RESULTS OF ADDITIONAL SITE CHARACTERIZATION REPORT,

TARGET STORE T-328,
7608 AMADOR VALLEY BOULEVARD
DUBLIN, CALIFORNIA

AUGUST 5, 1991

McLaren Hart

McLaren Hart

August 5, 1991

plan approved 8/7/91 Rai

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

Dear Mr. Byers:

RESULTS OF ADDITIONAL SITE CHARACTERIZATION AT TARGET STORE T-328, LOCATED AT 7608 AMADOR VALLEY BOULEVARD, DUBLIN, CALIFORNIA

This letter report presents the results from the additional site characterization at the former Target store (T-328) gasoline station located at 7608 Amador Valley Boulevard in Dublin, California. The work associated with the site characterization included drilling five soil borings, collecting five grab water samples, constructing an additional monitoring well (MW-5), and sampling five monitoring wells MW-1 through MW-5. A map showing the site location is presented as Figure 1.

The purpose of the additional site investigation was to help aid in determining the lateral extent of petroleum hydrocarbons in the shallow groundwater beneath the site. This report has been prepared in accordance with McLaren/Hart's work plan entitled "Recommendations for Additional Site Characterization," dated May 20, 1991. The work plan was approved by the Alameda County Department of Environmental Health.

The results of initial groundwater and soils investigation at this site are presented in McLaren/Hart's Report entitled "Results of the Phase I Investigation for Target Store T-328" located at 7608 Amador Valley Boulevard, Dublin, California dated April 16, 1991. Results of the Phase Investigation indicated that the shallow groundwater had been impacted by petroleum hydrocarbons in the vicinity of the former tank excavation. The apparent groundwater flow direction beneath the subject site is to the southeast.

INVESTIGATION

This section presents a discussion of the investigation which includes: drilling five soil borings, collecting five grab groundwater samples from these borings, drilling installing and developing MW-5, and sampling monitoring wells MW-1 through MW-5. Presentation of the investigation results, and conclusions and recommendations follows this section.

Drilling of Five Soil Borings

Figure 2, shows the locations of five soil borings which were drilled to collect grab groundwater samples. The borings were located downgradient of the former tank excavation so that the analytical results of the grab groundwater samples could be used to evaluate the downgradient extent of petroleum chemicals in groundwater.

The five soil borings were drilled on June 12, and 13 1991. The drilling was performed with a Mobile B-57 drill rig equipped with 8-inch hollow stem augers. All five soil borings were drilled to a total depth of 20 feet below ground surface (bgs). Soil samples were collected continuously for lithologic descriptions at each of the five borings. The drilling was supervised and the lithology described by a McLaren/Hart geologist. Lithologic borings logs are included as Attachment I.

After the boreholes were drilled the augers were removed and the five borings left open for the water level to equilibrate. Saturated conditions were encountered between 7.5 and 12 feet bgs and groundwater equilibrated at approximately 6 feet bgs.

Collection of Grab Groundwater Samples

Grab groundwater samples were collected from each of the five borings by placing a 2-inch diameter 15-foot length of PVC well screen with 5 feet of blank casing inside the boreholes. Three casings of groundwater were removed with a centrifugal pump before a grab groundwater sample was collected with a disposable bailer.

Dr. Ravi Arulanantham of the Alameda County Department of Environmental Health, who is the case officer for this site visited the project site and spoke with McLaren/Hart staff regarding potential turbidity in grab groundwater samples. He stated that grab groundwater samples would be used primarily as indicators of chemical presence, not as indicators of chemical concentrations. The turbidity levels of samples collected at GW-3 and GW-4 were over 200 NTUs. The turbidity levels of grab groundwater samples from GW-1, GW-2, and GW-5 were all below 100 NTUs.

Samples were sent under chain-of-custody McLaren/Hart Analytical Laboratory and were analyzed for total petroleum hydrocarbons as gasoline (TPH/G), and for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by the DHS LUFT manual method.

After the collection of the grab groundwater samples, all borings were backfilled with cement grout to ground surface. The soil generated during drilling was contained on-site in a soil bin. It will be properly disposed of after evaluation of the analytical results of a composite soil sample from the stockpiled soil.

Well Installation

A groundwater monitor well (MW-5) was drilled and constructed on June 13, 1991. The drilling and well construction was supervised in the field by a McLaren/Hart geologist. Figure 2 shows the location of MW-5 and four wells (MW-1 through MW-4) constructed, during the Phase I investigation. MW-5 was placed downgradient of MW-4 which had reported TPH/G at 6,000 ppb and benzene at 680 ppb in the February 1991 sampling.

Drilling and well construction was performed using a Mobile B-61 drill rig equipped with hollow stem augers. The boring was drilled and soil samples continuously collected for lithologic description with 8-inch augers to a depth of 20.5 feet (bgs). The borehole was then reamed with 10-inch augers for well construction. The 4-inch diameter PVC well was installed with a well screen from 5 to 20 feet bgs. The well was constructed using a 0.010-inch well screen slot size and a filter pack grain size of 16/30 mesh silica sand. Screen and filter pack size were selected based on field wet-sieve analyses. The filter pack extended one foot above the top of the well screen. A one foot thick transition seal, consisting of 30 mesh sand, was placed above the filter pack, and then a sanitary seal of portland cement and 5% 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 wells MW-1 through MW-5. A lithologic log and a well construction as-built are included as Attachment I.

Following well construction, the top of casing, vault box rim, and ground surface of MW-5 were surveyed to a common benchmark. The survey data for MW-1 through MW-5 also is presented in Table 1.

Soil generated during the drilling activities was stockpiled on-site in a soil bin. A composite sample has been collected from the bin, and the soil will be properly disposed of after evaluating the analytical results and determining disposal options.

Well Development

Monitoring well MW-5 was developed on June 14, 1991. The well was developed using a centrifugal pump, surge block tool and bailer. A minimum of 10 casing volumes were removed from the well. Development was conducted until the turbidity was below 100 NTU.

Monitor Well Sampling

The groundwater surface elevation was measured, and water samples collected at MW-1 through MW-4 on June 12, and June 14, and at MW-5 on June 21, 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 using a centrifugal pump. Samples were collected with disposable bailer.

The groundwater samples were stored in a container filled with ice until delivered to McLaren/Hart Analytical Laboratory, a state-certified laboratory located in Rancho Cordova, California. A chain-of-custody record was completed during sampling and accompanied each sample shipment to the laboratory. The samples were submitted for TPH/G and BTEX analyses by the DHS LUFT Manual Method. Trip blanks were included in the shipments to the laboratory for TPH/G and BTEX analyses.

RESULTS OF THE INVESTIGATION

The analytical results of the grab groundwater and groundwater sampling are presented in this section. Also discussed are lithologic observation from the sampling the five soil borings and MW-5 boring.

Grab Groundwater Results

The analytical results of the grab water samples from the five soil borings (GW-1 through GW-5) are presented in Table 2. As shown in Table 2, the highest reported concentration of petroleum chemicals was reported at GW-1. The grab groundwater sample from GW-1 contained 39,000 parts per billion (ppb) TPH/G, <120 ppb benzene, 860 ppb toluene, 780 ppb ethylbenzene and 5,300 total xylenes. GW-1 is located in the former tank excavation.

The grab groundwater sample (GW-2), located the furthest downgradient of the former tank excavation, contained 880 ppb TPH/G, 16 ppb benzene, <2.5 ppb toluene, 37 ppb ethlybenzene and 93 ppb total xylenes. The grab groundwater sample from GW-3 located east and cross gradient of the former tank excavation, contained 2,400 ppb TPH/G, 78 ppb benzene, 52 ppb toluene, 69 ppb ethlybenzene, and 295 ppb total xylenes. Grab groundwater sample results from GW-4 and GW-5 report non-detect for both TPH/G and BTEX analyses. Both of these sample locations are downgradient and southeast of the former tank excavation.

The TPH/G and BTEX analyses performed on the trip blank sample were also non-detect. The analytical data sheets and chain-of-custody records for the grab water samples are included as Attachment II.

The grab water survey was performed as a qualitative investigation, therefore the analytical results from this survey may not be indicative of actual groundwater chemical concentrations.

Monitoring Well Sampling Results

The analytical results of the groundwater samples collected at the monitoring wells are presented in Table 3. Table 3 also presents the data from February 1991 sampling. The results of the analyses performed on the samples collected in June 1991 from monitoring wells MW-1 and MW-3 were non-detect for TPH/G and BTEX. MW-2 contained 51 ppb TPH/G, 6.6 benzene, 1.1 ppb ethylbenzene and 1.33 ppb total xylenes. MW-4 contained 6,100 ppb TPH/G, 680 ppb benzene and 150 ppb ethylbenzene. This analytical data is generally consistent with the analytical results of the first sampling of these wells in February 1991. The analytical results of groundwater samples collected at MW-5, located downgradient of MW-4 did not report any petroleum chemicals.

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 II.

The California Department of Health Services Maximum Contaminant Levels (MCLs) for these compounds in drinking water are: 5 ppb benzene, 2,000 ppb toluene, 680 ppb ethylbenzene, and 1,750 ppb total xylenes. The Federal MCL for toluene 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 5 ppb. However, the MCL concentrations are drinking

water standards and are presented for purposes of comparison. As previously stated in the Phase I report dated April 16, 1991, the groundwater beneath the site is apparently not used for drinking water or other beneficial uses.

Lithologic Observations

The lithology encountered in the borings generally consisted of silty or sandy clays and clayey sands of relative low permeability. However, clayey sand stringers, approximately 1.0 to 2.5 feet thick, were observed in each borehole at approximately the same depths. In GW-2 clayey sand stringer was found at 12.5 to 13.5 feet below grade. In GW-3, GW-4, and GW-5, a stringer was found at 10 feet below grade extending to 12.0, 11.0 and 12.5 feet below grade, respectively. At the soil boring for MW-5 a clayey sand stringer was observed from 11 to 12 feet bgs.

A deeper clayey sand stringer was observed in GW-2 (15 to 16 feet), GW-4 (15 to 16 feet) and GW-5 (15 to 18 feet). This lithologic information is generally consistent with the lithology encountered at the borings during the Phase I Investigation.

During the drilling of MW-5, saturated soil was first encountered at 11 feet bgs. When sounded on June 14, 1991, the depth to groundwater was 5.81 feet bgs. The level groundwater equilibrated to after well construction at MW-1 through MW-4 was also higher then where saturated soil was first encountered. Saturation was first encountered between 8 and 12.5 feet bgs at MW-1 through MW-4 and the depth to groundwater equilibrated in these wells between 5.40 and 7.01 feet bgs.

