McLaren Hart

91 APR 18 AM 7:59

April 16, 1991

Dr. Ravi Arulanantham
Alameda County Department of Environmental Health
Division of Hazardous Materials
80 Swan Way, Suite 200
Oakland, California 94621

Dear Dr. Arulanantham:

Enclosed are the results of the Phase I investigation for the former Target Store T-328 located at 7608 Amador Valley Boulevard, Dublin, California. This work was completed in accordance with the "Work Plan for Phase I Investigation", dated January 31, 1991.

If you have any questions or comments please do not hesitate to call us at (415) 521-5200.

Sincerely,

Campbell McLeod
Senior Geologist

Clifton Davenport, CEG 1455
Principal Hydrogeologist

Enclosure

0328CDJ1

STATE OF CALIFORNIA
CERTIFIED ENGINEERING GEOLOGIST #1455
CLIFTON W. DAVENPORT
REGISTERED GEOLOGIST

1135 Atlantic Avenue, Alameda, CA 94501 (415) 521-5200 FAX (415) 521-1547

RESULTS OF THE PHASE I INVESTIGATION FOR TARGET STORE T-328 LOCATED AT 7608 AMADOR VALLEY BOULEVARD, DUBLIN, CALIFORNIA

APRIL 16, 1991

McLaren Hart

McLaren Hart

April 16, 1991

Mr. Phil Byers
Property Manager
Target Stores
33 South Sixth Street
Minneapolis, Minnesota 55440

Dear Mr. Byers:

RESULTS OF THE PHASE I INVESTIGATION FOR TARGET STORE T-328 LOCATED AT 7608 AMADOR VALLEY BOULEVARD, DUBLIN, CALIFORNIA

This letter report presents the results of an agency review, the drilling of five soil borings and the installation and sampling of four groundwater monitoring wells at the former Target store (T-328) gasoline station located at 7608 Amador Valley Boulevard, Dublin, California. This report has been prepared in accordance with the "Work Plan for Phase I Investigation", dated January 30, 1991.

The report first presents the agency review section, consisting of a review of agency files for well information and groundwater flow direction for properties within a one half mile radius of the former Target gasoline station. Agency records were also researched for information on chemicals impacting groundwater in the area and the results of that research are presented next. The drilling and sampling of the five soil borings is discussed next, followed by the installation development and sampling of the four monitoring wells. A section containing the analytical results of the soil and groundwater sampling is presented next, followed by a conclusions and recommendations section.

AGENCY REVIEW

Information regarding depth to groundwater and flow direction was requested from appropriate agencies to determine the general regional groundwater flow direction in the vicinity of the site. This data was used to determine the locations of the monitoring wells at the site. Information regarding the location and screened interval of agricultural, irrigation, domestic and municipal wells was also requested.

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Groundwater Flow Direction in Subject Site Area

Dr. Ravi Arulanantham of the Alameda County Health Care Services Agency (ACHCSA) indicated that generally groundwater flow in the region is to the southeast. This was collaborated by Mr. Killingstad of the Alameda County Flood Control and Water Conservation District (Zone 7), which maintains several public drinking water wells in the region. Mr. Killingstad indicated in a telephone conversation that, generally, groundwater flows down the valley to the southeast and that depth to groundwater is usually under ten feet. Nevertheless, Mr. Killingstad indicated that specific sites may not fit the general pattern for the area and that data from monitoring wells must be reviewed to verify depth and flow for a particular location.

McLaren/Hart reviewed files at the Regional Water Quality Control Board (RWQCB) for two sites in the vicinity of the subject property where subsurface investigations had been conducted, including monitoring well installation and the determination of groundwater flow direction and gradient. A map showing these two sites as well as the subject property is presented as Figure 1.

The RWQCB file for the former Shell Service Station (7194 Amador Valley Boulevard) approximately 0.25 mile east of the Target station property indicated that twelve groundwater monitoring wells and a single recovery well have been installed at the site by ENSCO Environmental Services, Inc. In its most recent quarterly groundwater monitoring report to the RWQCB, dated November 1990, ENSCO indicates the static water level was between 6.94 and 8.94 feet below ground surface level. Groundwater flow was to the southeast at an approximate gradient of 0.02 feet per foot. This site is located in the reported cross-gradient direction from the Target station site.

The file for the UNOCAL Service Station (375 Amador Valley Boulevard), also approximately 0.25 mile east of the Target station site, indicates that Kaprealian Engineering, Inc. installed four groundwater monitoring wells at the site on April 14, 1988, and has been submitting quarterly monitoring reports to the RWQCB since that date. The most recent report, dated December 20, 1990, indicates that groundwater depth, measured on November 14, 1990, ranged between 11.46 to 11.83 feet below ground surface. Kaprealian reported a groundwater flow direction to the east-northeast with an approximate hydraulic gradient of 0.0065 feet per foot. The report noted that while the groundwater flow direction determined for this property is atypical for the area, it is unchanged from the direction determined and reported in earlier quarterly monitoring reports.

The Alameda County Flood Control and Water Conservation District (Zone 7) was contacted regarding locations of irrigation, agricultural, domestic or municipal water wells in the vicinity of the Target station site. Mr. David Lunn stated that, according to the District's records, there are no irrigation, agricultural, domestic or municipal wells within one mile of the Target station site. The nearest municipal wells operated by the District are located approximately 1.5 miles southeast of the Target station site and have a minimum screened depth of 100 feet below grade.

Agency Records Search for Chemical Contamination

The objective of the agency record search is to obtain available environmental information on properties near to and adjacent to the subject property. In addition, agency records give an indication of the environmental status of the surrounding properties in the vicinity of the site. To determine if existing agency records contained information on occurrences of chemical contamination, pertinent agencies and individuals were contacted and interviewed and records reviewed, and lists of known hazardous waste sites were reviewed. The results of this review are described below.

The State of California and the U.S. Federal Government publish lists of sites that have had a reported release of hazardous materials to the environment or are known or suspected to use hazardous materials. These lists were reviewed in order to identify listed sites within a one half mile radius of the subject property. Information obtained from these lists may help assess whether a recorded release of hazardous materials has occurred on the subject property or nearby sites, and so whether if the release is likely to impact the subject site.

McLaren/Hart personnel reviewed the following lists for information on potential environmental impacts to the subject property:

- California Regional Water Quality Control Board (RWQCB): Fuel Leak List, Alameda County, January 1990;
- California Regional Water Quality Control Board (RWQCB): North Bay Toxics List, January 1990;
- California Department of Health Services (DHS): Bond Expenditure Plan (BEP) List, State Superfund Sites, January 1990;

- U.S. Environmental Protection Agency (EPA): National Priority List (NPL), Federal Superfund List, March 1989;
- California Integrated Waste Management Board: "Solid Waste Information System (SWIS)", Active, Closed/Inactive, Landfill Sites and Transfer Stations, February 1990;
- U.S. Environmental Protection Agency (EPA): Comprehensive Environmental Response, Cleanup, and Liability Information System (CERCLIS) List, June 1989;
- California Governor's Office of Planning and Research: Hazardous Waste and Substance Sites List (Cortese), pursuant to AB 3750, June 1989; and
- California Department of Health Services (DHS): Abandoned Sites Program Information System (ASPIS), January 1990.

Of the above mentioned lists reviewed by McLaren/Hart, only the RWQCB and Cortese lists showed sites within a one-half mile radius of the subject site where hazardous materials may have impacted the environment. Information regarding these sites were collected at the RWQCB office in the San Francisco Bay Area and at the offices of the County of Alameda's Hazardous Materials Program. The results of the agency review are presented below.

Ten sites were listed within a one-half mile radius of the subject site. The sites are: 1) Montgomery Ward at 6900 Amador Plaza Road, 2) Shell Gas Station at 7194 Amador Valley Boulevard, 3) Dodge Property at 7400 Amador Valley Boulevard, 4) UNOCAL Gas Station at 7375 Amador Valley Road, 5) Dublin San Ramon Dougherty (DSRD) Fire Station #1 at 7494 Donohue Drive, 6) Chevron Gas Station at 7420 Dublin Boulevard, 7) Chevrolet-Crown at 7455 Dublin Boulevard, 8) Montgomery Ward at 7575 Dublin Boulevard, 9) Transamerica Title Company at 6850 Regional Street, and 10) Mobil Gas Station at 7197 Village Parkway.

Based on reported groundwater flow in the region (to the southeast) all but one of the sites indicated on the Fuel Leak List are either downgradient or cross gradient of the subject property and therefore unlikely to impact the groundwater beneath the subject site.

The single upgradient site of the subject site is the DSRD Fire Station #1, 100 yards north of the subject property. The location of the fire station is shown in Figure 1. The file for this site indicated that a failed line leak on an underground gasoline storage tank at the site was detected during a routine precision test in 1986. There was no evidence of any spillage

of fuel and the tank tested tight after the line was repaired. A single groundwater monitoring well has been installed at the site and Mr. Bill Chase of the Dougherty Regional Fire Authority indicated that water samples from the well have not detected any contamination. An inter-department RWQCB letter, dated September 22, 1988, indicated that no further action would be recommended. McLaren/Hart therefore considers it unlikely that the groundwater beneath the subject property has been impacted by this site.

Conclusions of Agency Review

Observations and conclusions regarding this property include:

- Ten sites within a one-half mile radius of the subject site have been identified as having fuel leaks, however, only one of these sites is upgradient of the subject site. Contamination of soil and/or groundwater was not detected at the upgradient site. Impact on the Target site from the remaining nine fuel leak list sites is unlikely because they are either downgradient or cross-gradient of the Target station site.

- Groundwater flow direction for the region is reported to be to the southeast and the flow direction at one site one-quarter mile to the east of the subject site is to the southeast. Nevertheless, a subsurface investigation at another site (UNOCAL) one-quarter mile east of the Target site found that groundwater consistently flows to the northeast. Mr. Killingstad of the Alameda County Flood Control and Water Conservation District (Zone 7) indicated that irregularities in the local geology exist which influence groundwater flow patterns.

- According to Alameda County Flood Control and Water Conservation District record's there are no irrigation, agricultural, domestic or municipal wells within one mile of the Target station site. Municipal wells in the area are approximately 1.5 miles to the southeast and are screened at a minimum depth of 100 feet below grade. Shallow groundwater in the vicinity of the Target station site apparently is not used for drinking water or other beneficial uses.

DRILLING AND SAMPLING OF FIVE SOIL BORINGS

Five soil borings were drilled and sampled by Gregg Drilling, Inc. on February 21, 1991. The drilling and sampling were supervised in the field by a McLaren/Hart geologist. Figure 2 shows the locations of the soil borings at the site. Soils were analyzed to determine the extent of

hydrocarbons present in soil surrounding the fuel tank excavation. The analyses performed on the soil samples collected were based on their proximity to a particular fuel tank, diesel or gasoline, and included benzene, toluene, ethylbenzene and total xylenes (BTEX) and/or total petroleum hydrocarbons as either gasoline (TPH/G) or diesel (TPH/D). All analyses for BTEX were performed by EPA Method 8020 and all analyses for TPH/G and TPH/D were performed by DHS LUFT Manual Method.

The drilling was performed with a Mobile B-53 hollow-stem auger drill rig equipped with 6-inch hollow-stem augers. All the soil borings were drilled to a total depth of 9.5 feet below grade, excluding Soil Boring SB-2, which was drilled to a total depth of 23 feet and converted to a monitoring well (MW-4).

Soil Boring SB-1 was drilled at the southwest corner of the tank vault, immediately adjacent to the former super unleaded gasoline tank. Two soil samples were submitted for chemical analyses from Soil Boring SB-1. The sample collected from a depth of 6.0 to 6.5 feet was submitted for benzene, toluene, ethylbenzene and total xylenes (BTEX) analyses. The sample collected from a depth of 7.0 to 7.5 feet was analyzed for total petroleum hydrocarbons as gasoline (TPH/G).

Soil Boring SB-2 was drilled approximately 10 feet southeast of the tank vault. Two soil samples were submitted for analyses from Soil Boring SB-2. The sample collected at a depth of 5.5 to 6.0 feet was submitted for TPH/G analysis and the sample collected from 6.0 to 6.5 feet was submitted for BTEX analyses.

Soil Boring SB-3 was drilled adjacent to the south side of the pump islands. Three soil samples from Soil Boring SB-3 were submitted for chemical analyses: the sample collected from a depth of 5.5 to 6.0 feet was analyzed for BTEX; the sample collected from a depth of 6.0 to 6.5 feet was analyzed for TPH/G; and the sample collected from 7.0 to 7.5 feet was submitted for analysis of total petroleum hydrocarbons as diesel (TPH/D).

Soil Boring SB-4 was drilled adjacent to the former diesel tank. The soil sample collected from a depth of 5.5 to 6.0 feet was submitted to the laboratory for TPH/D analysis.

Soil Boring SB-5 was drilled at the southwest corner of the pump island. Two soil samples were submitted for chemical analyses. The sample collected at a depth of 5.5 to 6.0 feet was submitted for BTEX analyses and the sample from a depth of 6.0 to 6.5 feet was analyzed for TPH/G.

After sampling, the soil borings (excluding SB-2), were backfilled with granular bentonite to a depth of 5.0 feet below grade. From 5.0 feet to the surface, the borings were backfilled with a mixture of portland cement and 5 percent bentonite powder. The soil generated during drilling was stockpiled on-site and will be properly disposed of after evaluation of the analytical results of composite soil samples collected from the stockpiled soil.

WELL INSTALLATION

Four groundwater monitoring wells were drilled and constructed by Gregg Drilling, Inc. on February 19 and 20, 1991. The drilling and well construction was supervised in the field by a McLaren/Hart geologist. Figure 2 shows the locations of the wells at the site.

Drilling and well construction was performed using a Mobile B-53 hollow-stem auger drilling equipped with 10-inch hollow stem augers. The wells were drilled to a total depth of 20.5 feet below grade, except Monitoring Well MW-4 which was drilled to a total depth of 23.0 feet below grade. Each of the wells were screened from 5 to 20 feet below grade. Screen and filter pack size were selected based on field wet-sieve analyses. Monitoring wells MW-1, MW-2 and MW-4 were constructed using a 0.010-inch well screen slot size and a filter pack grain size of 16/30 mesh silica sand. Monitoring Well MW-3 was constructed with 0.020-inch well screen slot size and a filter pack grain size of 12/20 mesh silica sand. All filter packs extended one foot above the top of the well screen. A one foot thick bridge consisting of 30 mesh sand was placed above the filter pack and a sanitary seal of portland cement and 5 percent bentonite powder was installed to a depth of 0.5 feet below grade. The casing was fitted with a locking pressure cap, and a traffic rated vault box was installed to complete the well construction. Table 1 presents well construction details for each well. Lithologic logs and well construction as-builts are included as Attachment I.

Following well construction, the top of casing, vault box rim and ground surface of each well were surveyed to a common benchmark. The surveying was performed by Brain Kangas Foulk, state-licensed surveyors. The survey data is presented in Table 1.

Soil generated during the drilling activities was stockpiled on-site in a soil bin. Composite samples have been collected from the stockpiled soil and the soil will be properly disposed of after evaluating the analytical results and determination of disposal options.

