FINAL REPORT

WORKPLAN FOR ADDITIONAL SOIL AND GROUNDWATER INVESTIGATION

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

(TASKS 4A, RWQCB ORDER NO. 01-102)

Prepared for
University of California Berkeley
Environment, Health, and Safety
317 University Hall, #1150
Berkeley, California 94720

February 28, 2002

URS

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500 12th Street, Suite 200
Oakland, California 94607

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Cecilio S. Felix
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Subject: **Workplan for 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 4a, URS Corporation is pleased to submit the enclosed document titled *Workplan for Additional Soil and Groundwater Investigation, Upland Portion of Subunit 2B, Richmond Field Station, Richmond, California* on the behalf of the University of California, Berkeley.

We appreciate the additional time granted us for completion of the report. If you have any questions or need further information, please call me at (510) 874-3284.

Sincerely,

URS CORPORATION

for

Diane K. Mims
Project Manager

James Durkin, R.G.
Project Geologist

REGISTERED GEOLOGIST
JAMES F. DURKIN
No. 6511
STATE OF CALIFORNIA

Enclosure

Cc: Mark Freiberg, Environment, Health, & Safety, University of California, Berkeley
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The California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) has identified the University of California, Berkeley (UC Berkeley) Richmond Field Station (RFS) and the neighboring Zeneca, Inc. property as the Meade Street Operable Unit for purposes of required remedial activities. The Zeneca property is designated as Subunit 1 and the RFS property is designated as Subunit 2. The RWQCB issued Site Cleanup Requirements (SCR) that identified a number of tasks to be completed for each subunit. UC Berkeley submits this technical report, prepared by URS Corporation (URS), UC Berkeley's environmental consultant, in compliance with Task 4a of Order No. 01-102.

The SCR Task 4a states:

"The discharger shall submit a technical report, acceptable to the Executive Officer, which proposes additional soil and groundwater sampling necessary to completely define the extent of pollution in the upland portion of Subunit 2B associated with on-site activities. The report should also propose installation of groundwater wells necessary to monitor the extent of groundwater contamination and evaluate the effectiveness of site cleanup in the upland portion of Subunit 2B. The workplan shall specify at a minimum, well location, well construction, sampling methods, and quality assurance controls."

UC Berkeley's Richmond Field Station, designated as Subunit 2, is located at 1301 S. 46th Street in Richmond, California (the "Site") as shown on Figure 1. Subunit 2 was divided by the RWQCB into two subunits. Subunit 2A is the area for which UC Berkeley and Zeneca are named as joint responsible parties. This area consists of southeastern portion of the upland RFS property and the eastern portion of Western Stege Marsh. A conceptual remedial action plan, titled "Conceptual Remediation and Risk Management Plan for the Upland Portion of Subunit 2A, Meade Street Operable Unit, University of California, Berkeley, Richmond Field Station, Richmond, California", was submitted to the RWQCB on December 17, 2001.

Subunit 2B is the area for which UC Berkeley is named as the sole responsible party. This area consists of the northern portion of the upland RFS property, the subject of this report, and the western portion of the Western Stege Marsh. The marsh portion of Subunit 2B is covered under a separate submittal. The location of Subunits 2A and 2B and their respective boundaries are shown on Figure 2. A map showing the layout and features within the upland portion of Subunit 2B is shown on Figure 3.

On-site activities, as discussed below, have resulted in elevated concentrations of specific metals in certain areas of the upland portion of Subunit 2B. These areas, defined by levels of unacceptable risk to human health or the environment, are identified as Areas of Concern (AOCs) 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. The presence of chemicals of concern (COCs) in the AOCs is addressed and a sampling plan to define the extent of the COCs in certain AOCs is included in this report.

Because of the scope of remediation work in the upland portion of Subunit 2A planned for the summer of 2002, additional investigations within the Subunit 2B upland AOCs have been prioritized. The high-priority areas are those with 1) COC exceedances of greater than five times the screening criteria, either the H-SSTL or E-SSTL, whichever is lower, as shown on Table 1; 2) potential for migration; and 3) large aerial extent. Investigations to delineate the highest priority areas are proposed in this report. Other areas, that are considered low priority due to concentrations of COCs slightly above their site specific target levels (SSTLs), low percentage of detections, and/or low potential for migration are proposed for further investigation during 2003.

Nine areas (eight AOCs and the Property Boundary Area) have been identified during previous investigations that require additional action. Two AOCs have been identified in Subunit 2A and seven in Subunit 2B. The two AOCs in Subunit 2A are discussed in UC Berkeley's report titled "Results of Additional Soil and Groundwater Investigations and Groundwater Monitoring Plan, Upland Portion of Subunit 2A" dated November 21, 2001 and are not discussed further in this report. Of the Subunit 2B AOCs, four areas are considered as high priority areas, AOC 3, AOC 4, AOC 6, and AOC 7 and three areas are considered as low priority areas, AOC 1, AOC 2, and the Property Boundary Area. The low priority areas will be addressed in 2003. The AOCs in Subunit 2B are discussed further in Section 3 below.

The identification of the AOCs and the sampling plan presented here are based on historical information and analytical data from the following reports and recent investigations:

- UC Berkeley's report titled "Field Sampling and Analysis Plan and Tiered Risk Evaluation", dated December 10, 1999;
- UC Berkeley's report titled "Field Sampling and Analysis Results, University of California, Berkeley, Richmond Field Station/Stege Marsh, Richmond, California", dated December 2000 (FSAP December 2000 Report);
- UC Berkeley's report titled "Results of Additional Soil and Groundwater Investigations and Groundwater Monitoring Plan, Upland Portion of Subunit 2A" dated November 21, 2001; and
- An additional investigation performed during spring, 2001 in the Mercury Fulminate Area. This investigation involved the installation of seven Geoprobe borings in Subunit 2B and 6 borings in Subunit 2A. The results of this investigation are presented in this report.

1.1 SUMMARY OF REPORT ORGANIZATION

This submittal, consisting of the report required under SCR Tasks 4a of Order No. 01-102, is organized as follows:

- Section 2 briefly summarizes the history of the RFS site;
- Section 3 discusses the findings of previous investigations and the risk assessment in each of the AOCs as well as recommendations regarding additional sampling to define selected AOCs;
- Section 4 discusses the current information regarding groundwater contamination and recommendations regarding the installation of groundwater wells necessary to monitor the extent of groundwater contamination and evaluate the effectiveness of site cleanup;
- Section 5 presents recommendations based on the findings discussed in this report; and
- Section 6 discusses data quality objectives for soil and groundwater samples in the proposed additional investigations and monitoring program.

Comprehensive discussions of the site history and previous investigations are presented in UC Berkeley's FSAP December 2000 Report. The following discussion briefly summarizes historical findings. In 1877, the California Cap Company purchased the property for the manufacturing of blasting caps. Manufacturing of the explosives in the caps included the production of mercury fulminate, Hg $(CNO)_2$, a whitish-gray solid material derived by treating mercury with nitric acid and alcohol. The former mercury fulminate facility was located in the southeastern portion of the upland property. Other former facilities associated with the Cap Company included the shell manufacturing area, the blasting cap manufacturing area, an explosives test pit area, and an explosives storage area. The locations of these areas are shown on Figure 3.

During the early period of the Site's history, a wooden sea wall formed a wave barrier between open bay waters and the developed upland area. The approximate location of the sea wall is shown on Figure 3. The former location of the seawall forms the southern boundary of the upland portion of Subunit 2B.

Prior to the closure of the Cap Company, cinder material may have been used as sub-base material for some roads on the Site and possibly as a herbicide to control weeds *(from interviews with RFS personnel)*. Although the exact placement of the cinder fill is not known, identified locations are in the former shell manufacturing and immediately west of RFS Building 179/177.

In October 1950, UC Berkeley purchased the Cap Company property with the agreement that the Cap Company would remove all hazardous materials from the property. The Cap Company reportedly complied with the purchase agreement, though subsequent site testing and on-site observations revealed that potential hazardous materials were not adequately removed *(pc, Larry Bell, RFS personnel)*. For example, several explosions of unknown magnitudes occurred between 1950 and 1953 when UC Berkeley attempted to clear vegetation at the RFS by using a controlled burn (Jones & Stokes Associates, Inc., 1990). The explosions were thought to be associated with residual chemicals used by the California Cap Company.

In 1951, the University acquired the adjacent undeveloped property to the west. During the 1950s, a number of new buildings were constructed in the northeastern portion of the RFS to accommodate research programs sponsored by UC Berkeley's College of Engineering. Some of the new buildings included administration buildings and the Forest Products Laboratory (circa 1955). The first studies conducted at the Forest Products Laboratory involved the treatment of wood with pentachlorophenol in liquefied petroleum and gas, mixed with a small percentage of isopropyl ether cosolvent (approximately 4%). After approximately five to six years, the facility converted to a waterborne preservative formulation process, including the use of chromated copper arsenate and ammoniacal copper arsenate for a short period (Jonas & Associates, 1990).

Currently, the UC Berkeley College of Engineering Research units and the Forest Products Laboratory conduct research at the Site. In addition to UC Berkeley's research facilities on-Site, the United States Environmental Protection Agency (USEPA) began operating its Region IX Laboratory on the southwestern portion of the RFS property in 1993. The RFS has had, and continues to have, a number of tenants leasing workspace over the years.

This section discusses each of the AOCs identified in the upland portion of Subunit 2B and proposes additional sampling to define the extent of COCs in high priority areas. The AOCs are defined in the risk assessment and are based on analytical results H-SSTLs or E-SSTLs. The SSTLs and analytical results for soil samples are summarized in Tables 2, 3, and 4. The analytical results are a compendium of investigations performed primarily by Jonas and Associates in 1991 and URS in 2000 and 2001. Due to the significant amount of work being performed in Subunit 2A, and limited funding, UC Berkeley has prioritized the AOCs in Subunit 2B. The high-priority AOCs will be addressed first, while the low-priority AOCs will be addressed after the completion of the remedial activities in Subunit 2A scheduled for the summer of 2002. The high-priority areas are those with 1) COC exceedances of greater than five times the screening criteria, either the H-SSTL or E-SSTL, whichever is lower, as shown on Table 1; 2) potential for migration; and 3) large aerial extent. The lower priority AOCs will be addressed in an addendum to this report in 2003.

As shown in Table 4, it should be noted that one location had PCBs exceeding the Industrial USEPA Preliminary Remediation Goal (PRG) for PCBs. The sample was sediment from a manhole, MH-11 shown on Figure 3 in the northwest corner, in the northern section of the western storm drain. The storm drainpipe should be flushed to remove sediment in the pipe. Because this pipe flows into the marsh, this work will be performed as part of the marsh remediation and is discussed in the report regarding the marsh portion of Subunit 2B, to be submitted to the RWQCB with this report.

3.1 AOC 1: EXPLOSIVES MANUFACTURING AREA

AOC1 is located in the former Explosives Manufacturing Area in the north central portion of the Site (Figure 3). In a grassy area, near-surface soil at three sampling locations was found to contain elevated levels of copper (up to 736 mg/kg) in excess of the Tier 2 E-SSTL for the red-tail hawk (412 mg/kg).

AOC 1 is considered a low-priority area because the concentrations are relatively low (< 2 x SSTL) as shown in Tables 1 and 2, the soil samples are not surface soil (depth reported to be 0.5 feet to 1.5 feet), and only three of the 12 samples exceed the SSTL for copper. Additional sampling to delineate this area will be proposed in 2003.

3.2 AOC 2: TEST PIT AREA

AOC 2 is located in the Test Pit Area in the north central area of the Site (Figure 3). Surface soils were found to contain elevated levels of copper (up to 1,144 mg/kg) in excess of the Tier 2 E-SSTL for the red-tail hawk (412 mg/kg). Elevated copper occurs in surface and near surface soils in a grassy area in the north central portion of Subunit 2B.

AOC 2 is considered a low-priority area because the COC concentrations are relatively low (<3 x SSTLs) as shown in Tables 1 and 2 and the aerial extent is small (approximately 120 feet square).

3.3 AOC 3: FOREST PRODUCTS AREA

AOC 3 is located in the vicinity of the Forest Products Area in the northeastern portion of the Site (Figure 3). 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.

AOC 3 is considered a high priority are because of arsenic at the ground surface is located in a drainage swale where it may potentially impact stormwater runoff. The arsenic, which exceeds the H-SSTL by 2.4 times, was detected in a surface soil sample from location FP-104 where surface water from an asphalt area drains to a grassy area. The analytical result for the 4-foot bgs sample at this location was below the H-SSTL.

Four locations will be sampled as shown on Figure 3 to delineate the extent of arsenic within the drainage swale. At these locations, samples will be collected from the ground surface and at depths of 2 feet, 4 feet, and 8 feet bgs for analysis. The sample from 4 feet and 8 feet bgs will be held pending the results of the more shallow samples. The samples will be analyzed for arsenic.

3.4 AOC 4: SHELL MANUFACTURING AREA

AOC 4 is located in the former Shell Manufacturing Area in the central area of the Site (Figure 3). Surface soils 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 the environment. The SSTLs for arsenic, copper, lead, and mercury are 27.3 mg/kg, 412 mg/kg, 437 mg/kg, and 42 mg/kg, respectively. The pyrite cinders in surface soil in this area appear to be the source of the arsenic, copper, and lead.

AOC 4 is considered a high priority area because of the potential for impacts to storm water runoff. To further define the extent of AOC 4, we will collection soil samples from eight locations as shown on Figure 3. The locations may be adjusted based upon field observations. A sample will be collected from the ground surface and a depth of 2 feet, 4 feet, and 8 feet bgs for analysis. The sample from 4 feet and 8 feet bgs will be held pending the results of the more shallow samples. The samples will be analyzed for Priority Pollutant metals and pH.

3.5 AOC 6: WEST HERON DRIVE AREA

AOC 6 is located along West Heron Drive adjacent to the former seawall in the south central area of the Site (Figure 3). 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).

AOC 6 is being addressed at this time because the southern portion is within Subunit 2A that will be addressed as part of remedial activities for Subunit 2A. In order to define the extent of mercury in the northern portion of AOC 6, soil samples will be collected at three locations shown on Figure 3. As in the Mercury Fulminate Area discussed below, samples will be collected from the ground surface and at depths of 2 feet, 4 feet, and 8 feet bgs for analysis. The samples from 4 feet and 8 feet bgs will be held pending the results of the more shallow samples. The samples will be analyzed for Priority Pollutant metals and pH.

3.6 AOC 7: MERCURY FULMINATE AREA

AOC 7 is located in the former Mercury Fulminate Area in the south central area of the Site (Figures 3 and 4). The portion of the area south of the former seawall (see Figure 4) is within Subunit 2A. The remediation of this portion of AOC 7, performed by UC Berkeley and Zeneca, Inc., will occur during the remediation of Subunit 2A during summer 2002. UC Berkeley will remediate the portion of AOC 7 north of the seawall in 2003.

AOC 7 is considered a high priority area because mercury has been detected at concentrations greater than five times the SSTL. URS has performed substantial sampling within this area 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 as shown on Figure 4.

Samples collected from the first set of URS borings in year 2000 were analyzed for the full suite of Priority Pollutant Metals. Mercury was the only metal exceeding the SSTLs. Therefore, only mercury was analyzed for in the subsequent round of sampling in 2001.

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 84mg/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 4 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.

To further define the extent of AOC 7, soil samples will be collected from six locations as shown on Figures 3 and 4. Samples will be collected from the ground surface and at depths of 2 feet, 4 feet, and 8 feet bgs for analysis. The samples from 4 feet and 8 feet bgs will be held pending the results of the more shallow samples. At location MF101, a sample will be collected at a depth of 7 feet and 9 feet bgs. Except at location MF-101, deeper samples will not be collected at this time for two reasons: 1) every location north of the seawall with a mercury exceedance has had an exceedance at the ground surface, and 2) previous URS analytical results have not exceeded the H-SSTL for the construction worker below 3 feet, except as noted above. If mercury exceedances are reported in near-surface soil, additional samples will be collected for analysis to delineate the vertical extent in the relevant locations. Because of the occurrence of H-SSTL exceedances for arsenic, cadmium, lead, and mercury in near-surface historical samples, the 12

samples will be analyzed for Priority Pollutant metals including mercury. In addition, two of the samples will be analyzed by the Waste Extraction Test (WET) and TCLP to evaluate the leachability of mercury. The samples for leachability tests will be selected based on location and concentration. These samples will be used to evaluate whether the mercury in soil poses an ongoing threat to groundwater.

3.7 PROPERTY BOUNDARY AREA

At the time of additional investigations in Subunit 2A, reported to RWQCB in a UC Berkeley report titled "Results of Additional Soil and Groundwater Investigations and Groundwater Monitoring Plan, Upland Portion of Subunit 2A, Richmond Field Station", dated November 21, 2001, URS also performed addition investigations near the eastern property boundary of the RFS.

Between September 21 and September 24, 2001, URS installed six borings at locations shown on Figure 3. Soil samples were collected in each boring at approximately the groundwater surface. There were no results exceeding the SSTLs for metals (see Table 1) or volatile organic compounds (VOCs) analyzed by EPA Method 8260 (see Table 3). This area is considered a low priority area and no additional soil sampling is recommended in this area.

This section discusses current information regarding COCs in groundwater within the upland portion of Subunit 2A and recommends locations and analytical parameters to monitor the extent of groundwater COCs and evaluate the effectiveness of site remediation. Tables 5, 6, and 7 summarize analytical data for groundwater samples collected prior to, and since, UC Berkeley's December 2000 report. The samples were analyzed for priority pollutant metals by EPA Method 6010. Selected samples were analyzed for PCBs by EPA Method 8082 and, near the RFS/Zeneca property boundary, for VOCs by EPA Method 6240. The analytical results were screened against ten times the AWQC. The precedent for this screening criterion is RWQCB Order No. 98-072 (RWQCB, 1998).

4.1 AOC 1: EXPLOSIVE STORAGE AREA

Two grab groundwater samples were collected by URS in this area and analyzed for priority pollutant metals in spring 2000. Concentrations of the metals were below their respective reporting limits. Groundwater monitoring is not recommended in this area.

4.2 AOC 2: TEST PIT AREA

Two grab groundwater samples were collected by URS in this area and analyzed for priority pollutant metals in 2000. Concentrations of the metals were below their respective reporting limits except for nickel and mercury in one sample, which were well below the screening criteria as shown in Table 5. Groundwater monitoring is not recommended in this area.

4.3 AOC 3: FOREST PRODUCTS AREA

Six grab groundwater samples were collected by URS in this area and analyzed for priority pollutant metals in 2000. In one sample, nickel, at 120 ug/L, exceeded the screening criterion of 82 ug/L at one location, FP-105. No other exceedances were reported. Because only one sample contained nickel above the screening level and its location is several thousand feet from the Bay, groundwater monitoring is not recommended in this area.

4.4 AOC 4: SHELL MANUFACTURING AREA

Three grab groundwater samples were collected by URS in this area and analyzed for priority pollutant metals in 2000. Although there were detections of copper, nickel, and zinc, the results were well below the screening criteria as shown in Table 5. Therefore, groundwater monitoring is not recommended in this area

4.5 AOC 6: WEST HERON DRIVE AREA

No groundwater samples have been collected in this area. However, this area is adjacent to the northern boundary of Subunit 2A where groundwater monitoring has been proposed. Therefore, groundwater monitoring is not recommended at this time. If the down gradient monitoring in Subunit 2A shows elevated metals, additional sampling may be proposed at a later date.

4.6 AOC 7: MERCURY FULMINATE AREA

Out of 20 grab groundwater samples collected for, and since, the December 2000 report, six samples contained mercury with an average concentration of 0.8 ug/L and a maximum concentration of 5.9 ug/L, exceeding the screening criterion of 0.5 ug/L. We recommend groundwater monitoring in this area. Three groundwater monitoring wells will be installed down gradient of the Mercury Fulminate Area at the locations shown on Figure 3. The well locations may be adjusted based upon the results of the soil sampling and information collected during remedial activities in Subunit 2A.

4.7 PROPERTY BOUNDARY AREA

Five grab groundwater samples were collected during the first round of sampling along the eastern property boundary as reported in the December 2000 report. The sampling locations are within the former 46th Street right-of-way of which UC Berkeley owns 1/3 "undivided interest". The results show that significant concentrations of copper (4,100 ug/L), nickel (470 ug/L), and zinc (11,000 ug/L) occur in groundwater at locations PB-101 and PB-102. Because elevated concentrations of these metals occur on the Zeneca property and because these locations are downgradient from the Zeneca property, the source is most likely due to the presence of cinders along 46th Street or from Subunit 1.

During a second phase of groundwater sampling following the December 2000 report, grab groundwater samples were also collected from each boring except PB6. The analytical results are shown in Tables 5 and 6. Groundwater from two locations, PB10 and PB11, exceeded the screening criterion for nickel, up to 180 ug/L. Ten times the AWQC for nickel is 82 ug/L. One location, PB11, exceeded the screening criterion for copper at 34 ug/L. The screening criterion for copper is 31 ug/L. Of the EPA Method 8260 VOCs, no analyte exceeded its screening value. Locations PB10 and PB11 are north of, and adjacent to, Subunit 2A.

In "Summary Remedial Investigation and Localized Remediation Report for the Upland Portion of the Zeneca Inc. Richmond Facility", dated November 30, 2001, monitoring well, H-57, adjacent to the property line on the Zeneca property was reported with elevated concentrations of copper (12,000 ug/L, screening criteria = 29 ug/L), zinc (12,000 ug/L, screening criteria = 580 ug/L), and nickel (200 ug/L, screening criteria = 71 ug/L). The approximate location is shown on the east central portion of Figure 3 .