Concentrations of organic vapors were monitored in the field with a photoionization detector (PID). These recordings are presented on the lithologic log in Attachment I. Organic vapors were reported above 10 ppm in the vadose zone at GW-1, GW-2 and GW-3. The highest reported concentration was 200 pm at GW-2 at six feet.

Groundwater Surface Elevation

The groundwater surface elevation data collected on June 14, 1991 is presented in Table 1. This data was used to construct the June 1991 groundwater contour map which is presented as Figure 3. The inferred groundwater flow direction is generally toward the east southeast. The depth to groundwater ranges from approximately 5 to 7 feet below ground surface or 334.28 to 335.60 feet above mean sea level. The hydraulic gradient is approximately 0.011 feet/foot.

CONCLUSIONS AND RECOMMENDATIONS

To help evaluate the lateral extent of petroleum chemicals in the shallow groundwater at the site, Figure 4 was prepared. Figure 4, shows the monitor wells and grab groundwater sample locations with their respective analytical results from both sampling events. As shown on Figure 3, the apparent groundwater flow direction at the site is generally to the east southeast. The following conclusions are based on the data collected to date:

- The shallow transmissive zone encountered beneath the site is a silty or sandy clay of relatively low permeability. The saturated silty sand stringers (approximately one foot thick) encountered between 10 and 20 feet (bgs) represent a confined flow zone. The groundwater level after stabilization is approximately 6 feet bgs.

- The highest reported petroleum chemical concentration for a monitoring well and a grab groundwater sample was reported at MW-4 and GW-1 respectively. These water samples were collected either in (GW-1) or immediately downgradient (MW-4) of the former tank excavation.

- Analytical results from MW-5 downgradient of MW-4, did not report any petroleum hydrocarbons.

- Based on the following: 1) that the second sampling round at MW-2 confirmed the presence of low concentrations of petroleum hydrocarbons in the adjacent groundwater, and 2) that the analytical results of grab groundwater samples (GW-2, GW-3) reported the presence of petroleum hydrocarbons, it therefore appears that the lateral extent of low concentrations of petroleum hydrocarbons in the shallow groundwater extends to GW-2, GW-3 and MW-2. However, the analytical results of GW-2 and GW-3 are qualitative and do not represent true water quality at these locations.

- Based on the analytical results from GW-4, GW-5, MW-1 and MW-5, no petroleum hydrocarbons are present in the groundwater in a southeasterly direction from the former tank excavation.

- Based on the analytical results from MW-3 no petroleum chemicals appear to be migrating in the groundwater beneath the site from off-site locations.

Based on the above conclusions, McLaren/Hart recommends:

- The installation of a 6-inch extraction well in the former tank excavation for the purpose of 1) extracting groundwater that has been significantly impacted by petroleum hydrocarbons, and 2) reducing the petroleum chemical migration in the groundwater from the former tank excavation. The groundwater would be extracted by a vacuum truck and then transported to a local oil recycler.

- Water samples would be collected from the 6-inch well prior to extraction and then after approximately 15,000 gallons have been removed. The total number of gallons to be removed will depend on the ability of the shallow transmissive zone to produce water and the capacity of the former tank excavation. During groundwater extraction, depth to water measurements would be taken at the monitoring wells to determine the zone of influence.

- A quarterly groundwater monitoring program is proposed that would include sampling the five groundwater monitoring wells (MW-1 through MW-5) and the proposed extraction well. The quarterly monitoring program will provide additional data to evaluate the significance of the analytical results from this investigation and the effect of the groundwater extraction from the former tank excavation.