Well Development

The monitoring wells were developed on February 21, 1991. The wells were developed using a centrifugal pump, surge block tool and bailer. A minimum of 10 casing volumes were removed from each well. Development was conducted until the turbidity of each well was below 100 NTU.

Monitoring Well Sampling

The groundwater surface elevation of each well was measured and water samples collected on February 28, 1991. Prior to sampling, three casing volumes were purged from each well and the temperature, pH, electric conductivity and turbidity were measured after each casing volume was removed. These parameters were stabilized with the turbidity below 100 NTU before sampling was performed. The wells were purged with a centrifugal pump and sampled with a centrifugal pump and suction side sample catcher or disposable bailer.

The groundwater samples were stored in a container filled with ice until delivered to McLaren/Hart Analytical Laboratory, a state-certified laboratory. A chain-of-custody record was completed during sampling and accompanied the samples to the laboratory. The samples were submitted for analyses for TPH/G and TPH/D by the DHS LUFT Manual Method, for BTEX by EPA Method 8020 and for lead by EPA Method 7420. A trip blank was included in the shipment to the laboratory for TPH/G and BTEX analyses.

RESULTS

The analytical results of the soil and groundwater sampling are presented in this section. The results of the soil sample analyses are presented first, followed by analytical results of the groundwater samples, groundwater flow and gradient data.

Soil

The analytical results of the soil samples collected from the five soil borings are presented in Table 2. The sample collected from Soil Boring SB-1, at a depth of 7.0 to 7.5 feet, had a concentration of 40 parts per million (ppm) TPH/G. The sample collected from Soil Boring SB-2, at a depth of 5.5 to 6.0 feet, had a concentration of 20 ppm TPH/G. The sample collected from Soil Boring SB-3, at a depth of 6.0 to 6.5 feet, had a concentration of 21 ppm TPH/G.

Samples collected at other depths in each of these three borings contained BTEX compounds at minor concentrations. The concentrations of TPH/G were below 100 ppm in all soil samples, which is a "target" level for petroleum hydrocarbons in soils set by the Alameda County Environmental Health Department.

The sample collected from Soil Boring SB-4 and submitted for analysis for TPH/D had a concentration of 24 ppm TPH/D. This concentration is also below the target level set by Alameda County. The analytical results of the samples collected from Soil Boring SB-5 and analyzed for TPH/G and BTEX compounds reported non-detect. The analytical data sheets and chain-of-custody records for the soil samples are included as Attachment II.

The lithology encountered in the soil borings generally consisted of silty or sandy clay of relative low permeability. Silty clay was encountered to a depth of 6.5 feet below grade in each soil boring and to the total depth of 9.5 feet in Borings SB-3 and SB-4. A non-saturated silty sand stringer was encountered at a depth of 6.5 to 7.0 feet below grade in SB-5 with silty clay below. Saturated silty sand was encountered from 6.5 to 9.5 feet in SB-1 which may represent excavation backfill material.

The lithology encountered in the four monitoring wells was predominately silty or sandy clay of relative low permeability. However, saturated silty or clayey sand stringers, approximately 0.5 to 1.0 feet thick, were observed in each borehole at approximately the same depths. In the borehole for Monitoring Well MW-1, a silty sand stringer was encountered at 15.0 to 15.5 feet below grade. In MW-2 a sandy silt and clayey sand stringer was encountered at 18 to 19 feet below grade. In MW-3 a silty sand stringer was encountered at 18.5 to 19.0 feet below grade and in MW-4 a silty sand stringer was encountered at a depth of 19.5 to 20 feet below grade.

Groundwater

The analytical results of the groundwater samples are presented in Table 3. The results of the analyses performed on samples collected from Monitoring Wells MW-1 and MW-3 reports non-detect for all analyses. TPH/D was not detected in any well. Monitoring Well MW-2 contained 50 parts per billion (ppb) TPH/G, 2.0 ppb benzene, 0.8 ppb toluene, 5.8 ppb total xylenes and 1.1 ppb ethylbenzene. Monitoring Well MW-4 contained 6,000 ppb TPH/G, 680 ppb benzene, 250 ppb total xylenes and 160 ppb ethylbenzene. The TPH/G and BTEX analyses performed on the trip blank sample were non-detect. The analytical data sheets and chain-of-custody records for the groundwater samples are included as Attachment III.

Soil Boring SB-1 was drilled within 15 feet of MW-4 and to a depth that encountered the saturated sandy backfill material within the excavation. A petroleum product was observed floating on the groundwater at SB-1. The product was a dark viscous fluid that may have come from the coating of the former fuel tanks. No free floating petroleum product was observed in any of the four monitoring wells.

The California Department of Health Services Maximum Contaminant Levels (MCLs) for these compounds in drinking water are: 1 ppb benzene, 2,000 ppb toluene, 680 ppb ethylbenzene and 1,750ppb total xylenes. The Federal MCL for toluenes is 100 ppb. There is no state action level for TPH/G. The concentration of benzene in Monitoring Wells MW-2 and MW-4 exceeds the MCL of 1 ppb. However, the MCL concentrations are drinking water standards and are presented for purposes of comparison. As previous stated, the groundwater beneath the site is apparently not used for drinking water or other beneficial uses.

The groundwater surface elevation data collected on February 28, 1991 is presented in Table 1. This data was used to construct the February 1991 groundwater contour map which is presented as Figure 3. The inferred groundwater flow direction is generally toward the southeast. The depth to groundwater is approximately 5 to 7 feet below ground surface or 334.81 to 335.39 feet above mean sea level. The hydraulic gradient is approximately 0.005 feet/foot.

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions are based on the Phase I investigation and the February 1991 groundwater analytical results and water level measurements:

- Based on the chemical concentrations observed, the groundwater beneath the site near MW-4 has been significantly impacted by petroleum hydrocarbons. MW-4 was constructed immediately downgradient of the fuel tank excavation.

- MW-2, approximately 80 feet downgradient of MW-4 reported low levels of TPH/G (50 ppb) and benzene (2 ppb).

- Based on chemical concentrations observed, it appears that petroleum chemicals are concentrated near the former tank excavation, but have migrated away from the area.

- Based on the February 1991 analytical results and the agency review, it does not appear that petroleum hydrocarbons are migrating in groundwater beneath the site from off-site locations.

- The shallow transmissive zone encountered beneath the site is a silty or sandy clay of relative low permeability. The silty sand stringers encountered at depths of 15 to 20 feet below ground level represent the more transmissive material within this zone.

- The inferred groundwater flow direction is generally toward the southeast. The hydraulic gradient is approximately 0.005 feet/foot.

Based on the above conclusions, McLaren/Hart recommends:

- The installation of one shallow, downgradient well to further define the lateral extent of petroleum hydrocarbons in groundwater. This well would be located between wells MW-1 and MW-2, at a distance approximately 80 feet downgradient of MW-4.

- The installation of one deeper well to define the vertical extent of petroleum hydrocarbons in groundwater. This well would be screened in the next transmissive flow zone between 20 and 50 feet below ground surface and would be located downgradient of the former tank excavation. A conductor casing would be used to prevent potential cross contamination between flow zones.

- The sampling and analyses of the two newly constructed and four existing wells for TPH/Gasoline and BTEX compounds and the measurement of water surface elevations in all six wells. This will provide additional data to evaluate the significance of the Phase I investigation, to confirm the groundwater flow direction and aid in the determination of remedial alternatives.

If you have any questions or comments, please do not hesitate to call us at (415) 521-5200.

Sincerely,

Campbell McLeod
Senior Geologist

Clifton Davenport, CEG 1455
Principal Hydrogeologist

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FIGURE 1
SITE LOCATION MAP
TARGET STORE T-328
DUBLIN, CA.

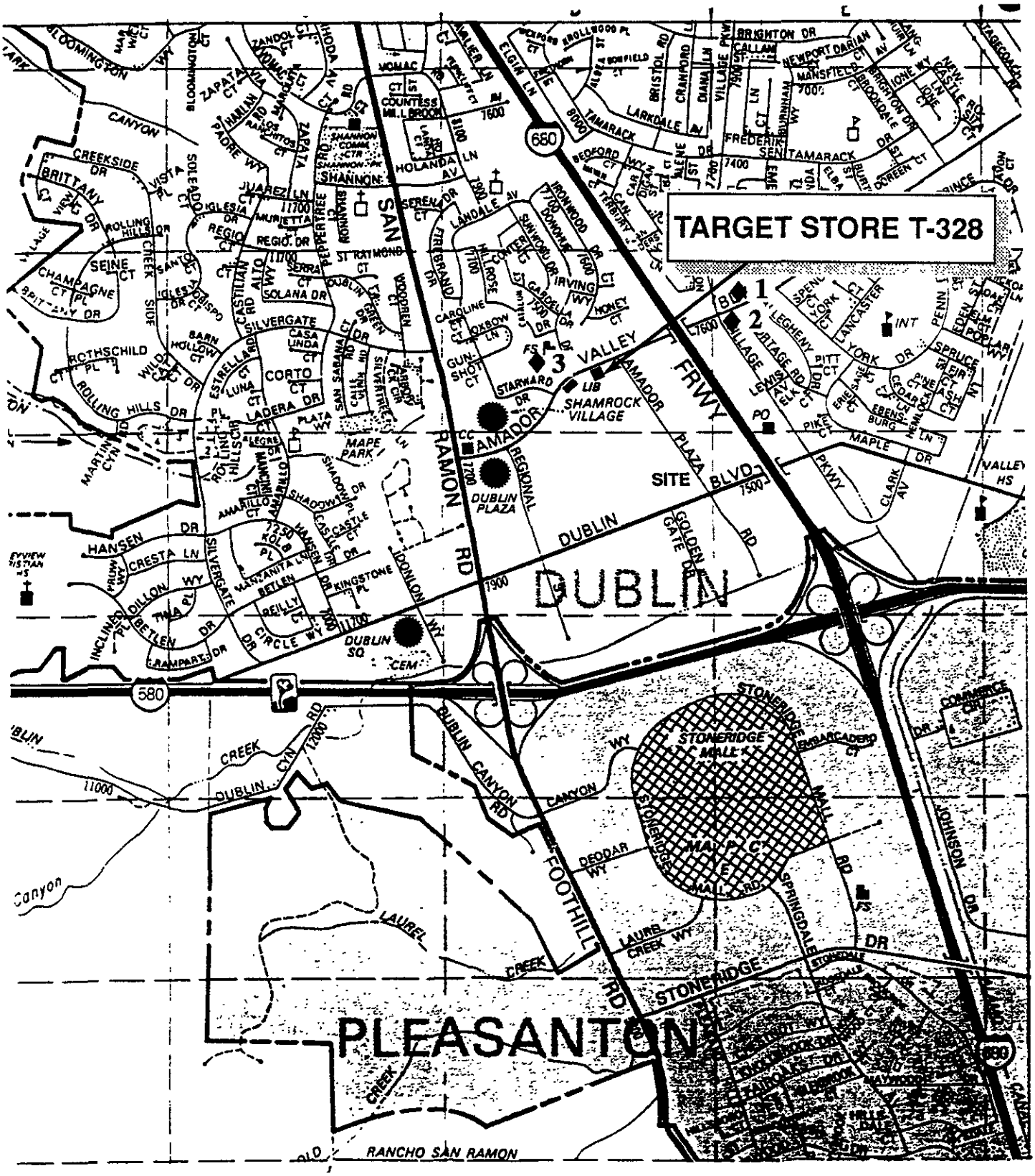

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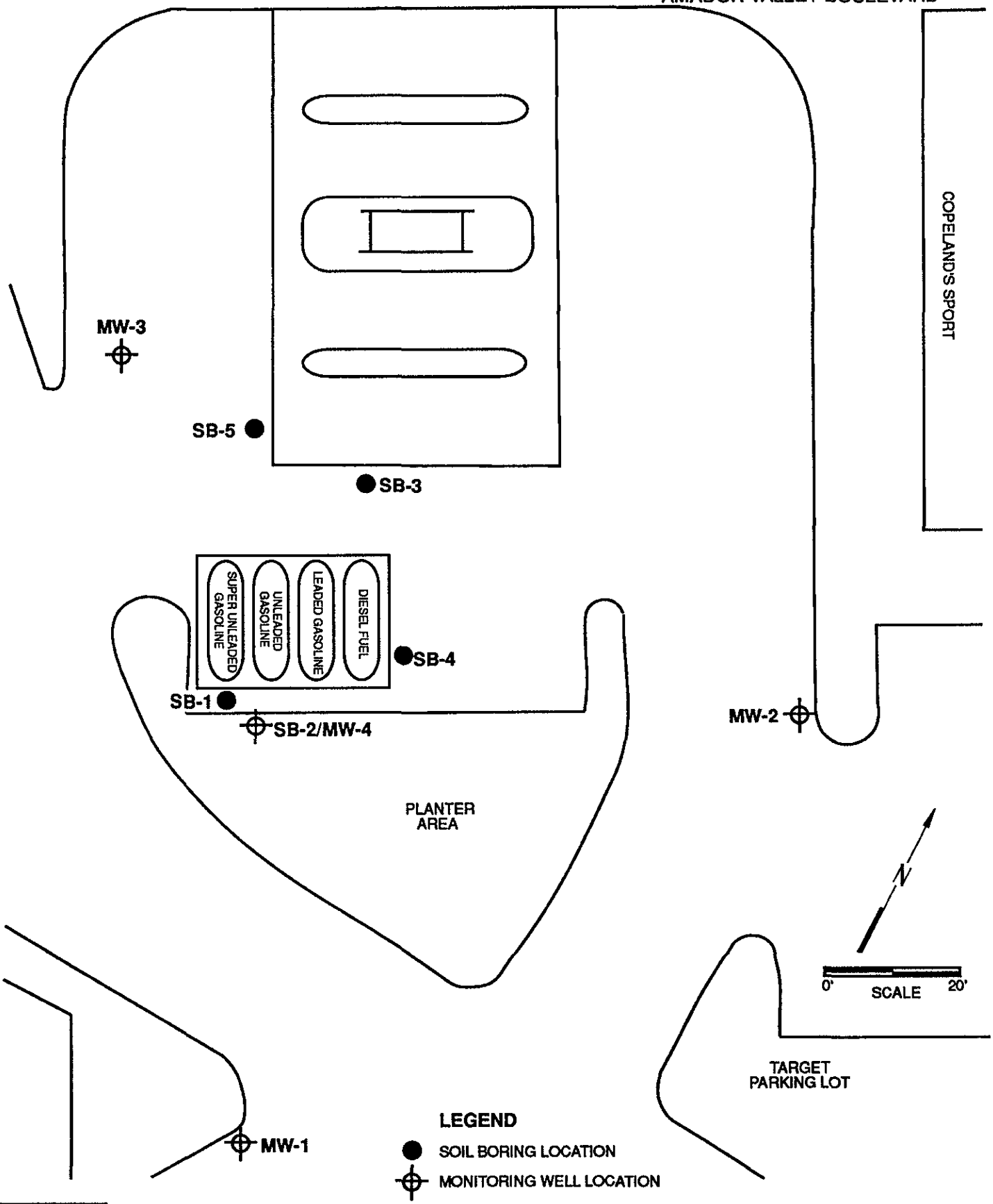
FIGURE 2
SOIL BORING AND
MONITORING WELL LOCATIONS
TARGET STORE GASOLINE STATION
AMADOR VALLEY BOULEVARD



