Project 94-270-01-10
October 1995

SMITH
ENVIRONMENTAL TECHNOLOGIES CORPORATION

Report

Soil and Groundwater Sampling and Analyses Oil Changer Property 7194 Village Parkway Dublin, California

FOR Former Dutch Pride Dairy

Prepared for:

Jeanne Dodge
Dodge Property

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441 North Whisman Road, Building 23
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Report

Soil and Groundwater Sampling and Analyses
Oil Changer Property
7194 Village Parkway
Dublin, California

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7194 VILLAGE PARKWAY
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1.0 INTRODUCTION

Smith Environmental Technologies Corporation (Smith Environmental) has completed the soil and groundwater sampling and analyses beneath the Oil Changer property located at 7194 Village Parkway in the City of Dublin, California. This investigation was requested by Ms. Eva Chu of the Alameda County Health Care Services Agency. The Oil Changer location was selected due to it being located adjacent to and downgradient from underground storage tanks previously removed from the former Dutch Pride Dairy located at 7400 Amador Valley Boulevard, Dublin. This investigation included arranging access to the adjacent Oil Changer property, discussions on scope of work with regulatory agency, obtain drilling permit, drilling and logging of three exploratory borings, field screening soil samples with an organic vapor meter (OVM), obtaining one soil sample and one groundwater sample for analyses, backfilling bore holes with cement grout, collection and storage of rinsate water and excess soil samples, sampling of rinsate water and excess soil samples, laboratory analyses of soil sample, groundwater sample, rinsate water sample and excess soil sample, disposal of rinsate water, and the preparation of this report.

2.0 ACCESS AND SCOPE OF WORK

This investigation was conducted on the Oil Changer property adjacent to the former Dutch Pride Dairy. Oil Changer agreed to grant access only if the investigation could be conducted in such a manner that it would not impact the business at the site and did not visually degrade the site. To meet these conditions a limited access, small diameter soil sampling rig was utilized. In addition to operating in a limited space this sampling rig required only a two inch diameter access hole, and generated a very small amount of excess soil.

The scope of this investigation, as requested by Ms. Eva Chu of the Alameda County Health Care Services Agency, Department of Environmental Health, was that a boring would be advanced near the property line between the Former Dutch Pride Dairy and the Oil Changer property (Figure 1). If no indication of gasoline impacted soil or groundwater was observed a soil sample would be collected in the capillary fringe and a grab groundwater sample would be collected. If, however, indications of gasoline impacted soil or groundwater were observed samples would not be collected and another boring would be advanced at a distance of approximately ten feet in a downgradient direction (easterly). This procedure would be repeated until a maximum of three boring were advanced (Figure 1). If gasoline impacted soil and/or groundwater continued to be observed, then at the last boring location a soil sample would be collected in the capillary fringe and a grab groundwater sample would be collected. Both samples would be analyzed for the presence of total petroleum hydrocarbons as gasoline (TPH-G) and the gasoline constituents benzene, toluene, ethylbenzene and total xylenes (BTEX).

3.0 FIELD INVESTIGATION

Because of the continued presence of what appeared to be gasoline hydrocarbons, Smith Environmental directed the advancement of three borings (B-1, B-2 & B-3) to depths ranging from 19 to 25 feet, at the locations shown on Figure 1. Prior to field work a drilling permit, number 95592, was obtained from the Water Resources Management Agency, Zone 7 (Appendix A). In addition, the boring locations were marked and Underground Services Alert was notified to check for subsurface utilities. Field operations required one day and were conducted on September 5, 1995.

3.1 Soil Sampling

The borings were advanced using a Precision Sampling XD-1 sampling rig, which consists of a specially designed hydraulic drive unit mounted on a small tractor. The sampling procedure provides a continuous soil core. Soil conditions encountered in the three borings are detailed in the boring logs included in Appendix B. Protocol concerning logging, sampling, backfilling, and testing are detailed in our field protocol included as Appendix C.

A soil sample designated S-1 was collected in boring B-3. This sample was collected at a depth of approximately 12 feet. Soil sample S-1 was located in a very clayey sand, which was very moist and appeared to be located near the top of the capillary fringe.

Soil samples not retained for laboratory analyses were examined in the field for logging purposes and then piled on plastic sheeting. At the end of the day approximately seven gallons of soil was collected. This soil was mixed, a sample designated SC-1 was collected in a stainless steel liner, sealed, labeled and placed in a cooler. The remaining soil was placed in two, five gallon steel buckets.

3.2 Water Sampling

After boring B-3 was completed, PVC pipe was placed in the hole consisting of a ten feet long lower slotted section and a ten feet long upper solid section. This pipe was placed

in the borehole to allow groundwater to collect from boring B-3 in the borehole while assuring that the borehole would not collapse, and to protect the bailer from becoming clogged with soil. A groundwater sample, designated W-1, was collected in conformance with our field protocol, Appendix C. After the water sample was collected, the PVC piping was removed and the boring backfilled with grout as detailed in our field protocol (Appendix C).