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

Sincerely

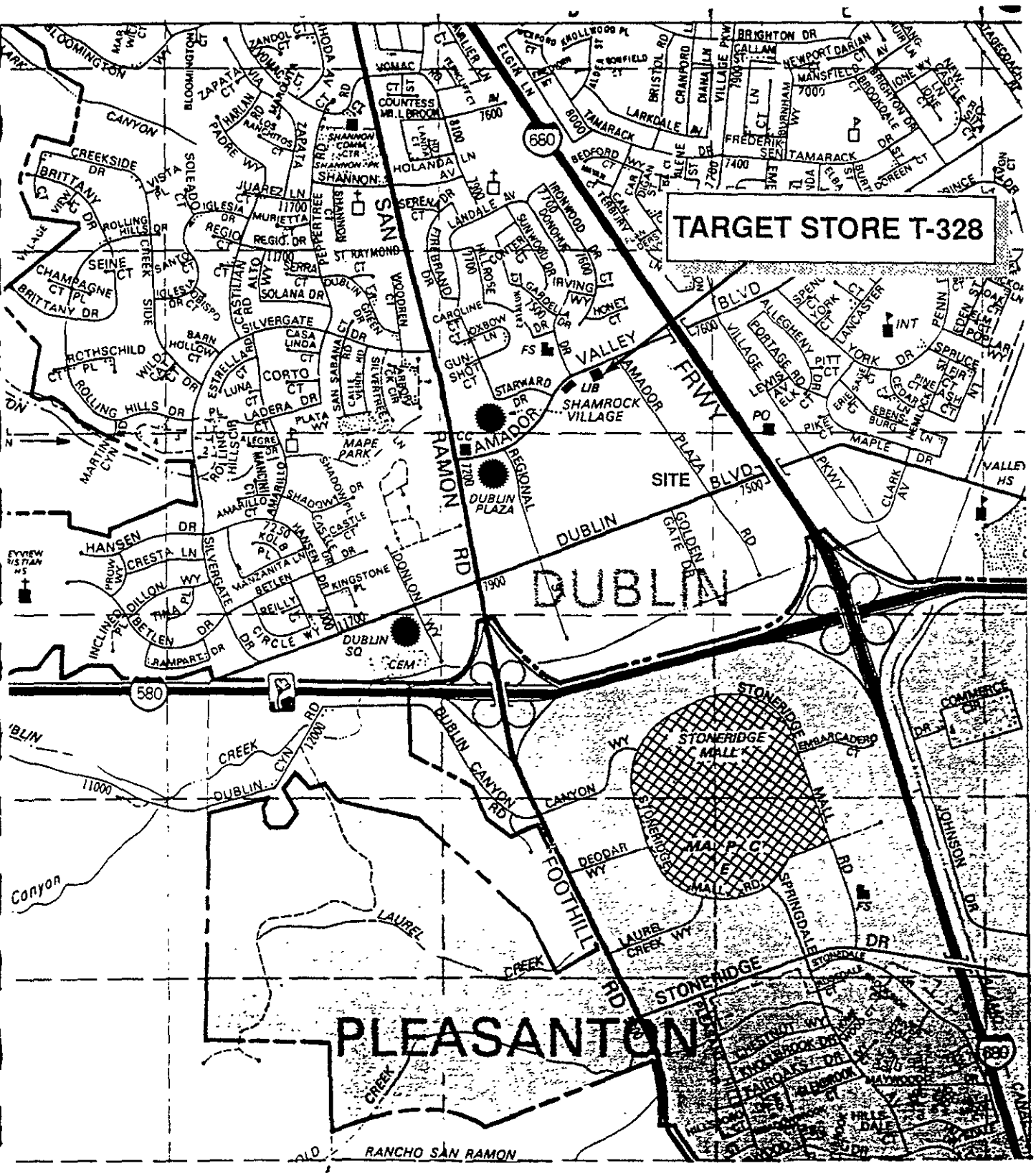
Campbell McLeod
Supervising Geologist

Clifton Davenport, CEG #1455
Principal Hydrogeologist

0718AMD1

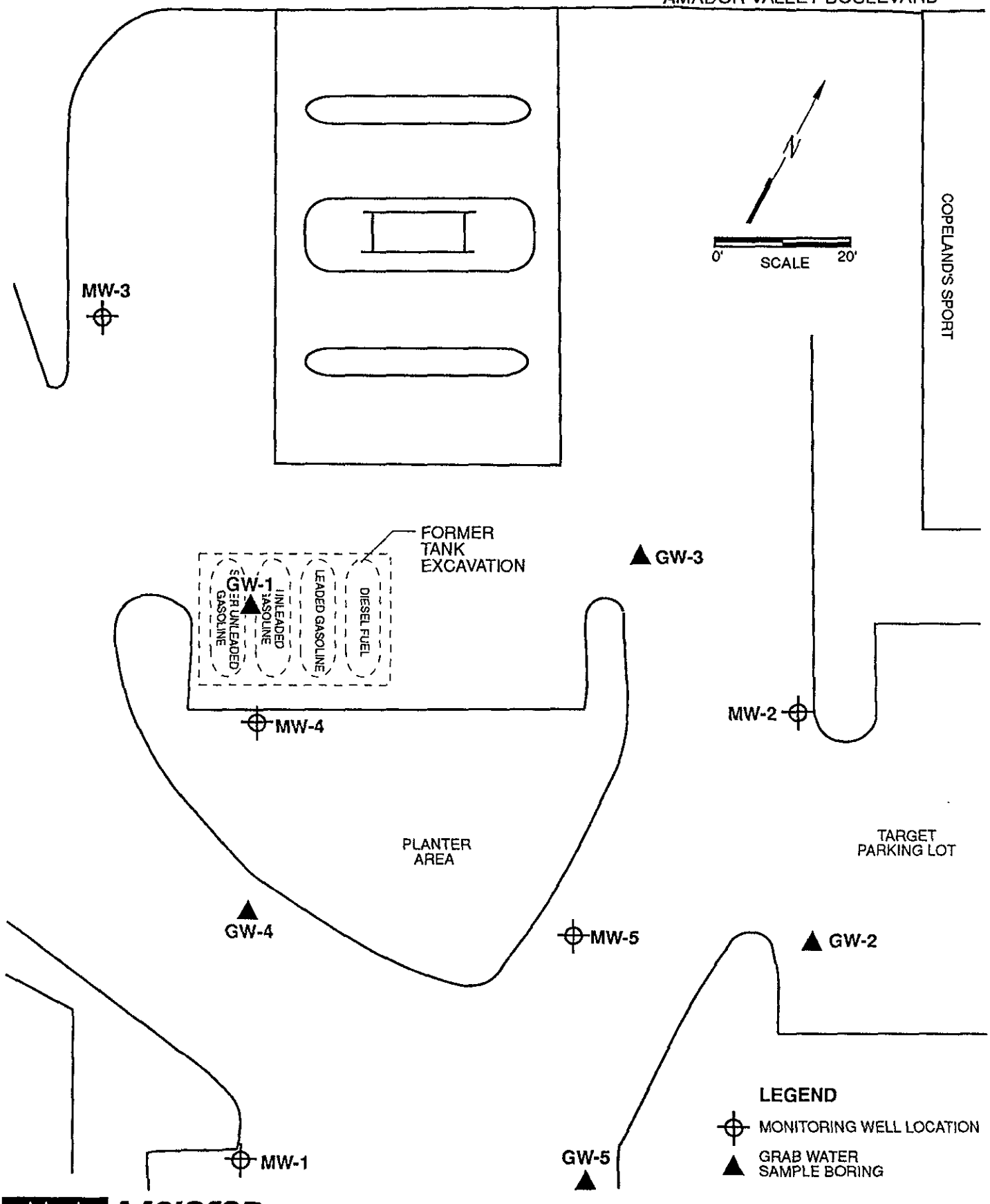
McLaren Hart

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



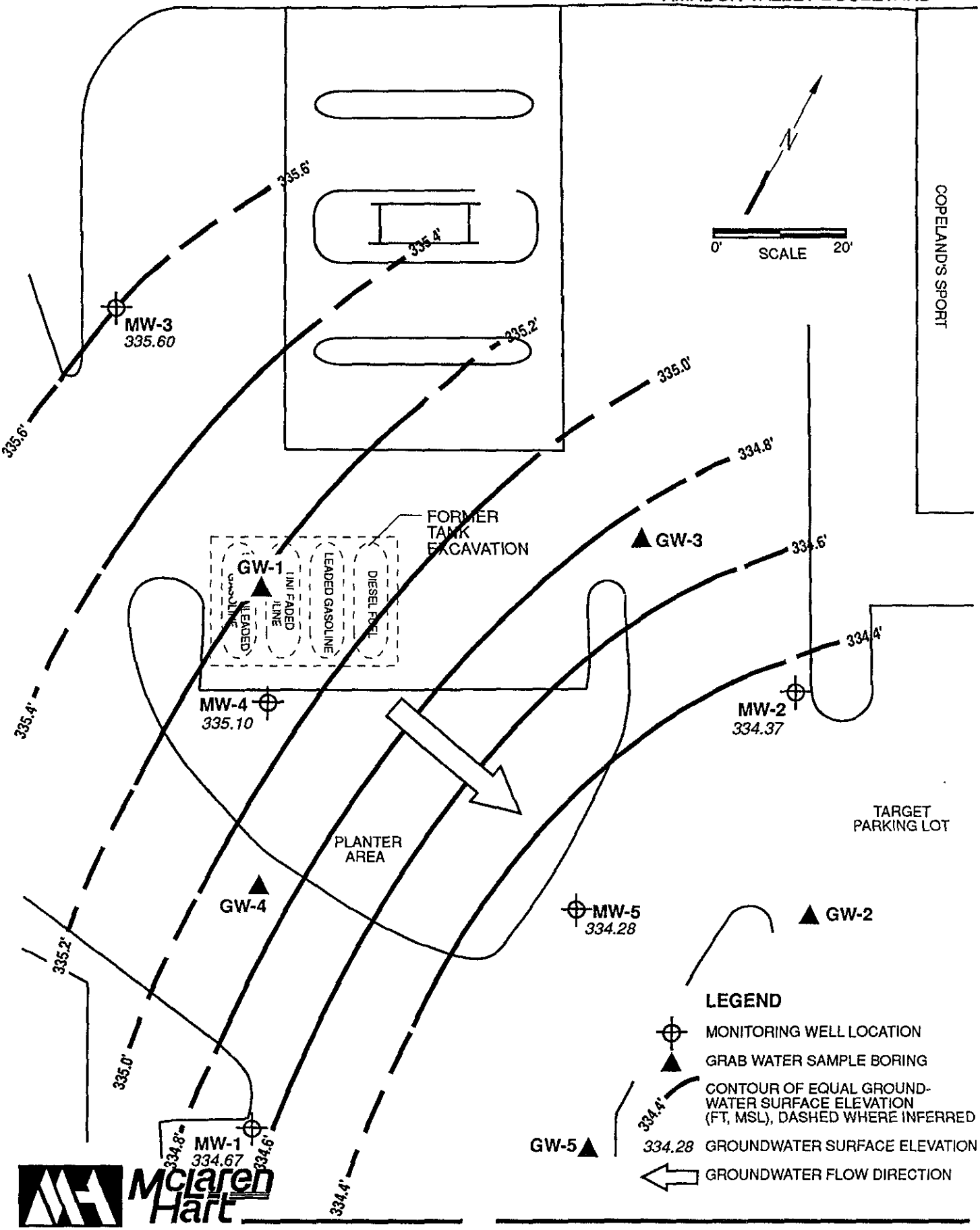
McLaren Hart

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



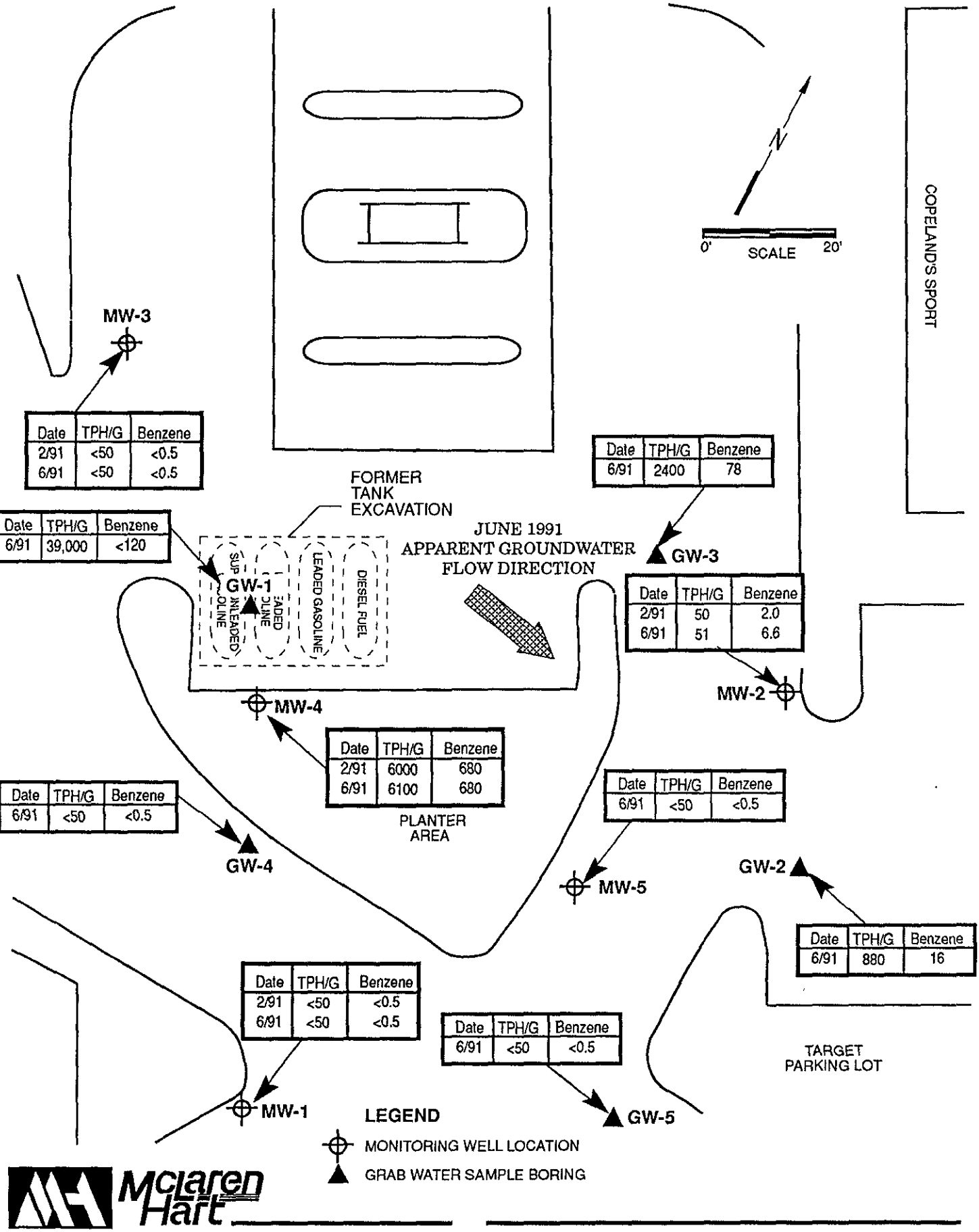
McLaren Hart

FIGURE 3
GROUNDWATER CONTOUR MAP
JUNE 14, 1991
TARGET STORE GASOLINE STATION
AMADOR VALLEY BOULEVARD



McLaren Hart

FIGURE 4
GROUNDWATER MONITORING WELL
AND GRABWATER ANALYTICAL RESULTS (ppb)
TARGET STORE GASOLINE STATION
DUBLIN, CALIFORNIA



McLaren Hart

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 6/14/91 (feet below grade)	GROUNDWATER ELEVATION 6/14/91 (MSL)
MW-1	5-20	340.30	335.30 - 320.30	340.20	5.53	334.67
MW-2	5-20	340.52	335.52 - 320.52	340.27	5.90	334.37
MW-3	5-20	341.67	336.67 - 321.67	341.00	5.40	335.60
MW-4	5-20	342.31	337.31 - 322.31	342.11	7.01	335.10
MW-5	5-20	340.52	335.52 - 320.52	340.09	5.81	334.28

* Feet above mean sea level

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TABLE 2

ANALYTICAL RESULTS OF GRAB GROUNDWATER SAMPLES (ppb)
TARGET STORE GASOLINE STATION
DUBLIN, CALIFORNIA
JUNE 1991

GRAB GROUNDWATER DESIGNATION	TPH/G	BENZENE	TOLUENE	ETHYLBENZE	TOTAL XYLENES
GW-1	39,000	<120	860	780	5,300
GW-2	880	16	<2.5	37	93
GW-3	2,400	78	52	69	295
GW-4	<50	<0.5	<0.5	<0.5	<0.5
GW-5	<50	<0.5	<0.5	<0.5	<0.5

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TABLE 3

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

WELL DESIGNATION	DATE	TPH/G	BENZENE	TOLUENE	BENZENE	TOTAL XYLENES
MW-1	2/91	<50	<0.5	<0.5	<0.5	<0.5
	6/91	<50	<0.5	<0.5	<0.5	<0.5
MW-2	2/91	50	2.0	0.8	1.1	5.8
	6/91	51	6.6	<0.5	1.1	1.33
MW-3	2/91	<50	<0.5	<0.5	<0.5	<0.5
	6/91	<50	<0.5	<0.5	<0.5	<0.5
MW-4	2/91	6,000	680	<20	160	250
	6/91	6,100	680	<25	150	<25
MW-5	6/91	<50	<0.5	<0.5	<0.5	<0.5