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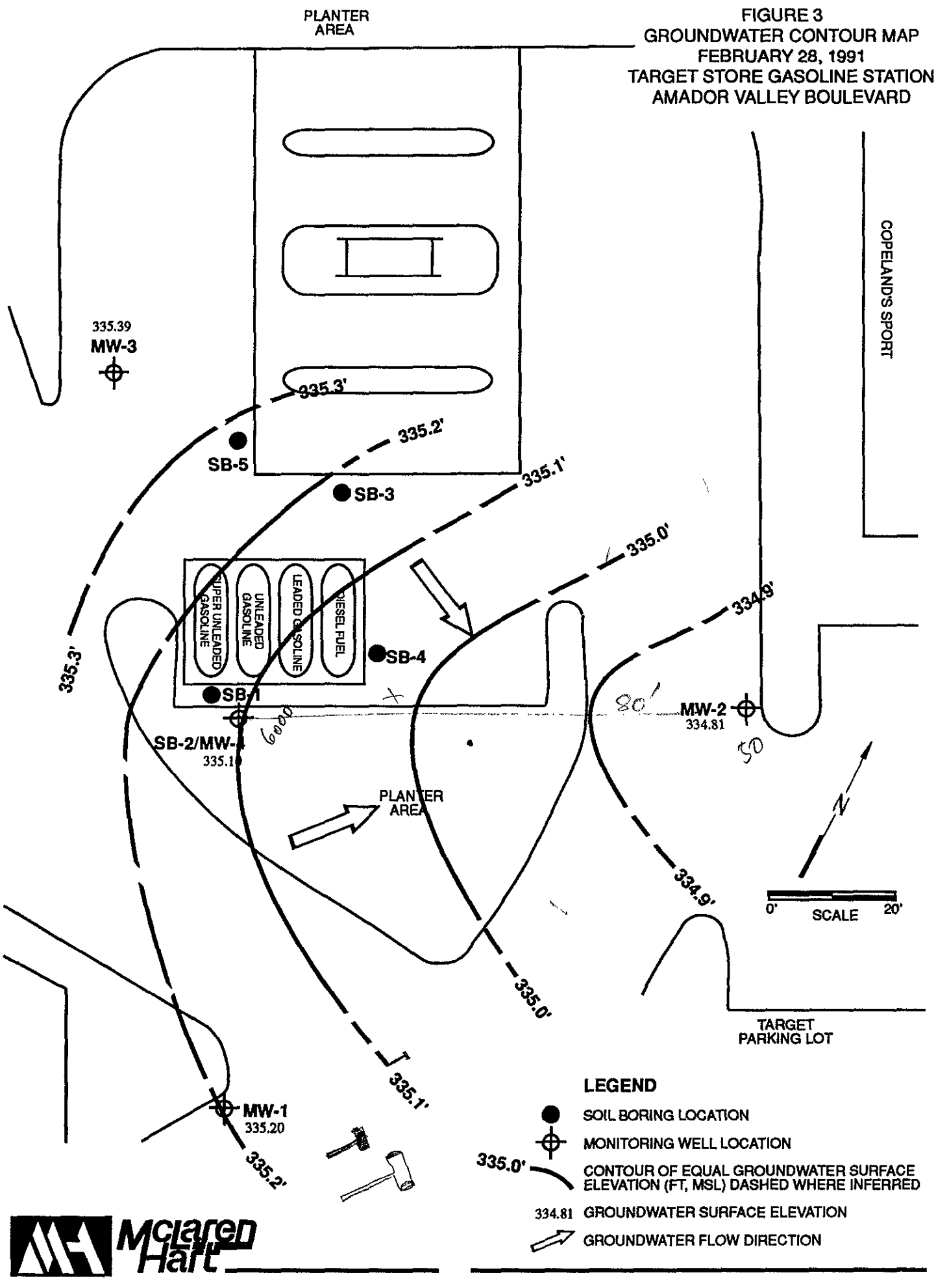
PLANTER AREA
FIGURE 3
GROUNDWATER CONTOUR MAP
FEBRUARY 28, 1991
TARGET STORE GASOLINE STATION
AMADOR VALLEY BOULEVARD
COPELAND'S SPORT
335.39
MW-3
335.3'
335.2'
335.1'
335.0'
334.9'
SB-5
SB-3
SB-4
SB-1
SB-2/MW-2
335.19
SUPER UNLEADED GASOLINE
UNLEADED GASOLINE
LEADED GASOLINE
DIESEL FUEL
MW-2
334.81
PLANTER AREA
MW-1
335.20
TARGET PARKING LOT
N
0'
SCALE
20'
LEGEND
SOIL BORING LOCATION
MONITORING WELL LOCATION
CONTOUR OF EQUAL GROUNDWATER SURFACE ELEVATION (FT, MSL) DASHED WHERE INFERRED
334.81 GROUNDWATER SURFACE ELEVATION
GROUNDWATER FLOW DIRECTION
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TABLE 1

WELL CONSTRUCTION DETAILS AND GROUNDWATER SURFACE ELEVATIONS
TARGET STORE, DUBLIN

WELL DESIGNATION	SCREENED INTERVAL (feet below grade)	GROUND SURFACE ELEVATION (MSL)*	SCREENED INTERVAL (MSL)	TOP OF CASING ELEVATION (MSL)	STATIC WATER LEVEL 2/28/91 (feet below grade)	GROUNDWATER ELEVATION 2/28/91 (MSL)
MW-1	5-20	340.30	335.30 - 320.30	340.20	5.00	335.20
MW-2	5-20	340.52	335.52 - 320.52	340.27	5.46	334.81
MW-3	5-20	341.67	336.67 - 321.67	341.00	5.61	335.39
MW-4	5-20	342.31	337.31 - 322.31	342.11	7.01	335.10

* Feet above mean sea level

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TABLE 2

ANALYTICAL RESULTS OF SOIL SAMPLES (ppm)
TARGET STORE, DUBLIN

SOIL BORING	DEPTH (feet)	TPH/G	TPH/D	BENZENE	TOLUENE	TOTAL XYLENES	ETHYL-BENZENE
SB-1	6.0 - 6.5	NA	NA	<0.05	0.10	1.63	0.1
SB-1	7.0 - 7.5	40	NA	NA	NA	NA	NA
SB-2	5.5 - 6.0	20	NA	NA	NA	NA	NA
SB-2	6.0 - 6.5	NA	NA	0.40	<0.05	2.53	1.2
SB-3	5.5 - 6.0	NA	NA	0.06	<0.01	0.56	0.53
SB-3	6.0 - 6.5	21	NA	NA	NA	NA	NA
SB-3	7.0 - 7.5	NA	<10	NA	NA	NA	NA
SB-4	5.5 - 6.0	NA	24	NA	NA	NA	NA
SB-5	5.5 - 6.0	NA	NA	<0.01	<0.01	<0.01	<0.01
SB-5	6.0 - 6.5	<1.0	NA	NA	NA	NA	NA

NA= Not analyzed for that compound

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TABLE 3

ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ppb)
TARGET STORE, DUBLIN

WELL DESIGNATION	LEAD	TPH/G	TPH/D	BENZENE	TOLUENE	TOTAL XYLENES	ETHYL-BENZENE
MW-1	<0.05	<50	<0.5	<0.5	<0.5	<0.5	<0.5
MW-2	<0.05	50	<0.5	2.0	0.8	5.8	1.1
MW-3	<0.05	<50	<0.5	<0.5	<0.5	<0.5	<0.5
MW-4	<0.05	6000	<0.5	680	<20	250	160

Note: The analytical results of the TPH/G and BTEX analyses performed on the trip blank were non-detect.

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ATTACHMENT I
LITHOLOGIC LOGS AND MONITORING WELL AS-BUILTS

SOIL DRILLING LOG

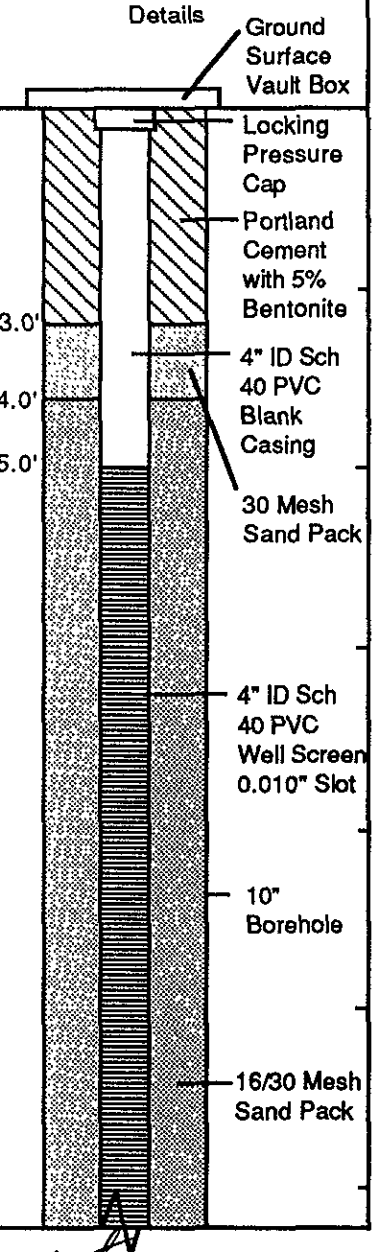
SB/MW # : MW-1
D- 22078
Page 1 of 2
Sampler: J. LOVE

SIGNATURE OF SAMPLER

PROJECT TARGET-DUBLIN LOCATION APPROX. 70' SE OF TANK VAULT
TOC ELEVATION 340.20' (MSL) DATE(S) 2/20/91 TOTAL DEPTH 20.5'
MONITORING DEVICE 580B OVM SCREENED INTERVAL 5.0' - 20.0'
SAMPLING METHOD 5' Continuous Core SUBCONTRACTOR & EQPT GREGG/B-53
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO 0.0' - 5.0' HAND AUGER;
MEMO 5.0' - 20.0' CONTINUOUS CORE.

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth
0	Hand Auger					0.0' - 1.0' ASPHALT & BASE.	RB		
						1.0' - 4.0' SILTY CLAY: (0,10, 45,45); very dark grayish brown (2.5Y3/2); high plastic fines; very stiff; moist. Trace pebbles.	CH		
2.5						4.0' - 5.0' SILTY CLAY: (0,5, 50,45) olive (5Y4/2); high plastic fines; stiff; moist. Trace pebbles.			
5			5.0-10.0		0	5.0' - 8.5' CLAYEY SILT: (0,10, 50,40) olive (5Y4/2) with white (2.5Y8/2) mottles; medium plastic fines; stiff; moist to very moist.			
7.5						8.5' - 12.0' SILTY CLAY: (0, 20,40,40); olive (5Y4/2) with white (2.5Y8/2) mottles; medium plastic fines; moderately graded, fine grained sand; stiff; moist to very moist.	CL		
10			10.0-15.0		0	12.0' - 12.5' SANDY SILT WITH CLAY: (0,30,40,30) pale yellow (5Y7/3); low to medium plastic fines; moderately graded, fine grained sand; firm to stiff; very moist to saturated.	CL		
▽ 12.5						12.5' - 14.0' SANDY SILT WITH CLAY: (0,40,35,25) pale yellow (5Y7/3); low plastic fines; moderately graded, medium grained sand; soft to firm; very moist to saturated. Trace shells.	ML/CL		
15			15.0-20.0		0	See Following Page.	CL		

Borehole Abandonment/ Well Construction Details



SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SENIOR GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
PRINCIPAL HYDROGEOLOGIST CEG # 1455
TITLE

SOIL DRILLING LOG

McLaren

SB/MW # : MW-1
D- 22078
Page 2 of 2
Sampler: J. LOVE

SIGNATURE OF SAMPLER

PROJECT TARGET-DUBLIN LOCATION APPROX. 70' SE OF TANK VAULT
TOC ELEVATION 340.20' (MSL) DATE(S) 2/20/91 TOTAL DEPTH 20.5'
MONITORING DEVICE 580B OVM SCREENED INTERVAL 5.0' - 20.0'
SAMPLING METHOD 5' Continuous Core SUBCONTRACTOR & EQPT GREGG/B-53
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO 0.0' - 5.0' HAND AUGER;
MEMO 5.0' - 20.0' CONTINUOUS CORE.

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture,Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
17.5			15.0-20.0		0	14.0' - 15.0' CLAYEY SILT: (0, 10,50,40) light brownish gray (2.5Y6/2) to white (2.5Y8/2) with olive yellow (2.5Y6/6) blebs; medium plastic fines; very stiff; moist.	SM / CL			4" ID Sch 40 PVC Well Screen 0.010" Slot; 10" Borehole
						15.0' - 15.5' SILTY SAND: (0, 50,40,10); light yellowish brown (2.5Y6/4); slightly plastic fines; poorly graded, fine grained sand; soft; saturated.	CL			
20						15.5' - 17.5' SILTY CLAY: (0, 20,45,35) dark grayish brown (2.5Y4/2); medium plastic fines; poorly graded, fine grained sand, very stiff; moist to very moist.				16/30 Mesh Sand Pack; 20.0'; 20.5' TD
22.5						18.0' - 20.5' CLAYEY SILT: (0, 10,50,40); dark grayish brown (2.5Y4/2); medium plastic fines; stiff; moist to very moist.				
25										
27.5										
30										

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SENIOR GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
PRINCIPAL HYDROGEOLOGIST CEG # 1455
TITLE

SOIL DRILLING LOG

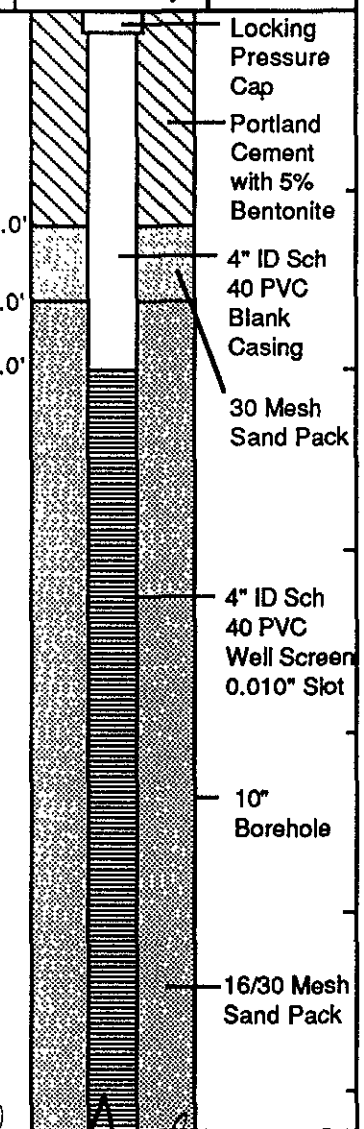
SB/MW # : MW-2
D- 22077
Page 1 of 2
Sampler: J. LOVE

SIGNATURE OF SAMPLER

PROJECT TARGET-DUBLIN LOCATION APPROX. 60' NE OF TANK VAULT
TOC ELEVATION 340.27' (MSL) DATE(S) 2/19/91 TOTAL DEPTH 20.5'
MONITORING DEVICE 580B OVM SCREENED INTERVAL 5.0' - 20.0'
SAMPLING METHOD 5' Continuous Core SUBCONTRACTOR & EQPT GREGG/B-53
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO 0.0' - 5.0' HAND AUGER;
MEMO 5.0' - 20.0' CONTINUOUS CORE.

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture,Etc.	Unified Classification	Graphic Log	Sampled Depth
0	Hand Auger					0.0' - 1.0' ASPHALT & BASE.	PB		
						1.0' - 3.0' CLAYEY SILT: (0,25, 40,35); dark gray (5Y4/1) medium plastic fines; well graded sand; stiff; moist.	CL		
2.5					0	3.0' - 7.0' SILTY CLAY: (0,20, 40,40); olive gray (5Y5/2); medium to high plastic fines; fine grained sand; very stiff; moist.			
5			5.0-10.0		55	7.0' - 10.0' CLAYEY SILT: (0, 10,65,25); light olive gray (5Y 6/2); low plastic fines; soft to firm; very moist to saturated. Petroleum odor.	CH		
7.5 ▽					548	8.0' - Increased sand; saturated.	CL		
						10.0' - 12.0' CLAYEY SILT WITH SAND: (0,25,50,25) dark olive gray (2.5Y3/2); low plastic fines; poorly graded, fine grained sand; firm; very moist.	(SC)		
10			10.0-15.0		0	12.0' - 14.0' CLAYEY SILT WITH SAND: (0,25,50,25) pale olive (5Y6/3); low plastic fines; moderately graded, fine grained sand; firm; very moist.	ML/CL		
12.5						14.0' - 15.0' SILTY CLAY: (0, 10,45,45) olive gray (5Y5/2); high plastic fines; very stiff; moist.	ML/CL		
15			15.0-20.0		0		CH		

Borehole Abandonment/ Well Construction Details



SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SENIOR GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
PRINCIPAL HYDROGEOLOGIST CEG # 1455
TITLE

SOIL DRILLING LOG

McLaren

SB/MW # : MW-2
D- 22077
Page 2 of 2
Sampler: J. LOVE

SIGNATURE OF SAMPLER

PROJECT TARGET-DUBLIN LOCATION APPROX. 60' NE OF TANK VAULT
TOC ELEVATION 340.27' (MSL) DATE(S) 2/19/91 TOTAL DEPTH 20.5'
MONITORING DEVICE 580B OVM SCREENED INTERVAL 5.0' - 20.0'
SAMPLING METHOD 5' Continuous Core SUBCONTRACTOR & EQPT GREGG/B-53
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO 0.0' - 5.0' HAND AUGER;
MEMO 5.0' - 20.0' CONTINUOUS CORE.

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture,Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
17.5			15.0-20.0		0	15.0' - 17.0' CLAYEY SILT WITH SAND: (0,25,50,25) pale olive (5Y6/3); low plastic fines; poorly graded, fine grained sand; firm; very moist to saturated.	ML/CL			4" ID Sch 40 PVC Well Screen 0.010" Slot
						17.0' - 18.0' CLAYEY SILT WITH SAND: (0,25,45,30) light olive gray (5Y6/2); medium plastic fines; poorly graded, fine grained sand; stiff; very moist.	CL			10" Borehole
20						18.0' - 19.0' SANDY SILT: (0,30,50,20) pale olive (5Y 6/3); low plastic fines; poorly graded, fine grained sand; soft to firm; very moist to saturated. 18.5' - 3" clayey sand lense.	ML-CL			16/30 Mesh Sand Pack
22.5						19.0' - 20.5' SILTY CLAY: (0, 10,45,45) olive gray (5Y4/2) high plastic fines; very stiff; moist.	CH			20.0' 20.5' TD
25										
27.5										
30										

Campbell, Mead
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SENIOR GEOLOGIST
TITLE

Clifton Dawson
SIGNATURE OF REVIEWER
PRINCIPAL HYDROGEOLOGIST CEG # 1455
TITLE

SOIL DRILLING LOG

SB/MW # : MW-3
D- 22076
Page 1 of 2
Sampler: J. LOVE

SIGNATURE OF SAMPLER

PROJECT TARGET-DUBLIN LOCATION APPROX. 35' NW OF TANK VAULT
TOC ELEVATION 341.00' (MSL) DATE(S) 2/19/91 TOTAL DEPTH 20.5'
MONITORING DEVICE 580B OVM SCREENED INTERVAL 5.0' - 20.0'
SAMPLING METHOD 5' CORE BARREL SUBCONTRACTOR & EQPT GREGG/B-53
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO 0.0' - 5.0' HAND AUGER;
MEMO 5.0' - 20.0' CONTINUOUS CORE.

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture,Etc.	Unified Classification	Graphic Log	Sampled Depth
0	Hand Auger					0.0' - 1.0' ASPHALT & BASE.	RB		
						1.0' - 3.0' CLAYEY SILT: (0,25, 40,35); dark gray (5Y4/1); medium plastic fines; well graded sand; very stiff; moist.	CL		
2.5						3.0' - 6.0' CLAYEY SILT: (0,10, 50,40); dark gray (5Y4/1); medium to high plastic fines; very stiff; moist.	CL		
5			5.0-10.0		0	6.0' - 10.0' SILTY CLAY: (0, 20,40,40); grayish brown (2.5 Y5/2); medium to high plastic fines; poorly graded, fine grained sand; stiff to very stiff; moist. 10.0' - Grayish brown (2.5Y 5/2) with (2.5Y8/2) blebs.	CL/ CH		
7.5						10.0' - 12.0' CLAYEY SILT WITH SAND: (0,25,40,35); black (5Y2.5/1) with white (2.5Y 8/2) blebs; medium plastic fines; poorly graded, fine grained sand; stiff; very moist to saturated.			
10 ▽			10.0-15.0		0	12.0' - 14.0' CLAYEY SILT WITH SAND: (0,30,40,30); light olive gray (5Y6/2) with white (2.5Y8/2); low to medium plastic fines; moderately graded, fine grained sand; firm to stiff; moist to very moist.	CL		
12.5						14.0' - 16.5' SANDY SILT WITH CLAY: (0,35,40,25); pale olive (5Y6/3); low to medium plastic fines; skip graded sand; soft to firm; very moist to saturated.	CL		
15			15.0-20.0		0		ML/ CL		

Borehole Abandonment/ Well Construction Details

Ground Surface Vault Box
Locking Pressure Cap
Portland Cement with 5% Bentonite
3.0'
4" ID Sch 40 PVC Blank Casing
4.0'
5.0'
30 Mesh Sand Pack
4" ID Sch 40 PVC Well Screen 0.020 Slot
10" Borehole
12/20 Mesh Sand Pack

Campbell M'Leod
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SENIOR GEOLOGIST
TITLE

Clifton Cavenaugh
SIGNATURE OF REVIEWER
PRINCIPAL HYDROGEOLOGIST CEG # 1455
TITLE

SOIL DRILLING LOG

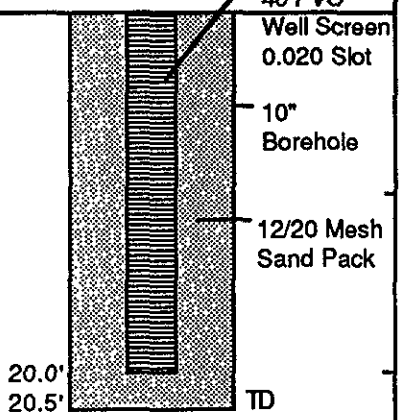
SB/MW # : MW-3
D- 22076
Page 2 of 2
Sampler: J. LOVE

SIGNATURE OF SAMPLER

PROJECT TARGET-DUBLIN LOCATION APPROX. 35' NW OF TANK VAULT
TOC ELEVATION 341.00' (MSL) DATE(S) 2/19/91 TOTAL DEPTH 20.5'
MONITORING DEVICE 580B OVM SCREENED INTERVAL 5.0' - 20.0'
SAMPLING METHOD 5' CORE BARREL SUBCONTRACTOR & EQPT GREGG/B-53
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO 0.0' - 5.0' HAND AUGER;
MEMO 5.0' - 20.0' CONTINUOUS CORE.

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture,Etc.	Unified Classification	Graphic Log	Sampled Depth
						See Previous Page.			
						16.5' - 17.5' SANDY SILT WITH CLAY: (0,35,40,25); olive gray (5Y4/2); low to medium plastic fines; skip graded sand; soft to firm; very moist to saturated.	ML/CL		
17.5						17.5' 18.5' SILTY CLAY: (0, 25,35,40); olive gray (5Y4/2); medium plastic fines; poorly graded, fine grained sand; moist to very moist.	ML/CL CL ML/SM		
20			15.0-20.0		0	18.5' - 19.0' SILTY SAND: (0, 50,45,5) olive gray (5Y4/2); slightly plastic fines; poorly graded, fine grained sand; very moist to saturated.	CL		
22.5						19.0' - 20.5' SILTY CLAY: (0, 20,35,45); very dark grayish brown (2.5Y3/2); medium plastic fines; very stiff; poorly graded, fine grained sand; moist.			
25									
27.5									
30									

Borehole Abandonment/ Well Construction Details



Campbell McLeod
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SENIOR GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
PRINCIPAL HYDROGEOLOGIST CEG # 1455
TITLE

SOIL DRILLING LOG

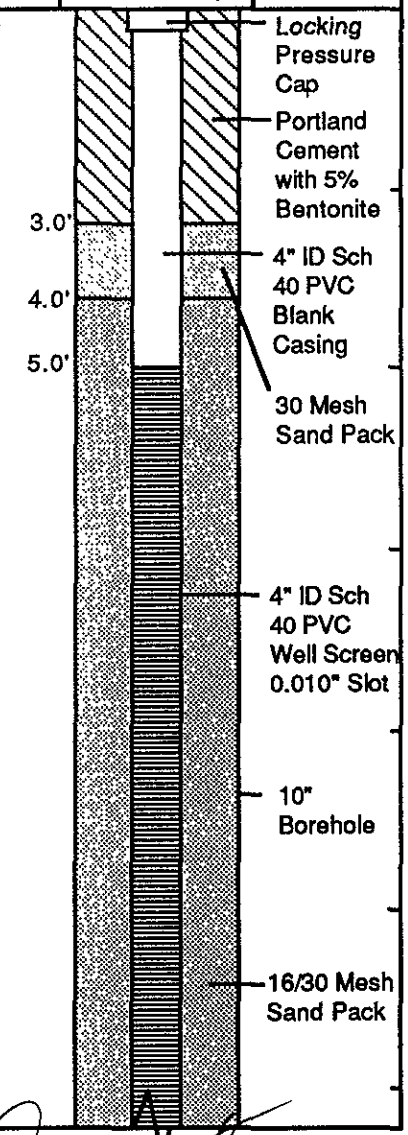
SB/MW # : MW-4
D- 22079
Page 1 of 2
Sampler: J. LOVE

J. Love
SIGNATURE OF SAMPLER

PROJECT TARGET-DUBLIN LOCATION APPROX. 10' SOUTH OF TANK VAULT
TOC ELEVATION 342.11' (MSL) DATE(S) 2/20/91 TOTAL DEPTH 23.0'
MONITORING DEVICE 580B OVM SCREENED INTERVAL 5.0' - 20.0'
SAMPLING METHOD 5' Continuous Core SUBCONTRACTOR & EQPT GREGG/B-53
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO 0.0' - 5.0' HAND AUGER;
MEMO 5.0' - 15.0' MODIFIED CALIFORNIA SPLIT SPOON; 15.0' - 23.0' CONTINUOUS CORE.

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth
0	Hand Auger					0.0' - 2.0' GRASS & TOP SOIL.			
2.5						2.0' - 6.0' SILTY CLAY: (0,10, 45,45) black (10YR2/1); high plastic fines; very stiff; moist.			
					1.0		CH		
5	12-26-36	62	5.0-6.5		49.9	5.0' - Petroleum odor.			
						6.0' - 9.5' SILTY CLAY: (0,5, 50,45) olive gray (5Y5/2); high plastic fines; very stiff; moist; petroleum odor.			
7.5	10-15-20	35	6.5-8.0	55462 55463	822		CH		
	10-20-30	50	8.0-9.5		7.6	8.0' - Olive gray (5Y5/2) with yellowish brown (2.5Y6/4) mottles.			
	10-15-20	35	9.5-11.0		0				
10						9.5' - 12.5' CLAYEY SILT: (0, 15,50,35) gray (5Y6/1); medium plastic fines; poorly graded, fine grained sand; firm to stiff; moist.	CL		
	10-20-20	40	11.0-12.5		0				
12.5	10-21-22	43	12.5-14.0		0				
						12.5' - 15.0' CLAYEY SILT: (0, 10,50,40) dark greenish gray (5GY4/1) medium plastic fines; stiff; moist to saturated.	CL		
	10-24	34	14.0-15.0		0				
15			15.0-20.0						

Borehole Abandonment/ Well Construction Details



Campbell McLeod
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SENIOR GEOLOGIST
TITLE

Clifton Cavanaugh
SIGNATURE OF REVIEWER
PRINCIPAL HYDROGEOLOGIST CEG # 1455
TITLE

SOIL DRILLING LOG

SB/MW # : MW-4
D- 22079
Page 2 of 2
Sampler: J. LOVE

SIGNATURE OF SAMPLER

PROJECT TARGET-DUBLIN LOCATION APPROX. 10' SOUTH OF TANK VAULT
TOC ELEVATION 342.11' (MSL) DATE(S) 2/20/91 TOTAL DEPTH 23.0'
MONITORING DEVICE 580B OVM SCREENED INTERVAL 5.0' - 20.0'
SAMPLING METHOD 5' CONTINUOUS CORE SUBCONTRACTOR & EQPT GREGG/B-53
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO 0.0' - 5.0' HAND AUGER;
MEMO 5.0' - 15.0' MODIFIED CALIFORNIA SPLIT SPOON; 15.0' - 23.0' CONTINUOUS CORE.

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture,Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
17.5						15.0' - 18.0' CLAYEY SILT: (0, 10,55,35) light gray (2.5Y7/2) to olive yellow (2.5Y6/6); medium plastic fines; stiff; very moist.	CL			4" ID Sch 40 PVC Well Screen 0.010" Slot
						18.0' - 19.5' CLAYEY SILT WITH SAND: (0,25,45,30) dark grayish brown (2.5Y4/2); medium plastic fines; moderately graded, fine grained sand; stiff; moist to saturated.	CL			10" Borehole
20			20.0-23.0		0		SM			16/30 Mesh Sand Pack
22.5						19.5' - 20.0' SILTY SAND: (0, 55,45,0) dark grayish brown (2.5Y4/2); poorly graded, fine grained sand; soft; saturated.	CL			20.0' 20.5' Bentonite 2" Borehole 23.0' TD
						20.0' - 23.0' SILTY CLAY: (0, 15,40,45) dark grayish brown (2.5Y3/2); medium plastic fines; poorly graded, fine grained sand; very stiff; moist to very moist.				
25										
27.5										
30										

Campbell H Cox
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SENIOR GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
PRINCIPAL HYDROGEOLOGIST CEG # 1455
TITLE

SOIL DRILLING LOG

SB/MW # : SB-1
D- 22082
Page 1 of 1
Sampler: J. LOVE

SIGNATURE OF SAMPLER

PROJECT TARGET-DUBLIN LOCATION SW CORNER OF FORMER GASOLINE TANK
TOC ELEVATION 341.00' (MSL) DATE(S) 2/21/91 TOTAL DEPTH 9.5'
MONITORING DEVICE 580B OVM SCREENED INTERVAL N/A
SAMPLING METHOD MOD. CA. SPLIT SPOON SUBCONTRACTOR & EQPT GREGG/B-53
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO 0.0' - 5.0' HAND AUGER;
MEMO 5.0' - 9.5' MOD. CA SPLIT SPOON.

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture,Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
0	Hand Auger					0.0' - 3.0' Excavation Fill Material.				Portland Cement with 5% Bentonite
2.5						3.0' - 4.0' SILTY CLAY: (0,5, 45,50) very dark grayish brown (2.5Y3/2); high plastic fines; very stiff; moist.	CH			
5	2-4-10	14	5.0-6.5	55470	0	4.0' - 6.5' CLAYEY SILT: (0,5, 50,45) olive gray (5Y5/2) medium plastic fines; stiff; very moist.	CL			5.0'
	2-3-2	5	6.5-8.0	55471	175	5.0' - Sand increase; soft; very moist. 5.5' - Petroleum odor. 6.5' - Black petroleum product.	SP-SM			6" Borehole
7.5	1-1-1	2	8.0-9.5		—	6.5' - 9.5' SILTY SAND: (0,90, 10,0); variegated; moderately graded, coarse grained sand; loose; saturated.				Granular Bentonite 9.5'
10										
12.5										
15										

Campbell/McLeod

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SENIOR GEOLOGIST
TITLE

Clifton Davenport

SIGNATURE OF REVIEWER
PRINCIPAL HYDROGEOLOGIST CEG # 1455
TITLE

SOIL DRILLING LOG

SB/MW # : SB-3
D- 22080
Page 1 of 1
Sampler: J. LOVE

John Love
SIGNATURE OF SAMPLER

PROJECT TARGET-DUBLIN LOCATION SOUTH OF PUMP ISLANDS
TOC ELEVATION (MSL) DATE(S) 2/21/91 TOTAL DEPTH 9.5'
MONITORING DEVICE 580B OVM SCREENED INTERVAL N/A
SAMPLING METHOD MOD. CA. SPLIT SPOON SUBCONTRACTOR & EQPT GREGG/B-53
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO 0.0' - 5.0' HAND AUGER;
MEMO 5.0' - 9.5' MOD. CA SPLIT SPOON.

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
0						0.0' - 1.0' ASPHALT & BASE.	RB			
2.5	Hand Auger					1.0' - 4.0' SILTY CLAY: (0,10, 45,45) very dark grayish brown (2.5Y3/2); high plastic fines; very stiff; moist.	CH			Portland Cement with 5% Bentonite
5	12-20-26	46	5.0-6.5	55464 55465	330	4.0' - 9.5' CLAYEY SILT: (0,5, 55,40); gray (5Y5/1) to white (2.5Y8/2); medium to high plastic fines; stiff; moist. Petroleum odor; trace; coarse sand.	CL/ CH			5.0' 6" Borehole
7.5	6-16-26	42	6.5-8.0	55467	79	7.0' - Moist to very moist. 8.0 - No odor.				Granular Bentonite
	10-15-18	33	8.0-9.5		0	9.0 - Dark gray (5Y4/) with white (2.5Y8/2) blebs.				2" Borehole 9.5' TD
10										
12.5										
15										

Campbell McLeod
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SENIOR GEOLOGIST
TITLE

Clifton Cavenaugh
SIGNATURE OF REVIEWER
PRINCIPAL HYDROGEOLOGIST CEG # 1455
TITLE

SOIL DRILLING LOG

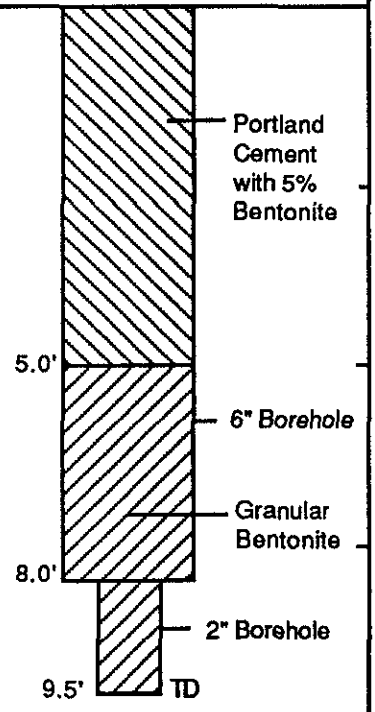
SB/MW # : SB-4
D- 22083
Page 1 of 1
Sampler: J. LOVE

John Love
SIGNATURE OF SAMPLER

PROJECT TARGET-DUBLIN LOCATION ADJACENT TO FORMER DIESEL TANK
TOC ELEVATION (MSL) DATE(S) 2/21/91 TOTAL DEPTH 9.5'
MONITORING DEVICE 580B OVM SCREENED INTERVAL N/A
SAMPLING METHOD MOD. CA. SPLIT SPOON SUBCONTRACTOR & EQPT GREGG/B-53
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO 0.0' - 5.0' HAND AUGER;
MEMO 5.0' - 9.5' MOD. CA SPLIT SPOON.

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture,Etc.	Unified Classification	Graphic Log	Sampled Depth
0	Hand Auger					0.0' - 3.0' Excavation; fill material; sand, gravel.			
2.5									
5	8-16-24	40	5.0-6.5	55472	650	3.0' - 6.0' SILTY CLAY: (0,10, 45,45) very dark grayish brown (2.5Y3/2); high plastic fines; very stiff; moist. Petroleum odor; white (2.5Y8/2) lenses.	CH		
	12-16-28	44	6.5-8.0		138				
7.5						6.0' - 9.5' SILTY CLAY: (0,10, 45,45) dark greenish gray (5GY4/1) to white (2.5Y8/2); high plastic fines; very stiff; moist. Slight petroleum odor.	CH		
	5-10-17	27	8.0-9.5		0				
10									
12.5									
15									

Borehole Abandonment/ Well Construction Details



Campbell Wood
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SENIOR GEOLOGIST
TITLE

Clifton Cowgot
SIGNATURE OF REVIEWER
PRINCIPAL HYDROGEOLOGIST CEG # 1455
TITLE

SOIL DRILLING LOG

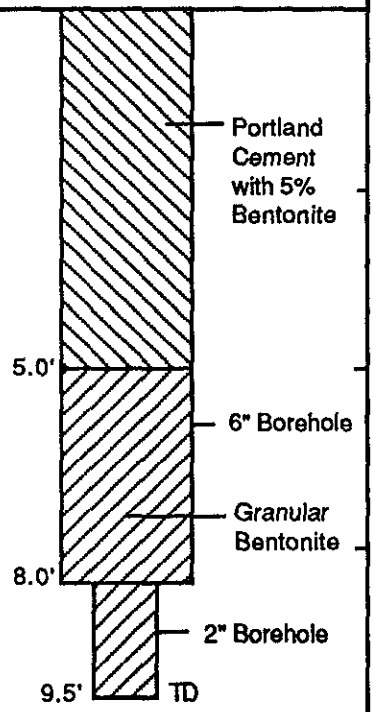
SB/MW # : SB-5
D- 22081
Page 1 of 1
Sampler: J. LOVE

SIGNATURE OF SAMPLER

PROJECT TARGET-DUBLIN LOCATION SW CORNER OF PUMP ISLAND
TOC ELEVATION (MSL) DATE(S) 2/21/91 TOTAL DEPTH 9.5'
MONITORING DEVICE 580B OVM SCREENED INTERVAL N/A
SAMPLING METHOD MOD. CA. SPLIT SPOON SUBCONTRACTOR & EQPT GREGG/B-53
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO 0.0' - 5.0' HAND AUGER;
MEMO 5.0' - 9.5' MOD. CA SPLIT SPOON.

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth
						0.0' - 1.0' ASPHALT BASE.	RB		
2.5	Hand Auger					1.0' - 4.0' CLAYEY SILT: (0,5, 50,45); very dark grayish brown (2.5Y3/2); high plastic fines; very stiff; moist. Slight odor at 3.0'.	CH		
5	6-13-13	26	5.0-6.5	55468	0	4.0' - 6.5' CLAYEY SILT: (0,5, 55,40); gray (5Y5/1) to white (2.5Y8/2); medium to high plastic fines; stiff; moist. Slight petroleum odor.	CH		
	6-18-20	38	6.5-8.0	55469	0	6.5' - 7.0' SANDY SILT: (0,45, 45,10) pale olive (5Y6/3) ; low plastic fines; moderately graded, fine grained sand; soft; moist to very moist.	ML		
7.5	6-16-25	41	8.0-9.5		0	7.0' - 9.5' SILTY CLAY: (0,20, 40,40) dark grayish brown (2.5Y4/2) with white (2.5Y8/2) blebs; medium to high plastic fines; very stiff; moist.	CL/CH		
10									
12.5									
15									

Borehole Abandonment/ Well Construction Details



SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SENIOR GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
PRINCIPAL HYDROGEOLOGIST CEG # 1455
TITLE

ATTACHMENT II
SOIL ANALYTICAL DATA SHEETS AND CHAIN-OF-CUSTODY RECORDS

McLaren Hart

Date: March 25, 1991
LP #: 4146

Campbell McLeod
McLaren/Hart
1135 Atlantic Avenue
Alameda, CA 94501

Dear Mr. McLeod:

Enclosed are the laboratory results for the eleven samples submitted by you to the McLaren Analytical Laboratory on February 22, 1991, for the project *Target*.

The analyses you requested are:

Mod. EPA 8020 (BTEX) (5 - Soil)
TPH/D (3- Soil)
TPH/G (5 - Soil)
Total Lead (EPA 7420) (1 - Soil)

The report consists of the following sections:

1. A copy of the chain of custody
2. Quality Control Report
3. Comments
4. Analytical results
5. Copy of final billing submitted to accounting.

Unless otherwise instructed by you, samples will be disposed of two weeks from the date of this letter.

Thank you for choosing McLaren Analytical Laboratory. We are looking forward to serving you in the future. Should you have any questions concerning this analytical report or the analytical methods employed, please do not hesitate to call.

Sincerely,

Anthony S. Wong, Ph.D.
Director, Laboratory/Managing Principal

11101 White Rock Road, Rancho Cordova, CA 95670 (916) 638-3696 FAX (916) 638-2842

1/3

22005

McLaren

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 4146
Storage Refrigerator ID: 4-13, 12
Storage Freezer ID: _____
Secured: Yes ✓ No ___

Project Name: Target Project #: _____ Sampler: J. Love (Printed Name) John Love (Signature)

Relinquished by: (Signature and Printed Name) John Love	Received by: (Signature and Printed Name) fed-x	Date: 2/21/91	Time: 16:00
Relinquished by: (Signature and Printed Name) fed-x	Received by: (Signature and Printed Name) Brian Thom	Date: 2-22-91	Time: 10:00
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:

SHIP TO:
McLaren Analytical Laboratory
11101 White Rock Road
Rancho Cordova, CA 95670
(916) 638-3696
FAX (916) 638-2842

Method of Shipment: Fed-x

Shipment ID: _____

Circle or Add Analysis(es) Requested

a) Identify specific metals requested under Special Instructions

Sample ID Number	Sample Description: Date	Time	Description	601/8010 (Halogenated Volatiles-GC)	602/8020 Aromatic Volatiles-GC)	604/8040 (Phenols-GC)	608/8080 (Pesticides/PCB-GC)	610/8100 (PNA-GC)	624/8240 (Volatiles-GC/MS)	625/8270 (BNA-GC/MS)	TPH/G (Gasoline-GC) BTEX	TPH/D (Diesel-GC)	418.1 (IR)	8015 Modified (GC)	Metals-Total a	Metals-Soluble a	Fluoride/Perchlorate	Chloride/pH	TDS/Percent Solid	Specific Conductivity (EC)	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY Lab ID
1	55462	2/20/91	14:15	SB-2 / 5.5-6						X											4	1	B	4146-001
2	55463	↓	↓	SB-2 / 6-6.5	X																4	1	B	002
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								

Special Instructions/Comments: _____

Sample Archive/Disposal:
☐ Laboratory Standard
☐ Other _____

TAT (Analytical Turn-Around Times) 1 = 24 hours 2 = 48 hours 3 = 1 week 4 = 2 weeks
Container Types: B=Brass Tube, V=VOA Vial, A=1-Liter Amber, G=Glass Jar, C=Cassette, O = Other _____

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt: Good Condition
BTO 2-22-91.
8020 cancelled for whole LP. Add BTEX to TPH/G analysis for whole LP. per C. McLeod - 2-6-91. (RB)

SEND DOCUMENTATION AND RESULTS TO (Check one):
☐ Project Manager/Office: C. McLeod
☐ Client Name: Alameda
Company: _____
Address: _____
Phone: ___(___)_____ Fax: _____

REVISION 2/3

McLaren

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 4146
Storage Refrigerator ID: 4-13, 12
Storage Freezer ID:
Secured: Yes ✓ No

Project Name: Target Project #: 38913 Sampler: J. Love (Printed Name) John Love (Signature)

Relinquished by: (Signature and Printed Name) John Love	Received by: (Signature and Printed Name) Fed-X	Date: 2/21/91	Time: 16:00
Relinquished by: (Signature and Printed Name) Fed-X	Received by: (Signature and Printed Name) Brian J. Clem	Date: 2-22-91	Time: 10:00
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:

SHIP TO:
McLaren Analytical Laboratory
11101 White Rock Road
Rancho Cordova, CA 95670
(916) 638-3696
FAX (916) 638-2842

Method of Shipment: Fed-X
Shipment ID:

Circle or Add Analysis(es) Requested

a) Identify specific metals requested under Special Instructions

Sample ID Number	Sample Description: Date	Time	Description	601/8010 (Halogenated Volatiles-GC)	602/8020 Aromatic Volatiles-GC)	604/8040 (Phenols-GC)	608/8080 (Pesticides/PCB-GC)	610/8100 (PNA-GC)	624/8240 (Volatiles-GC/MS)	625/8270 (BNA-GC/MS)	TPH/G (Gasoline-GC) BTEX	TPH/D (Diesel-GC) LuFt method	418.1 (IR)	8015 Modified (GC)	Metals-Total a	Metals-Soluble a	Fluoride/Perchlorate	Chloride/pH	TDS/Percent Solid	Specific Conductivity (EC)	T	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY Lab ID
1	55464	2/21/91	10:00	SB-3/5.5-6	X																	4	1	B	003
2	55465		10:00	SB-3/6-6.5						X															004
3	55467		10:05	SB-3/7-7.5							X														005
4	55468		10:45	SB-5/5.5-6	X																				006
5	55469		10:45	SB-5/6-6.5						X															007
6	55470		11:50	SB-1/6-6.5	X																				008
7	55471		11:50	SB-1/7-7.5						X															009
8	55472		12:50	SB-1/5.5-6							X														010
9																									
10																									

Special Instructions/Comments:

Sample Archive/Disposal:
☐ Laboratory Standard
☐ Other

TAT (Analytical Turn-Around Times) 1 = 24 hours 2 = 48 hours 3 = 1 week 4 = 2 weeks
Container Types: B=Brass Tube, V=VOA Vial, A=1-Liter Amber, G=Glass Jar, C=Cassette, O = Other

SEND DOCUMENTATION AND RESULTS TO (Check one):
☐ Project Manager/Office: C. McLoed
☐ Client Name: Alamed.
Company:
Address:
Phone: ( ) Fax:

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt: Good Condition
BJO 2-22-91.

3/3

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 4146
Storage Refrigerator ID: 4-13, 12
Storage Freezer ID:
Secured: Yes ✓ No

Project Name: Target Project #: 38913 Sampler: J. Love (Printed Name) John Love (Signature)

Relinquished by: (Signature and Printed Name) John Love	Received by: (Signature and Printed Name) Fed-X	Date: 2/21/91	Time: 16:00
Relinquished by: (Signature and Printed Name) Fed-X	Received by: (Signature and Printed Name)	Date: 2-22-91	Time: 10:00
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:

SHIP TO:
McLaren Analytical Laboratory
11101 White Rock Road
Rancho Cordova, CA 95670
(916) 638-3696
FAX (916) 638-2842

Method of Shipment: Fed

Shipment ID:

Circle or Add Analysis(es) Requested

a) Identify specific metals requested under Special Instructions

Sample ID Number	Sample Description: Date	Time	Description	601/8010 (Halogenated Volatiles-GC)	602/8020 Aromatic Volatiles-GC)	604/8040 (Phenols-GC)	608/8080 (Pesticides/PCB-GC)	610/8100 (PNA-GC)	624/8240 (Volatiles-GC/MS)	625/8270 (BNA-GC/MS)	(TPH/G) Gasoline-GC) BTEX	(TPH/D) Diesel-GC) Luft method	418.1 (IR)	8015 Modified (GC)	Metals-Total a	Metals-Soluble a	Fluoride/Perchlorate	Chloride/pH	TDS/Percent Solid	Specific Conductivity (EC)	Total Lead	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY: Lab ID
1	55473	2/21/91	15:30	Soil Bin 1212	X																	4	1	B	01
2	55474	↓	↓	↓						X															
3	55475										X														
4	55476																			X					
5																									
6																									
7																									
8																									
9																									
10																									

Special Instructions/Comments: All sample are a composite of 5 different locations with the soil bin.

Sample Archive/Disposal:
☐ Laboratory Standard
☐ Other

TAT (Analytical Turn-Around Times) 1 = 24 hours 2 = 48 hours 3 = 1 week 4 = 2 weeks
Container Types: B=Brass Tube, V=VOA Vial, A=1-Liter Amber, G=Glass Jar, C=Cassette, O = Other

SEND DOCUMENTATION AND RESULTS TO (Check one):
☐ Project Manager/Office: C. McLoed (Alameda)
☐ Client Name:
Company:
Address:
Phone: ( ) Fax:

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt: Good Condition
2-22-91 BJO.

METHOD BLANK RESULTS: A method blank (MB) is a laboratory generated sample free of any contamination. The method blank assesses the degree to which the laboratory operations and procedures cause false-positive analytical results for your samples. The method blank results associated with your samples are attached.

LABORATORY CONTROL SPIKES

The LCS Program:

The laboratory control spike is a well characterized matrix (organic pure type II water for water samples and contamination free sand for soil samples) which is spiked with certain target parameters and analyzed in duplicate at approximately 5% of the sample load in order to assure the accuracy and precision of the analytical method. The results of the laboratory control spike associated with your samples are attached.

Accuracy is measured using percent recovery, i.e.:

$$\text{Percent Recovery} = \frac{\text{(measured concentration)}}{\text{(actual concentration)}} \times 100$$

Precision is measured using the relative percent difference (RPD) from duplicate tests, i.e.:

$$\text{RPD} = \frac{\%\ \text{Recovery of Spike}_{(1)} - \%\ \text{Recovery of Spike}_{(2)}}{(\%\ \text{Recovery of Spike}_{(1)} + \%\ \text{Recovery of Spike}_{(2)})/2} \times 100$$

Control limits for accuracy and precision are different for different methods. They may also vary with the different sample matrices. They are based on laboratory average historical data and EPA limits which are approved by the Quality Assurance Department.

McLaren Hart

QUALITY CONTROL REPORT

Method: Mod. EPA 8020 (BTEX)
Units: ug/g (ppm)

Date Analyzed: 02/26-02/27/91
Date Extracted: 02/25/91
Batch Number: 910225-0901

METHOD BLANK

Compounds	Reporting Limits	Results of the MB
Benzene	0.01	BRL
Toluene	0.01	BRL
Chlorobenzene	0.01	BRL
Ethyl Benzene	0.01	BRL
1,2-Xylene	0.01	BRL
1,3-Xylene	0.01	BRL
1,4-Xylene	0.01	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Chlorobenzene	0.10	0.11	110	0	75 - 125	<25
Benzene	0.10	0.11	110	13	75 - 125	<25
Ethyl Benzene	0.10	0.11	110	0	75 - 125	<25

[a] Acceptance limits are generic EPA limits.

(DC1-CN4146)

McLaren Hart

QUALITY CONTROL REPORT

Method: TPH-D
Units: ug/g (ppm)

Date Analyzed: 02/27/91
Date Extracted: 02/25/91
Batch Number: 910225-1901

METHOD BLANK

Compounds	Reporting Limit	Results of the MB
Total Petroleum Hydrocarbons Diesel	10.	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Diesel Range	83.	80.	96	13	50 - 121	<25

[a] Acceptance limits were obtained statistically from McLaren quality control data.

(DC1-CN4146)

McLaren Hart

QUALITY CONTROL REPORT

Method: TPH/G
Units: ug/g (ppm)

Date Analyzed: 02/26-02/27/91
Date Extracted: 02/25/91
Batch Number: 910225-0901

METHOD BLANK

Compounds	Reporting Limit	Results of the MB
Total Petroleum Hydrocarbons - Gasoline	1.	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Gasoline	5.0	5.6	112	7	75 - 125	<25

[a] Acceptance limits are generic EPA limits.

(DC1-CN4146)

McLaren Hart

QUALITY CONTROL REPORT

Method: EPA 7420
Units: ug/g (ppm)

Date Analyzed: 03/04/91
Date Extracted: 02/26/91
Batch Number: 910226-0401

METHOD BLANK

Compounds	Reporting Limits	Results of the MB
Lead (Pb)/7420	1.	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Lead (Pb)/7420	1.0	1.0	100	0	75 - 125	<20

[a] Acceptance limits are generic EPA limits.

(DC1-CN4146)

McLaren Hart

ABBREVIATIONS USED IN THIS REPORT

BRL	Below Reporting Limit
MB	Method Blank
MS	Matrix Spike
MSD	Matrix Spike Duplicate
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
RPD	Relative Percent Difference
NS	Not Specified
NA	Not Applicable

COMMENTS

Test methods may include minor modifications of published EPA methods (e.g., reporting limits or parameter lists). Reporting limits are adjusted to reflect dilution of the sample when appropriate. Solids and waste are analyzed with no correction made for moisture content. Blank results are reported in the Case Narrative.

Values for total petroleum hydrocarbons were calculated based only on detected peaks.

Results are reported on the attached data sheets.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	Target	Project Number:	38913
Sample Description:	SB-1/6 - 6.5	Lab Project-ID Number:	4146-008
Sample Number:	55470	Date Sampled:	02/21/91
Date Received:	02/22/91	Date Extracted:	02/25/91
Date Analyzed:	02/28/91	Batch Number:	910225-0901

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	0.05
Toluene	0.10	0.05
Ethyl Benzene	0.61	0.05
1,2-Xylene	0.48	0.05
1,3-Xylene	0.33	0.05
1,4-Xylene	0.82	0.05

Surrogate	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	85	75 - 125

Dilution: 1:5

Comments: Heavy matrix interference present.

Approved By: _____ Date: 3/25/91
A. Putnam

The cover letter and attachments are integral parts of this report.

McLaren Hart

12/06/90

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Gasoline by LUFT
Preparation Method: EPA 5030

Project Name:	Target	Project Number:	38913
Sample Description:	SB-1/7 - 7.5	Lab Project-ID Number:	4146-009
Sample Number:	55471	Date Sampled:	02/21/91
Date Received:	02/22/91	Date Extracted:	02/25/91
Date Analyzed:	03/01/91	Batch Number:	910225-0901

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Total Petroleum Hydrocarbons Gasoline	40.	10.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	95	75 - 125

Dilution: 1:10

Comments:

Approved By: _____ Date: 3/25/91
A. Putnam

The cover letter and attachments are integral parts of this report.

1/02/91

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Gasoline by LUFT
Preparation Method: EPA 5030

Project Name:	Target	Project Number:	38913
Sample Description:	SB-2/5.5 - 6	Lab Project-ID Number:	4146-001
Sample Number:	55462	Date Sampled:	02/20/91
Date Received:	02/22/91	Date Extracted:	02/25/91
Date Analyzed:	03/01/91	Batch Number:	910225-0901

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Total Petroleum Hydrocarbons Gasoline	20.	10.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	115	75 - 125

Dilution: 1:10

Comments:

Approved By: _____ Date: 3/25/91
A. Putnam

The cover letter and attachments are integral parts of this report.

1/02/91

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	Target	Project Number:	38913
Sample Description:	SB-2/6 - 6.5	Lab Project-ID Number:	4146-002
Sample Number:	55463	Date Sampled:	02/20/91
Date Received:	02/22/91	Date Extracted:	02/25/91
Date Analyzed:	02/28/91	Batch Number:	910225-0901

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	0.40	0.05
Toluene	BRL	0.05
Ethyl Benzene	1.2	0.05
1,2-Xylene	0.48	0.05
1,3-Xylene	0.55	0.05
1,4-Xylene	1.5	0.05

Surrogate	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	115	75 - 125

Dilution: 1:5

Comments:

Approved By: _____ Date: 3/25/91
A. Putnam

The cover letter and attachments are integral parts of this report.

McLaren Hart

12/06/90

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	Target	Project Number:	38913
Sample Description:	SB-3/5.5 - 6	Lab Project-ID Number:	4146-003
Sample Number:	55464	Date Sampled:	02/21/91
Date Received:	02/22/91	Date Extracted:	02/25/91
Date Analyzed:	02/28/91	Batch Number:	910225-0901

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	0.06	0.05
Toluene	BRL	0.05
Ethyl Benzene	0.53	0.05
1,2-Xylene	BRL	0.05
1,3-Xylene	0.08	0.05
1,4-Xylene	0.48	0.05

Surrogate	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	95	75 - 125

Dilution: 1:5

Comments: Heavy matrix interference present.

Approved By: ARZ Date: 3/25/91
A. Putnam

The cover letter and attachments are integral parts of this report.

McLaren Hart

12/06/90

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Gasoline by LUFT
Preparation Method: EPA 5030

Project Name:	Target	Project Number:	38913
Sample Description:	SB-3/6 - 6.5	Lab Project-ID Number:	4146-004
Sample Number:	55465	Date Sampled:	02/21/91
Date Received:	02/22/91	Date Extracted:	02/25/91
Date Analyzed:	02/28/91	Batch Number:	910225-0901

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Total Petroleum Hydrocarbons Gasoline	21.	5.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	85	75 - 125

Dilution: 1:5

Comments:

Approved By: _____ Date: 3/25/91
A. Putnam

The cover letter and attachments are integral parts of this report.

1/02/91

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified EPA 3550 (a)

Project Name:	Target	Project Number:	38913
Sample Description:	SB-3/7 - 7.5	Lab Project-ID Number:	4146-005
Sample Number:	55467	Date Sampled:	02/21/91
Date Received:	02/22/91	Date Extracted:	02/25/91
Date Analyzed:	03/02/91	Batch Number:	910225-1901

PETROLEUM HYDROCARBONS	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Total Petroleum Hydrocarbons - Diesel	BRL	10.

Dilution: None

Comments: (a) Shaker rather than sonication used for extraction.

Approved By: C. Fong Date: 3/25/91

The cover letter and attachments are integral parts of this report.

1/02/91

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified EPA 3550 (a)

Project Name:	Target	Project Number:	38913
Sample Description:	SB-4/5.5 - 6	Lab Project-ID Number:	4146-010
Sample Number:	55472	Date Sampled:	02/21/91
Date Received:	02/22/91	Date Extracted:	02/25/91
Date Analyzed:	03/02/91	Batch Number:	910225-1901

PETROLEUM HYDROCARBONS	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Total Petroleum Hydrocarbons - Diesel	24.	20.

Dilution: 1:2

Comments: (a) Shaker rather than sonication used for extraction.

Due to the present of hydrocarbons in the C7 - C12 range a 1:2 dilution was used.

Approved By: C. Fong Date: 3/25/91

The cover letter and attachments are integral parts of this report.

1/02/91

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	Target	Project Number:	38913
Sample Description:	SB-5/5.5 - 6	Lab Project-ID Number:	4146-006
Sample Number:	55468	Date Sampled:	02/21/91
Date Received:	02/22/91	Date Extracted:	02/25/91
Date Analyzed:	03/01/91	Batch Number:	910225-0901

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	BRL	0.01
Toluene	BRL	0.01
Ethyl Benzene	BRL	0.01
1,2-Xylene	BRL	0.01
1,3-Xylene	BRL	0.01
1,4-Xylene	BRL	0.01

Surrogate	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	95	75 - 125

Dilution: None

Comments:

Approved By: A. Putnam Date: 3/25/91

The cover letter and attachments are integral parts of this report.

McLaren Hart

12/06/90

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Gasoline by LUFT
Preparation Method: EPA 5030

Project Name:	Target	Project Number:	38913
Sample Description:	SB-5/6 - 6.5	Lab Project-ID Number:	4146-007
Sample Number:	55469	Date Sampled:	02/21/91
Date Received:	02/22/91	Date Extracted:	02/25/91
Date Analyzed:	02/26/91	Batch Number:	910225-0901

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Total Petroleum Hydrocarbons Gasoline	BRL	1.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	85	75 - 125

Dilution: None

Comments:

Approved By: _____ Date: 3/25/91
A. Putnam

The cover letter and attachments are integral parts of this report.

1/02/91

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Gasoline by LUFT
Preparation Method: EPA 5030

Project Name:	Target	Project Number:	38913
Sample Description:	Soil Bin 1212	Lab Project-ID Number:	4146-011
Sample Number:	55473	Date Sampled:	02/21/91
Date Received:	02/22/91	Date Extracted:	02/25/91
Date Analyzed:	03/04/91	Batch Number:	910225-0901

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Total Petroleum Hydrocarbons Gasoline	20.	10.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	82	75 - 125

Dilution: 1:10

Comments:

Approved By: _____ Date: 3/25/91
A. Putnam

The cover letter and attachments are integral parts of this report.

1/02/91

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified EPA 3550 (a)

Project Name:	Target	Project Number:	38913
Sample Description:	Soil Bin 1212	Lab Project-ID Number:	4146-011
Sample Number:	55475	Date Sampled:	02/21/91
Date Received:	02/22/91	Date Extracted:	02/25/91
Date Analyzed:	03/04/91	Batch Number:	910225-1901

PETROLEUM HYDROCARBONS	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Total Petroleum Hydrocarbons - Diesel	18.	10.

Dilution: None

Comments: (a) Shaker rather than sonication used for extraction.

The chromographic pattern of diesel in the sample does not exactly match that of the diesel standard.

Approved By: C Fong / C. Fong Date: 3/25/91

The cover letter and attachments are integral parts of this report.

1/02/91

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX)
Preparation Method: EPA 5030

Project Name:	Target	Project Number:	38913
Sample Description:	Soil Bin 1212	Lab Project-ID Number:	4146-011
Sample Number:	55473	Date Sampled:	02/21/91
Date Received:	02/22/91	Date Extracted:	02/25/91
Date Analyzed:	02/28/91	Batch Number:	910225-0901

COMPOUND	ANALYTE CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Benzene	0.05	0.01
Toluene	BRL	0.01
Ethyl Benzene	0.21	0.01
1,2-Xylene	0.08	0.01
1,3-Xylene	0.15	0.01
1,4-Xylene	0.26	0.01

Surrogate	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	100	75 - 125

Dilution: None

Comments: Heavy matrix interference present.

Approved By: A. Putnam Date: 3/25/91

The cover letter and attachments are integral parts of this report.

McLaren Hart

12/06/90

METAL ANALYSIS

Analytical Method: **EPA 7420**
Preparation Method: **EPA 7420**

Project Name: Target

Project Number: 38913

Sample Description: Soil Bin 1212

Lab Project-ID Number: 4146-011

Sample Number: 55475

Date Sampled: 02/21/91

Date Received: 02/22/91

Date Digested: 02/26/91

Date Analyzed: 03/04/91

Batch Number: 910226-0401

METAL (SYMBOL)/EPA METHOD	CONCENTRATION ug/g (ppm)	REPORTING LIMIT ug/g (ppm)
Lead (Pb)/7420	11.	1.

Dilution: None

Comments:

Approved By: F. Ramezanzadeh Date: 3-25-91

The cover letter and attachments are integral parts of this report.

12/13/90

McLaren Hart

ATTACHMENT III
GROUNDWATER ANALYTICAL DATA SHEETS AND CHAIN-OF-CUSTODY RECORDS

McLaren Hart

Date: March 26, 1991
LP #: 4179

Campbell McLeod
McLaren/Hart
1135 Atlantic Avenue
Alameda, CA 94501

Dear Mr. McLeod:

Enclosed are the laboratory results for the five samples submitted by you to the McLaren Analytical Laboratory on March 1, 1991, for the project *Target*.

The analyses you requested are:

TPH/D (4 - Water)
Mod. EPA 8020 (BTEX) & TPH/G (5 - Water)
Pb (EPA 7420) (4 - Water)

The report consists of the following sections:

1. A copy of the chain of custody
2. Quality Control Report
3. Comments
4. Analytical results
5. Copy of final billing submitted to accounting.

Unless otherwise instructed by you, samples will be disposed of two weeks from the date of this letter.

Thank you for choosing McLaren Analytical Laboratory. We are looking forward to serving you in the future. Should you have any questions concerning this analytical report or the analytical methods employed, please do not hesitate to call.

Sincerely,

Anthony S. Wong, Ph.D.
Director, Laboratory/Managing Principal

11101 White Rock Road, Rancho Cordova, CA 95670 (916) 638-3696 FAX (916) 638-2842

QUALITY CONTROL REPORT

METHOD BLANK RESULTS: A method blank (MB) is a laboratory generated sample free of any contamination. The method blank assesses the degree to which the laboratory operations and procedures cause false-positive analytical results for your samples. The method blank results associated with your samples are attached.

LABORATORY CONTROL SPIKES

The LCS Program:

The laboratory control spike is a well characterized matrix (organic pure type II water for water samples and contamination free sand for soil samples) which is spiked with certain target parameters and analyzed in duplicate at approximately 5% of the sample load in order to assure the accuracy and precision of the analytical method. The results of the laboratory control spike associated with your samples are attached.

Accuracy is measured using percent recovery, i.e.:

$$\text{Percent Recovery} = \frac{\text{(measured concentration)}}{\text{(actual concentration)}} \times 100$$

Precision is measured using the relative percent difference (RPD) from duplicate tests, i.e.:

$$\text{RPD} = \frac{\%\ \text{Recovery of Spike}_{(1)} - \%\ \text{Recovery of Spike}_{(2)}}{(\%\ \text{Recovery of Spike}_{(1)} + \%\ \text{Recovery of Spike}_{(2)})/2} \times 100$$

Control limits for accuracy and precision are different for different methods. They may also vary with the different sample matrices. They are based on laboratory average historical data and EPA limits which are approved by the Quality Assurance Department.

McLaren Hart

QUALITY CONTROL REPORT

Method: TPH-D
Units: ug/ml (ppm)

Date Analyzed: 03/08/91
Date Extracted: 03/05/91
Batch Number: 910305-1901

METHOD BLANK

Compounds	Reporting Limit	Results of the MB
Total Petroleum Hydrocarbons Diesel	0.5	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Diesel Range	2.5	2.8	113	20	43 - 152	<25

[a] Acceptance limits were obtained statistically from McLaren quality control data.

(DC3-CN4179)

McLaren Hart

QUALITY CONTROL REPORT

Method: EPA 8020 (BTEX) & TPH-G
Units: ug/L (ppb)

Date Analyzed: 03/04 - 03/05/91

METHOD BLANK

Compounds	Reporting Limits	Results of the MB
Benzene	0.5	BRL
Toluene	0.5	BRL
Ethyl Benzene	0.5	BRL
1,2-Xylene	0.5	BRL
1,3-Xylene	0.5	BRL
1,4-Xylene	0.5	BRL
Total Petroleum Hydrocarbons - Gasoline	50.	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Chlorobenzene	10.	9.8	98	1	80 - 120	<20
Benzene	10.	9.5	95	1	80 - 120	<20
Ethyl Benzene	10.	11.	110	0	80 - 120	<20
Total Petroleum Hydrocarbons - Gasoline	100.	100.	100	0	80 - 120	<20

[a] Acceptance limits are generic EPA limits.

(DC3-CN4179)

McLaren Hart

QUALITY CONTROL REPORT

Method: EPA 8020 (BTEX) & TPH-G
Units: ug/L (ppb)

Date Analyzed: 03/11 - 03/12/91

METHOD BLANK

Compounds	Reporting Limits	Results of the MB
Benzene	0.5	BRL
Toluene	0.5	BRL
Ethyl Benzene	0.5	BRL
1,2-Xylene	0.5	BRL
1,3-Xylene	0.5	BRL
1,4-Xylene	0.5	BRL
Total Petroleum Hydrocarbons - Gasoline	50.	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Chlorobenzene	10.	9.7	97	1	80 - 120	<20
Benzene	10.	9.7	97	4	80 - 120	<20
Ethyl Benzene	10.	10.	101	1	80 - 120	<20
Total Petroleum Hydrocarbons - Gasoline	100.	90.	90	2	80 - 120	<20

[a] Acceptance limits are generic EPA limits.

(DC3-CN4179)

McLaren Hart

QUALITY CONTROL REPORT Cont.

Method: EPA 7420
Units: ug/ml (ppm)

Date Analyzed: 03/15/91
Date Extracted: 03/12/91
Batch Number: 910312-2101

METHOD BLANK

Compounds	Reporting Limits	Results of the MB
Lead (Pb)/7420	0.05	BRL

LABORATORY CONTROL SPIKE

Compounds	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Lead (Pb)/7420	0.50	0.51	102	2	80 - 120	<20

[a] Acceptance limits are generic EPA limits.

(DC3-CN4179)

McLaren Hart

ABBREVIATIONS USED IN THIS REPORT

BRL	Below Reporting Limit
MB	Method Blank
MS	Matrix Spike
MSD	Matrix Spike Duplicate
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
RPD	Relative Percent Difference

COMMENTS

Test methods may include minor modifications of published EPA methods (e.g., reporting limits or parameter lists). Reporting limits are adjusted to reflect dilution of the sample when appropriate. Solids and waste are analyzed with no correction made for moisture content. Blank results are reported in the Case Narrative.

Values for total petroleum hydrocarbons were calculated based only on detected peaks.

Results are reported on the attached data sheets.

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline by LUFT
Preparation Method: EPA 5030

Project Name:	Target	Project Number:	38913
Sample Description:	Trip Blank	Lab Project-ID Number:	4179-001
Sample Number:	193001	Date Sampled:	02/28/91
Date Received:	03/01/91	Date Extracted:	NA
Date Analyzed:	03/05/91	Batch Number:	NA

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	BRL	0.5
Toluene	BRL	0.5
Ethyl Benzene	BRL	0.5
1,2-Xylene	BRL	0.5
1,3-Xylene	BRL	0.5
1,4-Xylene	BRL	0.5
Total Petroleum Hydrocarbons Gasoline	BRL	50.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	110	80 - 120

Dilution: None

Comments:

Approved By: _____ Date: 3/26/91
A. Putnam

The cover letter and attachments are integral parts of this report.

12/12/90

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline by LUFT
Preparation Method: EPA 5030

Project Name: Target

Project Number: 38913

Sample Description: MW-3

Lab Project-ID Number: 4179-002

Sample Number: 193005

Date Sampled: 02/28/91

Date Received: 03/01/91

Date Extracted: NA

Date Analyzed: 03/05/91

Batch Number: NA

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	BRL	0.5
Toluene	BRL	0.5
Ethyl Benzene	BRL	0.5
1,2-Xylene	BRL	0.5
1,3-Xylene	BRL	0.5
1,4-Xylene	BRL	0.5
Total Petroleum Hydrocarbons Gasoline	BRL	50.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	110	80 - 120

Dilution: None

Comments:

Approved By: A. Putnam Date: 3/26/91

The cover letter and attachments are integral parts of this report.

12/12/90

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline by LUFT
Preparation Method: EPA 5030

Project Name:	Target	Project Number:	38913
Sample Description:	MW-4	Lab Project-ID Number:	4179-003
Sample Number:	193016	Date Sampled:	02/28/91
Date Received:	03/01/91	Date Extracted:	NA
Date Analyzed:	03/05/91	Batch Number:	NA

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	680.	20.
Toluene	BRL	20.
Ethyl Benzene	160.	20.
1,2-Xylene	70.	20.
1,3-Xylene	BRL	20.
1,4-Xylene	180.	20.
Total Petroleum Hydrocarbons Gasoline	6000.	2000.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	87	80 - 120

Dilution: 1:50

Comments:

Approved By: _____ Date: 3/26/91
A. Putnam

The cover letter and attachments are integral parts of this report.

12/12/90

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline by LUFT
Preparation Method: EPA 5030

Project Name: Target

Project Number: 38913

Sample Description: MW-2

Lab Project-ID Number: 4179-004

Sample Number: 193021

Date Sampled: 02/28/91

Date Received: 03/01/91

Date Extracted: NA

Date Analyzed: 03/05/91

Batch Number: NA

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	2.0	0.5
Toluene	0.8	0.5
Ethyl Benzene	1.1	0.5
1,2-Xylene	2.3	0.5
1,3-Xylene	1.4	0.5
1,4-Xylene	2.1	0.5
Total Petroleum Hydrocarbons Gasoline	50.	50.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	105	80 - 120

Dilution: None

Comments:

Approved By: A. Putnam Date: 3/26/91

The cover letter and attachments are integral parts of this report.

12/12/90

McLaren Hart

VOLATILE AROMATIC COMPOUNDS

Analytical Method: Modified EPA 8020 (BTEX) and Total Petroleum Hydrocarbons Gasoline by LUFT
Preparation Method: EPA 5030

Project Name:	Target	Project Number:	38913
Sample Description:	MW-1	Lab Project-ID Number:	4179-005
Sample Number:	193029	Date Sampled:	02/28/91
Date Received:	03/01/91	Date Extracted:	NA
Date Analyzed:	03/05/91	Batch Number:	NA

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	BRL	0.5
Toluene	BRL	0.5
Ethyl Benzene	BRL	0.5
1,2-Xylene	BRL	0.5
1,3-Xylene	BRL	0.5
1,4-Xylene	BRL	0.5
Total Petroleum Hydrocarbons Gasoline	BRL	50.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene	100	80 - 120

Dilution: None

Comments:

Approved By: A. Putnam Date: 3/26/91

The cover letter and attachments are integral parts of this report.

12/12/90

McLaren Hart

METAL ANALYSIS
Analytical Method: EPA 7420
Preparation Method: EPA 3005

Project Name: Target

Project Number: 38913

Sample Description: MW-3

Lab Project-ID Number: 4179-002

Sample Number: 193012

Date Sampled: 02/28/91

Date Received: 03/01/91

Date Digested: 03/12/91

Batch Number: 910312-2101

METAL (SYMBOL)/EPA METHOD	DATE ANALYZED	CONCENTRATION ug/ml (ppm)	REPORTING LIMIT ug/ml (ppm)
Lead (Pb)/7420	03/15/91	BRL	0.05

Dilution: None

Comments:

Approved By: [signature] for F. Ramezanzadeh Date: 3-26-91

The cover letter and attachments are integral parts of this report.

12/13/90

McLaren Hart

METAL ANALYSIS
Analytical Method: EPA 7420
Preparation Method: EPA 3005

Project Name: Target

Project Number: 38913

Sample Description: MW-4

Lab Project-ID Number: 4179-003

Sample Number: 193019

Date Sampled: 02/28/91

Date Received: 03/01/91

Date Digested: 03/12/91

Batch Number: 910312-2101

METAL (SYMBOL)/EPA METHOD	DATE ANALYZED	CONCENTRATION ug/ml (ppm)	REPORTING LIMIT ug/ml (ppm)
Lead (Pb)/7420	03/13/91	BRL	0.05

Dilution: None

Comments:

Approved By: [signature] for Date: 3-26-91
F. Ramezanzadeh

The cover letter and attachments are integral parts of this report.

12/13/90

McLaren Hart

METAL ANALYSIS
Analytical Method: EPA 7420
Preparation Method: EPA 3005

Project Name: Target

Project Number: 38913

Sample Description: MW-2

Lab Project-ID Number: 4179-004

Sample Number: 193027

Date Sampled: 02/28/91

Date Received: 03/01/91

Date Digested: 03/12/91

Batch Number: 910312-2101

METAL (SYMBOL)/EPA METHOD	DATE ANALYZED	CONCENTRATION ug/ml (ppm)	REPORTING LIMIT ug/ml (ppm)
Lead (Pb)/7420	03/15/91	BRL	0.05

Dilution: None

Comments:

Approved By: A. Ramezanzadeh for F. Ramezanzadeh Date: 3-26-91

The cover letter and attachments are integral parts of this report.

12/13/90

McLaren Hart

METAL ANALYSIS
Analytical Method: EPA 7420
Preparation Method: EPA 3005

Project Name: Target

Project Number: 38913

Sample Description: MW-1

Lab Project-ID Number: 4179-005

Sample Number: 193035

Date Sampled: 02/28/91

Date Received: 03/01/91

Date Digested: 03/12/91

Batch Number: 910312-2101

METAL (SYMBOL)/EPA METHOD	DATE ANALYZED	CONCENTRATION ug/ml (ppm)	REPORTING LIMIT ug/ml (ppm)
Lead (Pb)/7420	03/18/91	BRL	0.05

Dilution: None

Comments:

Approved By: [signature] for F. Ramezanzadeh Date: 3-26-91

The cover letter and attachments are integral parts of this report.

12/13/90

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified Luft {a}

Project Name:	Target	Project Number:	38913
Sample Description:	MW-3	Lab Project-ID Number:	4179-002
Sample Number:	193009	Date Sampled:	02/28/91
Date Received:	03/01/91	Date Extracted:	03/05/91
Date Analyzed:	03/08/91	Batch Number:	910305-1901

PETROLEUM HYDROCARBONS	CONCENTRATION ug/ml (ppm)	REPORTING LIMIT ug/ml (ppm)
Total Petroleum Hydrocarbons - Diesel	BRL	0.5

Dilution: None

Comments: {a} Methylene chloride rather than carbon disulfide used for extraction.

Approved By: A. Meydith for C. Fong Date: 3/26/91

The cover letter and attachments are integral parts of the report.

1/02/91

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified Luft {a}

Project Name: Target

Project Number: 38913

Sample Description: MW-4

Lab Project-ID Number: 4179-003

Sample Number: 193017

Date Sampled: 02/28/91

Date Received: 03/01/91

Date Extracted: 03/05/91

Date Analyzed: 03/08/91

Batch Number: 910305-1901

PETROLEUM HYDROCARBONS	CONCENTRATION ug/ml (ppm)	REPORTING LIMIT ug/ml (ppm)
Total Petroleum Hydrocarbons - Diesel	BRL	0.5

Dilution: None

Comments: {a} Methylene chloride rather than carbon disulfide used for extraction.

Approved By: A. Mengelt for C. Fong Date: 3/26/91

The cover letter and attachments are integral parts of the report.

1/02/91

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified Luft {a}

Project Name: Target

Project Number: 38913

Sample Description: MW-2

Lab Project-ID Number: 4179-004

Sample Number: 193025

Date Sampled: 02/28/91

Date Received: 03/01/91

Date Extracted: 03/05/91

Date Analyzed: 03/08/91

Batch Number: 910305-1901

PETROLEUM HYDROCARBONS	CONCENTRATION ug/ml (ppm)	REPORTING LIMIT ug/ml (ppm)
Total Petroleum Hydrocarbons - Diesel	BRL	0.5

Dilution: None

Comments: {a} Methylene chloride rather than carbon disulfide used for extraction.

Approved By: A. Meaglia Jr C. Fong Date: 3/26/91

The cover letter and attachments are integral parts of the report.

1/02/91

McLaren Hart

TOTAL PETROLEUM HYDROCARBONS

Analytical Method: Diesel by LUFT
Preparation Method: Modified Luft {a}

Project Name: Target

Project Number: 38913

Sample Description: MW-1

Lab Project-ID Number: 4179-005

Sample Number: 193033

Date Sampled: 02/28/91

Date Received: 03/01/91

Date Extracted: 03/05/91

Date Analyzed: 03/08/91

Batch Number: 910305-1901

PETROLEUM HYDROCARBONS	CONCENTRATION ug/ml (ppm)	REPORTING LIMIT ug/ml (ppm)
Total Petroleum Hydrocarbons - Diesel	BRL	0.5

Dilution: None

Comments: {a} Methylene chloride rather than carbon disulfide used for extraction.

Approved By: A. Meredith for C. Fong Date: 3/26/91

The cover letter and attachments are integral parts of the report.

1/02/91

McLaren Hart

1/24
810

McLaren Hart

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 4179
Storage Refrigerator ID: 8, 4-12
Storage Freezer ID: _____
Secured: Yes ✓ No ____

Project Name: Target Project #: 38913 Sampler: Chris Walsh (Printed Name) Chris Walsh (Signature)

Relinquished by: (Signature and Printed Name) Chris Walsh Chris Walsh	Received by: (Signature and Printed Name) Fed Ex	Date: 2/28/91	Time:
Relinquished by: (Signature and Printed Name) Fed-X	Received by: (Signature and Printed Name) Michael McLee	Date: 3-1-91	Time: 13:45
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:
Relinquished by (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:

SHIP TO:
McLaren Analytical Laboratory
11101 White Rock Road
Rancho Cordova CA 95670
(916) 638-3696
FAX (916) 638-2842

Method of Shipment: Fed ex

Shipment ID: 0421629854

Circle or Add Analysis(es) Requested

a) Identify specific metals requested under Special Instructions

Sample ID Number	Sample Description: Date	Time	Description	TAT	Container(s): #	Type	FOR LABORATORY USE ONLY: Lab ID
1	193001	2/28/91	9:00	Trip Blank	4	1	V	4179-001
2	193002			(SPARE)				
3	193003							
4	193004							002
5	193005		10:15	MW-3				
6	193006			(SPARE)				
7	193007							
8	193008						A	
9	193009							
10	193010			(SPARE)				

601/8010 (Halogenated Volatiles-GC); 602/8020 (Aromatic Volatiles-GC); 604/8040 (Phenols-GC); 608/8080 (Pesticides/PCB-GC); 610/8100 (PNA-GC); 624/8240 (Volatiles-GC/MS); 625/8270 (BNA-GC/MS); (TPH/G) Gasoline-GC) + BTEX; TPH/D (Diesel-GC); 418.1 (IR); 8015 Modified (GC); Metals-Total a; Metals-Soluble a; Fluoride/Perchlorate; Chloride/pH; TDS/Percent Solid; Specific Conductivity (EC)

Special Instructions/Comments: VOA's preserved w/ HCl
TPH-G and TPH-D should be done by Luft Method
~~Lead by EPA 7020 - Lab~~

Sample Archive/Disposal:
☐ Laboratory Standard
☐ Other _____

TAT (Analytical Turn-Around Times) 1 = 24 hours 2 = 48 hours 3 = 1 week 4 = 2 weeks
Container Types: B=Brass Tube, V=VOA Vial, A=1-Liter Amber, G=Glass Jar, C=Cassette, O = Other _____

SEND DOCUMENTATION AND RESULTS TO (Check one):
☑ Project Manager/Office: Campbell McLeod / Alameda
☐ Client Name: _____
Company: _____
Address: _____
Fax

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt: Good Condition 3-1-91 MA
SAMPLE # 193011 broken in transit 3-1-91 MA
DELETE 5020s for WHOLE LP per S. ALLEN AND Add BTEX · 3-1-91 RSB

2/4

224378

McLaren Hart

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 4179
Storage Refrigerator ID: 8, 4-12
Storage Freezer ID:
Secured: Yes ✓ No

Project Name: Target Project #: 38913 Sampler: Chris Walsh (Printed Name) (Signature)

Relinquished by: (Signature and Printed Name) Chris Walsh	Received by: (Signature and Printed Name) FedEx	Date: 2/28/91	Time:
Relinquished by: (Signature and Printed Name) Fed-X	Received by: (Signature and Printed Name) Michael Lee	Date: 3-1-91	Time: 13:45
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:

SHIP TO:
McLaren Analytical Laboratory
11101 White Rock Road
Rancho Cordova, CA 95670
(916) 638-3696
FAX (916) 638-2842

Method of Shipment: FEDEX

Shipment ID: 0421629954

Circle or Add Analysis(es) Requested

a) Identify specific metals requested under Special Instructions

Sample ID Number	Sample Description: Date	Time	Description	601/8010 (Halogenated Volatiles-GC)	602/8020 (Aromatic Volatiles-GC)	604/8040 (Phenols-GC)	608/8080 (Pesticides/PCB-GC)	610/8100 (PNA-GC)	624/8240 (Volatiles-GC/MS)	625/8270 (BNA-GC/MS)	TPH/G (Gasoline-GC) + BTEX	TPH/D (Diesel-GC)	418.1 (IR)	8015 Modified (GC)	Metals-Total a	Metals-Soluble a	Fluoride/Perchlorate	Chloride/pH	TDS/Percent Solid	Specific Conductivity (EC)	Lead (EPA 7020)	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY Lab ID
1 193011	2/28/91	10:15	MW-3																		X	4	1	A	002
2 193012	↓	↓	↓ (SPARE)																		↓	↓	↓	↓	↓
3 193013		12:15	MW-4	X					X															V	003
4 193014			(SPARE)	↓					↓															↓	
5 193015			↓																						
6 193016											X													A	
7 193017											↓													↓	
8 193018			(SPARE)																		X				
9 193019																					↓				
10 193020	↓	↓	(SPARE)																						

Special Instructions/Comments: VOA's preserved w/ HCl
Lab must filter and preserve Lead samples.
TPH-G and TPH-D analyzed by Luft Method

Sample Archive/Disposal:
☐ Laboratory Standard
☐ Other

TAT (Analytical Turn-Around Times) 1 = 24 hours 2 = 48 hours 3 = 1 week 4 = 2 weeks
Container Types: B=Brass Tube, V=VOA Vial, A=1-Liter Amber, G=Glass Jar, C=Cassette, O = Other

SEND DOCUMENTATION AND RESULTS TO (Check one):
☑ Project Manager/Office: Campbell McLeod / Alameda
☐ Client Name:
Company:
Address:
Phone: ( ) Fax:

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt: Good Condition 3-1-91 (AK)

3/4

224378

McLaren Hart

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 4179
Storage Refrigerator ID: 8, 4-12
Storage Freezer ID:
Secured: Yes ✓ No

Project Name: Target Project #: 38913 Sampler: Chris Walsh (Printed Name) Chris Walsh (Signature)

Relinquished by: (Signature and Printed Name) Chris Walsh	Received by: (Signature and Printed Name) Fedex	Date: 2/28/91	Time:
Relinquished by: (Signature and Printed Name) Fed-X	Received by: (Signature and Printed Name) Marlene Lee	Date: 3-1-91	Time: 1345
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:
Relinquished by: (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:

SHIP TO:
McLaren Analytical Laboratory
11101 White Rock Road
Rancho Cordova CA 95670
(916) 638-3696
FAX (916) 638-2842

Method of Shipment: Fedex
Shipment ID: 0421629843

Circle or Add Analysis(es) Requested

a) Identify specific metals requested under Special Instructions

Sample ID Number	Sample Description: Date	Time	Description	TAT	Container(s): #	Type	FOR LABORATORY USE ONLY: Lab ID
1	193021	2/28/91	1345	MW-2	4	1	V	004
2	193022			(SPARE)				
3	193023							
4	193024						A	
5	193025							
6	193026			(SPARE)				
7	193027							
8	193028	✓	✓	(SPARE)				
9								
10								

Analysis(es) Requested: 601/8010 (Halogenated Volatiles-GC); 602/8020 Aromatic Volatiles-GC); 604/8040 (Phenols-GC); 608/8080 (Pesticides/PCB-GC); 610/8100 (PNA-GC); 624/8240 (Volatiles-GC/MS); 625/8270 (BNA-GC/MS); TPH/G (Gasoline-GC) ✓ BTEX; TPH/D (Diesel-GC); 418.1 (IR); 8015 Modified (GC); Metals-Total a; Metals-Soluble a; Fluoride/Perchlorate; Chloride/pH; TDS/Percent Solid; Specific Conductivity (EC); Lead (by EPA 7020)

Special Instructions/Comments: VOA's preserved w/ HCl
TPH-G/TPH-D analyzed by Luft Method.
Lab must filter and preserve Lead Samples.

Sample Archive/Disposal:
☐ Laboratory Standard
☐ Other

TAT (Analytical Turn-Around Times) 1 = 24 hours 2 = 48 hours 3 = 1 week 4 = 2 wee
Container Types: B=Brass Tube, V=VOA Vial, A=1-Liter Amber, G=Glass Jar, C=Cassette, O = Other

SEND DOCUMENTATION AND RESULTS TO (Check one):
☑ Project Manager/Office: Campbell/McLeod/Alameda
☐ Client Name:
Company:
Address:
Fax

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt: Good Condition 3-1-91

4/4

224378

McLaren Hart

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 4179
Storage Refrigerator ID: 8, 4-12
Storage Freezer ID:
Secured: Yes ✓ No

Project Name: Target Project #: 38913 Sampler: Chris Walsh (Printed Name) (Signature)

Relinquished by: (Signature and Printed Name) Chris Walsh	Received by: (Signature and Printed Name) Fedex	Date: 2/28/91	Time:
Relinquished by: (Signature and Printed Name) Fed-X	Received by: (Signature and Printed Name)	Date: 3-1-91	Time: 1345
Relinquished by (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:
Relinquished by (Signature and Printed Name)	Received by: (Signature and Printed Name)	Date:	Time:

SHIP TO:
McLaren Analytical Laboratory
11101 White Rock Road
Rancho Cordova, CA 95670
(916) 638-3696
FAX (916) 638-2842

Method of Shipment: FedEx

Shipment ID: 0421629843

Circle or Add Analysis(es) Requested

a) Identify specific metals requested under Special Instructions

Sample ID Number	Sample Description: Date	Time	Description	TAT	Container(s): #	Type	FOR LABORATORY USE ONLY: Lab ID
1	193029	2/28/91	15:15 MW-1	4	1	V	005
2	193030		(SPARE)				
3	193031						
4	193032					A	
5	193033						
6	193034		(SPARE)				
7	193035						
8	193036		(SPARE)				
9							
10							

Analyses: 601/8010 (Halogenated Volatiles-GC); 602/8020 (Aromatic Volatiles-GC); 604/8040 (Phenols-GC); 608/8080 (Pesticides/PCB-GC); 610/8100 (PNA-GC); 624/8240 (Volatiles-GC/MS); 625/8270 (BNA-GC/MS); TPH/G (Gasoline-GC) & BTEX; TPH/D (Diesel-GC); 418.1 (IR); 8015 Modified (GC); Metals-Total a; Metals-Soluble a; Fluoride/Perchlorate; Chloride/pH; TDS/Percent Solid; Specific Conductivity (EC); Lead (by EPA 7020)

Special Instructions/Comments: VOA's preserved w/ HCl.
TPH-G and TPH D analyzed by Luft Method
Lab must filter and preserve Lead samples.

Sample Archive/Disposal:
☐ Laboratory Standard
☐ Other

TAT (Analytical Turn-Around Times) 1 = 24 hours 2 = 48 hours 3 = 1 week 4 = 2 wee
Container Types: B=Brass Tube, V=VOA Vial, A=1-Liter Amber, G=Glass Jar, C=Cassette, O = Other

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt: Good Condition 3-1-91 [illegible]

SEND DOCUMENTATION AND RESULTS TO (Check one):
☑ Project Manager/Office: Campbell McLeod | Alameda
☐ Client Name:
Company:
Address:
Fax: