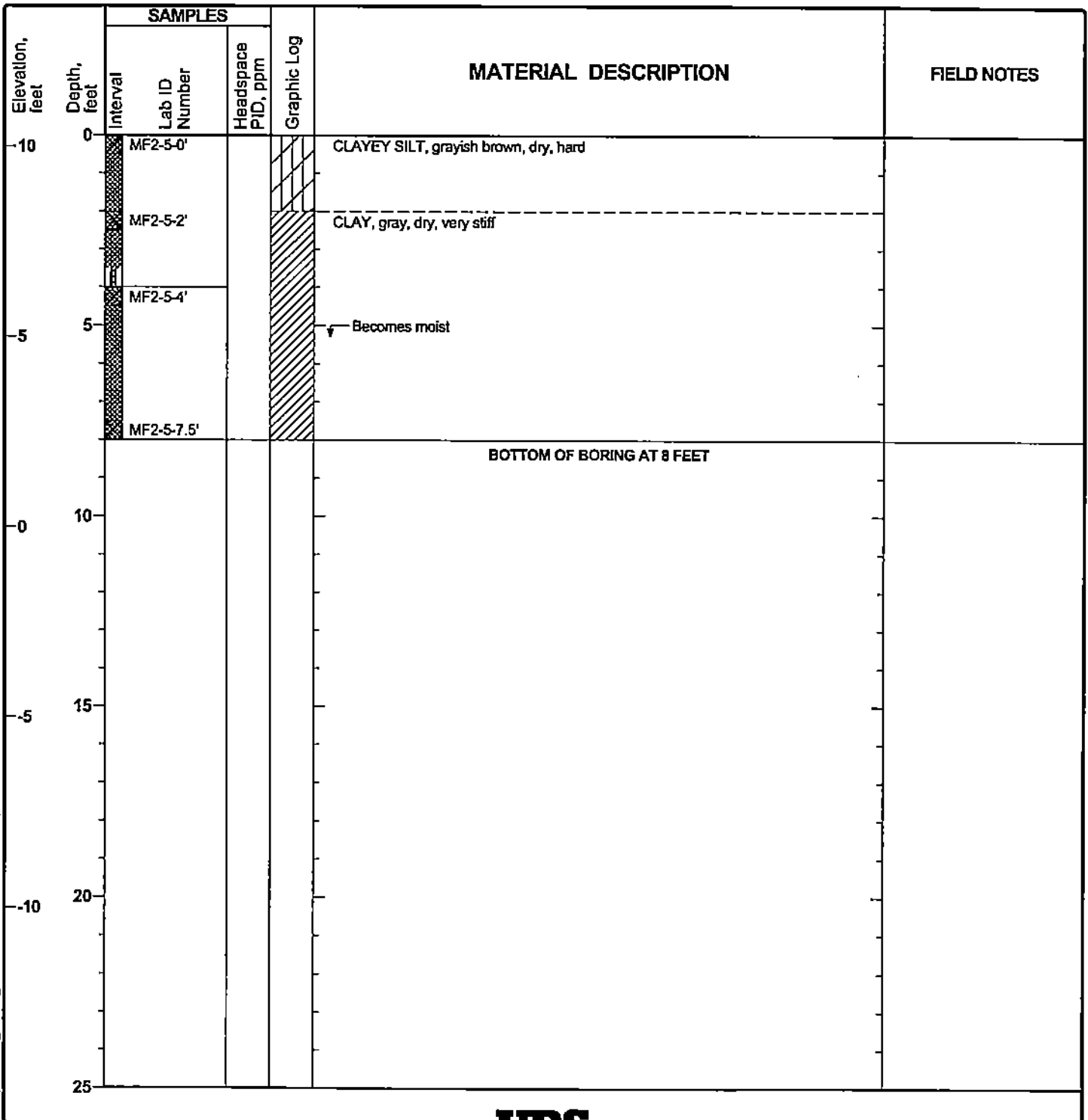
Report: ENV_3PS/W_SOLON: File: BERKRICH.GPJ; 10/17/2002 MF2-04

Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring MF2-5

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	10.29 feet MSL
Groundwater Levels(s)	Dry to 7.3 ft bgs ATD and after 24 hrs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Mercury Fulminate Area	Borehole Completion	Backfilled with grout to ground surface		



Report: ENV_3PSM_SOLON; File: BERKRICH.GPJ; 10/17/2002 MF2-05

Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring MF2-6

Sheet 1 of 1

Dale(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	9.22 feet MSL
Groundwater Levels(s)	Dry to 7.5 ft bgs ATD; measured at 7.05 ft bgs after 24 hrs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Mercury Fulminate Area	Borehole Completion	Backfilled with grout to ground surface		

Elevation, feet	Depth, feet	SAMPLES			Graphic Log	MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number	Headspace PID, ppm			
0	0	MF2-6-0'					
		MF2-6-2'					
-5	5	MF2-6-4'					
		MF2-6-7.5'					
						<p>↓ Becomes mottled gray and brown, moist, medium stiff, with some coarse-grained sand</p> <p>▽</p>	
						<p>BOTTOM OF BORING AT 8 FEET</p>	
	10						
	15						
	20						
	25						

Report: ENV_3PS/W_SOLOIN: File: BERKRICH.GPJ; 10/17/2002 MF2-08



Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring MF2-7

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	8.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	8.41 feet MSL
Groundwater Levels(s)	Dry to 7 ft bgs ATD and after 24 hrs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Mercury Fulminate Area	Borehole Completion	Backfilled with grout to ground surface		

Elevation, feet	Depth, feet	SAMPLES		Graphic Log	MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number			
0			MF2-7-0'	Hatched pattern for graphic log	CLAY, dark grayish brown, damp, medium stiff	
			MF2-7-2'			
-5			MF2-7-4'			
5			MF2-7-7.5'			↓ Becomes mottled gray and reddish brown, medium stiff
-0					BOTTOM OF BORING AT 8 FEET	
-10						
-15						
-20						
-25						

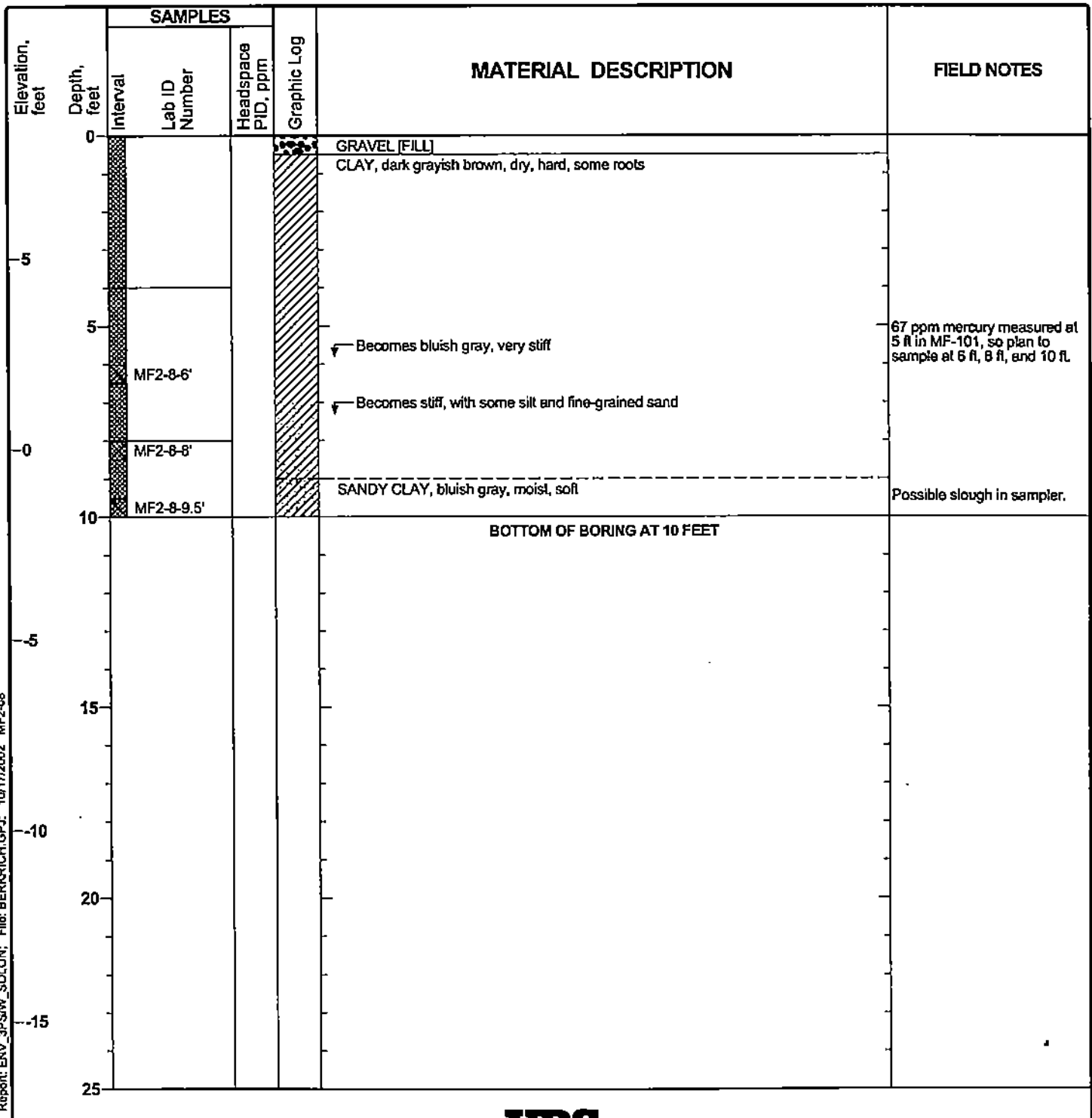
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Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring MF2-8

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	10.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	8.23 feet MSL
Groundwater Levels(s)	Dry ATD	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Mercury Fulminate Area near MF-101	Borehole Completion	Backfilled with grout to ground surface		



Report: ENV_3PSW_SD.ON; File: BERKRICI.GPJ; 10/17/2002 MF2-08



Project: UC Berkeley Richmond Field Station

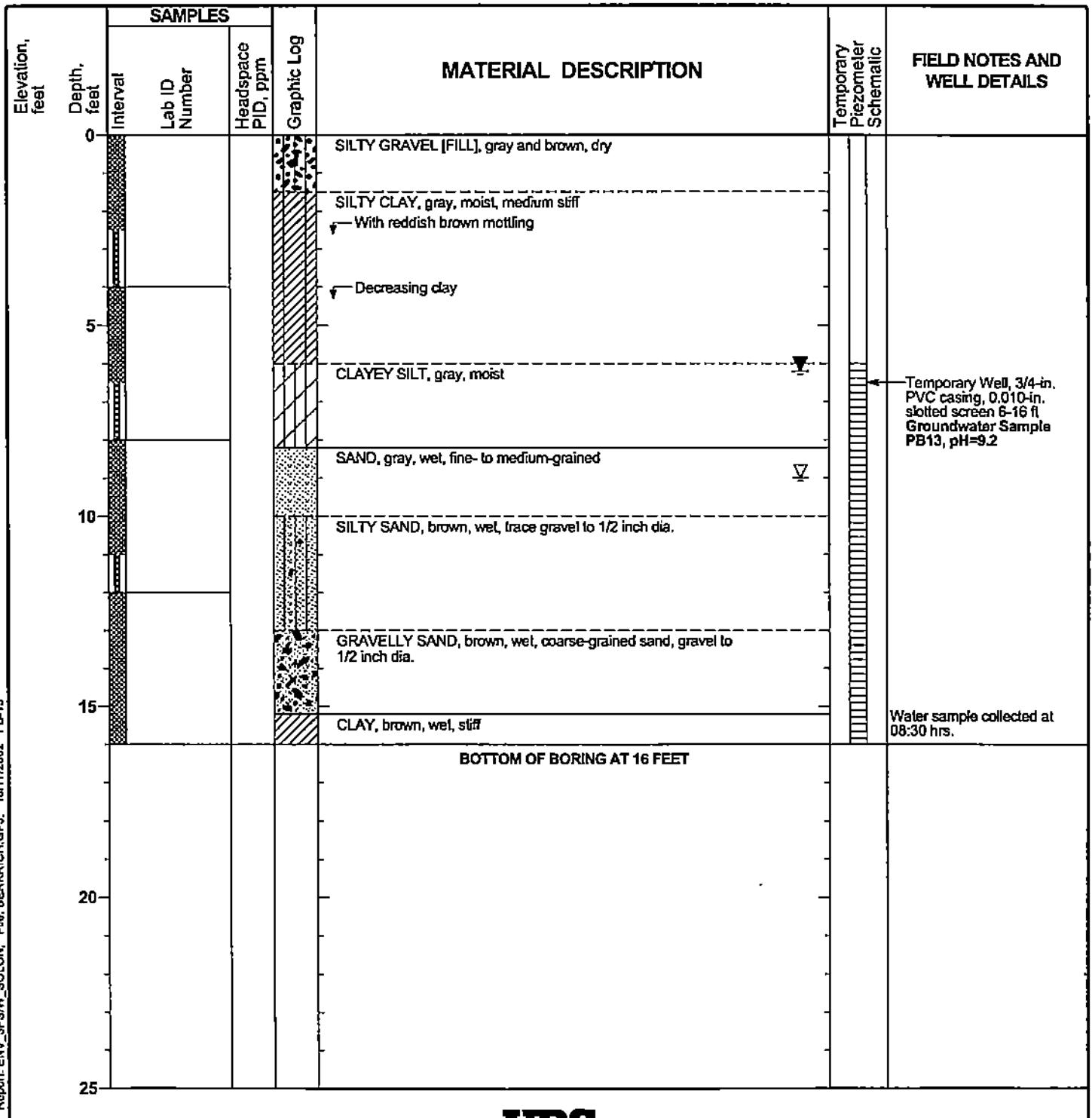
Project Location: Richmond, California

Project Number: 26814100

Log of Boring PB13

Sheet 1 of 1

Date(s) Drilled	8/26/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	16.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Gregg Drilling & Testing	Surface Elevation	Not available
Groundwater Levels(s)	First: 9.0 ft Completion: 6.2 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Property Boundary at CPT 800	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 6-16 ft; PVC pulled after water sampling and borehole grouted to surface		



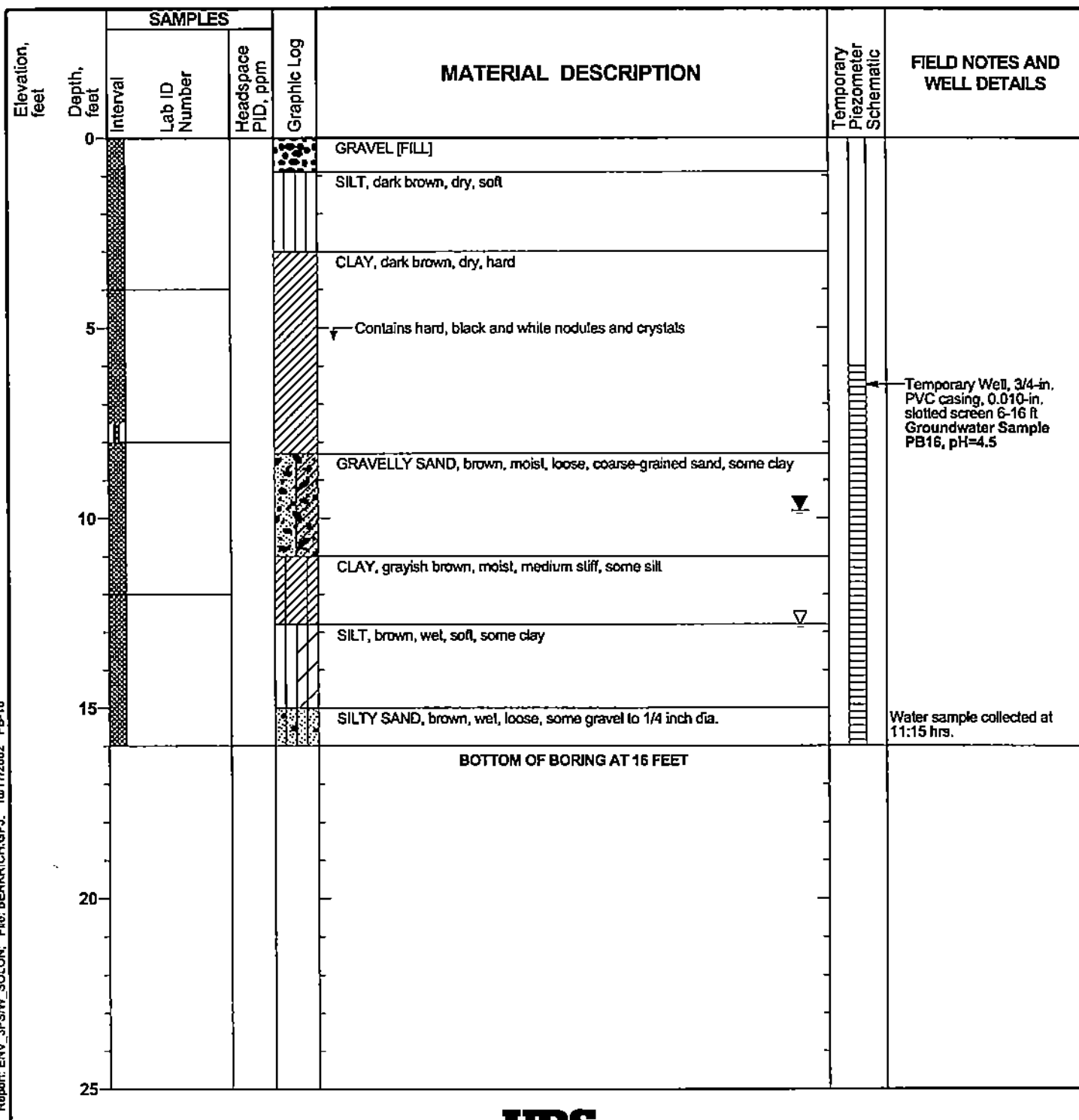
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Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring PB16

Sheet 1 of 1

Date(s) Drilled	8/26/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	16.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Gragg Drilling & Testing	Surface Elevation	Not available
Groundwater Levels(s)	First: 12.8 ft Completion: 9.8 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Property Boundary at N 46th Street	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 6-16 ft; PVC pulled after water sampling and borehole grouted to surface		



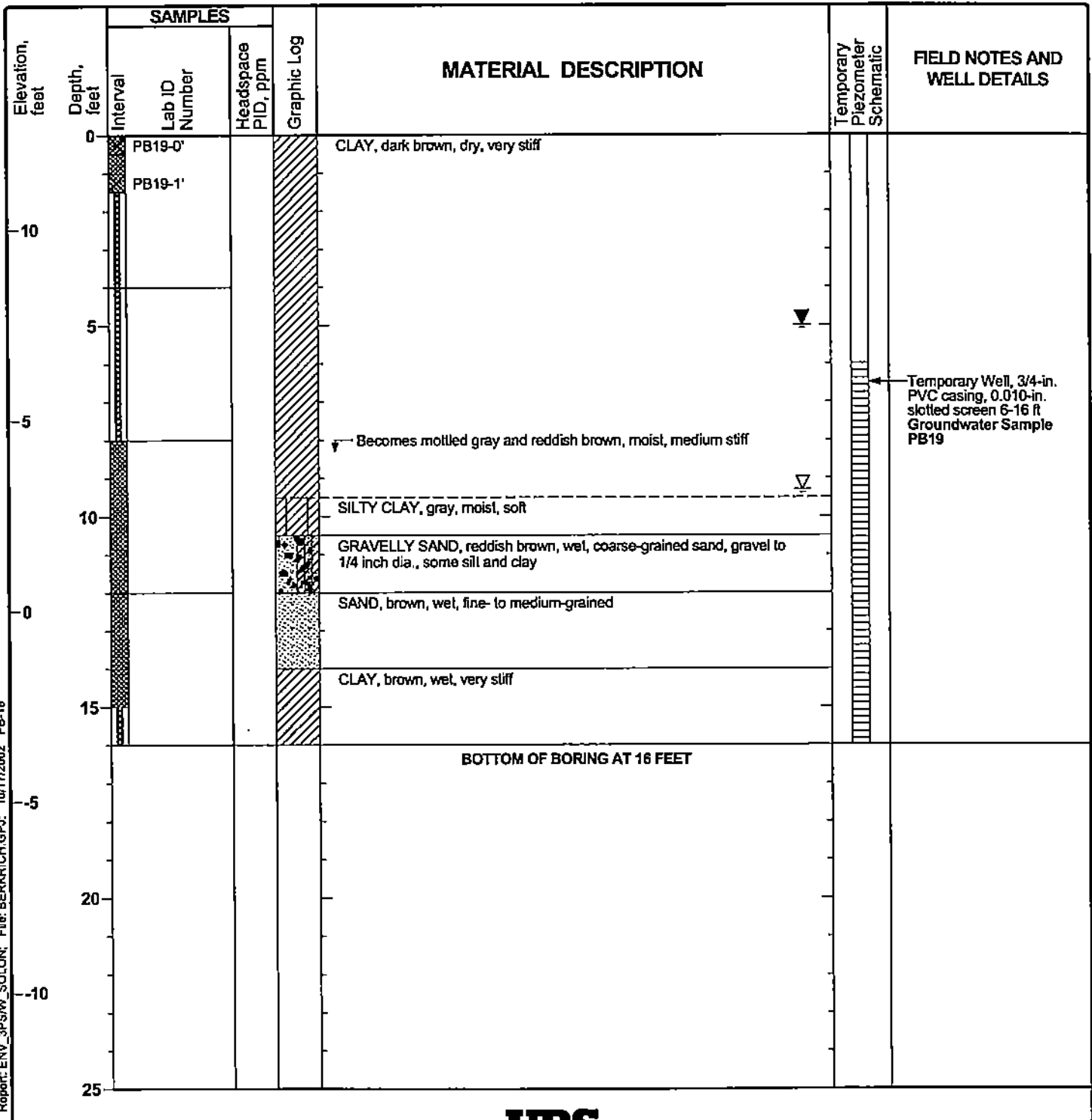
Report: ENV_3PSW_SOLON; File: BERKRICH.GPJ; 10/17/2002 PB-16

Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring PB19

Sheet 1 of 1

Date(s) Drilled	8/26/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	16.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Gregg Drilling & Testing	Surface Elevation	12.48 feet MSL
Groundwater Levels(s)	First: 9.3 ft Completion: 5.0 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Northwest corner of Building 110		Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 6-16 ft; PVC left in place with surface seal	



Project: UC Berkeley Richmond Field Station
 Project Location: Richmond, California
 Project Number: 26814100

Log of Boring OW2-1

Sheet 1 of 1

Date(s) Drilled	9/9/02	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	10.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	16.98 feet MSL
Groundwater Level(s)	Dry ATD	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Owl Way at Culvert	Borehole Completion	Backfilled with grout to ground surface		

Elevation, feet	Depth, feet	SAMPLES			MATERIAL DESCRIPTION	FIELD NOTES
		Interval	Lab ID Number	Headspace PID, ppm		
0			OW2-1-0'		SILT, brown, dry, loose	
-15			OW2-1-2'		CLAY, brownish gray, dry, hard	
-5			OW2-1-5'			
-10			OW2-1-6'			Adjacent to culvert at depth of about 6-7 ft.
			OW2-1-8'		→ Becomes mottled gray and reddish brown	
-10			OW2-1-9.5'			
					BOTTOM OF BORING AT 10 FEET	
-5						
-15						
-20						
-25						

Report: ENV_3PSW_SOLON; File: BERKRICH.GPJ; 10/17/2002 OW2-01

Appendix B
CPT Results

PRESENTATION OF CONE PENETRATION TEST DATA

RICHMOND FIELD STATION

**1301 S. 46TH STREET
RICHMOND, CALIFORNIA**

Prepared for:

URS

Prepared by:

**GREGG IN SITU, INC.
Martinez, California
02-120ma**

Prepared on:

September 3, 2002

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2.0 FIELD EQUIPMENT & PROCEDURES

3.0 CONE PENETRATION TEST DATA & INTERPRETATION

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3.3 PORE PRESSURE DISSIPATION PLOTS

APPENDIX

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- Figure 2 PPDT Correlation Figure
- Figure 3 Soil Classification Chart
- References

ATTACHMENTS

- Interpretation Method
- Computer Diskette with ASCII Files

PRESENTATION OF CONE PENETRATION TEST DATA

1.0 INTRODUCTION

This report presents the results of a Cone Penetration Testing (CPT) program carried out at the Richmond Field Station site located in Richmond, CA. The work was performed on August 23rd, 2002. The scope of work was performed as directed by URS personnel.

2.0 FIELD EQUIPMENT & PROCEDURES

The Cone Penetration Tests (CPT) were carried out by GREGG IN SITU, INC. of Martinez, CA using an integrated electronic cone system. The CPT soundings were performed in accordance with ASTM standards (D 5778-95). A 20 ton capacity cone was used for all of the soundings (figure 1). This cone has a tip area of 15 cm² and friction sleeve area of 225 cm². The cone is designed with an equal end area friction sleeve and a tip end area ratio of 0.85.

The cones used during the program recorded the following parameters at 5 cm depth intervals:

- Tip Resistance (qc)
- Sleeve Friction (fs)
- Dynamic Pore Pressure (U)

The above parameters were printed simultaneously on a printer and stored on a computer diskette for future analysis and reference.

The pore water pressure element was located directly behind the cone tip. The pore water pressure element was 5.0 mm thick and consisted of porous plastic. Each of the elements were saturated in silicon oil under vacuum pressure prior to penetration. Pore pressure dissipations were recorded at 5 second intervals when appropriate during pauses in the penetration.

A complete set of baseline readings was taken prior to each sounding to determine temperature shifts and any zero load offsets. Monitoring base line readings ensures that the cone electronics are operating properly.

The cones were pushed using GREGG IN SITU's CPT rig, having a down pressure capacity of approximately 20 tons. Thirteen CPT soundings were performed. The penetration tests were carried to depths of approximately 25 feet below ground surface. Test locations and depths were determined in the field by URS personnel.

GREGG IN SITU, INC.
September 3, 2002
02-120ma

URS
Richmond Field Station
Richmond, Ca.

3.0 CONE PENETRATION TEST DATA & INTERPRETATION

The cone penetration test data is presented in graphical form. Penetration depths are referenced to existing ground surface. This data includes CPT logs of measured soil parameters and a computer tabulation of interpreted soil types along with additional geotechnical parameters and pore pressure dissipation data.

The stratigraphic interpretation is based on relationships between cone bearing (q_c), sleeve friction (f_s), and penetration pore pressure (U). The friction ratio (R_f), which is sleeve friction divided by cone bearing, is a calculated parameter which is used to infer soil behavior type. Generally, cohesive soils (clays) have high friction ratios, low cone bearing and generate large excess pore water pressures. Cohesionless soils (sands) have lower friction ratios, high cone bearing and generate little in the way of excess pore water pressures.

Pore Pressure Dissipation Tests (PPDT's) were taken at various intervals in order to measure hydrostatic water pressures and approximate depth to groundwater table. In addition, the PPDT data can be used to estimate the horizontal permeability (k_h) of the soil. The correlation to permeability is based on the time required for 50 percent of the measured dynamic pore pressure to dissipate (t_{50}). The PPDT correlation figure (figure 2) is provided in the Appendix.

The interpretation of soils encountered on this project was carried out using recent correlations developed by Robertson et al, 1988. It should be noted that it is not always possible to clearly identify a soil type based on q_c , f_s and U . In these situations, experience and judgement and an assessment of the pore pressure dissipation data should be used to infer the soil behavior type. The soil classification chart (figure 3) used to interpret soil types based on q_c and R_f is provided in the Appendix.

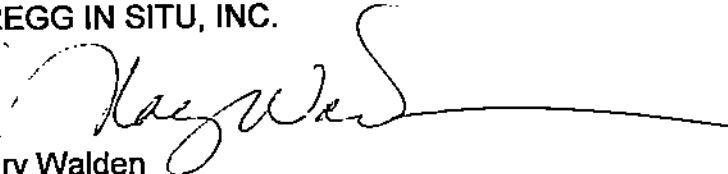
Interpreted output requires that depth of water be entered for calculation purposes, where depth to water is unknown an arbitrary depth in excess of 10 feet of the deepest sounding is entered as the groundwater depth.

GREGG IN SITU, INC.
September 3, 2002
02-120ma

URS
Richmond Field Station
Richmond, Ca.

We hope the information presented is sufficient for your purposes. We recommend that all data be carefully reviewed by qualified personnel to verify the data and make appropriate recommendations. If you have any questions, please do not hesitate to contact our office at (925) 313-5800.

Sincerely,
GREGG IN SITU, INC.

A handwritten signature in black ink, appearing to read "Mary Walden", with a long horizontal flourish extending to the right.

Mary Walden
Operations Manager

APPENDIX

ELECTRICAL PIEZOCONE

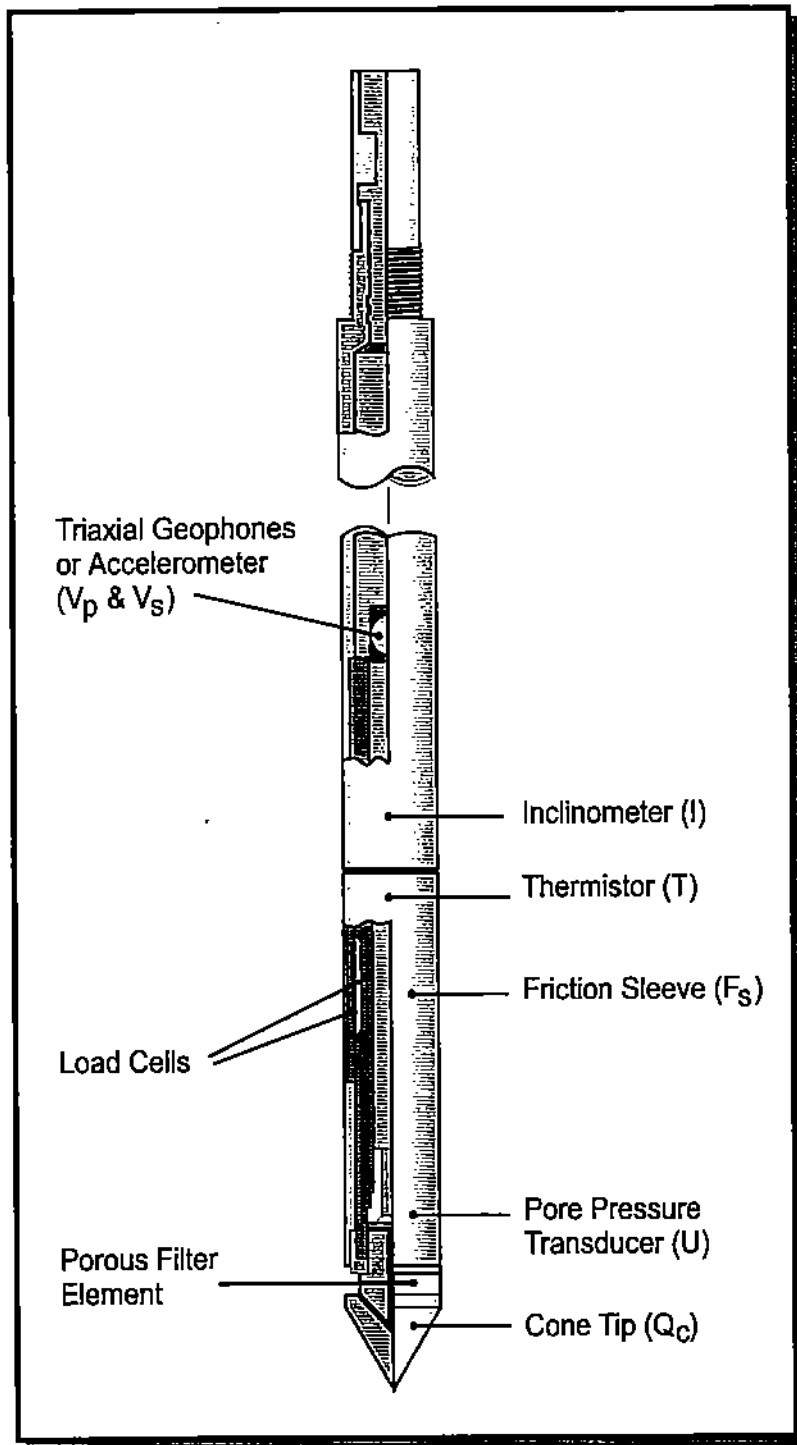


Figure 1

PPDT CORRELATION

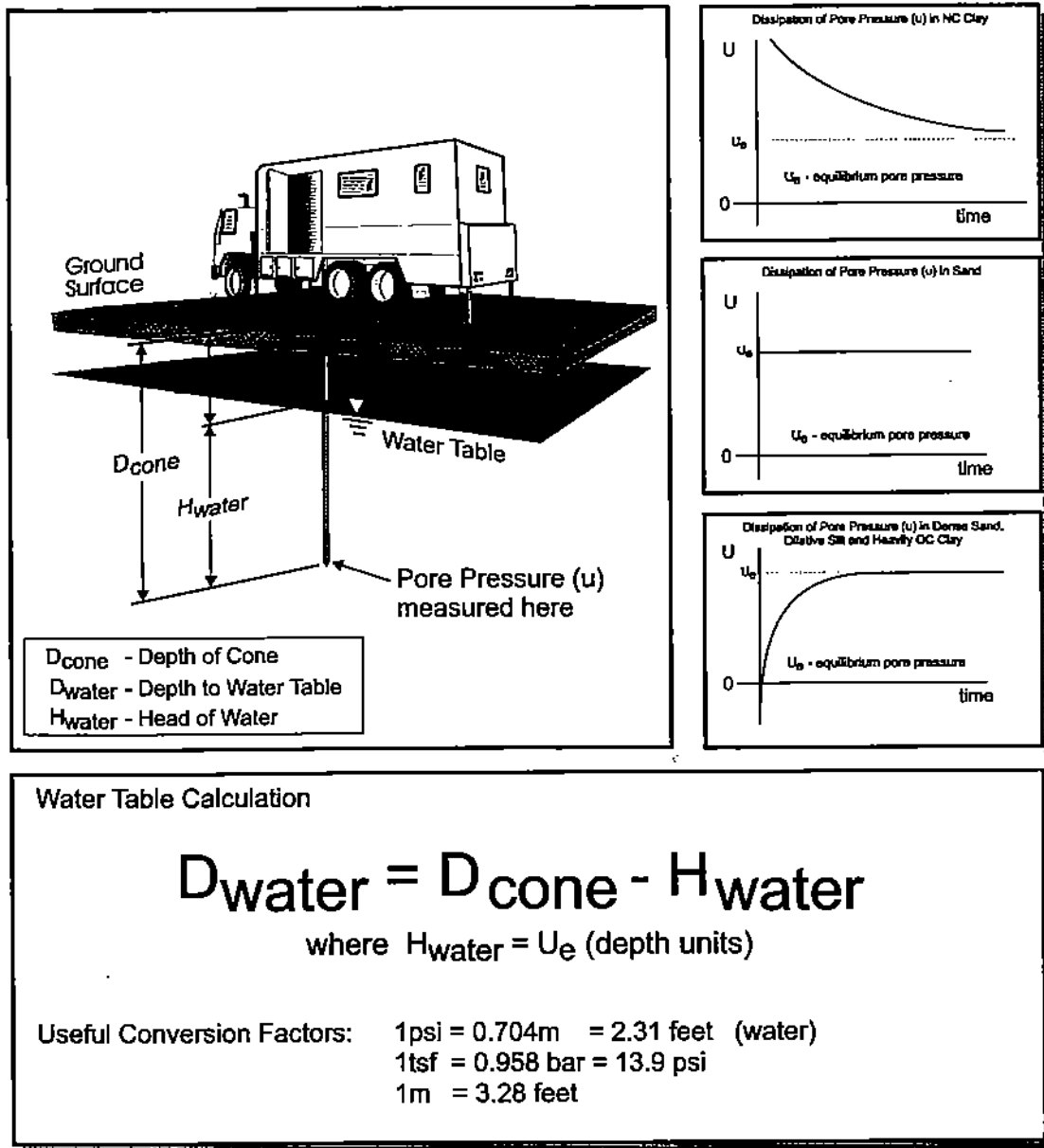
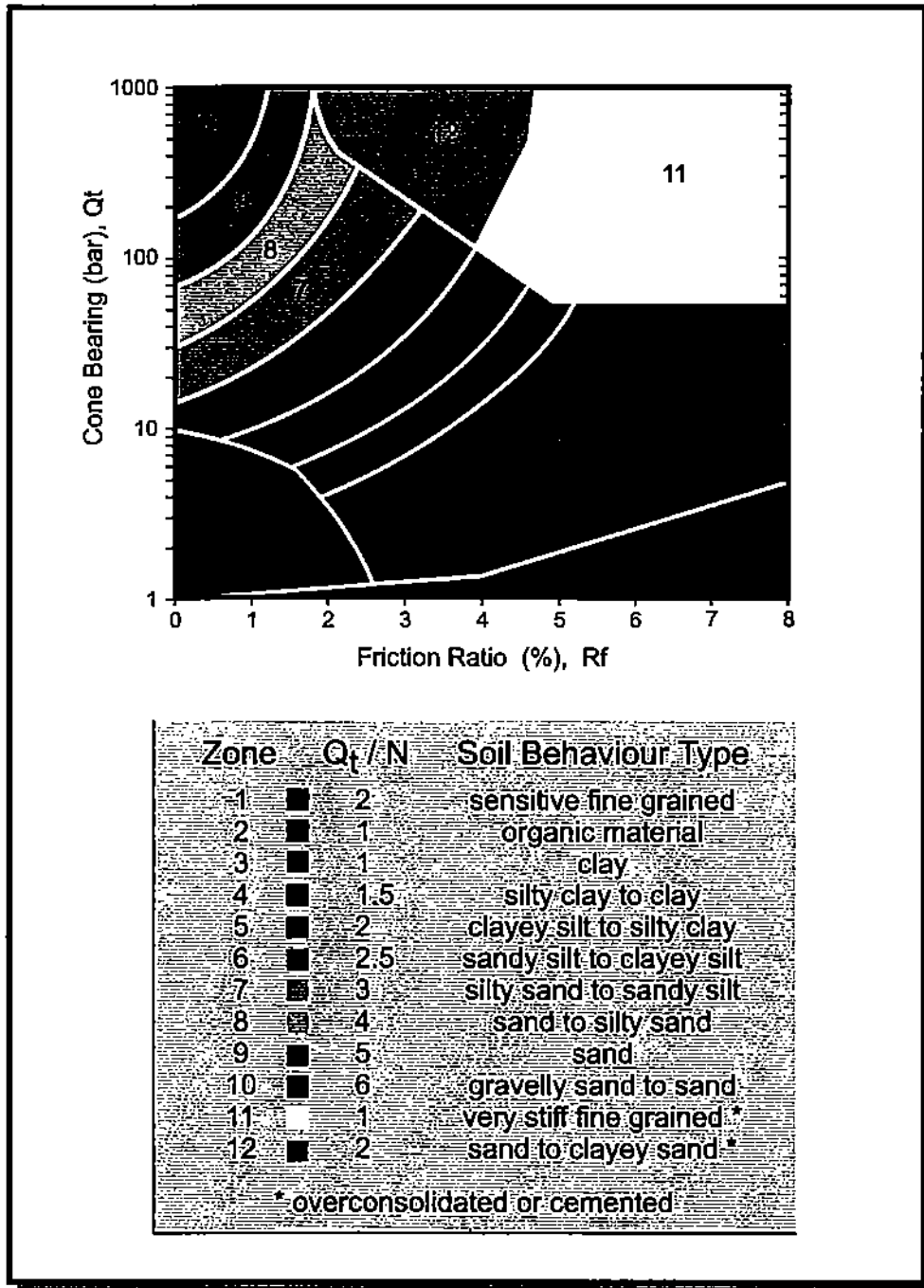