0718AMD1

ATTACHMENT I

SOIL DRILLING LOG

McLaren

SB/MW # : GW-1
D- 24116
Page 1 of 2
Sampler: B. Wright
Brad Wright
SIGNATURE OF SAMPLER

PROJECT TARGET LOCATION Dublin, California
ELEVATION (MSL) DATE(S) 6/12/91 TOTAL DEPTH 20.0
MONITORING DEVICE HNu SCREENED INTERVAL
SAMPLING METHOD Continuous Core SUBCONTRACTOR & EQPT ASE B-57
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth 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			0-5.0'		Ø	0-15.0 ENGINEER FILL, GRAVELLY SAND: (20,60,20); fine sand to gravel; subrounded, poorly graded; loose; slightly moist to saturated at 9.0'.	AF			Bethard Cement; 6" Borehole
2.5										
5			5.0-10.0		12					
7.5										
▽										
10			10.0-15.0		6					
12.5										
15										

Campbell McLeod
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SUPERVISING GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
TITLE

SOIL DRILLING LOG

McLaren

SB/MW # : GW-11
D- 24116
Page 2 of 2
Sampler: B. Wright
Brad Wright
SIGNATURE OF SAMPLER

PROJECT TARGET LOCATION Dublin CA
ELEVATION (MSL) DATE(S) TOTAL DEPTH
MONITORING DEVICE SCREENED INTERVAL
SAMPLING METHOD SUBCONTRACTOR & EQPT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
15			15.0 20.0		5	15.0 - 20.0 SILTY CLAY: (0, 20, 45, 35); olive (5Y5/4); medium plastic fines; stiff; moist.	CL			Cement
17.5										
20										20 TD

Campbell A. Wood
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

SUPERVISING GEOLOGIST
TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

McLaren

SB/MW # : GW-2
D- 24110
Page 1 of 2
Sampler: B. Wright
Brad Wright
SIGNATURE OF SAMPLER

PROJECT TARGET LOCATION Dublin, California
ELEVATION (MSL) DATE(S) 10/12/91 TOTAL DEPTH 20.0'
MONITORING DEVICE HNu SCREENED INTERVAL
SAMPLING METHOD Continuous Core SUBCONTRACTOR & EQPT ASE B-61
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
			0-5.0			0-1.0 Asphalt, Road base	RB			
2.5	HAND AUGERED				15	1.0-5.0' SILTY CLAY: (0,20,40,40); very dark gray (2.5Y 3/0); high plastic fines; stiff; moist.	CH/CL			
5			5.0-10.0		150-200	5.0-12.0 SILTY CLAY: (0,20,35,45); olive gray (5Y4/2); high plastic fines; stiff; moist; petroleum odor.	CH			Portland Cement; 6" Borehole
7.5										
10			10.0-15.0							
12.5					3	12.0-13.5' CLAYEY SAND: (0,50,20,30); dark gray (2.5Y4/0); low plastic fines; fine to medium sand; soft; saturated.	SC			
15					Ø	13.5-15.0' SANDY CLAY: (0,30,45,25); olive gray (5Y5/2) with olive (5Y5/2) mottles; medium plastic fines; fine to medium sand; stiff; moist.	CL			

Campbell McLeod
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

SUPERVISING GEOLOGIST
TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

McLaren

SB/MW # : GW-2
D-
Page 2 of 2
Sampler: B. WRIGHT
Brad Wright
SIGNATURE OF SAMPLER

PROJECT TARGET LOCATION Davis, California
ELEVATION (MSL) DATE(S) 6/12/91 TOTAL DEPTH 20.0'
MONITORING DEVICE HNu SCREENED INTERVAL
SAMPLING METHOD Continuous Core SUBCONTRACTOR & EQPT ASE B-61
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
15			15.0 – 20.0			15.0-16.0 CLAYEY SAND See 12.0-13.5'	SC			Cement
						16.0-20.0 SANDY CLAY See 13.5'-15.0'	CL			
20										20.0 TD

Campbell/McLeod
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
Supervising Geologist
TITLE

SIGNATURE OF REVIEWER
TITLE

SOIL DRILLING LOG

McLaren

SB/MW # : GW-3
D- 24114
Page 1 of 2
Sampler: B. Wright
Brad Wright
SIGNATURE OF SAMPLER

PROJECT TARGET LOCATION Dublin California
ELEVATION (MSL) DATE(S) 6/12/91 TOTAL DEPTH 20.0
MONITORING DEVICE HNu SCREENED INTERVAL
SAMPLING METHOD Continuous Core SUBCONTRACTOR & EQPT ASE B-61
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
			0-5.0			0-1.0 Asphalt, Roadbase	RB			Portland Cement
2.5					40	1.0-5.0 SILTY CLAY: (0,15,40,45); very dark gray (2.5 Y 3/0); high plastic fines; stiff; moist.	CH			
5.			5.0-10.0		110-140	5.0-10.0 SILTY CLAY: (0,20,45,35); olive gray (5 Y 4/2); medium plastic fines; stiff; slightly moist.	CL			6" Borehole
7.5										
10 ▼			10.0-15.0			10.0-12.0 CLAYEY SAND: (0,55,30,20); very dark gray (5 Y 3/1); fine sand; soft; very moist to SATURATED	SC			
12.5					7	12.0-20.0 SILTY CLAY: (0,20,45,35); olive (5 Y 5/3); medium plastic fines; stiff; slightly moist.	CH			
15										

Campbell / Wood
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SUPERVISING GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
TITLE

SOIL DRILLING LOG

McLaren

SB/MW # : GW-3
D- 24114
Page 2 of 2
Sampler: B. Wright
Brad Wright
SIGNATURE OF SAMPLER

PROJECT TARGET LOCATION
ELEVATION (MSL) DATE(S) TOTAL DEPTH
MONITORING DEVICE SCREENED INTERVAL
SAMPLING METHOD SUBCONTRACTOR & EQPT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
15			15.0 – 20.0		Ø	see Previous Description	CH			Cement
17.5										
20										20 TD

Campbell McLeod
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SUPERVISING GEOLOGIST
TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

McLaren

SB/MW # : GW-4
D- 24118
Page 1 of 2
Sampler: B. Wright
Brad Wright
SIGNATURE OF SAMPLER

PROJECT Target LOCATION Dublin California
ELEVATION (MSL) DATE(S) 6/12/91 TOTAL DEPTH 20.0
MONITORING DEVICE HNu SCREENED INTERVAL N/A
SAMPLING METHOD Continuous Core SUBCONTRACTOR & EQPT ASE B-57
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
	HAND AUGER		0-5.0		3	0-2.0 Asphalt, Roadbase	RB			Portland Cement
						2.0-5.0 SILTY CLAY: (0,15,40,45); very dark gray (2.5 Y 3/0); high plastic fines; stiff; moist	CH			
5			5.0-10.0		4	5.0-10.0 SILTY CLAY: (0,20,45,35); olive gray (5 Y 4/2); medium plastic fines; stiff; moist.	CL			6" Borehole
10			10.0-15.0			10.0-11.0 CLAYEY SAND: (0,50,30,20); very dark gray (2.5 Y 3/0); very fine to medium sand; soft; saturated.	SC			
						11.0-14.0 SANDY CLAY: (0,30,45,25); olive gray (5 Y 4/2); low plastic fines; slightly stiff; moist.	CL			
15					0	14.0-15.0 SILTY CLAY: (0,15,40,45); olive gray (5 Y 4/2); high plastic fines; very stiff; moist.	CH			

Campbell McLeod
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SUPERVISING GEOLOGIST
TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

SB/MW # : GW-4
D-
Page ____ of ____
Sampler: Brad Wright
SIGNATURE OF SAMPLER

McLaren

PROJECT TARGET LOCATION
ELEVATION (MSL) DATE(S) TOTAL DEPTH
MONITORING DEVICE SCREENED INTERVAL
SAMPLING METHOD SUBCONTRACTOR & EQPT
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture,Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
			15.0			15.0-16.0 See 10.0'-11.0'	SC			
			20.0			16.0-18.0 See 11.0'-14.0'	CL			
17.5						18.0-20.0 See 14.0'-15.0'	CH			Cement
20.										20 TD

Campbell Reynolds
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SUPERVISING GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
TITLE

SOIL DRILLING LOG

McLaren

SB/MW # : GW-5
D- 24112
Page 1 of 2
Sampler: B. WRIGHT
SIGNATURE OF SAMPLER

PROJECT TARGET LOCATION Dublin, California
ELEVATION (MSL) DATE(S) 6/12/91 TOTAL DEPTH 20.0
MONITORING DEVICE HNu SCREENED INTERVAL
SAMPLING METHOD Continuous Core SUBCONTRACTOR & EQPT ASE B-61
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
	(HAND) AUGER		0-5.0		4	0-1.0 Asphalt, Roadbase	RB			
2.5						1.0-5.0' SILTY CLAY: (0,20,40,40); very dark gray (2.5 Y 3/0); medium plastic fines; stiff; moist	CH/CL			Portland Cement
5.0			5.0-10.0		2	5.0-10.0' SANDY CLAY: (0,30,40,30); olive gray (5 Y 4/2); medium plastic fines; stiff; moist. Sand content increases (0,50,30,20) at 7.0-8.0; very moist	CL			6" Borehole
7.5										
10.0			10.0-15.0		0	10-12.5' CLAYEY SAND: (0,50,30,20); very dark gray (5 Y 3/1); low plastic fines; fine to medium sand; soft to dense; very moist to saturated	SC			
12.5						12.5-15.0 SILTY CLAY: (0,20,45,35); olive gray (5 Y 4/2); medium to high plastic fines; stiff; moist	CL			
15.0						See Following Page				

Campbell Hood
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER

SUPERVISING GEOLOGIST
TITLE

SIGNATURE OF REVIEWER

TITLE

SOIL DRILLING LOG

McLaren

SB/MW # : GW-5
D- 24112
Page 2 of 2
Sampler: B WRIGHT
Brad Wright
SIGNATURE OF SAMPLER

PROJECT TARGET LOCATION Dublin, California
ELEVATION (MSL) DATE(S) 6/12/91 TOTAL DEPTH 20.0
MONITORING DEVICE HNu SCREENED INTERVAL
SAMPLING METHOD Continuous Core SUBCONTRACTOR & EQPT ASE B-61
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO
MEMO

Depth Below Surface(ft.)	Penetration Results: Blows 6"-6"-6"	Penetration Results: BPF	Sampler Depth Interval (ft.)	Sample ID #	PID reading (ppm)	Soil Description Color, Texture, Moisture, Etc.	Unified Classification	Graphic Log	Sampled Depth	Borehole Abandonment/ Well Construction Details
15			15.0 20.0		∅	15.0-18.0 CLAYEY SAND: (0,60,20,20); olive (5Y 4/4); fine to medium sand; soft, sticky; saturated.	SC			Cement
17.5						18.0-20.0 SILTY CLAY: (0,25,40,35); olive (5Y 4/4); medium plastic fines; stiff; moist.	CL			
20										20 TD

Campbell M Rood
SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SUPERVISING GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
TITLE

SOIL DRILLING LOG

SB/MW # : MW-5
D- 24120
Page 1 of 2
Sampler: B. WRIGHT

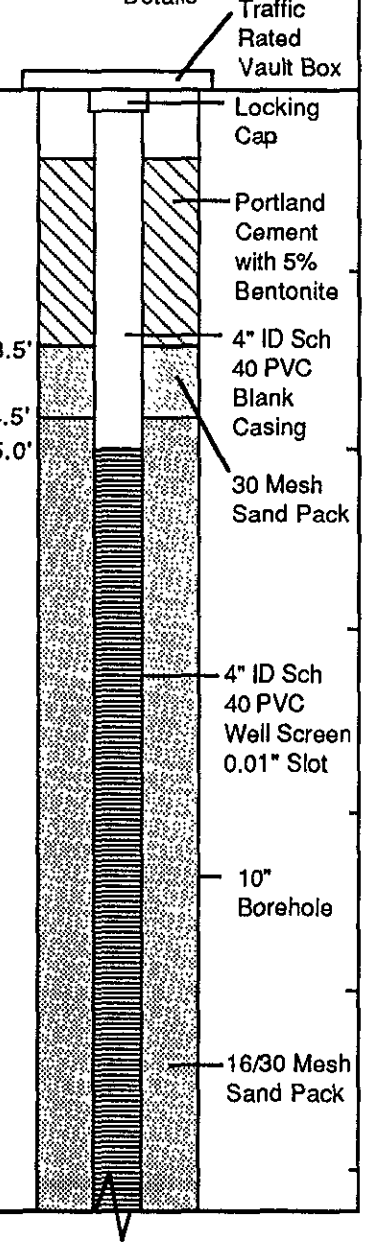
McLaren

SIGNATURE OF SAMPLER

PROJECT TARGET LOCATION DUBLIN, CALIFORNIA
TOC ELEVATION 340.09 (MSL) DATE(S) 6/13/91 TOTAL DEPTH 20.0'
MONITORING DEVICE HNu SCREENED INTERVAL 5.0' - 20.0'
SAMPLING METHOD CONTINUOUS CORE SUBCONTRACTOR & EQPT ASE B-61
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO
MEMO

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		0.0-5.0		4	0.0' - 1.0' ASPHALT & BASE.	RB		
2.5						1.0' - 5.0' SILTY CLAY: (0,15, 45,40); very dark gray (2.5Y 3/0); high plastic fines; stiff; moist.	CH-CL		
5			5.0-10.0		4	5.0' - 11.0' SANDY CLAY: (0, 30,40,30); very dark gray (5Y3/1) with olive (5Y4/3) mottles; medium plastic fines; fine grained sand, stiff; moist.	CL		
7.5									
10			10.0-15.0		0	11.0' - 12.0' CLAYEY SAND: (0,50,35,15); very dark gray (2.5Y3/0); low plastic fines; fine to medium grained sand, soft; saturated.			
12.5						12.0' - 13.0' SANDY CLAY: (0,35,40,25); olive (5Y4/3); medium plastic fines; fine grained sand, slightly stiff; very moist.	SC / CL		
15			15.0-20.0		0	13.0' - 20.0' SILTY CLAY: (0, 20,45,35); olive gray (5Y4/2); high plastic fines; stiff; moist.	CL		

Borehole Abandonment/ Well Construction Details



Campbell/Wood

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SENIOR GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
PRINCIPAL HYDROGEOLOGIST CEG # 1455
TITLE

SOIL DRILLING LOG

SB/MW # : MW-5
D- 24120
Page 2 of 2
Sampler: B. WRIGHT

McLaren

SIGNATURE OF SAMPLER

PROJECT TARGET LOCATION DUBLIN, CALIFORNIA
TOC ELEVATION (MSL) DATE(S) 6/13/91 TOTAL DEPTH 20.0'
MONITORING DEVICE HNu SCREENED INTERVAL 5.0' - 20.0'
SAMPLING METHOD CONTINUOUS CORE SUBCONTRACTOR & EQPT ASE B-61
PERCENTAGE ORDER: (GRAVEL,SAND,SILT,CLAY) MEMO
MEMO

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
			15.0-20.0		0	See Previous Page.	CL			10" Borehole; 16/30 Mesh Sand Pack; 4" ID Sch 40 PVC Well Screen 0.01" Slot; End Cap; 20' T.D.

17.5
20
22.5
25
27.5
30

SIGNATURE OF FIELD SUPERVISOR AND REVIEWER
SENIOR GEOLOGIST
TITLE

SIGNATURE OF REVIEWER
PRINCIPAL HYDROGEOLOGIST CEG # 1455
TITLE

ATTACHMENT II

McLaren Hart

Date: July 2, 1991
LP #: 4550

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

Dear Mr. McLeod:

Enclosed are the laboratory results for the seven samples submitted by you to the McLaren Analytical Laboratory on June 14, 1991, for the project *Target*.

The analyses you requested are:

Mod. EPA 8020 (BTEX) and TPH/G (1 - Soil) & (5 - Water)
Metals (Pb only) (1 - Soil)
Archive (1)

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

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 BLANK

Method: Mod. EPA 8020 (BTEX) Date Analyzed: 06/15/91
Units: ug/L (ppb)

Compound	Reporting Limit	Results of the MB
Benzene	0.50	BRL
Toluene	0.50	BRL
Ethyl Benzene	0.50	BRL
1,2-Xylene	0.50	BRL
1,3-Xylene	0.50	BRL
1,4-Xylene	0.50	BRL

LABORATORY CONTROL SPIKE

Method: Mod. EPA 8020 (BTEX) Date Analyzed: 06/13 - 06/14/91
Units: ug/L (ppb)

Compound	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Chlorobenzene	10.	9.4	94	5	80 - 120	<20
Benzene	10.	9.3	93	7	80 - 120	<20
Ethyl Benzene	10.	8.7	87	1	80 - 120	<20

[a] Acceptance limits are generic EPA limits.

(DC1-CN4550)

McLaren Hart

QUALITY CONTROL REPORT

METHOD BLANK

Method: Mod. EPA 8020 (BTEX) Date Analyzed: 06/16/91
Units: ug/L (ppb)

Compound	Reporting Limit	Results of the MB
Benzene	0.50	BRL
Toluene	0.50	BRL
Ethyl Benzene	0.50	BRL
1,2-Xylene	0.50	BRL
1,3-Xylene	0.50	BRL
1,4-Xylene	0.50	BRL

LABORATORY CONTROL SPIKE

Method: Mod. EPA 8020 (BTEX) Date Analyzed: 06/17/91
Units: ug/L (ppb)

Compound	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Chlorobenzene	10.	8.5	85	2	80 - 120	<20
Benzene	10.	8.0	80	0	80 - 120	<20
Ethyl Benzene	10.	8.4	84	5	80 - 120	<20

[a] Acceptance limits are generic EPA limits.

(DC1-CN4550)

McLaren Hart

METHOD BLANK

Method: Mod. EPA 8020 (BTEX) Date Analyzed: 06/16/91
Units: ug/L (ppb)

Compound	Reporting Limit	Results of the MB
Benzene	0.50	BRL
Toluene	0.50	BRL
Ethyl Benzene	0.50	BRL
1,2-Xylene	0.50	BRL
1,3-Xylene	0.50	BRL
1,4-Xylene	0.50	BRL

METHOD BLANK

Method: Mod. EPA 8020 (BTEX) Date Analyzed: 06/19/91
Units: ug/L (ppb)

Compound	Reporting Limit	Results of the MB
Benzene	0.50	BRL
Toluene	0.50	BRL
Ethyl Benzene	0.50	BRL
1,2-Xylene	0.50	BRL
1,3-Xylene	0.50	BRL
1,4-Xylene	0.50	BRL

QUALITY CONTROL REPORT

METHOD BLANK

Method: TPH/G
Units: ug/L (ppb)

Date Analyzed: 06/15/91

Compound	Reporting Limit	Results of the MB
Total Petroleum Hydrocarbons - Gasoline	50.	BRL

LABORATORY CONTROL SPIKE

Method: TPH/G
Units: ug/L (ppb)

Date Analyzed: 06/13 - 06/14/91

Compound	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Gasoline	100.	96.	96	18	80 - 120	<20

[a] Acceptance limits are generic EPA limits.

(DC1-CN4550)

McLaren Hart

QUALITY CONTROL REPORT

METHOD BLANK

Method: TPH/G
Units: ug/L (ppb)

Date Analyzed: 06/19/91

Compound	Reporting Limit	Results of the MB
Total Petroleum Hydrocarbons - Gasoline	50.	BRL

LABORATORY CONTROL SPIKE

Method: TPH/G
Units: ug/L (ppb)

Date Analyzed: 06/17/91

Compound	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Gasoline	100.	110.	110	0	80 - 120	<20

[a] Acceptance limits are generic EPA limits.