A sample of the rinsate water was also collected. This sample was collected by submerging a sealed water sample container into the water. The submerged sample container was then opened, allowed to fill underwater and then sealed. This water sample was designated RW-1. No sheen characteristic of petroleum products was observed on the water.

4.0 LABORATORY ANALYSES

Analyses of soil, water and groundwater samples collected at the site were performed to evaluate the extent and level of gasoline hydrocarbons. These samples were analyzed by Sequoia Analytical, a state of California certified laboratory located In Redwood City, California, using methods approved by the California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB,SFBR) and the U. S. Environmental Protection Agency (EPA).

Both soil and groundwater samples were analyzed for the presence of TPH-G and BTEX. Copies of the laboratory analytical report and chain of custody record are included in Appendix D.

5.0 SUMMARY OF ANALYTICAL RESULTS

The following is a summary of the laboratory analytical results from the analyses of the soil and water samples. For a tabulation of the analytical results refer to Table 1 for soil sample results and Table 2 for water sample results. The laboratory analytical report and chain of custody record are included in Appendix D.

5.1 Soil

Laboratory analytical results indicated that TPH-G and BTEX constituents were detected in soil sample S-1 which was collected near the top of the capillary fringe at a depth of 12 feet in Boring B-3. TPH-G was detected at a concentration of 1,100 parts per million (ppm) and benzene, toluene, ethylbenzene, and total xylenes, at concentrations of 8.4 ppm, 35 ppm, 17 ppm, and 99 ppm, respectively.

Laboratory analytical results indicated that TPH-G and BTEX constituents were not detected in soil sample SC-1, which was a mixed sample collected from the excess soil sample pile. Soil sample SC-1 was also analyzed for the presence of total lead, total lead was not detected. For soil sample analytical results see Table 1.

5.2 Water

Laboratory analytical results indicated that TPH-G and BTEX constituents were detected in groundwater sample W-1 which was a grab sample collected from Boring B-3. TPH-G was detected at a concentration of 120,000 parts per billion (ppb) and benzene, toluene, ethylbenzene, and total xylenes, at concentrations of 19,000 ppb, 12,000 ppb, 2,600 ppb, and 15,000 ppb respectively.

Laboratory analytical results indicated that TPH-G and BTEX constituents were not detected in water sample RW-1 which was a sample collected from the rinsate water collection drum. For groundwater analytical results see Table 2.

6.0 SUBSURFACE CONDITIONS

As noted in the boring logs, the majority of the soil beneath the site were moderately to highly plastic clays, with minor sand stringers. In addition, at depths below approximately 14 feet, free water was noted in sand stringers observed in the soil samples. This would indicate that the aquifer below the site appeared to include sand stringers in the highly plastic clay. In all three borings at depths of approximately 10 to 15 feet OVM readings in excess of 2,000 parts per million (ppm) were observed. Generally, OVM readings observed above 10 feet and below 15 feet decreased rapidly.

7.0 DISCUSSION

During the advancement of the boreholes, soil samples were field screened for the presence of organic vapors at frequent intervals using an OVM. The results of these screenings is provided on the boring logs included as Appendix B. This screening was done in compliance with our field protocol, Appendix C.

As shown on the boring logs, the available data would suggest the presence of gasoline hydrocarbon impacted soils beneath the site at depths which range from approximately 10 feet to approximately 15 feet. OVM readings obtained from soil samples collected above and below these approximate depths show a very sharp decrease. The lateral extent of this impact is not known

In Boring B-1, organic vapor concentrations ranging from 1,800 ppm to 2,200 ppm were obtained from soil samples collected from depths of approximately 10 feet down to approximately 14.5 feet. Above and below these depths organic vapor concentrations ranged from 3 ppm to 89. In boring B-2, organic vapor concentrations ranging from 700 ppm to greater than (>) 2,500 ppm were obtained from soil samples collected from depths of approximately 11.5 feet down to approximately 14 feet. Above and below these depths organic vapor concentrations ranged from 5 ppm to 100 ppm. In boring B-3, organic vapor concentrations ranging from 1,400 ppm to > 2,500 ppm were obtained from soil samples collected from depths of approximately 11.5 feet to 15.5 feet. Above and below these depths organic vapor concentrations ranged from 3 ppm to 188 ppm. Background organic vapor concentrations during the boring operations was approximately 3 ppm.

In Boring B-3, a comparison can be made between the OVM readings and laboratory analytical results. As shown on the boring log, OVM readings of >2,500 ppm were obtained from soil samples collected at depths of approximately 11.5 feet and 13 feet. As shown on Table 1, laboratory analytical results indicated a TPH-G concentration of 1,100 ppm and a benzene concentration of 8.4 ppm in soil sample S-1 collected at a depth of approximately 12 feet.

Laboratory analyses of the rinsate water sample (RW-1) indicated that TPH-G and BTEX were not detected in this sample. Smith Environmental removed the drum and the rinsate water. The rinsate water was disposed at USPCI/Laidlaw Environmental Services Inc. in San Jose, California, a licensed disposal facility. The drum was rinsed during disposal and will be recycled or reused.