Figure 2

SOIL CLASSIFICATION CHART



After Robertson and Campanella

Figure 3

REFERENCES

- Robertson, P.K. and Campanella, R.G. and Wightman, A., 1983 "SPT-CPT Correlations", Journal of the Geotechnical Division, ASCE, Vol. 109, No. GT11, Nov., pp. 1449-1460.
- Robertson, P.K. and Wride C.E., 1998 "Evaluating Cyclic Liquefaction Potential Using The Cone Penetration Test", Journal of Geotechnical Division, Mar. 1998, pp. 442-459.
- Robertson, P.K. and Campanella, R.G., Gillespie, D. and Greig, J., 1986, "Use of Piezometer Cone Data", Proceedings of In Situ 86, ASCE Specialty Conference, Blacksburg, Virginia.
- Robertson, P.K. and Campanella, R.G., 1988, "Guidelines for Use, Interpretation and Application of the CPT and CPTU", UBC, Soil Mechanics Series No. 105, Civil Eng. Dept., Vancouver, B.C., V6T 1W5, Canada.
- Robertson, P.K., Campanella, R.G., Gillespie, D. and Rice, A., 1986, "Seismic CPT to Measure In Situ Shear Wave Velocity", Journal of Geotechnical Engineering, ASCE, Vol. 112, No. 8, pp. 791-803.

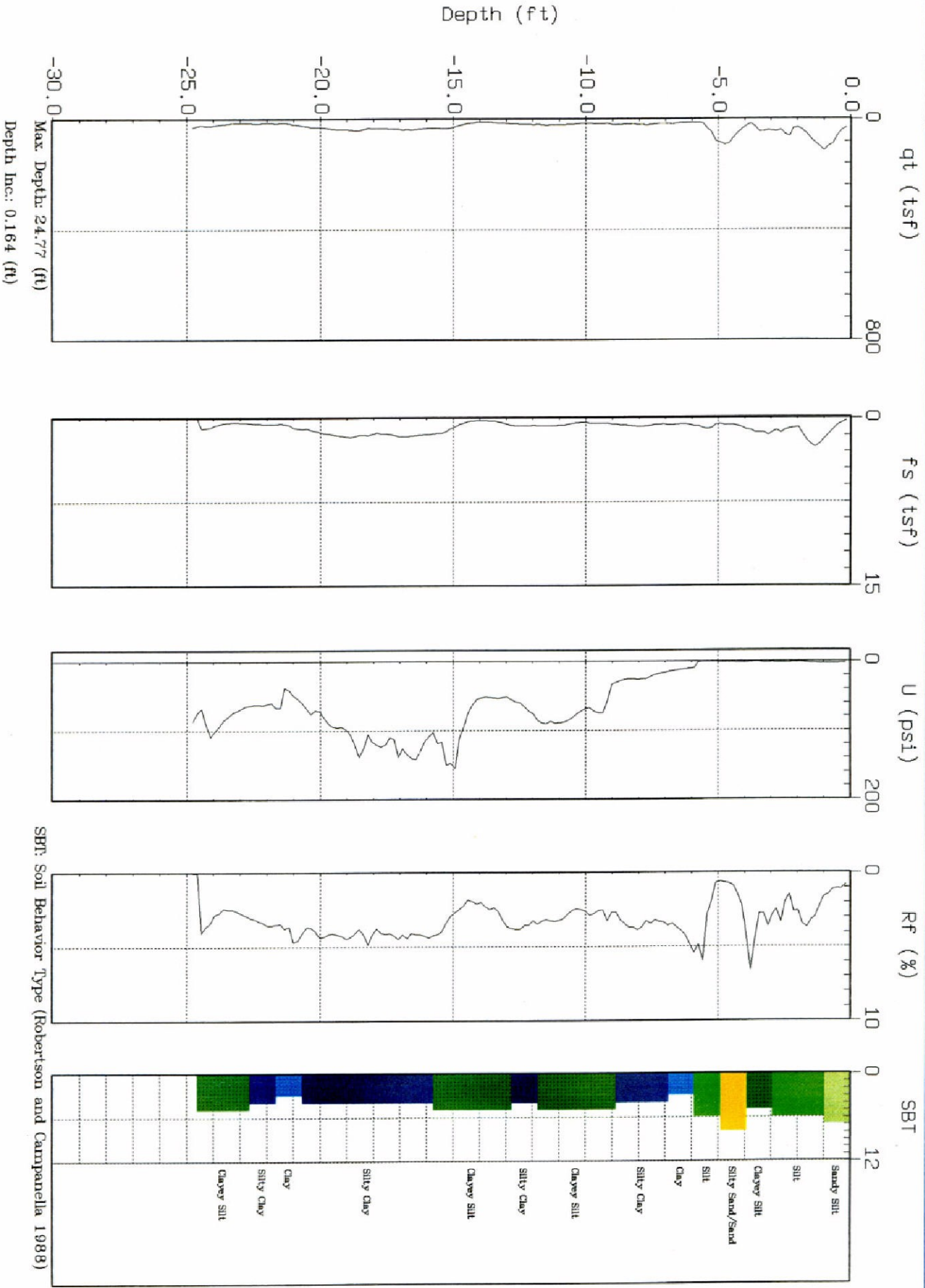
3.1 CPT PLOTS



URS

Site : RICHMOND F.S.
Location : SM-200

Geologist : B. COPELAND
Date : 08:23:02 14:20

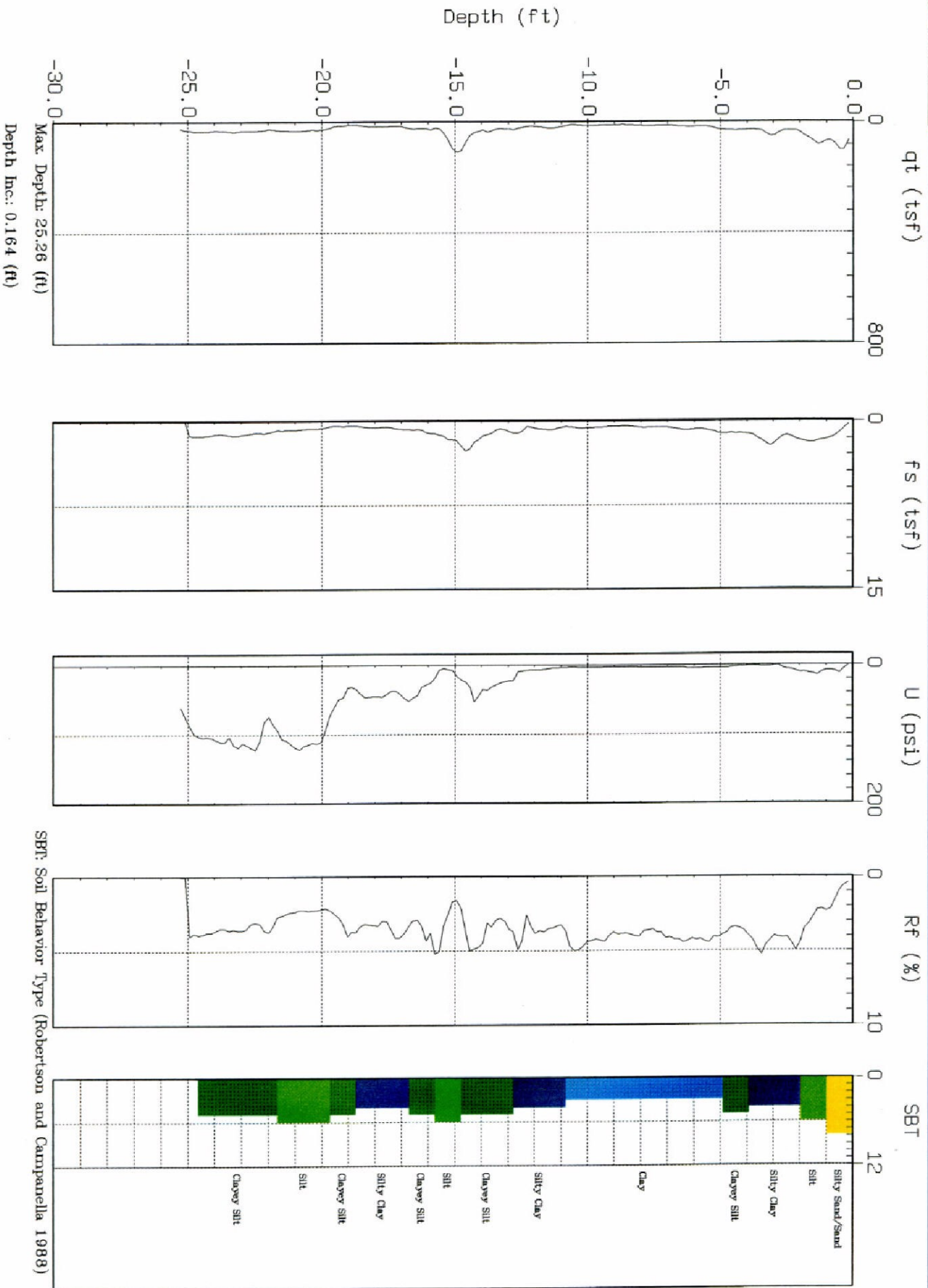




URS

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Location : SM-315

Geologist : B. COPELAND
Date : 08:23:02 13:49

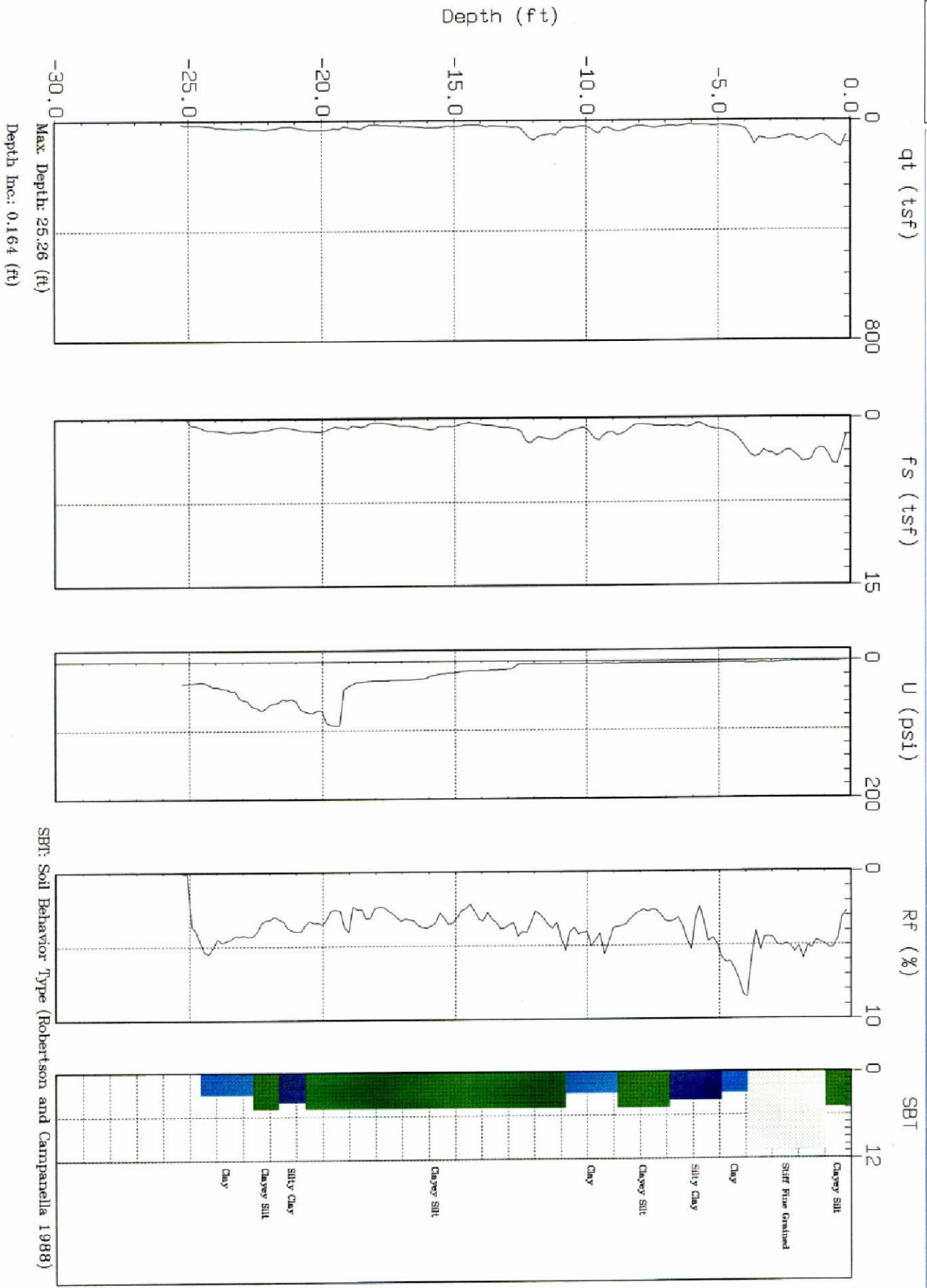




URS

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Location : SM-500

Geologist : B. COPELAND
Date : 08:23:02 12:43

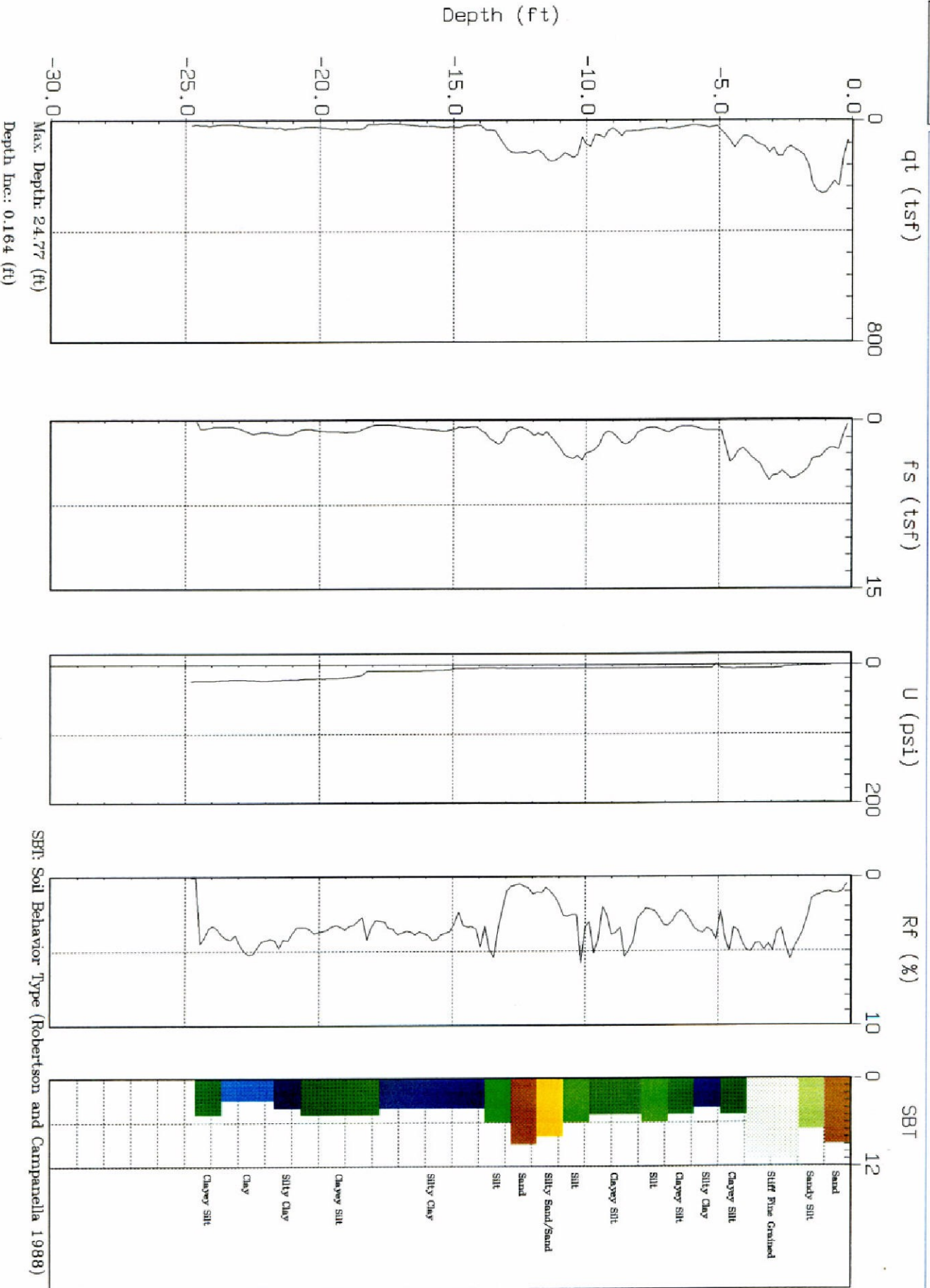




URS

Site : RICHMOND F.S.
Location : SM-600

Geologist : B. COPELAND
Date : 08:23:02 12:03

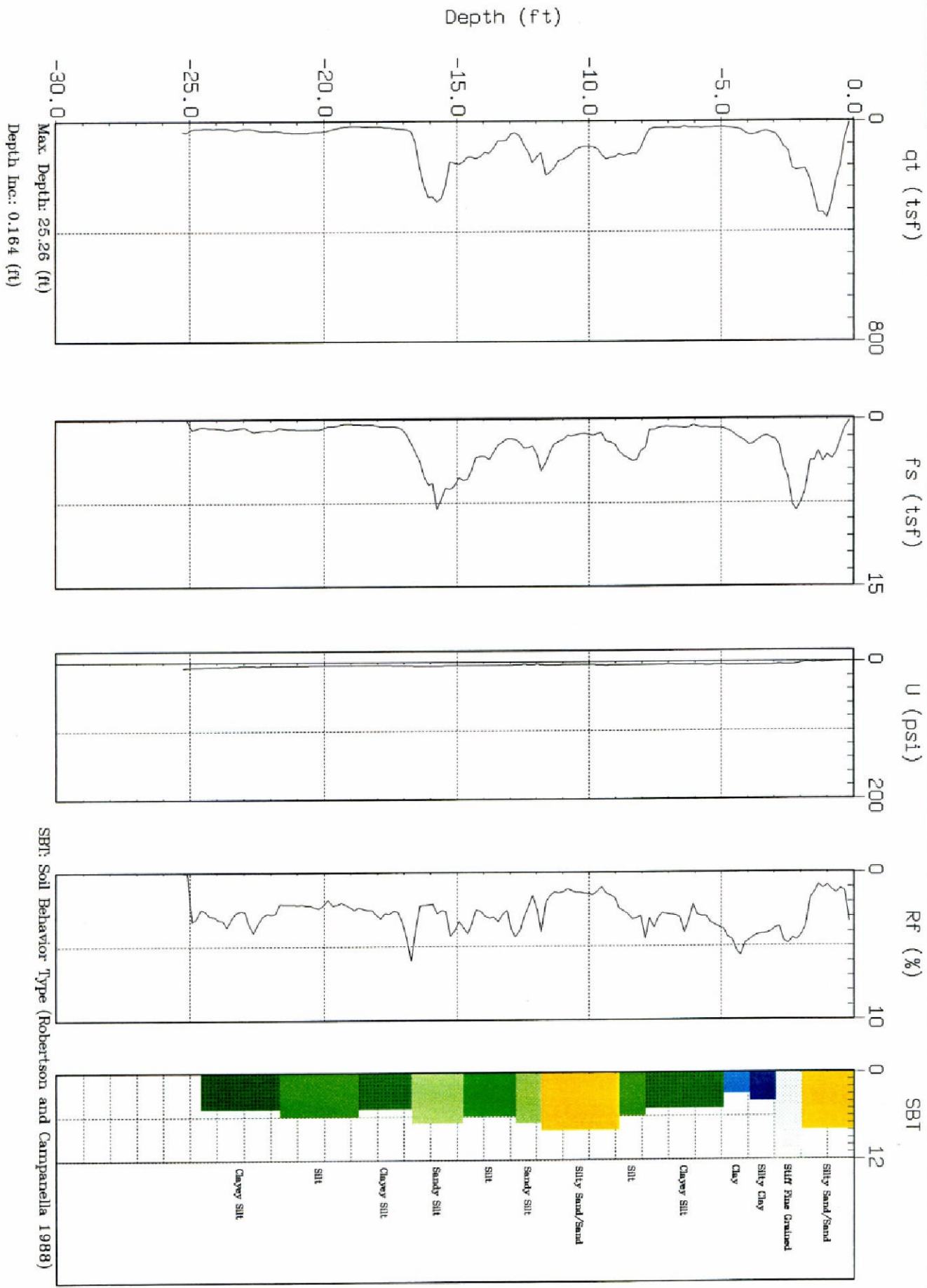




URS

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Location : SW-625

Geologist : B. COPELAND
Date : 08:23:02 11:27

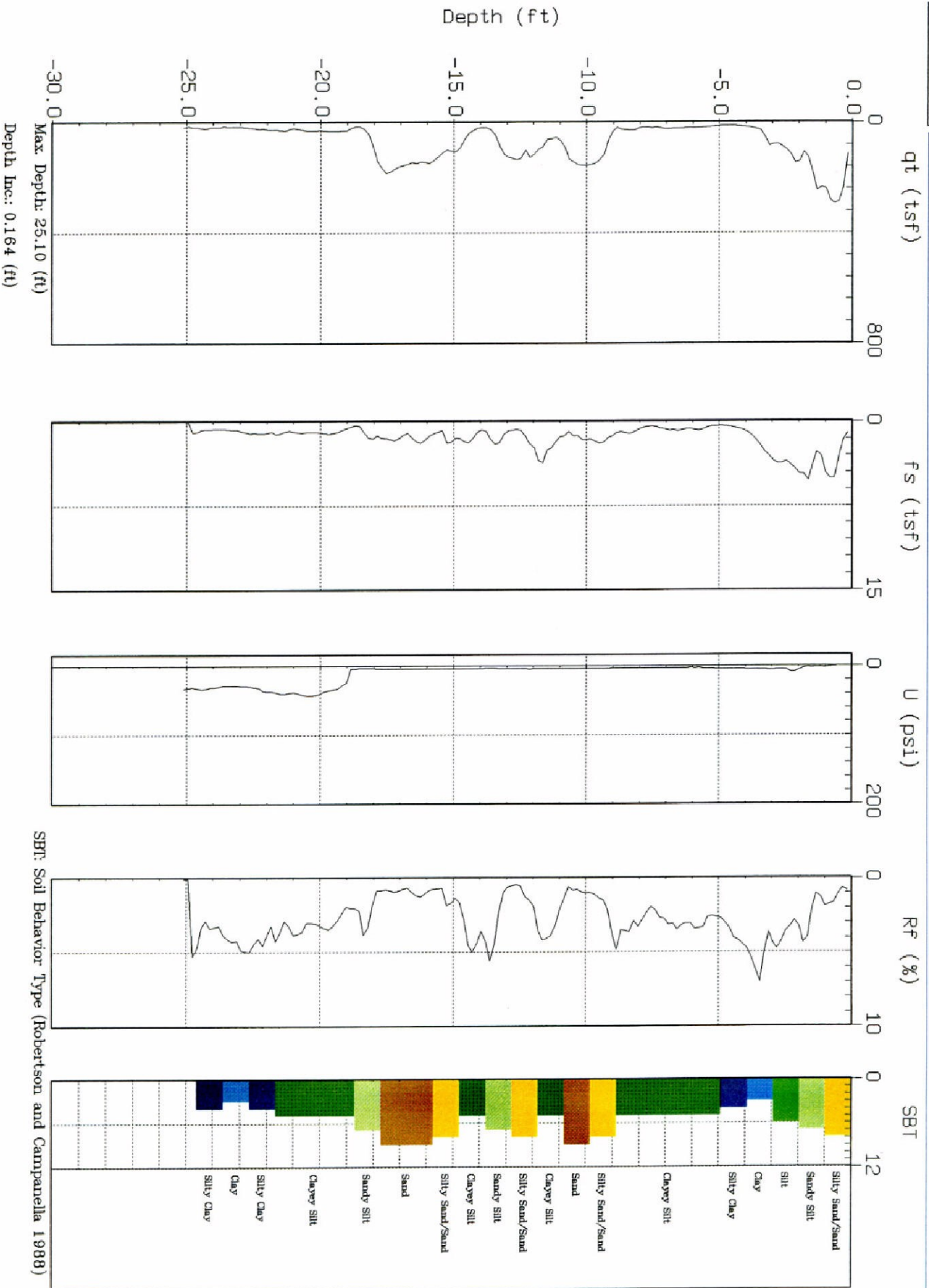




URS

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Location : SM-650

Geologist : B. COPELAND
Date : 08:23:02 11:08

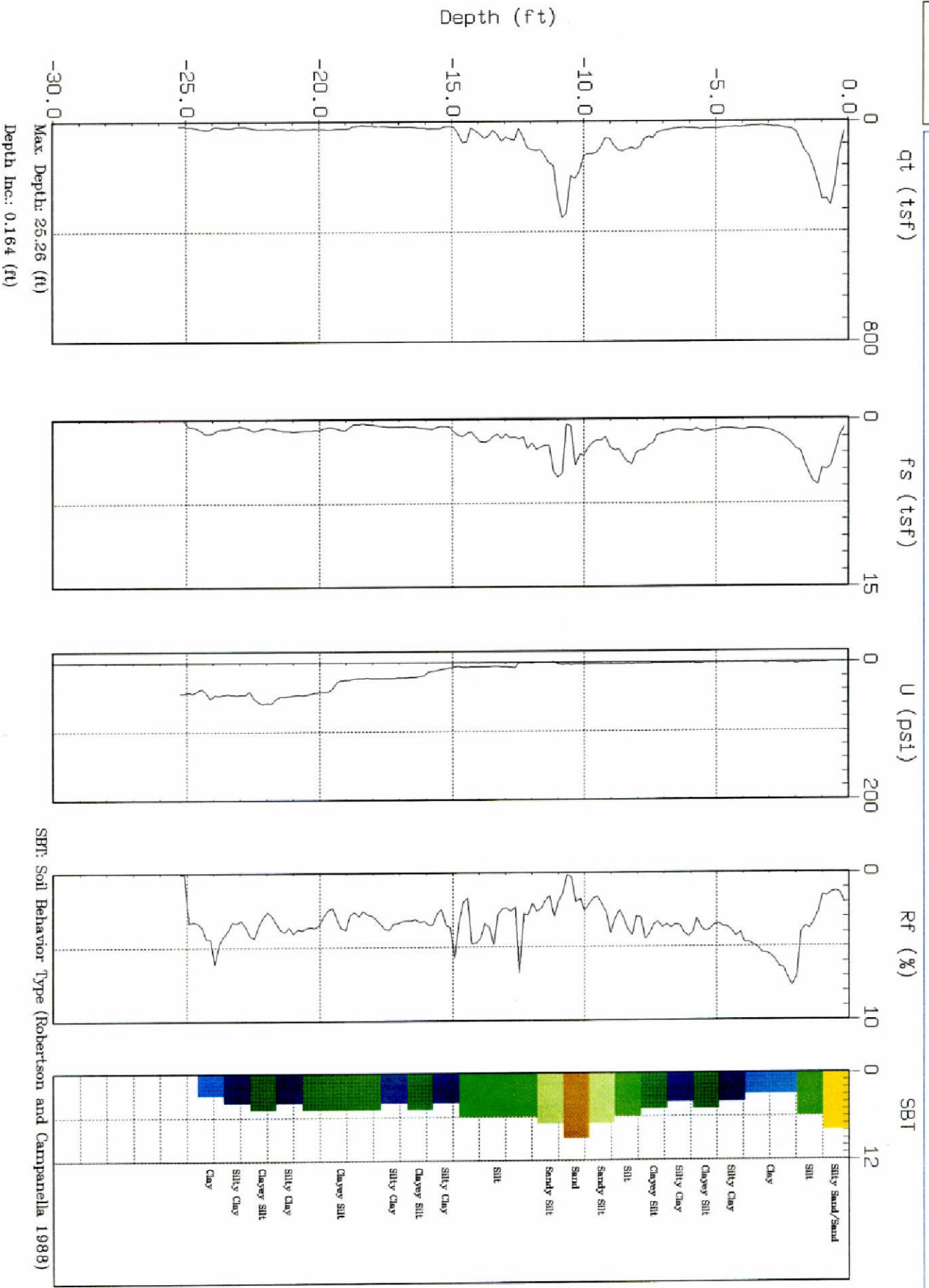




URS

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Location : SM-675

Geologist : B. COPELAND
Date : 08:23:02 10:47

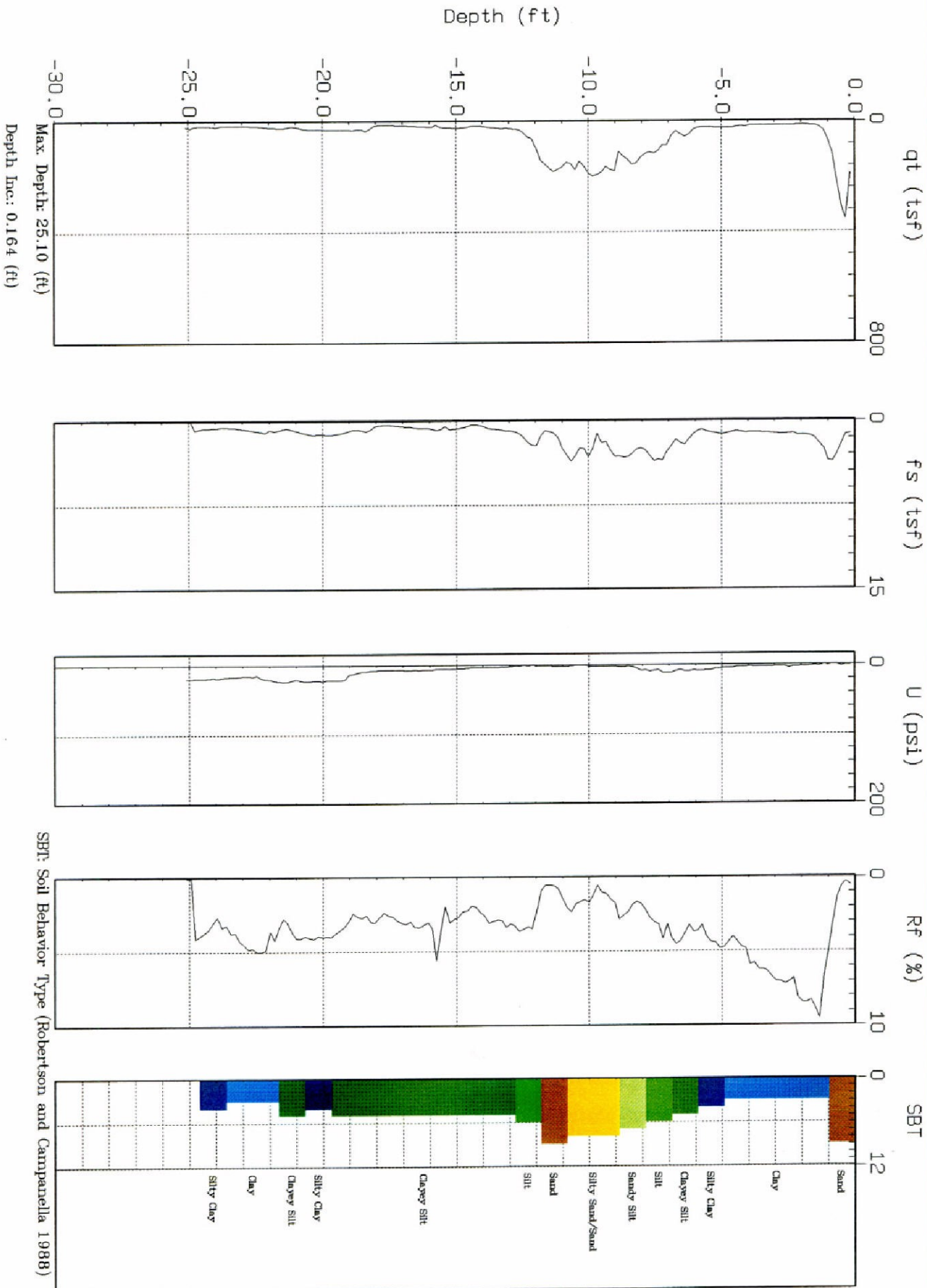




URS

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Location : SM-700

Geologist : B. COPELAND
Date : 08:23:02 10:27

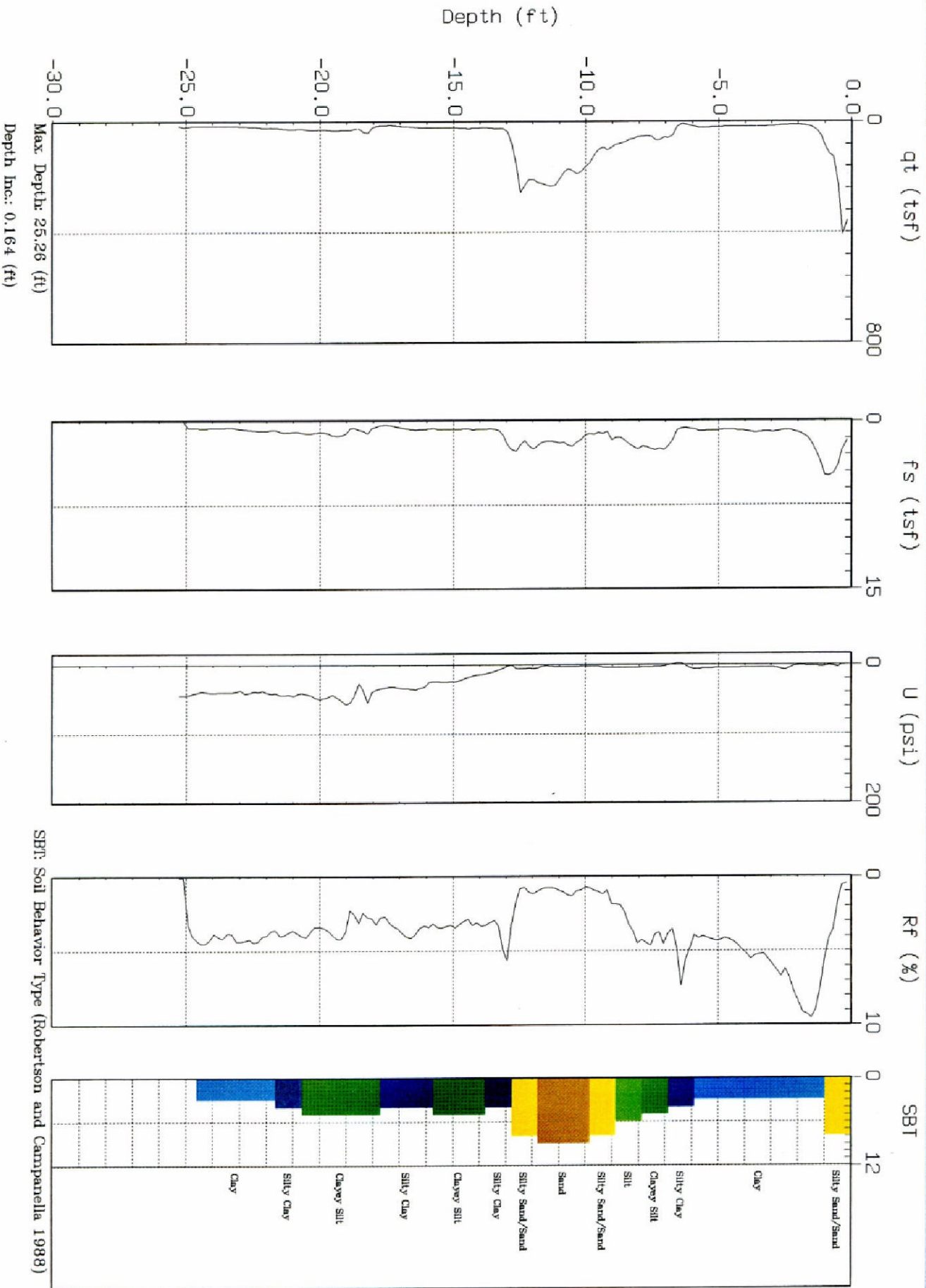




URS

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Location : SW-725

Geologist : B. COPELAND
Date : 08:23:02 10:05

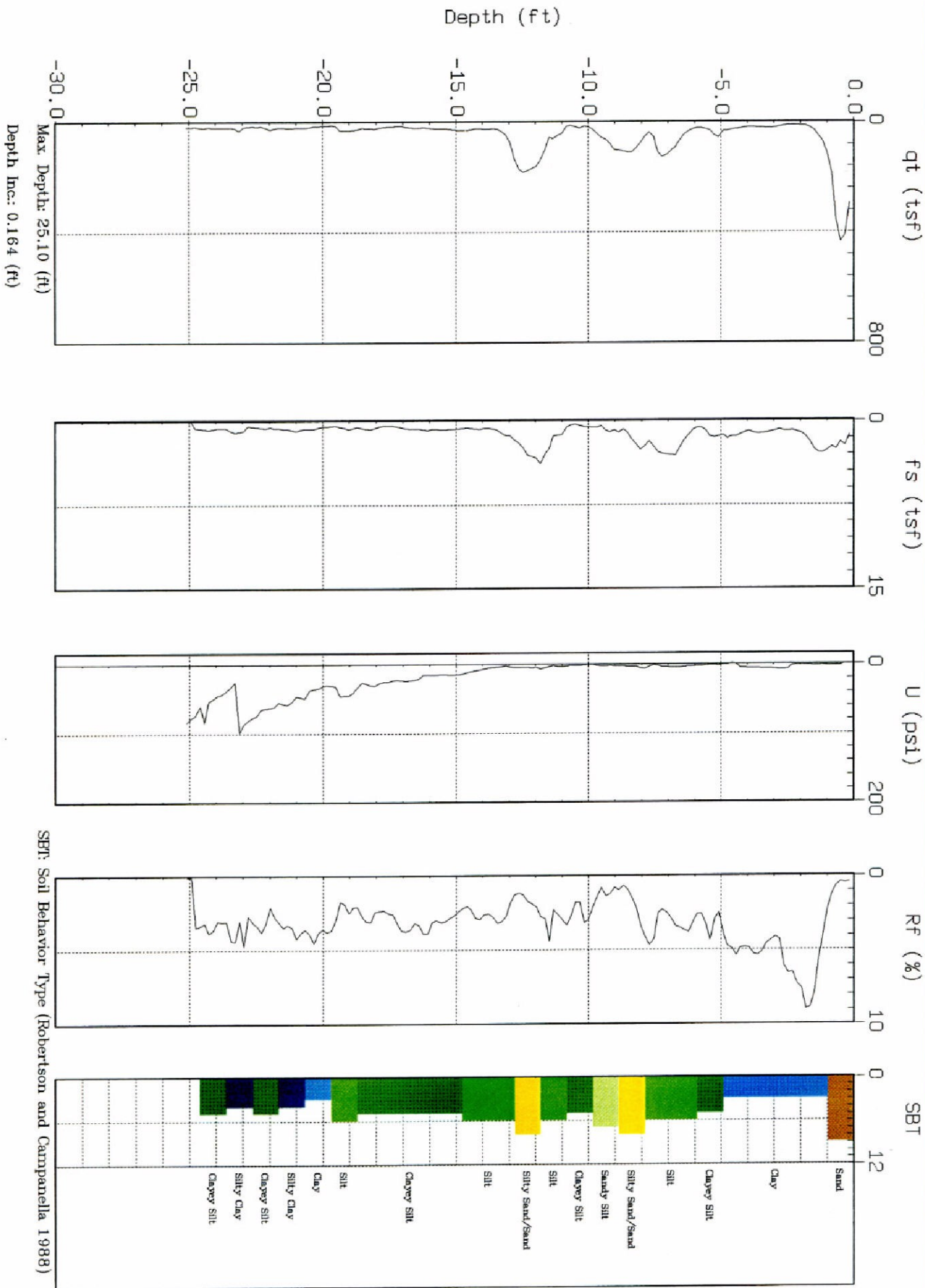




URS

Site : RICHMOND F.S.
Location : SM-750

Geologist : B. COPELAND
Date : 08:23:02 09:45

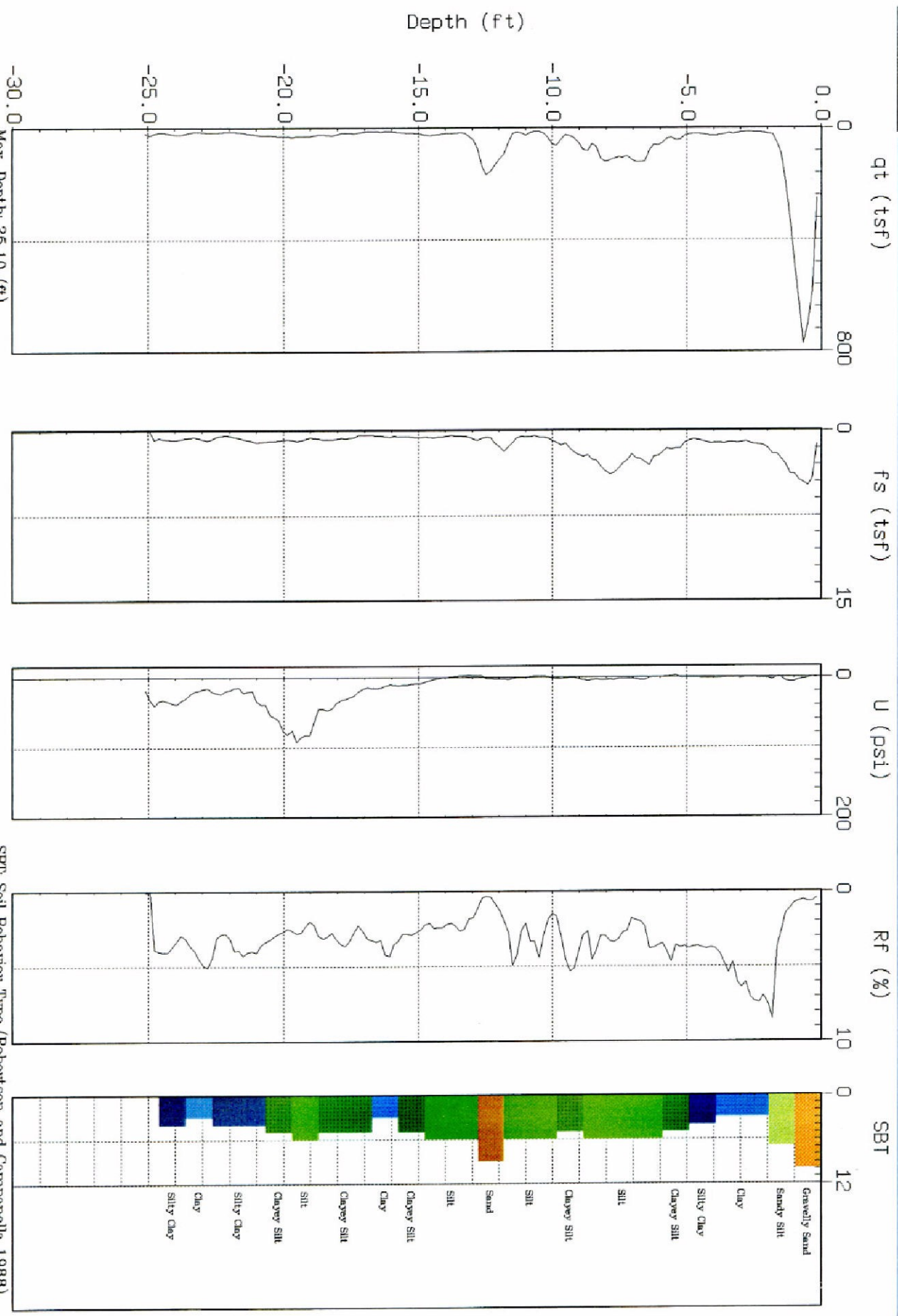




URS

Site : RICHMOND F.S.
Location : SM-775

Geologist : B. COPELAND
Date : 08:23:02 09:12



Max Depth: 25.10 (ft)
Depth Inc.: 0.164 (ft)

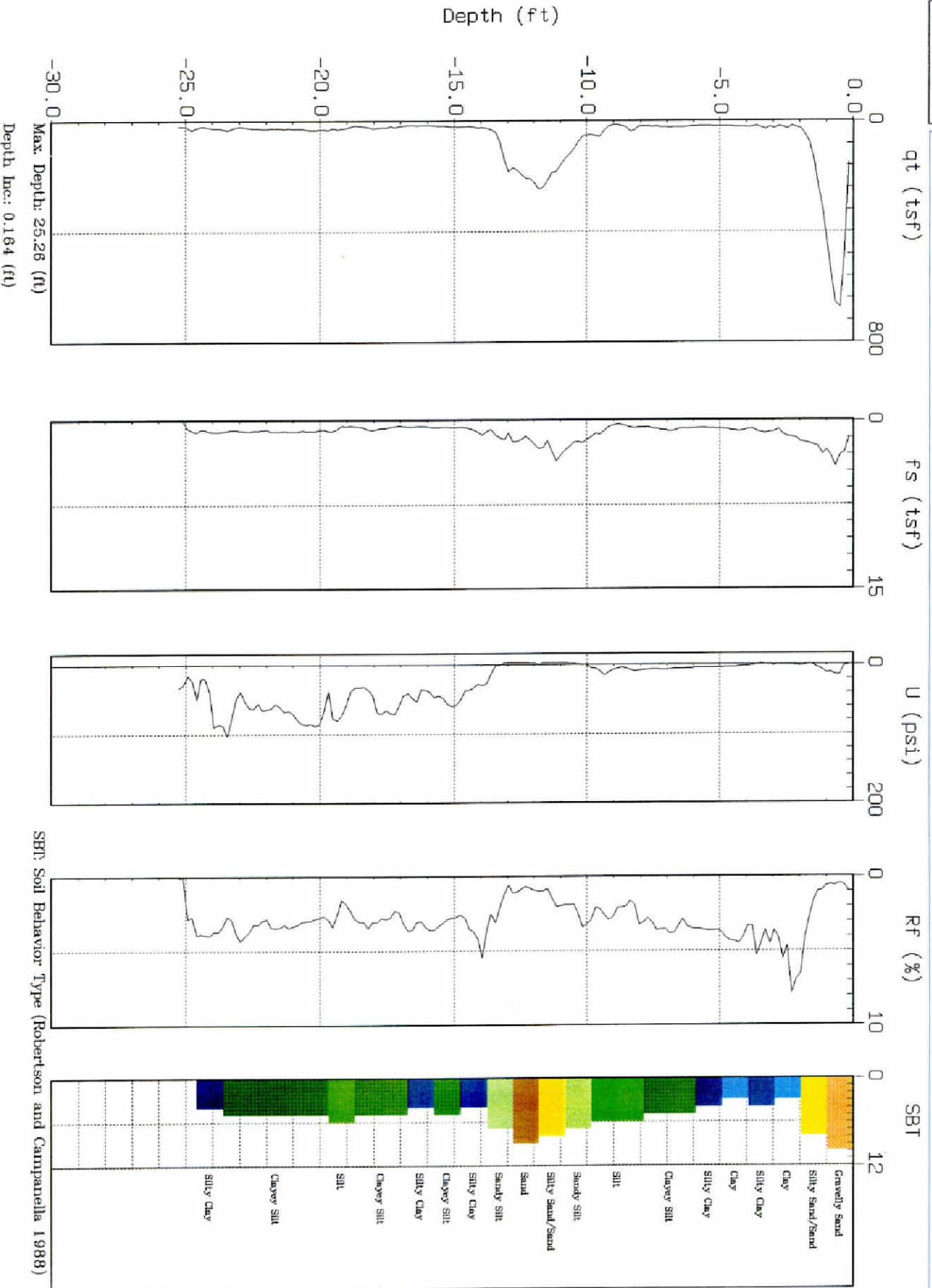
SBT: Soil Behavior Type (Robertson and Campanella 1988)



URS

Site : RICHMOND F.S.
Location : SM-800

Geologist : B. COPELAND
Date : 08:23:02 08:44



3.2 INTERPRETED OUTPUT

Gregg In Situ, Inc.

Interpretation Output - Release 1.00.19e

Run No: 02-0903-0610-2549
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-800
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 08:44
 CPT File: 120C01.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)
0.49	493.4	2.90	0.59	21.0	10	127.3	0.03	0.03
1.48	136.3	2.21	1.62	6.1	8	120.9	0.09	0.09
2.46	23.3	1.24	5.31	2.3	3	111.4	0.15	0.15
3.44	23.3	0.94	4.03	1.4	4	114.6	0.21	0.21
4.43	20.4	0.85	4.19	8.2	3	111.4	0.26	0.26
5.41	19.2	0.69	3.60	11.4	4	114.6	0.32	0.32
6.40	22.8	0.79	3.46	13.8	5	114.6	0.37	0.36
7.30	21.8	0.73	3.33	16.3	5	114.6	0.42	0.38
8.20	25.7	0.56	2.19	16.6	6	114.6	0.48	0.41
9.19	32.6	0.76	2.33	20.9	6	114.6	0.53	0.43
10.17	76.5	1.87	2.44	1.0	6	114.6	0.59	0.46
11.15	187.0	2.70	1.44	-5.5	8	120.9	0.65	0.49
12.14	209.8	1.87	0.89	-4.3	9	124.1	0.71	0.52
13.21	94.8	1.30	1.37	10.8	8	120.9	0.77	0.55
14.27	22.3	0.83	3.73	83.4	4	114.6	0.84	0.58
15.26	19.3	0.59	3.03	120.7	5	114.6	0.89	0.60
16.24	15.2	0.51	3.37	98.0	4	114.6	0.95	0.63
17.22	20.5	0.55	2.68	146.4	5	114.6	1.00	0.65
18.21	21.4	0.66	3.10	94.5	5	114.6	1.06	0.68
19.19	26.9	0.65	2.43	140.5	6	114.6	1.12	0.71
20.18	30.1	0.86	2.86	191.1	5	114.6	1.17	0.73
21.16	27.8	0.93	3.34	153.7	5	114.6	1.23	0.76
22.15	26.6	0.85	3.21	142.8	5	114.6	1.29	0.78
23.13	25.2	0.86	3.40	156.8	5	114.6	1.34	0.81
24.11	23.8	0.91	3.82	116.9	4	114.6	1.40	0.83

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e

Run No: 02-0903-0610-2549
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-800
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 08:44
 CPT File: 120C01.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

 Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method : Robertson and Campanella, 1983
 Dr Method : Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs
0.49	5.0E+00	0.00	1000.0	0.59	10	945.1	0.0	945.1
1.48	5.0E-03	0.00	1000.0	1.63	12	261.0	UnDef	UnDef
2.46	5.0E-08	0.00	154.7	5.34	11	44.6	UnDef	UnDef
3.44	5.0E-07	0.00	112.7	4.06	12	44.7	UnDef	UnDef
4.43	5.0E-08	0.01	77.0	4.24	6	39.0	60.5	99.5
5.41	5.0E-07	0.02	59.5	3.66	6	33.3	59.2	92.5
6.40	5.0E-06	0.02	62.3	3.51	6	37.2	58.1	95.3
7.30	5.0E-06	0.02	55.7	3.39	6	34.5	60.0	94.5
8.20	5.0E-05	0.02	61.8	2.23	7	39.4	34.3	73.7
9.19	5.0E-05	0.02	74.1	2.36	7	48.5	36.2	84.7
10.17	5.0E-05	0.00	165.6	2.46	7	110.6	35.2	145.8
11.15	5.0E-03	0.00	383.5	1.45	9	262.5	0.4	262.9
12.14	5.0E-02	0.00	405.6	0.89	9	285.9	0.0	285.9
13.21	5.0E-03	0.00	171.7	1.38	9	125.4	14.7	140.1
14.27	5.0E-07	0.11	37.1	3.87	6	28.7	114.8	143.4
15.26	5.0E-06	0.19	30.6	3.18	6	24.4	97.5	121.9
16.24	5.0E-07	0.19	22.7	3.59	6	18.8	75.2	94.0
17.22	5.0E-06	0.22	29.8	2.82	6	24.8	99.1	123.9
18.21	5.0E-06	0.13	30.0	3.26	6	25.4	101.7	127.2
19.19	5.0E-05	0.15	36.6	2.54	6	31.3	70.5	101.8
20.18	5.0E-06	0.19	39.5	2.98	6	34.4	86.9	121.3
21.16	5.0E-06	0.16	35.1	3.49	6	31.2	125.0	156.2
22.15	5.0E-06	0.16	32.3	3.37	6	29.4	117.6	147.0
23.13	5.0E-06	0.18	29.6	3.59	6	27.5	109.9	137.4
24.11	5.0E-07	0.14	26.9	4.06	6	25.5	102.1	127.6

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-2609
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-775
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 09:12
 CPT File: 120C02.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

 Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)
0.49	572.4	3.83	0.67	6.1	10	127.3	0.03	0.03
1.48	120.6	2.49	2.06	6.5	7	117.8	0.09	0.09
2.46	16.4	1.13	6.88	2.5	3	111.4	0.15	0.15
3.44	22.5	1.06	4.70	2.3	3	111.4	0.20	0.20
4.43	24.3	0.91	3.75	2.2	4	114.6	0.26	0.26
5.41	40.1	1.53	3.82	-1.2	5	114.6	0.31	0.31
6.40	94.6	2.52	2.66	4.5	6	114.6	0.37	0.36
7.30	106.9	2.92	2.73	6.1	6	114.6	0.42	0.38
8.20	91.4	2.98	3.26	9.6	6	114.6	0.47	0.41
9.19	43.6	1.69	3.87	4.8	5	114.6	0.53	0.43
10.17	33.2	0.68	2.06	0.1	6	114.6	0.59	0.46
11.15	24.5	0.77	3.13	2.8	5	114.6	0.64	0.48
12.14	132.2	1.02	0.77	4.3	9	124.1	0.70	0.51
13.21	30.9	0.55	1.78	-3.8	6	114.6	0.77	0.54
14.27	23.3	0.53	2.28	6.7	6	114.6	0.83	0.57
15.26	18.5	0.52	2.83	22.9	5	114.6	0.88	0.59
16.24	12.1	0.44	3.63	30.1	3	111.4	0.94	0.62
17.22	16.6	0.49	2.93	52.1	5	114.6	0.99	0.64
18.21	23.0	0.70	3.05	96.3	5	114.6	1.05	0.67
19.19	29.5	0.72	2.44	184.3	6	114.6	1.11	0.70
20.18	28.3	0.82	2.90	141.2	5	114.6	1.16	0.72
21.16	20.3	0.80	3.93	56.2	4	114.6	1.22	0.75
22.15	14.3	0.48	3.38	44.2	4	114.6	1.28	0.77
23.13	15.6	0.64	4.12	46.5	3	111.4	1.33	0.80
24.11	20.0	0.72	3.60	79.9	4	114.6	1.39	0.82

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-2609
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-775
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 09:12
 CPT File: 120C02.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs
0.49	5.0E+00	0.00	1000.0	0.67	10	1096.4	0.0	1096.4
1.48	5.0E-04	0.00	1000.0	2.07	12	231.0	UnDef	UnDef
2.46	5.0E-08	0.00	109.6	6.94	11	31.4	UnDef	UnDef
3.44	5.0E-08	0.00	109.8	4.74	11	43.0	UnDef	UnDef
4.43	5.0E-07	0.00	93.0	3.79	7	46.5	48.6	95.2
5.41	5.0E-06	0.00	126.5	3.85	12	70.0	UnDef	UnDef
6.40	5.0E-05	0.00	262.6	2.67	12	154.5	UnDef	UnDef
7.30	5.0E-05	0.00	278.4	2.74	12	169.1	UnDef	UnDef
8.20	5.0E-05	0.00	224.0	3.27	12	140.3	UnDef	UnDef
9.19	5.0E-06	0.00	99.9	3.92	12	65.0	UnDef	UnDef
10.17	5.0E-05	0.00	71.3	2.10	7	48.0	32.6	80.7
11.15	5.0E-06	0.00	49.3	3.21	6	34.5	66.7	101.1
12.14	5.0E-02	0.00	257.3	0.78	9	181.0	0.0	181.0
13.21	5.0E-05	-0.01	55.7	1.82	7	41.1	32.4	73.5
14.27	5.0E-05	0.00	39.6	2.37	7	30.3	53.4	83.7
15.26	5.0E-06	0.02	29.6	2.97	6	23.4	93.7	117.2
16.24	5.0E-08	0.06	17.9	3.94	4	15.0	60.0	75.0
17.22	5.0E-06	0.08	24.2	3.12	6	20.2	80.8	101.0
18.21	5.0E-06	0.12	32.8	3.20	6	27.5	110.0	137.5
19.19	5.0E-05	0.19	40.9	2.53	7	34.7	63.7	98.4
20.18	5.0E-06	0.15	37.6	3.02	6	32.6	93.4	126.0
21.16	5.0E-07	0.07	25.5	4.19	6	23.0	92.0	114.9
22.15	5.0E-07	0.07	16.8	3.72	4	15.9	63.6	79.5
23.13	5.0E-08	0.06	17.9	4.51	1	17.1	UnDef	UnDef
24.11	5.0E-07	0.10	22.7	3.87	6	21.6	86.4	108.0

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-2664
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-750
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 09:45
 CPT File: 120C03.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

 Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)
0.49	301.8	2.13	0.70	3.4	9	124.1	0.03	0.03
1.48	34.5	2.11	6.10	3.9	3	111.4	0.09	0.09
2.46	16.0	0.89	5.59	13.0	3	111.4	0.14	0.14
3.44	21.4	1.05	4.90	15.0	3	111.4	0.20	0.20
4.43	27.6	1.31	4.74	5.2	3	111.4	0.25	0.25
5.41	35.1	1.05	2.99	5.0	5	114.6	0.31	0.31
6.40	61.8	2.05	3.32	9.8	6	114.6	0.36	0.35
7.30	90.9	2.57	2.83	7.2	6	114.6	0.42	0.38
8.20	92.3	1.71	1.85	10.0	7	117.8	0.47	0.40
9.19	74.1	0.78	1.06	5.8	8	120.9	0.53	0.43
10.17	19.4	0.45	2.35	3.8	5	114.6	0.59	0.46
11.15	53.9	1.64	3.04	7.8	6	114.6	0.64	0.48
12.14	166.8	2.95	1.77	12.0	8	120.9	0.70	0.51
13.21	51.9	1.08	2.08	9.5	6	114.6	0.76	0.54
14.27	27.5	0.67	2.45	23.0	6	114.6	0.82	0.57
15.26	26.6	0.76	2.84	34.7	5	114.6	0.88	0.59
16.24	21.3	0.74	3.49	43.0	5	114.6	0.94	0.62
17.22	16.3	0.49	2.99	54.9	5	114.6	0.99	0.64
18.21	23.3	0.61	2.61	67.4	5	114.6	1.05	0.67
19.19	24.1	0.54	2.26	92.0	6	114.6	1.11	0.69
20.18	15.7	0.60	3.85	84.1	3	111.4	1.16	0.72
21.16	20.6	0.73	3.55	121.2	4	114.6	1.22	0.74
22.15	19.1	0.56	2.94	154.9	5	114.6	1.27	0.77
23.13	21.2	0.78	3.67	139.5	4	114.6	1.33	0.79
24.11	19.7	0.66	3.34	128.6	5	114.6	1.39	0.82

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e

Run No: 02-0903-0610-2664
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-750
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 09:45
 CPT File: 120C03.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs
0.49	5.0E-02	0.00	1000.0	0.70	10	578.0	0.0	578.0
1.48	5.0E-08	0.00	389.3	6.12	11	66.2	UnDef	UnDef
2.46	5.0E-08	0.03	110.4	5.64	11	30.6	UnDef	UnDef
3.44	5.0E-08	0.02	106.9	4.94	11	41.0	UnDef	UnDef
4.43	5.0E-08	0.01	108.1	4.79	11	52.8	UnDef	UnDef
5.41	5.0E-06	0.00	112.8	3.01	7	61.9	38.8	100.6
6.40	5.0E-05	0.00	174.1	3.34	12	101.8	UnDef	UnDef
7.30	5.0E-05	0.00	240.5	2.84	12	145.0	UnDef	UnDef
8.20	5.0E-04	0.00	229.3	1.86	9	142.7	19.0	161.6
9.19	5.0E-03	0.00	171.6	1.06	9	110.7	6.9	117.6
10.17	5.0E-06	0.00	41.2	2.42	7	28.1	47.7	75.8
11.15	5.0E-05	0.00	110.6	3.08	7	76.0	49.9	125.9
12.14	5.0E-03	0.00	326.7	1.78	9	228.9	14.0	242.9
13.21	5.0E-05	0.00	95.2	2.11	7	69.3	33.7	103.1
14.27	5.0E-05	0.02	47.2	2.52	7	35.8	52.3	88.1
15.26	5.0E-06	0.03	43.4	2.94	6	33.8	70.4	104.2
16.24	5.0E-06	0.05	32.9	3.65	6	26.5	106.0	132.5
17.22	5.0E-06	0.09	23.9	3.18	6	19.9	79.7	99.6
18.21	5.0E-06	0.08	33.3	2.73	6	27.9	85.9	113.8
19.19	5.0E-05	0.11	33.1	2.37	6	28.3	68.6	96.9
20.18	5.0E-08	0.15	20.2	4.16	1	18.1	UnDef	UnDef
21.16	5.0E-07	0.17	26.1	3.77	6	23.4	93.5	116.9
22.15	5.0E-06	0.24	23.1	3.15	6	21.3	85.1	106.4
23.13	5.0E-07	0.19	25.0	3.92	6	23.3	93.1	116.4
24.11	5.0E-06	0.19	22.4	3.59	6	21.3	85.3	106.7

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-2719
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-725
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 10:06
 CPT File: 120C04.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

 Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)
0.49	221.7	3.79	1.71	4.0	8	120.9	0.03	0.03
1.48	23.3	2.00	8.59	4.6	3	111.4	0.09	0.09
2.46	13.6	0.89	6.58	11.3	3	111.4	0.14	0.14
3.44	18.0	0.96	5.35	9.8	3	111.4	0.20	0.20
4.43	18.3	0.81	4.41	10.5	3	111.4	0.25	0.25
5.41	20.6	0.85	4.12	12.7	3	111.4	0.31	0.31
6.40	26.0	1.11	4.27	1.6	4	114.6	0.36	0.35
7.30	58.5	2.47	4.22	6.4	5	114.6	0.41	0.37
8.20	63.8	2.03	3.19	9.4	6	114.6	0.47	0.40
9.19	97.6	1.22	1.25	7.7	8	120.9	0.52	0.42
10.17	171.2	1.71	1.00	5.7	9	124.1	0.58	0.45
11.15	217.5	1.86	0.85	5.7	9	124.1	0.64	0.48
12.14	214.0	2.23	1.04	12.0	9	124.1	0.71	0.51
13.21	33.3	1.26	3.79	16.0	5	114.6	0.77	0.54
14.27	23.4	0.73	3.12	40.5	5	114.6	0.83	0.57
15.26	21.8	0.73	3.34	55.2	5	114.6	0.89	0.60
16.24	20.0	0.74	3.67	74.9	4	114.6	0.94	0.62
17.22	13.7	0.44	3.22	76.0	4	114.6	1.00	0.65
18.21	27.1	0.74	2.73	91.0	5	114.6	1.06	0.67
19.19	30.6	1.11	3.64	114.7	5	114.6	1.11	0.70
20.18	28.3	1.03	3.65	104.3	5	114.6	1.17	0.73
21.16	24.4	0.92	3.77	98.9	4	114.6	1.22	0.75
22.15	20.2	0.82	4.07	90.8	3	111.4	1.28	0.78
23.13	15.5	0.64	4.13	90.5	3	111.4	1.34	0.80
24.11	14.9	0.63	4.22	91.5	3	111.4	1.39	0.82

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e

Run No: 02-0903-0610-2719
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-725
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 10:06
 CPT File: 120C04.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs
0.49	5.0E-03	0.00	1000.0	1.71	12	424.7	UnDef	UnDef
1.48	5.0E-08	0.01	266.5	8.63	11	44.5	UnDef	UnDef
2.46	5.0E-08	0.03	94.7	6.65	11	26.0	UnDef	UnDef
3.44	5.0E-08	0.02	90.7	5.41	11	34.5	UnDef	UnDef
4.43	5.0E-08	0.02	72.0	4.47	6	35.1	65.2	100.4
5.41	5.0E-08	0.02	66.4	4.18	6	36.5	68.3	104.8
6.40	5.0E-07	0.00	73.3	4.33	6	43.0	73.9	116.9
7.30	5.0E-06	0.00	155.7	4.25	11	93.7	UnDef	UnDef
8.20	5.0E-05	0.00	159.8	3.21	12	99.2	UnDef	UnDef
9.19	5.0E-03	0.00	229.0	1.26	9	146.7	6.5	153.2
10.17	5.0E-02	0.00	376.4	1.00	9	248.8	0.0	248.8
11.15	5.0E-02	0.00	448.5	0.86	9	306.1	0.0	306.1
12.14	5.0E-02	0.00	415.1	1.04	9	292.2	0.0	292.2
13.21	5.0E-06	0.01	59.8	3.87	6	44.2	85.3	129.5
14.27	5.0E-06	0.04	39.4	3.24	6	30.3	89.7	119.9
15.26	5.0E-06	0.07	35.0	3.48	6	27.6	110.5	138.2
16.24	5.0E-07	0.11	30.6	3.85	6	24.8	99.4	124.2
17.22	5.0E-07	0.16	19.6	3.48	6	16.7	66.8	83.5
18.21	5.0E-06	0.09	38.5	2.84	6	32.2	78.8	111.0
19.19	5.0E-06	0.11	42.1	3.78	6	35.8	126.8	162.5
20.18	5.0E-06	0.10	37.4	3.80	6	32.5	130.1	162.6
21.16	5.0E-07	0.11	30.9	3.97	6	27.6	110.4	138.0
22.15	5.0E-08	0.12	24.4	4.35	4	22.5	89.8	112.3
23.13	5.0E-08	0.16	17.8	4.52	1	17.0	UnDef	UnDef
24.11	5.0E-08	0.17	16.4	4.65	1	16.1	UnDef	UnDef

