

**Quarterly Groundwater Monitoring Report
First Quarter 1995 (January through March)**

Kawahara Nursery
16550 Ashland Avenue
San Lorenzo, California

April 17, 1995 BEI Job No. 94015

Prepared by:

Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Client:

Kawahara Nursery, Inc.
16550 Ashland Avenue
San Lorenzo, CA 94508

Limitations

Services performed by Blymyer Engineers, Inc. have been provided in accordance with generally accepted professional practices for the nature and conditions of similar work completed in the same or similar localities, at the time the work was performed. The scope of work for the project was conducted within the limitations prescribed by the client. This report is not meant to represent a legal opinion. No other warranty, expressed or implied, is made. This report was prepared for the sole use of Kawahara Nursery, Inc.

Blymyer Engineers, Inc.

By: _____

Laurie A. Buckman

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Project Geologist

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John Morrison

John Morrison, RG
Registered Geologist



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1.0 Introduction

On December 1, 1992, one steel 5,000-gallon diesel underground storage tank (UST) was removed from the property owned by Kawahara Nursery, located at 16550 Ashland Avenue, San Lorenzo, California, (Figure 1) by Tank Protect Engineering of Northern California. The UST was reported to be in good condition with no visible evidence of holes at the time of removal. The soil sample collected from the southeastern wall of the excavation contained 5,000 milligrams per kilogram (mg/kg) of Total Petroleum Hydrocarbons (TPH) as diesel. The composite soil sample collected from the soil excavated from the southeastern portion of the excavation contained 210 mg/kg TPH as diesel.

The results of the UST closure were described in the *Underground Storage Tank Closure Report*, completed by Tank Protect Engineering and forwarded to the Alameda County Health Care Services Agency (ACHCSA) by Mr. Tom Kawahara. In a letter dated January 27, 1993, the ACHCSA requested that a preliminary subsurface investigation be completed at the site to ascertain the extent of soil and groundwater petroleum hydrocarbon contamination.

On June 10, 1993, Blymyer Engineers supervised the installation of three groundwater monitoring wells, MW-1, MW-2, and MW-3, at the site. Minor concentrations of petroleum hydrocarbons were detected in the soil samples collected during the installation of these soil bores. The groundwater sample collected from monitoring well MW-3, installed adjacent to an on-site irrigation well, contained 120,000 micrograms per liter ($\mu\text{g/L}$) of TPH as gasoline, 170,000 $\mu\text{g/L}$ of ethylbenzene, and 27,000 $\mu\text{g/L}$ of total xylenes.

In March 1994, Blymyer Engineers conducted a phased groundwater investigation at the site. The initial phases of the investigation included a review of records at the ACHCSA and the Regional Water Quality Control Board to determine if any toxic chemical or fuel leaks reported within $\frac{1}{4}$ -mile radius may have impacted the site, a review of historical aerial photographs, and a review of all available information regarding the construction and pumping rates of an on-site irrigation well to determine the radius of influence of the well on the local groundwater flow.

Depth to groundwater measurements were collected from each of the monitoring wells on March 24, 1994, prior to disengagement of the irrigation well pump. On March 28, 1994, after the pump had been disengaged for at least 72 hours, depth to groundwater measurements were again collected from the wells. Following the disengagement of the irrigation well pump, the groundwater elevation decreased less than 0.2 inch in each of the monitoring wells. Blymyer Engineers reactivated the well pump and collected groundwater samples from each of the three monitoring wells and the irrigation well on March 28, 1994. The construction log of the on-site irrigation well indicated that the well is screened from approximately 45 to 60 feet below grade surface (bgs). Based on the depth of the irrigation well screened interval and the minimal change in depth to shallow groundwater during pump operation and after pump disengagement, it was determined that the irrigation well pump does not appear to influence the shallow, impacted water-bearing zone.

No detectable concentrations of petroleum hydrocarbons were detected in the groundwater samples collected from the irrigation well or monitoring wells MW-1 and MW-2. The analytical results of the groundwater sample collected from monitoring well MW-3, in March 1994, indicated 23,000 µg/L of TPH as diesel, 94,000 µg/L of TPH as gasoline, 4,800 µg/L of benzene, 6,500 µg/L of toluene, 3,000 µg/L of ethylbenzene, and 15,000 µg/L of total xylenes.

A review of the local regulatory agency records indicated that an Army National Guard facility located approximately 300 feet downgradient of the site has reported an unauthorized release of gasoline into the groundwater. However, the lateral extent of the reported release has not yet been determined.

In response to Blymyer Engineers' *Preliminary Site Assessment, Phase I Subsurface Investigation* report and *Subsurface Investigation Status Report*, the ACHCSA, in a letter dated May 18, 1994, requested the full delineation of the extent of petroleum hydrocarbons in the groundwater at the site and in the soil adjacent to the UST excavation. In a letter dated August 10, 1994, the ACHCSA approved the *Revised Subsurface Investigation Letter Workplan*, dated August 4, 1994, prepared by Blymyer Engineers, Inc.

In October and November 1994, Blymyer Engineers completed a subsurface investigation consisting of a 16-point soil gas survey and the installation of two additional groundwater monitoring wells at the site. The results of the soil gas survey indicated slightly elevated concentrations of petroleum hydrocarbons in the soil gas samples collected from the northeastern corner of the barn and the north-central portion of the property in the vicinity of the lathe house and the on-site irrigation well. The analytical results of the groundwater samples collected from the newly-installed monitoring wells indicated that the extent of petroleum hydrocarbon-contaminated groundwater at the site was generally defined in the upgradient and downgradient directions from monitoring well MW-3 and that petroleum hydrocarbon-contaminated groundwater does not appear to have migrated off the site. A potential on- or off-site source of the petroleum hydrocarbon contamination detected in the groundwater samples collected from monitoring well MW-3 had not been determined. The procedures and results of the investigation are detailed in Blymyer Engineers' *Subsurface Investigation Letter Report*, dated December 16, 1994.

In a letter, dated January 3, 1995, the ACHCSA directed Kawahara Nursery to begin quarterly monitoring of the five site monitoring wells. This report documents the first quarter 1995 (January through March) groundwater monitoring event.

2.0 Data Collection

2.1 Groundwater Sample Collection

A groundwater sample was collected from each of the five on-site groundwater monitoring wells, MW-1 through MW-5 (Figure 2), at the subject site by Blymyer Engineers on March 29, 1995. At least three well volumes of groundwater were removed from each monitoring well, using a disposable polyethylene bailer, prior to sampling. Temperature, pH, and conductivity were measured initially and after the removal of each well volume. Each well was sampled when these parameters were all within 15 percent of the previous measurement for three consecutive well volumes. Details of the well purging and sampling are presented in Appendix A. A slight sheen was noted on the water purged from monitoring well MW-3 during sample collection. The groundwater samples were placed in 40-milliliter glass vials preserved with hydrochloric acid and 1-liter unpreserved amber bottles, labeled, and placed on crushed ice in an insulated container for transportation to the analytical laboratory. The sample containers were provided by the laboratory. Proper chain-of-custody procedures were observed. All purge water was stored in labeled, Department of Transportation-approved, 55-gallon drums for disposal by Kawahara Nursery.

2.2 Groundwater Analytical Methods

The groundwater samples were analyzed for TPH as gasoline and TPH as diesel by modified EPA Method 8015 and for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020. The analyses were performed by GTEL Environmental Laboratories, Inc., a California-certified laboratory, on a standard 5-day turnaround. A summary of the current and past analytical results is presented in Table I. The laboratory analytical report for the current sampling event is presented as Appendix B.

2.3 Groundwater Depth Measurements

The depth from the top of the well casing to the top of the water surface in each monitoring well was measured on March 29, 1995, with an oil-water interface probe. All groundwater elevation measurements are summarized in Table II.

3.0 Data Interpretation

3.1 Discussion of Groundwater Sample Analytical Results

Concentrations of TPH as gasoline, TPH as diesel, and BTEX have not been detected in concentrations above the analytical method reporting limits in the groundwater samples collected from monitoring wells MW-1 and MW-2 since the wells were installed in June 1993, and from monitoring well MW-4 since the well was installed in November 1994. TPH as diesel was detected in the groundwater sample collected from monitoring well MW-5, at 64 µg/L, for the first time since the well was installed in November 1994. Concentrations of TPH as gasoline and BTEX have not been detected in MW-5, in concentrations above analytical method reporting limits, since the well was installed.

The analytical results of the groundwater sample collected from monitoring well MW-3 indicated 18,000 µg/L of TPH as gasoline, 1,600 µg/L of benzene, 1,400 µg/L of toluene, 780 µg/L of ethylbenzene, and 6,200 µg/L of total xylenes. Concentrations of TPH as diesel were not detected above the analytical method reporting limit in well MW-3 for the first time since the well was installed in June 1993. However, the laboratory analytical report of the groundwater sample analyzed for concentrations of TPH as diesel indicated the presence of lighter petroleum hydrocarbons, such as gasoline, displaying a chromatograph pattern uncharacteristic of diesel fuel.

3.2 Groundwater Elevation and Gradient

The elevations of the tops of the monitoring well casings of monitoring wells MW-1 through MW-5 were surveyed to an on-site, fixed common arbitrary datum point on November 22, 1994. Depth to groundwater was measured in all five wells, on March 29, 1995. Table II summarizes the top-of-casing elevations and the groundwater elevation data. The depth to groundwater measurements collected during the March 1995 sampling event indicated a general rise in groundwater across the site of approximately 5 feet. The rise in groundwater at the site is

probably due to the heavy winter rains.

The groundwater flow direction on March 29, 1995, was approximately northwest with an average gradient of 0.003 feet/foot, as shown on Figure 3.

4.0 Summary and Conclusions

- TPH gasoline, TPH as diesel, and BTEX have not been detected, above the analytical method reporting limits in the groundwater samples collected from monitoring wells MW1, MW-2, and MW-4 since the wells were installed.
- TPH as diesel was detected in the groundwater sample collected from monitoring well MW-5 at 64 µg/L, for the first time since the well was installed in November 1994. Concentrations of TPH as gasoline and BTEX have not been detected in monitoring well MW-5 in concentrations above analytical method reporting limits, since the well was installed.
- The analytical results of the groundwater sample collected from monitoring well MW-3 indicated 18,000 µg/L of TPH as gasoline, 1,600 µg/L of benzene, 1,400 µg/L of toluene, 780 µg/L of ethylbenzene, and 6,200 µg/L of total xylenes, which is consistent with the analytical results of the groundwater samples collected from well MW-3 during previous sampling events at the site.
- Concentrations of TPH as diesel above the analytical method reporting limit, were not detected in MW-3 for the first time since installation. However, the laboratory analytical report of the sample analyzed for TPH as diesel indicated the presence of lighter petroleum hydrocarbons such as gasoline, displaying a chromatograph pattern uncharacteristic of diesel fuel.
- Due to heavy winter rains, the groundwater elevation at the site has increased approximately 5 feet. The groundwater gradient at the site was approximately northwest with an average gradient of 0.003 feet/foot.

5.0 Recommendations

- Blymyer Engineers recommends that quarterly groundwater sampling continue at the site through 1995.
- Blymyer Engineers recommends that the laboratory analytical results of the groundwater samples collected during future sampling events from monitoring well MW-5 be closely monitored for the continued presence of detectable concentrations of petroleum hydrocarbon compounds.
- Blymyer Engineers recommends that the groundwater recovered from monitoring well MW-3 during future well purging and sampling events be closely monitored for visual evidence of free-phase petroleum hydrocarbons.
- A copy of this report should be forwarded to:

Ms. Amy Leech
Alameda County Health Care Services Agency
Environmental Protection Division
1131 Harbor Bay Parkway, Room 250
Alameda, CA 94502-6577

Table I. Summary of Groundwater Sample Analytical Results
BEI Job No. 94015, Kawahara Nursery
16550 Ashland Avenue, San Lorenzo, California

Sample ID	Date	Modified EPA Method 8015 (µg/L)		EPA Method 8020 (µg/L)			
		TPH as Gasoline	TPH as Diesel	Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-1	6/16/93	<50	<50	<0.5	<0.5	<0.5	<0.5
	3/28/94	<50	<50	<0.5	<0.5	<0.5	<0.5
	11/8/94	NS	NS	NS	NS	NS	NS
	3/29/95	<50	<50	<0.5	<0.5	<0.5	<0.5
MW-2	6/16/93	<50	<50	<0.5	<0.5	<0.5	<0.5
	3/28/94	<50	<50	<0.5	<0.5	<0.5	<0.5
	11/8/94	NS	NS	NS	NS	NS	NS
	3/29/95	<50	<50	<0.5	<0.5	<0.5	<0.5
MW-3	6/16/93	120,000	170,000	4,600	8,400	2,100	27,000
	3/28/94	23,000	94,000	4,800	6,500	3,000	15,000
	11/8/94	35,000	27,000	3,600	4,100	2,700	18,000
	3/29/95	18,000	<50*	1,600	1,400	780	6,200
MW-4	6/16/93	NS	NS	NS	NS	NS	NS
	3/28/94	NS	NS	NS	NS	NS	NS
	11/8/94	<50	<50	<0.5	<0.5	<0.5	<0.5
	3/29/95	<50	<50	<0.5	<0.5	<0.5	<0.5
MW-5	6/16/93	NS	NS	NS	NS	NS	NS
	3/28/94	NS	NS	NS	NS	NS	NS
	11/8/94	<50	<50	<0.5	<0.5	<0.5	<0.5
	3/29/95	<50	64	<0.5	<0.5	<0.5	<0.5

Notes:

- NS = not sampled
- <x = less than the analytical detection limit (x)
- TPH = Total Petroleum Hydrocarbons
- EPA = Environmental Protection Agency
- µg/L = microgram per Liter
- * = laboratory reported the presence of petroleum hydrocarbons with a chromatograph pattern uncharacteristic of diesel fuel

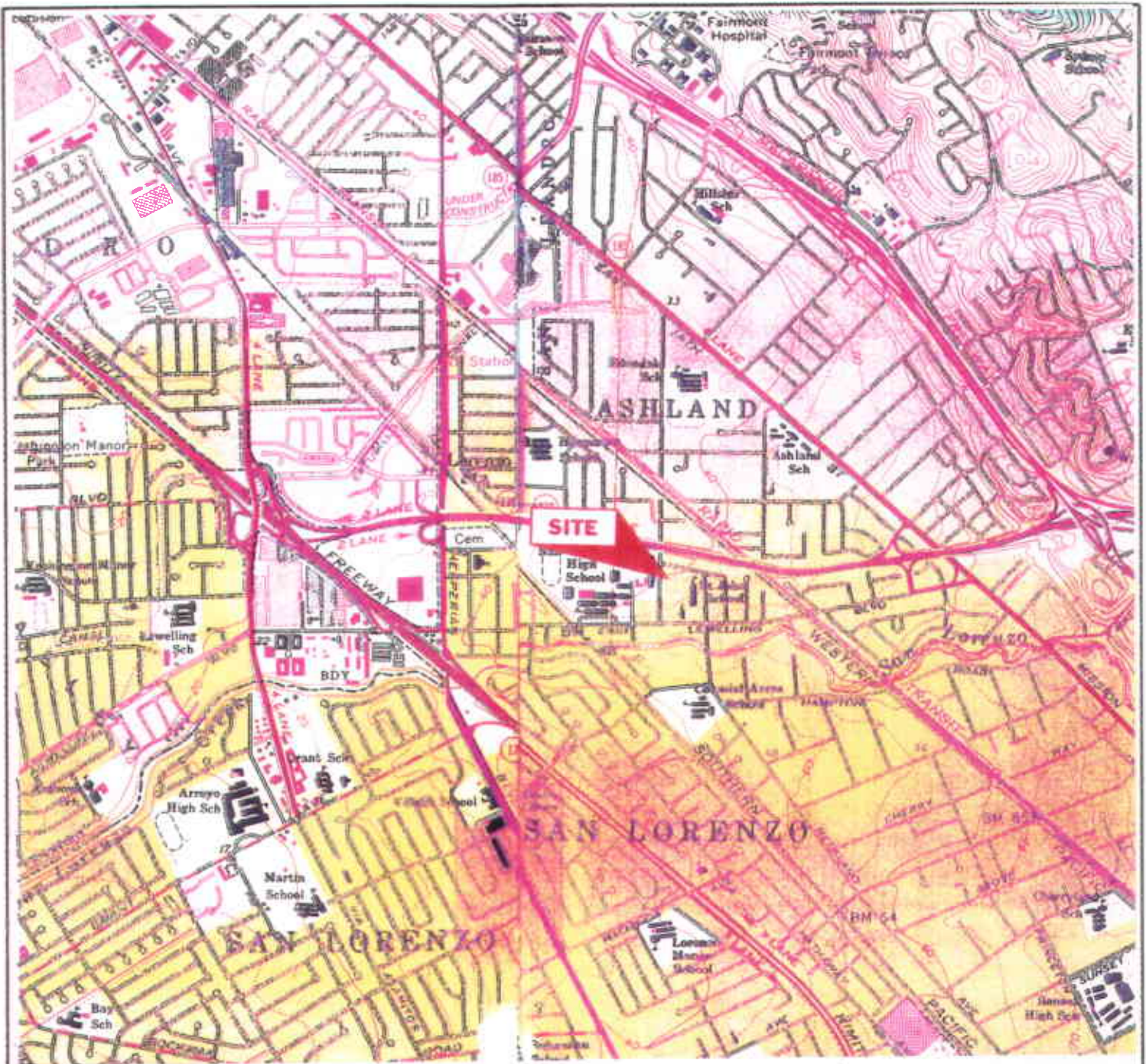
**Table II, Groundwater Elevation Measurements
BEI Job No. 94015, Kawahara Nursery, Inc.
16550 Ashland Avenue, San Lorenzo, California**

Sample ID	Date	TOC Elevation (feet)	Depth to Water (feet)	Water Surface Elevation (feet)
MW-1	6/16/93	100	10.7	89.3
	3/24/94		11.11	88.89
	3/28/94		11.26	88.74
	11/22/94		12.04	87.96
	3/29/95		7.26	92.74
MW-2	6/16/93	99.27	10.24	89.03
	3/24/94		10.65	88.62
	3/28/94		10.79	88.48
	11/22/94		11.58	87.69
	3/29/95		6.93	92.34
MW-3	6/16/93	99.52	10.46	89.06
	3/24/94		10.81	88.71
	3/28/94		10.96	88.56
	11/22/94		11.68	87.84
	3/29/95		6.95	92.57
MW-4	11/22/94	100.46	12.34	88.12
	3/29/95		7.49	92.97
MW-5	11/22/94	98.14	10.42	87.72
	3/29/95		5.76	92.38

Note:

TOC = Top of casing

Elevations in feet above mean sea level



UNITED STATES GEOLOGICAL SURVEY 7.5' QUADS. "SAN LEANDRO, CA" AND "OAKLAND EAST, CA" BOTH PHOTOREVISED 1960.



BB JOB NO. 94015

DATE 12/13/84

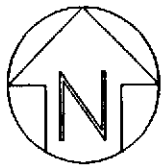


SITE LOCATION MAP
KAWAHARA NURSERY
16550 ASHLAND AVE.
SAN LORENZO, CA

FIGURE

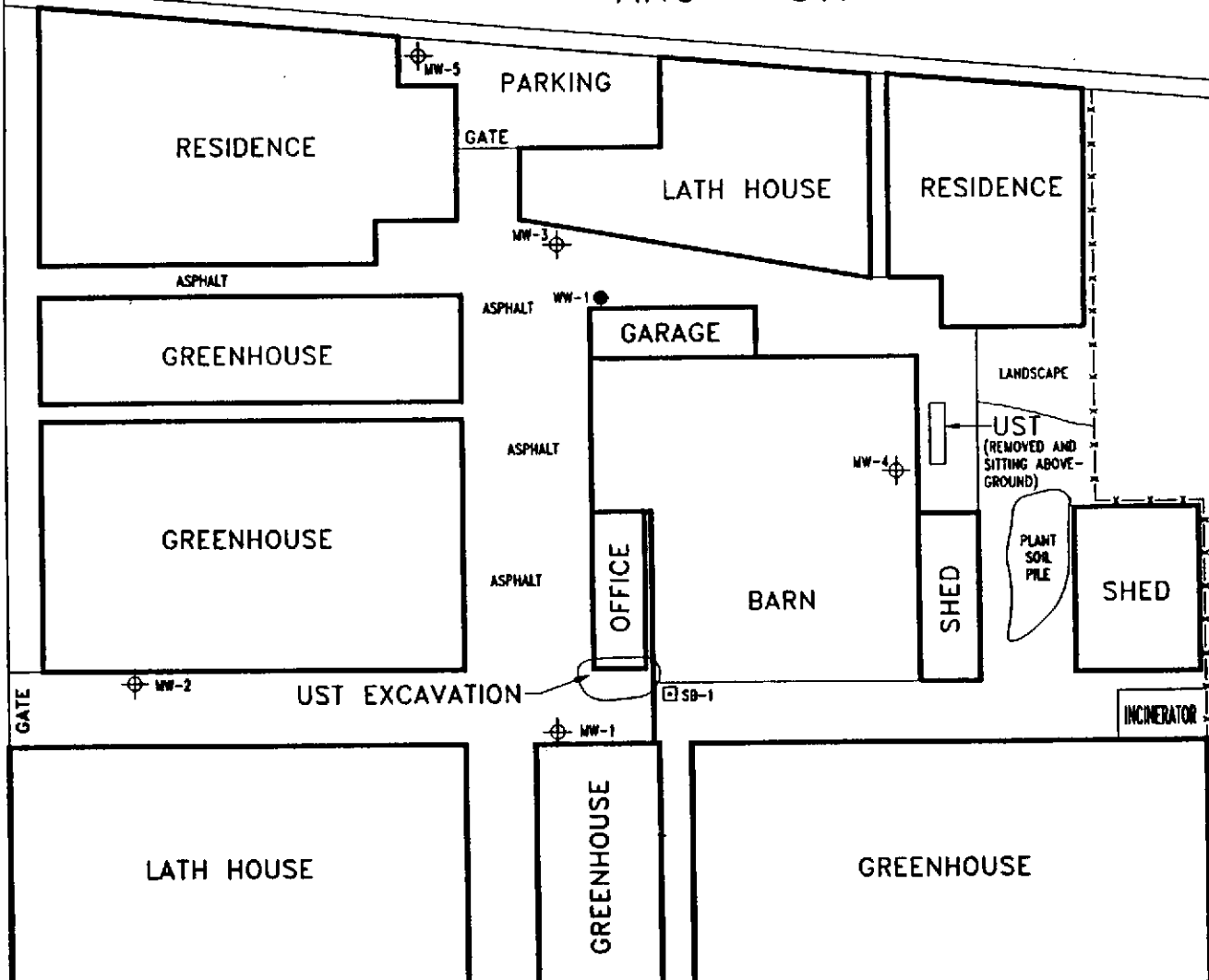
1

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ASHLAND AVENUE

ANO ST.



0 25 50
SCALE IN FEET



BEI JOB NO.
94015

DATE
11/15/94

LEGEND

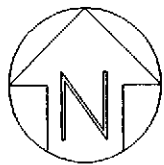
- ⊕ MONITORING WELL
- WATER WELL
- UST UNDERGROUND STORAGE TANK
- SOIL BORE

SITE PLAN
KAWAHARA NURSERY
SAN LORENZO, CA

FIGURE

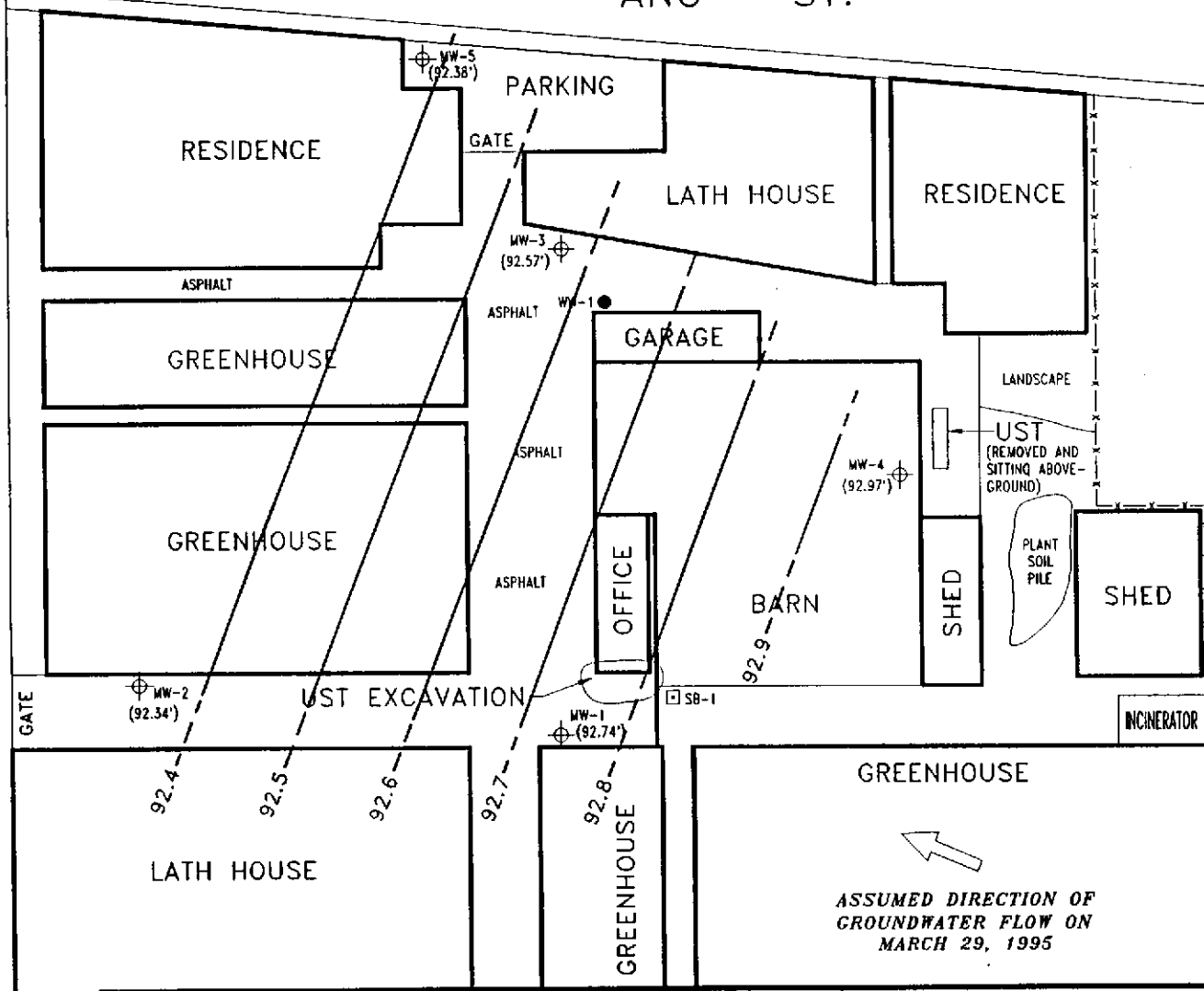
2

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ASHLAND AVENUE

ANO ST.



0 25 50
SCALE IN FEET

<p>BLYMYER ENGINEERS, INC.</p>		<p>LEGEND</p> <ul style="list-style-type: none"> ⊕ MONITORING WELL ● WATER WELL ▭ UST UNDERGROUND STORAGE TANK □ SOIL BORE (92.38') GROUNDWATER ELEVATION --- GROUNDWATER CONTOUR 	<p>GROUNDWATER GRADIENT MARCH 29, 1995 KAWAHARA NURSERY SAN LORENZO, CA</p>
<p>BEI JOB NO. 94015</p>	<p>DATE 4/10/95</p>		

Appendix A: Well Purging and Sampling Data,
dated March 29, 1995

Well Purging and Sampling Data

Date	3/29/95	Project Number	94015	Project Name	Kawahara
Well Number	MW-1	Boring Diameter	N/A	Casing Diameter	2"

Column of Liquid in Well		Volume to be Removed	
Depth to product	N/A	Gallons per foot of casing	= 0.17 gal/ft.
Depth to water	7.26 ft.	Column of water	x 12.24 ft.
Total depth of well	19.50 ft.	Volume of casing	= 2.08 ga.
Column of water	12.24 ft.	No. of volumes to remove	x 3
		Total volume to remove	= 6.24 gal.

Method of measuring liquid	Oil/water interface probe
Method of purging well	Teflon bailer
Method of decontamination	Liqui-nox and distilled water

Physical appearance of water (clarity, color, particulates, odor)	
Initial	Slightly silty, tan color, no odor
During	Silty, tan color, no odor
Final	Silty, tan color, no odor

Field Analysis	Initial	During		Final
Time	10:35	10:41	10:46	10:51
Temperature (F)	60.7	60.9	60.8	61.3
Conductivity (us/cm)	1100	1100	1030	1100
pH	7.52	7.49	7.36	7.38
Method of measurement	Hydac meter			
Total volume purged	6.25 gal.			
Comments				

Sample Number	Amount of Sample
MW-1	3-40ml VOA w/ HCl
	2-1L amber bottles

Signed/Sampler	Date
<i>Steph W. Miller</i>	3/29/95
Signed/Reviewer	Date
<i>Janice S. ...</i>	4/10/95

Well Purging and Sampling Data

Date	3/29/95	Project Number	94015	Project Name	Kawahara
Well Number	MW-2	Boring Diameter	N/A	Casing Diameter	2"

Column of Liquid in Well		Volume to be Removed	
Depth to product	N/A	Gallons per foot of casing	= 0.17 gal/ft.
Depth to water	6.93 ft.	Column of water	x 12.40 ft.
Total depth of well	19.33 ft.	Volume of casing	= 2.11 gal.
Column of water	12.40 ft.	No. of volumes to remove	x 3
		Total volume to remove	= 6.33 gal.

Method of measuring liquid	Oil/water interface probe
Method of purging well	Teflon bailer
Method of decontamination	Liqui-nox and distilled water

Physical appearance of water (clarity, color, particulates, odor)	
Initial	Clear, no odor
During	Silty, tan color, no odor
Final	Silty, tan color, no odor

Field Analysis	Initial	During		Final
Time	09:39	09:44	09:49	09:54
Temperature (F)	63.6	64.0	63.1	63.0
Conductivity (us/cm)	825	950	951	978
pH	6.49	7.06	7.17	7.25
Method of measurement	Hydac meter			
Total volume purged	6.5 gal.			
Comments				

Sample Number	Amount of Sample
MW-2	3-40ml VOA w/ HCl
	2-1L amber bottles

Signed/Sampler	<i>Steph W. Miller</i>	Date	3/29/95
Signed/Reviewer	<i>Janice G. Gosh</i>	Date	4/10/95

Well Purging and Sampling Data

Date	3/29/95	Project Number	94015	Project Name	Kawahara
Well Number	MW-3	Boring Diameter	N/A	Casing Diameter	2"

Column of Liquid in Well		Volume to be Removed	
Depth to product	N/A	Gallons per foot of casing	= 0.17 gal/ft.
Depth to water	6.95 ft.	Column of water	x 12.30 ft.
Total depth of well	19.25 ft.	Volume of casing	= 2.09 gal.
Column of water	12.30 ft.	No. of volumes to remove	x 3
		Total volume to remove	= 6.27 gal.

Method of measuring liquid	Oil/water interface probe
Method of purging well	Disposable polyethylene bailer
Method of decontamination	Liqui-nox and distilled water

Physical appearance of water (clarity, color, particulates, odor)	
Initial	Clear, strong fuel odor, sheen in purge bucket
During	Silty, gray color, strong fuel odor, sheen in purge bucket
Final	Silty, dark gray color, strong fuel odor, sheen in purge bucket

Field Analysis	Initial	During		Final
Time	13:32	13:37	13:43	13:49
Temperature (F)	65.0	64.1	64.2	63.9
Conductivity (us/cm)	1290	1450	1550	1560
pH	7.35	7.11	7.06	7.05
Method of measurement	Hydac meter			
Total volume purged	6.50 gal.			
Comments	Sampled with disposable polyethylene bailer			

Sample Number	Amount of Sample
MW-3	3-40ml VOA w/ HCl
	2-1L amber bottles

Signed/Sampler	<i>Steph W. Moore</i>	Date	3/29/95
Signed/Reviewer	<i>Janice Selman</i>	Date	4/10/95

Well Purging and Sampling Data

Date	3/29/95	Project Number	94015	Project Name	Kawahara
Well Number	MW-4	Boring Diameter	N/A	Casing Diameter	2"

Column of Liquid in Well		Volume to be Removed	
Depth to product	N/A	Gallons per foot of casing	= 0.17 gal/ft.
Depth to water	7.49 ft.	Column of water	x 12.26 ft.
Total depth of well	19.75 ft.	Volume of casing	= 2.08 gal.
Column of water	12.26 ft.	No. of volumes to remove	x 3
		Total volume to remove	= 6.24 gal.

Method of measuring liquid	Oil/water interface probe
Method of purging well	Teflon bailer
Method of decontamination	Liqui-nox and distilled water

Physical appearance of water (clarity, color, particulates, odor)	
Initial	Clear, no odor
During	Slightly silty, tan color, no odor
Final	Silty, tan color, no odor

Field Analysis	Initial	During		Final
Time	11:42	11:46	11:50	11:55
Temperature (F)	62.6	61.7	61.5	61.2
Conductivity (us/cm)	1180	1170	1170	1160
pH	7.45	7.38	7.33	7.29
Method of measurement	Hydac meter			
Total volume purged	6.25 gal.			
Comments				

Sample Number	Amount of Sample
MW-4	3-40ml VOA w/ HCl
	2-1L amber bottles

Signed/Sampler	Date
<i>Stephen W. White</i>	3/29/95
Signed/Reviewer	Date
<i>James G. Johnson</i>	4/10/95

Well Purging and Sampling Data

Date	3/29/95	Project Number	94015	Project Name	Kawahara
Well Number	MW-5	Boring Diameter	N/A	Casing Diameter	2"

Column of Liquid in Well		Volume to be Removed	
Depth to product	N/A	Gallons per foot of casing	= 0.17 gal/ft.
Depth to water	5.76 ft.	Column of water	x 14.24 ft.
Total depth of well	20.00 ft.	Volume of casing	= 2.42 gal.
Column of water	1424 ft.	No. of volumes to remove	x 3
		Total volume to remove	= 7.26 ga.

Method of measuring liquid	Oil/water interface probe
Method of purging well	Disposable polyethylene bailer
Method of decontamination	Liqui-nox and distilled water

Physical appearance of water (clarity, color, particulates, odor)	
Initial	Clear, no odor
During	Slightly silty, tan color, no odor
Final	Silty, tan color, no odor

Field Analysis	Initial	During		Final
Time	12:41	12:47	12:52	12:58
Temperature (F)	64.7	63.0	62.9	62.8
Conductivity (us/cm)	1070	1050	1040	1020
pH	7.55	7.52	7.59	7.61
Method of measurement	Hydac meter			
Total volume purged	7.5 gal.			
Comments	Sampled with disposable polyethylene bailer			

Sample Number	Amount of Sample
MW-5	3-40ml VOA w/ HCl
	2-1L amber bottles

Signed/Sampler	Date
<i>Stephen W. Miller</i>	3/29/95
Signed/Reviewer	Date
<i>Janet Johnson</i>	4/10/95

Appendix B: GTEL Environmental Laboratories, Inc.

dated March 31, April 1, and April 2, 1995

GTEL Client ID: BEI01BEI01
 Login Number: C5030364
 Project ID (number): 94015
 Project ID (name): Kawahara/San Lorenzo, CA

ANALYTICAL RESULTS

Volatile Organics
 Method: EPA 8020
 Matrix: Aqueous

GTEL Sample Number	C5030364-02	C5030364-03	C5030364-04	C5030364-05
Client ID	MW-2	MW-1	MW-4	MW-5
Date Sampled	03/29/95	03/29/95	03/29/95	03/29/95
Date Analyzed	04/01/95	03/31/95	03/31/95	03/31/95
Dilution Factor	1.00	1.00	1.00	1.00

Analyte	Reporting		Concentration:			
	Limit	Units				
Benzene	0.5	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.5	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.5	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes (total)	0.5	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
TPH as GAS	50.	ug/L	< 50.	< 50.	< 50.	< 50.
BFB (Surrogate)	--	%	90.5	93.3	92.2	91.9

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8020:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition including promulgated Update 1. Gasoline Range Hydrocarbons (TPH) quantitated by GC/FID with purge and trap. Acceptability limits for recovery in the Bromofluorobenzene (BFB) surrogate is 62-129%.

GTEL Concord, CA
 C5030364:1



GTEL Client ID: BEI01BEI01
 Login Number: C5030364
 Project ID (number): 94015
 Project ID (name): Kawahara/San Lorenzo, CA

ANALYTICAL RESULTS

Volatile Organics
 Method: EPA 8020
 Matrix: Aqueous

GTEL Sample Number	C5030364-06	--	--	--
Client ID	MW-3	--	--	--
Date Sampled	03/29/95	--	--	--
Date Analyzed	04/02/95	--	--	--
Dilution Factor	25.0	--	--	--

Analyte	Reporting		Concentration:			
	Limit	Units				
Benzene	0.5	ug/L	1600	--	--	--
Toluene	0.5	ug/L	1400	--	--	--
Ethylbenzene	0.5	ug/L	780	--	--	--
Xylenes (total)	0.5	ug/L	6200	--	--	--
TPH as GAS	50.	ug/L	18000	--	--	--
BFB (Surrogate)	--	%	92.1	--	--	--

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8020:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition including promulgated Update 1. Gasoline Range Hydrocarbons (TPH) quantitated by GC/FID with purge and trap. Acceptability limits for recovery in the Bromofluorobenzene (BFB) surrogate is 62-129%.

GTEL Concord, CA
 C5030364:2



GTEL Client ID: BEI01BEI01
Login Number: C5030364
Project ID (number): 94015
Project ID (name): Kawahara/San Lorenzo, CA

QUALITY CONTROL RESULTS

Volatile Organics
Method: EPA 8020
Matrix: Aqueous

Method Blank Results

QC Batch No: M033195-1
Date Analyzed: 31-MAR-95

Analyte	Method: EPA 8020	Concentration: ug/L
Benzene	< 0.30	
Toluene	< 0.30	
Ethylbenzene	< 0.30	
Xylenes (Total)	< 0.50	
Naphthalene	< 20	
TPH as Gasoline	< 50	

Notes:

ANALYTICAL RESULTS

Total Petroleum Hydrocarbons as Diesel in Water

Modified EPA Methods 3510/8015^a

GTEL Sample Number		02	03	04	05
Client Identification		MW-2	MW-1	MW-4	MW-5
Date Sampled		03/29/95	03/29/95	03/29/95	03/29/95
Date Extracted		04/01/95	04/01/95	04/01/95	04/01/95
Date Analyzed		04/06/95	04/06/95	04/06/95	04/06/95
Analyte	Detection Limit, ug/L	Concentration, ug/L			
TPH as Diesel	50	<50	<50	<50	64
Detection Limit Multiplier		1	1	1	1
O-Terphenyl surrogate, % recovery		113	122	102	97.8

GTEL Sample Number		06 ^b	GCKB4-5		
Client Identification		MW-3	METHOD BLANK		
Date Sampled		03/29/95	--		
Date Extracted		04/01/95	04/01/95		
Date Analyzed		04/06/95	04/05/95		
Analyte	Detection Limit, ug/L	Concentration, ug/L			
TPH as Diesel	50	<50	<50		
Detection Limit Multiplier		1	1		
O-Terphenyl surrogate, % recovery		94.6	89.7		

- a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986.
- b. Hydrocarbon not characteristic of diesel.

BLMYER

ENGINEERS, INC.

1829 Clement Avenue

Alameda, CA 94501 (510) 521-3773

FAX (510) 865-2594



CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

JOB # 74015		PROJECT NAME/LOCATION Kawahara/San Lorenzo CA												TURNAROUND TIME: <u>Standard</u> DAY(S)	
SAMPLERS (SIGNATURE) <i>Stephen W Moore</i>														REMARKS:	
DATE	TIME	COMP	GRAB	SAMPLE NAME/LOCATION	LAB #	# OF CONTAINERS	TPH AS GASOLINE + BTXE (MOD EPA 8015/8020)	TPH AS DIESEL (MOD EPA 8015)	VOC (EPA 624/8240)	SEMI-VOC (EPA 625/8270)	TRPH (EPA 418.1)	BTXE (EPA 8020/607)	HOLD	TEMPERATURE	
3/29/95	0845		X	BB-1	01	5							X	2°C	
3/29/95	1010		X	MW-2 ✓	02	5	X	X						3°C	
3/29/95	1108		X	MW-1 ✓	03	5	X	X						3°C	
3/29/95	1210		X	MW-4 ✓	04	5	X	X						3°C	
3/29/95	1325		X	MW-5 ✓	05	5	X	X						4°C	
3/29/95	1410		X	MW-3 ✓	06	5	X	X						4°C	
														CONTAINERS INTAKES ON ICE AS 4°C	
														C5030364	
REQUESTED BY: Laurie Bulckman						RESULTS AND INVOICE TO: Blymyer Engineers, Inc									
RELINQUISHED BY: (SIGNATURE) <i>Stephen W Moore</i>			DATE / TIME 3/30/95 1047		RECEIVED BY: (SIGNATURE) <i>John Weber</i>			RELINQUISHED BY: (SIGNATURE) <i>John Weber</i>			DATE / TIME 3/30 12:40		RECEIVED BY: (SIGNATURE)		
RELINQUISHED BY: (SIGNATURE) <i>[Signature]</i>			DATE / TIME		RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>Bruce [Signature]</i>			DATE / TIME 3/30/95 12:00		REMARKS: GTCL					

WHITE: Accompany Sample YELLOW: BEI, After Lab Signs PINK: Original Sampler