Nickel in groundwater at locations PB10 and PB11 and the copper in groundwater at location PB11 may indicate the migration of a metals plume from Subunit 1 (as evidenced by high concentrations of metals at monitoring well H-57). As part of the remediation of Subunit 1, Zeneca is currently planning to install either a Biologically-Active Permeable Barrier (BAPB) or a slurry wall to treat or cut off the flow of groundwater in this area onto the UC Berkeley property. Additional groundwater monitoring should be performed as part of Subunit 1 remedial activities to evaluate whether additional groundwater treatment is necessary.

Based on the findings of the investigations discussed above, UC Berkeley recommends the following:

- Areas requiring additional investigation are prioritized due to remediation activities in Subunit 2A. An addendum to this report for the lower priority areas in 2003 will be prepared and submitted to RWQCB in 2003;
- Sixteen samples will be collected from four locations in the Forest Products Area (AOC3). Eight samples will be analyzed initially to delineate the extent of arsenic in soil. The remaining samples will be held pending receipt of analytical results;
- Thirty-two samples from eight locations will be collected in the Shell Manufacturing Area (AOC4). Sixteen samples will be analyzed initially. The remaining 16 samples will be held pending the receipt of analytical results;
- Twelve samples from three locations will be collected in the West Heron Drive Area (AOC6). Six samples will be analyzed initially. The remaining six samples will be held pending the receipt of analytical results;
- Twenty-four samples from six locations will be collected in the Mercury Fulminate Area (AOC7). Twelve samples will be analyzed initially. The remaining 12 samples will be held pending the receipt of analytical results; and
- Three monitoring wells will be installed down gradient of the Mercury Fulminate Area to evaluate impacts of mercury in soil to groundwater and assist in the determination of the appropriate remedial action in AOC4.

The monitoring well locations have been selected to evaluate whether elevated concentrations of dissolved metals are migrating from upgradient areas. We anticipate using a truck-mounted, hollow-stem, flight-auger drill rig to install the proposed monitoring wells. All drilling augers and well casing materials will be pressure washed with hot water prior to each well installation. Cleaning water will be contained and placed in 55-gallon drums for temporary storage and proper disposal later.

At each proposed location, a borehole will be advanced to a depth of approximately 20 feet using a rotary auger, truck-mounted drilling rig. Monitoring wells will be constructed of 2-inch diameter, flush threaded, Schedule 40 polyvinyl chloride (PVC) casing and screen with a 2.5-foot stickup above the ground surface. The screens will be 15 feet in length and slotted, with a slot size of 0.010 inches. A filter pack (20/40 graded sand) will be placed around the screen in each well from the total depth to one foot above the top of the screen (4 feet bgs). A minimum of six inches of bentonite (pelletized or slurry form) will be placed directly over the filter pack. The remaining annulus of each well will be grouted to the surface with a cement and bentonite mixture. Each surface completion will consist of a concrete pad, protective steel casing monument and an internal locking cap. Soil drill cuttings will be placed in 55-gallon drums for proper disposal. The drilling area will be left in a clean manner and be free of debris from the drilling activities.

A qualified field geologist will record details of the drilling activities at each location and monitoring well installation. A licensed surveyor well will survey the location and elevation of the top of the casing for each well.

6.1 WELL DEVELOPMENT AND PURGING

Following well installation, each monitoring well will be developed by over pumping using a submersible pump or a centrifugal pump with the intake lowered to near the bottom of the screened interval to remove sediment from the well casing. A clean surge block may be used to loosen sediment from the well screen. Purging will continue until the developed water is free of observable sediment (the goal is less than 5 NTUs of turbidity). Development and purge water will be placed in 55-gallon drums, or suitable containers, for proper disposal. If the well is pumped dry, the well will be allowed to recover and purging should continue until the well is developed. Equipment that is placed in the well will be decontaminated by pressure washing prior to use in each well. Each well will be allowed to recover for a minimum of 24 hours prior to sampling.

Purging prior to sampling may be accomplished by evacuating three casing volumes before sampling using a bailer or positive displacement or bladder type pump, as described in Chapter Eleven of *Test Methods for Evaluating Solid Waste*, USEPA SW-846. In the event that the field parameters do not stabilize, the well may be sampled after three casing volumes have been removed. As an alternative, low-flow purging techniques and dedicated sampling equipment may be used if well recovery rates are slow.

Prior to groundwater sampling, the static water level and total well depth will be measured in each of the four wells.

6.2 GROUNDWATER COLLECTION AND LABORATORY ANALYSES

Groundwater samples will be collected using a peristaltic pump, dedicated pumps, or bailers. The samples will be collected in 500-mL polyethylene bottles with no preservative. Groundwater samples will be submitted to a California Certified Laboratory to be filtered within 24 hours and analyzed for the following: Priority Pollutant Metals using EPA Method 6010/7400 and pH using EPA Method 9040/9045. The laboratory will provide preservatives, bottles, and coolers.

6.3 DECONTAMINATION PROCEDURES

When dedicated or disposable purging or sampling equipment is not used the equipment will be decontaminated by the following procedure prior to, and between, each purging or sampling event.

- Wash equipment with a solution of non-phosphate detergent.
- Rinse twice, initially using potable water followed by a second rinse using de-ionized water.

Decontamination of sampling and monitoring equipment will include (but not necessarily be limited to) the following items: bailers, water level probes, and stainless steel drop weights for Teflon tubing. Decontamination water should be contained and disposed of appropriately.

6.4 SAMPLE LABELS

Sample labels should be affixed to each sample bottle. These labels should be durable and water-resistant so they remain legible when wet. Each label will contain the following information.

- Sample Identification
- Initials of sample collector
- Time and date of sample collection
- Preservatives (if any); and
- Required Analysis.

6.5 CHAIN OF CUSTODY

Tracing sample possession will be accomplished by using the Chain-of-Custody (COC) record. A COC entry will be recorded for every sample and will accompany every shipment of samples to the laboratory.

6.6 QUALITY ASSURANCE / QUALITY CONTROL SAMPLES

The purpose of QA/QC procedures is to produce data of known high quality that meet or exceed the requirements of standard analytical methods. It is essential that data collection personnel adhere to strict QA/QC procedures to establish quality. The objectives of the quality assurance program are twofold:

- To provide the mechanism for ongoing control, and
- Evaluation of measurement data quality throughout the course of the project and to qualify data precision and accuracy.

The following data quality indicators will be used to evaluate the data usability and certainty:

- Accuracy
- Precision
- Representativeness
- Completeness
- Comparability

A discussion of each of these data quality indicators is provided below.

6.6.1 Accuracy

Accuracy is a measure of how close a reported value is to the true value and is evaluated using spike analyses. Spike analyses are performed by adding a known quantity of analyte to a sample, analyzing the sample, and comparing the observed result to the known addition. Accuracy is expressed as percent recovery (the difference between known and observed concentrations divided by the known concentration) and is calculated as:

$$\%R = \left(\frac{C_{OB} - C_X}{C_{sp}} \right) x\,100$$

Where:

%R	=	percent recovery
C_{sp}	=	concentration of spike
C_{OB}	=	concentration measured in spiked sample analysis
C_x	=	concentration measured in unspiked sample analysis

Accuracy is evaluated using matrix spike (MS), laboratory control spikes (LCS), and surrogate spikes. Matrix spikes are spikes of target analytes into environmental samples and are used to evaluate impacts of matrix interference on accuracy. Laboratory control spikes are spikes of target analytes into clean water or sand and are used to evaluate accuracy of laboratory performance. Surrogate spikes are spikes of non-target analytes (compounds that are not likely to be detected in the sample but that behave similarly to the target analytes) into each sample. Surrogate spikes can only be performed for organic analyses and are used to evaluate accuracy on a sample specific basis.

Matrix spikes and LCS will be analyzed with each analytical batch. (A batch is up to 20 samples extracted and analyzed together under a given method protocol. Samples in an analytical batch should be of the same matrix. Reagent lots and handling procedures should be the same for all samples in a batch.) Surrogate spikes will be analyzed with each sample. Matrix spikes, LCS, and surrogate spike percent recoveries will be calculated and compared to the control limits

provided in Appendix B. Analyses exhibiting recoveries outside control limits will be considered for re-analysis.

6.6.2 Precision

Precision refers to the level of agreement among repeated measurements of the same parameter. Precision is expressed as the relative percent difference (RPD) between duplicate measurements, calculated as:

$$RPD = \left(\frac{(C_1 - C_2)}{\left[\frac{(C_1 + C_2)}{2} \right]} \right) \times 100$$

Where:

RPD = relative percent difference

C_1 = result from first sample

C_2 = result from second sample

Precision is evaluated using duplicate analyses and analyses of duplicate matrix spike samples (MS/MSD). Objectives for precision are provided in Appendix B.

6.6.3 Representativeness

Representativeness is the degree to which data accurately and precisely represent variations at a sampling point. Representativeness is a qualitative parameter.

To ensure representativeness in the samples being collected for this investigation, standard sampling procedures, as described above, will be strictly adhered to. Any deviations from these procedures will be noted in permanent ink in the field notebook. The field notebooks will be reviewed for deviations as part of evaluation of representativeness.

To ensure representativeness in the analyses being performed, the laboratory will follow standard procedures for collecting the aliquot of sample used for analysis as representative of the whole. Additional laboratory procedures to ensure representativeness include proper log-in, storage, handling, and tracking of samples to minimize possibility of sample contamination, loss, or cross-labeling, and discrete sampling and analysis of immiscible layers, if present in sufficient quantity.

6.6.4 Completeness

Completeness will be evaluated as the amount of valid, usable data obtained from a measurement system compared to the amount that was expected. The quantitative description of completeness will be evaluated as the percentage of analytical results that are usable (i.e., results that do not require rejection based on review of QA/QC data). The objective for completeness for this investigation is 90 percent for each analytical parameter.

6.6.5 Comparability

Comparability is a qualitative evaluation of the confidence with which one data set can be compared to another measuring the same parameters. Comparability will be ensured through the use of the standard operating procedures for sampling and field operations as described in this Sampling and Analysis Plan.

6.6.6 Field Sampling Quality Control

Field quality assurance data are provided by the analysis of rinsate blanks and field duplicate samples. The following field QA/QC sample will be submitted for laboratory analysis:

- Rinsate Blanks - Rinsate blanks will be obtained by the collection of water used to rinse the sampling equipment following decontamination. Rinsate blanks will be collected and analyzed at a frequency of about 10 percent of the number of sediment samples collected.
- Field Duplicate Samples - Blind field duplicate samples will be collected and analyzed at a frequency of about 5 percent of the number of samples collected for each medium.

6.7 QUARTERLY MONITORING REPORTS

Quarterly groundwater monitoring reports will be prepared for submittal to RWQCB following each monitoring event. The quarterly reports will contain a discussion of the groundwater sampling observations, groundwater levels, a groundwater gradient map, a tabular summary of detected compounds, and a discussion of changes or trends in reported concentrations of Constituents of Concern. Copies of laboratory analytical reports will be included in each quarterly report.

TABLES

TABLE 1
COMPARISON OF METALS RESULTS WITH SCREENING LEVELS IN SOIL SAMPLES
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

Note: 1) Results reported as analytical result divided by screening level. A result of 1 or greater indicates that the analytical result for that sample is equal to, or greater than, the screening level. If the result is less than 1, the result is not shown because the analytical result is less than the screening level and not a problem. Therefore, only the problem samples are shown and the magnitude of the problem is evident.
2) Screening levels reported as mg/kg.
3) Only the lowest SSTL for each metal is shown.

Location/Sample ID			Sample Depth (feet)	Arsenic	Copper	Lead	Mercury	Zinc
H-SSTL				[illegible]				
E-SSTL					[illegible]	[illegible]	[illegible]	[illegible]
AOC 1 - Explosives Storage Area								
Driver is Copper E-SSTL (0 to 3 feet bgs)								
ES-	101-	B-	0					
ES-	102-	B-	0					
B01	ES	2-91	0.5-1.5		1.6			
B03	ES	2-91	0.5-1.5		1.8			
B05	ES	2-91	0.5-1.5					
B07	ES	2-91	0.5-1.5		1.3			
B09	ES	2-91	0.5-1.5					
B11	ES	2-91	0.5-1.5					
B13	ES	2-91	0.5-1.5					
B14	ES	2-91	0.5-1.5					
B15	ES	2-91	0.5-1.5					
B16	ES	2-91	0.5-1.5					
AOC 2 - Test Pit Area								
Driver is Copper E-SSTL								
TP-	101-	B-	0		1.4			
TP-	101-	B-	2					
TP-	102-	B-	0		1.9			
TP-	102-	B-	2					
TP-	102-	B-	5					
TP-	103-	B-	0					
TP-	103-	B-	2					
B1	TP	2-91	0.5-1.5		2.2			
B2	TP	2-91	0.5-1.5		2.8			
AOC 3 - Forest Products Lab								
Driver is arsenic H-SSTL - construction worker								
FP-	101-	B-	0					
FP-	101-	B-	2					
FP-	102-	B-	0					
FP-	102-	B-	2					
FP-	103-	B-	2					
FP-	104-	B-	0	2.4				
FP-	104-	B-	4	1.0				
FP-	105-	B-	2					
FP-	106-	B-	0					
FP-	106-	B-	4					
FP-	106-	B-	6					
AOC 4 - Shell Manufacturing Area								
Driver is copper and mercury E-SSTL								
PC-	101-	B-	0		1.3			
PC-	101-	B-	2					
PC-	101-	B-	5					
SH-	101-	B-	0		2.0		3.3	
SH-	101-	B-	2					
SH-	101-	B-	5					

TABLE 1
COMPARISON OF METALS RESULTS WITH SCREENING LEVELS IN SOIL SAMPLES
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

Location/Sample ID			Sample Depth (feet)	Arsenic	Copper	Lead	Mercury	Zinc
H-SSTL				27.3				
E-SSTL					412	437	4.2	760
SH-	102-	B-	0	1.0	1.1	1.9		
SH-	102-	B-	2					
SH-	102-	B-	5					
	B32	5-90	0-3					
	B35	5-90	0-3					
	B37	5-90	0-3					
	B38	5-90	0-3					
	B39	5-90	0-3					
	B40	5-90	0-3					
	B41	5-90	0-3					
	B42	5-90	0-3					
	B43	5-90	0-3					
	B44	5-90	0-3					
	B45	5-90	0-3					
B01	SH	2-91	1.3					
B02	SH	2-91	1.3					
B03	SH	2-91	1.3					
B04	SH	2-91	1.3					
B05	SH	2-91	1.3					
B06	SH	2-91	1.3					
B09	SH	2-91	1.3					
B10	SH	2-91	1.3				1.0	
B11	SH	2-91	1.3					
B12	SH	2-91	1.3					
B13	SH	2-91	1.3					
B14	SH	2-91	1.3					
B15	SH	2-91	1.5	4.6	1.0	1.7		
B15	SH	2-91	4					
B15	SH	2-91	6.5					
B15	SH	2-91	9					
B15	SH	2-91	11.5					
B15	SH	2-91	14					
B16	SH	2-91	1.3		2.0			
B18	SH	2-91	1.3					

AOC 5 - Storm Drain
Driver is copper E-SSTL

SD-	101-	B-	0					
SD-	101-	B-	3		1.7			
SD-	101-	B-	8					
SD-	102-	B-	0					
SD-	102-	B-	3					
SD-	102-	B-	8		1.6			

AOC 6 - North Pyrite Cinders Area
Driver is mercury E-SSTL

B07	SH	2-91	1.3				1.9	
B08	SH	2-91	1.3				2.3	

AOC 7 - Mercury Fulminate Area
Driver is mercury, cadmium, copper, and lead E-SSTL and arsenic H-SSTL

Round 1								
MF-	101-	B-	0				1.1	
MF-	101-	B-	2				1.3	
MF-	101-	B-	5				1.6	
MF-	102-	B-	0					
MF-	102-	B-	3					

TABLE 1
COMPARISON OF METALS RESULTS WITH SCREENING LEVELS IN SOIL SAMPLES
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

Location/Sample ID	Sample Depth (feet)	Arsenic	Copper	Lead	Mercury	Zinc
H-SSTL		[illegible]				
E-SSTL			[illegible]	[illegible]	[illegible]	[illegible]
MF- 102- B-	6					
MF- 102- B-	13					
MF- 103- B-	0				1.2	
MF- 103- B-	2					
MF- 103- B-	5					
MF- 105- B-	0					
MF- 105- B-	2					
MF- 105- B-	5					
MF- 106- B-	0					
MF- 106- B-	2					
MF- 106- B-	5					
Round 2						
MF- 107- 0-	0					
MF- 107- 4-	4				1.0	
MF- 107- 7-	7					
MF- 108- 0-	0				[illegible]	
MF- 108- 4-	4					
MF- 108- 7-	7					
MF- 109- 0-	0				1.0	
MF- 109- 4-	4					
MF- 109- 7-	7					
MF- 110- 0-	0				1.9	
MF- 110- 4-	4				1.4	
MF- 110- 7-	7					
MF- 111- 0-	0				[illegible]	
MF- 111- 4-	4					
MF- 111- 7-	7					
MF- 112- 0-	0				1.0	
MF- 112- 4-	4					
MF- 112- 7-	7					
MF- 113- 0-	0					
MF- 113- 4-	4					
MF- 113- 8-	8					
Historical						
B1 5-90	0-3					
B2 5-90	0-3					
B3 5-90	0-3					
B4 5-90	0-3					
B5 5-90	0-3					
B6 5-90	0-3					
B7 5-90	0-3					
B8 5-90	0-3					
B9 5-90	0-3				1.5	
B10 5-90	0-3				2.1	
B11 5-90	0-3					
B12 5-90	0-3				4.3	
B13 5-90	0-3					
B14 5-90	0-3					
B15 5-90	0-3					
B17 5-90	0-3				3.3	
B18 5-90	0-3				[illegible]	
B19 5-90	0-3					
B20 5-90	0-3					
B21 5-90	0-3				1.0	
B22 5-90	0-3					
B23 5-90	0-3					
B24 5-90	0-3				1.0	

TABLE 1
COMPARISON OF METALS RESULTS WITH SCREENING LEVELS IN SOIL SAMPLES
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

Location/Sample ID			Sample Depth (feet)	Arsenic	Copper	Lead	Mercury	Zinc
H-SSTL				27.3				
E-SSTL					41	43	42	760
B25		5-90	0-3					
B26		5-90	0-3					
B27		5-90	0-3					
B28		5-90	0-3					
B29		5-90	0-3					
B30		5-90	0-3					
B31		5-90	0-3					
B33		5-90	0-3					
B34		5-90	0-3					
B46		5-90	0-3					
B47		5-90	0-3					
B48		5-90	0-3					
B1	MF	2-91	1.3				7.5	
B2	MF	2-91	1.5	1.2				2.8
B2	MF	2-91	4	1.7		1.6		
B2	MF	2-91	6.5					
B2	MF	2-91	9					
B2	MF	2-91	11.5					
B2	MF	2-91	14					
B3	MF	2-91	1.3		1.1	2.6		2.0
Property Boundary								
Round 1								
PB-	101-	B-	0		2.7			
PB-	101-	B-	3					1.0
PB-	101-	B-	5					
PB-	102-	B-	0	2.7	1.2			1.1
PB-	102-	B-	4		12			3.6
PB-	102-	B-	6					
PB-	103-	B-	0					
PB-	103-	B-	3					
PB-	103-	B-	5					
PB-	104-	B-	0	1.5	1.4			
PB-	104-	B-	3		3.4			
PB-	104-	B-	5					
PB-	105-	B-	0					
PB-	105-	B-	4					
PB-	105-	B-	6					
Round 2								
PB6			7.3					
PB7			9					
PB8			6.5					
PB9			6					
PB10			8					
PB11			8					

Note: **2.3** = between 1 and 5 times screening level
5.6 = Exceeds 5 x screening level

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

EPA Method 6010 (7470 for mercury); units = mg/kg

Location/Sample ID			Sample Depth (feet)	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
II-SSTL (industrial worker)					275		147	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	62				760
AOC 1 - Explosives Storage Area																
Driver is Copper E-SSTL (0 to 3 feet bgs)																
ES-	101-	B-	0	<3.6	3.3	0.4	1	31 J	18	6.7	0.13	33 J	0.74	<0.3	1	43
ES-	102-	B-	0	<4.1	7.2	0.4	2.2	46 J	76	40	0.2	56 J	0.72	<0.34	0.58	100
B01	ES	2-91	0.5-1.5	na	1.3	na	3.3	31.7	654	8.5	0.28	na	<0.87	na	na	260
B03	ES	2-91	0.5-1.5	na	0.96	na	1.4	28.3	736	5	<0.12	na	<0.9	na	na	266
B05	ES	2-91	0.5-1.5	na	2.8	na	1.3	24.7	44.1	10.5	0.8	na	<0.84	na	na	177
B07	ES	2-91	0.5-1.5	na	10.2	na	4.6	44.4	516	24.3	1.37	na	<0.87	na	na	138
B09	ES	2-91	0.5-1.5	na	3.6	na	3.4	56.8	77.8	18	0.51	na	<3.5	na	na	222
B11	ES	2-91	0.5-1.5	na	<8.7	na	0.81	42.2	21.2	6.9	<0.12	na	<8.7	na	na	24
B13	ES	2-91	0.5-1.5	na	2.8	na	1.4	30.5	29.5	12	0.4	na	<0.85	na	na	154
B14	ES	2-91	0.5-1.5	na	2.8	na	1.7	29.7	29.3	15.1	0.3	na	<0.86	na	na	161
B15	ES	2-91	0.5-1.5	na	2.8	na	1.6	27.7	22.6	17.4	0.19	na	<0.86	na	na	270
B16	ES	2-91	0.5-1.5	na	2.4	na	4.1	65.1	70.7	15	0.84	na	<7.2	na	na	178
AOC 2 - Test Pit Area																
Driver is Copper E-SSTL																
TP-	101-	B-	0	<3.6	6.8	0.21	1.5	31	570	23	0.62	24	0.68	<0.3	0.49	79
TP-	101-	B-	2	<3.5	1.9	0.44	0.67	25	12	4.3	0.16	26	<0.29	<0.29	0.64	68
TP-	102-	B-	0	<3.7	3.3	0.43	1.8	24	800	12	0.89	25	0.43	<0.31	1.2	130
TP-	102-	B-	2	<3.7	1.3	0.36	1	27	20	3.1	0.067	18	0.54	<0.31	<0.31	100
TP-	102-	B-	5	<3.4	4.5	0.44	1.5	34	18	5.3	0.072	65	<0.28	<0.28	1.1	35
TP-	103-	B-	0	na	na	na	na	na	na	na	na	na	na	na	na	na
TP-	103-	B-	2	na	na	na	na	na	na	na	na	na	na	na	na	na
B1	TP	2-91	0.5-1.5	na	21.2	na	9.9	36.1	899	49.2	6.66	na	<0.72	na	na	227
B2	TP	2-91	0.5-1.5	na	4.3	na	2.8	34	1140	46.4	2.91	na	<9.1	na	na	142
AOC 3 - Forest Products Lab																
Driver is arsenic II-SSTL - construction worker																
FP-	101-	B-	0	<4	4.5	0.33	1.8	29	28	19	0.37	27	0.73	<0.33	1.3	73
FP-	101-	B-	2	<3.4	3.3	0.34	1.7	37	12	7	0.063	33	0.3	<0.28	1.1	28
FP-	102-	B-	0	<3.1	3.2	0.79	1.5	12	19	11	0.41	17	<2.6	<2.6	0.51	52
FP-	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
FP-	103-	B-	2	<3.1	3.7	0.37	1.4	39	11	5.3	0.07	36	0.4	<0.26	1	23

TABLE 2
ANALYTICAL RESULTS FOR METALS IN SOIL SAMPLES
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
H-SSTL (industrial worker)					27		147	4,480	75,900	750	264	40,900	10,200	10,200	135	100,000
H-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
FP-	104-	B-	0	<3.4	66	0.39	1.8	46	34	8.3	1.2	54	0.55	<0.28	1.2	55
FP-	104-	B-	4	<3.4	27	0.31	1.4	31	29	4.5	0.45	50	0.52	<0.28	1.1	39
FP-	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
FP-	106-	B-	0	<4.3	3.4	0.51	0.88	33 J	18	5.3	1.3	52 J	<0.36	<0.36	<0.36	24
FP-	106-	B-	4	<3.5	3.6	0.51	1.2	33 J	20	8.3	0.17	120 J	0.68	<0.29	2.2	29
FP-	106-	B-	6	<3.5	6.5	0.47	2	35	20	6.1	<0.048	70 J	<0.29	<0.29	1.2	37
AOC 4 - Shell Manufacturing Area																
Driver is copper and mercury E-SSTL																
PC-	101-	B-	0	<3.3	3.7 J	0.18	1.2	34	550	15	<0.43	22	0.61 J	<0.27	0.91 J	42
PC-	101-	B-	2	<3.8	3	0.4	1.4	39	320	4.2	1	40	0.5	<0.32	0.43 J	150
PC-	101-	B-	5	<3.6	3.6	0.47	1.9	42	88	4.8	<0.45	110	0.73	<0.3	1 J	170
SH-	101-	B-	0	<3.6	3.2 J	0.49	1.7	30	840	6.4	140	26	0.49 J	<0.3	1 J	140
SH-	101-	B-	2	<3.8	4.3 J	0.33	1.8	57	56	6.1	<0.5	47	0.69 J	<0.32	<0.32 UJ	100
SH-	101-	B-	5	<3.4	3.1 J	0.19	0.96	27	12	2.4	<0.45	41	0.34 J	<0.28	0.45 J	28
SH-	102-	B-	0	<3.7	28	0.15	4.1	20	440	850	2.6	36	2.5	1.9	1.5 J	130
SH-	102-	B-	2	<3.8	3.3	0.4	1.6	56	16	7.4	<0.49	45	0.7	<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	1.9 J	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
	B44	5-90	0-3	na	na	na	na	na	na	na	1	na	na	na	na	na
	B45	5-90	0-3	na	na	na	na	na	na	na	6.1	na	na	na	na	na
B01	SH	2-91	1.3	na	<0.9	na	2.3	64.1	187	81.3	1.1	na	<9	na	na	125
B02	SH	2-91	1.3	na	3.4	na	1.2	27.7	34	37.1	3.31	na	<3.6	na	na	40.8
B03	SH	2-91	1.3	na	3	na	1.6	19.2	12.6	7.4	0.12	na	<0.7	na	na	10.9
B04	SH	2-91	1.3	na	2.4	na	0.86	16.1	10.5	6.4	<0.11	na	<0.7	na	na	10.2
B05	SH	2-91	1.3	na	9.7	na	1.4	25.1	18.1	6.3	<0.11	na	<0.74	na	na	43.8
B06	SH	2-91	1.3	na	7.1	na	1.6	24.6	17	5.4	<0.11	na	<0.73	na	na	42.6
B09	SH	2-91	1.3	na	6.3	na	1.9	14.8	70.5	187	18.8	na	<0.7	na	na	132
B10	SH	2-91	1.3	na	7.4	na	2.2	20.9	188	87.4	40.2	na	<0.72	na	na	260

TABLE 2
ANALYTICAL RESULTS FOR METALS IN SOIL SAMPLES
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
H-SSTL (industrial worker)					273		147	4,480	75,900	750	264	40,900	10,200	10,200	135	100,000
H-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
B11	SH	2-91	1.3	na	<8.7	na	3	28.9	291	313	7.74	na	<8.7	na	na	437
B12	SH	2-91	1.3	na	3.2	na	<0.77	34.2	24.3	8.9	0.57	na	<0.72	na	na	35.7
B13	SH	2-91	1.3	na	2.8	na	0.87	28	24.8	9.2	0.3	na	<0.76	na	na	43.2
B14	SH	2-91	1.3	na	3.2	na	0.87	22.5	22.5	12.9	2.48	na	<0.71	na	na	54.7
B15	SH	2-91	1.5	na	126	na	4.2	25.9	408	741	6.42	na	<8.6	na	na	366
B15	SH	2-91	4	na	1.9	na	5.1	71.2	32.3	6.5	0.3	na	<9.3	na	na	48.4
B15	SH	2-91	6.5	na	2.7	na	2.9	58	54.3	9.7	0.26	na	<9.2	na	na	65.7
B15	SH	2-91	9	na	<8.8	na	2.5	69.8	25.3	4.2	0.11	na	<8.8	na	na	58.7
B15	SH	2-91	11.5	na	3.2	na	1.7	63.3	62.7	4.2	0.11	na	<9	na	na	89.3
B15	SH	2-91	14	na	1.7	na	1.9	43.3	25.5	3.2	0.25	na	<9.5	na	na	48.5
B16	SH	2-91	1.3	na	3.6	na	0.88	22.4	804	9.3	1.17	na	<0.76	na	na	71.4
B18	SH	2-91	1.3	na	2.8	na	0.96	33.2	29.8	40.1	2.27	na	<0.71	na	na	66.7
AOC 5 - Storm Drain																
Driver is copper E-SSTL																
SD-	101-	B-	0	<3.8	5.2	0.46	1.6	33	38	18	0.19	35	0.82	<0.32	0.6	60
SD-	101-	B-	3	<3.5	16	0.34	3.4	31	710	35	36 J	49	1.2	0.72	1.2 J	460
SD-	101-	B-	8	<3.7	4.8	0.43	1.7	42	27	5.2	0.42 J	62	0.74	<0.31	0.83 J	44
SD-	102-	B-	0	<3.6	4.8	0.44	1.5	33	20	5.9	0.12	42	0.32	<0.3	0.38	35
SD-	102-	B-	3	<3.5	12	0.39	3	29	150	32	4.5	42	1.1	0.8	0.73 J	230
SD-	102-	B-	8	<3.8	13	0.38	4.7	37	640	180	0.14 J	62	1.2	0.9	1.2 J	420
AOC 6 - North Pyrite Cinders Area																
Driver is mercury E-SSTL																
B07	SH	2-91	1.3	na	3	na	<0.76	17.8	38.9	20.6	80.1	na	<0.73	na	na	47.6
B08	SH	2-91	1.3	na	6.5	na	1.6	20.7	181	121	97.8	na	<0.7	na	na	114
AOC 7 - Mercury Fulminate Area																
Driver is mercury, cadmium, copper, and lead E-SSTL and arsenic H-SSTL																
Round 1																
MF-	101-	B-	0	<5.2	9.7 J	0.33	2.1	24	84	59	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	54	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	67	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

TABLE 2
ANALYTICAL RESULTS FOR METALS IN SOIL SAMPLES
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)			[illegible]		147	4,480	75,900	750	264	40,900	10,200	10,200	135	100,000
H-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	242	621				4760
MF-103-B-	0	<3.5	6.7 J	0.2	1.6	19	340	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
MF-105-B-	2	<3.6	1.7 J	0.38	0.64	20	9	3.7	15	32	<0.3 UJ	<0.3	0.66 J	17
MF-105-B-	5	<3.8	4.5 J	0.4	1.3	32	17	3.2	9.2	49	<0.31 UJ	<0.31	<0.31 UJ	29
MF-106-B-	0	<3.6	4	0.9	2.3	15	19	11	7.8	30	0.66	<0.3	0.82	48
MF-106-B-	2	<3.7	1.6	0.43	0.81	24	12	4.1	28	41	<0.31	<0.31	0.46	25
MF-106-B-	5	<3.6	6.5	0.49	1.6	38	28	6	0.15	73	0.5	<0.3	1.3	38
Round 2														
MF-107-0-	0	na	na	na	na	na	na	na	0.65	na	na	na	na	na
MF-107-4-	4	na	na	na	na	na	na	na	40	na	na	na	na	na
MF-107-7-	7	na	na	na	na	na	na	na	32	na	na	na	na	na
MF-108-0-	0	na	na	na	na	na	na	na	220	na	na	na	na	na
MF-108-4-	4	na	na	na	na	na	na	na	11	na	na	na	na	na
MF-108-7-	7	na	na	na	na	na	na	na	0.33	na	na	na	na	na
MF-109-0-	0	na	na	na	na	na	na	na	40	na	na	na	na	na
MF-109-4-	4	na	na	na	na	na	na	na	5.1	na	na	na	na	na
MF-109-7-	7	na	na	na	na	na	na	na	0.13	na	na	na	na	na
MF-110-0-	0	na	na	na	na	na	na	na	80	na	na	na	na	na
MF-110-4-	4	na	na	na	na	na	na	na	59	na	na	na	na	na
MF-110-7-	7	na	na	na	na	na	na	na	0.2	na	na	na	na	na
MF-111-0-	0	na	na	na	na	na	na	na	280	na	na	na	na	na
MF-111-4-	4	na	na	na	na	na	na	na	3.4	na	na	na	na	na
MF-111-7-	7	na	na	na	na	na	na	na	1.1	na	na	na	na	na
MF-112-0-	0	na	na	na	na	na	na	na	41	na	na	na	na	na
MF-112-4-	4	na	na	na	na	na	na	na	21	na	na	na	na	na
MF-112-7-	7	na	na	na	na	na	na	na	0.89	na	na	na	na	na
MF-113-0-	0	na	na	na	na	na	na	na	7.9	na	na	na	na	na
MF-113-4-	4	na	na	na	na	na	na	na	4.6	na	na	na	na	na
MF-113-8-	8	na	na	na	na	na	na	na	5.1	na	na	na	na	na
Historical														
B1 5-90	0-3	na	na	na	na	na	na	na	3.5	na	na	na	na	na
B2 5-90	0-3	na	na	na	na	na	na	na	9.6	na	na	na	na	na
B3 5-90	0-3	na	na	na	na	na	na	na	3.3	na	na	na	na	na
B4 5-90	0-3	na	na	na	na	na	na	na	4.8	na	na	na	na	na
B5 5-90	0-3	na	na	na	na	na	na	na	19	na	na	na	na	na

TABLE 2
ANALYTICAL RESULTS FOR METALS IN SOIL SAMPLES
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)					[illegible]		147	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
B6		5-90	0-3	na	na	na	na	na	na	na	22	na	na	na	na	na
B7		5-90	0-3	na	na	na	na	na	na	na	26	na	na	na	na	na
B8		5-90	0-3	na	na	na	na	na	na	na	28	na	na	na	na	na
B9		5-90	0-3	na	na	na	na	na	na	na	61	na	na	na	na	na
B10		5-90	0-3	na	na	na	na	na	na	na	90	na	na	na	na	na
B11		5-90	0-3	na	na	na	na	na	na	na	25	na	na	na	na	na
B12		5-90	0-3	na	na	na	na	na	53	na	180	na	na	na	na	na
B13		5-90	0-3	na	na	na	na	na	na	na	7.4	na	na	na	na	na
B14		5-90	0-3	na	na	na	na	na	na	na	8.1	na	na	na	na	na
B15		5-90	0-3	na	na	na	na	na	na	na	27	na	na	na	na	na
B17		5-90	0-3	na	na	na	na	na	na	na	140	na	na	na	na	na
B18		5-90	0-3	na	na	na	na	na	57	na	630	na	na	na	na	640
B19		5-90	0-3	na	na	na	na	na	na	na	27	na	na	na	na	na
B20		5-90	0-3	na	na	na	na	na	na	na	20	na	na	na	na	na
B21		5-90	0-3	na	na	na	na	na	na	na	44	na	na	na	na	na
B22		5-90	0-3	na	na	na	na	na	na	na	11	na	na	na	na	na
B23		5-90	0-3	na	na	na	na	na	na	na	2.2	na	na	na	na	na
B24		5-90	0-3	na	na	na	na	na	na	na	41.3	na	na	na	na	na
B25		5-90	0-3	na	na	na	na	na	na	na	0.46	na	na	na	na	na
B26		5-90	0-3	na	na	na	na	na	na	na	0.8	na	na	na	na	na
B27		5-90	0-3	na	na	na	na	na	na	na	1.2	na	na	na	na	na
B28		5-90	0-3	na	na	na	na	na	na	na	0.29	na	na	na	na	na
B29		5-90	0-3	na	na	na	na	na	na	na	0.1	na	na	na	na	na
B30		5-90	0-3	na	na	na	na	na	na	na	4.4	na	na	na	na	na
B31		5-90	0-3	na	na	na	na	na	na	na	6.7	na	na	na	na	na
B33		5-90	0-3	na	na	na	na	na	na	na	0.41	na	na	na	na	na
B34		5-90	0-3	na	na	na	na	na	na	na	7	na	na	na	na	na
B46		5-90	0-3	na	na	na	na	na	na	na	14	na	na	na	na	na
B47		5-90	0-3	na	na	na	na	na	na	na	4.7	na	na	na	na	na
B48		5-90	0-3	na	na	na	na	na	na	na	0.41	na	na	na	na	na
B1	MF	2-91	1.3	na	9.3	na	0.98	32.9	102	91.5	317	na	<0.88	na	na	214
B2	MF	2-91	1.5	na	337	na	437	52.4	209	388	4.39	na	<8.9	na	na	2,150
B2	MF	2-91	4	na	468	na	5.3	36.5	159	697	2.6	na	<9.9	na	na	676
B2	MF	2-91	6.5	na	3.2	na	1.6	51	44	7.4	0.46	na	<10	na	na	68.8
B2	MF	2-91	9	na	1.1	na	2	53.7	29.2	5	<0.12	na	<0.96	na	na	57.4
B2	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
B2	MF	2-91	14	na	2.3	na	2.5	35	34.7	5.6	2.03	na	<0.88	na	na	53.2

TABLE 2
ANALYTICAL RESULTS FOR METALS IN SOIL SAMPLES
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
H-SSTL (industrial worker)			273		147	4,480	75,900	750	264	40,900	10,200	10,200	135	100,000
H-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
B3 MF 2-91	1.3	na	0.2	na	92	46.5	451	1140	11	na	<0.9	na	na	1550
Property Boundary														
Round 1														
PB- 101- B-	0	<3.5	3.6	0.24	3.5	29	1100	20	14	27	0.85	<0.29	0.42	210
PB- 101- B-	3	<3.5	2.7	0.32	2.6	32	240	5.5	0.14	33	0.32	<0.29	0.42	750
PB- 101- B-	5	<3.6	1.9	0.36	1.2	25	15	3.5	0.061	34	<0.3	<0.3	0.43	26
PB- 102- B-	0	8.3	75	0.42	5	24	500	250	3.1 J	41	8	2.3	1.5	840
PB- 102- B-	4	<3.6	12	1	2.8	35	4,600	18	1.7 J	110	0.7	<0.3	0.77	2,700
PB- 102- B-	6	<3.5	7	0.33	1.4	31	18	4.4	<0.047 UJ	50	0.49	<0.29	0.7	32
PB- 103- B-	0	<3.7	3.5	0.8	1.7	23	38	5.9	0.19 J	33	0.38	<0.3	0.63	380
PB- 103- B-	3	<3.6	5.3	0.46	1.6	37	71	5.7	0.19 J	76	0.46	<0.3	1.2	65
PB- 103- B-	5	<3.6	5.8	0.42	2.2	38	28	7.9	0.069 J	120	1.6	<0.3	5.8	92
PB- 104- B-	0	<4.6	42	<0.15	4.2	2.6	580	180	8.6 J	26	2.1	9.1	3.6	430
PB- 104- B-	3	<3.6	2.8	0.52	1.8	25	1400	9.2	0.25 J	21	0.45	0.35	0.42	210
PB- 104- B-	5	<3.7	7.6	0.41	1.8	36	37	8.3	0.23 J	67	0.79	<0.31	1.4	51
PB- 105- B-	0	<3.8	8.5	0.28	1.8	43	120	99	0.79 J	38	1.4	0.43	0.86	92
PB- 105- B-	4	<3.6	3.4	0.32	1.2	42	25	12	<0.05 UJ	52	0.94	<0.3	2.4 J	38
PB- 105- B-	6	<3.3	2.8	0.31	1.2	39	14	5.2	<0.044 UJ	120	0.65	<0.27	1.5 J	24
Round 2														
PB6	7.3	<3.1	4.4	0.32	1.6	41	19	4	0.084	52	<0.26	<0.26	<0.26	44
PB7	9	<3.1	4.6	0.27	2	67	16	2.5	<0.042	40	<0.26	<0.26	<0.26	36
PB8	6.5	<3.4	4.9	0.34	1.9	33	19	4.9	<0.04	49	<0.28	<0.28	<0.28	38
PB9	6	<3.6	1.2	0.44	1.1	30	15	3.5	0.14	41	<0.30	<0.30	<0.30	29
PB10	8	<3.5	4.6	0.54	2	51	22	4.8	18	61	<0.29	<0.29	<0.29	43
PB11	8	<3.5	6.8	0.47	2	48	24	7.2	0.11	66	<0.29	<0.29	0.95	42

Note: 123 = SSTL exceedance

TABLE 3
ANALYTICAL RESULTS FOR VOCs IN SOIL SAMPLES
PROPERTY BOUNDARY AREA
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

EPA Method 8260B, Units = ug/Kg

Location	PB6	PB7	PB8	PB9	PB10	PB11
Depth	7.3	9	6.5	6	8	8
Parameter						
Freon 12	<12	<11	<11	<11	<13	<12
Chloromethane	<12	<11	<11	<11	<13	<12
Vinyl Chloride	<12	<11	<11	<11	<13	<12
Bromomethane	<12	<11	<11	<11	<13	<12
Chloroethane	<12	<11	<11	<11	<13	<12
Trichlorofluoromethane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Acetone	<23	<22	<22	<23	<25	<25
Freon 113	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,1-Dichloroethene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Methylene Chloride	<23	<22	<22	<23	<25	<25
Carbon Disulfide	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
MTBE	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
trans-1,2-Dichloroethene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Vinyl Acetate	<58	<54	<55	<57	<63	<62
1,1-Dichloroethane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
2-Butanone	<12	<11	<11	<11	<13	<12
cis-1,2-Dichloroethene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
2,2-Dichloropropane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Chloroform	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Bromochloromethane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,1,1-Trichloroethane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,1-Dichloropropene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Carbon Tetrachloride	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,2-Dichloroethane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Benzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Trichloroethene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,2-Dichloropropane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Bromodichloromethane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Dibromomethane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
4-Methyl-2-Pentanone	<12	<11	<11	<11	<13	<12
cis-1,3-Dichloropropene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Toluene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
trans-1,3-Dichloropropene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,1,2-Trichloroethane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
2-Hexanone	<12	<11	<11	<11	<13	<12
1,3-Dichloropropane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Tetrachloroethene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Dibromochloromethane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,2-Dibromoethane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Chlorobenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,1,1,2-Tetrachloroethane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Ethylbenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
m,p-Xylenes	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2

TABLE 3
ANALYTICAL RESULTS FOR VOCs IN SOIL SAMPLES
PROPERTY BOUNDARY AREA
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

EPA Method 8260B, Units = ug/Kg

Location	PB6	PB7	PB8	PB9	PB10	PB11
Depth	7.3	9	6.5	6	8	8
Parameter						
o-Xylene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Styrene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Bromoform	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Isopropylbenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,1,2,2-Tetrachloroethane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,2,3-Trichloropropane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Propylbenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Bromobenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,3,5-Trimethylbenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
2-Chlorotoluene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
4-Chlorotoluene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
tert-Butylbenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,2,4-Trimethylbenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
sec-Butylbenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
para-Isopropyl Toluene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,3-Dichlorobenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,4-Dichlorobenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
n-Butylbenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,2-Dichlorobenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,2-Dibromo-3-Chloropropane	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,2,4-Trichlorobenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Hexachlorobutadiene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
Naphthalene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2
1,2,3-Trichlorobenzene	<5.8	<5.4	<5.5	<5.7	<6.3	<6.2

TABLE 4
ANALYTICAL RESULTS FOR TOTAL PCBs IN SOIL SAMPLES
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

EPA Method 8082; units = mg/kg

Sample Location			depth	Result	Aroclor
Industrial PRG				1.0	
Test Pit Area					
TP-	103-	B-	0	0.3	1254
TP-	103-	B-	2	<0.016	
Storm Drain					
MH	11-	500		42.0	1248
SD-	101-	B-	0	0.89 R	1254
SD-	101-	B-	3	0.086	1254
SD-	101-	B-	8	<0.015	
SD-	102-	B-	0	0.078 UJ	1254
SD-	102-	B-	3	0.941	1248 - 880 ppb; 1260 - 61 ppb
SD-	102-	B-	8	<0.016	

= Industrial PRG exceedance

Note 1: MH-11 sample was sediment in a storm drain manhole

TABLE 5
ANALYTICAL RESULTS FOR METALS AND pH IN GROUNDWATER SAMPLES
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

EPA Method 6010 (7471 for mercury); units = ug/L

Sample Location			Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	pH
10 X AWQC (1)			NA	360	NA	93	500	31	81	0.5	82	710	19	NA	810	
AOC 1 - Explosives Storage Area																
ES-	101-	GW	<60	<5	<2	<5	<10	<10	<3	<0.2	<20	<5	<5	<5	<20	
ES-	102-	GW	<60	<5	<2	<5	<10	<10	<3	<0.2	<20	<5	<5	<5	<20	
AOC 2 - Test Pit Area																
TP-	101-	GW	<60	<5	<2	<5	<10	<10	<3	<0.2	<20	7.5	<5 UJ	<5	<20	
TP-	102-	GW	<60	<5	<2	<5	<10	<10	<3	0.24	24	<5	<5 UJ	<5	<20	
AOC 3 - Forest Products Area																
FP-	101-	GW	<60	<5	<2	<5	<10	<10	<3	<0.2	<20	<5	<5 UJ	<5	<20	
FP-	102-	GW	<60	<5	<2	<5	<10	<10	<3	<0.2	<20	<5	<5 UJ	<5	<20	
FP-	103-	GW	<60	<5	<2	<5	<10	<10	<3	<0.2	<20	<5	<5 UJ	<5	<20	
FP-	104-	GW	<60	<5	<2	<5	<10	<10	<3	<0.2	<20	<5	<5 UJ	<5	31	
FP-	105-	GW	<60	<5	<2	<5	<10	<10	<3	<0.2	120	<5	<5 UJ	<5	<20	
FP-	106-	GW	<60	<5	<2	<5	<10	10	<3	<0.2	<20	<5	<5 UJ	<5	48	
AOC 4 - Shell Manufacturing Area																
PC-	101-	GW	<60	<5	<2	<5	<10	<10	<3	<0.2	45	<5	<5	<5	<20	
SH-	101-	GW	<60	<5	<2	<5	<10	<10	<3	<0.2	22	<5	<5	<5	<20	
SH-	102-	GW	<60	<5	<2	<5	<10	23	<3	<0.2	<20	<5	<5	<5	37	
AOC 5 - Storm Drain																
SD-	101-	GW	<60	<5	<2	<5	<10	<10	<3	<0.2	<20	<5	<5	<5	30	
SD-	102-	GW	<60	<5	<2	<5	<10	89	<3	<0.2	<20	<5	<5	<5	80	
AOC 6 - North Pyrite Cinders Area (no groundwater results)																
AOC 7 - Mercury Fulminate Area																
Round 1																
MF-	101-	GW	<60	21	<2	<5	<10	38	<3	33	25	<5	<5	<5	110	
MF-	102-	GW	<60	<5	<2	<5	<10	<10	<3	<0.2	<20	<5	<5	<5	83	
MF-	103-	GW	<60	<5	<2	<5	<10	17	<3	<0.2	38	<5	<5	<5	140	
MF-	104-	GW	<60	24	<2	<5	<10	10	<3	15	<20	<5	<5	<5	22	
MF-	105-	GW	<60	<5	<2	<5	<10	<10	<3	9	<20	<5	<5	<5	58	
MF-	106-	GW	<60	<5	<2	<5	<10	26	<3	0.78	<20	<5	<5	<5	<20	
MW1-		GW	<60	<5	<2	<5	<10	<10	<3	<0.2	<20	<5	<5 UJ	<5	<20	

TABLE 5
ANALYTICAL RESULTS FOR METALS AND pH IN GROUNDWATER SAMPLES
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

Sample Location	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	pH
10 X AWQC (1)	NA	360	NA	93	500	317	81	105	82	710	119	NA	810	
Round 2														
MF107-GW	<60	13	<2	<5	<10	<10	<3	0.22	<20	<5	<5	<5	<20	7.5
MF108-GW	<60	5.4	<2	<5	<10	<10	<3	<0.2	<20	<5	<5	<5	<20	7.5
MF109-GW	<60	<5	<2	<5	<10	<10	<3	<0.2	<20	<5	<5	<5	<20	7.1
MF110-GW	<60	<5	<2	<5	<10	<10	<3	<0.2	<20	<5	<5	<5	<20	7.2
MF111-GW	<60	<5	<2	<5	<10	<10	<3	116	<20	<5	<5	<5	<20	7.0
MF112-GW	<60	<5	<2	<5	<10	<10	<3	0.23	<20	<5	<5	<5	<20	7.0
MF113-GW	<60	<5	<2	<5	<10	<10	<3	<0.2	30	<5	<5	<5	<20	7.0
MF114-GW	<60	<5	<2	<5	<10	<10	<3	0.24	<20	8.5	<5	<5	88	
MF115-GW	<60	32	<2	<5	<10	<10	<3	<0.2	<20	7.4	<5	<5	<20	
MF116-GW	<60	26	<2	<5	<10	<10	<3	72	<20	8.3	<5	<5	<20	
MF117-GW	<60	92	<2	<5	<10	<10	3.5	<0.2	<20	10	<5	<5	40	
MF118-GW	<60	24	<2	<5	<10	<10	<3	<0.2	<20	8.9	<5	<5	41	
MF119-GW	<60	45	<2	<5	<10	<10	<3	<0.2	<20	8.7	<5	<5	<20	
Property Boundary														
Round 1														
PB- 101- GW	<60	<5	<2	15	<10	120	<3	<0.2	190	8.1	<5	<5	6,500	
PB- 102- GW	<60	5.2	<2	46	<10	4,100	6.5	<0.2	470	18	<5 UJ	26	11,000	
PB- 103- GW	<60	<5	<2	<5	<10	<10	<3	<0.2	27	<5	<5 UJ	<5	70	
PB- 104- GW	<60	<5	<2	5.4	<10	25	<3	<0.2	69	5.3	<5 UJ	<5	810	
PB- 105- GW	<60	<5	<2	<5	<10	<10	<3	<0.2	42	<5	<5 UJ	<5	130	
Round 2														
PB-7 (LFR)	<60	<5	<2	<5	<10	<10	<3	0.23	<20	<5	<5	<5	<20	6.9
PB-8 (LFR)	<60	<5	<2	<5	<10	<10	<3	0.24	<20	<5	<5	<5	<20	7.2
PB-8 (URS)	<60	<5	<2	<5	<10	<10	<3	0.31	<20	<5	<5	<5	20	7.2
PB-9 (LFR)	<60	<5	<2	<5	<10	<10	<3	0.25	<20	<5	<5	<5	<20	6.9
PB-10 (LFR)	<60	8.1	<2	<5	<10	11	8.8	0.44	130	8.1	<5	<5	110	6.2
PB-10 (URS)	<60	<5	<2	<5	<10	30	3.9	0.48	120	7	<5	14	270	6.2
PB-11 (URS)	<60	31	<2	<5	<10	34	3.1	<0.2	180	11	<5	27	29	7.3

Notes

Comparison of upland groundwater concentrations is consistant with "Basis for Groundwater Action Levels" in RWQCB Order No. 98-072.

0.05 Exceedance 10 X AWQC (Groundwater Action Levels established in RWQCB Order No. 98-072.

J = The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.

TABLE 6
ANALYTICAL RESULTS FOR VOCs IN GROUNDWATER SAMPLES
PROPERTY BOUNDARY AREA
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

EPA Method 8260B, Units = ug/L

Location	SCREENING VALUE[a]	PB6	PB7	PB8	PB9	PB10
Parameter						
Freon 12	na	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	5.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	4.9	< 0.5	< 0.5	< 0.5	< 0.5	**3.4**
Bromomethane	320	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	30	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Acetone	1500	**10.0**	< 10.0	< 10.0	< 10.0	< 10.0
Freon 113	na	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	9.6	< 0.5	< 0.5	< 0.5	< 0.5	**0.7**
Methylene Chloride	2200	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
Carbon Disulfide	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
MTBE	1800	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-Dichloroethene	590	< 0.5	< 0.5	< 0.5	< 0.5	**0.9**
Vinyl Acetate	na	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
1,1-Dichloroethane	47	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone	14000	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
cis-1,2-Dichloroethene	590	< 0.5	**0.9**	< 0.5	< 0.5	**10.0**
2,2-Dichloropropane	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	28	< 0.5	< 0.5	**1.1**	< 0.5	**7.1**
Bromochloromethane	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	62	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloropropene	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	9.8	< 0.5	< 0.5	**0.8**	< 0.5	< 0.5
1,2-Dichloroethane	420	< 0.5	< 0.5	< 0.5	**2.5**	**25.0**
Benzene	46	< 0.5	< 0.5	< 0.5	< 0.5	**0.6**
Trichloroethene	360	< 0.5	**120.0**	**4.1**	**33.0**	**76.0**
1,2-Dichloropropane	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	420	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibromomethane	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
4-Methyl-2-Pentanone	na	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
cis-1,3-Dichloropropene	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	130	**0.8**	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	930	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-Hexanone	170	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
1,3-Dichloropropane	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	120	< 0.5	< 0.5	< 0.5	**1.0**	**14.0**
Dibromochloromethane	6400	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dibromoethane	280	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	50	< 0.5	< 0.5	< 0.5	**2.0**	**9.8**
1,1,1,2-Tetrachloroethane	930	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	290	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m,p-Xylenes	13	**0.8**	< 0.5	< 0.5	< 0.5	< 0.5

TABLE 6
ANALYTICAL RESULTS FOR VOCs IN GROUNDWATER SAMPLES
PROPERTY BOUNDARY AREA
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

EPA Method 8260B, Units = ug/L

Location	SCREENING VALUE[a]	PB6	PB7	PB8	PB9	PB10
Parameter						
o-Xylene	13	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	5100	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	420	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2,3-Trichloropropane	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Propylbenzene	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromobenzene	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3,5-Trimethylbenzene	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-Chlorotoluene	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
4-Chlorotoluene	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
tert-Butylbenzene	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2,4-Trimethylbenzene	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
sec-Butylbenzene	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
para-Isopropyl Toluene	na	< 0.5	< 0.5	< 0.5	< 0.5	**1.4**
1,3-Dichlorobenzene	71	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
n-Butylbenzene	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	14	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dibromo-3-Chloropropane	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2,4-Trichlorobenzene	50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Hexachlorobutadiene	9.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	24	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2,3-Trichlorobenzene	na	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

[a] SF-RWQCB RBSLs (2000) Lowest value was selected from RBSLs protective of groundwater that is not a current or potential drinking water resource.

na = no value applicable

TABLE 7
TOTAL PCBs IN GROUNDWATER
UPLAND PORTION OF SUBUNIT 2B
RICHMOND FIELD STATION

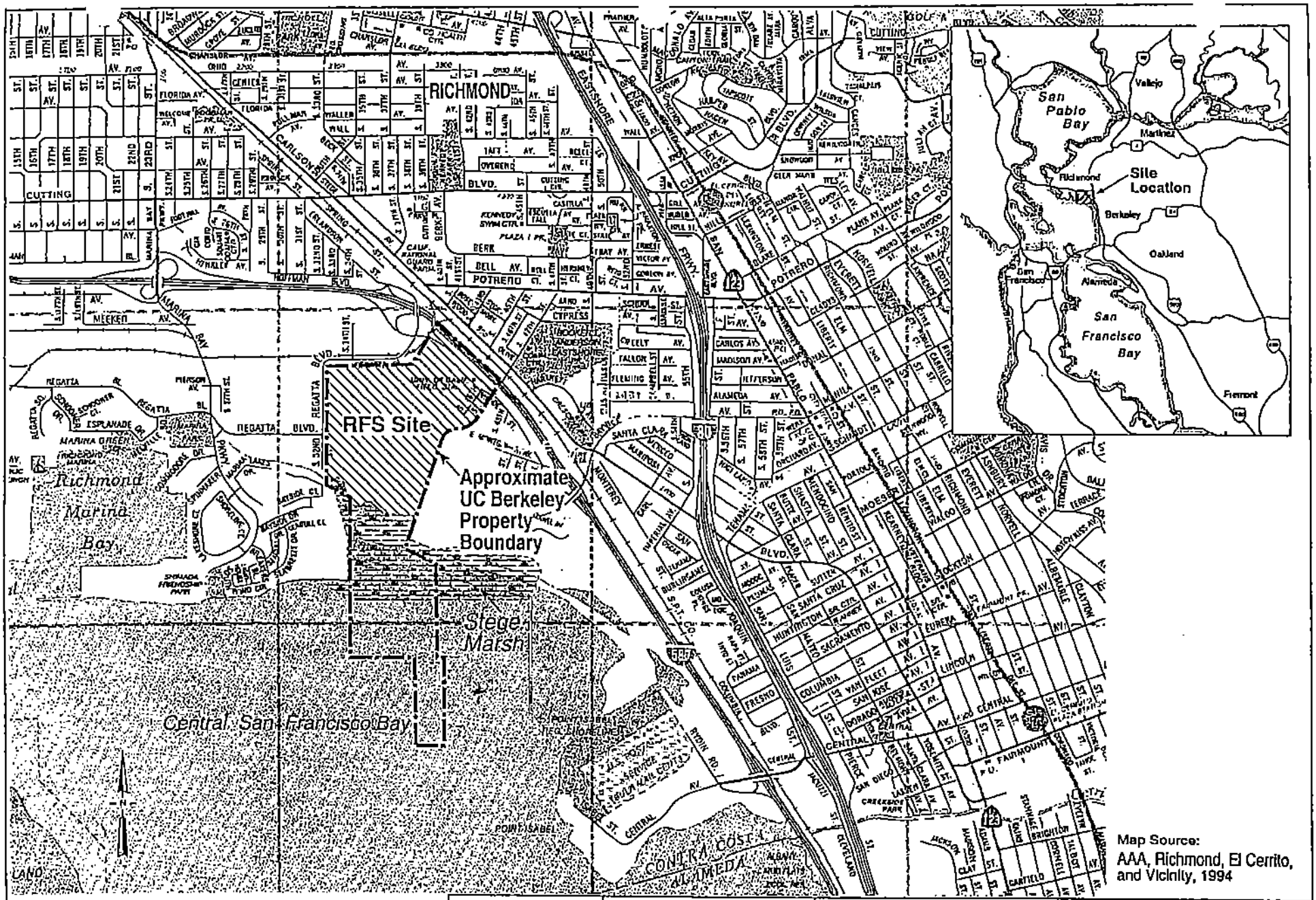
EPA Method 8082; units = ug/L

Sample Location			Total PCBs	Aroclor
10 X AWQC			0.3	
UPLAND AREA				
Sewer Line				
SL-	101-	GW	<0.48	
SL-	102-	GW	<0.47 UJ	
SL-	103-	GW	1.3	
SL-	104-	GW	<0.47	1260
Storm Drain				
SD-	101-	GW	0.88	
SD-	102-	GW	<0.51	1248

Notes

0.05 = 10 x AWQC exceedance

FIGURES



0 3000 feet

URS

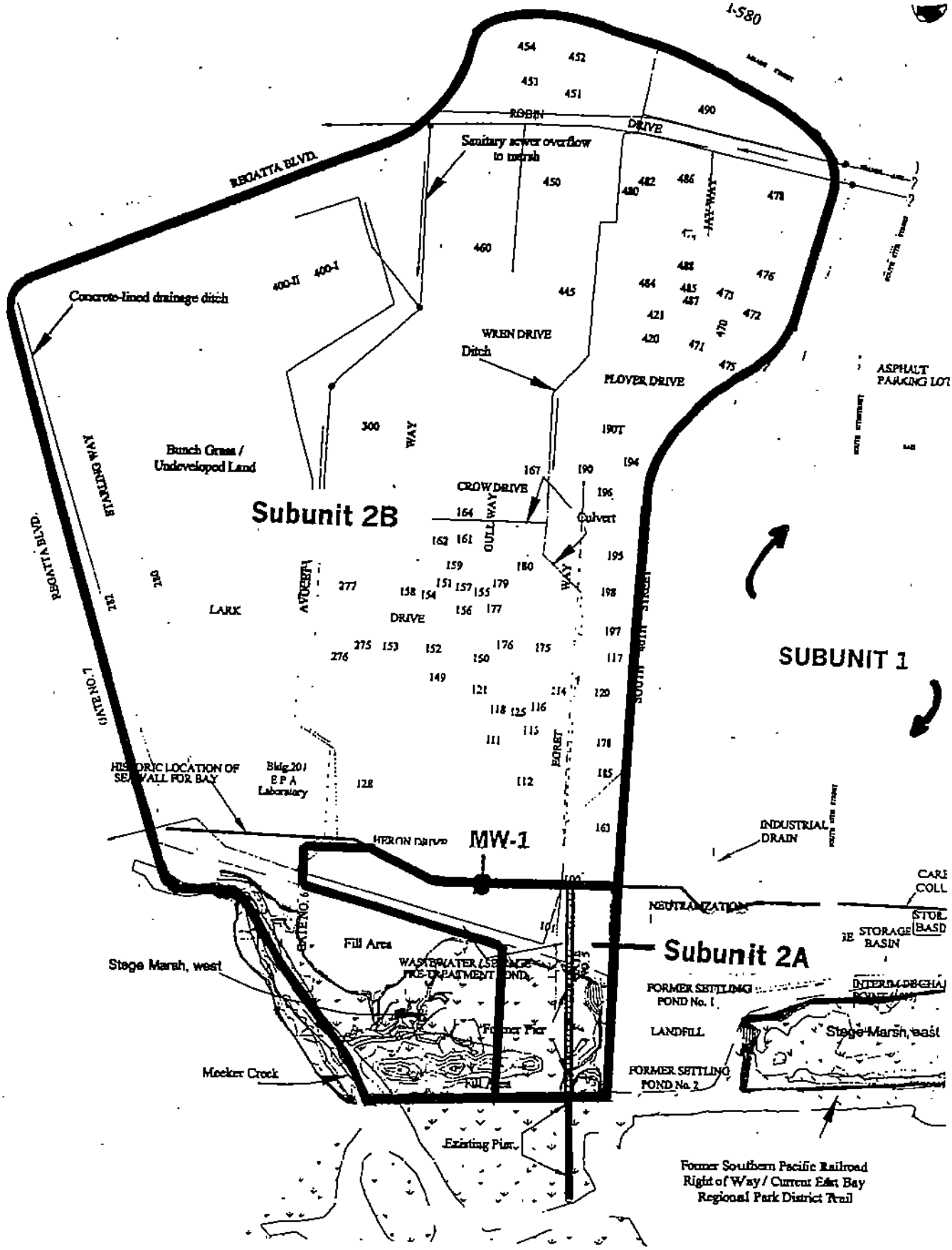
Project No. 51-09967067.00

UC Berkeley
Richmond Field Station

UNIVERSITY OF CALIFORNIA, BERKELEY
RICHMOND FIELD STATION
SITE LOCATION MAP

Figure 1

51-09967067.00-00003/101701/gos



Subunits 2A and 2B Locations and Boundaries

Figure 2

APPENDIX A

Project: UC Berkeley Richmond Field Station Project Location: Richmond, California Project Number: 51-09967067.00	**Key to Log of Boring** Sheet 1 of 1

Elevation, feet	Depth, feet	SAMPLES: Interval	SAMPLES: Lab ID Number	SAMPLES: Mercury, mg/kg	Graphic Log	MATERIAL DESCRIPTION	Temporary Well Schematic	FIELD NOTES AND WELL DETAILS
1		2	3	4	5	6	7	8

COLUMN DESCRIPTIONS

1 **Elevation:** Elevation in feet referenced to mean sea level (MSL) or site datum.

1 **Depth:** Distance in feet below the ground surface.

2 **Sample Interval:** Graphic depiction of field sampling depths and intervals from which laboratory samples were collected; sampler symbols are explained below.

3 **Lab ID Number:** Identification number of samples collected for possible chemical analysis.

4 **Mercury, mg/kg:** Mercury concentration measured in field sample, reported in milligrams per kilogram.

5 **Graphic Log:** Graphic depiction of subsurface material encountered; typical symbols are explained below.

6 **Material Description:** Description of material encountered; may include color, moisture, grain size, and density/consistency.

7 **Temporary Well Schematic:** Schematic of well installation; materials are listed in header block and alongside well schematic; graphic symbols are explained below.

8 **Field Notes and Well Details:** Comments and observations regarding drilling or sampling made by driller or field personnel. Well construction materials and installation details are also listed in this column.

TYPICAL SOIL 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 WELL GRAPHIC SYMBOLS

- Blank casing in concrete
- Blank casing in filter sand
- Blank casing in cement grout with bentonite
- Slotted casing in filter sand
- Blank casing in hydrated bentonite chips
- Native backfill / slough

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

1. 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.
2. 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:** 51-09967067.00	**Log of Boring MF107** Sheet 1 of 1

Date(s) Drilled	6/7/01	Logged By	B. Copeland	Checked By	J. Durkin
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	13.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Fastek	Surface Elevation	8.08 feet MSL
Groundwater Levels(s)	First: None 24 hrs: 4.42 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Mercury Fulminate Area	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 0-13 ft; PVC pulled after water sampling and borehole grouted to surface		

Elevation, feet	Depth, feet	SAMPLES Interval	Lab ID Number	Mercury, mg/kg	Graphic Log	MATERIAL DESCRIPTION	Temporary Well Schematic	FIELD NOTES AND WELL DETAILS
	0		MF107-0'-0.5'	0.65		SILTY CLAY [FILL], black, dry, hard, some light gray to white hard nodules ← Thin layer of cinders <1 inch thick		
5						CLAY [FILL], mottled gray, black and reddish brown, damp, medium stiff		Temporary Well, 3/4-in. PVC casing, 0.010-in. slotted screen 0-13 ft Groundwater Sample MF107, pH=7.5
			MF107-4'-5'	40		Becomes greenish gray, soft		
0	5							
	10					SAND [SEDIMENT], gray, wet, coarse, poorly graded, trace gravel to 1 inch dia. Gravel CLAY, brown and gray, wet, medium stiff		
-5						BOTTOM OF BORING AT 13 FEET		
	15							
-10								
	20							
-15								
	25							

Report: ENV_3PSW_SOLON; File: BERKRICH.GPJ; 2/14/2002 MF-107

URS

Project: UC Berkeley Richmond Field Station **Project Location:** Richmond, California **Project Number:** 51-09967067.00	**Log of Boring MF108** Sheet 1 of 1

Date(s) Drilled	6/7/01	Logged By	B. Copeland	Checked By	J. Durkin
Drilling Method	Direct Push	Drill Bit Size/Type	2-Inch-OD drive point	Total Depth of Borehole	14.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Fastek	Surface Elevation	7.92 feet MSL
Groundwater Levels(s)	First: 8.5 ft 24 hrs: 4.28 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Mercury Fulminate Area	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 0-10 ft; PVC pulled after water sampling and borehole grouted to surface		

Elevation, feet	Depth, feet	SAMPLES Interval	Lab ID Number	Mercury, mg/kg	Graphic Log	MATERIAL DESCRIPTION	Temporary Well Schematic	FIELD NOTES AND WELL DETAILS
	0		MF108-0'-0.5'	220		SILT [FILL], dark brown, dry, hard		
						CLAY [FILL], black and very dark brown with greenish gray mottling, damp, medium stiff, trace sand		
5								Temporary Well, 3/4-in. PVC casing, 0.010-in. slotted screen 0-10 ft Groundwater Sample MF108, pH=7.5
	5		MF108-4'-5'	11				
						Becomes mottled gray and reddish brown		
0			MF108-7'-8'	0.33				Material jammed in tube 8-12 ft; cannot be removed.
	10					SAND [SEDIMENT], gray, wet, medium, poorly graded (beach sand)		Casing placed only to 10 ft; hole collapsed.
-5						Little gravel to 1/4 inch dia.		
						BOTTOM OF BORING AT 14 FEET		
	15							
-10								
	20							
-15								
	25							

Report: ENV_3PSW_SOLON; File: BERKRICH.GPJ; 2/14/2002 MF-108

URS

Project: UC Berkeley Richmond Field Station **Project Location:** Richmond, California **Project Number:** 51-09967067.00	**Log of Boring MF109** Sheet 1 of 1

Date(s) Drilled	6/7/01	Logged By	B. Copeland	Checked By	J. Durkin
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	15.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Fastek	Surface Elevation	9.06 feet MSL
Groundwater Levels(s)	First: 9.8 ft 24 hrs: 5.17 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Mercury Fulminate Area	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 0-15 ft; PVC pulled after water sampling and borehole grouted to surface		

Elevation, feet	Depth, feet	SAMPLES Interval	Lab ID Number	Mercury, mg/kg	Graphic Log	MATERIAL DESCRIPTION	Temporary Well Schematic	FIELD NOTES AND WELL DETAILS
	0		MF109-0'-0.5'	40		SILT [FILL], dark brown, dry, trace clay		
						CLAY [FILL], grayish brown, damp, medium stiff		Temporary Well, 3/4-in. PVC casing, 0.010-in. slotted screen 0-15 ft Groundwater Sample MF109, pH=7.1
5						Becomes stiff, with increased silt content		
	5		MF109-4'-5'	5.1			▽	
			MF109-7'-8'	0.13				
0						Becomes mottled gray, reddish brown, and black		
	10						▽	
						Becomes moist, medium stiff		
-5								
	15					BOTTOM OF BORING AT 15 FEET		
-10								
	20							
-15								
	25							

URS

Report: ENV_3PSW_SOLON; File: BERKRICH.GPJ; 2/14/2002 MF-109

Project: UC Berkeley Richmond Field Station **Project Location:** Richmond, California **Project Number:** 51-09967067.00	**Log of Boring MF110** Sheet 1 of 1

Date(s) Drilled	6/7/01	Logged By	B. Copeland	Checked By	J. Durkin
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	Fastek	Surface Elevation	8.94 feet MSL
Groundwater Levels(s)	First: 10.4 ft 24 hrs: 4.93 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Mercury Fulminate Area	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 0-16 ft; PVC pulled after water sampling and borehole grouted to surface		

Elevation, feet	Depth, feet	SAMPLES Interval	Lab ID Number	Mercury, mg/kg	Graphic Log	MATERIAL DESCRIPTION	Temporary Well Schematic	FIELD NOTES AND WELL DETAILS
	0		MF110-0'-0.5'	80		SILT [FILL], dark brown, dry, friable		
						CLAY [FILL], grayish brown, damp, medium stiff		Temporary Well, 3/4-in. PVC casing, 0.010-in. slotted screen 0-16 ft Groundwater Sample MF110, pH=7.2
-5								
	5		MF110-4'-5'	59		Becomes light gray		
			MF110-7'-8'	0.20		Becomes mottled reddish brown and gray		
-0						Becomes gray, with some silt		
	10					SILTY SAND [SEDIMENT], brown, wet, coarse sand, some gravel to 1/4 inch dia., poorly graded		
-5								
	15					Well-rounded gravel to 1 inch dia., wet		
						BOTTOM OF BORING AT 16 FEET		
-10								
	20							
-15								
	25							

Report: ENV_3PS/W_SOLON; File: BERKRICH.GPJ; 2/14/2002 MF-110

URS

Project: UC Berkeley Richmond Field Station **Project Location:** Richmond, California **Project Number:** 51-09967067.00	**Log of Boring MF111** Sheet 1 of 1

Date(s) Drilled	6/7/01	Logged By	B. Copeland	Checked By	J. Durkin
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	13.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Fastek	Surface Elevation	8.38 feet MSL
Groundwater Levels(s)	First: None 24 hrs: 4.20 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Mercury Fulminate Area	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 0-13 ft; PVC pulled after water sampling and borehole grouted to surface		

Elevation, feet	Depth, feet	SAMPLES Interval	Lab ID Number	Mercury, mg/kg	Graphic Log	MATERIAL DESCRIPTION	Temporary Well Schematic	FIELD NOTES AND WELL DETAILS
	0		MF111-0'-0.5'	280		SILT [FILL], dark brown, dry, hard, some clay		
						CLAY [FILL], dark brown, damp, hard		
5								Temporary Well, 3/4-in. PVC casing, 0.010-in. slotted screen 0-13 ft
			MF111-4'-5'	3.4		Becomes greenish gray, medium stiff		Groundwater Sample MF111, pH=7.0
	5					Becomes mottled gray and reddish brown		
			MF111-7'-8'	1.1				
0						SAND [SEDIMENT], brown, wet, poorly graded		
	10					Some gravel to 1/2 inch dia., few thin interbeds of clay		
-5						BOTTOM OF BORING AT 13 FEET		
	15							
-10								
	20							
-15								
	25							

Report: ENV_3PS/W_SOLON; File: BERKRUCH.GPJ; 2/14/2002 MF-111

URS

Project: UC Berkeley Richmond Field Station **Project Location:** Richmond, California **Project Number:** 51-09967067.00	**Log of Boring MF112** Sheet 1 of 1

Date(s) Drilled	6/7/01	Logged By	B. Copeland	Checked By	J. Durkin
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	13.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Fastek	Surface Elevation	8.52 feet MSL
Groundwater Levels(s)	First: 9.5 ft 24 hrs: 4.54 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Mercury Fulminate Area	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 0-13 ft; PVC pulled after water sampling and borehole grouted to surface		

Elevation, feet	Depth, feet	SAMPLES Interval	Lab ID Number	Mercury, mg/kg	Graphic Log	MATERIAL DESCRIPTION	Temporary Well Schematic	FIELD NOTES AND WELL DETAILS
	0		MF112-0'-0.5'	41		SILT [FILL], dark brown, dry, hard, little clay, few gravel layers		
						CLAY [FILL], very dark brown, damp, stiff		Temporary Well, 3/4-in. PVC casing, 0.010-in. slotted screen 0-13 ft Groundwater Sample MF112, pH=7.0
5								
			MF112-4'-5'	21		Becomes greenish gray, medium stiff ▽		
	5							
						Becomes mottled gray, black, and reddish brown		
			MF112-7'-8'	0.89				
0								
						SAND [SEDIMENT], brown, wet, fine to medium, poorly graded ▽		
	10							
						Some clayey layers		
-5						BOTTOM OF BORING AT 13 FEET		
	15							
-10								
	20							
-15								
	25							

Report: ENV_3PS/W_SOLON; File: BERKRICH.GPJ; 2/14/2002 MF-112

URS

Project: UC Berkeley Richmond Field Station **Project Location:** Richmond, California **Project Number:** 51-09967067.00	**Log of Boring MF113** Sheet 1 of 1

Date(s) Drilled	6/7/01	Logged By	B. Copeland	Checked By	J. Durkin
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	13.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Fastek	Surface Elevation	7.74 feet MSL
Groundwater Levels(s)	First: None 24 hrs: 3.72 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Mercury Fulminate Area	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 0-13 ft; PVC pulled after water sampling and borehole grouted to surface		

Elevation, feet	Depth, feet	SAMPLES Interval	Lab ID Number	Mercury, mg/kg	Graphic Log	MATERIAL DESCRIPTION	Temporary Well Schematic	FIELD NOTES AND WELL DETAILS
	0		MF113-0'-0.5'	7.9		GRAVEL, CLAY, and SILT [FILL]		
						CLAY [FILL], very dark brown, dry, hard		
-5						Becomes medium stiff		Temporary Well, 3/4-in. PVC casing, 0.010-in. slotted screen 0-13 ft
			MF113-4'-5'	4.6		Becomes mottled gray, black, and reddish brown		Groundwater Sample MF113, pH=7.0
	5							
						SANDY CLAY [FILL], orange-brown, damp, medium sand		
-0						CLAY and GRAVEL [FILL], brown, wet, gravel to 1/2 inch dia.		
			MF113-8'-9'	5.1				
	10							
-5						SAND [SEDIMENT], brown, wet, medium, poorly graded		
						BOTTOM OF BORING AT 13 FEET		
	15							
-10								
	20							
-15								
	25							

Report: ENV_3PSW_SOLON; File: BERKRICH.GPJ; 2/14/2002 MF-113

URS

Project: UC Berkeley Richmond Field Station **Project Location:** Richmond, California **Project Number:** 51-09967067.00	**Log of Boring PB6** Sheet 1 of 1

Date(s) Drilled	9/24/01	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	12.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	Not available
Groundwater Levels(s)	First: 7.3 ft Completion: 8.83 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Property Boundary	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 7-12 ft; PVC pulled after water sampling and borehole grouted to surface		

Elevation, feet	Depth, feet	SAMPLES: Interval	SAMPLES: Lab ID Number	SAMPLES: Headspace PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Temporary Well Schematic	FIELD NOTES AND WELL DETAILS
	0					CLAY, very dark brown to black, damp, stiff, medium plasticity		
						Becomes brown		
						Becomes very dark brown		
	5					CLAYEY SILT, light brown, damp, low plasticity, some fine sand		
			PB6-7.3'-8'			SILTY CLAY, mottled gray and reddish brown, trace gravel to 1/2 in. dia.		Temporary Well, 3/4-in. PVC casing, 0.010-in. slotted screen 7-12 ft Groundwater Sample PB6, pH=7.05
	10					GRAVELLY SAND, reddish brown, wet, gravel to 1/2 in. dia., some silt		
						Becomes gray		
						BOTTOM OF BORING AT 12 FEET		
	15							
	20							
	25							

Report: ENV_3PSW_SOLON; File: BERKRICH.GPJ; 11/19/2001 PB-08

URS

Project: UC Berkeley Richmond Field Station **Project Location:** Richmond, California **Project Number:** 51-09967067.00	**Log of Boring PB7** Sheet 1 of 1

Date(s) Drilled	9/24/01	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	12.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	Not available
Groundwater Levels(s)	First: 7.5 ft Completion: 7.13 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Property Boundary	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 7-12 ft; PVC pulled after water sampling and borehole grouted to surface		

Elevation, feet	Depth, feet	SAMPLES Interval	Lab ID Number	Headspace PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Temporary Well Schematic	FIELD NOTES AND WELL DETAILS
	0					CLAYEY SILT, brown, dry, roots		
						SILTY CLAY, brown, dry, stiff, medium plasticity		
						Becomes grayish brown, trace gravel to 1/4 in. dia., iron oxide filaments		
	5							
						CLAYEY GRAVEL, brown, moist, subrounded gravel to 3/4 in. dia., some medium to coarse sand		
			PB7-9'-10'					Temporary Well, 3/4-in. PVC casing, 0.010-in. slotted screen 7-12 ft Groundwater Sample PB7, pH=6.67
	10					CLAY, light brown, wet, soft		
						BOTTOM OF BORING AT 12 FEET		
	15							
	20							
	25							

Report: ENV_3PS/W_SOLON; File: BERKRICH.GPJ; 11/19/2001 PB-07

URS

Project: UC Berkeley Richmond Field Station **Project Location:** Richmond, California **Project Number:** 51-09967067.00	**Log of Boring PB8** Sheet 1 of 1

Date(s) Drilled	9/24/01	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	12.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	Not available
Groundwater Levels(s)	First: 6.5 ft Completion: 6.2 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Property Boundary	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 7-12 ft; PVC pulled after water sampling and borehole grouted to surface		

Elevation, feet	Depth, feet	SAMPLES: Interval	SAMPLES: Lab ID Number	SAMPLES: Headspace PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Temporary Well Schematic	FIELD NOTES AND WELL DETAILS
	0					GRAVELLY CLAY, dark brown, dry, angular gravel to 1/4 in. dia.		
						CLAY, dark brown, damp, medium stiff, medium plasticity, iron oxide filaments		
						Becomes grayish brown; increasing silt		
	5					SILTY CLAY, light brown, damp, medium plasticity, black organic particles		
			PB8-6.5'-7.5'					
						CLAYEY GRAVEL, dark brown, wet(?), sticky, gravel to 3/4 in. dia.		Temporary Well, 3/4-in. PVC casing, 0.010-in. slotted screen 7-12 ft Groundwater Sample PB8, pH=6.81
	10					CLAYEY SILT, mottled light brown and reddish brown, wet(?), soft		
						SAND, light brown, wet, fine Sand becomes medium		
						BOTTOM OF BORING AT 12 FEET		
	15							
	20							
	25							

Report: ENV_JPS/W_SOLON: File: BERKRICH.GPJ; 11/19/2001 PB-08

URS

Project: UC Berkeley Richmond Field Station **Project Location:** Richmond, California **Project Number:** 51-09967067.00	**Log of Boring PB9** Sheet 1 of 1

Date(s) Drilled	9/24/01	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	12.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	Not available
Groundwater Levels(s)	First: 6.5 ft Completion: 5.69 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Property Boundary	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 7-12 ft; PVC pulled after water sampling and borehole grouted to surface		

Elevation, feet	Depth, feet	SAMPLES: Interval	SAMPLES: Lab ID Number	SAMPLES: Headspace PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Temporary Well Schematic	FIELD NOTES AND WELL DETAILS
	0					GRAVEL [FILL]		
						CLAY, very dark brown to black, damp, stiff, low plasticity, roots, iron oxide filaments		
	5					Becomes very soft, little sand		
			PB9-6'-7'			SILTY CLAY, very dark brown to black, moist, very soft, low plasticity, little sand, iron oxide staining		Temporary Well, 3/4-in. PVC casing, 0.010-in. slotted screen 7-12 ft Groundwater Sample PB9, pH=6.27
	10					CLAYEY SAND, dark brown, wet, fine		
						Sand becomes coarse, with some gravel		
						BOTTOM OF BORING AT 12 FEET		
	15							
	20							
	25							

Report: ENV_3PS/W_SOLON; File: BERKRICH.GPJ; 11/19/2001 PB-09

URS

Project: UC Berkeley Richmond Field Station **Project Location:** Richmond, California **Project Number:** 51-09967067.00	**Log of Boring PB10** Sheet 1 of 1

Date(s) Drilled	9/21/01	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	Precision Drilling	Surface Elevation	Not available
Groundwater Levels(s)	First: 7.5 ft Completion: 8.62 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	North of Building 100	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 11-16 ft; PVC pulled after water sampling and borehole grouted to surface		

Elevation, feet	Depth, feet	SAMPLES: Interval	SAMPLES: Lab ID Number	SAMPLES: Headspace PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Temporary Well Schematic	FIELD NOTES AND WELL DETAILS
	0					CLAYEY SILT, dark brown, dry, friable (crumbly), trace fine gravel, roots		
						CLAY, very dark brown, dry, hard, roots, white particles		
	5					Becomes light brown, low plasticity, with trace sand and fine gravel		
						Trace to no sand or gravel		
						Becomes wet, medium stiff, plastic		
			PB10-8'-9'					
	10					Black mottling		
								Temporary Well, 3/4-in. PVC casing, 0.010-in. slotted screen 11-16 ft Groundwater Sample PB10, pH=5.65
						Increasing fine sand		
	15					BOTTOM OF BORING AT 16 FEET		
	20							
	25							

Report: ENV_JPSW_SOLON; File: BERKRICH.GPJ; 11/19/2001 PB-10

URS

Project: UC Berkeley Richmond Field Station **Project Location:** Richmond, California **Project Number:** 51-09967067.00	**Log of Boring PB11** Sheet 1 of 1

Date(s) Drilled	9/21/01	Logged By	B. Copeland	Checked By	
Drilling Method	Direct Push	Drill Bit Size/Type	2-inch-OD drive point	Total Depth of Borehole	12.0 feet
Drill Rig Type	Geoprobe	Drilling Contractor	Precision Drilling	Surface Elevation	Not available
Groundwater Levels(s)	First: 10.5 ft 24 hrs: 10.56 ft bgs	Sampling Method(s)	4-foot dual tube Geoprobe sampler with acetate liner		
Location	Property Boundary near Gate 4	Borehole Completion	3/4-in.-dia. PVC temporary well, 0.010-in.-slot screen 7-12 ft; PVC pulled after water sampling and borehole grouted to surface		

Elevation, feet	Depth, feet	SAMPLES: Interval	SAMPLES: Lab ID Number	SAMPLES: Headspace PID, ppm	Graphic Log	MATERIAL DESCRIPTION	Temporary Well Schematic	FIELD NOTES AND WELL DETAILS
	0					CLAYEY SILT, dark brown, dry, roots		Trace cinders at surface (1/2 in.-thick layer).
						CLAY, grayish brown, damp, medium stiff, medium plasticity, white particles		
	5					With blebs of grayish white powder		
			PB11-8'-9'			With zones of greenish gray and black		Temporary Well, 3/4-in. PVC casing, 0.010-in. slotted screen 7-12 ft Groundwater Sample PB11, pH=____
	10					Becomes mottled greenish gray and reddish brown		Cinders on inside surface of tube (slough).
						BOTTOM OF BORING AT 12 FEET		
	15							
	20							
	25							

Report: ENV_3PSW_SOLON; File: BERKRICH.GPJ; 11/19/2001 PB-11

URS

APPENDIX B

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. Thereafter, a brief explanation is provided of the data qualifiers that were assigned to results during the QA/QC process. Finally, a summary is provided of the qualified sample results, by sample matrix and by analytical method. The analytical data that were qualified are summarized in Table B-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.

Method Blanks

Method blanks are prepared in the laboratory using deionized, distilled (Reagent Grade Type II) 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 sample results.

Matrix Spikes and Laboratory Control Samples

Matrix spikes (MSs), matrix spike duplicates (MSDs), laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs) 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 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:

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

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

LCSs are prepared exactly like MSs using a clean control matrix rather than an environmental sample. Typical control matrices include Reagent Grade Type II water and clean sand. LCSs 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 sample results.

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 RPDs are 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 sample results.

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. Results for surrogate analyses are reported in terms of percent recovery (which is 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.

Explanation of Analytical Data Qualifiers

The analytical data were reviewed and qualified following USEPA guidelines for organic and inorganic data review (USEPA, 1994a, b). The qualifiers assigned to results during the QA/QC process are defined below.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

R The data are unusable.

In the section below, results qualified as estimated indicate that a "J" qualifier was assigned to the results.

Summary of Qualified Analytical Data

The qualified data by matrix and analytical method are summarized. A complete summary of the qualified data is included in Table **F-1**.

Sediment Samples

- Qualification of USEPA Method 6010B (selenium) results as estimated was due to low MS recovery that indicates a potential low bias.

Cinder Samples

- Qualification of USEPA Method 6010B (selenium) results as estimated was due to low MS/MSD recoveries that indicate a potential low bias.
- Qualification of USEPA Method 9045C (pH) results as rejected because samples were analyzed outside of maximum holding time.

In summary, the QA/QC review found the data to be of acceptable quality, with no limitations for use with the exception of the rejected pH data. Data of acceptable quality include results qualified as estimated.

References

USEPA. 1994. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. February.

USEPA. 1999. Contract Laboratory Program National Functional Guidelines for Organic Data Review. October.

Table B-1
Summary of Qualified Analytical Data
U.C. Berkeley, Richmond Field Station

Sample ID	Matrix	Method	Analyte	Qualifier	Explanation
PH1-6.5-SED	Sediment	6010B	Selenium	J	MSD recovery (36%) out of control (40%-118%)
PH1-CINDER	Cinder	6010B	Selenium	J	MS/MSD recoveries (22% and 25%) out of control (40%-118%)
PH2-6.5-SED	Sediment	6010B	Selenium	J	MSD recovery (36%) out of control (40%-118%)
PH3-6.5-SED	Sediment	6010B	Selenium	J	MSD recovery (36%) out of control (40%-118%)
PH4-7-SED	Sediment	6010B	Selenium	J	MSD recovery (36%) out of control (40%-118%)
PH4-CINDER	Cinder	6010B	Selenium	J	MS/MSD recoveries (22% and 25%) out of control (40%-118%)
PH5-7-SED	Sediment	6010B	Selenium	J	MSD recovery (36%) out of control (40%-118%)
PH7-6-SED	Sediment	6010B	Selenium	J	MSD recovery (36%) out of control (40%-118%)
PH7-CINDER	Cinder	6010B	Selenium	J	MS/MSD recoveries (22% and 25%) out of control (40%-118%)
PH1-CINDER	Cinder	9045C	pH	R	Analyzed outside of holding time.
PH4-CINDER	Cinder	9045C	pH	R	Analyzed outside of holding time.
PH7-CINDER	Cinder	9045C	pH	R	Analyzed outside of holding time.

APPENDIX C

Invoice 152422

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: 17-OCT-01
Lab Job Number: 154352
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

CA ELAP # 1459

Curtis & Tompkins, Ltd.

Laboratory Numbers: **154352**
Client: **URS Corporation**
Location: **UCB-Richmond Field Sta.**
Project ID: **510996706700**

Sampled Date: **09/21&24 /01**
Received Date: **09/24/01**

CASE NARRATIVE

This hardcopy data package contains sample and QC results for eight soil samples and five water samples, which were received from the site referenced above on September 24, 2001. The samples were received cold and intact. One soil sample was placed on hold per the chain of custody. All results have been corrected for moisture.

VOCs (EPA 8260): High Trichloroethene matrix spike recoveries were observed for sample CT# 154311-010. The associated laboratory control sample (LCS) passed all (QC) quality control criteria. No other analytical problems were encountered.

Metals (EPA 6000/7000): For the filtrate samples, high mercury matrix spike duplicate recovery was observed for sample CT# 154334-001. High mercury relative percent difference (RPD) was observed for the sample duplicate of PB10 (CT# 154352-001). High barium and selenium relative percent difference was observed for the sample duplicate of CT# 154284-002. Low silver sample spike recovery was observed for sample CT# 154284-002. The associated blank spike and blank spike duplicate recoveries and (RPDs) passed all criteria.
For the soil samples, copper and zinc matrix spike recoveries are considered not meaningful (NM) as the sample concentrations for these elements are four times greater than the spiked level. Low antimony matrix spike recoveries were observed for sample A-4-2-4 (CT# 154352-006). The blank spike and blank spike duplicate recoveries pass all criteria. No other analytical problems were encountered.

General Chemistry: No analytical problems were encountered.

154|352

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

Chain of Custody Record

PROJECT NO. 51099670 67.00

SAMPLERS: (Signature) B Copeland

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method	EPA Method	EPA Method	EPA Method	Cal 17 metals	pH	8260						Number of Containers	REMARKS (Sample preservation, handling procedures, etc.)
~~9/24~~		~~PB6-7.3~~	~~S~~					~~X~~	~~X~~	~~X~~							
9/24	1355	PB10	W					X	X	X						4	
	1420	PB9								X						4	
	1430	PB8						X	X	X						4	
		PB7								X						4	
	1520	PB6								X						3	
																	dissolved metals in water
																	Pls filter w/in 24 hrs.
9/21		A4-2-4	S					X	X							1	
9/24		PB6-7.3						X		X						1	
		PB7-9						X		X						1	
		PB8-6.5						X		X						1	Results to
		PB9-6						X		X						1	Bill Copeland
		PB9-7						HOLD								1	(510) 874-3192
		PB10-8						X		X						1	
		PB11-8						X		X						1	

Received ☒ On Ice ☒ Cold ☐ Ambient ☒ Intact

Preservation Correct? ☐ Yes ☐ No ☒ N/A

TOTAL NUMBER OF CONTAINERS

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
B Copeland	9/24/01 1600	Tracy Dhc			
METHOD OF SHIPMENT:		SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB6	Batch#:	66677
Lab ID:	154352-005	Sampled:	09/24/01
Matrix:	Water	Received:	09/24/01
Units:	ug/L	Analyzed:	09/26/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Acetone	10	10
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	0.8	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB6	Batch#:	66677
Lab ID:	154352-005	Sampled:	09/24/01
Matrix:	Water	Received:	09/24/01
Units:	ug/L	Analyzed:	09/26/01
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	0.8	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	0.5
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	109	80-122
1,2-Dichloroethane-d4	103	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	112	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB7	Batch#:	66677
Lab ID:	154352-004	Sampled:	09/24/01
Matrix:	Water	Received:	09/24/01
Units:	ug/L	Analyzed:	09/26/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Acetone	ND	10
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	0.9	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	120	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB7	Batch#:	66677
Lab ID:	154352-004	Sampled:	09/24/01
Matrix:	Water	Received:	09/24/01
Units:	ug/L	Analyzed:	09/26/01
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	0.5
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-122
1,2-Dichloroethane-d4	101	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	114	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB8	Batch#:	66677
Lab ID:	154352-003	Sampled:	09/24/01
Matrix:	Water	Received:	09/24/01
Units:	ug/L	Analyzed:	09/26/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Acetone	ND	10
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	1.1	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	0.8	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	4.1	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB8	Batch#:	66677
Lab ID:	154352-003	Sampled:	09/24/01
Matrix:	Water	Received:	09/24/01
Units:	ug/L	Analyzed:	09/26/01
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	0.5
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-122
1,2-Dichloroethane-d4	91	78-123
Toluene-d8	96	80-110
Bromofluorobenzene	115	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB9	Batch#:	66801
Lab ID:	154352-002	Sampled:	09/24/01
Matrix:	Water	Received:	09/24/01
Units:	ug/L	Analyzed:	10/02/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Acetone	ND	10
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	2.5	0.5
Benzene	ND	0.5
Trichloroethene	33	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	1.0	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB9	Batch#:	66801
Lab ID:	154352-002	Sampled:	09/24/01
Matrix:	Water	Received:	09/24/01
Units:	ug/L	Analyzed:	10/02/01
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	2.0	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	0.5
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-122
1,2-Dichloroethane-d4	113	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	104	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB10	Batch#:	66677
Lab ID:	154352-001	Sampled:	09/24/01
Matrix:	Water	Received:	09/24/01
Units:	ug/L	Analyzed:	09/26/01
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	3.4	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Acetone	ND	10
Freon 113	ND	5.0
1,1-Dichloroethene	0.7	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	0.9	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	10	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	7.1	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	25	0.5
Benzene	0.6	0.5
Trichloroethene	76	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	14	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB10	Batch#:	66677
Lab ID:	154352-001	Sampled:	09/24/01
Matrix:	Water	Received:	09/24/01
Units:	ug/L	Analyzed:	09/26/01
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	9.8	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	1.4	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	0.5
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	109	80-122
1,2-Dichloroethane-d4	101	78-123
Toluene-d8	98	80-110
Bromofluorobenzene	114	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC157103	Batch#:	66677
Matrix:	Water	Analyzed:	09/26/01
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Acetone	ND	10
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC157103	Batch#:	66677
Matrix:	Water	Analyzed:	09/26/01
Units:	ug/L		

Analyte	Result	RL
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	0.5
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	111	80-122
1,2-Dichloroethane-d4	101	78-123
Toluene-d8	97	80-110
Bromofluorobenzene	114	80-115

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC157569	Batch#:	66801
Matrix:	Water	Analyzed:	10/02/01
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	0.5
Acetone	ND	10
Freon 113	ND	5.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	66801
Units:	ug/L	Analyzed:	10/02/01
Diln Fac:	1.000		

Type: BS Lab ID: QC157566

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	51.15	102	74-132
Benzene	50.00	46.66	93	80-116
Trichloroethene	50.00	50.70	101	80-119
Toluene	50.00	50.21	100	80-120
Chlorobenzene	50.00	48.07	96	80-117

Surrogate	%REC	Limits
Dibromofluoromethane	104	80-122
1,2-Dichloroethane-d4	113	78-123
Toluene-d8	99	80-110
Bromofluorobenzene	101	80-115

Type: BSD Lab ID: QC157567

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	48.41	97	74-132	6	20
Benzene	50.00	45.71	91	80-116	2	20
Trichloroethene	50.00	48.11	96	80-119	5	20
Toluene	50.00	50.23	100	80-120	0	20
Chlorobenzene	50.00	47.87	96	80-117	0	20

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-122
1,2-Dichloroethane-d4	111	78-123
Toluene-d8	101	80-110
Bromofluorobenzene	100	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB6-7.3	Diln Fac:	0.9804
Lab ID:	154352-007	Batch#:	66783
Matrix:	Soil	Sampled:	09/24/01
Units:	ug/Kg	Received:	09/24/01
Basis:	dry	Analyzed:	10/01/01

Moisture: 16%

Analyte	Result	RL
Freon 12	ND	12
Chloromethane	ND	12
Vinyl Chloride	ND	12
Bromomethane	ND	12
Chloroethane	ND	12
Trichlorofluoromethane	ND	5.8
Acetone	ND	23
Freon 113	ND	5.8
1,1-Dichloroethene	ND	5.8
Methylene Chloride	ND	23
Carbon Disulfide	ND	5.8
MTBE	ND	5.8
trans-1,2-Dichloroethene	ND	5.8
Vinyl Acetate	ND	58
1,1-Dichloroethane	ND	5.8
2-Butanone	ND	12
cis-1,2-Dichloroethene	ND	5.8
2,2-Dichloropropane	ND	5.8
Chloroform	ND	5.8
Bromochloromethane	ND	5.8
1,1,1-Trichloroethane	ND	5.8
1,1-Dichloropropene	ND	5.8
Carbon Tetrachloride	ND	5.8
1,2-Dichloroethane	ND	5.8
Benzene	ND	5.8
Trichloroethene	ND	5.8
1,2-Dichloropropane	ND	5.8
Bromodichloromethane	ND	5.8
Dibromomethane	ND	5.8
4-Methyl-2-Pentanone	ND	12
cis-1,3-Dichloropropene	ND	5.8
Toluene	ND	5.8
trans-1,3-Dichloropropene	ND	5.8
1,1,2-Trichloroethane	ND	5.8
2-Hexanone	ND	12
1,3-Dichloropropane	ND	5.8
Tetrachloroethene	ND	5.8
Dibromochloromethane	ND	5.8
1,2-Dibromoethane	ND	5.8
Chlorobenzene	ND	5.8
1,1,1,2-Tetrachloroethane	ND	5.8
Ethylbenzene	ND	5.8
m,p-Xylenes	ND	5.8
o-Xylene	ND	5.8
Styrene	ND	5.8
Bromoform	ND	5.8
Isopropylbenzene	ND	5.8
1,1,2,2-Tetrachloroethane	ND	5.8
1,2,3-Trichloropropane	ND	5.8
Propylbenzene	ND	5.8
Bromobenzene	ND	5.8
1,3,5-Trimethylbenzene	ND	5.8
2-Chlorotoluene	ND	5.8

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB6-7.3	Diln Fac:	0.9804
Lab ID:	154352-007	Batch#:	66783
Matrix:	Soil	Sampled:	09/24/01
Units:	ug/Kg	Received:	09/24/01
Basis:	drv	Analyzed:	10/01/01

Analyte	Result	RL
4-Chlorotoluene	ND	5.8
tert-Butylbenzene	ND	5.8
1,2,4-Trimethylbenzene	ND	5.8
sec-Butylbenzene	ND	5.8
para-Isopropyl Toluene	ND	5.8
1,3-Dichlorobenzene	ND	5.8
1,4-Dichlorobenzene	ND	5.8
n-Butylbenzene	ND	5.8
1,2-Dichlorobenzene	ND	5.8
1,2-Dibromo-3-Chloropropane	ND	5.8
1,2,4-Trichlorobenzene	ND	5.8
Hexachlorobutadiene	ND	5.8
Naphthalene	ND	5.8
1,2,3-Trichlorobenzene	ND	5.8

Surrogate	%REC	Limits
Dibromofluoromethane	118	63-133
1,2-Dichloroethane-d4	120	76-127
Toluene-d8	101	80-111
Bromofluorobenzene	113	77-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB7-9	Diln Fac:	0.9804
Lab ID:	154352-008	Batch#:	66783
Matrix:	Soil	Sampled:	09/24/01
Units:	ug/Kg	Received:	09/24/01
Basis:	dry	Analyzed:	10/01/01

Moisture: 10%

Analyte	Result	RL
Freon 12	ND	11
Chloromethane	ND	11
Vinyl Chloride	ND	11
Bromomethane	ND	11
Chloroethane	ND	11
Trichlorofluoromethane	ND	5.4
Acetone	ND	22
Freon 113	ND	5.4
1,1-Dichloroethene	ND	5.4
Methylene Chloride	ND	22
Carbon Disulfide	ND	5.4
MTBE	ND	5.4
trans-1,2-Dichloroethene	ND	5.4
Vinyl Acetate	ND	54
1,1-Dichloroethane	ND	5.4
2-Butanone	ND	11
cis-1,2-Dichloroethene	ND	5.4
2,2-Dichloropropane	ND	5.4
Chloroform	ND	5.4
Bromochloromethane	ND	5.4
1,1,1-Trichloroethane	ND	5.4
1,1-Dichloropropene	ND	5.4
Carbon Tetrachloride	ND	5.4
1,2-Dichloroethane	ND	5.4
Benzene	ND	5.4
Trichloroethene	ND	5.4
1,2-Dichloropropane	ND	5.4
Bromodichloromethane	ND	5.4
Dibromomethane	ND	5.4
4-Methyl-2-Pentanone	ND	11
cis-1,3-Dichloropropene	ND	5.4
Toluene	ND	5.4
trans-1,3-Dichloropropene	ND	5.4
1,1,2-Trichloroethane	ND	5.4
2-Hexanone	ND	11
1,3-Dichloropropane	ND	5.4
Tetrachloroethene	ND	5.4
Dibromochloromethane	ND	5.4
1,2-Dibromoethane	ND	5.4
Chlorobenzene	ND	5.4
1,1,1,2-Tetrachloroethane	ND	5.4
Ethylbenzene	ND	5.4
m,p-Xylenes	ND	5.4
o-Xylene	ND	5.4
Styrene	ND	5.4
Bromoform	ND	5.4
Isopropylbenzene	ND	5.4
1,1,2,2-Tetrachloroethane	ND	5.4
1,2,3-Trichloropropane	ND	5.4
Propylbenzene	ND	5.4
Bromobenzene	ND	5.4
1,3,5-Trimethylbenzene	ND	5.4
2-Chlorotoluene	ND	5.4

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB7-9	Diln Fac:	0.9804
Lab ID:	154352-008	Batch#:	66783
Matrix:	Soil	Sampled:	09/24/01
Units:	ug/Kg	Received:	09/24/01
Basis:	dry	Analyzed:	10/01/01

Analyte	Result	RL
4-Chlorotoluene	ND	5.4
tert-Butylbenzene	ND	5.4
1,2,4-Trimethylbenzene	ND	5.4
sec-Butylbenzene	ND	5.4
para-Isopropyl Toluene	ND	5.4
1,3-Dichlorobenzene	ND	5.4
1,4-Dichlorobenzene	ND	5.4
n-Butylbenzene	ND	5.4
1,2-Dichlorobenzene	ND	5.4
1,2-Dibromo-3-Chloropropane	ND	5.4
1,2,4-Trichlorobenzene	ND	5.4
Hexachlorobutadiene	ND	5.4
Naphthalene	ND	5.4
1,2,3-Trichlorobenzene	ND	5.4

Surrogate	%REC	Limits
Dibromofluoromethane	115	63-133
1,2-Dichloroethane-d4	125	76-127
Toluene-d8	100	80-111
Bromofluorobenzene	120	77-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB8-6.5	Diln Fac:	0.9259
Lab ID:	154352-009	Batch#:	66783
Matrix:	Soil	Sampled:	09/24/01
Units:	ug/Kg	Received:	09/24/01
Basis:	dry	Analyzed:	10/01/01

Moisture: 16%

Analyte	Result	RL
Freon 12	ND	11
Chloromethane	ND	11
Vinyl Chloride	ND	11
Bromomethane	ND	11
Chloroethane	ND	11
Trichlorofluoromethane	ND	5.5
Acetone	ND	22
Freon 113	ND	5.5
1,1-Dichloroethene	ND	5.5
Methylene Chloride	ND	22
Carbon Disulfide	ND	5.5
MTBE	ND	5.5
trans-1,2-Dichloroethene	ND	5.5
Vinyl Acetate	ND	55
1,1-Dichloroethane	ND	5.5
2-Butanone	ND	11
cis-1,2-Dichloroethene	ND	5.5
2,2-Dichloropropane	ND	5.5
Chloroform	ND	5.5
Bromochloromethane	ND	5.5
1,1,1-Trichloroethane	ND	5.5
1,1-Dichloropropene	ND	5.5
Carbon Tetrachloride	ND	5.5
1,2-Dichloroethane	ND	5.5
Benzene	ND	5.5
Trichloroethene	ND	5.5
1,2-Dichloropropane	ND	5.5
Bromodichloromethane	ND	5.5
Dibromomethane	ND	5.5
4-Methyl-2-Pentanone	ND	11
cis-1,3-Dichloropropene	ND	5.5
Toluene	ND	5.5
trans-1,3-Dichloropropene	ND	5.5
1,1,2-Trichloroethane	ND	5.5
2-Hexanone	ND	11
1,3-Dichloropropane	ND	5.5
Tetrachloroethene	ND	5.5
Dibromochloromethane	ND	5.5
1,2-Dibromoethane	ND	5.5
Chlorobenzene	ND	5.5
1,1,1,2-Tetrachloroethane	ND	5.5
Ethylbenzene	ND	5.5
m,p-Xylenes	ND	5.5
o-Xylene	ND	5.5
Styrene	ND	5.5
Bromoform	ND	5.5
Isopropylbenzene	ND	5.5
1,1,2,2-Tetrachloroethane	ND	5.5
1,2,3-Trichloropropane	ND	5.5
Propylbenzene	ND	5.5
Bromobenzene	ND	5.5
1,3,5-Trimethylbenzene	ND	5.5
2-Chlorotoluene	ND	5.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB8-6.5	Diln Fac:	0.9259
Lab ID:	154352-009	Batch#:	66783
Matrix:	Soil	Sampled:	09/24/01
Units:	ug/Kg	Received:	09/24/01
Basis:	dry	Analyzed:	10/01/01

Analyte	Result	RL
4-Chlorotoluene	ND	5.5
tert-Butylbenzene	ND	5.5
1,2,4-Trimethylbenzene	ND	5.5
sec-Butylbenzene	ND	5.5
para-Isopropyl Toluene	ND	5.5
1,3-Dichlorobenzene	ND	5.5
1,4-Dichlorobenzene	ND	5.5
n-Butylbenzene	ND	5.5
1,2-Dichlorobenzene	ND	5.5
1,2-Dibromo-3-Chloropropane	ND	5.5
1,2,4-Trichlorobenzene	ND	5.5
Hexachlorobutadiene	ND	5.5
Naphthalene	ND	5.5
1,2,3-Trichlorobenzene	ND	5.5

Surrogate	%REC	Limits
Dibromofluoromethane	121	63-133
1,2-Dichloroethane-d4	124	76-127
Toluene-d8	101	80-111
Bromofluorobenzene	114	77-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB9-6	Diln Fac:	0.9434
Lab ID:	154352-010	Batch#:	66783
Matrix:	Soil	Sampled:	09/24/01
Units:	ug/Kg	Received:	09/24/01
Basis:	dry	Analyzed:	10/01/01

Moisture: 17%

Analyte	Result	RL
Freon 12	ND	11
Chloromethane	ND	11
Vinyl Chloride	ND	11
Bromomethane	ND	11
Chloroethane	ND	11
Trichlorofluoromethane	ND	5.7
Acetone	ND	23
Freon 113	ND	5.7
1,1-Dichloroethene	ND	5.7
Methylene Chloride	ND	23
Carbon Disulfide	ND	5.7
MTBE	ND	5.7
trans-1,2-Dichloroethene	ND	5.7
Vinyl Acetate	ND	57
1,1-Dichloroethane	ND	5.7
2-Butanone	ND	11
cis-1,2-Dichloroethene	ND	5.7
2,2-Dichloropropane	ND	5.7
Chloroform	ND	5.7
Bromochloromethane	ND	5.7
1,1,1-Trichloroethane	ND	5.7
1,1-Dichloropropene	ND	5.7
Carbon Tetrachloride	ND	5.7
1,2-Dichloroethane	ND	5.7
Benzene	ND	5.7
Trichloroethene	ND	5.7
1,2-Dichloropropane	ND	5.7
Bromodichloromethane	ND	5.7
Dibromomethane	ND	5.7
4-Methyl-2-Pentanone	ND	11
cis-1,3-Dichloropropene	ND	5.7
Toluene	ND	5.7
trans-1,3-Dichloropropene	ND	5.7
1,1,2-Trichloroethane	ND	5.7
2-Hexanone	ND	11
1,3-Dichloropropane	ND	5.7
Tetrachloroethene	ND	5.7
Dibromochloromethane	ND	5.7
1,2-Dibromoethane	ND	5.7
Chlorobenzene	ND	5.7
1,1,1,2-Tetrachloroethane	ND	5.7
Ethylbenzene	ND	5.7
m,p-Xylenes	ND	5.7
o-Xylene	ND	5.7
Styrene	ND	5.7
Bromoform	ND	5.7
Isopropylbenzene	ND	5.7
1,1,2,2-Tetrachloroethane	ND	5.7
1,2,3-Trichloropropane	ND	5.7
Propylbenzene	ND	5.7
Bromobenzene	ND	5.7
1,3,5-Trimethylbenzene	ND	5.7
2-Chlorotoluene	ND	5.7

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB9-6	Diln Fac:	0.9434
Lab ID:	154352-010	Batch#:	66783
Matrix:	Soil	Sampled:	09/24/01
Units:	ug/Kg	Received:	09/24/01
Basis:	dry	Analyzed:	10/01/01

Analyte	Result	RL
4-Chlorotoluene	ND	5.7
tert-Butylbenzene	ND	5.7
1,2,4-Trimethylbenzene	ND	5.7
sec-Butylbenzene	ND	5.7
para-Isopropyl Toluene	ND	5.7
1,3-Dichlorobenzene	ND	5.7
1,4-Dichlorobenzene	ND	5.7
n-Butylbenzene	ND	5.7
1,2-Dichlorobenzene	ND	5.7
1,2-Dibromo-3-Chloropropane	ND	5.7
1,2,4-Trichlorobenzene	ND	5.7
Hexachlorobutadiene	ND	5.7
Naphthalene	ND	5.7
1,2,3-Trichlorobenzene	ND	5.7

Surrogate	%REC	Limits
Dibromofluoromethane	119	63-133
1,2-Dichloroethane-d4	123	76-127
Toluene-d8	101	80-111
Bromofluorobenzene	110	77-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB10-8	Diln Fac:	1.000
Lab ID:	154352-012	Batch#:	66902
Matrix:	Soil	Sampled:	09/24/01
Units:	ug/Kg	Received:	09/24/01
Basis:	dry	Analyzed:	10/05/01

Moisture: 20%

Analyte	Result	RL
Freon 12	ND	13
Chloromethane	ND	13
Vinyl Chloride	ND	13
Bromomethane	ND	13
Chloroethane	ND	13
Trichlorofluoromethane	ND	6.3
Acetone	ND	25
Freon 113	ND	6.3
1,1-Dichloroethene	ND	6.3
Methylene Chloride	ND	25
Carbon Disulfide	ND	6.3
MTBE	ND	6.3
trans-1,2-Dichloroethene	ND	6.3
Vinyl Acetate	ND	63
1,1-Dichloroethane	ND	6.3
2-Butanone	ND	13
cis-1,2-Dichloroethene	ND	6.3
2,2-Dichloropropane	ND	6.3
Chloroform	ND	6.3
Bromochloromethane	ND	6.3
1,1,1-Trichloroethane	ND	6.3
1,1-Dichloropropene	ND	6.3
Carbon Tetrachloride	ND	6.3
1,2-Dichloroethane	ND	6.3
Benzene	ND	6.3
Trichloroethene	ND	6.3
1,2-Dichloropropane	ND	6.3
Bromodichloromethane	ND	6.3
Dibromomethane	ND	6.3
4-Methyl-2-Pentanone	ND	13
cis-1,3-Dichloropropene	ND	6.3
Toluene	ND	6.3
trans-1,3-Dichloropropene	ND	6.3
1,1,2-Trichloroethane	ND	6.3
2-Hexanone	ND	13
1,3-Dichloropropane	ND	6.3
Tetrachloroethene	ND	6.3
Dibromochloromethane	ND	6.3
1,2-Dibromoethane	ND	6.3
Chlorobenzene	ND	6.3
1,1,1,2-Tetrachloroethane	ND	6.3
Ethylbenzene	ND	6.3
m,p-Xylenes	ND	6.3
o-Xylene	ND	6.3
Styrene	ND	6.3
Bromoform	ND	6.3
Isopropylbenzene	ND	6.3
1,1,2,2-Tetrachloroethane	ND	6.3
1,2,3-Trichloropropane	ND	6.3
Propylbenzene	ND	6.3
Bromobenzene	ND	6.3
1,3,5-Trimethylbenzene	ND	6.3
2-Chlorotoluene	ND	6.3

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB10-8	Diln Fac:	1.000
Lab ID:	154352-012	Batch#:	66902
Matrix:	Soil	Sampled:	09/24/01
Units:	ug/Kg	Received:	09/24/01
Basis:	dry	Analyzed:	10/05/01

Analyte	Result	RL
4-Chlorotoluene	ND	6.3
tert-Butylbenzene	ND	6.3
1,2,4-Trimethylbenzene	ND	6.3
sec-Butylbenzene	ND	6.3
para-Isopropyl Toluene	ND	6.3
1,3-Dichlorobenzene	ND	6.3
1,4-Dichlorobenzene	ND	6.3
n-Butylbenzene	ND	6.3
1,2-Dichlorobenzene	ND	6.3
1,2-Dibromo-3-Chloropropane	ND	6.3
1,2,4-Trichlorobenzene	ND	6.3
Hexachlorobutadiene	ND	6.3
Naphthalene	ND	6.3
1,2,3-Trichlorobenzene	ND	6.3

Surrogate	%REC	Limits
Dibromofluoromethane	105	63-133
1,2-Dichloroethane-d4	104	76-127
Toluene-d8	102	80-111
Bromofluorobenzene	101	77-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB11-8	Diln Fac:	1.020
Lab ID:	154352-013	Batch#:	66902
Matrix:	Soil	Sampled:	09/24/01
Units:	ug/Kg	Received:	09/24/01
Basis:	dry	Analyzed:	10/05/01

Moisture: 18%

Analyte	Result	RL
Freon 12	ND	12
Chloromethane	ND	12
Vinyl Chloride	ND	12
Bromomethane	ND	12
Chloroethane	ND	12
Trichlorofluoromethane	ND	6.2
Acetone	ND	25
Freon 113	ND	6.2
1,1-Dichloroethene	ND	6.2
Methylene Chloride	ND	25
Carbon Disulfide	ND	6.2
MTBE	ND	6.2
trans-1,2-Dichloroethene	ND	6.2
Vinyl Acetate	ND	62
1,1-Dichloroethane	ND	6.2
2-Butanone	ND	12
cis-1,2-Dichloroethene	ND	6.2
2,2-Dichloropropane	ND	6.2
Chloroform	ND	6.2
Bromochloromethane	ND	6.2
1,1,1-Trichloroethane	ND	6.2
1,1-Dichloropropene	ND	6.2
Carbon Tetrachloride	ND	6.2
1,2-Dichloroethane	ND	6.2
Benzene	ND	6.2
Trichloroethene	ND	6.2
1,2-Dichloropropane	ND	6.2
Bromodichloromethane	ND	6.2
Dibromomethane	ND	6.2
4-Methyl-2-Pentanone	ND	12
cis-1,3-Dichloropropene	ND	6.2
Toluene	ND	6.2
trans-1,3-Dichloropropene	ND	6.2
1,1,2-Trichloroethane	ND	6.2
2-Hexanone	ND	12
1,3-Dichloropropane	ND	6.2
Tetrachloroethene	ND	6.2
Dibromochloromethane	ND	6.2
1,2-Dibromoethane	ND	6.2
Chlorobenzene	ND	6.2
1,1,1,2-Tetrachloroethane	ND	6.2
Ethylbenzene	ND	6.2
m,p-Xylenes	ND	6.2
o-Xylene	ND	6.2
Styrene	ND	6.2
Bromoform	ND	6.2
Isopropylbenzene	ND	6.2
1,1,2,2-Tetrachloroethane	ND	6.2
1,2,3-Trichloropropane	ND	6.2
Propylbenzene	ND	6.2
Bromobenzene	ND	6.2
1,3,5-Trimethylbenzene	ND	6.2
2-Chlorotoluene	ND	6.2

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	PB11-8	Diln Fac:	1.020
Lab ID:	154352-013	Batch#:	66902
Matrix:	Soil	Sampled:	09/24/01
Units:	ug/Kg	Received:	09/24/01
Basis:	dry	Analyzed:	10/05/01

Analyte	Result	RL
4-Chlorotoluene	ND	6.2
tert-Butylbenzene	ND	6.2
1,2,4-Trimethylbenzene	ND	6.2
sec-Butylbenzene	ND	6.2
para-Isopropyl Toluene	ND	6.2
1,3-Dichlorobenzene	ND	6.2
1,4-Dichlorobenzene	ND	6.2
n-Butylbenzene	ND	6.2
1,2-Dichlorobenzene	ND	6.2
1,2-Dibromo-3-Chloropropane	ND	6.2
1,2,4-Trichlorobenzene	ND	6.2
Hexachlorobutadiene	ND	6.2
Naphthalene	ND	6.2
1,2,3-Trichlorobenzene	ND	6.2

Surrogate	%REC	Limits
Dibromofluoromethane	103	63-133
1,2-Dichloroethane-d4	106	76-127
Toluene-d8	101	80-111
Bromofluorobenzene	100	77-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Type:	BLANK	Basis:	as received
Lab ID:	QC157500	Diln Fac:	1.000
Matrix:	Soil	Batch#:	66783
Units:	ug/Kg	Analyzed:	10/01/01

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Type:	BLANK	Basis:	as received
Lab ID:	QC157500	Diln Fac:	1.000
Matrix:	Soil	Batch#:	66783
Units:	ug/Kg	Analyzed:	10/01/01

Analyte	Result	RL
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	113	63-133
1,2-Dichloroethane-d4	116	76-127
Toluene-d8	97	80-111
Bromofluorobenzene	115	77-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Type:	BLANK	Basis:	as received
Lab ID:	QC157976	Diln Fac:	1.000
Matrix:	Soil	Batch#:	66902
Units:	ug/Kg	Analyzed:	10/05/01

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Type:	BLANK	Basis:	as received
Lab ID:	QC157976	Diln Fac:	1.000
Matrix:	Soil	Batch#:	66902
Units:	ug/Kg	Analyzed:	10/05/01

Analyte	Result	RL
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	101	63-133
1,2-Dichloroethane-d4	102	76-127
Toluene-d8	101	80-111
Bromofluorobenzene	101	77-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Type:	BLANK	Basis:	as received
Lab ID:	QC158045	Diln Fac:	1.000
Matrix:	Soil	Batch#:	66902
Units:	ug/Kg	Analyzed:	10/05/01

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Type:	BLANK	Basis:	as received
Lab ID:	QC158045	Diln Fac:	1.000
Matrix:	Soil	Batch#:	66902
Units:	ug/Kg	Analyzed:	10/05/01

Analyte	Result	RL
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	96	63-133
1,2-Dichloroethane-d4	104	76-127
Toluene-d8	100	80-111
Bromofluorobenzene	100	77-126

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Type:	LCS	Basis:	as received
Lab ID:	QC157499	Diln Fac:	1.000
Matrix:	Soil	Batch#:	66783
Units:	ug/Kg	Analyzed:	10/01/01

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	40.40	81	66-138
Benzene	50.00	40.38	81	76-121
Trichloroethene	50.00	42.20	84	75-124
Toluene	50.00	40.81	82	75-124
Chlorobenzene	50.00	42.29	85	78-115

Surrogate	%REC	Limits
Dibromofluoromethane	108	63-133
1,2-Dichloroethane-d4	109	76-127
Toluene-d8	98	80-111
Bromofluorobenzene	101	77-126

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Type:	LCS	Basis:	as received
Lab ID:	QC157975	Diln Fac:	1.000
Matrix:	Soil	Batch#:	66902
Units:	ug/Kg	Analyzed:	10/05/01

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	51.13	102	66-138
Benzene	50.00	51.29	103	76-121
Trichloroethene	50.00	52.21	104	75-124
Toluene	50.00	52.73	105	75-124
Chlorobenzene	50.00	51.17	102	78-115

Surrogate	%REC	Limits
Dibromofluoromethane	104	63-133
1,2-Dichloroethane-d4	106	76-127
Toluene-d8	102	80-111
Bromofluorobenzene	100	77-126

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Diln Fac:	0.9804
MSS Lab ID:	154311-010	Batch#:	66783
Matrix:	Soil	Sampled:	09/21/01
Units:	ug/Kg	Received:	09/21/01
Basis:	as received	Analyzed:	10/03/01

Type: MS Lab ID: QC157518

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.3000	49.02	50.69	103	42-145
Benzene	<0.2600	49.02	42.65	87	50-133
Trichloroethene	<0.2900	49.02	71.92	147 *	33-133
Toluene	<0.3100	49.02	40.14	82	45-134
Chlorobenzene	<0.2300	49.02	36.63	75	38-137

Surrogate	%REC	Limits
Dibromofluoromethane	97	63-133
1,2-Dichloroethane-d4	101	76-127
Toluene-d8	98	80-111
Bromofluorobenzene	91	77-126

Type: MSD Lab ID: QC157519

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	49.02	48.84	100	42-145	4	31
Benzene	49.02	41.14	84	50-133	4	29
Trichloroethene	49.02	69.35	141 *	33-133	4	30
Toluene	49.02	38.83	79	45-134	3	29
Chlorobenzene	49.02	35.24	72	38-137	4	31

Surrogate	%REC	Limits
Dibromofluoromethane	96	63-133
1,2-Dichloroethane-d4	101	76-127
Toluene-d8	99	80-111
Bromofluorobenzene	93	77-126

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.020
MSS Lab ID:	154346-001	Batch#:	66902
Matrix:	Soil	Sampled:	09/24/01
Units:	ug/Kg	Received:	09/24/01
Basis:	as received	Analyzed:	10/06/01

Type: MS Lab ID: QC158052

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.2000	51.02	47.88	94	42-145
Benzene	<0.2200	51.02	45.16	89	50-133
Trichloroethene	<0.2100	51.02	45.01	88	33-133
Toluene	0.4817	51.02	45.62	88	45-134
Chlorobenzene	<0.3000	51.02	38.00	74	38-137

Surrogate	%REC	Limits
Dibromofluoromethane	105	63-133
1,2-Dichloroethane-d4	106	76-127
Toluene-d8	104	80-111
Bromofluorobenzene	104	77-126

Type: MSD Lab ID: QC158053

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	51.02	46.48	91	42-145	3	31
Benzene	51.02	44.07	86	50-133	2	29
Trichloroethene	51.02	43.44	85	33-133	4	30
Toluene	51.02	44.48	86	45-134	3	29
Chlorobenzene	51.02	35.99	71	38-137	5	31

Surrogate	%REC	Limits
Dibromofluoromethane	104	63-133
1,2-Dichloroethane-d4	105	76-127
Toluene-d8	104	80-111
Bromofluorobenzene	106	77-126

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700		
Field ID:	PB10	Diln Fac:	1.000
Lab ID:	154352-001	Sampled:	09/24/01
Matrix:	Filtrate	Received:	09/24/01
Units:	ug/L	Prepared:	09/25/01

Analyte	Result	RL	Batch#	Analyzed	Analysis
Antimony	ND	60	66649	09/26/01	EPA 6010B
Arsenic	ND	5.0	66649	09/26/01	EPA 6010B
Barium	67	10	66649	09/26/01	EPA 6010B
Beryllium	ND	2.0	66649	09/26/01	EPA 6010B
Cadmium	ND	5.0	66649	09/26/01	EPA 6010B
Chromium	ND	10	66649	09/26/01	EPA 6010B
Cobalt	26	20	66649	09/26/01	EPA 6010B
Copper	30	10	66649	09/26/01	EPA 6010B
Lead	3.9	3.0	66649	09/26/01	EPA 6010B
Mercury	0.48	0.20	66636	09/25/01	EPA 7470A
Molybdenum	ND	20	66649	09/26/01	EPA 6010B
Nickel	120	20	66649	09/26/01	EPA 6010B
Selenium	7.0	5.0	66649	09/26/01	EPA 6010B
Silver	ND	5.0	66649	09/26/01	EPA 6010B
Thallium	14	5.0	66649	09/26/01	EPA 6010B
Vanadium	ND	10	66649	09/26/01	EPA 6010B
Zinc	270	20	66649	09/26/01	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700		
Field ID:	PB8	Diln Fac:	1.000
Lab ID:	154352-003	Sampled:	09/24/01
Matrix:	Filtrate	Received:	09/24/01
Units:	ug/L	Prepared:	09/25/01

Analyte	Result	RL	Batch#	Analyzed	Analysis
Antimony	ND	60	66649	09/26/01	EPA 6010B
Arsenic	ND	5.0	66649	09/26/01	EPA 6010B
Barium	15	10	66649	09/26/01	EPA 6010B
Beryllium	ND	2.0	66649	09/26/01	EPA 6010B
Cadmium	ND	5.0	66649	09/26/01	EPA 6010B
Chromium	ND	10	66649	09/26/01	EPA 6010B
Cobalt	ND	20	66649	09/26/01	EPA 6010B
Copper	ND	10	66649	09/26/01	EPA 6010B
Lead	ND	3.0	66649	09/26/01	EPA 6010B
Mercury	0.31	0.20	66636	09/25/01	EPA 7470A
Molybdenum	ND	20	66649	09/26/01	EPA 6010B
Nickel	ND	20	66649	09/26/01	EPA 6010B
Selenium	ND	5.0	66649	09/26/01	EPA 6010B
Silver	ND	5.0	66649	09/26/01	EPA 6010B
Thallium	ND	5.0	66649	09/26/01	EPA 6010B
Vanadium	ND	10	66649	09/26/01	EPA 6010B
Zinc	ND	20	66649	09/26/01	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	66636
Lab ID:	QC156955	Prepared:	09/25/01
Matrix:	Water	Analyzed:	09/25/01
Units:	ug/L		

Result	RL
ND	0.20

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	66636
Lab ID:	QC156962	Prepared:	09/25/01
Matrix:	WET Leachate	Analyzed:	09/25/01
Units:	ug/L		

Result	RL
ND	1.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC157013	Batch#:	66649
Matrix:	Filtrate	Prepared:	09/25/01
Units:	ug/L	Analyzed:	09/26/01

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

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 25 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	66636
Matrix:	Water	Prepared:	09/25/01
Units:	ug/L	Analyzed:	09/25/01
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC156956	5.000	5.468	109	80-116		
BSD	QC156957	5.000	5.672	113	80-116	4	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	66636
Field ID:	ZZZZZZZZZZ	Sampled:	09/21/01
MSS Lab ID:	154334-001	Received:	09/21/01
Matrix:	Water	Prepared:	09/25/01
Units:	ug/L	Analyzed:	09/25/01
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC156958	0.1185	5.000	5.785	113	80-114		
MSD	QC156959		5.000	5.848	115 *	80-114	1	22

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	PB10	Batch#:	66636
Type:	SDUP	Sampled:	09/24/01
MSS Lab ID:	154352-001	Received:	09/24/01
Lab ID:	QC156960	Prepared:	09/25/01
Matrix:	Water	Analyzed:	09/25/01
Units:	ug/L		

MSS Result	Result	RL	RPD	Lim
0.4754	0.6440	0.20	30 *	22

*= Value outside of QC limits; see narrative
RL= Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7470A
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	PB10	Batch#:	66636
Type:	MS	Sampled:	09/24/01
MSS Lab ID:	154352-001	Received:	09/24/01
Lab ID:	QC156961	Prepared:	09/25/01
Matrix:	Water	Analyzed:	09/25/01
Units:	ug/L		

MSS Result	Spiked	Result	%REC	Limits
0.4754	5.000	6.130	113	80-114

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 6010B
Matrix:	Filtrate	Batch#:	66649
Units:	ug/L	Prepared:	09/25/01
Diln Fac:	1.000	Analyzed:	09/26/01

Type: BS Lab ID: QC157014

Analyte	Spiked	Result	%REC	Limits
Antimony	500.0	440.0	88	75-123
Arsenic	100.0	94.90	95	80-120
Barium	2,000	1,790	90	80-116
Beryllium	50.00	47.50	95	80-116
Cadmium	50.00	45.60	91	80-126
Chromium	200.0	185.0	93	80-113
Cobalt	500.0	456.0	91	80-112
Copper	250.0	225.0	90	80-114
Lead	100.0	93.00	93	78-120
Molybdenum	400.0	368.0	92	80-114
Nickel	500.0	464.0	93	80-116
Selenium	100.0	91.80	92	79-120
Silver	50.00	46.80	94	80-120
Thallium	100.0	97.90	98	80-119
Vanadium	500.0	466.0	93	80-111
Zinc	500.0	471.0	94	72-126

Type: BSD Lab ID: QC157015

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	500.0	432.0	86	75-123	2	21
Arsenic	100.0	100.0	100	80-120	5	20
Barium	2,000	1,790	90	80-116	0	21
Beryllium	50.00	46.50	93	80-116	2	20
Cadmium	50.00	44.90	90	80-126	2	20
Chromium	200.0	180.0	90	80-113	3	21
Cobalt	500.0	443.0	89	80-112	3	25
Copper	250.0	222.0	89	80-114	1	24
Lead	100.0	89.70	90	78-120	4	20
Molybdenum	400.0	362.0	91	80-114	2	22
Nickel	500.0	455.0	91	80-116	2	23
Selenium	100.0	93.00	93	79-120	1	20
Silver	50.00	46.00	92	80-120	2	26
Thallium	100.0	95.60	96	80-119	2	20
Vanadium	500.0	457.0	91	80-111	2	20
Zinc	500.0	464.0	93	72-126	1	26

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	SDUP	Batch#:	66649
MSS Lab ID:	154284-002	Sampled:	09/20/01
Lab ID:	QC157016	Received:	09/20/01
Matrix:	Filtrate	Prepared:	09/25/01
Units:	ug/L	Analyzed:	09/26/01

Analyte	MSS Result	Result	RL	RPD	Lim
Antimony	<60.00	426.0	60	NC	29
Arsenic	<5.000	97.60	5.0	NC	42
Barium	75.60	1,840	10	184 *	20
Beryllium	<2.000	46.60	2.0	NC	20
Cadmium	<5.000	43.90	5.0	NC	25
Chromium	<10.00	179.0	10	NC	20
Cobalt	<20.00	437.0	20	NC	20
Copper	<10.00	223.0	10	NC	20
Lead	<3.000	91.40	3.0	NC	29
Molybdenum	<20.00	378.0	20	NC	20
Nickel	<20.00	441.0	20	NC	20
Selenium	11.20	103.0	5.0	161 *	40
Silver	<5.000	29.20	5.0	NC	30
Thallium	<5.000	78.40	5.0	NC	41
Vanadium	<10.00	459.0	10	NC	41
Zinc	<20.00	467.0	20	NC	33

*= Value outside of QC limits; see narrative
NC= Not Calculated
RL= Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 6010B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	SSPIKE	Batch#:	66649
MSS Lab ID:	154284-002	Sampled:	09/20/01
Lab ID:	QC157017	Received:	09/20/01
Matrix:	Filtrate	Prepared:	09/25/01
Units:	ug/L	Analyzed:	09/26/01

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	29.20	500.0	436.0	81	64-128
Arsenic	<3.600	100.0	98.60	99	65-131
Barium	75.60	2,000	1,820	87	75-120
Beryllium	0.4410	50.00	46.60	92	71-124
Cadmium	<0.4000	50.00	43.60	87	70-127
Chromium	<1.100	200.0	178.0	89	70-124
Cobalt	2.080	500.0	434.0	86	73-122
Copper	<0.6200	250.0	220.0	88	74-122
Lead	<1.000	100.0	89.50	90	66-128
Molybdenum	9.330	400.0	379.0	92	72-122
Nickel	<2.600	500.0	438.0	88	70-126
Selenium	11.20	100.0	105.0	94	65-132
Silver	<0.6200	50.00	30.50	61 *	72-125
Thallium	<4.100	100.0	68.10	68	58-134
Vanadium	2.210	500.0	459.0	91	58-134
Zinc	5.620	500.0	466.0	92	69-129

*= Value outside of QC limits; see narrative

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	A-4-2-4	Basis:	dry
Lab ID:	154352-006	Sampled:	09/21/01
Matrix:	Soil	Received:	09/24/01
Units:	mg/Kg	Analyzed:	09/27/01

Moisture: 38%

Analyte	Result	RL	Dilu Fac	Batch#	Prepared	Prep	Analysis
Antimony	ND UJ	4.8	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Arsenic	150	0.40	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Barium	130	0.79	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Beryllium	0.21	0.16	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Cadmium	8.3	0.40	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Chromium	32	0.79	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Cobalt	8.3	1.6	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Copper	1,900	16	20.00	66644	09/25/01	EPA 3050	EPA 6010B
Lead	180	0.24	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Mercury	85	4.3	67.50	66724	09/27/01	METHOD	EPA 7471
Molybdenum	5.7	1.6	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Nickel	47	1.6	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Selenium	2.2	0.40	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Silver	2.3	0.40	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Thallium	ND	0.40	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Vanadium	31	0.79	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Zinc	2,000	32	20.00	66644	09/25/01	EPA 3050	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	PB6-7.3	Basis:	dry
Lab ID:	154352-007	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/24/01
Units:	mg/Kg	Received:	09/24/01

Moisture: 16%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND uJ	3.1	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Arsenic	4.4	0.26	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Barium	120	0.52	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Beryllium	0.32	0.10	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Cadmium	1.6	0.26	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Chromium	41	0.52	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Cobalt	7.6	1.0	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Copper	19	0.52	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Lead	4.0	0.15	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Mercury	0.084	0.039	66683	09/26/01	09/26/01	METHOD	EPA 7471
Molybdenum	ND	1.0	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Nickel	52	1.0	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Selenium	ND	0.26	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Silver	ND	0.26	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Thallium	ND	0.26	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Vanadium	22	0.52	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Zinc	44	1.0	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	PB7-9	Basis:	dry
Lab ID:	154352-008	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/24/01
Units:	mg/Kg	Received:	09/24/01

Moisture: 10%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND u5	3.1	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Arsenic	4.6	0.26	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Barium	92	0.51	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Beryllium	0.27	0.10	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Cadmium	2.0	0.26	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Chromium	67	0.51	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Cobalt	6.9	1.0	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Copper	16	0.51	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Lead	2.5	0.15	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Mercury	ND	0.042	66683	09/26/01	09/26/01	METHOD	EPA 7471
Molybdenum	ND	1.0	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Nickel	40	1.0	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Selenium	ND	0.26	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Silver	ND	0.26	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Thallium	ND	0.26	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Vanadium	36	0.51	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Zinc	36	1.0	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	PB8-6.5	Basis:	dry
Lab ID:	154352-009	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/24/01
Units:	mg/Kg	Received:	09/24/01

Moisture: 16%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND UJ	3.4	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Arsenic	4.9	0.28	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Barium	200	0.56	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Beryllium	0.34	0.11	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Cadmium	1.9	0.28	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Chromium	33	0.56	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Cobalt	7.0	1.1	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Copper	19	0.56	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Lead	4.9	0.17	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Mercury	ND	0.040	66683	09/26/01	09/26/01	METHOD	EPA 7471
Molybdenum	ND	1.1	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Nickel	49	1.1	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Selenium	ND	0.28	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Silver	ND	0.28	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Thallium	ND	0.28	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Vanadium	26	0.56	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Zinc	38	1.1	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	PB9-6	Basis:	dry
Lab ID:	154352-010	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/24/01
Units:	mg/Kg	Received:	09/24/01

Moisture: 17%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND us	3.6	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Arsenic	1.2	0.30	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Barium	100	0.59	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Beryllium	0.44	0.12	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Cadmium	1.1	0.30	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Chromium	30	0.59	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Cobalt	3.8	1.2	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Copper	15	0.59	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Lead	3.5	0.18	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Mercury	0.14	0.044	66683	09/26/01	09/26/01	METHOD	EPA 7471
Molybdenum	ND	1.2	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Nickel	41	1.2	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Selenium	ND	0.30	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Silver	ND	0.30	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Thallium	ND	0.30	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Vanadium	9.4	0.59	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Zinc	29	1.2	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	PB10-8	Basis:	dry
Lab ID:	154352-012	Sampled:	09/24/01
Matrix:	Soil	Received:	09/24/01
Units:	mg/Kg	Analyzed:	09/27/01

Moisture: 20%

Analyte	Result	RL	Diln Fac	Batch#	Prepared	Prep	Analysis
Antimony	ND uJ	3.5	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Arsenic	4.6	0.29	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Barium	79	0.58	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Beryllium	0.54	0.12	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Cadmium	2.0	0.29	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Chromium	51	0.58	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Cobalt	7.4	1.2	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Copper	22	0.58	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Lead	4.8	0.18	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Mercury	18	1.2	27.00	66724	09/27/01	METHOD	EPA 7471
Molybdenum	ND	1.2	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Nickel	61	1.2	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Selenium	ND	0.29	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Silver	ND	0.29	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Thallium	ND	0.29	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Vanadium	27	0.58	1.000	66644	09/25/01	EPA 3050	EPA 6010B
Zinc	43	1.2	1.000	66644	09/25/01	EPA 3050	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Project#:	510996706700
Client:	URS Corporation	Location:	UCB-Richmond Field Sta.
Field ID:	PB11-8	Basis:	dry
Lab ID:	154352-013	Diln Fac:	1.000
Matrix:	Soil	Sampled:	09/24/01
Units:	mg/Kg	Received:	09/24/01

Moisture: 18%

Analyte	Result	RL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	ND uJ	3.5	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Arsenic	6.8	0.29	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Barium	170	0.58	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Beryllium	0.47	0.12	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Cadmium	2.0	0.29	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Chromium	48	0.58	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Cobalt	23	1.2	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Copper	24	0.58	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Lead	7.2	0.17	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Mercury	0.11	0.041	66683	09/26/01	09/26/01	METHOD	EPA 7471
Molybdenum	ND	1.2	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Nickel	66	1.2	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Selenium	ND	0.29	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Silver	ND	0.29	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Thallium	0.95	0.29	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Vanadium	33	0.58	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B
Zinc	42	1.2	66644	09/25/01	09/27/01	EPA 3050	EPA 6010B

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3050
Project#:	510996706700	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC156995	Batch#:	66644
Matrix:	Soil	Prepared:	09/25/01
Units:	mg/Kg	Analyzed:	09/27/01
Basis:	as received		

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

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	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:	QC157116	Batch#:	66683
Matrix:	Soil	Prepared:	09/26/01
Units:	mg/Kg	Analyzed:	09/26/01

Result	RL
ND	0.040

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	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:	QC157277	Batch#:	66724
Matrix:	Soil	Prepared:	09/27/01
Units:	mg/Kg	Analyzed:	09/27/01

Result	RL
ND	0.040

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3050
Project#:	510996706700	Analysis:	EPA 6010B
Matrix:	Soil	Batch#:	66644
Units:	mg/Kg	Prepared:	09/25/01
Basis:	as received	Analyzed:	09/27/01
Diln Fac:	1.000		

Type: BS Lab ID: QC156996

Analyte	Spiked	Result	%REC	Limits
Antimony	100.0	86.00	86	60-129
Arsenic	50.00	44.65	89	64-116
Barium	100.0	88.00	88	69-111
Beryllium	2.500	2.300	92	70-114
Cadmium	10.00	8.550	86	59-114
Chromium	100.0	89.00	89	68-111
Cobalt	25.00	21.60	86	66-110
Copper	12.50	11.65	93	67-114
Lead	100.0	85.50	86	66-110
Molybdenum	20.00	17.50	88	70-111
Nickel	25.00	22.60	90	68-111
Selenium	50.00	40.95	82	61-110
Silver	10.00	8.800	88	57-116
Thallium	50.00	43.00	86	60-111
Vanadium	25.00	22.45	90	69-112
Zinc	25.00	23.00	92	57-119

Type: BSD Lab ID: QC156997

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	81.00	81	60-129	6	20
Arsenic	50.00	41.85	84	64-116	6	20
Barium	100.0	83.50	84	69-111	5	20
Beryllium	2.500	2.145	86	70-114	7	20
Cadmium	10.00	8.000	80	59-114	7	20
Chromium	100.0	83.50	84	68-111	6	20
Cobalt	25.00	20.30	81	66-110	6	20
Copper	12.50	10.95	88	67-114	6	20
Lead	100.0	81.00	81	66-110	5	20
Molybdenum	20.00	16.55	83	70-111	6	20
Nickel	25.00	21.05	84	68-111	7	20
Selenium	50.00	38.60	77	61-110	6	20
Silver	10.00	8.400	84	57-116	5	20
Thallium	50.00	40.45	81	60-111	6	20
Vanadium	25.00	21.10	84	69-112	6	20
Zinc	25.00	21.85	87	57-119	5	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 3050
Project#:	510996706700	Analysis:	EPA 6010B
Field ID:	A-4-2-4	Batch#:	66644
MSS Lab ID:	154352-006	Sampled:	09/21/01
Matrix:	Soil	Received:	09/24/01
Units:	mg/Kg	Prepared:	09/25/01
Basis:	dry	Analyzed:	09/27/01
Diln Fac:	1.000		

Type: MS Moisture: 38%
Lab ID: QC156998

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	<2.097	155.8	17.30	11 *	15-142
Arsenic	151.8	77.92	194.8	55	38-124
Barium	128.7	155.8	286.7	101	33-136
Beryllium	0.2058	3.896	3.623	88	46-120
Cadmium	8.343	15.58	21.19	82	37-117
Chromium	31.78	155.8	166.7	87	21-137
Cobalt	8.343	38.96	40.91	84	24-131
Copper	1,923	19.48	1,847 >LR	-391 NM	24-150
Lead	182.7	155.8	331.2	95	24-132
Molybdenum	5.713	31.17	27.66	70	23-122
Nickel	47.20	38.96	87.27	103	21-142
Selenium	2.169	77.92	46.36	57	32-118
Silver	2.296	15.58	15.43	84	45-118
Thallium	<0.2581	77.92	62.96	81	42-112
Vanadium	30.75	38.96	70.98	103	35-128
Zinc	2,050	38.96	1,262 >LR	-2022 NM	20-146

Type: MSD Moisture: 38%
Lab ID: QC156999

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	150.7	12.21	8 *	15-142	31	46
Arsenic	75.37	194.5	57	38-124	1	36
Barium	150.7	272.8	96	33-136	3	35
Beryllium	3.768	3.610	90	46-120	3	25
Cadmium	15.07	20.50	81	37-117	1	27
Chromium	150.7	164.3	88	21-137	1	32
Cobalt	37.68	40.55	85	24-131	2	31
Copper	18.84	1,764 >LR	-845 NM	24-150	NC	38
Lead	150.7	315.0	88	24-132	3	41
Molybdenum	30.15	25.47	66	23-122	5	27
Nickel	37.68	80.65	89	21-142	6	35
Selenium	75.37	42.66	54	32-118	5	34
Silver	15.07	15.07	85	45-118	1	23
Thallium	75.37	63.16	84	42-112	4	36
Vanadium	37.68	65.50	92	35-128	6	29
Zinc	37.68	1,244 >LR	-2140 NM	20-146	NC	37

*= Value outside of QC limits; see narrative
NC= Not Calculated
NM= Not Meaningful
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Diln Fac:	1.000
Matrix:	Soil	Batch#:	66683
Units:	mg/Kg	Prepared:	09/26/01
Basis:	as received	Analyzed:	09/26/01

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC157117	1.000	0.9955	100	80-114		
BSD	QC157118	1.000	1.001	100	80-114	1	130

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	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#:	66683
MSS Lab ID:	154330-001	Sampled:	09/21/01
Lab ID:	QC157119	Received:	09/21/01
Matrix:	Soil	Prepared:	09/26/01
Units:	mg/Kg	Analyzed:	09/26/01

MSS Result	Result	RL	RPD	Lim
0.1184	0.1469	0.037	21	35

RL= Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	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:	MS	Batch#:	66683
MSS Lab ID:	154330-001	Sampled:	09/21/01
Lab ID:	QC157120	Received:	09/21/01
Matrix:	Soil	Prepared:	09/26/01
Units:	mg/Kg	Analyzed:	09/26/01

MSS Result	Spiked	Result	%REC	Limits
0.1184	0.8621	0.9178	93	62-135

Curtis & Tompkins, Ltd.

California Title 26 Metals

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	METHOD
Project#:	510996706700	Analysis:	EPA 7471
Analyte:	Mercury	Diln Fac:	1.000
Matrix:	Soil	Batch#:	66724
Units:	mg/Kg	Prepared:	09/27/01
Basis:	as received	Analyzed:	09/27/01

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC157278	1.000	1.068	107	80-114		
BSD	QC157279	1.000	1.069	107	80-114	0	130

RPD= Relative Percent Difference

California Title 26 Metals

ıb #:	154352	Location:	UCB-Richmond Field Sta.
lient:	URS Corporation	Prep:	METHOD
roject#:	510996706700	Analysis:	EPA 7471
ıalyte:	Mercury	Diln Fac:	1.000
leld ID:	ZZZZZZZZZZ	Batch#:	66724
SS Lab ID:	154380-002	Sampled:	09/25/01
ıtrix:	Soil	Received:	09/25/01
ıits:	mg/Kg	Prepared:	09/27/01
ısis:	as received	Analyzed:	09/27/01

ype	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
S	QC157280	0.2326	0.9804	1.108	89	62-135		
SD	QC157281		0.8475	0.9682	87	62-135	2	35

D= Relative Percent Difference

Curtis & Tompkins, Ltd.

Curtis & Tompkins, Ltd.

pH

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Analysis:	EPA 9040B
Project#:	510996706700		
Analyte:	pH	Batch#:	66665
Matrix:	Water	Sampled:	09/24/01
Units:	SU	Received:	09/24/01
Diln Fac:	1.000	Analyzed:	09/24/01

Field ID	Lab ID	Result	RL
PB10	154352-001	6.1	1.0
PB8	154352-003	7.1	1.0

RL= Reporting Limit

Curtis & Tompkins, Ltd.

pH

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Analysis:	EPA 9040B
Project#:	510996706700		
Analyte:	pH	Units:	SU
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	SDUP	Batch#:	66665
MSS Lab ID:	154351-004	Sampled:	09/24/01
Lab ID:	QC157070	Received:	09/24/01
Matrix:	Water	Analyzed:	09/24/01

MSS Result	Result	RL	RPD	Lim
6.860	6.880	1.0	0	20

RL= Reporting Limit
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

pH

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Analysis:	EPA 9045C
Project#:	510996706700		
Analyte:	pH	Diln Fac:	1.000
Field ID:	A-4-2-4	Batch#:	66844
Lab ID:	154352-006	Sampled:	09/21/01
Matrix:	Soil	Received:	09/24/01
Units:	SU	Analyzed:	10/01/01

Result	RL
8.6	1.0

RL= Reporting Limit

Curtis & Tompkins, Ltd.

pH

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Analysis:	EPA 9045C
Project#:	510996706700		
Analyte:	pH	Units:	SU
Field ID:	A-4-2-4	Diln Fac:	1.000
Type:	SDUP	Batch#:	66844
MSS Lab ID:	154352-006	Sampled:	09/21/01
Lab ID:	QC157754	Received:	09/24/01
Matrix:	Soil	Analyzed:	10/01/01

MSS Result	Result	RL	RPD	Lim
8.640	6.680	1.0	1	20

RL= Reporting Limit
RPD= Relative Percent Difference

Percent Moisture Summary Report

Date: 02-OCT-01
Batch: 66806
Analyst: MLT

Sample	Method	Date	Tare(g)	Wet(g)	Dry(g)	Percent Solids	Percent Moisture
154352-006	CLP SOW 390	02-OCT-01	15.8849	36.4079	28.6946	62	38
154352-007	CLP SOW 390	02-OCT-01	15.0003	35.1075	31.9007	84	16
154352-008	CLP SOW 390	02-OCT-01	14.9933	35.7777	33.7188	90	10
154352-009	CLP SOW 390	02-OCT-01	15.7955	36.1998	32.8776	84	16
154352-010	CLP SOW 390	02-OCT-01	15.6644	36.7668	33.1929	83	17
154352-012	CLP SOW 390	02-OCT-01	15.3978	36.6242	32.3609	80	20
154352-013	CLP SOW 390	02-OCT-01	15.5042	35.7348	32.0003	82	18
154403-001	CLP SOW 390	02-OCT-01	15.9702	37.5831	36.4643	95	5
154425-002	CLP SOW 390	02-OCT-01	15.263	36.2464	35.1257	95	5
154425-003	CLP SOW 390	02-OCT-01	15.3232	39.5071	38.9359	98	2
154425-004	CLP SOW 390	02-OCT-01	15.9071	37.5723	37.118	98	2
154425-005	CLP SOW 390	02-OCT-01	15.8334	36.0041	35.3724	97	3
154425-006	CLP SOW 390	02-OCT-01	15.9841	36.6805	35.7692	96	4
154425-007	CLP SOW 390	02-OCT-01	15.3159	36.5614	35.5202	95	5
154425-008	CLP SOW 390	02-OCT-01	15.0643	36.7908	35.2448	93	7
154425-009	CLP SOW 390	02-OCT-01	15.9531	37.0666	36.545	98	2
154425-010	CLP SOW 390	02-OCT-01	15.688	41.1165	35.5584	78	22
154470-003	CLP SOW 390	02-OCT-01	15.8769	40.0637	38.7483	95	5
154470-004	CLP SOW 390	02-OCT-01	15.5893	36.1448	33.809	89	11
154470-005	CLP SOW 390	02-OCT-01	15.3394	36.2362	35.0137	94	6
QC157593 of 154470-005	CLP SOW 390	02-OCT-01	15.352	38.7552	37.642	95	5
					RPD:	1.2%	20.6%

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	66677
Units:	ug/L	Analyzed:	09/26/01
Diln Fac:	1.000		

Type: BS Lab ID: QC157100

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	57.26	115	74-132
Benzene	50.00	52.18	104	80-116
Trichloroethene	50.00	50.09	100	80-119
Toluene	50.00	54.54	109	80-120
Chlorobenzene	50.00	51.80	104	80-117

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-122
1,2-Dichloroethane-d4	93	78-123
Toluene-d8	96	80-110
Bromofluorobenzene	98	80-115

Type: BSD Lab ID: QC157101

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	50.00	57.27	115	74-132	0	20
Benzene	50.00	51.69	103	80-116	1	20
Trichloroethene	50.00	49.57	99	80-119	1	20
Toluene	50.00	55.00	110	80-120	1	20
Chlorobenzene	50.00	52.71	105	80-117	2	20

Surrogate	%REC	Limits
Dibromofluoromethane	102	80-122
1,2-Dichloroethane-d4	94	78-123
Toluene-d8	100	80-110
Bromofluorobenzene	100	80-115

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	154352	Location:	UCB-Richmond Field Sta.
Client:	URS Corporation	Prep:	EPA 5030B
Project#:	510996706700	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC157569	Batch#:	66801
Matrix:	Water	Analyzed:	10/02/01
Units:	ug/L		

Analyte	Result	RL
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	0.5
Naphthalene	ND	0.5
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	103	80-122
1,2-Dichloroethane-d4	102	78-123
Toluene-d8	98	80-110
Bromofluorobenzene	104	80-115

ND= Not Detected
RL= Reporting Limit