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e

Run No: 02-0903-0610-2774
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-700
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 10:27
 CPT File: 120C05.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)
0.49	210.2	2.43	1.16	1.9	9	124.1	0.03	0.03
1.48	20.2	1.64	8.14	4.3	3	111.4	0.09	0.09
2.46	16.2	1.17	7.21	7.7	3	111.4	0.14	0.14
3.44	16.8	1.04	6.20	7.7	3	111.4	0.20	0.20
4.43	23.2	1.04	4.49	9.5	3	111.4	0.25	0.25
5.41	24.1	0.99	4.09	17.4	4	114.6	0.31	0.31
6.40	45.6	1.79	3.92	20.8	5	114.6	0.36	0.35
7.30	101.8	3.28	3.22	21.8	6	114.6	0.42	0.38
8.20	138.2	2.83	2.05	10.8	7	117.8	0.47	0.40
9.19	168.1	2.30	1.37	4.9	8	120.9	0.53	0.43
10.17	170.9	2.89	1.69	3.3	8	120.9	0.59	0.46
11.15	166.1	1.64	0.99	4.3	9	124.1	0.65	0.49
12.14	71.0	1.67	2.35	2.6	6	114.6	0.71	0.51
13.21	25.3	0.79	3.10	6.6	5	114.6	0.77	0.54
14.27	18.8	0.42	2.23	8.6	5	114.6	0.83	0.57
15.26	21.8	0.67	3.10	11.9	5	114.6	0.88	0.60
16.24	18.3	0.59	3.23	16.0	5	114.6	0.94	0.62
17.22	14.2	0.40	2.79	16.0	5	114.6	1.00	0.65
18.21	23.9	0.66	2.75	19.2	5	114.6	1.05	0.67
19.19	30.2	1.00	3.31	42.1	5	114.6	1.11	0.70
20.18	28.5	1.14	3.99	51.0	4	114.6	1.17	0.72
21.16	21.6	0.75	3.50	50.8	5	114.6	1.22	0.75
22.15	18.8	0.86	4.55	41.7	3	111.4	1.28	0.77
23.13	14.7	0.59	4.03	36.0	3	111.4	1.33	0.80
24.11	17.6	0.59	3.34	41.4	4	114.6	1.39	0.82

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e

Run No: 02-0903-0610-2774
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-700
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 10:27
 CPT File: 120C05.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method : Robertson and Campanella, 1983
 Dr Method : Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs
0.49	5.0E-02	0.00	1000.0	1.16	9	402.6	0.0	402.6
1.48	5.0E-08	0.01	227.0	8.18	11	38.6	UnDef	UnDef
2.46	5.0E-08	0.02	112.0	7.28	11	31.0	UnDef	UnDef
3.44	5.0E-08	0.01	84.0	6.28	11	32.3	UnDef	UnDef
4.43	5.0E-08	0.01	90.6	4.54	11	44.4	UnDef	UnDef
5.41	5.0E-07	0.02	77.2	4.14	6	42.5	63.4	105.9
6.40	5.0E-06	0.01	128.4	3.95	12	75.2	UnDef	UnDef
7.30	5.0E-05	0.01	269.6	3.24	12	162.4	UnDef	UnDef
8.20	5.0E-04	0.00	344.0	2.05	9	213.7	18.6	232.4
9.19	5.0E-03	0.00	391.1	1.37	9	251.3	0.0	251.3
10.17	5.0E-03	0.00	372.6	1.70	9	247.4	8.4	255.7
11.15	5.0E-02	0.00	339.9	0.99	9	233.0	0.0	233.0
12.14	5.0E-05	0.00	136.6	2.37	7	96.8	36.3	133.1
13.21	5.0E-06	0.00	45.3	3.20	6	33.7	74.9	108.6
14.27	5.0E-06	0.00	31.5	2.34	6	24.3	64.1	88.4
15.26	5.0E-06	0.00	35.1	3.23	6	27.6	106.5	134.1
16.24	5.0E-06	0.01	28.0	3.41	6	22.8	91.1	113.9
17.22	5.0E-06	0.01	20.4	3.01	6	17.2	68.9	86.2
18.21	5.0E-06	0.01	34.0	2.88	6	28.6	92.9	121.4
19.19	5.0E-06	0.03	41.6	3.43	6	35.3	104.9	140.3
20.18	5.0E-07	0.04	37.7	4.16	6	32.7	130.9	163.7
21.16	5.0E-06	0.05	27.1	3.71	6	24.4	97.4	121.8
22.15	5.0E-08	0.05	22.6	4.89	1	20.9	UnDef	UnDef
23.13	5.0E-08	0.04	16.7	4.44	1	16.0	UnDef	UnDef
24.11	5.0E-07	0.05	19.6	3.63	6	18.9	75.7	94.6

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-2829
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-675
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 10:47
 CPT File: 120C06.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method : Robertson and Campanella, 1983
 Dr Method : Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)
0.49	208.4	3.06	1.47	1.8	8	120.9	0.03	0.03
1.48	122.0	4.31	3.53	4.5	6	114.6	0.09	0.09
2.46	22.3	1.48	6.64	5.1	3	111.4	0.14	0.14
3.44	16.9	0.85	5.04	4.0	3	111.4	0.20	0.20
4.43	22.4	0.86	3.82	3.9	4	114.6	0.25	0.25
5.41	26.7	0.99	3.70	4.1	5	114.6	0.31	0.31
6.40	26.7	1.00	3.74	3.4	4	114.6	0.37	0.35
7.30	50.0	1.93	3.86	4.3	5	114.6	0.42	0.38
8.20	100.2	3.26	3.25	5.8	6	114.6	0.47	0.40
9.19	87.8	2.08	2.37	6.6	7	117.8	0.53	0.43
10.17	194.6	2.32	1.19	7.0	8	120.9	0.59	0.46
11.15	193.1	3.59	1.86	2.6	8	120.9	0.65	0.48
12.14	74.1	2.02	2.73	4.1	6	114.6	0.70	0.51
13.21	52.7	1.59	3.01	13.8	6	114.6	0.76	0.54
14.27	47.2	1.42	3.00	14.0	6	114.6	0.83	0.57
15.26	20.2	0.71	3.49	21.4	4	114.6	0.88	0.59
16.24	20.6	0.67	3.26	44.4	5	114.6	0.94	0.62
17.22	17.0	0.59	3.49	51.4	4	114.6	0.99	0.64
18.21	13.4	0.38	2.82	51.7	5	114.6	1.05	0.67
19.19	23.7	0.71	3.01	71.1	5	114.6	1.11	0.70
20.18	24.6	0.87	3.52	102.6	5	114.6	1.16	0.72
21.16	24.5	0.92	3.75	112.2	4	114.6	1.22	0.75
22.15	23.2	0.78	3.37	125.1	5	114.6	1.28	0.77
23.13	18.1	0.65	3.58	106.2	4	114.6	1.33	0.80
24.11	22.3	0.97	4.34	103.0	3	111.4	1.39	0.82

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e

Run No: 02-0903-0610-2829
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-675
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 10:47
 CPT File: 120C06.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs
0.49	5.0E-03	0.00	1000.0	1.47	12	399.2	UnDef	UnDef
1.48	5.0E-05	0.00	1000.0	3.53	12	233.8	UnDef	UnDef
2.46	5.0E-08	0.01	154.7	6.68	11	42.7	UnDef	UnDef
3.44	5.0E-08	0.01	84.2	5.10	11	32.3	UnDef	UnDef
4.43	5.0E-07	0.01	87.3	3.86	6	42.9	49.6	92.5
5.41	5.0E-06	0.00	85.2	3.74	6	47.0	53.4	100.4
6.40	5.0E-07	0.00	74.4	3.79	6	43.9	60.4	104.3
7.30	5.0E-06	0.00	131.3	3.89	12	79.6	UnDef	UnDef
8.20	5.0E-05	0.00	248.7	3.27	12	154.9	UnDef	UnDef
9.19	5.0E-04	0.00	204.2	2.38	9	131.5	31.6	163.1
10.17	5.0E-03	0.00	425.8	1.19	9	282.1	0.0	282.1
11.15	5.0E-03	0.00	397.3	1.87	9	271.5	12.3	283.8
12.14	5.0E-05	0.00	143.5	2.75	7	101.4	43.9	145.4
13.21	5.0E-05	0.00	96.3	3.05	7	70.2	53.1	123.3
14.27	5.0E-05	0.00	81.7	3.05	7	61.3	55.9	117.2
15.26	5.0E-07	0.02	32.6	3.65	6	25.7	102.8	128.5
16.24	5.0E-06	0.05	31.7	3.42	6	25.6	102.3	127.9
17.22	5.0E-07	0.08	24.9	3.70	6	20.7	83.0	103.7
18.21	5.0E-06	0.10	18.4	3.06	6	16.0	64.1	80.1
19.19	5.0E-06	0.08	32.5	3.16	6	27.8	111.2	139.0
20.18	5.0E-06	0.12	32.5	3.69	6	28.4	113.4	141.8
21.16	5.0E-07	0.13	31.2	3.95	6	27.8	111.2	139.0
22.15	5.0E-06	0.16	28.3	3.57	6	25.8	103.1	128.9
23.13	5.0E-07	0.17	21.0	3.86	4	19.9	79.4	99.3
24.11	5.0E-08	0.13	25.5	4.63	1	24.1	UnDef	UnDef

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-2884
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-650
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 11:08
 CPT File: 120C07.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

 Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method : Robertson and Campanella, 1983
 Dr Method : Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)
0.49	243.7	3.41	1.40	2.2	8	120.9	0.03	0.03
1.48	174.6	4.03	2.31	7.1	7	117.8	0.09	0.09
2.46	101.4	3.75	3.70	15.4	6	114.6	0.15	0.15
3.44	38.7	1.91	4.93	12.5	3	111.4	0.20	0.20
4.43	13.8	0.50	3.67	10.8	4	114.6	0.26	0.26
5.41	18.9	0.57	3.05	9.2	5	114.6	0.31	0.31
6.40	22.8	0.73	3.19	7.4	5	114.6	0.37	0.36
7.30	21.6	0.52	2.38	7.5	6	114.6	0.42	0.38
8.20	25.5	0.85	3.32	7.7	5	114.6	0.47	0.40
9.19	87.2	1.50	1.72	8.9	7	117.8	0.53	0.43
10.17	150.1	1.33	0.89	9.9	9	124.1	0.59	0.46
11.15	69.2	2.15	3.10	9.3	6	114.6	0.65	0.49
12.14	119.0	1.73	1.46	9.8	8	120.9	0.71	0.51
13.21	78.0	1.28	1.64	9.1	7	117.8	0.77	0.54
14.27	43.5	1.35	3.11	9.5	5	114.6	0.83	0.57
15.26	114.3	1.31	1.15	9.9	8	120.9	0.89	0.60
16.24	147.8	1.48	1.00	9.0	9	124.1	0.95	0.63
17.22	169.3	1.45	0.86	9.3	9	124.1	1.01	0.66
18.21	53.2	0.95	1.78	8.7	7	117.8	1.07	0.69
19.19	29.1	0.79	2.70	61.0	5	114.6	1.13	0.72
20.18	29.1	0.93	3.21	94.6	5	114.6	1.18	0.74
21.16	25.8	0.92	3.59	90.7	5	114.6	1.24	0.77
22.15	23.5	0.97	4.14	77.9	4	114.6	1.30	0.79
23.13	16.7	0.73	4.39	66.1	3	111.4	1.35	0.82
24.11	19.8	0.69	3.47	73.2	4	114.6	1.41	0.84

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-2884
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-650
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 11:08
 CPT File: 120C07.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

 Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs
0.49	5.0E-03	0.00	1000.0	1.40	12	466.7	UnDef	UnDef
1.48	5.0E-04	0.00	1000.0	2.31	12	334.5	UnDef	UnDef
2.46	5.0E-05	0.00	695.0	3.71	12	194.2	UnDef	UnDef
3.44	5.0E-08	0.01	191.5	4.95	11	74.2	UnDef	UnDef
4.43	5.0E-07	0.03	52.6	3.74	6	26.4	59.0	85.3
5.41	5.0E-06	0.02	59.2	3.10	7	33.0	46.1	79.1
6.40	5.0E-06	0.01	62.7	3.24	7	37.3	51.2	88.5
7.30	5.0E-05	0.01	55.7	2.43	7	34.3	37.9	72.2
8.20	5.0E-06	0.01	62.0	3.38	6	39.3	58.4	97.7
9.19	5.0E-04	0.00	201.3	1.73	9	130.1	18.3	148.4
10.17	5.0E-02	0.00	325.3	0.89	9	216.6	0.0	216.6
11.15	5.0E-05	0.00	140.7	3.13	7	97.1	50.7	147.8
12.14	5.0E-03	0.00	229.7	1.47	9	162.3	12.1	174.3
13.21	5.0E-04	0.00	141.6	1.66	9	103.3	22.5	125.9
14.27	5.0E-06	0.00	74.4	3.17	7	56.2	60.3	116.6
15.26	5.0E-03	0.00	188.8	1.15	9	144.3	8.7	153.1
16.24	5.0E-02	0.00	233.0	1.01	9	182.2	0.7	182.9
17.22	5.0E-02	0.00	254.7	0.86	9	203.8	0.0	203.8
18.21	5.0E-04	0.00	75.6	1.82	7	62.7	33.8	96.5
19.19	5.0E-06	0.05	39.0	2.81	6	33.6	78.8	112.4
20.18	5.0E-06	0.09	37.6	3.35	6	33.0	116.7	149.7
21.16	5.0E-06	0.10	31.9	3.77	6	28.8	115.1	143.8
22.15	5.0E-07	0.09	28.0	4.38	6	25.8	103.2	129.1
23.13	5.0E-08	0.10	18.7	4.77	1	18.1	UnDef	UnDef
24.11	5.0E-07	0.09	21.8	3.73	6	21.1	84.5	105.6

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-2939
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-625
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 11:27
 CPT File: 120C08.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

 Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method : Robertson and Campanella, 1983
 Dr Method : Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)
0.49	182.8	2.12	1.16	2.1	8	120.9	0.03	0.03
1.48	250.7	4.68	1.87	4.4	8	120.9	0.09	0.09
2.46	110.2	4.92	4.47	10.7	11	130.5	0.15	0.15
3.44	43.0	1.84	4.27	12.1	4	114.6	0.21	0.21
4.43	28.2	1.36	4.81	11.8	3	111.4	0.27	0.27
5.41	22.7	0.73	3.23	11.7	5	114.6	0.32	0.32
6.40	23.0	0.70	3.03	10.9	5	114.6	0.38	0.37
7.30	25.7	0.80	3.10	10.5	5	114.6	0.43	0.39
8.20	106.3	3.25	3.06	11.3	6	114.6	0.48	0.41
9.19	123.6	1.93	1.56	11.4	8	120.9	0.54	0.44
10.17	98.7	1.35	1.37	9.9	8	120.9	0.60	0.47
11.15	160.8	2.37	1.47	10.5	8	120.9	0.66	0.50
12.14	107.5	2.89	2.69	8.9	6	114.6	0.72	0.53
13.21	72.3	2.28	3.16	10.6	6	114.6	0.78	0.55
14.27	129.9	4.19	3.23	10.6	6	114.6	0.84	0.58
15.26	210.2	6.45	3.07	11.5	7	117.8	0.90	0.61
16.24	175.9	4.22	2.40	12.4	7	117.8	0.95	0.63
17.22	24.7	0.77	3.13	10.3	5	114.6	1.01	0.66
18.21	17.8	0.47	2.63	9.6	5	114.6	1.07	0.69
19.19	20.0	0.44	2.20	9.0	6	114.6	1.12	0.71
20.18	36.2	0.79	2.18	9.5	6	114.6	1.18	0.74
21.16	38.2	0.81	2.12	10.8	6	114.6	1.24	0.76
22.15	30.8	0.95	3.08	11.5	5	114.6	1.29	0.79
23.13	26.0	0.78	3.00	12.3	5	114.6	1.35	0.82
24.11	23.7	0.68	2.87	14.0	5	114.6	1.41	0.84

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e

Run No: 02-0903-0610-2939
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-625
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 11:27
 CPT File: 120C08.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

 Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs
0.49	5.0E-03	0.00	1000.0	1.16	9	350.2	0.0	350.2
1.48	5.0E-03	0.00	1000.0	1.87	12	480.1	UnDef	UnDef
2.46	1.0E-15	0.00	728.4	4.47	12	211.2	UnDef	UnDef
3.44	5.0E-07	0.01	202.6	4.29	12	82.5	UnDef	UnDef
4.43	5.0E-08	0.01	104.6	4.86	11	53.4	UnDef	UnDef
5.41	5.0E-06	0.02	69.5	3.27	7	39.2	47.8	86.9
6.40	5.0E-06	0.01	61.6	3.08	7	37.1	48.7	85.8
7.30	5.0E-06	0.01	64.8	3.15	7	40.3	51.0	91.3
8.20	5.0E-05	0.00	255.9	3.07	12	161.8	UnDef	UnDef
9.19	5.0E-03	0.00	279.2	1.57	9	182.2	10.4	192.6
10.17	5.0E-03	0.00	208.8	1.38	9	140.9	11.1	152.0
11.15	5.0E-03	0.00	321.2	1.48	9	222.8	5.8	228.6
12.14	5.0E-05	0.00	203.1	2.70	7	145.0	42.5	187.6
13.21	5.0E-05	0.00	129.2	3.19	7	95.1	55.7	150.8
14.27	5.0E-05	0.00	222.0	3.25	12	166.7	UnDef	UnDef
15.26	5.0E-04	0.00	344.4	3.08	12	263.9	UnDef	UnDef
16.24	5.0E-04	0.00	275.6	2.41	12	216.1	UnDef	UnDef
17.22	5.0E-06	0.00	35.8	3.26	6	29.7	111.4	141.2
18.21	5.0E-06	0.00	24.4	2.80	6	21.0	84.1	105.1
19.19	5.0E-05	-0.01	26.5	2.33	6	23.2	91.3	114.5
20.18	5.0E-05	0.00	47.5	2.25	7	41.3	51.7	93.0
21.16	5.0E-05	0.00	48.4	2.19	7	42.8	50.3	93.0
22.15	5.0E-06	0.00	37.3	3.22	6	33.9	112.0	145.9
23.13	5.0E-06	-0.01	30.2	3.16	6	28.1	112.6	140.7
24.11	5.0E-06	-0.01	26.5	3.05	6	25.3	101.3	126.6

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 un No: 02-0903-0610-2999
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-600
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 12:03
 CPT File: 120C09.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)
0.49	194.8	1.99	1.02	1.1	9	124.1	0.03	0.03
1.48	192.8	3.94	2.04	3.1	7	117.8	0.09	0.09
2.46	110.0	4.88	4.44	8.6	11	130.5	0.15	0.15
3.44	83.5	3.92	4.69	13.0	11	130.5	0.22	0.22
4.43	66.0	2.55	3.87	12.9	5	114.6	0.28	0.28
5.41	21.1	0.78	3.70	8.9	4	114.6	0.33	0.33
6.40	24.4	0.67	2.76	11.0	5	114.6	0.39	0.38
7.30	28.7	0.71	2.48	10.8	6	114.6	0.44	0.40
8.20	39.6	1.54	3.90	11.1	5	114.6	0.49	0.42
9.19	44.1	1.56	3.53	10.8	5	114.6	0.55	0.45
10.17	103.5	3.16	3.05	10.8	6	114.6	0.60	0.47
11.15	133.4	1.84	1.38	11.4	8	120.9	0.66	0.50
12.14	114.6	0.87	0.76	10.6	8	120.9	0.72	0.53
13.21	66.0	1.44	2.18	10.2	7	117.8	0.79	0.56
14.27	18.0	0.60	3.37	10.5	4	114.6	0.85	0.59
15.26	22.1	0.83	3.77	15.8	4	114.6	0.90	0.62
16.24	18.3	0.69	3.75	19.4	4	114.6	0.96	0.64
17.22	12.0	0.41	3.42	19.7	4	114.6	1.02	0.67
18.21	21.1	0.66	3.14	27.8	5	114.6	1.07	0.69
19.19	28.5	0.96	3.36	43.2	5	114.6	1.13	0.72
20.18	22.6	0.80	3.55	46.0	5	114.6	1.19	0.74
21.16	27.5	1.12	4.09	49.4	4	114.6	1.24	0.77
22.15	23.0	1.06	4.60	51.6	3	111.4	1.30	0.79
23.13	14.6	0.63	4.28	49.4	3	111.4	1.35	0.82
24.11	16.1	0.51	3.16	53.2	5	114.6	1.41	0.84

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-2999
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-600
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 12:03
 CPT File: 120C09.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

 Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs
0.49	5.0E-02	0.00	1000.0	1.02	10	373.0	0.0	373.0
1.48	5.0E-04	0.00	1000.0	2.05	12	369.2	UnDef	UnDef
2.46	1.0E-15	0.00	727.0	4.44	12	210.7	UnDef	UnDef
3.44	1.0E-15	0.00	386.8	4.70	11	160.0	UnDef	UnDef
4.43	5.0E-06	0.01	238.4	3.88	12	123.0	UnDef	UnDef
5.41	5.0E-07	0.01	62.6	3.76	6	35.8	61.6	97.4
6.40	5.0E-06	0.01	63.8	2.81	7	38.9	43.2	82.1
7.30	5.0E-05	0.01	70.7	2.52	7	44.4	37.9	82.3
8.20	5.0E-06	0.01	92.5	3.94	12	59.6	UnDef	UnDef
9.19	5.0E-06	0.01	97.0	3.58	7	64.4	59.3	123.8
10.17	5.0E-05	0.00	216.8	3.07	12	147.0	UnDef	UnDef
11.15	5.0E-03	0.00	264.7	1.38	9	184.4	7.4	191.8
12.14	5.0E-03	0.00	214.7	0.76	9	154.0	0.0	154.0
13.21	5.0E-04	0.00	116.2	2.21	7	86.2	35.3	121.5
14.27	5.0E-07	0.00	29.0	3.54	6	22.9	91.6	114.4
15.26	5.0E-07	0.01	34.5	3.93	6	27.6	110.3	137.8
16.24	5.0E-07	0.02	27.1	3.95	6	22.4	89.6	112.0
17.22	5.0E-07	0.02	16.4	3.74	4	14.3	57.4	71.7
18.21	5.0E-06	0.02	28.9	3.30	6	24.8	99.3	124.1
19.19	5.0E-06	0.03	38.1	3.50	6	32.9	124.2	157.1
20.18	5.0E-06	0.05	28.8	3.75	6	25.7	102.6	128.3
21.16	5.0E-07	0.04	34.1	4.28	6	30.7	122.7	153.3
22.15	5.0E-08	0.05	27.3	4.87	1	25.2	UnDef	UnDef
23.13	5.0E-08	0.08	16.2	4.72	1	15.8	UnDef	UnDef
24.11	5.0E-06	0.07	17.5	3.46	4	17.2	68.8	86.0

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e

Run No: 02-0903-0610-3054
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-500
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 12:43
 CPT File: 120C10.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)
0.49	73.7	3.15	4.28	2.5	5	114.6	0.03	0.03
1.48	67.0	3.46	5.16	3.2	11	130.5	0.09	0.09
2.46	63.2	3.16	5.01	6.2	11	130.5	0.15	0.15
3.44	62.6	3.17	5.06	8.8	11	130.5	0.22	0.22
4.43	21.1	1.45	6.86	8.5	3	111.4	0.28	0.28
5.41	17.8	0.70	3.92	8.4	4	114.6	0.33	0.33
6.40	18.6	0.71	3.80	7.9	4	114.6	0.39	0.38
7.30	23.5	0.66	2.80	8.1	5	114.6	0.44	0.40
8.20	26.8	0.86	3.20	8.3	5	114.6	0.49	0.42
9.19	34.3	1.50	4.37	9.0	4	114.6	0.55	0.45
10.17	23.6	0.99	4.19	9.1	4	114.6	0.60	0.47
11.15	43.8	1.66	3.79	9.6	5	114.6	0.66	0.50
12.14	47.5	1.60	3.37	9.6	5	114.6	0.72	0.53
13.21	20.6	0.70	3.41	27.7	5	114.6	0.78	0.55
14.27	15.7	0.43	2.72	31.5	5	114.6	0.84	0.58
15.26	21.5	0.69	3.20	39.6	5	114.6	0.90	0.61
16.24	22.1	0.78	3.52	57.5	5	114.6	0.95	0.63
17.22	16.8	0.48	2.88	62.6	5	114.6	1.01	0.66
18.21	18.9	0.50	2.63	66.9	5	114.6	1.07	0.68
19.19	24.9	0.71	2.86	148.9	5	114.6	1.12	0.71
20.18	30.9	1.05	3.38	173.8	5	114.6	1.18	0.74
21.16	21.2	0.77	3.65	133.5	4	114.6	1.23	0.76
22.15	27.2	0.95	3.48	151.0	5	114.6	1.29	0.79
23.13	25.3	1.10	4.34	110.5	3	111.4	1.35	0.81
24.11	18.0	0.89	4.93	78.1	3	111.4	1.40	0.84

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-3054
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-500
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 12:43
 CPT File: 120C10.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

 Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method : Robertson and Campanella, 1983
 Dr Method : Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs
0.49	5.0E-06	0.00	1000.0	4.28	12	141.2	UnDef	UnDef
1.48	1.0E-15	0.00	756.0	5.17	11	128.3	UnDef	UnDef
2.46	1.0E-15	0.00	412.5	5.02	11	121.0	UnDef	UnDef
3.44	1.0E-15	0.00	287.5	5.08	11	119.9	UnDef	UnDef
4.43	5.0E-08	0.01	75.2	6.96	11	39.2	UnDef	UnDef
5.41	5.0E-07	0.01	52.7	3.99	6	30.3	76.1	106.4
6.40	5.0E-07	0.01	48.5	3.88	6	29.7	82.5	112.2
7.30	5.0E-06	0.01	57.6	2.86	7	36.3	47.2	83.5
8.20	5.0E-06	0.01	62.1	3.26	6	40.3	56.7	97.0
9.19	5.0E-07	0.01	75.3	4.44	6	50.2	86.4	136.6
10.17	5.0E-07	0.01	48.4	4.30	6	33.5	116.4	149.9
11.15	5.0E-06	0.00	86.3	3.85	6	60.7	70.7	131.3
12.14	5.0E-06	0.00	88.9	3.42	7	64.1	61.4	125.5
13.21	5.0E-06	0.03	35.7	3.54	6	27.0	108.1	135.2
14.27	5.0E-06	0.05	25.5	2.87	6	20.1	80.5	100.6
15.26	5.0E-06	0.05	33.9	3.34	6	27.0	107.9	134.9
16.24	5.0E-06	0.07	33.5	3.68	6	27.2	109.0	136.2
17.22	5.0E-06	0.10	24.0	3.06	6	20.3	81.2	101.5
18.21	5.0E-06	0.10	26.0	2.79	6	22.3	89.3	111.6
19.19	5.0E-06	0.18	33.5	2.99	6	28.9	105.6	134.5
20.18	5.0E-06	0.17	40.4	3.52	6	35.3	117.1	152.4
21.16	5.0E-07	0.18	26.3	3.87	6	23.8	95.2	119.0
22.15	5.0E-06	0.16	32.9	3.65	6	30.0	120.0	150.1
23.13	5.0E-08	0.12	29.6	4.58	4	27.5	110.1	137.6
24.11	5.0E-08	0.11	19.9	5.34	1	19.3	UnDef	UnDef

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-3114
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-400
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 13:13
 CPT File: 120C11.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method : Robertson and Campanella, 1983
 Dr Method : Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)
0.49	124.6	4.52	3.63	1.6	6	114.6	0.03	0.03
1.48	22.6	1.33	5.89	4.4	3	111.4	0.08	0.08
2.46	27.3	1.12	4.11	6.0	4	114.6	0.14	0.14
3.44	21.8	0.80	3.67	7.1	4	114.6	0.20	0.20
4.43	17.1	0.75	4.39	6.8	3	111.4	0.25	0.25
5.41	15.3	0.63	4.09	6.4	3	111.4	0.31	0.31
6.40	34.0	1.12	3.30	6.7	5	114.6	0.36	0.35
7.30	39.3	1.31	3.32	8.1	5	114.6	0.41	0.37
8.20	28.5	1.19	4.18	11.0	4	114.6	0.47	0.40
9.19	26.2	0.93	3.56	11.5	5	114.6	0.52	0.42
10.17	17.8	0.60	3.35	11.6	4	114.6	0.58	0.45
11.15	23.6	0.86	3.66	11.8	4	114.6	0.63	0.47
12.14	22.9	0.92	4.02	13.7	4	114.6	0.69	0.50
13.21	21.3	0.75	3.52	18.8	4	114.6	0.75	0.53
14.27	14.7	0.47	3.16	22.3	4	114.6	0.81	0.55
15.26	16.4	0.54	3.29	22.4	4	114.6	0.87	0.58
16.24	23.7	0.97	4.07	23.9	4	114.6	0.93	0.61
17.22	29.8	0.83	2.78	30.7	5	114.6	0.98	0.63
18.21	25.7	1.00	3.89	34.1	4	114.6	1.04	0.66
19.19	17.9	0.65	3.65	33.8	4	114.6	1.09	0.68
20.18	17.7	0.55	3.11	32.8	5	114.6	1.15	0.71
21.16	19.3	0.72	3.74	33.4	4	114.6	1.21	0.73
22.15	14.4	0.51	3.55	33.6	4	114.6	1.26	0.76
23.13	14.0	0.54	3.85	34.7	3	111.4	1.32	0.78
24.11	18.7	0.63	3.38	39.7	4	114.6	1.38	0.81

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e

Run No: 02-0903-0610-3114
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-400
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 13:13
 CPT File: 120C11.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs
0.49	5.0E-05	0.00	1000.0	3.63	12	238.6	UnDef	UnDef
1.48	5.0E-08	0.01	268.7	5.91	11	43.3	UnDef	UnDef
2.46	5.0E-07	0.01	195.0	4.13	12	52.3	UnDef	UnDef
3.44	5.0E-07	0.01	110.5	3.71	12	41.8	UnDef	UnDef
4.43	5.0E-08	0.01	67.0	4.46	6	32.7	67.3	100.0
5.41	5.0E-08	0.01	49.1	4.17	6	27.1	85.3	112.4
6.40	5.0E-06	0.01	96.3	3.34	7	56.3	47.7	104.1
7.30	5.0E-06	0.01	104.2	3.36	7	62.9	49.4	112.3
8.20	5.0E-07	0.01	70.7	4.25	6	44.3	77.7	122.0
9.19	5.0E-06	0.01	60.9	3.63	6	39.5	67.0	106.5
10.17	5.0E-07	0.01	38.5	3.46	6	26.1	93.3	119.4
11.15	5.0E-07	0.01	48.5	3.76	6	33.5	87.9	121.5
12.14	5.0E-07	0.01	44.4	4.15	6	31.7	122.9	154.6
13.21	5.0E-07	0.02	38.9	3.65	6	28.7	113.2	141.9
14.27	5.0E-07	0.03	25.1	3.35	6	19.4	77.4	96.8
15.26	5.0E-07	0.03	26.8	3.47	6	21.1	84.4	105.5
16.24	5.0E-07	0.02	37.6	4.24	6	29.8	119.2	149.0
17.22	5.0E-06	0.02	45.6	2.87	6	36.6	68.0	104.6
18.21	5.0E-07	0.03	37.5	4.05	6	31.0	124.0	155.0
19.19	5.0E-07	0.04	24.6	3.89	6	21.2	84.8	106.0
20.18	5.0E-06	0.04	23.3	3.33	6	20.5	82.1	102.6
21.16	5.0E-07	0.03	24.7	3.99	6	22.1	88.3	110.3
22.15	5.0E-07	0.04	17.2	3.89	4	16.1	64.4	80.5
23.13	5.0E-08	0.04	16.1	4.25	1	15.4	UnDef	UnDef
24.11	5.0E-07	0.04	21.4	3.65	6	20.3	81.3	101.6

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-3164
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-315
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 13:49
 CPT File: 120C12.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

 Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)
0.49	80.8	1.04	1.29	17.1	8	120.9	0.03	0.03
1.48	62.9	1.78	2.83	26.7	6	114.6	0.09	0.09
2.46	35.7	1.52	4.26	10.7	4	114.6	0.14	0.14
3.44	35.7	1.62	4.53	4.2	4	114.6	0.20	0.20
4.43	29.9	1.08	3.60	7.2	5	114.6	0.26	0.26
5.41	19.5	0.82	4.20	10.2	3	111.4	0.31	0.31
6.40	16.5	0.70	4.23	9.1	3	111.4	0.37	0.35
7.30	14.1	0.53	3.73	7.6	3	111.4	0.42	0.38
8.20	12.4	0.48	3.87	6.7	3	111.4	0.47	0.40
9.19	11.9	0.48	4.06	6.8	3	111.4	0.52	0.42
10.17	12.0	0.56	4.65	7.7	3	111.4	0.58	0.45
11.15	18.2	0.63	3.47	10.0	4	114.6	0.63	0.47
12.14	17.7	0.68	3.83	17.7	4	114.6	0.69	0.50
13.21	27.5	0.88	3.20	63.0	5	114.6	0.75	0.53
14.27	54.1	1.99	3.68	80.3	5	114.6	0.81	0.55
15.26	58.2	1.40	2.41	22.8	6	114.6	0.87	0.58
16.24	23.7	0.81	3.43	87.8	5	114.6	0.92	0.60
17.22	16.1	0.57	3.57	95.9	4	114.6	0.98	0.63
18.21	14.5	0.48	3.30	98.6	4	114.6	1.04	0.66
19.19	13.5	0.39	2.89	112.2	5	114.6	1.09	0.68
20.18	27.4	0.60	2.19	253.2	6	114.6	1.15	0.71
21.16	30.3	0.74	2.44	255.1	6	114.6	1.21	0.73
22.15	29.0	0.96	3.31	227.5	5	114.6	1.26	0.76
23.13	32.7	1.16	3.55	259.9	5	114.6	1.32	0.78
24.11	31.8	1.18	3.72	243.1	5	114.6	1.38	0.81

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-3164
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-315
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 13:49
 CPT File: 120C12.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

 Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method : Robertson and Campanella, 1983
 Dr Method : Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs
0.49	5.0E-03	0.01	1000.0	1.29	9	154.7	0.0	154.7
1.48	5.0E-05	0.01	715.6	2.83	12	120.4	UnDef	UnDef
2.46	5.0E-07	0.01	246.5	4.28	12	68.3	UnDef	UnDef
3.44	5.0E-07	0.00	177.2	4.56	11	68.4	UnDef	UnDef
4.43	5.0E-06	0.01	115.2	3.63	12	57.2	UnDef	UnDef
5.41	5.0E-08	0.02	61.3	4.27	6	34.1	74.7	108.8
6.40	5.0E-08	0.02	45.6	4.33	6	27.2	108.7	135.8
7.30	5.0E-08	0.01	36.4	3.85	6	22.5	90.1	112.6
8.20	5.0E-08	0.01	29.8	4.02	6	19.1	76.6	95.7
9.19	5.0E-08	0.01	26.9	4.25	6	17.9	71.7	89.7
10.17	5.0E-08	0.01	25.6	4.89	1	17.6	UnDef	UnDef
11.15	5.0E-07	0.01	37.3	3.60	6	26.0	103.9	129.8
12.14	5.0E-07	0.02	34.1	3.99	6	24.5	98.0	122.5
13.21	5.0E-06	0.07	51.0	3.29	6	37.2	71.0	108.2
14.27	5.0E-06	0.04	96.3	3.73	7	71.2	70.1	141.2
15.26	5.0E-05	0.01	99.1	2.44	7	74.9	41.6	116.5
16.24	5.0E-06	0.11	37.7	3.56	6	29.9	119.5	149.4
17.22	5.0E-07	0.17	24.0	3.80	6	19.8	79.4	99.2
18.21	5.0E-07	0.20	20.5	3.55	6	17.5	70.0	87.5
19.19	5.0E-06	0.25	18.1	3.15	6	15.9	63.8	79.7
20.18	5.0E-05	0.28	37.2	2.29	7	31.9	59.6	91.5
21.16	5.0E-05	0.26	39.7	2.54	7	34.7	67.3	101.9
22.15	5.0E-06	0.24	36.6	3.46	6	32.6	130.4	163.1
23.13	5.0E-06	0.24	40.0	3.70	6	36.1	137.4	173.5
24.11	5.0E-06	0.23	37.6	3.89	6	34.6	138.4	173.0

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-3219
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-200
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 14:20
 CPT File: 120C13.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method : Robertson and Campanella, 1983
 Dr Method : Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (%)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)
0.49	72.8	0.96	1.31	7.6	7	117.8	0.03	0.03
1.48	64.8	1.91	2.95	5.5	6	114.6	0.09	0.09
2.46	46.6	1.09	2.34	4.6	6	114.6	0.14	0.14
3.44	33.5	1.23	3.67	3.6	5	114.6	0.20	0.20
4.43	70.0	0.65	0.93	3.7	8	120.9	0.26	0.26
5.41	33.7	0.78	2.33	5.6	6	114.6	0.31	0.31
6.40	14.8	0.58	3.90	29.6	3	111.4	0.37	0.36
7.30	18.5	0.61	3.31	47.1	5	114.6	0.42	0.38
8.20	18.8	0.67	3.59	61.0	4	114.6	0.47	0.40
9.19	17.5	0.47	2.71	132.6	5	114.6	0.53	0.43
10.17	16.3	0.43	2.61	173.8	5	114.6	0.59	0.46
11.15	19.9	0.64	3.21	204.7	5	114.6	0.64	0.48
12.14	18.2	0.65	3.55	161.4	4	114.6	0.70	0.51
13.21	12.4	0.37	2.99	121.3	4	114.6	0.76	0.53
14.27	14.6	0.31	2.11	173.5	5	114.6	0.82	0.56
15.26	31.2	1.12	3.57	303.8	5	114.6	0.88	0.59
16.24	35.3	1.49	4.22	296.3	4	114.6	0.93	0.61
17.22	35.0	1.46	4.17	280.7	4	114.6	0.99	0.64
18.21	35.3	1.45	4.10	279.9	4	114.6	1.05	0.67
19.19	36.1	1.53	4.22	222.8	4	114.6	1.10	0.69
20.18	27.0	1.08	4.00	165.9	4	114.6	1.16	0.72
21.16	15.5	0.62	3.99	121.7	3	111.4	1.21	0.74
22.15	13.9	0.46	3.30	143.5	4	114.6	1.27	0.77
23.13	13.9	0.36	2.56	171.0	5	114.6	1.33	0.79
24.11	21.8	0.60	2.75	206.1	5	114.6	1.38	0.82

Gregg In Situ, Inc.
 Interpretation Output - Release 1.00.19e
 Run No: 02-0903-0610-3219
 Job No: 02-120MA
 Client: URS
 Project: CPT Site Investigation
 Site: RICHMOND F.S.
 Location: SW-200
 Engineer: B. COPELAND
 CPT Date: 02/23/08
 CPT Time: 14:20
 CPT File: 120C13.COR
 Northing (m): 0.000
 Easting (m): 0.000
 Elevation (m): 0.000

Water Table (m): 1.83 (ft): 6.0
 Su Nkt used: 12.50
 Averaging Increment (m): 0.30
 Phi Method: Robertson and Campanella, 1983
 Dr Method: Jamiolkowski - All Sands
 State Parameter M: 1.20
 Used Unit Weights Assigned to Soil Zones
 Values of 1.0E9 or UnDef are printed for parameters that are not valid for t

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs
0.49	5.0E-04	0.00	1000.0	1.31	9	139.4	0.0	139.4
1.48	5.0E-05	0.00	751.6	2.96	12	124.2	UnDef	UnDef
2.46	5.0E-05	0.00	326.1	2.35	12	89.3	UnDef	UnDef
3.44	5.0E-06	0.00	167.4	3.69	12	64.2	UnDef	UnDef
4.43	5.0E-03	0.00	271.4	0.93	9	134.0	0.0	134.0
5.41	5.0E-05	0.01	105.9	2.35	7	58.7	28.8	87.6
6.40	5.0E-08	0.06	40.2	4.00	6	24.2	96.7	120.8
7.30	5.0E-06	0.08	47.5	3.38	6	29.3	66.0	95.3
8.20	5.0E-07	0.10	45.4	3.68	6	29.0	82.7	111.7
9.19	5.0E-06	0.24	39.5	2.79	6	26.1	59.4	85.5
10.17	5.0E-06	0.34	34.5	2.71	6	23.6	66.5	90.1
11.15	5.0E-06	0.32	39.9	3.31	6	28.0	84.6	112.6
12.14	5.0E-07	0.28	34.6	3.69	6	25.1	100.2	125.3
13.21	5.0E-07	0.30	21.9	3.19	6	16.7	66.6	83.3
14.27	5.0E-06	0.37	24.5	2.23	6	19.0	76.1	95.1
15.26	5.0E-06	0.30	51.6	3.68	6	39.9	89.5	129.3
16.24	5.0E-07	0.26	56.0	4.34	6	44.1	116.6	160.6
17.22	5.0E-07	0.25	53.2	4.30	6	42.8	122.2	165.0
18.21	5.0E-07	0.24	51.5	4.23	6	42.3	124.3	166.7
19.19	5.0E-07	0.19	50.7	4.36	6	42.5	137.5	180.0
20.18	5.0E-07	0.18	36.0	4.18	6	31.2	124.7	155.8
21.16	5.0E-08	0.23	19.3	4.33	1	17.6	UnDef	UnDef
22.15	5.0E-07	0.31	16.5	3.63	4	15.6	62.3	77.9
23.13	5.0E-06	0.38	15.8	2.84	6	15.3	61.0	76.3
24.11	5.0E-06	0.29	25.0	2.94	6	23.6	94.5	118.2

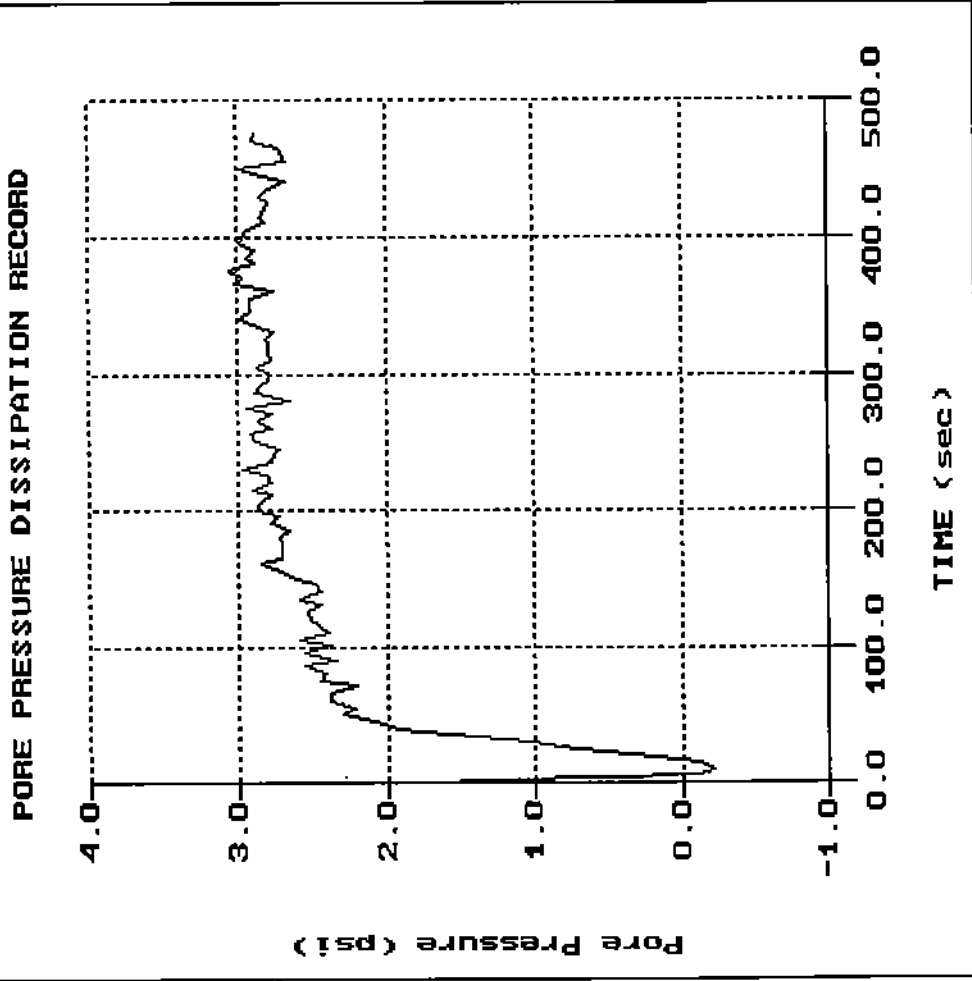
3.3 PORE PRESSURE DISSIPATION PLOTS

URS

Site: RICHMOND F.S.
Location: SW-775

Geologist: B. COPELAND
Date: 08:23:02 09:12

File: 120C02.PPC
Depth (m): 3.80
Depth (ft): 12.47
Duration: 475.0s
U-min: -0.22 10.0s
U-max: 3.05 375.0s





Gregg In Situ

Environmental and Geotechnical Site Investigation Contractors

Gregg In Situ CPT Interpretations as of January 7, 1999 (Release 1.00.19)

Gregg In Situ's interpretation routine should be considered a calculator of current published CPT correlations and is subject to change to reflect the current state of practice. The interpreted values are not considered valid for all soil types. The interpretations are presented only as a guide for geotechnical use and should be carefully scrutinized for consideration in any geotechnical design. Reference to current literature is strongly recommended.

The CPT interpretations are based on values of tip, sleeve friction and pore pressure averaged over a user specified interval (typically 0.25m). Note that Q_t is the recorded tip value, Q_c , corrected for pore pressure effects. Since all Gregg In Situ cones have equal end area friction sleeves, pore pressure corrections to sleeve friction, F_s , are not required.

The tip correction is: $Q_t = Q_c + (1-a) \cdot U_d$

- where: Q_t is the corrected tip load
- Q_c is the recorded tip load
- U_d is the recorded dynamic pore pressure
- a is the Net Area Ratio for the cone (typically 0.85 for Gregg In Situ cones)

Effective vertical overburden stresses are calculated based on a hydrostatic distribution of equilibrium pore pressures below the water table or from a user defined equilibrium pore pressure profile (this can be obtained from CPT dissipation tests). The stress calculations use unit weights assigned to the Soil Behavior Type zones or from a user defined unit weight profile.

Details regarding the interpretation methods for all of the interpreted parameters is given in table 1. The appropriate references referred to in table 1 are listed in table 2.

The estimated Soil Behavior Type is based on the charts developed by Robertson and Campanella shown in figure 1.

Table 1 CPT Interpretation Methods

Interpreted Parameter	Description	Equation	Ref
Depth	mid layer depth		
Avg Q_t	Averaged corrected tip (Q_t)	$AvgQ_t = \frac{1}{n} \sum_{i=1}^n Q_{t_i}$	
Avg F_s	Averaged sleeve friction (F_s)	$AvgF_s = \frac{1}{n} \sum_{i=1}^n F_{s_i}$	
Avg R_f	Averaged friction ratio (R_f)	$AvgR_f = 100\% \cdot \frac{AvgF_s}{AvgQ_t}$	
Avg U_d	Averaged dynamic pore pressure (U_d)	$AvgU_d = \frac{1}{n} \sum_{i=1}^n U_{d_i}$	
SBT	Soil Behavior Type as defined by Robertson and Campanella		1

CPT Interpretations

U.Wt.	Unit Weight of soil determined from: 1) uniform value or 2) value assigned to each SBT zone 3) user supplied unit weight profile		
TStress	Total vertical overburden stress at mid layer depth	$TStress = \sum_{i=1}^n \gamma_i h_i$	
		where γ_i is layer unit weight h_i is layer thickness	
EStress	Effective vertical overburden stress at mid layer depth	$EStress = TStress - Ueq$	
Ueq	Equilibrium pore pressure determined from: 1) hydrostatic from water table depth 2) user supplied profile		
Cn	SPT N_{60} overburden correction factor	$Cn = (\sigma_v')^{0.5}$	
		where σ_v' is in tsf $0.5 < Cn < 2.0$	
N_{60}	SPT N value at 60% energy calculated from Qt/N ratios assigned to each SBT zone		3
$(N1)_{60}$	SPT N_{60} value corrected for overburden pressure	$N1_{60} = Cn \cdot N_{60}$	3
$\Delta(N1)_{60}$	Equivalent Clean Sand Correction to $(N1)_{60}$	$\Delta(N1)_{60} = \frac{K_{SPT}}{1 - K_{SPT}} \cdot (N1)_{60}$	7
		Where: K_{SPT} is defined as: 0.0 for FC < 5% 0.0167 • (FC - 5) for 5% < FC < 35% 0.5 for FC > 35% FC - Fines Content in %	
$(N1)_{60cs}$	Equivalent Clean Sand $(N1)_{60}$	$(N1)_{60cs} = (N1)_{60} + \Delta(N1)_{60}$	7
Su	Undrained shear strength - Nkt is use selectable	$Su = \frac{Qt - \sigma_v}{N_{kt}}$	2
k	Coefficient of permeability (assigned to each SBT zone)		6
Bq	Pore pressure parameter	$Bq = \frac{\Delta u}{Qt - \sigma_v}$	2
Qtn	Normalized Qt for Soil Behavior Type classification as defined by Robertson, 1990	$Qtn = \frac{Qt - \sigma_v}{\sigma_v}$	4
Rfn	Normalized Rf for Soil Behavior Type classification as defined by Robertson, 1990	$Rfn = 100\% \cdot \frac{f_s}{Qt - \sigma_v}$	4
SBTn	Normalized Soil Behavior Type (slightly modified from that published by Robertson, 1990. This version includes all the soil zones of the original non-normalized SBT chart - see figure 1)		4
Qc1	Normalized Qt for seismic analysis	$qc1 = qc \cdot (Pa/\sigma_v)^{0.5}$	5
		where: Pa = atm. pressure	
Qc1N	Dimensionless Normalized Qt1	$qc1N = qc1 / Pa$	
		where: Pa = atm. pressure	

CPT Interpretations

ΔQ_{c1N1}	Equivalent clean sand correction	$\Delta q_{c1N} = \frac{K_{CPT}}{1 - K_{CPT}} \cdot q_{c1N}$ <p>Where: K_{CPT} is defined as:</p> <p>0.0 for FC < 5% 0.0267 • (FC - 5) for 5% < FC < 35% 0.5 for FC > 35%</p> <p>FC - Fines Content in %</p>	5
Q_{c1Ncs}	Clean Sand equivalent Q_{c1N}	$q_{c1Ncs} = q_{c1N} + \Delta q_{c1N}$	5
I_c	Soil index for estimating grain characteristics	$I_c = [(3.47 - \log Q)^2 + (\log F + 1.22)^2]^{0.5}$	5
FC	Fines content (%)	$FC = 1.75(I_c^{3.25}) - 3.7$ <p>FC=100 for $I_c > 3.5$ FC=0 for $I_c < 1.26$ FC = 5% if $1.64 < I_c < 2.6$ AND $Rfn < 0.5$</p>	8
PHI	Friction Angle	<p>Campanella and Robertson Durunoglu and Mitchel Janbu</p>	1
D_r	Relative Density	<p>Ticino Sand Hokksund Sand Schmertmann 1976 Jamiolkowski - All Sands</p>	1
OCR	Over Consolidation Ratio		1
State Parameter			9
CRR	Cyclic Resistance Ratio		7

CPT Interpretations

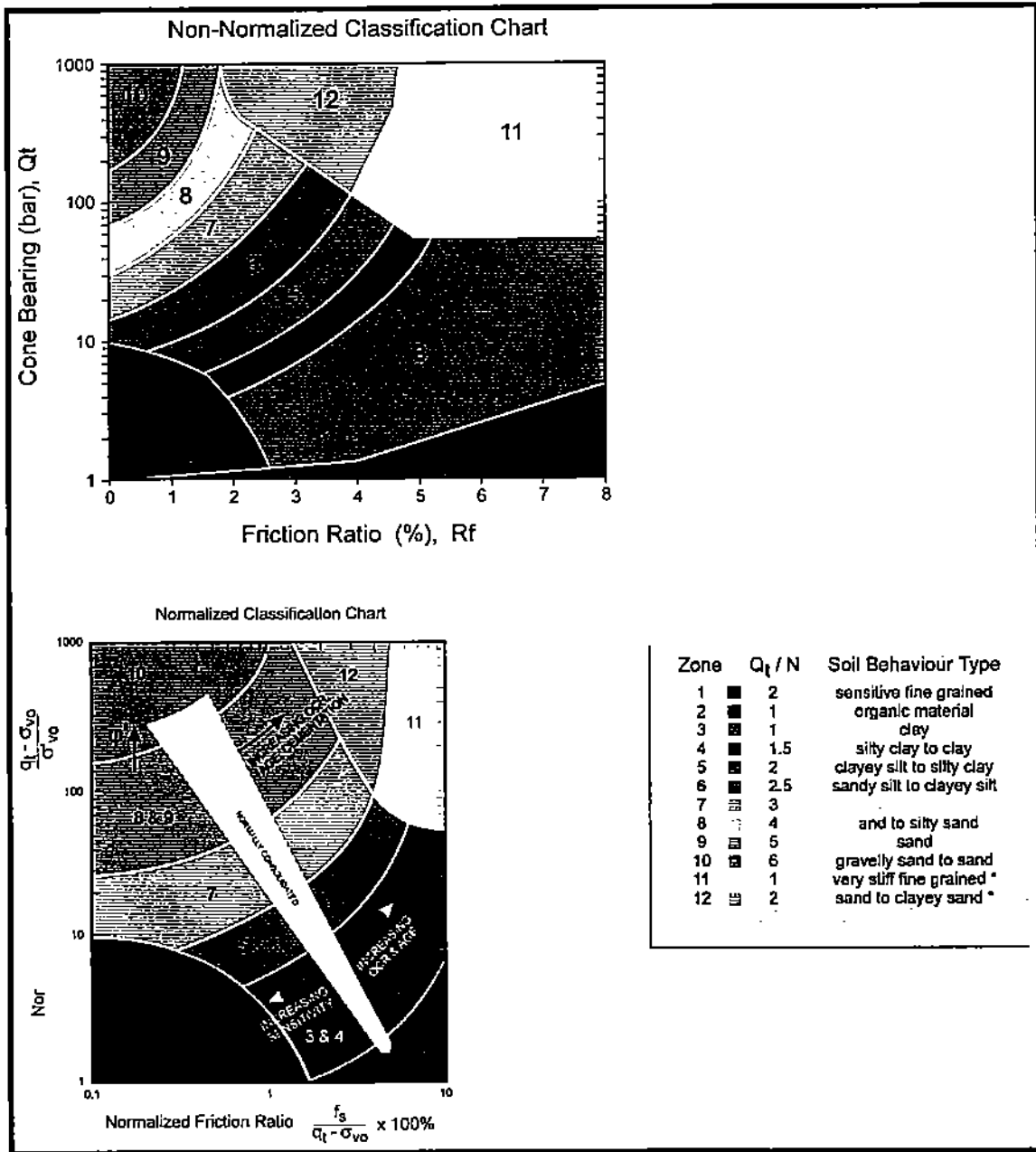


Figure 1 Non-Normalized and Normalized Soil Behavior Type Classification Charts

CPT Interpretations

Table 2 References

No.	Reference
1	Robertson, P.K. and Campanella, R.G., 1986, "Guidelines for Use, Interpretation and Application of the CPT and CPTU", UBC, Soil Mechanics Series No. 105, Civil Eng. Dept., Vancouver, B.C., Canada
2	Robertson, P.K., Campanella, R.G., Gillespie, D. and Greig, J., 1986, "Use of Piezometer Cone Data", Proceedings of In Situ 86, ASCE Specialty Conference, Blacksburg, Virginia.
3	Robertson, P.K. and Campanella, R.G., 1989, "Guidelines for Geotechnical Design Using CPT and CPTU", UBC, Soil Mechanics Series No. 120, Civil Eng. Dept., Vancouver, B.C., Canada
4	Robertson, P.K., 1990, "Soil Classification Using the Cone Penetration Test", Canadian Geotechnical Journal, Volume 27.
5	Robertson, P.K. and Fear, C.E., 1995, "Liquefaction of Sands and its Evaluation", Keynote Lecture, First International Conference on Earthquake Geotechnical Engineering, Tokyo, Japan.
6	Gregg In Situ Internal Report
7	Robertson, P.K. and Wride, C.E., 1997, "Cyclic Liquefaction and its Evaluation Based on SPT and CPT", NCEER Workshop Paper, January 22, 1997
8	Wride, C.E. and Robertson, P.K., 1997, "Phase II Data Review Report (Massey and Kidd Sites, Fraser River Delta)", Volume 1 - Data Report (June 1997), University of Alberta.
9	Plewes, H.D., Davies, M.P. and Jefferies, M.G., 1992, "CPT Based Screening Procedure for Evaluating Liquefaction Susceptibility", 45th Canadian Geotechnical Conference, Toronto, Ontario, October 1992.

Appendix C
QA/QC Review

APPENDIX C

The quality assurance/quality control (QA/QC) review process is used to evaluate the quality and usability of the analytical data. A summary of the parameters that were reviewed as part of the QA/QC evaluation process is provided below followed by a brief explanation of the data qualifiers that were assigned to results during the QA/QC process.

C.1 Summary of QA/QC Review Parameters

Method Holding Times

The analytical methods used for the investigation have prescribed holding times. The method holding time is defined as the maximum amount of time after collection that a sample may be held prior to extraction and/or analysis. Sample integrity becomes questionable for samples extracted and/or analyzed outside of the prescribed holding times due to degradation and/or volatilization of the sample. The analytical results of such samples extracted and/or analyzed outside the prescribed method holding time are suspect. The QA/QC review identifies results with exceeded method holding times.

Holding times were not exceeded in any case.

Method Blanks

Method blanks are prepared in the laboratory using deionized water. Method blanks are extracted and/or analyzed following the same procedures as an environmental sample. Analysis of the method blank indicates potential sources of contamination from laboratory procedures (e.g. contaminated reagents, improperly cleaned laboratory equipment) or persistent contamination due to the presence of certain compounds in the ambient laboratory environment. The QA/QC review identifies method blanks with detections of target analytes and evaluates the effect of the detections on associated sample results.

In all cases analyte concentrations were not detected in method blanks indicating that the laboratory environment was not contaminated.

Matrix Spikes and Laboratory Control Samples

Matrix spikes (MS), matrix spike duplicates (MSD), laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) are analyzed by the laboratory to evaluate the accuracy and precision of the sample extraction and analysis procedures and to evaluate potential matrix interference. Matrix interference, the effect of the sample matrix on the analysis, may partially or completely mask the response of analytical instrumentation to the target analyte(s). Matrix interference may have a varying impact

on the accuracy and precision of the extraction and/or analysis procedures, and may bias the sample results high or low.

The MS or MSD is prepared by adding a known quantity of the target compound(s) to a sample. The sample is then extracted and/or analyzed as a typical environmental sample and the results are reported as percent recovery. The spike percent recovery is defined as:

$$\text{Recovery (\%)} = \frac{\text{spike analysis result} - \text{original sample concentration}}{\text{concentration of spike addition}} \times 100\%$$

MS and MSD recoveries are reviewed for compliance with laboratory-established control limits to evaluate the accuracy of the extraction and/or analysis procedures.

LCS and LCSD are prepared exactly like MS and MSD using a clean control matrix rather than an environmental sample. LCS and LCSD are used to evaluate laboratory accuracy independent of matrix effects.

The QA/QC review identifies spike recoveries outside laboratory control limits and evaluates the effect of these recoveries on the associated sample results.

LCS and LCSD recoveries were all within control limits indicating acceptable analytical accuracy. In several cases MS and MSD recoveries were outside control limits. In most of these instances the samples spiked were not from this project and therefore do not suggest anything about the matrix heterogeneity of the project samples. In several additional instances the original concentration of the sample spiked was more than four times the spike concentration. In these cases the percent recovery is meaningless and is not used to qualify associated sample results. In cases where a project sample was used, the spike recoveries are both meaningful and outside control limits the associated sample results are qualified as estimated and flagged with a “J” if detected or a “UJ” if undetected.

Laboratory Duplicate Analyses

Duplicate analyses are performed by the laboratory to evaluate the precision of analytical procedures. The laboratory may perform MSD and/or LCSD analyses.

Precision is evaluated by calculating a relative percent difference (RPD) using the following equation:

$$\text{RPD (\%)} = \left| \frac{(\text{Spike Concentration} - \text{Spike Duplicate Concentration})}{\frac{1}{2}(\text{Spike Concentration} + \text{Spike Duplicate Concentration})} \right| \times 100\%$$

The RPD is compared to laboratory-established control limits to evaluate analytical precision. The QA/QC review identifies RPDs outside laboratory control limits and evaluates the effect of these recoveries on the associated sample results.

In one case the RPD was outside control limits, however the associated samples were already qualified as a result of MS/MSD recoveries outside of control limits. No

additional qualification was necessary. In all other cases RPDs were within control limits.

Surrogate Recoveries

Surrogates are organic compounds that are similar to the target analytes in terms of their chemical structures and response to the analytical instrumentation, but are not usually detected in environmental samples. Surrogates are added to each environmental and laboratory QC sample to monitor the effect of the matrix on the accuracy of the extraction and/or analysis of organic analytes. Results for surrogate analyses are reported in terms of percent recovery (defined above). Reported recoveries are compared to laboratory-established control limits to evaluate sample-specific accuracy. The QA/QC review identifies surrogate recoveries outside laboratory control limits and evaluates the effect of these recoveries on the sample results.

In two cases a PCB surrogate recovery was sufficiently outside control limits to necessitate qualification. The associated results were qualified as estimated. In all other cases surrogate recoveries did not necessitate qualification.

C.2 Explanation of Analytical Data Qualifiers

The analytical data were reviewed and qualified following USEPA guidelines for organic and inorganic data review. The qualifiers assigned to results during the QA/QC process are defined below.

- UJ The analyte was not detected above the sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

C.3 QA/QC Evaluation Summary

In summary, the QA/QC review found the data to be of acceptable quality, including results that are qualified as estimated with a “J” or “UJ”.

Appendix D
Laboratory Analytical Reports

Appendix D
Laboratory Analytical Reports



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710. Phone (510) 486-0900

A N A L Y T I C A L R E P O R T

Prepared for:

URS Corporation
500 12th Street
Suite 200
Oakland, CA 94607

Date: 04-SEP-02
Lab Job Number: 160386
Project ID: 510996706701
Location: N/A

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis.

Reviewed by:


Project Manager

Reviewed by:


Operations Manager

This package may be reproduced only in its entirety.

NELAP # 01107CA

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QA/QC completed and goals assigned 10/15/02 MHW

160388

URS

500 12th Street, Suite 200
Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO 510996706701

SAMPLERS: (Signature) Bill Copeland

ANALYSES

DATE	TIME	SAMPLE NUMBER	Sample Matrix (Soil, Water, Air)	ANALYSES							Number of Containers		
				EPA Method	EPA Method	EPA Method	EPA Method 810	VOCs	PPmetals	pH		moisture	
-1	8/26	830	PB13	W					X	X	X		4
-2		915	PB14	W					X	X	X		4
-3		1000	PB15	W					X	X	X		4
-4		1115	PB16	W					X	X	X		4
-5		PB19-0	S						X	X	X	normal	1
-6		PB19-1	S						X	X	X	TAT	1
-7		PB19-8	S									hold	1

24 hr
TAT

dissolved metals
pls filter in lab

Results to
Bill Copeland
(510) 874-3192

TOTAL NUMBER OF CONTAINERS 15

RELINQUISHED BY: (Signature) <u>Bill Copeland</u>	DATE/TIME <u>8/26/02</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
METHOD OF SHIPMENT:		SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME

Percent Moisture Summary Report

Date: 30-AUG-02
 Batch: 74878
 Analyst: JMG

Sample	Method	Date	Tare(g)	Wet(g)	Dry(g)	Percent Solids	Percent Moisture
160285-021	CLP SOW 390	30-AUG-02	15.3525	22.3419	21.0686	82	18
160285-022	CLP SOW 390	30-AUG-02	15.854	23.2719	22.0825	84	16
160285-023	CLP SOW 390	30-AUG-02	15.3725	22.5735	21.477	85	15
160285-024	CLP SOW 390	30-AUG-02	15.3506	23.7742	22.4349	84	16
160285-025	CLP SOW 390	30-AUG-02	15.222	22.3466	21.9035	94	6
160287-001	CLP SOW 390	30-AUG-02	15.7485	21.832	21.5648	96	4
160287-002	CLP SOW 390	30-AUG-02	15.698	24.1676	23.5677	93	7
160287-003	CLP SOW 390	30-AUG-02	15.3738	22.8009	22.0982	91	9
160287-004	CLP SOW 390	30-AUG-02	15.5877	22.9689	22.3122	91	9
160287-005	CLP SOW 390	30-AUG-02	15.5922	22.2193	21.56	90	10
160287-006	CLP SOW 390	30-AUG-02	15.1802	23.1599	22.0588	86	14
160287-007	CLP SOW 390	30-AUG-02	15.0386	22.0739	20.9689	84	16
160287-008	CLP SOW 390	30-AUG-02	15.4223	22.9439	22.3846	93	7
160287-009	CLP SOW 390	30-AUG-02	15.9822	22.8826	22.7257	98	2
160386-005	CLP SOW 390	30-AUG-02	16.0164	21.9481	21.6241	95	5
160386-006	CLP SOW 390	30-AUG-02	15.3436	22.3041	21.1824	84	16
160386-007	CLP SOW 390	30-AUG-02	15.2748	24.536	23.0416	84	16
QC188350	CLP SOW 390	30-AUG-02	15.0388	0	15.0379	0	100
QC188351	CLP SOW 390	30-AUG-02	15.3276	22.824	22.6753	98	2
of 160287-001					RPD:	2.5%	75.6%

Purgeable Halocarbons by GC/MS

Lab #:	160386	Prep:	EPA 5030B
Client:	URS Corporation	Analysis:	EPA 8260B
Project#:	510996706701		
Field ID:	PB13	Batch#:	74767
Lab ID:	160386-001	Sampled:	08/26/02
Matrix:	Water	Received:	08/26/02
Units:	ug/L	Analyzed:	08/27/02
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	0.8	0.5
Chloroform	2.4	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	2.2	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	19	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	77-130
Toluene-d8	98	80-120
Bromofluorobenzene	80	80-120

ND= Not Detected

RL= Reporting Limit

Page 1 of 1

Purgeable Halocarbons by GC/MS

Lab #:	160386	Prep:	EPA 5030B
Client:	URS Corporation	Analysis:	EPA 8260B
Project#:	510996706701		
Field ID:	PB14	Batch#:	74767
Lab ID:	160386-002	Sampled:	08/26/02
Matrix:	Water	Received:	08/26/02
Units:	ug/L	Analyzed:	08/27/02
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	0.9	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	1.1	0.5
Chloroform	48	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	53	0.5
1,2-Dichloroethane	6.3	0.5
Trichloroethene	64	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	0.6	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	1.8	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	77-130
Toluene-d8	96	80-120
Bromofluorobenzene	80	80-120

ND= Not Detected
 RL= Reporting Limit
 Page 1 of 1

Purgeable Halocarbons by GC/MS

Lab #:	160386	Prep:	EPA 5030B
Client:	URS Corporation	Analysis:	EPA 8260B
Project#:	510996706701		
Field ID:	PB15	Batch#:	74767
Lab ID:	160386-003	Sampled:	08/26/02
Matrix:	Water	Received:	08/26/02
Units:	ug/L	Analyzed:	08/27/02
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	1.1	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	1.3	0.5
Chloroform	45	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	16	0.5
1,2-Dichloroethane	8.7	0.5
Trichloroethene	55	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	11	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	3.7	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	104	77-130
Toluene-d8	98	80-120
Bromofluorobenzene	80	80-120

ND= Not Detected
 RL= Reporting Limit
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Purgeable Halocarbons by GC/MS

Lab #:	160386	Prep:	EPA 5030B
Client:	URS Corporation	Analysis:	EPA 8260B
Project#:	510996706701		
Field ID:	PB16	Batch#:	74767
Lab ID:	160386-004	Sampled:	08/26/02
Matrix:	Water	Received:	08/26/02
Units:	ug/L	Analyzed:	08/27/02
Diln Fac:	1.000		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	7.7	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	0.6	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	REC	Limits
1,2-Dichloroethane-d4	105	77-130
Toluene-d8	96	80-120
Bromofluorobenzene	80	80-120

ND= Not Detected

RL= Reporting Limit

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Purgeable Halocarbons by GC/MS

Lab #:	160386	Prep:	EPA 5030B
Client:	URS Corporation	Analysis:	EPA 8260B
Project#:	510996706701		
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC187934	Batch#:	74767
Matrix:	Water	Analyzed:	08/27/02
Units:	ug/L		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Freon 113	ND	1.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	1.0
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	104	77-130
Toluene-d8	97	80-120
Bromofluorobenzene	81	80-120

ND= Not Detected
 RL= Reporting Limit
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Purgeable Halocarbons by GC/MS

Lab #:	160386	Prep:	EPA 5030B
Client:	URS Corporation	Analysis:	EPA 8260B
Project#:	510996706701		
Matrix:	Water	Batch#:	74767
Units:	ug/L	Analyzed:	08/27/02
Diln Fac:	1.000		

Type: BS Lab ID: QC187932

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	44.22	88	71-131
Trichloroethene	50.00	44.21	88	78-120
Chlorobenzene	50.00	48.33	97	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	100	77-130
Toluene-d8	98	80-120
Bromofluorobenzene	81	80-120

Type: BSD Lab ID: QC187933

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	41.74	83	71-131	6	20
Trichloroethene	50.00	43.66	87	78-120	1	20
Chlorobenzene	50.00	46.91	94	80-120	3	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	77-130
Toluene-d8	97	80-120
Bromofluorobenzene	81	80-120

Priority Pollutant Metals

Lab #:	160386	Project#:	510996706701
Client:	URS Corporation	Prep:	METHOD
Field ID:	PB13	Diln Fac:	1.000
Lab ID:	160386-001	Sampled:	08/26/02
Matrix:	Filtrate	Received:	08/26/02
Units:	ug/L	Analyzed:	08/27/02

Analyte	Result	RL	Batch#	Prepared	Analysis
Antimony	ND	60	74766	08/26/02	EPA 6010B
Arsenic	17	5.0	74766	08/26/02	EPA 6010B
Beryllium	ND	2.0	74766	08/26/02	EPA 6010B
Cadmium	ND	5.0	74766	08/26/02	EPA 6010B
Chromium	ND	10	74766	08/26/02	EPA 6010B
Copper	11	10	74766	08/26/02	EPA 6010B
Lead	ND	3.0	74766	08/26/02	EPA 6010B
Mercury	ND	0.20	74772	08/27/02	EPA 7470A
Nickel	ND	20	74766	08/26/02	EPA 6010B
Selenium	13	5.0	74766	08/26/02	EPA 6010B
Silver	ND	5.0	74766	08/26/02	EPA 6010B
Thallium	ND	5.0	74766	08/26/02	EPA 6010B
Zinc	ND	20	74766	08/26/02	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
 Page 1 of 1

**Priority Pollutant Metals**

Lab #:	160386	Project#:	510996706701
Client:	URS Corporation	Prep:	METHOD
Field ID:	PB14	Diln Fac:	1.000
Lab ID:	160386-002	Sampled:	08/26/02
Matrix:	Filtrate	Received:	08/26/02
Units:	ug/L	Analyzed:	08/27/02

Analyte	Result	RL	Batch#	Prepared	Analysis
Antimony	ND	60	74766	08/26/02	EPA 6010B
Arsenic	22	5.0	74766	08/26/02	EPA 6010B
Beryllium	ND	2.0	74766	08/26/02	EPA 6010B
Cadmium	ND	5.0	74766	08/26/02	EPA 6010B
Chromium	ND	10	74766	08/26/02	EPA 6010B
Copper	21	10	74766	08/26/02	EPA 6010B
Lead	ND	3.0	74766	08/26/02	EPA 6010B
Mercury	ND	0.20	74772	08/27/02	EPA 7470A
Nickel	ND	20	74766	08/26/02	EPA 6010B
Selenium	15	5.0	74766	08/26/02	EPA 6010B
Silver	ND	5.0	74766	08/26/02	EPA 6010B
Thallium	ND	5.0	74766	08/26/02	EPA 6010B
Zinc	ND	20	74766	08/26/02	EPA 6010B

Priority Pollutant Metals

Lab #:	160386	Project#:	510996706701
Client:	URS Corporation	Prep:	METHOD
Field ID:	PB15	Diln Fac:	1.000
Lab ID:	160386-003	Sampled:	08/26/02
Matrix:	Filtrate	Received:	08/26/02
Units:	ug/L	Analyzed:	08/27/02

Analyte	Result	RL	Batch#	Prepared	Analysis
Antimony	ND	60	74766	08/26/02	EPA 6010B
Arsenic	8.1	5.0	74766	08/26/02	EPA 6010B
Beryllium	ND	2.0	74766	08/26/02	EPA 6010B
Cadmium	ND	5.0	74766	08/26/02	EPA 6010B
Chromium	ND	10	74766	08/26/02	EPA 6010B
Copper	ND	10	74766	08/26/02	EPA 6010B
Lead	ND	3.0	74766	08/26/02	EPA 6010B
Mercury	ND	0.20	74772	08/27/02	EPA 7470A
Nickel	ND	20	74766	08/26/02	EPA 6010B
Selenium	ND	5.0	74766	08/26/02	EPA 6010B
Silver	ND	5.0	74766	08/26/02	EPA 6010B
Thallium	ND	5.0	74766	08/26/02	EPA 6010B
Zinc	ND	20	74766	08/26/02	EPA 6010B

**Priority Pollutant Metals**

Lab #:	160386	Project#:	510996706701
Client:	URS Corporation	Prep:	METHOD
Field ID:	PB16	Diln Fac:	1.000
Lab ID:	160386-004	Sampled:	08/26/02
Matrix:	Filtrate	Received:	08/26/02
Units:	ug/L	Analyzed:	08/27/02

Analyte	Result	RL	Batch#	Prepared	Analysis
Antimony	ND	60	74766	08/26/02	EPA 6010B
Arsenic	ND	5.0	74766	08/26/02	EPA 6010B
Beryllium	2.9	2.0	74766	08/26/02	EPA 6010B
Cadmium	44	5.0	74766	08/26/02	EPA 6010B
Chromium	ND	10	74766	08/26/02	EPA 6010B
Copper	990	10	74766	08/26/02	EPA 6010B
Lead	8.4	3.0	74766	08/26/02	EPA 6010B
Mercury	ND	0.20	74772	08/27/02	EPA 7470A
Nickel	780	20	74766	08/26/02	EPA 6010B
Selenium	14	5.0	74766	08/26/02	EPA 6010B
Silver	ND	5.0	74766	08/26/02	EPA 6010B
Thallium	64	5.0	74766	08/26/02	EPA 6010B
Zinc	7,300	20	74766	08/26/02	EPA 6010B

Priority Pollutant Metals

Lab #:	160386	Prep:	METHOD
Client:	URS Corporation	Analysis:	EPA 6010B
Project#:	510996706701		
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC187927	Batch#:	74766
Matrix:	Filtrate	Prepared:	08/26/02
Units:	ug/L	Analyzed:	08/27/02

Analyte	Result	RL
Antimony	ND	60
Arsenic	ND	5.0
Beryllium	ND	2.0
Cadmium	ND	5.0
Chromium	ND	10
Copper	ND	10
Lead	ND	3.0
Nickel	ND	20
Selenium	ND	5.0
Silver	ND	5.0
Thallium	ND	5.0
Zinc	ND	20

Priority Pollutant Metals

Lab #:	160386	Prep:	METHOD
Client:	URS Corporation	Analysis:	EPA 6010B
Project#:	510996706701		
Matrix:	Filtrate	Batch#:	74766
Units:	ug/L	Prepared:	08/26/02
Diln Fac:	1.000	Analyzed:	08/27/02

Type: BS Lab ID: QC187928

Analyte	Spiked	Result	%REC	Limite
Antimony	500.0	431.0	86	75-126
Arsenic	100.0	111.0	111	79-123
Beryllium	50.00	54.50	109	80-120
Cadmium	50.00	52.70	105	80-120
Chromium	200.0	208.0	104	79-120
Copper	250.0	249.0	100	80-120
Lead	100.0	103.0	103	78-120
Nickel	500.0	510.0	102	78-120
Selenium	100.0	101.0	101	72-121
Silver	50.00	51.80	104	80-120
Thallium	100.0	97.60	98	70-121
Zinc	500.0	511.0	102	78-120

Type: BSD Lab ID: QC187929

Analyte	Spiked	Result	%REC	Limite	RPD	Lim
Antimony	500.0	449.0	90	75-126	4	20
Arsenic	100.0	108.0	108	79-123	3	20
Beryllium	50.00	53.30	107	80-120	2	20
Cadmium	50.00	51.50	103	80-120	2	20
Chromium	200.0	204.0	102	79-120	2	20
Copper	250.0	245.0	98	80-120	2	20
Lead	100.0	92.50	93	78-120	11	20
Nickel	500.0	500.0	100	78-120	2	20
Selenium	100.0	97.70	98	72-121	3	20
Silver	50.00	50.80	102	80-120	2	20
Thallium	100.0	97.70	98	70-121	0	20
Zinc	500.0	500.0	100	78-120	2	20

Priority Pollutant Metals

Lab #:	160386	Prep:	METHOD
Client:	URS Corporation	Analysis:	EPA 7470A
Project#:	510996706701		
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	74772
Lab ID:	QC187942	Prepared:	08/27/02
Matrix:	Filtrate	Analyzed:	08/27/02
Units:	ug/L		

Result	RL
ND	0.20

Priority Pollutant Metals

Lab #:	160386	Prep:	METHOD
Client:	URS Corporation	Analysis:	EPA 7470A
Project#:	510996706701		
Analyte:	Mercury	Batch#:	74772
Matrix:	Filtrate	Prepared:	08/27/02
Units:	ug/L	Analyzed:	08/27/02
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC187943	5.000	5.060	101	78-120		
BSD	QC187944	5.000	5.120	102	78-120	1	22

Priority Pollutant Metals

Lab #: 160386
 Client: URS Corporation
 Project#: 510996706701
 Analyte: Mercury
 Field ID: ZZZZZZZZZZ
 MSS Lab ID: 160350-001
 Matrix: Filtrate
 Units: ug/L
 Diln Fac: 1.000

Prep: EPA 7470A
 Analysis: EPA 7470A
 Batch#: 74772
 Sampled: 08/22/02
 Received: 08/22/02
 Prepared: 08/27/02
 Analyzed: 08/27/02

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Diln
MS	QC187945	<0.04000	5.000	5.290	106	47-143		
MSD	QC187946		5.000	4.920	98	47-143	7	35



Priority Pollutant Metals

Lab #:	160386	Project#:	510996706701
Client:	URS Corporation		
Field ID:	PB19-0	Basis:	dry
Lab ID:	160386-005	Sampled:	08/26/02
Matrix:	Soil	Received:	08/26/02
Units:	mg/Kg		

Moisture: 5%

Analyte	Result	RL	Diln	Pac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.8	1.000		74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Arsenic	4.4	0.23	1.000		74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Beryllium	0.48	0.092	1.000		74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Cadmium	0.98	0.23	1.000		74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Chromium	28	0.46	1.000		74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Copper	47	0.46	1.000		74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Lead	210	0.14	1.000		74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Mercury	22	1.0	50.00		74827	08/29/02	08/29/02	METHOD	EPA 7471
Nickel	42	0.92	1.000		74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Selenium	ND	0.23	1.000		74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Silver	ND	0.23	1.000		74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Thallium	0.56	0.23	1.000		74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Zinc	66	0.92	1.000		74790	08/27/02	08/28/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
 Page 1 of 1

**Priority Pollutant Metals**

Lab #:	160386	Project#:	510996706701
Client:	URS Corporation		
Field ID:	PB19-1	Basis:	dry
Lab ID:	160386-006	Diln Fac:	1.000
Matrix:	Soil	Sampled:	08/26/02
Units:	mg/Kg	Received:	08/26/02

Moisture: 16%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	3.6	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Arsenic	4.1	0.30	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Beryllium	0.60	0.12	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Cadmium	0.62	0.30	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Chromium	27	0.59	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Copper	11	0.59	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Lead	18	0.18	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Mercury	0.30	0.024	74827	08/29/02	08/29/02	METHOD	EPA 7471
Nickel	36	1.2	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Selenium	ND	0.30	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Silver	ND	0.30	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Thallium	2.0	0.30	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Zinc	27	1.2	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B

Priority Pollutant Metals

Lab #:	160386	Project#:	510996706701
Client:	URS Corporation		
Field ID:	PB19-8	Basis:	dry
Lab ID:	160386-007	Diln Fac:	1.000
Matrix:	Soil	Sampled:	08/26/02
Units:	mg/Kg	Received:	08/26/02

Moisture: 16%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	3.5	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Arsenic	12	0.29	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Beryllium	0.73	0.12	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Cadmium	1.7	0.29	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Chromium	35	0.58	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Copper	21	0.58	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Lead	14	0.17	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Mercury	0.17	0.022	74827	08/29/02	08/29/02	METHOD	EPA 7471
Nickel	67	1.2	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Selenium	ND	0.29	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Silver	ND	0.29	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Thallium	ND	0.29	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B
Zinc	40	1.2	74790	08/27/02	08/28/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
 Page 1 of 1

**Priority Pollutant Metals**

Lab #:	160386	Prep:	EPA 3050
Client:	URS Corporation	Analysis:	EPA 6010B
Project#:	510996706701		
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC188004	Batch#:	74790
Matrix:	Soil	Prepared:	08/27/02
Units:	mg/Kg	Analyzed:	08/28/02
Basis:	as received		

Analyte	Result	RL
Antimony	ND	3.0
Arsenic	ND	0.25
Beryllium	ND	0.10
Cadmium	ND	0.25
Chromium	ND	0.50
Copper	ND	0.50
Lead	ND	0.15
Nickel	ND	1.0
Selenium	ND	0.25
Silver	ND	0.25
Thallium	ND	0.25
Zinc	ND	1.0



Priority Pollutant Metals

Lab #:	160386	Prep:	METHOD
Client:	URS Corporation	Analysis:	EPA 7471
Project#:	510996706701		
Analyte:	Mercury	Basis:	as received
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC188172	Batch#:	74827
Matrix:	Miscell.	Prepared:	08/29/02
Units:	mg/Kg	Analyzed:	08/29/02

Result	RL
ND	0.020

Priority Pollutant Metals			
Lab #:	160386	Prep:	METHOD
Client:	URS Corporation	Analysis:	EPA 7471
Project#:	510996706701		
Analyte:	Mercury	Diln Fac:	1.000
Matrix:	Miscell.	Batch#:	74827
Units:	mg/Kg	Prepared:	08/29/02
Basis:	as received	Analyzed:	08/29/02

Type	Lab ID	Spiked	Result	PREC	Limits	RPD	Lin
BS	QC188173	0.5000	0.5030	101	80-114		
BSD	QC188174	0.5000	0.5060	101	80-114	1	20

Priority Pollutant Metals

Lab #: 160386 Prep: METHOD
 Client: URS Corporation Analysis: EPA 7471
 Project#: 510996706701
 Analyte: Mercury Diln Fac: 1.000
 Field ID: ZZZZZZZZZZ Batch#: 74827
 MSS Lab ID: 160334-001 Sampled: 08/21/02
 Matrix: Miscell. Received: 08/22/02
 Units: mg/Kg Prepared: 08/29/02
 Basis: as received Analyzed: 08/29/02

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limite	RPD	Lim
MS	QC188175	<0.003900	0.4545	0.4636	102	62-135		
MSD	QC188176		0.4717	0.4708	100	62-135	2	35

pH			
Lab #:	160386	Project#:	510996706701
Client:	URS Corporation	Analysis:	EPA 9040B
Analyte:	pH	Batch#:	74789
Matrix:	Water	Sampled:	08/26/02
Units:	SU	Received:	08/26/02
Diln Fac:	1.000	Analyzed:	08/26/02

Field ID	Lab ID	Result	RL
PB13	160386-001	9.2	1.0
PB14	160386-002	9.2	1.0
PB15	160386-003	9.2	1.0
PB16	160386-004	4.5	1.0



pH			
Lab #:	160386	Project#:	510996706701
Client:	URS Corporation	Analysis:	EPA 9040B
Analyte:	pH	Units:	SU
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	SDUP	Batch#:	74789
MSS Lab ID:	160388-001	Sampled:	08/26/02
Lab ID:	QC188003	Received:	08/26/02
Matrix:	Water	Analyzed:	08/26/02

MSS Result	Result	RL	RPD	Lim
7.220	7.200	1.0	0	20

pH			
Lab #:	160386	Project#:	510996706701
Client:	URS Corporation	Analysis:	EPA 9045C
Analyte:	pH	Batch#:	74788
Matrix:	Soil	Sampled:	08/26/02
Units:	SU	Received:	08/26/02
Diln Fac:	1.000	Analyzed:	08/27/02

Field ID	Lab ID	Result	RL
PB19-0	160386-005	6.6	1.0
PB19-1	160386-006	5.1	1.0
PB19-8	160386-007	7.3	1.0

pH			
Lab #:	160386	Project#:	510996706701
Client:	URS Corporation	Analysis:	EPA 9045C
Analyte:	pH	Units:	SU
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	SDUP	Batch#:	74788
MSS Lab ID:	159898-014	Sampled:	08/02/02
Lab ID:	QC188002	Received:	07/26/02
Matrix:	Soil	Analyzed:	08/27/02

MSS Result	Result	RL	RPD	Lim
8.060	8.110	1.0	1	20



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710. Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

URS Corporation
500 12th Street
Suite 200
Oakland, CA 94607

Date: 27-SEP-02
Lab Job Number: 160657
Project ID: 510996706700
Location: UCB-Richmond Field Sta.

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis.

Reviewed by: Tracy Robyn
Project Manager

Reviewed by: [Signature]
Operations Manager

This package may be reproduced only in its entirety.

NELAP # 01107CA

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QA/QC completed and quals assigned 10/16/02 *mw*



Curtis & Tompkins, Ltd.

Laboratory Numbers: **160657**
Client: **URS Corporation**
Project #: **510996706700**
Location: **UCB-Richmond Field Station**

Sampled Date: **09/09/02**
Received Date: **09/09/02**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for thirty-two soils samples, which were received from the site referenced above on September 09, 2002. The samples were received cold and intact. Thirty-two soil samples were placed on hold upon receipt per the chain of custody.

PCBs (EPA 8082): For sample MF2-2-0 (CT# 160657-005), low TCMX surrogate recovery was observed. Re-analysis confirmed matrix interference and the Decachlorobiphenyl surrogate recovery passed all quality control criteria. No other analytical problems were encountered.

For sample CT# 160570-018, the matrix spike recoveries for Aroclor-1254 are considered not meaningful (NM) as the sample concentration is four times greater than the spiked level. High relative percent difference (RPD) was also observed. High Decachlorobiphenyl surrogate recoveries were observed however the TCMX surrogate recoveries were within quality criteria. The sample spiked was not from the site above and the associated laboratory control sample (LCS) met all quality control criteria. No other analytical problems were encountered.

Metals (EPA 6000/7000B): For sample CT# 160570-006 and MF2-5-0 (CT# 160657-017) the sample spike recoveries for mercury are considered not meaningful (NM) as the sample concentration are four times greater than the spiked level. Low antimony matrix spike recovery was observed for sample MF2-7-0 (CT# 160657-025) and high lead matrix spike recovery was also observed. Low copper matrix spike duplicate recovery was also observed. The matrix spike recoveries for zinc are considered not meaningful (NM) as the sample concentration is four times greater than the spiked level. No other analytical problems were encountered.

General Chemistry: No analytical problems were encountered.

16V65 1



500 12th Street, Suite 200
Oakland, CA 94607-4014
(510) 893-3500

Chain of Custody Record

PROJECT NO. 510996706700

SAMPLERS: (Signature) Copeland

DATE TIME SAMPLE NUMBER

ANALYSES				PP metals	PH	moisture	PCBs
Sample Matrix (Soil, Water, Air)	EPA Method	EPA Method	EPA Method				

Number of Containers

REMARKS
(Sample preservation, handling procedures, etc.)

-1	9/9/02	MF2-1-0	S					X	X	X			1	<p>hold</p> <p>Normal TAT</p> <p>hold</p> <p>hold</p> <p>Results to Bill Copeland (50) 874-3192</p> <p>hold</p> <p>hold</p> <p>hold</p>
-2		MF2-1-2						X	X	X			1	
-3		MF2-1-4											1	
-4		MF2-1-7.5											1	
-5		MF2-2-0						X	X	X	X			
-6		MF2-2-2						X	X	X				
-7		MF2-2-4												
-8		MF2-2-7.5												
-9		MF2-3-0						X	X	X	X			
-10		MF2-3-2						X	X	X				
-11		MF2-3-4												
-12		MF2-3-7.5												
-13		MF2-4-0						X	X	X				
-14		MF2-4-2						X	X	X				
-15		MF2-4-4												
-16		MF2-4-7.5												
-17		MF2-5-0						X	X	X				
-18		MF2-5-2						X	X	X				
-19		MF2-5-4												
-20		MF2-5-7.5												
-21		MF2-6-0						X	X	X				
-22		MF2-6-2						X	X	X				
-23		MF2-6-4												
-24		MF2-6-7.5												
-25		MF2-7-0						X	X	X	X			
-26		MF2-7-2						X	X	X				
-27		MF2-7-4												
-28	✓	MF2-7-7.5												

TOTAL NUMBER OF CONTAINERS

RELINQUISHED BY: (Signature) <u>Copeland</u>	DATE/TIME <u>9/7/02</u>	RECEIVED BY: (Signature) <u>Tracy B...</u>	RECEIVED BY: (Signature)	DATE/TIME <u>9/7/02</u>	RECEIVED BY: (Signature)
METHOD OF SHIPMENT:		SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY: (Signature)	
PRESERVATION CORRECT? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			RECEIVED <input checked="" type="checkbox"/> On Ice <input type="checkbox"/> Cold <input type="checkbox"/> Ambient <input type="checkbox"/> Intact		

160651



500 12th Street, Suite 200
Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 510996706700			ANALYSES								Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)	
DATE	TIME	SAMPLE NUMBER	Sample Matrix (Soil, Water, Air)	EPA Method	EPA Method	EPA Method	EPA Method	PP metals	pH	moisture			PCBs
-57	9/9/02	SM2-5-0						X	X	X			hold Normal TAT
-58	11	SM2-5-2						X	X	X			
-59		SM2-5-4											
-60		SM2-5-7.5											
-61		SM2-6-0						X	X	X			
-62		SM2-6-2						X	X	X			
63		SM2-6-4											hold
-64	V	SM2-6-7.5											

Results to Bill Copeland
(510) 874-3192

TOTAL NUMBER OF CONTAINERS

Preservation Correct?
 Yes No N/A

RELINQUISHED BY: (Signature) <i>Bill Copeland</i>	DATE/TIME 9/9/02 11:15	RECEIVED BY: (Signature) <i>Tracy B...</i>	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature) <input checked="" type="checkbox"/> Received <input type="checkbox"/> Unlabeled	DATE/TIME	<input type="checkbox"/> Cold <input type="checkbox"/> Ambient <input type="checkbox"/> Intact

Percent Moisture Summary Report

Date: 13-SEP-02
 Batch: 75240
 Analyst: JD

Sample	Method	Date	Tare (g)	Wet (g)	Dry (g)	Percent Solids	Percent Moisture
160657-001	CLP SOW 390	13-SEP-02	15.3513	23.4263	22.3499	87	13
160657-002	CLP SOW 390	13-SEP-02	15.2759	23.7355	23.0237	92	8
160657-005	CLP SOW 390	13-SEP-02	15.5526	23.1666	22.7772	95	5
160657-006	CLP SOW 390	13-SEP-02	15.8545	23.8367	22.1523	79	21
160657-009	CLP SOW 390	13-SEP-02	15.819	23.2222	22.8489	95	5
160657-010	CLP SOW 390	13-SEP-02	15.0257	23.0021	21.8358	85	15
160657-013	CLP SOW 390	13-SEP-02	15.575	23.353	22.6676	91	9
160657-014	CLP SOW 390	13-SEP-02	16.0027	23.475	22.3247	85	15
160657-017	CLP SOW 390	13-SEP-02	15.0675	23.3332	22.9128	95	5
160657-018	CLP SOW 390	13-SEP-02	16.0641	23.5304	23.2289	96	4
160657-021	CLP SOW 390	13-SEP-02	15.4175	23.3802	22.823	93	7
160657-022	CLP SOW 390	13-SEP-02	15.2875	23.8066	23.1584	92	8
160657-025	CLP SOW 390	13-SEP-02	15.2856	23.9215	23.7538	98	2
160657-026	CLP SOW 390	13-SEP-02	15.298	23.0895	22.4848	92	8
160657-029	CLP SOW 390	13-SEP-02	15.4056	23.3695	23.1592	97	3
160657-030	CLP SOW 390	13-SEP-02	15.8701	23.1006	22.3967	90	10
160657-033	CLP SOW 390	13-SEP-02	15.9569	23.9497	23.6095	96	4
160657-034	CLP SOW 390	13-SEP-02	16.609	24.2225	23.2984	88	12
160657-037	CLP SOW 390	13-SEP-02	17.5079	25.864	25.6787	98	2
160657-038	CLP SOW 390	13-SEP-02	15.72	23.9008	22.8259	87	13
QC189793	CLP SOW 390	13-SEP-02	21.639		21.6391	87	13
QC189794	CLP SOW 390	13-SEP-02	15.3559	23.9178	22.8516	88	12
of 160657-038						RPD: 0.8%	5.4%

Percent Moisture Summary Report

Date: 13-SEP-02
 Batch: 75238
 Analyst: JD

Sample	Method	Date	Tare (g)	Wet (g)	Dry (g)	Percent Solids	Percent Moisture
160637-001	CLP SOW 390	13-SEP-02	15.9475	23.0574	22.2346	88	12
160637-002	CLP SOW 390	13-SEP-02	15.3788	23.1127	22.1141	87	13
160657-041	CLP SOW 390	13-SEP-02	15.4687	23.4723	23.192	96	4
160657-042	CLP SOW 390	13-SEP-02	15.3594	23.6693	22.5923	87	13
160657-045	CLP SOW 390	13-SEP-02	15.0561	23.9886	23.4149	94	6
160657-046	CLP SOW 390	13-SEP-02	21.6765	29.3129	28.5324	90	10
160657-049	CLP SOW 390	13-SEP-02	15.2193	23.6583	23.298	96	4
160657-050	CLP SOW 390	13-SEP-02	15.306	23.2314	22.5486	91	9
160657-053	CLP SOW 390	13-SEP-02	15.8227	23.4407	23.1569	96	4
160657-054	CLP SOW 390	13-SEP-02	14.6532	22.732	21.774	88	12
160657-057	CLP SOW 390	13-SEP-02	15.7252	23.53	22.5617	88	12
160657-058	CLP SOW 390	13-SEP-02	15.7603	23.3763	22.3157	86	14
160657-061	CLP SOW 390	13-SEP-02	15.4752	23.3294	22.969	95	5
160657-062	CLP SOW 390	13-SEP-02	15.2568	23.3943	22.815	93	7
QC189787	CLP SOW 390	13-SEP-02	15.9809	23.264	22.5001	90	10
QC189788	CLP SOW 390	13-SEP-02				90	10

Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-1-0	Basis:	dry
Lab ID:	160657-001	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/12/02

Moisture: 13%

Analyte	Result	RL	Diln	Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.3	1.000		75188	09/16/02	EPA 3050	EPA 6010B
Arsenic	0.88	0.27	1.000		75188	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.56	0.11	1.000		75188	09/16/02	EPA 3050	EPA 6010B
Cadmium	0.49	0.27	1.000		75188	09/16/02	EPA 3050	EPA 6010B
Chromium	7.7	0.55	1.000		75188	09/16/02	EPA 3050	EPA 6010B
Copper	5.9	0.55	1.000		75188	09/16/02	EPA 3050	EPA 6010B
Lead	15	0.16	1.000		75188	09/16/02	EPA 3050	EPA 6010B
Mercury	1.3	0.041	2.000		75174	09/12/02	METHOD	EPA 7471
Nickel	18	1.1	1.000		75188	09/16/02	EPA 3050	EPA 6010B
Selenium	0.46	0.27	1.000		75188	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.27	1.000		75188	09/16/02	EPA 3050	EPA 6010B
Thallium	ND	0.27	1.000		75188	09/16/02	EPA 3050	EPA 6010B
Zinc	33	1.1	1.000		75188	09/16/02	EPA 3050	EPA 6010B

Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-1-2	Basis:	dry
Lab ID:	160657-002	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/12/02

Moisture: 8%

Analyte	Result	RL	Diln	Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.1	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Arsenic	2.1	0.26	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Beryllium	0.42	0.10	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Cadmium	0.71	0.26	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Chromium	26	0.52	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Copper	9.7	0.52	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Lead	21	0.15	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Mercury	3.2	0.19	10.00		75174	09/12/02	METHOD	EPA 7471
Nickel	22	1.0	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Selenium	ND	0.26	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Silver	ND	0.26	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Thallium	1.1	0.26	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Zinc	64	1.0	1.000		75188	09/17/02	EPA 3050	EPA 6010B

Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-2-0	Basis:	dry
Lab ID:	160657-005	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/12/02

Moisture: 5%

Analyte	Result	RL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	2.4	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Arsenic	1.9	0.20	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Beryllium	0.37	0.081	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Cadmium	0.63	0.20	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Chromium	21	0.40	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Copper	13	0.40	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Lead	11	0.12	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Mercury	44	0.96	50.00	75174	09/12/02	METHOD	EPA 7471
Nickel	20	0.81	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Selenium	0.26	0.20	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Silver	ND	0.20	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Thallium	0.85	0.20	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Zinc	49	0.81	1.000	75188	09/17/02	EPA 3050	EPA 6010B

Priority Pollutant Metals			
Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-2-2	Diln Fac:	1.000
Lab ID:	160657-006	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/12/02
Basis:	dry		

Moisture: 21%

Analyte	Result	RL	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.5	75188	09/17/02	EPA 3050	EPA 6010B
Arsenic	2.8	0.29	75188	09/17/02	EPA 3050	EPA 6010B
Beryllium	0.71	0.12	75188	09/17/02	EPA 3050	EPA 6010B
Cadmium	0.99	0.29	75188	09/17/02	EPA 3050	EPA 6010B
Chromium	35	0.58	75188	09/17/02	EPA 3050	EPA 6010B
Copper	17	0.58	75188	09/17/02	EPA 3050	EPA 6010B
Lead	16	0.17	75188	09/17/02	EPA 3050	EPA 6010B
Mercury	0.52	0.023	75174	09/12/02	METHOD	EPA 7471
Nickel	58	1.2	75188	09/17/02	EPA 3050	EPA 6010B
Selenium	ND	0.29	75188	09/17/02	EPA 3050	EPA 6010B
Silver	ND	0.29	75188	09/17/02	EPA 3050	EPA 6010B
Thallium	1.4	0.29	75188	09/17/02	EPA 3050	EPA 6010B
Zinc	32	1.2	75188	09/17/02	EPA 3050	EPA 6010B

**Priority Pollutant Metals**

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-3-0	Basis:	dry
Lab ID:	160657-009	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/12/02

Moisture: 5%

Analyte	Result	RL	Diln	Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	2.8	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Arsenic	3.6	0.23	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Beryllium	0.42	0.092	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Cadmium	1.9	0.23	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Chromium	29	0.46	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Copper	37	0.46	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Lead	28	0.14	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Mercury	5.2	0.21	10.00		75174	09/12/02	METHOD	EPA 7471
Nickel	56	0.92	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Selenium	0.65	0.23	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Silver	0.48	0.23	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Thallium	0.82	0.23	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Zinc	77	0.92	1.000		75188	09/17/02	EPA 3050	EPA 6010B

Priority Pollutant Metals			
Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-3-2	Basis:	dry
Lab ID:	160657-010	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/12/02

Moisture: 15%

Analyte	Result	RL	Diln. Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	2.7	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Arsenic	1.6	0.23	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Beryllium	0.42	0.092	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Cadmium	0.76	0.23	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Chromium	25	0.46	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Copper	12	0.46	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Lead	8.3	0.14	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Mercury	6.6	0.21	10.00	75174	09/12/02	METHOD	EPA 7471
Nickel	25	0.92	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Selenium	ND	0.23	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Silver	ND	0.23	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Thallium	0.31	0.23	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Zinc	21	0.92	1.000	75188	09/17/02	EPA 3050	EPA 6010B

**Priority Pollutant Metals**

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-4-0	Basis:	dry
Lab ID:	160657-013	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/12/02

Moisture: 9%

Analyte	Result	RL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.1	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Arsenic	4.0	0.26	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Beryllium	0.41	0.10	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Cadmium	2.0	0.26	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Chromium	28	0.52	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Copper	670	0.52	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Lead	39	0.16	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Mercury	0.83	0.20	10.00	75174	09/12/02	METHOD	EPA 7471
Nickel	25	1.0	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Selenium	0.70	0.26	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Silver	0.28	0.26	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Thallium	1.3	0.26	1.000	75188	09/17/02	EPA 3050	EPA 6010B
Zinc	160	1.0	1.000	75188	09/17/02	EPA 3050	EPA 6010B

Priority Pollutant Metals			
Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-4-2	Basis:	dry
Lab ID:	160657-014	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/12/02

Moisture: 15%

Analyte	Result	RL	Diln	Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.0	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Arsenic	1.9	0.25	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Beryllium	0.20	0.10	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Cadmium	0.77	0.25	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Chromium	25	0.51	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Copper	47	0.51	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Lead	10	0.15	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Mercury	ND	0.23	10.00		75174	09/12/02	METHOD	EPA 7471
Nickel	20	1.0	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Selenium	ND	0.25	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Silver	ND	0.25	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Thallium	ND	0.25	1.000		75188	09/17/02	EPA 3050	EPA 6010B
Zinc	82	1.0	1.000		75188	09/17/02	EPA 3050	EPA 6010B

Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-5-0	Basis:	dry
Lab ID:	160657-017	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg		

Moisture: 5%

Analyte	Result	RL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.8	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Arsenic	4.8	0.24	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Beryllium	0.37	0.095	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Cadmium	1.1	0.24	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Chromium	28	0.47	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Copper	44	0.47	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Lead	50	0.14	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Mercury	19	0.58	30.00		75196	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	38	0.95	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Selenium	0.52	0.24	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Silver	ND	0.24	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Thallium	1.2	0.24	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Zinc	76	0.95	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B

Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-5-2	Basis:	dry
Lab ID:	160657-018	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg		

Moisture: 4%

Analyte	Result	RL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.9	1.000	75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Arsenic	2.3	0.24	1.000	75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Beryllium	0.51	0.095	1.000	75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Cadmium	0.72	0.24	1.000	75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Chromium	24	0.48	1.000	75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Copper	10	0.48	1.000	75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Lead	11	0.14	1.000	75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Mercury	2.9	0.19	10.00	75196	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	36	0.95	1.000	75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Selenium	0.78	0.24	1.000	75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Silver	ND	0.24	1.000	75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Thallium	2.6	0.24	1.000	75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Zinc	17	0.95	1.000	75188	09/12/02	09/17/02	EPA 3050	EPA 6010B

Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-6-0	Basis:	dry
Lab ID:	160657-021	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg		

Moisture: 7%

Analyte	Result	RL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	3.2	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Arsenic	5.2	0.27	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Beryllium	0.31	0.11	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Cadmium	1.1	0.27	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Chromium	22	0.53	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Copper	190	0.53	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Lead	48	0.16	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Mercury	200	4.3	200.0		75196	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	26	1.1	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Selenium	ND	0.27	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Silver	ND	0.27	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Thallium	0.55	0.27	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Zinc	150	1.1	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B

Priority Pollutant Metals			
Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-6-2	Basis:	dry
Lab ID:	160657-022	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg		

Moisture: 8%

Analyte	Result	RL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	3.1	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Arsenic	2.7	0.26	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Beryllium	0.27	0.10	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Cadmium	0.79	0.26	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Chromium	27	0.52	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Copper	6.1	0.52	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Lead	15	0.16	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Mercury	2.7	0.22	10.00		75196	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	19	1.0	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Selenium	ND	0.26	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Silver	ND	0.26	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Thallium	0.43	0.26	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B
Zinc	18	1.0	1.000		75188	09/12/02	09/17/02	EPA 3050	EPA 6010B

Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-7-0	Basis:	dry
Lab ID:	160657-025	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02

Moisture: 2%

Analyte	Result	RL	Diln	Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	2.9	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	19	0.24	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.64	0.097	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	0.90	0.24	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Chromium	15	0.49	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Copper	23 J	0.49	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Lead	67 J	0.15	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Mercury	2.7	2.0	100.0		75196	09/13/02	METHOD	EPA 7471
Nickel	26	0.97	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Selenium	ND	0.24	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.24	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Thallium	1.5	0.24	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Zinc	230	9.7	10.00		75221	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals			
Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-7-2	Basis:	dry
Lab ID:	160657-026	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02

Moisture: 8%

Analyte	Result	RL	Diln	Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.2	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	1.4	0.26	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.55	0.11	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	0.53	0.26	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Chromium	27	0.53	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Copper	10 J	0.53	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Lead	9.2 J	0.16	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Mercury	0.22	0.19	10.00		75196	09/13/02	METHOD	EPA 7471
Nickel	25	1.1	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Selenium	ND	0.26	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.26	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Thallium	ND	0.26	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Zinc	22	1.1	1.000		75221	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	HD2-1-0	Basis:	dry
Lab ID:	160657-029	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02

Moisture: 3%

Analyte	Result	RL	Diln	Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.0	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	6.5	0.25	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.58	0.099	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	1.2	0.25	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Chromium	26	0.49	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Copper	75 J	0.49	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Lead	79 J	0.15	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Mercury	24	1.9	100.0		75196	09/13/02	METHOD	EPA 7471
Nickel	43	0.99	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Selenium	0.69	0.25	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.25	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Thallium	2.7	0.25	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Zinc	120	0.99	1.000		75221	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals			
Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	HD2-1-2	Basis:	dry
Lab ID:	160657-030	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02

Moisture: 10%

Analyte	Result	RL	Diln	Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	2.8	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	3.5	0.23	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.55	0.092	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	0.93	0.23	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Chromium	42	0.46	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Copper	12 J	0.46	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Lead	12 J	0.14	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Mercury	0.85	0.23	10.00		75196	09/13/02	METHOD	EPA 7471
Nickel	40	0.92	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Selenium	ND	0.23	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.23	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Thallium	0.25	0.23	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Zinc	31	0.92	1.000		75221	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	HD2-2-0	Basis:	dry
Lab ID:	160657-033	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02

Moisture: 4%

Analyte	Result	RL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	2.8	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	8.6	0.23	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.49	0.093	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	1.4	0.23	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Chromium	26	0.47	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Copper	200 J	0.47	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Lead	130 J	0.14	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Mercury	87	2.0	100.0	75196	09/13/02	METHOD	EPA 7471
Nickel	40	0.93	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Selenium	0.86	0.23	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.23	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Thallium	1.4	0.23	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Zinc	170	0.93	1.000	75221	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals			
Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	HD2-2-2	Basis:	dry
Lab ID:	160657-034	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02

Moisture: 12%

Analyte	Result	RL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.3	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	4.2	0.27	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.67	0.11	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	0.93	0.27	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Chromium	43	0.55	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Copper	14 J	0.55	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Lead	14 J	0.16	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Mercury	1.8	0.21	10.00	75196	09/13/02	METHOD	EPA 7471
Nickel	42	1.1	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Selenium	ND	0.27	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.27	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Thallium	0.86	0.27	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Zinc	25	1.1	1.000	75221	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	HD2-3-0	Basis:	dry
Lab ID:	160657-037	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02

Moisture: 2%

Analyte	Result	RL	Diln	Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	2.8	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	1.6	0.24	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.58	0.095	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	0.56	0.24	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Chromium	9.7	0.47	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Copper	7.5 J	0.47	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Lead	11 J	0.14	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Mercury	1.3	0.20	10.00		75196	09/13/02	METHOD	EPA 7471
Nickel	17	0.95	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Selenium	ND	0.24	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.24	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Thallium	0.84	0.24	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Zinc	28	0.95	1.000		75221	09/16/02	EPA 3050	EPA 6010B

Priority Pollutant Metals			
Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	HD2-3-1.5	Basis:	dry
Lab ID:	160657-038	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02

Moisture: 13%

Analyte	Result	RL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.4	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	9.7	0.28	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.60	0.11	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	1.1	0.28	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Chromium	31	0.57	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Copper	82 <i>J</i>	0.57	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Lead	140 <i>J</i>	0.17	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Mercury	60	2.1	100.0	75196	09/13/02	METHOD	EPA 7471
Nickel	41	1.1	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Selenium	1.6	0.28	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.28	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Thallium	3.4	0.28	1.000	75221	09/16/02	EPA 3050	EPA 6010B
Zinc	86	1.1	1.000	75221	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-1-0	Basis:	dry
Lab ID:	160657-041	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02

Moisture: 4%

Analyte	Result	RL	Diln	Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	2.7	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	13	0.22	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.43	0.089	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	1.9	0.22	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Chromium	24	0.44	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Copper	340 ^J	0.44	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Lead	140 ^J	0.13	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Mercury	13	0.38	20.00		75196	09/13/02	METHOD	EPA 7471
Nickel	35	0.89	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Selenium	1.5	0.22	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Silver	0.22	0.22	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Thallium	1.3	0.22	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Zinc	160	0.89	1.000		75221	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals			
Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-1-2	Basis:	dry
Lab ID:	160657-042	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02

Moisture: 13%

Analyte	Result	RL	Diln	Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.2	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	5.8	0.27	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.58	0.11	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	1.4	0.27	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Chromium	56	0.54	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Copper	21 J	0.54	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Lead	19 J	0.16	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Mercury	0.71	0.23	10.00		75196	09/13/02	METHOD	EPA 7471
Nickel	65	1.1	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Selenium	0.41	0.27	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.27	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Thallium	2.6	0.27	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Zinc	62	1.1	1.000		75221	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-2-0	Basis:	dry
Lab ID:	160657-045	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02

Moisture: 6%

Analyte	Result	RL	Diln	Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.1	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	6.0	0.26	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.71	0.10	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	0.96	0.26	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Chromium	32	0.51	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Copper	19 J	0.51	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Lead	22 J	0.15	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Mercury	5.4	0.19	10.00		75196	09/13/02	METHOD	EPA 7471
Nickel	82	1.0	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Selenium	2.3	0.26	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.26	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Thallium	9.4	0.26	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Zinc	33	1.0	1.000		75221	09/16/02	EPA 3050	EPA 6010B

Priority Pollutant Metals			
Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-2-2	Diln Fac:	1.000
Lab ID:	160657-046	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02
Basis:	dry		

Moisture: 10%

Analyte	Result	RL	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.2	75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	4.0	0.26	75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.55	0.11	75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	1.1	0.26	75221	09/16/02	EPA 3050	EPA 6010B
Chromium	57	0.53	75221	09/16/02	EPA 3050	EPA 6010B
Copper	11 J	0.53	75221	09/16/02	EPA 3050	EPA 6010B
Lead	14 J	0.16	75221	09/16/02	EPA 3050	EPA 6010B
Mercury	0.087	0.022	75196	09/13/02	METHOD	EPA 7471
Nickel	66	1.1	75221	09/16/02	EPA 3050	EPA 6010B
Selenium	0.49	0.26	75221	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.26	75221	09/16/02	EPA 3050	EPA 6010B
Thallium	1.9	0.26	75221	09/16/02	EPA 3050	EPA 6010B
Zinc	35	1.1	75221	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-3-0	Basis:	dry
Lab ID:	160657-049	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02

Moisture: 4%

Analyte	Result	RL	Diln	Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.0	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	6.4	0.25	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.59	0.10	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	1.0	0.25	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Chromium	35	0.51	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Copper	55 J	0.51	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Lead	88 J	0.15	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Mercury	14	0.41	20.00		75196	09/13/02	METHOD	EPA 7471
Nickel	43	1.0	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Selenium	1.6	0.25	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.25	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Thallium	2.5	0.25	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Zinc	68	1.0	1.000		75221	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals			
Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-3-2	Diln Fac:	1.000
Lab ID:	160657-050	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02
Basis:	dry		

Moisture: 9%

Analyte	Result	RL	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.2	75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	5.7	0.27	75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.55	0.11	75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	1.1	0.27	75221	09/16/02	EPA 3050	EPA 6010B
Chromium	64	0.53	75221	09/16/02	EPA 3050	EPA 6010B
Copper	13 J	0.53	75221	09/16/02	EPA 3050	EPA 6010B
Lead	13 J	0.16	75221	09/16/02	EPA 3050	EPA 6010B
Mercury	0.096	0.022	75196	09/13/02	METHOD	EPA 7471
Nickel	55	1.1	75221	09/16/02	EPA 3050	EPA 6010B
Selenium	ND	0.27	75221	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.27	75221	09/16/02	EPA 3050	EPA 6010B
Thallium	ND	0.27	75221	09/17/02	EPA 3050	EPA 6010B
Zinc	32	1.1	75221	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-4-0	Basis:	dry
Lab ID:	160657-053	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02

Moisture: 4%

Analyte	Result	RL	Diln	Fac	Batch#	Analyzed	Prep	Analysis
Antimony	3.1	2.6	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	11	0.21	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.57	0.085	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	1.8	0.21	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Chromium	39	0.43	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Copper	300 J	0.43	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Lead	1,000 J	0.13	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Mercury	4.0	0.17	10.00		75196	09/13/02	METHOD	EPA 7471
Nickel	38	0.85	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Selenium	1.6	0.21	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Silver	0.24	0.21	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Thallium	0.94	0.21	1.000		75221	09/16/02	EPA 3050	EPA 6010B
Zinc	130	0.85	1.000		75221	09/16/02	EPA 3050	EPA 6010B

Priority Pollutant Metals			
Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-4-2	Diln Fac:	1.000
Lab ID:	160657-054	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	09/13/02
Basis:	dry		

Moisture: 12%

Analyte	Result	RL	Batch#	Analyzed	Prep	Analysis
Antimony	ND	3.2	75221	09/16/02	EPA 3050	EPA 6010B
Arsenic	2.8	0.27	75221	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.46	0.11	75221	09/16/02	EPA 3050	EPA 6010B
Cadmium	0.78	0.27	75221	09/16/02	EPA 3050	EPA 6010B
Chromium	49	0.53	75221	09/16/02	EPA 3050	EPA 6010B
Copper	15 J	0.53	75221	09/16/02	EPA 3050	EPA 6010B
Lead	17 J	0.16	75221	09/16/02	EPA 3050	EPA 6010B
Mercury	0.067	0.023	75196	09/13/02	METHOD	EPA 7471
Nickel	31	1.1	75221	09/16/02	EPA 3050	EPA 6010B
Selenium	0.53	0.27	75221	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.27	75221	09/16/02	EPA 3050	EPA 6010B
Thallium	ND	0.27	75221	09/17/02	EPA 3050	EPA 6010B
Zinc	29	1.1	75221	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-5-0	Basis:	dry
Lab ID:	160657-057	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg		

Moisture: 12%

Analyte	Result	RL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	4.6	3.4	1.000		75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Arsenic	19	0.28	1.000		75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.60	0.11	1.000		75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Cadmium	2.9	0.28	1.000		75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Chromium	170	0.57	1.000		75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Copper	530 J	0.57	1.000		75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Lead	300 J	0.17	1.000		75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Mercury	7.9	0.23	10.00		75321	09/18/02	09/18/02	METHOD	EPA 7471
Nickel	54	1.1	1.000		75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Selenium	2.8	0.28	1.000		75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Silver	0.33	0.28	1.000		75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Thallium	ND	0.28	1.000		75221	09/13/02	09/17/02	EPA 3050	EPA 6010B
Zinc	300	11	10.00		75221	09/13/02	09/17/02	EPA 3050	EPA 6010B

Priority Pollutant Metals			
Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-5-2	Basis:	dry
Lab ID:	160657-058	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/09/02
Units:	mg/Kg	Received:	09/09/02

Moisture: 14%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	3.1	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Arsenic	2.6	0.26	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.53	0.10	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Cadmium	1.1	0.26	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Chromium	57	0.52	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Copper	17 J	0.52	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Lead	19 J	0.16	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Mercury	0.23	0.023	75321	09/18/02	09/18/02	METHOD	EPA 7471
Nickel	50	1.0	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Selenium	ND	0.26	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.26	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Thallium	0.96	0.26	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Zinc	110	1.0	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-6-0	Basis:	dry
Lab ID:	160657-061	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg		

Moisture: 5%

Analyte	Result	RL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	3.5	2.9	1.000	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Arsenic	25	0.24	1.000	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.72	0.098	1.000	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Cadmium	2.7	0.24	1.000	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Chromium	28	0.49	1.000	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Copper	520 JJ	0.49	1.000	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Lead	230 JJ	0.15	1.000	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Mercury	16	0.42	20.00	75321	09/18/02	09/18/02	METHOD	EPA 7471
Nickel	48	0.98	1.000	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Selenium	1.3	0.24	1.000	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Silver	0.80	0.24	1.000	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Thallium	1.0	0.24	1.000	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Zinc	350	9.8	10.00	75221	09/13/02	09/17/02	EPA 3050	EPA 6010B



Priority Pollutant Metals

Lab #:	160657	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-6-2	Basis:	dry
Lab ID:	160657-062	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/09/02
Units:	mg/Kg	Received:	09/09/02

Moisture: 7%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	3.0	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Arsenic	5.7	0.25	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Beryllium	0.55	0.099	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Cadmium	1.1	0.25	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Chromium	63	0.50	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Copper	17 J	0.50	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Lead	17 J	0.15	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Mercury	0.14 U	0.022	75321	09/18/02	09/18/02	METHOD	EPA 7471
Nickel	55	0.99	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Selenium	ND	0.25	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Silver	ND	0.25	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Thallium	ND	0.25	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B
Zinc	33	0.99	75221	09/13/02	09/16/02	EPA 3050	EPA 6010B

ND= Not Detected
RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Basis:	as received
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC189512	Batch#:	75174
Matrix:	Soil	Prepared:	09/12/02
Units:	mg/Kg	Analyzed:	09/12/02

Result	RL
ND	0.020

Priority Pollutant Metals			
Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3050
Project#:	510996706700	Analysis:	EPA 6010B
Type:	BLANK	Basis:	as received
Lab ID:	QC189578	Diln Fac:	1.000
Matrix:	Soil	Batch#:	75188
Units:	mg/Kg	Prepared:	09/12/02

Analyte	Result	RL	Analyzed
Antimony	ND	3.0	09/16/02
Arsenic	ND	0.25	09/16/02
Beryllium	ND	0.10	09/16/02
Cadmium	ND	0.25	09/16/02
Chromium	ND	0.50	09/16/02
Copper	ND	0.50	09/16/02
Lead	ND	0.15	09/16/02
Nickel	ND	1.0	09/16/02
Selenium	ND	0.25	09/17/02
Silver	ND	0.25	09/16/02
Thallium	ND	0.25	09/17/02
Zinc	ND	1.0	09/16/02



Priority Pollutant Metals

Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Basis:	as received
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC189615	Batch#:	75196
Matrix:	Soil	Prepared:	09/13/02
Units:	mg/Kg	Analyzed:	09/13/02

Result	RL
ND	0.020

Priority Pollutant Metals

Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3050
Project#:	510996706700	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC189717	Batch#:	75221
Matrix:	Soil	Prepared:	09/13/02
Units:	mg/Kg	Analyzed:	09/16/02
Basis:	as received		

Analyte	Result	RL
Antimony	ND	3.0
Arsenic	ND	0.25
Beryllium	ND	0.10
Cadmium	ND	0.25
Chromium	ND	0.50
Copper	ND	0.50
Lead	ND	0.15
Nickel	ND	1.0
Selenium	ND	0.25
Silver	ND	0.25
Thallium	ND	0.25
Zinc	ND	1.0

Priority Pollutant Metals

Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Diln Fac:	1.000
Matrix:	Soil	Batch#:	75174
Units:	mg/Kg	Prepared:	09/12/02
Basis:	as received	Analyzed:	09/12/02

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC189513	0.5000	0.4970	99	80-114		
BSD	QC189514	0.5000	0.4930	99	80-114	1	20

Priority Pollutant Metals			
Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Diln Fac:	20.00
Field ID:	ZZZZZZZZZZ	Batch#:	75174
MSS Lab ID:	160570-006	Sampled:	09/05/02
Matrix:	Soil	Received:	09/05/02
Units:	mg/Kg	Prepared:	09/12/02
Basis:	dry	Analyzed:	09/12/02

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Moisture	RPD	Lim
MS	QC189515	9.377	0.6494	12.13	424	NM 62-135	23%		
MSD	QC189516		0.6013	11.57	364	NM 62-135	23%	4	35



Priority Pollutant Metals

Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3050
Project#:	510996706700	Analysis:	EPA 6010B
Matrix:	Soil	Diln Fac:	1.000
Units:	mg/Kg	Batch#:	75188
Basis:	as received	Prepared:	09/12/02

Type: BS Lab ID: QC189579

Analyte	Spiked	Result	%REC	Limits	Analyzed
Antimony	100.0	90.35	90	70-120	09/17/02
Arsenic	50.00	49.30	99	72-120	09/16/02
Beryllium	2.500	2.450	98	73-120	09/16/02
Cadmium	10.00	9.350	94	69-120	09/16/02
Chromium	100.0	93.00	93	72-120	09/16/02
Copper	12.50	11.30	90	72-120	09/16/02
Lead	100.0	90.50	91	70-120	09/16/02
Nickel	25.00	23.40	94	72-120	09/16/02
Selenium	50.00	46.85	94	66-120	09/16/02
Silver	10.00	8.900	89	69-120	09/16/02
Thallium	50.00	44.05	88	68-120	09/16/02
Zinc	25.00	24.00	96	65-120	09/16/02

Type: BSD Lab ID: QC189580

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	100.0	89.40	89	70-120	1	20	09/17/02
Arsenic	50.00	50.50	101	72-120	2	20	09/16/02
Beryllium	2.500	2.480	99	73-120	1	20	09/16/02
Cadmium	10.00	9.450	95	69-120	1	20	09/16/02
Chromium	100.0	94.00	94	72-120	1	20	09/16/02
Copper	12.50	11.40	91	72-120	1	20	09/16/02
Lead	100.0	91.50	92	70-120	1	20	09/16/02
Nickel	25.00	23.65	95	72-120	1	20	09/16/02
Selenium	50.00	48.05	96	66-120	3	20	09/16/02
Silver	10.00	9.000	90	69-120	1	20	09/16/02
Thallium	50.00	44.10	88	68-120	0	20	09/16/02
Zinc	25.00	24.25	97	65-120	1	20	09/16/02

Priority Pollutant Metals

Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Diln Fac:	1.000
Matrix:	Soil	Batch#:	75196
Units:	mg/Kg	Prepared:	09/13/02
Basis:	as received	Analyzed:	09/13/02

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC189616	0.5000	0.5030	101	80-114		
BSD	QC189617	0.5000	0.5110	102	80-114	2	20

Priority Pollutant Metals					
Lab #:	160657	Location:	UCB-Richmond Field Sta.		
Client:	URS Corporation	Prep:	METHOD		
Project#:	510996706700	Analysis:	EPA 7471		
Analyte:	Mercury	Basis:	dry		
Field ID:	MF2-5-0	Diln Fac:	30.00		
Type:	SDUP	Batch#:	75196		
MSS Lab ID:	160657-017	Sampled:	09/09/02		
Lab ID:	QC189618	Received:	09/09/02		
Matrix:	Soil	Prepared:	09/13/02		
Units:	mg/Kg	Analyzed:	09/13/02		
MSS Result	Result	RL	Moisture	RPD	Lim
19.39	17.18	0.54	5%	12	35

Priority Pollutant Metals

Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Basis:	dry
Field ID:	MF2-5-0	Diln Fac:	30.00
Type:	SSPIKE	Batch#:	75196
MSS Lab ID:	160657-017	Sampled:	09/09/02
Lab ID:	QC189619	Received:	09/09/02
Matrix:	Soil	Prepared:	09/13/02
Units:	mg/Kg	Analyzed:	09/13/02

MSS Result	Spiked	Result	%REC	Limits	Moisture
19.39	0.5263	19.58	37 NM	62-135	5%

Priority Pollutant Metals			
Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3050
Project#:	510996706700	Analysis:	EPA 6010B
Matrix:	Soil	Batch#:	75221
Units:	mg/Kg	Prepared:	09/13/02
Basis:	as received	Analyzed:	09/16/02
Diln Fac:	1.000		

Type: BS Lab ID: QC189718

Analyte	Spiked	Result	%REC	Limits
Antimony	100.0	118.0	118	70-120
Arsenic	50.00	46.90	94	72-120
Beryllium	2.500	2.275	91	73-120
Cadmium	10.00	8.950	90	69-120
Chromium	100.0	87.00	87	72-120
Copper	12.50	10.35	83	72-120
Lead	100.0	86.00	86	70-120
Nickel	25.00	22.35	89	72-120
Selenium	50.00	44.30	89	66-120
Silver	10.00	8.300	83	69-120
Thallium	50.00	41.35	83	68-120
Zinc	25.00	24.00	96	65-120

Type: BSD Lab ID: QC189719

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	109.5	110	70-120	7	20
Arsenic	50.00	44.40	89	72-120	5	20
Beryllium	2.500	2.165	87	73-120	5	20
Cadmium	10.00	8.450	85	69-120	6	20
Chromium	100.0	83.00	83	72-120	5	20
Copper	12.50	9.900	79	72-120	4	20
Lead	100.0	82.00	82	70-120	5	20
Nickel	25.00	21.25	85	72-120	5	20
Selenium	50.00	42.45	85	66-120	4	20
Silver	10.00	7.900	79	69-120	5	20
Thallium	50.00	40.20	80	68-120	3	20
Zinc	25.00	23.10	92	65-120	4	20

Priority Pollutant Metals			
Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Diln Fac:	1.000
Matrix:	Soil	Batch#:	75321
Units:	mg/Kg	Prepared:	09/18/02
Basis:	as received	Analyzed:	09/18/02

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC190110	0.5000	0.5270	105	80-114		
BSD	QC190111	0.5000	0.5330	107	80-114	1	20

Priority Pollutant Metals

Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Basis:	as received
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	SDUP	Batch#:	75321
MSS Lab ID:	160727-001	Sampled:	09/11/02
Lab ID:	QC190112	Received:	09/13/02
Matrix:	Soil	Prepared:	09/18/02
Units:	mg/Kg	Analyzed:	09/18/02

MSS Result	Result	RL	RPD	Lim
0.05480	0.05860	0.020	7	35

Priority Pollutant Metals			
Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Basis:	as received
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	SSPIKE	Batch#:	75321
MSS Lab ID:	160727-001	Sampled:	09/11/02
Lab ID:	QC190113	Received:	09/13/02
Matrix:	Soil	Prepared:	09/18/02
Units:	mg/Kg	Analyzed:	09/18/02
MSS Result	Spiked	Result	%REC: Limits
0.05480	0.5000	0.5420	97 62-135



pH			
Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Analysis:	EPA 9045C
Project#:	510996706700		
Analyte:	pH	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/09/02
Units:	SU	Received:	09/09/02

Field ID	Lab ID	Result	RL	Batch#	Analyzed
MF2-1-0	160657-001	6.6	1.0	75377	09/19/02
MF2-1-2	160657-002	5.1	1.0	75377	09/19/02
MF2-2-0	160657-005	8.6	1.0	75377	09/19/02
MF2-2-2	160657-006	8.8	1.0	75377	09/19/02
MF2-3-0	160657-009	6.9	1.0	75377	09/19/02
MF2-3-2	160657-010	5.4	1.0	75377	09/19/02
MF2-4-0	160657-013	4.7	1.0	75377	09/19/02
MF2-4-2	160657-014	5.6	1.0	75377	09/19/02
MF2-5-0	160657-017	6.0	1.0	75377	09/19/02
MF2-5-2	160657-018	6.2	1.0	75350	09/18/02
MF2-6-0	160657-021	5.9	1.0	75350	09/18/02
MF2-6-2	160657-022	5.3	1.0	75377	09/19/02
MF2-7-0	160657-025	6.7	1.0	75350	09/18/02
MF2-7-2	160657-026	6.2	1.0	75350	09/18/02
HD2-1-0	160657-029	6.7	1.0	75350	09/18/02
HD2-1-2	160657-030	6.8	1.0	75350	09/18/02
HD2-2-0	160657-033	6.3	1.0	75350	09/18/02
HD2-2-2	160657-034	6.4	1.0	75350	09/18/02
HD2-3-0	160657-037	8.8	1.0	75350	09/18/02
HD2-3-1.5	160657-038	7.6	1.0	75350	09/18/02
SM2-1-0	160657-041	6.0	1.0	75377	09/19/02
SM2-1-2	160657-042	5.6	1.0	75350	09/18/02
SM2-2-0	160657-045	6.0	1.0	75350	09/18/02
SM2-2-2	160657-046	6.5	1.0	75350	09/18/02
SM2-3-0	160657-049	5.3	1.0	75350	09/18/02
SM2-3-2	160657-050	5.7	1.0	75350	09/18/02
SM2-4-0	160657-053	5.9	1.0	75350	09/18/02
SM2-4-2	160657-054	6.8	1.0	75350	09/18/02
SM2-5-0	160657-057	5.5	1.0	75350	09/18/02
SM2-5-2	160657-058	5.8	1.0	75377	09/19/02
SM2-6-0	160657-061	5.5	1.0	75350	09/18/02
SM2-6-2	160657-062	4.8	1.0	75350	09/18/02



pH			
Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Analysis:	EPA 9045C
Project#:	510996706700		
Analyte:	pH	Diln Fac:	1.000
Type:	SDUP	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	SU		

Field ID	MSS Lab ID	Lab ID	MSS Result	Result	RL	RPD	Lim	Batch#	Analyzed
SM2-1-2	160657-042	QC190217	5.570	5.530	1.0	1	20	75350	09/18/02
MF2-4-0	160657-013	QC190317	4.690	4.690	1.0	0	20	75377	09/19/02

RL= Reporting Limit
RPD= Relative Percent Difference
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Polychlorinated Biphenyls (PCBs)

Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3550
Project#:	510996706700	Analysis:	EPA 8082
Matrix:	Soil	Sampled:	09/09/02
Units:	ug/Kg	Received:	09/09/02
Batch#:	75219	Prepared:	09/13/02

Field ID:	MF2-2-0	Moisture:	5%
Type:	SAMPLE	Diln Fac:	1.000
Lab ID:	160657-005	Analyzed:	09/18/02
Basis:	dry	Cleanup Method:	EPA 3665A

Analyte	Result	RL
Aroclor-1016	ND	13
Aroclor-1221	ND	25
Aroclor-1232	ND	13
Aroclor-1242	ND	13
Aroclor-1248	ND	13
Aroclor-1254	33	13
Aroclor-1260	24	13

Surrogate	%REC	Limits
TCMX	54 *	55-150
Decachlorobiphenyl	113	37-150

Field ID:	MF2-3-0	Moisture:	5%
Type:	SAMPLE	Diln Fac:	1.000
Lab ID:	160657-009	Analyzed:	09/18/02
Basis:	dry	Cleanup Method:	EPA 3665A

Analyte	Result	RL
Aroclor-1016	ND	13
Aroclor-1221	ND	25
Aroclor-1232	ND	13
Aroclor-1242	ND	13
Aroclor-1248	ND	13
Aroclor-1254	100	13
Aroclor-1260	49	13

Surrogate	%REC	Limits
TCMX	83	55-150
Decachlorobiphenyl	126	37-150

*= Value outside of QC limits; see narrative
 DO= Diluted Out
 ND= Not Detected
 RL= Reporting Limit
 Page 1 of 4



Polychlorinated Biphenyls (PCBs)

Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3550
Project#:	510996706700	Analysis:	EPA 8082
Matrix:	Soil	Sampled:	09/09/02
Units:	ug/Kg	Received:	09/09/02
Batch#:	75219	Prepared:	09/13/02

Field ID:	MF2-7-0	Moisture:	2%
Type:	SAMPLE	Diln Fac:	1.000
Lab ID:	160657-025	Analyzed:	09/18/02
Basis:	dry	Cleanup Method:	EPA 3665A

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	18	12

Surrogate	%REC	Limits
TCMX	79	55-150
Decachlorobiphenyl	121	37-150

Field ID:	HD2-1-0	Moisture:	3%
Type:	SAMPLE	Diln Fac:	20.00
Lab ID:	160657-029	Analyzed:	09/20/02
Basis:	dry	Cleanup Method:	EPA 3665A

Analyte	Result	RL
Aroclor-1016	ND	250
Aroclor-1221	ND	500
Aroclor-1232	ND	250
Aroclor-1242	ND	250
Aroclor-1248	ND	250
Aroclor-1254	7,100	250
Aroclor-1260	1,100	250

Surrogate	%REC	Limits
TCMX	DO	55-150
Decachlorobiphenyl	DO	37-150

*= Value outside of QC limits; see narrative
 DO= Diluted Out
 ND= Not Detected
 RL= Reporting Limit
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Polychlorinated Biphenyls (PCBs)

Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3550
Project#:	510996706700	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC189714	Batch#:	75219
Matrix:	Soil	Prepared:	09/13/02
Units:	ug/Kg	Analyzed:	09/25/02
Basis:	as received		

Cleanup Method: EPA 3665A

Analyte	Spiked	Result	%REC	Limits
Aroclor-1254	166.7	185.1	111	58-124

Surrogate	%REC	Limits
TCMX	90	55-150
Decachlorobiphenyl	121	37-150

Priority Pollutant Metals			
Lab #:	160657	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	S10996706700	Analysis:	EPA 7471
Analyte:	Mercury	Basis:	as received
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC190109	Batch#:	75321
Matrix:	Soil	Prepared:	09/18/02
Units:	mg/Kg	Analyzed:	09/18/02
Result	RL		
0.030	0.020		



ANALYTICAL REPORT

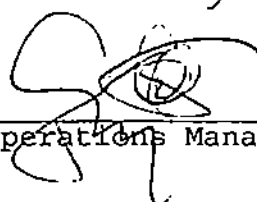
Prepared for:

URS Corporation
500 12th Street
Suite 200
Oakland, CA 94607

Date: 02-OCT-02
Lab Job Number: 160675
Project ID: 510996706700
Location: UCB-Richmond Field Sta.

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis.

Reviewed by: 
Project Manager

Reviewed by: 
Operations Manager

This package may be reproduced only in its entirety.

QA/QC completed and quals assigned 10/16/02 MW



Curtis & Tompkins, Ltd.

Laboratory Numbers: 160675
Client: URS Corporation
Project #: 510996706700
Location: UCB-Richmond Field Station

Sampled Date: 09/10/02
Received Date: 09/10/02

CASE NARRATIVE

This hardcopy data package contains sample and QC results for eighteen soil samples, which were received from the site referenced above on September 10, 2002. The samples were received cold and intact. Nineteen soil samples were placed on hold upon receipt per the chain of custody.

PCBs (EPA 8082): High Decachlorobiphenyl surrogate recovery was observed for sample FP2-1-0 (CT# 160675-0013). Re-analysis confirmed matrix interference and the TCMX surrogate recovery passed all quality control criteria. Low TCMX surrogate recoveries were observed for samples OW2-1-0 (CT# 160675-028) and OW2-1-8 (CT# 160675-031). Re-analysis confirmed matrix interference and the Decachlorobiphenyl surrogate recoveries passed all quality control criteria.

High matrix sample spike recoveries were observed for sample CT# 160625-018. The sample spiked was not from the site above and the associated laboratory control sample (LCS) met all quality control criteria. No other analytical problems were encountered.

Metals (EPA 6000/7000B): For sample SM2-7-0 (CT# 160675-001) the sample spike recovery for mercury is considered not meaningful (NM) as the sample concentration is four times greater than the spiked level. Low antimony matrix spike recoveries were observed for sample SM2-7-0 (CT# 160675-001) and low nickel matrix spike duplicate recovery was also observed. The matrix spike recoveries for copper and zinc are considered not meaningful (NM) as the sample concentrations are four times greater than the spiked level. The associated blank spikes passed all quality control criteria. No other analytical problems were encountered.

General Chemistry: No analytical problems were encountered.

160673



500 12th Street, Suite 200
Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO. 570996706700			ANALYSES								Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)	
DATE	TIME	SAMPLERS: (Signature) <i>Blepeland</i>	Sample Matrix (Soil, Water, Air)	EPA Method	EPA Method	EPA Method	EPA Method	PP metals	pH	mercury			PCBs
9/10/02			S					X	X	X	X	hold	
								X	X	X	X		hold
								X	X	X	X		
								X	X	X	X		hold
								X	X	X	X		
								X	X	X	X		
								X	X	X	X		

Preservation Correct?
 Yes No N/A

Received On Ice
 Cold Ambient Intact

TOTAL NUMBER OF CONTAINERS

RELINQUISHED BY: (Signature) <i>Blepeland</i>	DATE/TIME 9/10/02 1640	RECEIVED BY: (Signature) <i>[Signature]</i>	DATE/TIME 9-10-02	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
METHOD OF SHIPMENT:		SHIPPED BY: (Signature) <i>[Signature]</i>	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME	

pH			
Lab #:	160675	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Analysis:	EPA 9045C
Project#:	510996706700		
Analyte:	pH	Batch#:	75400
Matrix:	Soil	Sampled:	09/10/02
Units:	SU	Received:	09/11/02
Diln Fac:	1.000	Analyzed:	09/20/02

Field ID	Lab ID	Result	RL
SM2-7-0	160675-001	7.3	1.0
SM2-7-2	160675-002	6.6	1.0
SM2-8-0	160675-005	6.7	1.0
SM2-8-2	160675-006	5.0	1.0
SM2-9-0	160675-009	4.7	1.0
FP2-1-0	160675-013	5.6	1.0
FP2-1-2	160675-014	5.6	1.0
FP2-2-0	160675-017	6.3	1.0
FP2-2-2	160675-018	6.1	1.0
FP2-3-0	160675-021	6.9	1.0
FP2-3-2	160675-022	5.4	1.0
MF2-8-6	160675-025	6.4	1.0
OW2-1-0	160675-028	6.5	1.0
OW2-1-8	160675-031	7.3	1.0
NP1-0.5	160675-033	5.1	1.0
NP1-3	160675-034	5.2	1.0
NP1-6	160675-035	8.3	1.0
NP1-8	160675-036	7.8	1.0

PH				
Lab #:	160675	Location:	UCB-Richmond Field Sta.	
Client:	URS Corporation	Analysis:	EPA 9045C	
Project#:	510996706700			
Analyte:	pH	Units:	SU	
Field ID:	FP2-2-0	Diln Fac:	1.000	
Type:	SDUP	Batch#:	75400	
MSS Lab ID:	160675-017	Sampled:	09/10/02	
Lab ID:	QC190397	Received:	09/11/02	
Matrix:	Soil	Analyzed:	09/20/02	
MSS Result	Result	RL	RPD	Lim
6.250	6.220	1.0	1	20



Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-7-0	Basis:	dry
Lab ID:	160675-001	Sampled:	09/10/02
Matrix:	Soil	Received:	09/11/02
Units:	mg/Kg		

Moisture: 3%

Analyte	Result	RL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.4	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Arsenic	6.7	0.20	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Beryllium	0.42	0.081	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Cadmium	1.6	0.20	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Chromium	23	0.40	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Copper	330	0.40	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Lead	110	0.12	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Mercury	10	0.41	20.00		75210	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	38	0.81	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Selenium	1.5	0.20	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Silver	ND	0.20	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Thallium	2.7	0.20	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Zinc	130	0.81	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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MWS 10/16/02



Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-7-2	Basis:	dry
Lab ID:	160675-002	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/10/02
Units:	mg/Kg	Received:	09/11/02

Moisture: 8%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep.	Analysis
Antimony	ND <i>UJ</i>	2.8	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Arsenic	1.9	0.23	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Beryllium	0.37	0.092	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Cadmium	0.67	0.23	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Chromium	25	0.46	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Copper	10	0.46	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Lead	6.3	0.14	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Mercury	0.053	0.021	75210	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	23 <i>J</i>	0.92	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Selenium	0.53	0.23	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Silver	ND	0.23	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Thallium	ND	0.23	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Zinc	22	0.92	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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mms 10/16/02



Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-8-0	Basis:	dry
Lab ID:	160675-005	Sampled:	09/10/02
Matrix:	Soil	Received:	09/11/02
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	RL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND <i>W</i>	3.0	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Arsenic	4.5	0.25	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Beryllium	0.41	0.099	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Cadmium	1.2	0.25	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Chromium	22	0.50	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Copper	72	0.50	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Lead	56	0.15	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Mercury	3.4	0.41	20.00		75210	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	46 <i>W</i>	0.99	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Selenium	1.4	0.25	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Silver	ND	0.25	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Thallium	2.7	0.25	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Zinc	99	0.99	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-8-2	Basis:	dry
Lab ID:	160675-006	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/10/02
Units:	mg/Kg	Received:	09/11/02

Moisture: 14%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND UJ	3.4	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Arsenic	2.3	0.28	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Beryllium	0.28	0.11	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Cadmium	0.67	0.28	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Chromium	27	0.57	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Copper	8.6	0.57	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Lead	7.4	0.17	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Mercury	0.15	0.023	75210	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	28 J	1.1	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Selenium	ND	0.28	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Silver	ND	0.28	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Thallium	ND	0.28	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Zinc	15	1.1	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	SM2-9-0	Basis:	dry
Lab ID:	160675-009	Sampled:	09/10/02
Matrix:	Soil	Received:	09/11/02
Units:	mg/Kg		

Moisture: 6%

Analyte	Result	RL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND <i>UJ</i>	3.0	1.000	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Arsenic	3.6	0.25	1.000	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Beryllium	0.40	0.10	1.000	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Cadmium	2.2	0.25	1.000	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Chromium	26	0.50	1.000	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Copper	190	0.50	1.000	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Lead	25	0.15	1.000	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Mercury	5.7	0.43	20.00	75210	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	50 <i>J</i>	1.0	1.000	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Selenium	0.62	0.25	1.000	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Silver	ND	0.25	1.000	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Thallium	1.3	0.25	1.000	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Zinc	480	10	10.00	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B

ND= Not Detected

RL= Reporting Limit

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7.0

mms 10/16/02



Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	FP2-1-0	Basis:	dry
Lab ID:	160675-013	Sampled:	09/10/02
Matrix:	Soil	Received:	09/11/02
Units:	mg/Kg		

Moisture: 8%

Analyte	Result	RL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND <i>UT</i>	2.9	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Arsenic	55	0.24	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Beryllium	0.40	0.097	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Cadmium	2.1	0.24	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Chromium	33	0.49	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Copper	170	0.49	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Lead	38	0.15	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Mercury	3.0	0.41	20.00		75210	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	34 <i>J</i>	0.97	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Selenium	0.61	0.24	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Silver	ND	0.24	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Thallium	1.3	0.24	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Zinc	100	0.97	1.000		75231	09/14/02	09/18/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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new 10/16/02

Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	FP2-1-2	Basis:	dry
Lab ID:	160675-014	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/10/02
Units:	mg/Kg	Received:	09/11/02

Moisture: 8%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND <u>UJ</u>	2.9	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Arsenic	14	0.24	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Beryllium	0.48	0.096	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Cadmium	1.5	0.24	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Chromium	34	0.48	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Copper	20	0.48	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Lead	11	0.14	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Mercury	0.23	0.022	75210	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	51 <u>J</u>	0.96	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Selenium	0.46	0.24	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Silver	ND	0.24	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Thallium	1.3	0.24	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B
Zinc	39	0.96	75231	09/14/02	09/18/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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MWJ 10/16/02

Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	FP2-2-0	Basis:	dry
Lab ID:	160675-017	Sampled:	09/10/02
Matrix:	Soil	Received:	09/11/02
Units:	mg/Kg		

Moisture: 7%

Analyte	Result	RL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND UJ	2.8	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Arsenic	6.5	0.23	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Beryllium	0.29	0.093	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Cadmium	3.4	0.23	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Chromium	24	0.47	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Copper	740	0.47	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Lead	39	0.14	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Mercury	1.2	0.41	20.00		75210	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	27 J	0.93	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Selenium	1.1	0.23	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Silver	ND	0.23	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Thallium	ND	0.23	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Zinc	61	0.93	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals			
Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	FP2-2-2	Basis:	dry
Lab ID:	160675-018	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/10/02
Units:	mg/Kg	Received:	09/11/02

Moisture: 14%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND <i>UJ</i>	3.4	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Arsenic	4.6	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Beryllium	0.70	0.11	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Cadmium	4.7	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Chromium	43	0.57	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Copper	19	0.57	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Lead	12	0.17	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Mercury	0.10	0.023	75210	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	47 <i>J</i>	1.1	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Selenium	0.53	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Silver	ND	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Thallium	ND	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Zinc	26	1.1	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	FP2-3-0	Basis:	dry
Lab ID:	160675-021	Sampled:	09/10/02
Matrix:	Soil	Received:	09/11/02
Units:	mg/Kg		

Moisture: 1%

Analyte	Result	RL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND $\sqrt{}$	2.1	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Arsenic	2.9	0.18	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Beryllium	0.45	0.070	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Cadmium	3.4	0.18	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Chromium	11	0.35	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Copper	13	0.35	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Lead	15	0.11	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Mercury	0.49	0.36	20.00		75210	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	21 $\sqrt{}$	0.70	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Selenium	0.28	0.18	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Silver	ND	0.18	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Thallium	ND	0.18	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Zinc	37	0.70	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	FP2-3-2	Basis:	dry
Lab ID:	160675-022	Sampled:	09/10/02
Matrix:	Soil	Received:	09/11/02
Units:	mg/Kg		

Moisture: 11%

Analyte	Result	RL	Diln. Fac	Batch#	Prepared	Analyzed	Prep	Analysis	
Antimony	ND	LC ₅	2.9	1.000	75231	09/14/02	09/21/02	EPA 3050 EPA 6010B	
Arsenic	6.8	0.24	1.000	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B	
Beryllium	0.35	0.096	1.000	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B	
Cadmium	3.5	0.24	1.000	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B	
Chromium	27	0.48	1.000	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B	
Copper	280	0.48	1.000	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B	
Lead	54	0.14	1.000	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B	
Mercury	0.51	0.47	20.00	75210	09/13/02	09/13/02	METHOD	EPA 7471	
Nickel	32	J	0.96	1.000	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Selenium	0.83	0.24	1.000	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B	
Silver	ND	0.24	1.000	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B	
Thallium	ND	0.24	1.000	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B	
Zinc	93	0.96	1.000	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B	

ND= Not Detected
 RL= Reporting Limit
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mhw 10/16/02



Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-8-6	Basis:	dry
Lab ID:	160675-025	Sampled:	09/10/02
Matrix:	Soil	Received:	09/11/02
Units:	mg/Kg		

Moisture: 20%

Analyte	Result	RL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND <i>W</i>	3.7	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Arsenic	6.0	0.31	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Beryllium	0.46	0.12	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Cadmium	5.0	0.31	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Chromium	37	0.62	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Copper	47	0.62	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Lead	13	0.19	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Mercury	370	11	500.0		75210	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	53 <i>J</i>	1.2	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Selenium	ND	0.31	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Silver	ND	0.31	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Thallium	ND	0.31	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Zinc	49	1.2	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	OW2-1-0	Basis:	dry
Lab ID:	160675-028	Sampled:	09/10/02
Matrix:	Soil	Received:	09/11/02
Units:	mg/Kg		

Moisture: 7%

Analyte	Result	RL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND \checkmark	2.9	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Arsenic	4.6	0.24	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Beryllium	0.28	0.096	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Cadmium	3.4	0.24	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Chromium	22	0.48	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Copper	80	0.48	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Lead	40	0.14	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Mercury	2.1	0.44	20.00		75210	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	29 \checkmark	0.96	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Selenium	0.35	0.24	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Silver	ND	0.24	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Thallium	ND	0.24	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Zinc	71	0.96	1.000		75231	09/14/02	09/21/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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mwd 10/16/02



Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	OW2-1-8	Basis:	dry
Lab ID:	160675-031	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/10/02
Units:	mg/Kg	Received:	09/11/02

Moisture: 8%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND UJ	2.6	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Arsenic	3.5	0.22	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Beryllium	0.25	0.087	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Cadmium	3.2	0.22	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Chromium	27	0.43	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Copper	27	0.43	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Lead	11	0.13	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Mercury	0.10	0.021	75210	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	50 J	0.87	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Selenium	0.57	0.22	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Silver	ND	0.22	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Thallium	ND	0.22	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Zinc	33	0.87	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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MML 10/16/02

Priority Pollutant Metals			
Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	NP1-0.5	Basis:	dry
Lab ID:	160675-033	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/10/02
Units:	mg/Kg	Received:	09/11/02

Moisture: 5%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND <i>UJ</i>	3.1	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Arsenic	2.6	0.26	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Beryllium	0.32	0.10	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Cadmium	2.0	0.26	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Chromium	23	0.52	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Copper	13	0.52	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Lead	15	0.16	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Mercury	0.044	0.021	75210	09/13/02	09/13/02	METHOD	EPA 7471
Nickel	20 <i>J</i>	1.0	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Selenium	0.46	0.26	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Silver	ND	0.26	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Thallium	ND	0.26	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Zinc	19	1.0	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	NP1-3	Basis:	dry
Lab ID:	160675-034	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/10/02
Units:	mg/Kg	Received:	09/11/02

Moisture: 13%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND <i>UJ</i>	3.3	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Arsenic	2.4	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Beryllium	0.25	0.11	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Cadmium	2.8	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Chromium	24	0.56	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Copper	15	0.56	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Lead	9.9	0.17	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Mercury	0.16	0.023	75321	09/18/02	09/18/02	METHOD	EPA 7471
Nickel	44 <i>J</i>	1.1	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Selenium	0.35	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Silver	ND	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Thallium	ND	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Zinc	21	1.1	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B

Priority Pollutant Metals			
Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	NP1-6	Basis:	dry
Lab ID:	160675-035	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/10/02
Units:	mg/Kg	Received:	09/11/02

Moisture: 16%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND UJ	3.3	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Arsenic	3.9	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Beryllium	0.40	0.11	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Cadmium	4.1	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Chromium	29	0.55	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Copper	28	0.55	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Lead	11	0.17	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Mercury	0.095 U	0.023	75321	09/18/02	09/18/02	METHOD	EPA 7471
Nickel	100 J	1.1	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Selenium	ND	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Silver	ND	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Thallium	0.53	0.28	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Zinc	34	1.1	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B

ND= Not Detected
 RL= Reporting Limit
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mm 10/16/02

Priority Pollutant Metals

Lab #:	160675	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	NP1-8	Basis:	dry
Lab ID:	160675-036	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/10/02
Units:	mg/Kg	Received:	09/11/02

Moisture: 17%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND <i>UJ</i>	3.1	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Arsenic	3.7	0.26	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Beryllium	0.46	0.10	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Cadmium	4.4	0.26	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Chromium	35	0.51	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Copper	22	0.51	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Lead	11	0.15	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Mercury	0.10 <i>u</i>	0.024	75321	09/18/02	09/18/02	METHOD	EPA 7471
Nickel	54 <i>J</i>	1.0	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Selenium	ND	0.26	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Silver	ND	0.26	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Thallium	ND	0.26	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B
Zinc	45	1.0	75231	09/14/02	09/21/02	EPA 3050	EPA 6010B



Priority Pollutant Metals

Lab #:	160675	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Basis:	as received
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC189667	Batch#:	75210
Matrix:	Soil	Prepared:	09/13/02
Units:	mg/Kg	Analyzed:	09/13/02

Result	RL
ND	0.020



Priority Pollutant Metals

Lab #:	160675	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3050
Project#:	510996706700	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC189756	Batch#:	75231
Matrix:	Soil	Prepared:	09/14/02
Units:	mg/Kg	Analyzed:	09/18/02
Basis:	as received		

Analyte	Result	RL
Antimony	ND	3.0
Arsenic	ND	0.25
Beryllium	ND	0.10
Cadmium	ND	0.25
Chromium	ND	0.50
Copper	ND	0.50
Lead	ND	0.15
Nickel	ND	1.0
Selenium	ND	0.25
Silver	ND	0.25
Thallium	ND	0.25
Zinc	ND	1.0

Priority Pollutant Metals			
Lab #:	160675	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Diln Fac:	1.000
Matrix:	Soil	Batch#:	75210
Units:	mg/Kg	Prepared:	09/13/02
Basis:	as received	Analyzed:	09/13/02

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC189668	0.5000	0.5260	105	80-114		
BSD	QC189669	0.5000	0.5190	104	80-114	1	20



Priority Pollutant Metals

Lab #:	160675	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Basis:	dry
Field ID:	SM2-7-0	Diln Fac:	20.00
Type:	SDUP	Batch#:	75210
MSS Lab ID:	160675-001	Sampled:	09/10/02
Lab ID:	QC189670	Received:	09/11/02
Matrix:	Soil	Prepared:	09/13/02
Units:	mg/Kg	Analyzed:	09/13/02

MSS Result	Result	RL	Moisture	RPD	Lim
10.06	9.556	0.40	3%	5	35



Priority Pollutant Metals				
Lab #:	160675	Location:	UCB-Richmond Field Sta.	
Client:	URS Corporation	Prep:	METHOD	
Project#:	510996706700	Analysis:	EPA 7471	
Analyte:	Mercury	Basis:	dry	
Field ID:	SM2-7-0	Diln Fac:	20.00	
Type:	SSPIKE	Batch#:	75210	
MSS Lab ID:	160675-001	Sampled:	09/10/02	
Lab ID:	QC189671	Received:	09/11/02	
Matrix:	Soil	Prepared:	09/13/02	
Units:	mg/Kg	Analyzed:	09/13/02	

MSS Result	Spiked	Result	%REC	Limits	Moisture
10.06	0.4863	8.481	-325 NM	62-135	3%



Priority Pollutant Metals			
Lab #:	160675	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3050
Project#:	510996706700	Analysis:	EPA 6010B
Matrix:	Soil	Batch#:	75231
Units:	mg/Kg	Prepared:	09/14/02
Basis:	as received	Analyzed:	09/18/02
Diln Fac:	1.000		

Type: BS Lab ID: QC189757

Analyte	Spiked	Result	%REC	Limits
Antimony	100.0	109.0	109	70-120
Arsenic	50.00	42.20	84	72-120
Beryllium	2.500	2.140	86	73-120
Cadmium	10.00	8.100	81	69-120
Chromium	100.0	84.00	84	72-120
Copper	12.50	10.35	83	72-120
Lead	100.0	78.50	79	70-120
Nickel	25.00	20.60	82	72-120
Selenium	50.00	38.60	77	66-120
Silver	10.00	8.050	81	69-120
Thallium	50.00	38.35	77	68-120
Zinc	25.00	19.15	77	65-120

Type: BSD Lab ID: QC189758

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	105.0	105	70-120	4	20
Arsenic	50.00	40.45	81	72-120	4	20
Beryllium	2.500	2.045	82	73-120	5	20
Cadmium	10.00	7.750	78	69-120	4	20
Chromium	100.0	80.00	80	72-120	5	20
Copper	12.50	9.950	80	72-120	4	20
Lead	100.0	76.50	77	70-120	3	20
Nickel	25.00	19.80	79	72-120	4	20
Selenium	50.00	38.00	76	66-120	2	20
Silver	10.00	7.750	78	69-120	4	20
Thallium	50.00	37.70	75	68-120	2	20
Zinc	25.00	18.35	73	65-120	4	20

RPD= Relative Percent Difference

Priority Pollutant Metals

Lab #:	160675	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Diln Fac:	1.000
Matrix:	Soil	Batch#:	75321
Units:	mg/Kg	Prepared:	09/18/02
Basis:	as received	Analyzed:	09/18/02

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC190110	0.5000	0.5270	105	80-114		
BSD	QC190111	0.5000	0.5330	107	80-114	1	20



Priority Pollutant Metals

Lab #:	160675	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Basis:	as received
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	SDUP	Batch#:	75321
MSS Lab ID:	160727-001	Sampled:	09/11/02
Lab ID:	QC190112	Received:	09/13/02
Matrix:	Soil	Prepared:	09/18/02
Units:	mg/Kg	Analyzed:	09/18/02

MSS Result	Result	RL	RPD	Lim
0.05480	0.05860	0.020	7	35

RL= Reporting Limit
RPD= Relative Percent Difference
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Priority Pollutant Metals

Lab #:	160675	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Basis:	as received
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	SSPIKE	Batch#:	75321
MSS Lab ID:	160727-001	Sampled:	09/11/02
Lab ID:	QC190113	Received:	09/13/02
Matrix:	Soil	Prepared:	09/18/02
Units:	mg/Kg	Analyzed:	09/18/02

MSS Result	Spiked	Result	%REC	Limits
0.05480	0.5000	0.5420	97	62-135



Polychlorinated Biphenyls (PCBs)

Lab #:	160675	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3550
Project#:	510996706700	Analysis:	EPA 8082
Matrix:	Soil	Sampled:	09/10/02
Units:	ug/Kg	Received:	09/11/02
Diln Fac:	1.000	Prepared:	09/16/02
Batch#:	75270		

Field ID:	OW2-1-8	Moisture:	8%
Type:	SAMPLE	Analyzed:	09/17/02
Lab ID:	160675-031	Cleanup Method:	EPA 3665A
Basis:	dry		

Analyte	Result	RL
Aroclor-1016	ND <i>WJ</i>	13
Aroclor-1221	ND	26
Aroclor-1232	ND	13
Aroclor-1242	ND	13
Aroclor-1248	ND	13
Aroclor-1254	ND	13
Aroclor-1260	ND	13

Surrogate	%REC	Limits
TCMX	46 *	55-150
Decachlorobiphenyl	97	37-150

Field ID:	NP1-0.5	Moisture:	5%
Type:	SAMPLE	Analyzed:	09/17/02
Lab ID:	160675-033	Cleanup Method:	EPA 3665A
Basis:	dry		

Analyte	Result	RL
Aroclor-1016	ND	13
Aroclor-1221	ND	25
Aroclor-1232	ND	13
Aroclor-1242	ND	13
Aroclor-1248	ND	13
Aroclor-1254	ND	13
Aroclor-1260	ND	13

Surrogate	%REC	Limits
TCMX	67	55-150
Decachlorobiphenyl	90	37-150

*= Value outside of QC limits; see narrative
 ND= Not Detected
 RL= Reporting Limit
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MW 10/17/02

Polychlorinated Biphenyls (PCBs)			
Lab #:	160675	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3550
Project#:	510996706700	Analysis:	EPA 8082
Matrix:	Soil	Sampled:	09/10/02
Units:	ug/Kg	Received:	09/11/02
Diln Fac:	1.000	Prepared:	09/16/02
Batch#:	75270		

Type: BLANK Analyzed: 09/21/02
 Lab ID: QC189909 Cleanup Method: EPA 3665A
 Basis: as received

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	ND	12

Surrogate	%REC	Limits
TCMX	79	55-150
Decachlorobiphenyl	101	37-150

*= Value outside of QC limits; see narrative
 ND= Not Detected
 RL= Reporting Limit
 Page 3 of 3

Polychlorinated Biphenyls (PCBs)

Lab #:	160675	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3550
Project#:	510996706700	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC189910	Batch#:	75270
Matrix:	Soil	Prepared:	09/16/02
Units:	ug/Kg	Analyzed:	09/21/02
Basis:	as received		

Cleanup Method: EPA 3665A

Analyte	Spiked	Result	%REC	Limits
Aroclor-1254	166.7	155.9	94	58-124

Surrogate	%REC	Limits
TCMX	60	55-150
Decachlorobiphenyl	86	37-150



Moisture			
Lab #:	160675	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Analysis:	ASTM D2216/CLP
Project#:	510996706700		
Analyte:	Moisture, Percent	Batch#:	75363
Matrix:	Soil	Sampled:	09/10/02
Units:	%	Received:	09/11/02
Diln Fac:	1.000	Analyzed:	09/19/02

Field ID	Lab ID	Result	RL
SM2-7-0	160675-001	3	1
SM2-7-2	160675-002	8	1
SM2-8-0	160675-005	2	1
SM2-8-2	160675-006	14	1
SM2-9-0	160675-009	6	1
FP2-1-0	160675-013	8	1
FP2-1-2	160675-014	8	1
FP2-2-0	160675-017	7	1
FP2-2-2	160675-018	14	1
FP2-3-0	160675-021	1	1
FP2-3-2	160675-022	11	1
MF2-8-6	160675-025	20	1
OW2-1-0	160675-028	7	1
OW2-1-8	160675-031	8	1
NP1-0.5	160675-033	5	1
NP1-3	160675-034	13	1
NP1-6	160675-035	16	1
NP1-8	160675-036	17	1

Priority Pollutant Metals

Lab #:	160675	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Basis:	as received
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC190109	Batch#:	75321
Matrix:	Soil	Prepared:	09/18/02
Units:	mg/Kg	Analyzed:	09/18/02

Result	RL
0.030	0.020



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A N A L Y T I C A L R E P O R T

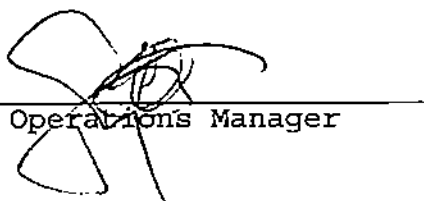
Prepared for:

URS Corporation
500 12th Street
Suite 200
Oakland, CA 94607

Date: 15-OCT-02
Lab Job Number: 161034
Project ID: 510996706700
Location: UCB-Richmond Field Sta.

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis.

Reviewed by: 
Project Manager

Reviewed by: 
Operations Manager

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NELAP # 01107CA

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QA/QC completed and goals assigned 10/17/02 nmc



pH

Lab #:	161034	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Analysis:	EPA 9045C
Project#:	510996706700		
Analyte:	pH	Batch#:	75781
Matrix:	Soil	Sampled:	09/10/02
Units:	SU	Received:	09/11/02
Diln Fac:	1.000	Analyzed:	10/03/02

Field ID	Lab ID	Result	RL
MF2-8-8	161034-001	7.2	1.0
MF2-8-9.5	161034-002	6.3	1.0

pH			
Lab #:	161034	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Analysis:	EPA 9045C
Project#:	510996706700		
Analyte:	pH	Units:	SU
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	SDUP	Batch#:	75781
MSS Lab ID:	161010-023	Sampled:	09/30/02
Lab ID:	QC191876	Received:	09/30/02
Matrix:	Soil	Analyzed:	10/03/02

MSS Result	Result	RL	RPD	Lim
7.670	7.750	1.0	1	20

Priority Pollutant Metals

Lab #:	161034	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-6-8	Basis:	dry
Lab ID:	161034-001	Sampled:	09/10/02
Matrix:	Soil	Received:	09/11/02
Units:	mg/Kg		

Moisture: 18%

Analyte	Result	RL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	3.2	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Arsenic	5.6	0.27	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Beryllium	0.45	0.11	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Cadmium	5.6	0.27	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Chromium	54	0.53	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Copper	32	0.53	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Lead	17	0.16	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Mercury	810	24	1.000		75788	10/07/02	10/08/02	METHOD	EPA 7471
Nickel	65	1.1	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Selenium	0.57	0.27	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Silver	ND	0.27	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Thallium	ND	0.27	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Zinc	56	1.1	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B

Priority Pollutant Metals			
Lab #:	161034	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	MF2-8-9.5	Basis:	dry
Lab ID:	161034-002	Sampled:	09/10/02
Matrix:	Soil	Received:	09/11/02
Units:	mg/Kg		

Moisture: 18%

Analyte	Result	RL	Diln	Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND	2.9	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Arsenic	2.6	0.24	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Beryllium	0.36	0.095	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Cadmium	4.4	0.24	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Chromium	43	0.48	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Copper	37	0.48	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Lead	12	0.14	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Mercury	360	110	5,000		75788	10/07/02	10/08/02	METHOD	EPA 7471
Nickel	55	0.95	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Selenium	0.54	0.24	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Silver	ND	0.24	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Thallium	ND	0.24	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B
Zinc	41	0.95	1.000		75785	10/05/02	10/07/02	EPA 3050	EPA 6010B



Priority Pollutant Metals

Lab #:	161034	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3050
Project#:	510996706700	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC191888	Batch#:	75785
Matrix:	Soil	Prepared:	10/05/02
Units:	mg/Kg	Analyzed:	10/07/02
Basis:	as received		

Analyte	Result	RL
Antimony	ND	3.0
Arsenic	ND	0.25
Beryllium	ND	0.10
Cadmium	ND	0.25
Chromium	ND	0.50
Copper	ND	0.50
Lead	ND	0.15
Nickel	ND	1.0
Selenium	ND	0.25
Silver	ND	0.25
Thallium	ND	0.25
Zinc	ND	1.0

Priority Pollutant Metals			
Lab #:	161034	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Basis:	as received
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC191905	Batch#:	75788
Matrix:	Soil	Prepared:	10/07/02
Units:	mg/Kg	Analyzed:	10/07/02
Result:			
ND		RL	0.020

Priority Pollutant Metals

Lab #:	161034	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3050
Project#:	510996706700	Analysis:	EPA 6010B
Matrix:	Soil	Batch#:	75785
Units:	mg/Kg	Prepared:	10/05/02
Basis:	as received	Analyzed:	10/07/02
Diln Fac:	1.000		

Type: BS Lab ID: QC191889

Analyte	Spiked	Result	%REC	Limits
Antimony	100.0	104.5	105	70-120
Arsenic	50.00	45.10	90	72-120
Beryllium	2.500	2.365	95	73-120
Cadmium	10.00	8.600	86	69-120
Chromium	100.0	93.00	93	72-120
Copper	12.50	11.70	94	72-120
Lead	100.0	95.50	96	70-120
Nickel	25.00	22.50	90	72-120
Selenium	50.00	45.75	92	66-120
Silver	10.00	9.150	92	69-120
Thallium	50.00	43.35	87	68-120
Zinc	25.00	21.60	86	65-120

Type: BSD Lab ID: QC191890

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	100.0	100	70-120	4	20
Arsenic	50.00	43.55	87	72-120	3	20
Beryllium	2.500	2.255	90	73-120	5	20
Cadmium	10.00	8.250	83	69-120	4	20
Chromium	100.0	88.50	89	72-120	5	20
Copper	12.50	11.15	89	72-120	5	20
Lead	100.0	91.00	91	70-120	5	20
Nickel	25.00	21.50	86	72-120	5	20
Selenium	50.00	43.75	88	66-120	4	20
Silver	10.00	8.750	88	69-120	4	20
Thallium	50.00	41.50	83	68-120	4	20
Zinc	25.00	20.60	82	65-120	5	20

Priority Pollutant Metals

Lab #:	161034	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Diln Fac:	1.000
Matrix:	Soil	Batch#:	75788
Units:	mg/Kg	Prepared:	10/07/02
Basis:	as received	Analyzed:	10/07/02

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC191906	0.5000	0.5040	101	80-114		
BSD	QC191907	0.5000	0.5230	105	80-114	4	20

Priority Pollutant Metals			
Lab #:	161034	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Basis:	dry
Field ID:	ZZZZZZZZZZ	Diln Fac:	10.00
Type:	SDUP	Batch#:	75788
MSS Lab ID:	161024-001	Sampled:	10/01/02
Lab ID:	QC191908	Received:	10/01/02
Matrix:	Soil	Prepared:	10/07/02
Units:	mg/Kg	Analyzed:	10/08/02

MSS Result	Result	RL	Moisture	RPD	Lim
1.363	1.483	0.57	68%	8	35

Priority Pollutant Metals

Lab #:	161034	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Basis:	dry
Field ID:	ZZZZZZZZZZ	Diln Fac:	10.00
Type:	SSPIKE	Batch#:	75788
MSS Lab ID:	161024-001	Sampled:	10/01/02
Lab ID:	QC191909	Received:	10/01/02
Matrix:	Soil	Prepared:	10/07/02
Units:	mg/Kg	Analyzed:	10/08/02

MSS Result	Spiked	Result	%REC	Limits	Moisture
1.363	1.532	2.619	82	62-135	68%



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A N A L Y T I C A L R E P O R T

Prepared for:

URS Corporation
500 12th Street
Suite 200
Oakland, CA 94607

Date: 18-OCT-02
Lab Job Number: 161274
Project ID: 510996706700
Location: UCB-Richmond Field Sta.

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis.

Reviewed by:


Project Manager

Reviewed by:


Operations Manager

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500 12th Street, Suite 200
Oakland, CA 94607-4014
(510) 893-3500

Chain of Custody Record

PROJECT NO. <i>510496706700</i>			ANALYSES										REMARKS (Sample preservation, handling procedures, etc.)		
SAMPLERS: (Signature) <i>[Signature]</i>			Sample Media (Soil, Water, Air)	EPA Method	EPA Method	EPA Method	EPA Method	PP Metals	Oil	Mercury	PCBS	Mercury		Moisture	Number of Containers
DATE	TIME	SAMPLE NUMBER													
<i>7/19/02</i>		<i>HD2-1-0</i>						X	X	X	X				<i>hold</i> CT# 160657-031 CT# 160657-03
		<i>HD2-1-2</i>						X	X	X	X				
		<i>HD2-1-4</i>						X	X	X	X				
		<i>HD2-1-7.5</i>						X	X	X	X				
		<i>HD2-2-0</i>						X	X	X	X				<i>hold</i> Normal TAT
		<i>HD2-2-2</i>						X	X	X	X				
		<i>HD2-2-4</i>						X	X	X	X				
		<i>HD2-2-7.5</i>						X	X	X	X				<i>hold</i>
		<i>HD2-3-0</i>						X	X	X	X				
		<i>HD2-3-1.5</i>						X	X	X	X				
		<i>HD2-3-4</i>						X	X	X	X				<i>hold</i>
		<i>HD2-3-7.5</i>						X	X	X	X				
		<i>SM2-1-0</i>						X	X	X	X				
		<i>SM2-1-2</i>						X	X	X	X				<i>hold</i> Results to Bill Caplan (408) 474-3192
		<i>SM2-1-4</i>						X	X	X	X				
		<i>SM2-1-7.5</i>						X	X	X	X				
		<i>SM2-2-0</i>						X	X	X	X				<i>hold</i>
		<i>SM2-2-2</i>						X	X	X	X				
		<i>SM2-2-4</i>						X	X	X	X				
		<i>SM2-2-7.5</i>						X	X	X	X				<i>hold</i>
		<i>SM2-3-0</i>						X	X	X	X				
		<i>SM2-3-2</i>						X	X	X	X				
		<i>SM2-3-4</i>						X	X	X	X				<i>hold</i>
		<i>SM2-3-7.5</i>						X	X	X	X				
		<i>SM2-4-0</i>						X	X	X	X				
		<i>SM2-4-2</i>						X	X	X	X				<i>hold</i>
		<i>SM2-4-4</i>						X	X	X	X				
		<i>SM2-4-7.5</i>						X	X	X	X				
												TOTAL NUMBER OF CONTAINERS			
RELINQUISHED BY: (Signature) <i>[Signature]</i>			DATE/TIME <i>7/19/02</i>	RECEIVED BY: (Signature) <i>[Signature]</i>			RELINQUISHED BY: (Signature)			DATE/TIME	RECEIVED BY: (Signature)				
METHOD OF SHIPMENT:				SHIPPED BY: (Signature) <i>[Signature]</i>			COURIER: (Signature)			RECEIVED FOR LAB BY (Signature)		DATE/TIME			

Mercury by Cold Vapor AA			
Lab #:	161274	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	10/17/02
Batch#:	76114	Analyzed:	10/17/02

Field ID	Type	Lab ID	Result	RL	Basis	Moisture	Diln Fac
HD2-1-4	SAMPLE	161274-001	3.8	0.21	dry	9%	10.00
HD2-1-7.5	SAMPLE	161274-002	0.074	0.023	dry	12%	1.000
	BLANK	QC193137	ND	0.020	as received		1.000

Mercury by Cold Vapor AA

Lab #:	161274	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	76114
MSS Lab ID:	161147-001	Sampled:	10/08/02
Matrix:	Soil	Received:	10/08/02
Units:	mg/Kg	Prepared:	10/17/02
Basis:	as received	Analyzed:	10/17/02

Type	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim
BS	QC193138		0.5000	0.5320		106	80-114		
BSD	QC193139		0.5000	0.5310		106	80-114	0	35
SDUP	QC193140	0.03490		0.03069	0.020			13	35
SSPIKE	QC193141	0.03490	0.4545	0.5045		103	62-135		



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A N A L Y T I C A L R E P O R T


Prepared for:

URS Corporation
500 12th Street
Suite 200
Oakland, CA 94607

Date: 29-OCT-02
Lab Job Number: 161326
Project ID: 510996706700
Location: UCB-Richmond Field Sta.

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis.

Reviewed by:


Project Manager

Reviewed by:


Operations Manager

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Laboratory Numbers: 161326

Sampled Date: 09/09/02

Client: URS Corporation

Received Date: 09/09/02

Project #: 510996706700

Request Date: 10/17/02

Location: UCB-Richmond Field Station

CASE NARRATIVE

This hardcopy data package contains sample and QC results for two soil samples, which were received from the site referenced above on September 09, 2002. The samples were received cold and intact. On October 10, 2002 Bill Copeland requested additional analysis.

PCBs (EPA 8082):

The sample was extracted after the EPA recommended hold time per the client's request and therefore the data is flagged with a "b". No other analytical problems were encountered.

Metals (EPA 7471):

No analytical problems were encountered.

General Chemistry:

No analytical problems were encountered.



Moisture

Lab #:	161326	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Analysis:	ASTM D2216/CLP
Project#:	510996706700		
Analyte:	Moisture, Percent	Diln Fac:	1.000
Field ID:	HD2-2-4	Batch#:	76241
Lab ID:	161326-002	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	%	Analyzed:	10/22/02

Result	RL
13	1



Polychlorinated Biphenyls (PCBs)

Lab #:	161326	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3550
Project#:	510996706700	Analysis:	EPA 8082
Field ID:	HD2-1-4	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	ug/Kg	Prepared:	10/17/02
Batch#:	76145	Analyzed:	10/21/02

Type:	SAMPLE	Moisture:	9%
Lab ID:	161326-001	Diln Fac:	10.00
Basis:	dry	Cleanup Method:	EPA 3665A

Analyte	Result	RL
Aroclor-1016	ND b	130
Aroclor-1221	ND b	260
Aroclor-1232	ND b	130
Aroclor-1242	ND b	130
Aroclor-1248	4,600 b	130
Aroclor-1254	ND b	130
Aroclor-1260	ND b	130

Surrogate	%REC	Limits
TCMX	DO b	55-150
Decachlorobiphenyl	DO b	37-150

Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC193226	Cleanup Method:	EPA 3665A
Basis:	as received		

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	ND	12

Surrogate	%REC	Limits
TCMX	110	55-150
Decachlorobiphenyl	117	37-150

b= See narrative
DO= Diluted Out
ND= Not Detected
RL= Reporting Limit
Page 1 of 1



Polychlorinated Biphenyls (PCBs)

Lab #:	161326	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3550
Project#:	510996706700	Analysis:	EPA 8082
Matrix:	Soil	Batch#:	76145
Units:	ug/Kg	Prepared:	10/17/02
Basis:	as received	Analyzed:	10/19/02
Diln Fac:	1.000		

Type: BS
Lab ID: QC193227

Cleanup Method: EPA 3665A

Analyte	Spiked	Result	%REC	Limits
Aroclor-1254	166.8	154.9	93	58-124

Surrogate	%REC	Limits
TCMX	112	55-150
Decachlorobiphenyl	130	37-150

Type: BSD
Lab ID: QC193228

Cleanup Method: EPA 3665A

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1254	166.3	167.8	101	58-124	8	20

Surrogate	%REC	Limits
TCMX	115	55-150
Decachlorobiphenyl	140	37-150

Mercury by Cold Vapor AA			
Lab #:	161326	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Batch#:	76201
Field ID:	HD2-2-4	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	10/21/02
Diln Fac:	1.000	Analyzed:	10/21/02

Type	Lab ID	Result	RL	Basis	Moisture
SAMPLE	161326-002	ND	0.022	dry	13%
BLANK	QC193457	ND	0.020	as received	

Mercury by Cold Vapor AA

Lab #:	161326	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	76201
MSS Lab ID:	161299-001	Sampled:	10/14/02
Matrix:	Soil	Received:	10/16/02
Units:	mg/Kg	Prepared:	10/21/02
Basis:	as received	Analyzed:	10/21/02

Type	Lab ID	MSS Result	Spiked	Result	RL	%REC	Limits	RPD	Lim
BS	QC193458		0.5000	0.5330		107	80-114		
BSD	QC193459		0.5000	0.5450		109	80-114	2	35
SDUP	QC193460	<0.02000		0.02465	0.018				NC 35
SSPIKE	QC193461	0.01960	0.4310	0.4664		104	62-135		

NC= Not Calculated

RL= Reporting Limit

RPD= Relative Percent Difference

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FACSIMILE TRANSMISSION
 FACSIMILE TRANSMISSION
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10/25/02

TO: Bill Copeland
 URS Corporation
 Oakland, CA
 William_copeland@urscorp.com

DATE: 10/24/02

PAGE 1 of

FAX #: (510) 874-3268

FROM: Tracy Babjar ~~by S. Stanley~~

SUBJECT: Analytical Results for Login 161373

*** If you would like to receive your reports via email (PDF format), please contact your project manager for details.

Revised results

Sorry for the error

Tracy



Mercury by Cold Vapor AA			
Lab #:	161373	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Sampled:	09/09/02
Matrix:	Soil	Received:	09/09/02
Units:	mg/Kg	Prepared:	10/24/02
Batch#:	76300	Analyzed:	10/24/02

Field ID	Type	Lab ID	Result	RL	Moisture	Diln. Fac.
HD2-3-6	SAMPLE	161373-001	23	1.0	dry	50.00
HD2-3-7.5	SAMPLE	161373-002	0.058	0.023	dry	1.000
	BLANK	QC193783	ND	0.020	as received	1.000



Mercury by Cold Vapor AA

Lab #:	161373	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	76300
MSS Lab ID:	161249-001	Sampled:	10/14/02
Matrix:	Soil	Received:	10/14/02
Units:	mg/Kg	Prepared:	10/24/02
Basis:	as received	Analyzed:	10/24/02

Type	Lab ID	MSS Result	Spiked	Result	RL	REC	Limits	RPD	Lim
BS	QC193784		0.5000	0.5390		108	80-114		
BSD	QC193785		0.5000	0.5300		106	80-114	2	35
SDUP	QC193786	0.04684		0.05231	0.019			11	35
SSPIKE	QC193787	0.04684	0.4902	0.5853		110	62-135		

RL= Reporting Limit
 RPD= Relative Percent Difference
 Page 1 of 1