(DC1-CN4550)

McLaren Hart

QUALITY CONTROL REPORT

MATRIX SPIKE

Method: Mod. EPA 8020 (BTEX)
Instrument #: 3
Date Analyzed: 06/13/91
Analyst: TL

Spike Sample ID: 4550-005 MS
Matrix: Water
Units: ug/L (ppb)

COMPOUND	Spike Added (ppb)	Sample Conc.	Spike Conc. - Sample Conc.	Spike % Recovery
Chlorobenzene	10.	BRL	8.9	89
Benzene	10.	BRL	9.3	93
Ethyl Benzene	10.	BRL	8.1	81

McLaren Hart

QUALITY CONTROL REPORT

METHOD BLANK

Method: Mod. EPA 8020 (BTEX)
Units: mg/Kg (ppm)

Date Analyzed: 06/18/91
Date Extracted: 06/18/91
Batch Number: 910618-0901

Compound	Reporting Limit	Results of the MB
Benzene	0.010	BRL
Toluene	0.010	BRL
Ethyl Benzene	0.010	BRL
1,2-Xylene	0.010	BRL
1,3-Xylene	0.010	BRL
1,4-Xylene	0.010	BRL

LABORATORY CONTROL SPIKE

Method: Mod. EPA 8020 (BTEX)
Units: mg/Kg (ppm)

Date Analyzed: 06/18/91
Date Extracted: 06/18/91
Batch Number: 910618-0901

Compound	Concentration		Accuracy	Precision	Acceptance Limits[a]	
	Spiked	Measured	% Recovery	RPD	% Recovery	RPD
Chlorobenzene	0.10	0.12	120	0	75 - 125	<25
Benzene	0.10	0.11	110	0	75 - 125	<25
Ethyl Benzene	0.10	0.11	110	0	75 - 125	<25

[a] Acceptance limits are generic EPA limits.

(DC1-CN4550)

McLaren Hart

QUALITY CONTROL REPORT

METHOD BLANK

Method: TPH/G
Units: mg/Kg (ppm)

Date Analyzed: 06/18/91
Date Extracted: 06/18/91
Batch Number: 910618-0901

Compound	Reporting Limit	Results of the MB
Total Petroleum Hydrocarbons - Gasoline	1.0	BRL

LABORATORY CONTROL SPIKE

Method: TPH/G
Units: mg/Kg (ppm)

Date Analyzed: 06/18/91
Date Extracted: 06/18/91
Batch Number: 910618-0901

Compound	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Gasoline	5.0	5.9	118	0	75 - 125	<25

[a] Acceptance limits are generic EPA limits.

(DC1-CN4550)

McLaren Hart

QUALITY CONTROL REPORT

Method: Metals
Units: mg/Kg (ppm)

Date Analyzed: 06/22/91
Date Extracted: 06/20/91
Batch Number: 910620-1101

METHOD BLANK

Compound	Reporting Limit	Results of the MB
Lead (Pb)/6010	2.5	BRL

LABORATORY CONTROL SPIKE

Compound	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Lead (Pb)/6010	25.	22.	88	0	75 - 125	<20

[a] Acceptance limits are generic EPA limits.

(DC1-CN4550)

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.

Gasoline and diesel standard obtained from local Chevron station. Gasoline is sold commercially as unleaded gasoline and diesel as diesel fuel #2.

Kerosene standard obtained from Post Jeff Chevron/Mobil Products. It is sold commercially as jet fuel and kerosene. Other jet fuel sources may produce different instrument responses and contain different hydrocarbon chains. The kerosene standard contains the same hydrocarbon chain as commercial jet fuel.

Motor oil standard obtained from local automotive store. Manufacturer and motor oil type are Pennzoil SAE 10W-40.

Results are reported on the attached data sheets.

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:	38913-2
Sample Description:	GW-1	Lab Project-ID Number:	4550-006
Sample Number:	182261	Date Sampled:	06/13/91
Date Received:	06/14/91	Date Analyzed:	06/19/91

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	BRL	120.
Toluene	860.	120.
Ethyl Benzene	780.	120.
1,2-Xylene	1500.	120.
1,3-Xylene	2200.	120.
1,4-Xylene	1600.	120.
Total Petroleum Hydrocarbons - Gasoline	39000.	12000.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	118	80 - 120
a,a,a-Trifluorotoluene (FID)	114	80 - 120

Dilution: 1:250

Comments:

Approved By: _____ Date: 7/2/91
A. Putnam

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

041691

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: 38913-2

Sample Description: GW-2

Lab Project-ID Number: 4550-002

Sample Number: 182286

Date Sampled: 06/13/91

Date Received: 06/14/91

Date Analyzed: 06/19/91

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	16.	2.5
Toluene	BRL	2.5
Ethyl Benzene	37.	2.5
1,2-Xylene	21.	2.5
1,3-Xylene	35.	2.5
1,4-Xylene	37.	2.5
		2.5
Total Petroleum Hydrocarbons - Gasoline	880.	250.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	114	80 - 120
a,a,a-Trifluorotoluene (FID)	112	80 - 120

Dilution: 1:5

Comments:

Approved By: A. Putnam Date: 7/2/91

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

041691

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:	38913-2
Sample Description:	GW-3	Lab Project-ID Number:	4550-005
Sample Number:	182296	Date Sampled:	06/13/91
Date Received:	06/14/91	Date Analyzed:	06/16/91

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	78.	25.
Toluene	52.	25.
Ethyl Benzene	69.	25.
1,2-Xylene	79.	25.
1,3-Xylene	118.	25.
1,4-Xylene	98.	25.
Total Petroleum Hydrocarbons - Gasoline	2400. (a)	2500.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	109	80 - 120
a,a,a-Trifluorotoluene (FID)	106	80 - 120

Dilution: 1:50

Comments: (a) Reported as an estimated concentration below the established reporting limit.

Approved By: _____ Date: 7/2/91
A. Putnam

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

041691

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:	38913-2
Sample Description:	GW-4	Lab Project-ID Number:	4550-004
Sample Number:	182291	Date Sampled:	06/13/91
Date Received:	06/14/91	Date Analyzed:	06/15/91

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	BRL	0.50
Toluene	BRL	0.50
Ethyl Benzene	BRL	0.50
1,2-Xylene	BRL	0.50
1,3-Xylene	BRL	0.50
1,4-Xylene	BRL	0.50
		0.50
Total Petroleum Hydrocarbons - Gasoline	BRL	50.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	91	80 - 120
a,a,a-Trifluorotoluene (FID)	88	80 - 120

Dilution: None

Comments:

Approved By: _____ Date: 7/2/91
A. Putnam

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

041691

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:	38913-2
Sample Description:	GW-5	Lab Project-ID Number:	4550-003
Sample Number:	182287	Date Sampled:	06/13/91
Date Received:	06/14/91	Date Analyzed:	06/19/91

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	BRL	0.50
Toluene	BRL	0.50
Ethyl Benzene	BRL	0.50
1,2-Xylene	BRL	0.50
1,3-Xylene	BRL	0.50
1,4-Xylene	BRL	0.50
		0.50
Total Petroleum Hydrocarbons - Gasoline	BRL	50.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	118	80 - 120
a,a,a-Trifluorotoluene (FID)	110	80 - 120

Dilution: None

Comments:

Approved By: A. Putnam Date: 7/2/91

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

041691

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:	38913-2
Sample Description:	Soil Bin 1223	Lab Project-ID Number:	4550-007
Sample Number:	182300	Date Sampled:	06/13/91
Date Received:	06/14/91	Date Extracted:	06/18/91
Date Analyzed:	06/18/91	Batch Number:	910618-0901

COMPOUND	ANALYTE CONCENTRATION mg/Kg (ppm)	REPORTING LIMIT mg/Kg (ppm)
Benzene	BRL	0.010
Toluene	BRL	0.010
Ethyl Benzene	BRL	0.010
1,2-Xylene	BRL	0.010
1,3-Xylene	BRL	0.010
1,4-Xylene	BRL	0.010
Total Petroleum Hydrocarbons - Gasoline	BRL	1.0

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	119	75 - 125
a,a,a-Trifluorotoluene (FID)	107	75 - 125

Dilution: None

Comments:

Approved By: A. Putnam Date: 7/2/91

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

041691

McLaren Hart

METALS

Preparation Method: EPA 3050

Project Name: Target

Project Number: 38913-2

Sample Description: Soil Bin 1223

Lab Project-ID Number: 4550-007

Sample Number: 182300

Date Sampled: 06/13/91

Date Received: 06/14/91

Date Digested: 06/20/91

Batch Number: 910620-1101

METAL (SYMBOL)/EPA METHOD	DATE ANALYZED	CONCENTRATION mg/Kg (ppm)	REPORTING LIMIT mg/Kg (ppm)
Lead (Pb)/6010	06/22/91	8.0	2.5

Dilution: None

Comments:

Approved By: F. Ramezanzadeh Date: 7-2-91

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

041891

McLaren Hart

McLaren Hart

Date: July 5, 1991
LP #: 4591

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

Dear Mr. McLeod:

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

The analyses you requested are:

Mod. EPA 8020 (BTEX) and TPH/G (2 - 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 BLANK

Method: Mod. EPA 8020 (BTEX) & TPH/G Date Analyzed: 06/26/91
Units: ug/L (ppb)

Compound	Reporting Limit	Results of the MB
Benzene	0.50	BRL
Toluene	0.50	BRL
Ethyl Benzene	0.50	BRL
1,2-Xylene	0.50	BRL
1,3-Xylene	0.50	BRL
1,4-Xylene	0.50	BRL
Total Petroleum Hydrocarbons - Gasoline	50.	BRL

LABORATORY CONTROL SPIKE

Method: Mod. EPA 8020 (BTEX) & TPH/G Date Analyzed: 06/22/91
Units: ug/L (ppb)

Compound	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Chlorobenzene	10.	9.6	96	14	80 - 120	<20
Benzene	10.	9.9	99	10	80 - 120	<20
Ethyl Benzene	10.	8.4	84	2	80 - 120	<20
			Date Analyzed: 06/17/91			
Total Petroleum Hydrocarbons - Gasoline	100.	110.	110	0	80 - 120	<20

[a] Acceptance limits are generic EPA limits.

(DC3-CN4591)

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 gasoline were calculated based only on detected peaks.

Results are reported on the attached data sheets.

McLaren Hart

McLaren Hart

Date: July 2, 1991
LP #: 4563

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

Dear Mr. McLeod:

Enclosed are the laboratory results for the one sample submitted by you to the McLaren Analytical Laboratory on June 18, 1991, for the project *Target*.

The analysis you requested is:

Mod. EPA 8020 (BTEX) & TPH/G (1 - 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 BLANK

Method: Mod. EPA 8020 (BTEX) & TPH/G Date Analyzed: 06/19/91
Units: ug/L (ppb)

Compound	Reporting Limit	Results of the MB
Benzene	0.50	BRL
Toluene	0.50	BRL
Ethyl Benzene	0.50	BRL
1,2-Xylene	0.50	BRL
1,3-Xylene	0.50	BRL
1,4-Xylene	0.50	BRL
Total Petroleum Hydrocarbons - Gasoline	50.	BRL

LABORATORY CONTROL SPIKE

Method: Mod. EPA 8020 (BTEX) & TPH/G Date Analyzed: 06/17/91
Units: ug/L (ppb)

Compound	Concentration		Accuracy	Precision	Acceptance Limits[a]	
	Spiked	Measured	% Recovery	RPD	% Recovery	RPD
Chlorobenzene	10.	8.5	85	2	80 - 120	<20
Benzene	10.	8.0	80	0	80 - 120	<20
Ethyl Benzene	10.	8.4	84	5	80 - 120	<20
Total Petroleum Hydrocarbons - Gasoline	100.	110.	110	0	80 - 120	<20

[a] Acceptance limits are generic EPA limits.

(DC3-CN4563)

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 gasoline were calculated based only on detected peaks.

Results are reported on the attached data sheets.

McLaren Hart

Date: June 27, 1991
LP #: 4545

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

Dear Mr. McLeod:

Enclosed are the laboratory results for the six samples submitted by you to the McLaren Analytical Laboratory on June 13, 1991, for the project *Target*.

The analysis you requested is:

Mod. EPA 8020 (BTEX) & TPH/G (4 - Water)
Samples on hold (2)

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 BLANK

Method: Mod. EPA 8020 (BTEX) & TPH/G Date Analyzed: 06/14/91
Units: ug/L (ppb)

Compound	Reporting Limit	Results of the MB
Benzene	0.50	BRL
Toluene	0.50	BRL
Ethyl Benzene	0.50	BRL
1,2-Xylene	0.50	BRL
1,3-Xylene	0.50	BRL
1,4-Xylene	0.50	BRL
Total Petroleum Hydrocarbons - Gasoline	50.	BRL

LABORATORY CONTROL SPIKE

Method: Mod. EPA 8020 (BTEX) Date Analyzed: 06/13 - 06/14/91
Units: ug/L (ppb)

Compound	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Chlorobenzene	10.	9.4	94	5	80 - 120	<20
Benzene	10.	9.3	93	7	80 - 120	<20
Ethyl Benzene	10.	8.7	87	1	80 - 120	<20

[a] Acceptance limits are generic EPA limits.

(DC3-CN4545)

McLaren Hart

QUALITY CONTROL REPORT

METHOD BLANK

Method: Mod. EPA 8020 (BTEX) & TPH/G Date Analyzed: 06/19/91
Units: ug/L (ppb)

Compound	Reporting Limit	Results of the MB
Benzene	0.50	BRL
Toluene	0.50	BRL
Ethyl Benzene	0.50	BRL
1,2-Xylene	0.50	BRL
1,3-Xylene	0.50	BRL
1,4-Xylene	0.50	BRL
Total Petroleum Hydrocarbons - Gasoline	50.	BRL

LABORATORY CONTROL SPIKE

Method: Mod. EPA 8020 (BTEX) & TPH/G Date Analyzed: 06/17/91
Units: ug/L (ppb)

Compound	Concentration Spiked	Concentration Measured	Accuracy % Recovery	Precision RPD	Acceptance Limits[a] % Recovery	Acceptance Limits[a] RPD
Chlorobenzene	10.	8.5	85	2	80 - 120	<20
Benzene	10.	8.0	80	0	80 - 120	<20
Ethyl Benzene	10.	8.4	84	5	80 - 120	<20
Total Petroleum Hydrocarbons - Gasoline	100.	110.	110	0	80 - 120	<20

[a] Acceptance limits are generic EPA limits.

(DC3-CN4545)

McLaren Hart

QUALITY CONTROL REPORT

Method: TPH/G
Instrument #: 3
Date Analyzed: 06/14/91
Analyst: TL

Spike Sample ID: 4545-003 MS
Matrix: Water
Units: ug/L (ppb)

COMPOUND	Spike Added (ppm)	Sample Conc.	Spike Conc. - Sample Conc.	Spike % Recovery
Total Petroleum Hydrocarbons - Gasoline	100.	BRL	110.	110

(DC3-CN4545)

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 gasoline 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:	38913-2
Sample Description:	Trip Blank	Lab Project-ID Number:	4545-002
Sample Number:	182254	Date Sampled:	06/12/91
Date Received:	06/13/91	Date Analyzed:	06/14/91

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	BRL	0.50
Toluene	BRL	0.50
Ethyl Benzene	BRL	0.50
1,2-Xylene	BRL	0.50
1,3-Xylene	BRL	0.50
1,4-Xylene	BRL	0.50
Total Petroleum Hydrocarbons - Gasoline	BRL	50.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	116	80 - 120
a,a,a-Trifluorotoluene (FID)	107	80 - 120

Dilution: None

Comments:

Approved By: _____ Date: 6/27/91
A. Putnam

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

041691

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:	38913-2
Sample Description:	MW-1	Lab Project-ID Number:	4545-003
Sample Number:	182255	Date Sampled:	06/12/91
Date Received:	06/13/91	Date Analyzed:	06/14/91

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	BRL	0.50
Toluene	BRL	0.50
Ethyl Benzene	BRL	0.50
1,2-Xylene	BRL	0.50
1,3-Xylene	BRL	0.50
1,4-Xylene	BRL	0.50
Total Petroleum Hydrocarbons - Gasoline	BRL	50.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	116	80 - 120
a,a,a-Trifluorotoluene (FID)	106	80 - 120

Dilution: None

Comments:

Approved By: _____ Date: 6/21/91
A. Putnam

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

041691

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:	38913-2
Sample Description:	MW-2	Lab Project-ID Number:	4563-001
Sample Number:	182655	Date Sampled:	06/14/91
Date Received:	06/18/91	Date Analyzed:	06/19/91

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	6.6	0.50
Toluene	BRL	0.50
Ethyl Benzene	1.1	0.50
1,2-Xylene	0.76	0.50
1,3-Xylene	BRL	0.50
1,4-Xylene	0.57	0.50
Total Petroleum Hydrocarbons - Gasoline	51.	50.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	111	80 - 120
a,a,a-Trifluorotoluene (FID)	108	80 - 120

Dilution: None

Comments:

Approved By: _____ Date: 7/2/91
A. Putnam

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

041691

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:	38913-2
Sample Description:	MW-3	Lab Project-ID Number:	4545-004
Sample Number:	182263	Date Sampled:	06/12/91
Date Received:	06/13/91	Date Analyzed:	06/14/91

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	BRL	0.50
Toluene	BRL	0.50
Ethyl Benzene	BRL	0.50
1,2-Xylene	BRL	0.50
1,3-Xylene	BRL	0.50
1,4-Xylene	BRL	0.50
Total Petroleum Hydrocarbons - Gasoline	BRL	50.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	111	80 - 120
a,a,a-Trifluorotoluene (FID)	101	80 - 120

Dilution: None

Comments:

Approved By: A. Putnam Date: 6/27/91

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

041691

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:	38913-2
Sample Description:	MW-4	Lab Project-ID Number:	4545-006
Sample Number:	182268	Date Sampled:	06/12/91
Date Received:	06/13/91	Date Analyzed:	06/20/91

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	680.	25.
Toluene	BRL	25.
Ethyl Benzene	150.	25.
1,2-Xylene	BRL	25.
1,3-Xylene	BRL	25.
1,4-Xylene	BRL	25.
Total Petroleum Hydrocarbons - Gasoline	6100.	2500.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	110	80 - 120
a,a,a-Trifluorotoluene (FID)	108	80 - 120

Dilution: 1:50

Comments:

Approved By: _____ Date: 6/27/91
A. Putnam

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

041691

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:	122601
Sample Description:	MW-5	Lab Project-ID Number:	4591-001
Sample Number:	182669	Date Sampled:	06/21/91
Date Received:	06/22/91	Date Analyzed:	06/26/91

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	BRL	0.50
Toluene	BRL	0.50
Ethyl Benzene	BRL	0.50
1,2-Xylene	BRL	0.50
1,3-Xylene	BRL	0.50
1,4-Xylene	BRL	0.50
Total Petroleum Hydrocarbons - Gasoline	BRL	50.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	116	80 - 120
a,a,a-Trifluorotoluene (FID)	120	80 - 120

Dilution: None

Comments:

Approved By: _____ Date: 7/5/91
A. Putnam

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

041691

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:	122601
Sample Description:	Poly Tank	Lab Project-ID Number:	4591-002
Sample Number:	182673	Date Sampled:	06/21/91
Date Received:	06/22/91	Date Analyzed:	06/26/91

COMPOUND	ANALYTE CONCENTRATION ug/L (ppb)	REPORTING LIMIT ug/L (ppb)
Benzene	8.5	0.50
Toluene	4.7	0.50
Ethyl Benzene	6.2	0.50
1,2-Xylene	8.3	0.50
1,3-Xylene	7.8	0.50
1,4-Xylene	5.8	0.50
Total Petroleum Hydrocarbons - Gasoline	280.	50.

Surrogates	Percent Recovery	Acceptance Limits
a,a,a-Trifluorotoluene (PID)	88	80 - 120
a,a,a-Trifluorotoluene (FID)	112	80 - 120

Dilution: None

Comments:

Approved By: _____ Date: 7/5/91
A. Putnam

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

041691

McLaren Hart

27267

McLaren Hart

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: _____ Secured:
Storage Refrigerator ID: _____ Yes ___
Storage Freezer ID: _____ No ___

Project Name: Target Project #: 22[redacted]601 Sampler: Colette Shelly (Printed Name) C. Colette Shelly (Signature)

Relinquished by: (Signature and Printed Name) Colette Shelly	Received by: (Signature and Printed Name) FedEx	Date: 6-21-91	Time: 1700
Relinquished by: (Signature and Printed Name) Colette Shelly	Received by (Signature and Printed Name)	Date.	Time:
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: _____

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) LUFT	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)	+ BTEX LUFT	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY: Lab ID
1	B26069	6/21/91	1050								✓								✓			4	1	VHA	
2	182670	↓									✓								✓			4	1	↓	
3	182671										✓								✓			4	1		
4	182672		↓	MW-5							✓								✓			4	1		
5	182673		1115	Poly Tank							✓								✓			4	1		
6	182674			spare							✓								✓			4	1		
7	182675										✓								✓			4	1		
8	182676	↓	↓	↓							✓								✓			4	1	↓	
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. Campbell McLeod
☐ Client Name: _____
Company: McLaren/Hart
Address: 1135 Atlantic Ave, Alameda
Phone: 415 521-5200 Fax: _____

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt: _____

McLaren Hart

Pg 2/3

27312

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 4545
Storage Refrigerator ID: 8
Storage Freezer ID: _____
Secured: Yes ✓ No ___

Project Name: TARGET Project #: 38913-2 Sampler: colette shelly (Printed Name) colette shelly (Signature)