Laboratory analyses of the mixed sample collected from the excess soil samples (SC-1) indicated the TPH-G, BTEX and total lead were not detected in this sample. The excess soil samples contained in buckets remain at the site.

The State of California through SB 2004 has set up the Underground Storage Tank Cleanup Fund. This fund was set up to provide financial assistance related to underground storage tank clean ups due to subsurface leaks. More information on this fund can be obtained by contacting:

State Water Resources Control Board
Underground Storage Tank Cleanup Fund
P.O. Box 944212
Sacramento, CA 94244-2120

Phone number: (916) 739-2475

8.0 REPORTING REQUIREMENTS

Smith Environmental recommends that a copy of this report be sent to the following regulatory agency by the client:

Ms. Eva Chu
Hazardous Materials Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

9.0 LIMITATIONS

This report was prepared in accordance with generally accepted standards of environmental geological practice in California at the time this investigation was performed. This investigation was conducted solely for the purpose of evaluating environmental conditions of soil and groundwater beneath the site. No soil engineering or geotechnical recommendations are implied or should be inferred. Evaluation of the geologic conditions at the site for the purpose of this investigation is made from a limited number of observation points. Subsurface conditions may vary away from the data points available. Additional work, including further subsurface investigation, can reduce the inherent uncertainties associated with this type of investigation.

Sincerely,

Richard A. Garlow
Project Supervisor

James E. Boarer, P.E.
Registered Engineer CE27710

TABLE 1

LABORATORY ANALYTICAL RESULTS - SOIL
OIL CHANGER PROPERTY
DUBLIN, CALIFORNIA

Sample Number	Date Sampled	Sample Depth (feet)	TPH-G (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Total Xylenes (ppm)	Total Lead (ppm)
S-1	9/5/95	12	1,100	8.4	35	17	99	NR
SC-1	9/5/95	NA	< 1.0	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 5.0

Notes:

TPH-G Total petroleum hydrocarbons as gasoline
ppm Parts per million (kg/mg)
< Less than listed laboratory detection limit in ppm
NA Not applicable
NR Analyses not required

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TABLE 2

LABORATORY ANALYTICAL RESULTS - WATER
OIL CHANGER PROPERTY
DUBLIN, CALIFORNIA

Sample Number	Date Sampled	TPH-G (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Total Xylenes (ppb)
W-1	9/5/95	120,000	19,000	12,000	2,600	15,000
RW-1	9/5/95	< 250	< 2.5	< 2.5	< 2.5	< 2.5

Notes:

TPH-G Total petroleum hydrocarbons as gasoline
ppb Parts per billion (ug/l)
< Less than listed laboratory detection limit in ppb

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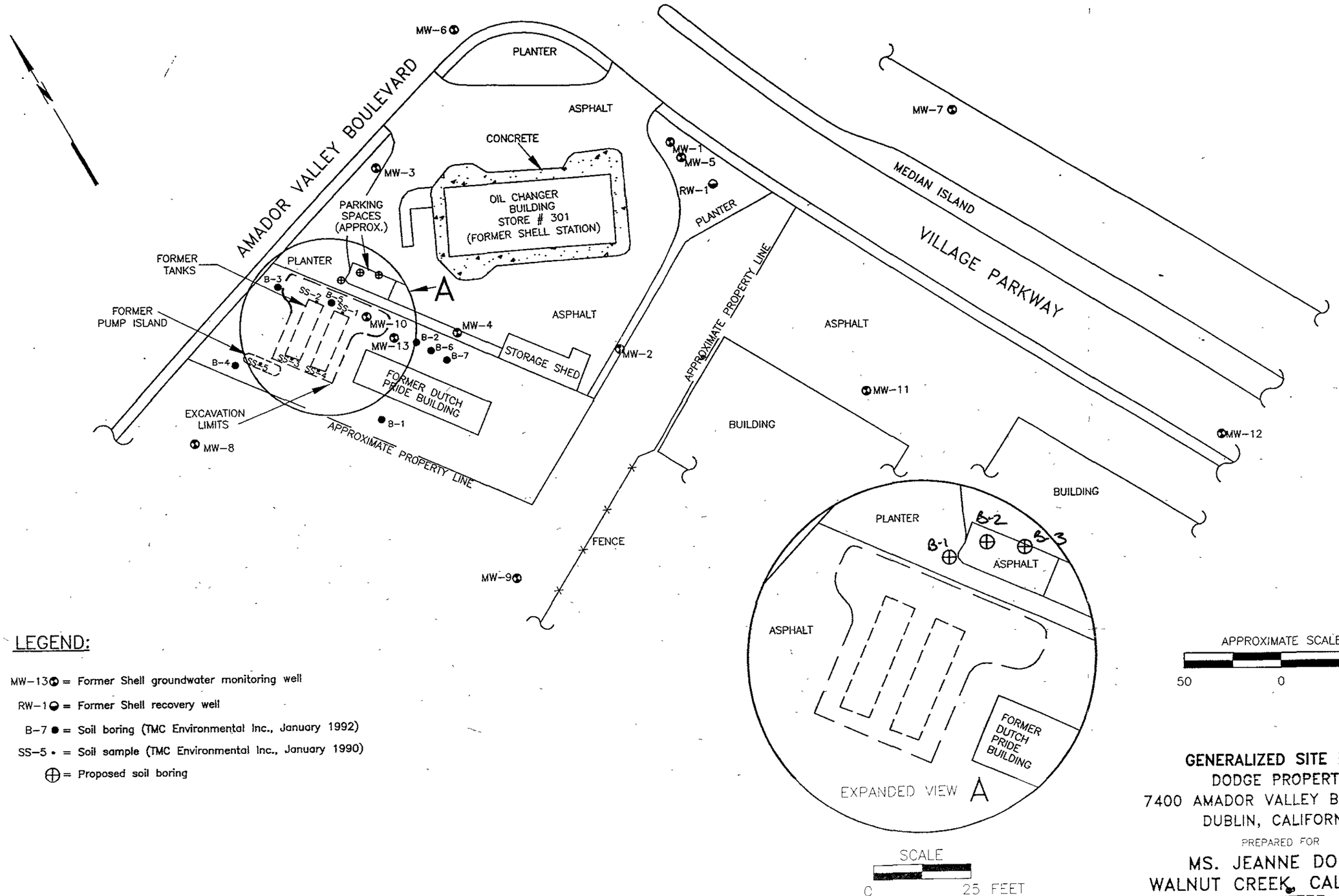
DRAWING NUMBER 94-270-B1



LEGEND:

MW-13 ⊗ = Former Shell groundwater monitoring well

RW-1 ◒ = Former Shell recovery well

B-7 ● = Soil boring (TMC Environmental Inc., January 1992)

SS-5 • = Soil sample (TMC Environmental Inc., January 1990)

⊕ = Proposed soil boring

NO	DATE	ISSUE / REVISION	DWN BY	CK'D BY	APP'D BY
△			RAL	JB	

Source: Modified from map obtained from TMC ENVIRONMENTAL INC

GENERALIZED SITE PLAN
DODGE PROPERTY
7400 AMADOR VALLEY BOULEVARD
DUBLIN, CALIFORNIA

PREPARED FOR
MS. JEANNE DODGE
WALNUT CREEK, CALIFORNIA

SMTH

DATE 2-14-95	FIGURE 1	DRAWING NUMBER 94-270-B1
SCALE AS SHOWN		

APPENDIX A

DRILLING PERMIT

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 7194 Village Parkway
Dublin, CA

CLIENT
Name Jeanne Dodge
Address 1120 Walker Ave Voice
City Walnut Creek Zip 94596

APPLICANT
Name Smith Environmental Fax 415-960-0739
Address 441 N. Whisman Rd Voice 415-960-1640
City Mt. View Zip 94043

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection		General	
Water Supply		Contamination	X
Monitoring		Well Destruction	

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. C-636387

WELL PROJECTS
Drill Hole Diameter ___ in. Maximum
Casing Diameter ___ in. Depth ___ ft.
Surface Seal Depth ___ ft. Number ___

GEOTECHNICAL PROJECTS
Number of Borings 3 Maximum
Hole Diameter 3 in. Depth 20 ft.

ESTIMATED STARTING DATE 9/5/95
ESTIMATED COMPLETION DATE 9/5/95

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] Date 8/30/95

FOR OFFICE USE

PERMIT NUMBER 95592
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL
(1.) A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
(3.) Permit is void if project not begun within 90 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

(C.) GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved [signature] Date 14 Sep 95
Wyman Hong

01002

APPENDIX B

BORING LOGS

PROJECT No. 94-270-01-10
BORING No. B-1
LOGGED BY RICH GARLOW

PROJECT NAME: DODGE PROPERTY
BORING LOCATION: DUBLIN, CALIFORNIA SURFACE ELEV:
DRILLER: PRECISION SAMPLING DATE STARTED: 09/05/95 DATE FINISHED: 09/05/95

DEPTH (ft)	SAMPLE No.	SAMPLE TYPE	SAMPLE INTERVAL FROM	SAMPLE INTERVAL TO	BLOW COUNT 0" 6"	BLOW COUNT 6" 12"	BLOW COUNT 12" 18"	REC (in)	USCS CLASS	GRAPHIC LOG	WC (%)	Q_u (tsf)	LAYER DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
	1	CR	0.0	4.0				6					.5	Grass, roots and soil.	
									CL					Dark brown, silty CLAY, traces of sand and gravel, roots and root holes, medium plasticity, moist.	
	2	CR	4.0	7.0				34						Increasing sand. OVM - 7 ppm	
5													6		
									CL					Dark brown, sandy CLAY, fine grained sand, trace of gravel, medium plasticity, moist.	
	3	CR	7.0	10.0				35					7		
									SC					Dark gray, clayey SAND, fine grained sand, moist to very moist. OVM - 15 ppm	
													8		
														Dark gray, silty CLAY, trace of sand and gravel, fine grained sand stringers ~1 to 5 mm across, free-water in sand stringers below ~14 feet, high plasticity, moist.	
10	4	CR	10.0	13.0				38						OVM - 2,100 ppm	
									OH					OVM - 1,800 ppm	
	5	CR	13.0	16.0				35						OVM - 2,140 ppm	
														OVM - 2,200 ppm	
15															

B-1

PROJECT No. 94-270-01-10
BORING No. B-1
LOGGED BY RICH GARLOW

PROJECT NAME: DODGE PROPERTY
BORING LOCATION: DUBLIN, CALIFORNIA SURFACE ELEV:
DRILLER: PRECISION SAMPLING DATE STARTED: 09/05/95 DATE FINISHED: 09/05/95

DEPTH (ft)	SAMPLE No.	SAMPLE TYPE	SAMPLE INTERVAL FROM	SAMPLE INTERVAL TO	BLOW COUNT 0" 6"	BLOW COUNT 6" 12"	BLOW COUNT 12" 18"	REC (in)	USCS CLASS	GRAPHIC LOG	WC (%)	Q_u (tsf)	LAYER DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
	6	CR	16.0	19.0				36	OH					OVM - 89 ppm OVM - 24 ppm OVM - 4 ppm	
20	7	CR	19.0	22.0				34						Small shell fragments. OVM - 6 ppm OVM - 3 ppm	
									SC				20.5	Dark gray, clayey SAND, fine grained sand, very moist to wet.	
	8	CR	22.0	25.0				36					21.5	OVM - 4 ppm Dark gray, silty CLAY, trace of sand and gravel, fine gravel, sand stringers ~1 to 5 mm across, free-water in sand stringers, moist.	
									OH						
25													25	Bottom of Boring at 25 feet.	
30															

Notes:

1. Boring was advanced by driving 2-inch casing.

2. Free-water encountered in sand stringers below ~14 feet.

3. After completion the boring was backfilled with cement grout to the surface.

4. Organic vapor meter (OVM) readings record in parts per million (ppm). Background ~3 ppm.

PROJECT No. 94-270-01-10
BORING No. B-2
LOGGED BY RICH GARLOW

PROJECT NAME: DODGE PROPERTY
BORING LOCATION: DUBLIN, CALIFORNIA SURFACE ELEV:
DRILLER: PRECISION SAMPLING DATE STARTED: 09/05/95 DATE FINISHED: 09/05/95

DEPTH (ft)	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0" 6"	BLOW COUNT 6" 12"	BLOW COUNT 12" 18"	REC (in)	USCS CLASS	GRAPHIC LOG	WC (%)	Q_u (tsf)	LAYER DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
	1	CR	0.0	4.0				6						Asphalt and base rock.	
													.5	Dark gray, silty CLAY, trace of sand and gravel, roots and root holes, medium plasticity, moist.	
	2	CR	4.0	7.0				9	CL					OVM - 15 ppm	
5													7	Dark gray, silty CLAY, trace of sand and gravel, high plasticity, moist. OVM - 14 ppm	
	3	CR	7.0	10.0				34	OH					OVM - 36 ppm	
10	4	CR	10.0	13.0				35					11.5	Dark gray SAND, fine to medium grained sand, trace of gravel, moist. OVM - 2,500 ppm	
									SW				12.5	Dark gray, silty CLAY, trace of sand and gravel, fine grained sand stingers ~1 to 5 mm across, free-water in sand stringers below ~14 feet, high plasticity, moist. OVM - >2,500 ppm	
	5	CR	13.0	16.0				36	OH					OVM - 700 ppm	
15															

PROJECT No. 94-270-01-10
BORING No. B-2
LOGGED BY RICH GARLOW

PROJECT NAME: DODGE PROPERTY
BORING LOCATION: DUBLIN, CALIFORNIA SURFACE ELEV:
DRILLER: PRECISION SAMPLING DATE STARTED: 09/05/95 DATE FINISHED: 09/05/95

DEPTH (ft)	SAMPLE No.	SAMPLE TYPE	SAMPLE INTERVAL FROM	SAMPLE INTERVAL TO	BLOW COUNT 0" 6"	BLOW COUNT 6" 12"	BLOW COUNT 12" 18"	REC (in)	USCS CLASS	GRAPHIC LOG	WC (%)	Q_u (tsf)	LAYER DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
	6	CR	16.0	19.0				36						OVM – 100 ppm	
														OVM – 5 ppm	
									OH					OVM – 5 ppm	
	7	CR	19.0	21.5				35							
20														OVM – 11 ppm	
														OVM – 6 ppm	
													21.5	Bottom of Boring at 21.5 feet.	
25														Notes: 1. Boring advanced by driving 2-inch casing. 2. Free-water encountered in sand stringers below ~14 feet. 3. After completion the boring was backfilled with cement grout and capped with asphalt plug at surface. 4. Organic vapor meter (OVM) readings recorded in parts per million (ppm). Background ~3 ppm.	
30															

PROJECT No. 94-270-01-10
BORING No. B-3
LOGGED BY RICH GARLOW

PROJECT NAME: DODGE PROPERTY
BORING LOCATION: DUBLIN, CALIFORNIA SURFACE ELEV:
DRILLER: PRECISION DRILLING DATE STARTED: 09/05/95 DATE FINISHED: 09/05/95

DEPTH (ft)	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0" 6"	BLOW COUNT 6" 12"	BLOW COUNT 12" 18"	REC (in)	USCS CLASS	GRAPHIC LOG	WC (%)	Q_u (tsf)	LAYER DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
	1	CR	0.0	4.0				6						Asphalt and base rock.	
									CL					Dark gray, silty CLAY, trace of sand and gravel, roots and root holes, medium plasticity, moist.	
	2	CR	4.0	7.0				35							
5													5	Dark gray, silty CLAY, trace of sand and gravel, high plasticity, moist. OVM - 7 ppm	
														OVM - 6 ppm	
	3	CR	7.0	10.0				36						OVM - 70 ppm	
									OH					OVM - 188 ppm	
10	4	CR	10.0	13.0				34							
													11.5	Dark gray, clayey SAND, fine to medium grained sand, trace of gravel, moist to very moist. OVM - >2,500 ppm	
	S-1	SOIL	12.0	12.5				6	SC						
	5	CR	13.0	16.0				34					13	Dark gray, silty CLAY, trace of sand and gravel, fine grained sand stringers 1 to 5 mm across, free-water in sand stinger below ~14 feet, high plasticity, moist. OVM - >2,500 ppm	
									OH					OVM - 2,000 ppm	
15															

PROJECT No. 94-270-01-10

BORING No. B-3

LOGGED BY RICH GARLOW

PROJECT NAME: DODGE PROPERTY

BORING LOCATION: DUBLIN, CALIFORNIA SURFACE ELEV:

DRILLER: PRECISION DRILLING DATE STARTED: 09/05/95 DATE FINISHED: 09/05/95

DEPTH (ft)	SAMPLE No.	SAMPLE TYPE	SAMPLE INTERVAL FROM	SAMPLE INTERVAL TO	BLOW COUNT 0" 6"	BLOW COUNT 6" 12"	BLOW COUNT 12" 18"	REC (in)	USCS CLASS	GRAPHIC LOG	WC (%)	Q_u (tsf)	LAYER DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
	6	CR	16.0	19.0				36	OH					OVM - 1,400 ppm OVM - 50 ppm OVM - 3 ppm	
													19	Bottom of Boring at 19 feet.	
20														Notes: 1. Boring advanced by driving 2-inch casing. 2. Free-water encountered in sand stringers below ~14 feet. 3. After completion a grab water sample was collected and then the boring was backfilled with cement grout and capped with asphalt plug at surface. 4. Organic vapor meter (OVM) reading recorded in parts per million (ppm). Background ~3 ppm.	
25															
30															

APPENDIX C

FIELD PROTOCOL

APPENDIX C

FIELD PROTOCOL

The following presents Smith Environmental Technologies Corporation's field protocol for a typical site investigation involving hydrocarbon-impacted soil and/or groundwater.

Soil Borings

Prior to the drilling of borings, permits are acquired from the appropriate regulatory agency. In addition to the above-mentioned permits, encroachment permits from adjacent property owners are acquired if drilling will be performed on off-site properties. Copies of the permits are included in the appendix of the project report. Prior to drilling, Underground Service Alert (USA) is notified of our intent to drill, and known underground utility lines and structures are approximately marked.

The borings are advanced by a mounted hydraulic sampling rig equipped with 1 3/4 inch diameter drive casing containing stainless steel sample lines in a sample barrel. The drive casing, sample barrel, sample liners and other equipment that comes into contact with the soil are steam-cleaned prior to drilling each boring to minimize the possibility of cross-contamination. Non-mounted sampling equipment is cleaned with a trisodium phosphate solution and rinsed with clean water between samples. After sampling is complete, the bore holes are backfilled with portland-cement grout to the ground surface.

Drill Cuttings

The excess soil samples from the borings are placed in 5-gallon steel buckets and left at the site pending laboratory analyses. The excess soil samples remain the responsibility of the client.

Soil Sampling in Borings

Soil samples are collected continuously from the ground surface to the total depth of the borings. The soil samples are collected by hydraulically advancing the drive casing and sample barrel for a distance of three to four feet into the soil. The sample barrel containing the soil samples is removed and the drive casing is left in place. If additional soil samples are desired, a clean sample barrel containing clean sample liners is placed into the drive casing and advanced another three to four feet into the soil.

The samples selected for laboratory analysis are removed from the sample barrel and quickly sealed in their stainless steel sleeves with teflon tape, plastic caps, and plastic ziplock bags. The samples are then labeled, promptly placed in iced storage, and delivered to a laboratory certified by the State of California to perform the analyses requested.

The samples in stainless steel sleeves not selected for laboratory analysis at each sampling interval is tested in the field using an organic vapor meter (ovm) that is field calibrated at the beginning of each day it is used. This testing is performed by placing selected soil samples into a plastic bag and sealing the bag. After allowing any volatile substances to volatize for 5 to 10 minutes, the sample probe of the OVM is inserted into the bag and the detected concentration recorded. The OVM readings are presented in Boring Logs included in the project report.

Logging of Borings

A geologist is present to log the soil samples using the Unified Soil Classification System. Samples not selected for chemical analysis are extruded in the field for inspection. Logs include texture, color, moisture, plasticity, consistency, and any other characteristics noted. Logs also include subjective evidence for the presence of hydrocarbons, such as soil staining, noticeable or obvious product odor, and OVM readings.

Sample Labeling and Handling

Sample containers are labeled in the field and promptly placed in iced storage for transport to the laboratory. A Chain of Custody Record is initiated by the field geologist and updated throughout handling of the samples, and accompanies the samples to a laboratory certified by the State of California for the analyses requested. Samples are transported to the laboratory promptly to help ensure that recommended sample holding times are not exceeded. Samples are properly disposed of by the analytical laboratory after their useful life has expired.

Groundwater Sampling

Groundwater grab samples are collected by first allowing the groundwater to collect in the borehole. A precleaned stainless steel bailer is lowered into the borehole to collect the groundwater sample. Groundwater samples were carefully poured into 40-milliliter (ml) glass vials, which are filled so as to produce a positive meniscus. Each vial is preserved with hydrochloric acid, sealed with a cap containing a Teflon® septum, and subsequently examined for air bubbles to avoid headspace, which would allow volatilization to occur. The samples were promptly transported in iced storage in a thermally-insulated ice chest, accompanied by a Chain of Custody Record, to a California-certified laboratory.

APPENDIX D

LABORATORY ANALYTICAL REPORT AND CHAIN OF CUSTODY RECORD

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Smith - Canonie Environmental
441 N. Whisman, Bldg 23
Mountain View, CA 94043

Attention: Richard Garlow

Client Proj. ID: 94-270-01-10, Dodge Property
Sample Descript: S-1
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9509212-01

Sampled: 09/05/95
Received: 09/06/95
Extracted: 09/08/95
Analyzed: 09/08/95
Reported: 09/20/95

QC Batch Number: GC090895BTEXEXA
Instrument ID: GCHP08

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	250	1100
Benzene	1.3	8.4
Toluene	1.3	35
Ethyl Benzene	1.3	17
Xylenes (Total)	1.3	99
Chromatogram Pattern:		Gas

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	112

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

MMTClark

Vickie Tague Clark
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Smith - Canonie Environmental
441 N. Whisman, Bldg 23
Mountain View, CA 94043

Attention: Richard Garlow

Client Proj. ID: 94-270-01-10, Dodge Property
Sample Descript: SC-1
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9509212-02

Sampled: 09/05/95
Received: 09/06/95
Extracted: 09/08/95
Analyzed: 09/08/95
Reported: 09/20/95

QC Batch Number: GC090895BTEXEXA
Instrument ID: GCHP06

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	103

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Vickie Tague Clark
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

nith - Canonie Environmental
11 N. Whisman, Bldg 23
ountain View, CA 94043

ttention: Richard Garlow

Client Proj. ID: 94-270-01-10, Dodge Property
Sample Descript: W-1
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9508212-03

Sampled: 09/05/95
Received: 09/06/95

Analyzed: 09/07/95
Reported: 09/20/95

: Batch Number: GC090795BTEX21A
trument ID: GCHP21

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

nalyte	Detection Limit ug/L	Sample Results ug/L
PPH as Gas	13000	120000
enzene	130	19000
oluene	130	12000
thyl Benzene	130	2600
ylenes (Total)	130	15000
hromatogram Pattern:		Gas

urrogates	Control Limits %		% Recovery
rifluorotoluene	70	130	105

alytes reported as N.D. were not present above the stated limit of detection.

EQUOIA ANALYTICAL - ELAP #1210

ckie Tague Clark
oject Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Smith - Canonie Environmental
441 N. Whisman, Bldg 23
Mountain View, CA 94043

Attention: Richard Garlow

Client Proj. ID: 94-270-01-10, Dodge Property
Sample Descript: RW-1
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9509212-04

Sampled: 09/05/95
Received: 09/06/95

Analyzed: 09/07/95
Reported: 09/20/95

QC Batch Number: GC090795BTEX20A
Instrument ID: GCHP20

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	250	N.D.
Benzene	2.5	N.D.
Toluene	2.5	N.D.
Ethyl Benzene	2.5	N.D.
Xylenes (Total)	2.5	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	88

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Vickie Tague Clark
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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Smith - Canonie Environmental
441 N. Whisman, Bldg 23
Mountain View, CA 94043

Attention: Richard Garlow

Client Proj. ID: 94-270-01-10, Dodge Property

Lab Proj. ID: 9509212

Sampled: 09/05/95
Received: 09/06/95
Analyzed: see below
Reported: 09/20/95

LABORATORY ANALYSIS

Analyte	Units	Date Analyzed	Detection Limit	Sample Results
Lab No: 9509212-02				
Sample Desc : SOLID,SC-1				
Lead	mg/Kg	09/16/95	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Vickie Tague Clark
Project Manager

CA

SEQUOIA ANALYTICAL RELOG SHEET

REASON FOR RELOG (CIRCLE): (Client Request) Login Correction Other _____

CLIENT: CANONIE
PROJECT ID: 94-270-01-10 / DeDate
PROJ. MANAGER: VICICLE
DATE REC'D: 9/6 MATRIX: SOLID

DATE RELOG: 9/7
DATE DUE: 9/13
DATE SAMP: 9/5
T.A.T 10

PREVIOUSLY LOGGED SAMPLES

☐ TAT Change status to: _____
Change status as of Day: _____ Time: _____

☒ CHANGE ANALYSES: ☐ RERUN:
Cancel Analyses: ☒
Add to this work order: ☐
Create new work order: ☐
Use "R" test code: ☐
Assign new sample number: ☐
Paperwork to PM ONLY: ☐

New work order #: _____

Sample Number	Analyses
9509212-02	ADD TOTAL Pb

SAMPLES ON HOLD

Add analyses to existing work order: ☐ Number: _____
Create a new work order: ☐

Sample description	Analyses

TAT

Client Authorization (Person/Date/Time) RICHARD GARLOW 9/7 1607

Project Manager Claudia Kramer FOR VC

(Please submit to sample control with a copy of the COC & log-in sheets) Rev 1.5 VTC 6/19/95

CHAIN OF CUSTODY RECORD

(See Reverse for Instructions)

NO. _____

PROJECT NAME Dodge Property

PROJECT NUMBER 94-220-01-10

RECORDER _____ (SIGN)

SAMPLERS Rich Garlow (PRINT) _____ (SIGN)

SAMPLE CONTAINER DESCRIPTION CODES		SAMPLE DESCRIPTION CODES		TAT CODES
A. 40-ml VOA Vial		A. Ground Water	F. Oil	1. Standard
B. Glass Liter	E. Brass Tube	B. Surface Water	G. Waste	2. 48 Hour
C. Plastic 500-ml	F. Other Stainless Steel Tube	C. Leachate	H. Blank/Spike	3. 24 Hour
D. Plastic Liter		D. Rinsate	I. Other _____	4. Other _____
		E. Soil/Sediment		

DATE	TIME	SAMPLE ID	Sample Container (enter code)	Sample Description (enter code)	NUMBER OF CONTAINERS AND PRESERVATION: Unpreserved	HNO_3	HCl	Field Filtered (Check)	ANALYSIS REQUESTED: TPH-G	BTEX													TAT Requested (enter code)	Maximum Holding Time for Method Requested	Sample Stored at 4°C (Check)	No. VOA Containers (Check)	NOTES	LABORATORY USE ONLY: ASSIGNED BOTTLE NUMBERS	SAMPLE CONDITION UPON RECEIPT	NOTES 950924
9/5		S-1	F	E	1				X	X													1	7 days	✓			01		
		SC-1	F	E	1				X	X													1	"	✓			02		
		W-1	A	A			5		X	X													1	"	✓	✓		03		
		RW-1	A	D			3		X	X													1	"	✓	✓		04		

NOTES / MISCELLANEOUS

Relinquished by: (Signature)	Received By: (Signature)	Date	Time
		9/6/95	2:[illegible]4
Relinquished By: (Signature)	Received By: (Signature)	Date	Time
Relinquished By: (Signature)	Received By: (Signature)	Date	Time

Method of Shipment	Description of Transport Container	Other Chains-Of-Custody Transported with this Chain (by Serial No.)	Dispatched By: (Signature)	Date	Time	Received for lab By: (Signature)	Date	Time
Courier	Cooler	No					9/6/95	1647

Send Lab Results to (Name): → Richard Garlow ← (Check Office Below) Verbals Requested: Yes ☐ No ☒ Fax

☐ PORTER TEL (219) 926-8651 FAX (219) 926-7169	☐ PLEASANTON TEL (415) 463-9117 FAX (415) 463-2981	☐ IRVINE TEL (714) 757-1755 FAX (714) 757-0960	☐ ATLANTA TEL (404) 951-0055 FAX (404) 951-9364	☐ OTHER _____ TEL _____ FAX _____
☐ DENVER TEL (303) 790-1747 FAX (303) 799-0186	☐ KING OF PRUSSIA TEL (215) 337-2551 FAX (215) 337-0560	☐ HOUSTON TEL (713) 556-1666 FAX (713) 556-0666	☒ MT. VIEW TEL (415) 960-1640 FAX (415) 960-0739	☐ OTHER _____ TEL _____ FAX _____

FAX To

CANONIE ENVIRONMENTAL SERVICES CORP. • 800 CANONIE DRIVE • PORTER, IN 46304 • TELEPHONE (219) 926-8651 • FAX (219) 926-7169

SERIAL NO. 08736

WHITE: Field Copy YELLOW: Project Copy PINK: Laboratory Copy

D7