Relinquished by: (Signature and Printed Name) colette shelly	Received by (Signature and Printed Name) Fed Ex	Date: 6-12-91	Time: 1700
Relinquished by: (Signature and Printed Name) colette shelly FED EX	Received by: (Signature and Printed Name)	Date: 6-13-91	Time: 0900
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: _____

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)	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)	BTEX (LUFT)	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY: Lab ID
1	182251	6/12/91	800	Trip Blank							✓									✓	✓	4	1	VHCl	4545-002
2	182252			spare							✓									✓					
3	182253										✓									✓					-003
4	182254		↓	↓							✓									✓					
5	182255		1200	MW-1							✓									✓					
6	182256			spare							✓									✓					
7	182257										✓									✓					
8	182258		↓	↓							✓									✓					
9	182263		1400	MW-3							✓									✓					-004
10	182264	↓	↓	↓ spare							✓									✓		↓	↓	↓	↓

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 _____

Special Instructions/Comments: _____

Sample Archive/Disposal:
☐ Laboratory Standard
☐ Other _____

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt: GOOD CONDITION - ICE
182251-253 HAVE AIR BUBBLES

SEND DOCUMENTATION AND RESULTS TO (Check one):
☒ Project Manager/Office: Campbell McLeod
☐ Client Name: _____
Company: McLaren/Hart
Address: 1135 Atlantic Ave, Alameda
Phone: 415 521-5200 Fax: _____

27313

McLaren Hart

CHAIN OF CUSTODY RECORD

86 3/3

FOR LABORATORY USE ONLY
Laboratory Project No: 4545
Storage Refrigerator ID. 8
Storage Freezer ID:
Secured Yes ✓ No

Project Name: TARGET Project #: 38913-2 Sampler: Colette Shelly (Printed Name) colette shelly (Signature)

Relinquished by: (Signature and Printed Name) Colette Shelly	Received by: (Signature and Printed Name) FedEX	Date: 6-12-91	Time: 1700
Relinquished by: (Signature and Printed Name) COLETTE SHELLY	Received by: (Signature and Printed Name)	Date: 6-13-91	Time: 0900
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:

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) LUFT	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)	+ BTEX (LUFT) on Hold	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY Lab ID
1	182271	6/12/91	1245	GW-3							✓								✓	X	4	1	VHA	4545-005
2	182272			spares							✓								✓	X				
3	182273										✓								✓	X				
4	182274										✓								✓	X				
5	182267		1355	MW-4							✓								✓					-006
6	182268			spares							✓								✓					
7	182269										✓								✓					
8	182270										✓								✓					
9	182265		1600	MW-3 spare							✓								✓					-004
10	182266										✓								✓					

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 - RSP
GW-3 on Hold per C. SHELLY 6-13-91 RSP

SEND DOCUMENTATION AND RESULTS TO (Check one):
☒ Project Manager/Office: Campbell McLeod
☐ Client Name:
Company: McLaren/Hart
Address: 1135 Atlantic Ave, Alameda
Phone: 4155215200 Fax:

Pg 1/3

27314

McLaren Hart

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 4550
Storage Refrigerator ID: 8,12
Storage Freezer ID:
Secured: Yes ✓ No

Project Name: TARGET Project #: 389132 Sampler: Colette Shelly (Printed Name) Colette Shelly (Signature)

Relinquished by: (Signature and Printed Name) Colette Shelly Colette Shelly	Received by: (Signature and Printed Name) Fed Ex	Date: 6-13-91	Time: 1700
Relinquished by: (Signature and Printed Name) Fed Ex	Received by: (Signature and Printed Name) Kathleen Tomlinson	Date: 06-14-91	Time: 09:30
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:

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) LUFT	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)	+ BTEX (LUFT)	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY Lab ID
1	182279	6/6/91	1000	Trip Blank						no	✓								no	✓	✓	4	1	VHA	4550-001
2	182280			spares						no	✓								no	✓	✓				
3	182281									no	✓								no	✓	✓				
4	182282		↓							no	✓								no	✓	✓				-002
5	182283		1005	GW-2							✓									✓	✓				
6	182284			spares							✓									✓	✓				
7	182285										✓									✓	✓				
8	182286		↓								✓									✓	✓				
9	182287		1100	GW-5							✓									✓	✓				-003
10	182288		↓	spare							✓									✓	✓	↓	↓	↓	↓

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 GZ
Samples 182279, 182280, 182281, 182282 Contain Air bubbles GZ
TRIP BLANK CANCELLED per C. SHELLY

SEND DOCUMENTATION AND RESULTS TO (Check one):
☒ Project Manager/Office: Campbell McLeod
☐ Client Name:
Company: McLaren/Hart
Address: 1135 Atlantic Ave, Alameda
Phone: (415) 521-5200 Fax:

27317

McLaren Hart

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 4550
Storage Refrigerator ID: 8,12
Storage Freezer ID
Secured Yes ✓ No

Project Name: TARGET Project #: 38913-2 Sampler: Colette Shelly (Printed Name) Colette Shelly (Signature)

Relinquished by: (Signature and Printed Name) Colette Shelly	Received by: (Signature and Printed Name) FedEx	Date: 6-13-91	Time: 1700
Relinquished by: (Signature and Printed Name) FedEx	Received by: (Signature and Printed Name) Kathy Fontaine	Date: 06-14-91	Time: 09:30
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:

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) LUFT	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)	+ BTEX (LUFT)	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY: Lab ID
1	182289	6/13/91	1100	GW-5							✓									✓		4	1	V-HCl	4550-003
2	182290		↓	↓							✓									✓					-1
3	182291		1210	GW-4							✓									✓					-004
4	182292		↓	↓							✓									✓					-1
5	182293										✓									✓					-1
6	182294		↓	↓							✓									✓					-1
7	182295		1230	GW-3							✓									✓					-005
8	182296		↓	↓							✓									✓					-1
9	182297		↓	↓							✓									✓					-1
10	182298	↓	↓	↓							✓									✓		↓	↓	↓	-1

spares
spares
cans
spares

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 (cold)
182291, 182292, 182293, 182294 Contain Air bubbles

SEND DOCUMENTATION AND RESULTS TO (Check one)
☒ Project Manager/Office: Campbell McLeod
☐ Client Name:
Company: McLaren/Hart
Address: 1135 Atlantic Ave, Alameda
Phone: 415 521-5200 Fax:

27315

McLaren Hart

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 4550
Storage Refrigerator ID: 8,12
Storage Freezer ID:
Secured. Yes ✓ No

Project Name: TARGET Project #: 38913-2 Sampler: colette shelly (Printed Name) colette shelly (Signature)

Relinquished by: (Signature and Printed Name) colette shelly	Received by: (Signature and Printed Name) FedEx	Date: 6-13-91	Time: 1700
Relinquished by: (Signature and Printed Name) Fed Ex	Received by (Signature and Printed Name) Karen Fontein	Date: 06-14-91	Time: 0930
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:

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)	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)	+ BTEX (LUFT) + LEAD (LUFT)	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY: Lab ID
1	182289	6/12/91	1330	GW-1							✓									✓	✓	4	1	VHL	4550-006
2	182290										✓									✓					
3	182291										✓									✓					
4	182292	↓	↓	↓							✓									✓	↓	↓	↓	↓	↓
5																									
6																									
7	182300	6/13/91	*	Soil Bin 123							✓									✓	✓	4	1	B	4550-007
8																									
9																									
10																									

Special Instructions/Comments:
* Hold for further instructions

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
☐ Client Name:
Company McLaren/Hart
Address: 1135 Atlantic Ave, Alameda
Phone: 415 521-5200 Fax:

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt: Good Condition
SOIL ANALYSIS REQUESTED per C. SHELLEY 6-17-91 RSP

27316

McLaren Hart

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 4563 Secured: Yes ✓ No ___
Storage Refrigerator ID: 8
Storage Freezer ID: ___

Project Name: TARGET Project #: 389137-2 Sampler: colette shelly (Printed Name) colette shelly (Signature)

Relinquished by: (Signature and Printed Name) colette shelly colette shelly	Received by (Signature and Printed Name) Fed EX	Date: 6-14-91	Time: 1700
Relinquished by: (Signature and Printed Name) Fed Ex	Received by (Signature and Printed Name) Kathy Fontaine	Date: 06-18-91	Time: 09:10
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: ___

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) LUFT	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)	+ BTEX LUFT	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY Lab ID
1	182651		Trip Blank								✓										✓	4	1	V-HCl	
2	182652										✓										✓				
3	182653										✓										✓				
4	182654										✓										✓				
5	182655	1045	MW-2								✓										✓				4563-001
6	182656		spares								✓										✓				
7	182657										✓										✓				
8	182658										✓										✓				
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: Campbell McLeod
☐ Client Name: ___
Company: McLaren / Hart
Address: 1135 Atlantic Ave, Alameda

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt. Good Condition

REVISION 3/3

27315

McLaren Hart

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project No.: 4550
Storage Refrigerator ID: 8,12
Storage Freezer ID:
Secured: Yes ✓ No

Project Name: TARGET Project #: 38913-2 Sampler: colette shelly (Printed Name) colette shelly (Signature)

Relinquished by: (Signature and Printed Name) colette shelly	Received by: (Signature and Printed Name) FedEX	Date: 6-13-91	Time: 1700
Relinquished by: (Signature and Printed Name) Fed EX	Received by: (Signature and Printed Name) Karen Fontein	Date: 06-14-91	Time: 0930
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:

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~~) LUFT	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)	4-BTEX (LUFT) + LEAD	TAT	Container(s) #	Container(s) Type	FOR LABORATORY USE ONLY Lab ID
1	182281	6/13/91	1330	GW-1							✓								✓			4	1	VHL	4550-006
2	182280	↓	↓	↓	spares						✓								✓			↓	↓	↓	↓
3	182281										✓								✓						
4	182282	↓	↓	↓	↓						✓								✓						
5																									
6																									
7	182300	6/13/91	*	Soil Bin 123							✓								✓	✓		4	1	B	4550-007
8																									
9																									
10																									

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

Special Instructions/Comments:
* Hold for further instructions

Sample Archive/Disposal:
☐ Laboratory Standard
☐ Other

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt: Good Condition
~~SOIL~~ ANALYSIS REQUESTED per C. SHELLEY 6-17-91 RSP

SEND DOCUMENTATION AND RESULTS TO (Check one):
☒ Project Manager/Office Campbell McLeod
☐ Client Name:
Company: McLaren/Hart
Address: 1135 Atlantic Ave, Alameda
Phone: 415 521-5200 Fax: