Quarterly Groundwater Monitoring Report
First Quarter 1999 (January through March)

Kawahara Nursery
16550 Ashland Avenue
San Lorenzo, California

April 13, 1999 BEI Job No. 94015

Prepared by:

Blymyer Engineers, Inc.
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Alameda, CA 94501

Client:

Kawahara Nursery, Inc.
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Limitations

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Blymyer Engineers, Inc.

By:_____

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Senior Geologist

And:_____

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1.0 Introduction

1.1 Previous Work

On December 1, 1992, one steel 5,000-gallon underground storage tank (UST) was removed from the property owned by Kawahara Nursery, located at 16550 Ashland Avenue, San Lorenzo, California, (Figure 1). The UST, used to store diesel, was reported to be in good condition at the time of removal with no visible evidence of holes. 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 of TPH as diesel.

The results of the UST closure were described in the *Underground Storage Tank Closure Report*, prepared by Tank Protect Engineering. The report was 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 to ascertain the extent of soil and groundwater petroleum hydrocarbon contamination at the site.

On June 10, 1993, Blymyer Engineers supervised the installation of three groundwater monitoring wells (MW-1, MW-2, and MW-3). Minor concentrations of petroleum hydrocarbons were detected in the soil samples collected from soil bores MW-1 and MW-2, and higher concentrations were detected in the samples collected near the water-bearing zone in soil bore MW-3. The groundwater sample collected from monitoring well MW-3, installed adjacent to an on-site irrigation well, contained TPH as gasoline, as well as benzene, toluene, ethylbenzene, and xylenes (BTEX).

In March 1994, Blymyer Engineers conducted a second phase of investigation at the site, which consisted of:

- Review of records at the ACHCSA and the Regional Water Quality Control Board to determine if any toxic chemical or fuel leaks reported within a ¼-mile radius may have impacted the site

- Review of historical aerial photographs

- Performance of field tests to assess whether pumping of the on-site irrigation well would influence the shallow water-bearing zone; the construction details of the irrigation well were also reviewed

A review of the aerial photographs of the site and surrounding area indicated that the site was occupied by the nursery from the early 1920's to the present time. The area surrounding the site consisted of open farm land and residences prior to the 1920s. No potential upgradient sources of contamination were identified during the review of the local regulatory agency records.

The construction log of the on-site irrigation well indicated that the well is screened from approximately 45 to 60 feet below ground surface (bgs). On the basis of limited field tests, pumping of the irrigation well apparently does not have a significant influence on shallow groundwater beneath the site. Furthermore, petroleum hydrocarbons were not detected in the groundwater samples collected from the irrigation well.

In response to Blymyer Engineers' *Preliminary Site Assessment, Phase I Subsurface Investigation* report and *Subsurface Investigation Status Report*, the ACHCSA requested full delineation of the extent of petroleum hydrocarbons in the groundwater at the site and in the soil adjacent to the diesel UST excavation. 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 (MW-4 and MW-5). All five wells were sampled by Blymyer Engineers during the first three quarters of 1995 (Table I). As of September 1995, the results of the additional site investigation and groundwater monitoring indicated that:

- Slightly elevated concentrations of petroleum hydrocarbons were detected in the soil gas samples collected from the northeastern corner of the barn and near the lath house

- TPH as gasoline, TPH as diesel, and BTEX had not been detected in groundwater samples collected from monitoring wells MW-1, MW-2, or MW-4

- TPH as diesel was detected in the MW-5 groundwater sample only during the March 1995 sampling event; TPH as gasoline and BTEX had not been detected in samples from MW-5

- Groundwater samples from MW-3 contained 17,000 micrograms per liter (μg/L) TPH as gasoline, 1,100 μg/L of benzene, 800 μg/L of toluene, 570 μg/L of ethylbenzene, and 4,800 μg/L of total xylenes, but no detectable TPH as diesel

- The direction of groundwater flow in September 1995 was estimated to be northwest with an average gradient of 0.004 feet/foot

- Groundwater analytical results indicated that the extent of petroleum hydrocarbon contamination was generally defined in the upgradient and downgradient directions from monitoring well MW-3, and that contaminated groundwater apparently had not migrated off the site

- The presence of TPH as gasoline in groundwater samples from MW-3 suggested that there was another source of petroleum hydrocarbons, other than the diesel UST that was removed from the site in 1992

According to information obtained from the property owners (the Kawaharas), a 1,000-gallon gasoline UST was previously located in the vicinity of the lath house (north of MW-3 and upgradient of MW-5). The UST was reportedly removed from the site shortly after Kawahara Nursery occupied the property.

1.2 Current Investigation

On June 3, 1997, Blymyer Engineers submitted the *Workplan for Additional Site Characterization and Site Risk Classification* (Workplan) to the ACHCSA. In a letter dated June 6, 1997, the ACHCSA requested that several additional tasks be included in the Workplan. On June 12, 1997, Blymyer Engineers submitted the *Revised Workplan for Additional Site Characterization* (Revised Workplan), which addressed the ACHCSA requirements. The purpose of the current phase of the site investigation is to:

- Resume quarterly groundwater monitoring and sampling of MW-3, MW-4, and MW-5
- Conduct a geophysical survey in an attempt to locate the gasoline UST or its former basin
- Conduct an additional investigation in the vicinity of the former gasoline UST by advancing approximately 6 Geoprobe soil bores
- Decommission monitoring wells MW-1 and MW-2, as approved by the ACHCSA
- Analyze soil and groundwater samples to evaluate the potential for natural attenuation (aerobic and anaerobic biodegradation)
- Determine if the site can be classified in the "low risk groundwater" category as defined by the San Francisco Bay Regional Water Quality Control Board (SFRWQCB)
- If appropriate, evaluate the risk to human health and the environment

This report presents the results of the geophysical survey and groundwater monitoring conducted during the first quarter, 1999. In addition, Blymyer Engineers presents the proposed Geoprobe soil bore locations, to be installed at the site pending approval by the ACHCSA.

2.0 Data Collection

In March 1999, Blaine Tech Services, Inc. (BT) conducted groundwater gauging and sampling at Kawahara Nursery under contract to Blymyer Engineers. The BT *Standard Operating Procedures* for groundwater gauging and sampling are included in Appendix A.

2.1 Groundwater Gauging

On March 4, 1999, BT personnel measured the depth to groundwater in wells MW-2, MW-3, MW-4, and MW-5 (Figure 2). The groundwater was gauged with an accuracy of 0.01 feet from the top of casing using an oil-water interface probe. Groundwater measurements are presented in Table II and Figure 3, and are included on the Well Gauging and Well Monitoring Data Sheets presented in Appendix B. No water level measurements were obtained from MW-1 because the well was inaccessible (racks of plants were stored on top of the well).

2.2 Groundwater Sampling and Analysis

BT collected groundwater samples from wells MW-3, MW-4, and MW-5 on March 4, 1999. Prior to purging the wells, the dissolved oxygen content was measured using a field instrument. Each well was then purged by removing a minimum of three well casing volumes of groundwater. The temperature, pH, turbidity, and conductivity of the purge water were measured after each well volume had been removed. The amount of groundwater purged from each well was considered sufficient when the parameters appeared to be stable.

Groundwater samples were collected from each monitoring well, then decanted into the appropriate containers. The samples were labeled and placed in a cooler with ice for transport to Entech Analytical Labs, Inc. of Sunnyvale, California, under chain-of-custody documentation. All purged groundwater was placed in labeled, 55-gallon capacity, Department of Transportation-approved steel drums. The samples were to be analyzed for the following compounds:

- TPH as gasoline (EPA Method 8015M)
- TPH as diesel (EPA Method 8015M)
- BTEX (EPA Method 8020).
- Methyl tert-butyl ether (MTBE; EPA Method 8020)
- Carbon dioxide (EPA Method 310.1)
- Dissolved ferrous iron (SM 3500)
- Nitrate-Nitrogen (EPA Method 353.3)
- Alkalinity (EPA Method 310.1)
- Sulfates (EPA Method 375.4)

Because the sample holding times were exceeded for the carbon dioxide, dissolved ferrous iron, and nitrate-nitrogen analyses, monitoring wells MW-3, MW-4, and MW-5 were purged and re-sampled (for those parameters only) on March 8, 1999.

2.3 Geophysical Survey

On March 1, 1999, JR Associates conducted a geophysical survey at the site under the supervision of Blymyer Engineers. The purpose of the survey was to search for geophysical indications of the 1,000-gallon gasoline UST or the former UST basin.

JR Associates conducted the survey using a magnetometer grid with 7-foot centers and ground-penetrating radar grid with 5-foot centers. The area investigated was approximately 60 feet wide by 70 feet long in the vicinity of the lath house and parking lot (Figures 2 and 4).

3.0 Results

3.1 Groundwater Elevations and Gradient

Table II and Figure 3 present groundwater gauging data collected on March 4, 1999. The depth to groundwater ranged from 6.63 feet below the top of casing (BTOC) in monitoring well MW-5 to 8.03 feet BTOC in MW-4. The average groundwater gradient was 0.005 feet/foot toward the northwest, with the gradient being somewhat flatter on the north side of the site.

3.2 Groundwater Sample Analytical Results

Results of groundwater analyses are presented in Appendix C, and are summarized in Table I and Table III. Groundwater samples from monitoring wells MW-4 and MW-5 did not contain TPH as gasoline, TPH as diesel, BTEX, or MTBE concentrations above the detection reporting limits (DRLs).

The sample from MW-3 contained 1,300 μg/L TPH as gasoline, 33 μg/L benzene, 1.2 μg/L ethylbenzene, 17 μg/L xylenes, and 5.3 μg/L MTBE. TPH as diesel and toluene were not detected in concentrations exceeding their respective DRLs. Compared to the September 1995 groundwater analytical results, the concentrations of petroleum hydrocarbons were significantly lower during the March 1999 sampling event.

Table III presents the analytical results of natural attenuation indicators. Dissolved oxygen was present in pre-purge groundwater in concentrations ranging from 1.2 milligrams per liter (mg/L) in monitoring well MW-3 to 2.1 mg/L in the groundwater sample from MW-4. The depleted oxygen concentrations in groundwater from MW-3 indicates that natural attenuation is likely proceeding under slightly anaerobic conditions. Natural attenuation indicators will be monitored over the next three quarters to assess the average concentrations of indicators. When adequate data has been collected, the significance of the natural attenuation parameters will be evaluated and discussed.

3.3 Results of Geophysical Survey

The results of the geophysical survey are included as Appendix D. Two magnetic anomalies were located in the vicinity of the west end of the lath house, and metal pipes were located near MW-3 and MW-5 (Figure 4 and Appendix D). Results of the ground-penetrating radar survey were less conclusive, and did not indicate what the source of the magnetic anomalies were.

On the basis of JR Associates' interpretation of the data, they could not determine whether the magnetic anomalies resulted from metal debris or an UST that was still in place. The anomalies were marked in the field with paint.

4.0 Conclusions and Recommendations

The following conclusions can be made on the basis of groundwater monitoring and the geophysical survey conducted during March 1999:

- Of the three monitoring wells sampled, only the sample from MW-3 contained detectable concentrations of petroleum hydrocarbons; the contaminant appears to be gasoline rather than diesel

- The contaminant concentrations detected in the MW-3 sample were significantly lower than those detected during the September 1995 sampling event

- The direction of groundwater flow appears to be toward the northwest

- On the basis of the geophysical survey, buried metal objects appear to be present in two locations near the west end of the lath house

Blymyer Engineers recommends continuing the subsurface investigation of Kawahara Nursery by advancing six Geoprobe soil bores at the site. The attached maps (Figures 2 and 4) indicate the proposed Geoprobe locations (PSB-2 through PSB-7), as described in the Revised Workplan. Upon receiving the ACHCSA's approval of these locations, Blymyer Engineers will obtain drilling permits on behalf of Kawahara Nursery and proceed to schedule the field investigation.

A copy of this report has been forwarded to:

Mr. Amir Gholami
Alameda County Health Care Services Agency
Environmental Protection Division
1131 Harbor Bay Parkway, Suite 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	B	T	E	X	MTBE
MW-1	6/16/93	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	3/28/94	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	11/8/94	NS	NS	NS	NS	NS	NS	NS
	3/29/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	6/7/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	9/7/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	3/4/99	NS	NS	NS	NS	NS	NS	NS
MW-2	6/16/93	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	3/28/94	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	11/8/94	NS	NS	NS	NS	NS	NS	NS
	3/29/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	5/7/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	9/7/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	3/4/99	NS	NS	NS	NS	NS	NS	NS
MW-3	6/16/93	120,000	170,000	4,600	8,400	2,100	27,000	NS
	3/28/94	23,000	94,000	4,800	6,500	3,000	15,000	NS
	11/8/94	35,000	27,000	3,600	4,100	2,700	18,000	NS
	3/29/95	18,000	<50*	1,600	1,400	780	6,200	NS
	6/7/95	20,000	<50	1,700	1,400	750	6,800	NS
	9/7/95	17,000	<50	1,100	800	570	4,800	NS
	3/4/99	1,300	<50	33	<0.5	1.2	17	5.3
MW-4	6/16/93	NS	NS	NS	NS	NS	NS	NS
	3/28/94	NS	NS	NS	NS	NS	NS	NS
	11/8/94	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	3/29/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	6/7/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	9/7/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	3/4/99	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0

Such as pump on mw-3

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	B	T	E	X	MTBE
MW-5	6/16/93	NS	NS	NS	NS	NS	NS	NS
	3/28/94	NS	NS	NS	NS	NS	NS	NS
	11/8/94	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	3/29/95	<50	64	<0.5	<0.5	<0.5	<0.5	NS
	6/7/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	9/7/95	<50	<50	<0.5	<0.5	<0.5	<0.5	NS
	3/4/99	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0

Notes:

µg/L	=	Micrograms per liter
TPH	=	Total Petroleum Hydrocarbons
B	=	Benzene
T	=	Toluene
E	=	Ethylbenzene
X	=	Total Xylenes
MTBE	=	Methyl tert-butyl ether
NS	=	not sampled
<x	=	less than the analytical detection limit (x)
EPA	=	Environmental Protection Agency
*	=	laboratory reported the presence of petroleum hydrocarbons with a chromatograph pattern uncharacteristic of diesel fuel

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

Well 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
	6/7/95		8.67	91.33
	9/7/95		10.56	89.44
	3/4/99		Not Measured	Not Measured
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
	6/7/95		8.36	90.91
	9/7/95		10.18	89.09
	3/4/99		6.95	92.32
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
	6/7/95		8.48	91.04
	9/7/95		10.30	89.22
	3/4/99		7.98	91.54
MW-4	11/22/94	100.46	12.34	88.12
	3/29/95		7.49	92.97
	6/7/95		8.95	91.51
	9/7/95		10.88	89.58
	3/4/99		8.03	92.43

Table IL Summary of Groundwater Elevation Measurements
BEI Job No. 94015, Kawahara Nursery, Inc.
16550 Ashland Avenue, San Lorenzo, California

Well ID	Date	TOC Elevation (feet)	Depth to Water (feet)	Water Surface Elevation (feet)
MW-5	11/22/94	98.14	10.42	87.72
	3/29/95		5.76	92.38
	6/7/95		7.33	90.81
	9/7/95		9.11	89.03
	3/4/99		6.63	91.51

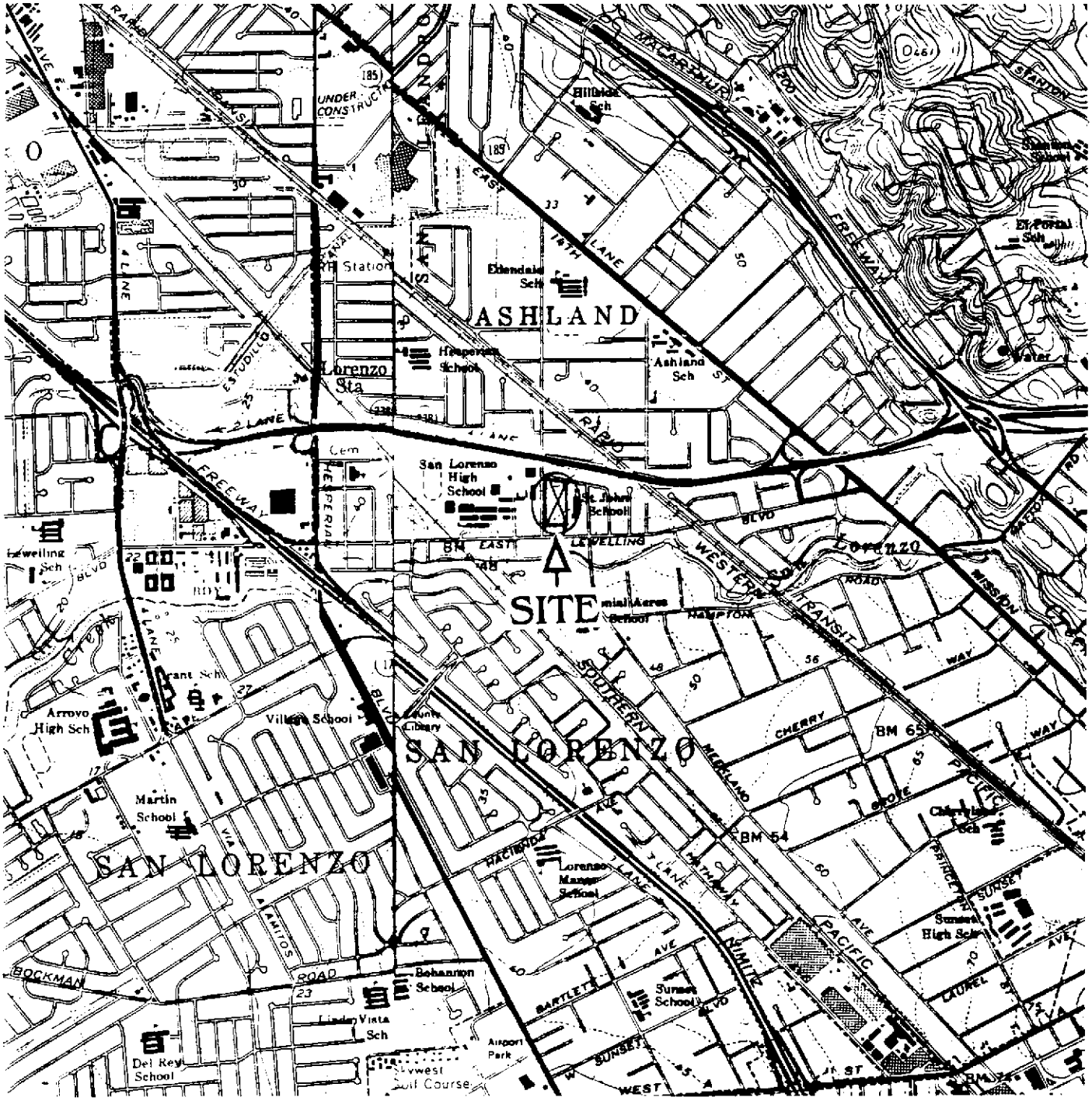
Note: TOC = Top of casing Elevations in feet above mean sea level

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

Sample ID	Date	EPAM 310.1	SM 3500	EPAM 353.3	EPAM 310.1	EPAM 375.4	Field	Field
		Carbon Dioxide (mg/L)	Ferrous Iron (mg/L)	Nitrate/ Nitrogen (mg/L)	Alkalinity (mg/L)	Sulfate (mg/L)	Dissolved Oxygen (mg/L)	Eh (Eh units)
MW-1	3/4/99	NS	NS	NS	NS	NS	NS	NS
MW-2	3/4/99	NS	NS	NS	NS	NS	NS	NS
MW-3	3/4/99 3/8/99	4.4	<0.01	26	520	1,000	1.2	NS
MW-4	3/4/99 3/8/99	2.3	<0.01	13	320	390	2.1	NS
MW-5	3/4/99 3/8/99	2.1	<0.01	140	370	500	1.8	NS

Notes

NS = Not sampled
EPAM = Environmental Protection Agency Method
Field = Field instruments used for measurement of parameter
mg/L = Milligrams per liter
Eh = Oxidation/reduction potential



UNITED STATES GEOLOGICAL SURVEY 7.5' QUADS. "SAN LEANDRO, CA" AND "HAYWARD, CA" BOTH ED. 1959 , PHOTOREVISED 1980.

BLYMYER ENGINEERS, INC.

BEI JOB NO. 94015

DATE 4-9-99

0 1000 2000

SCALE IN FEET

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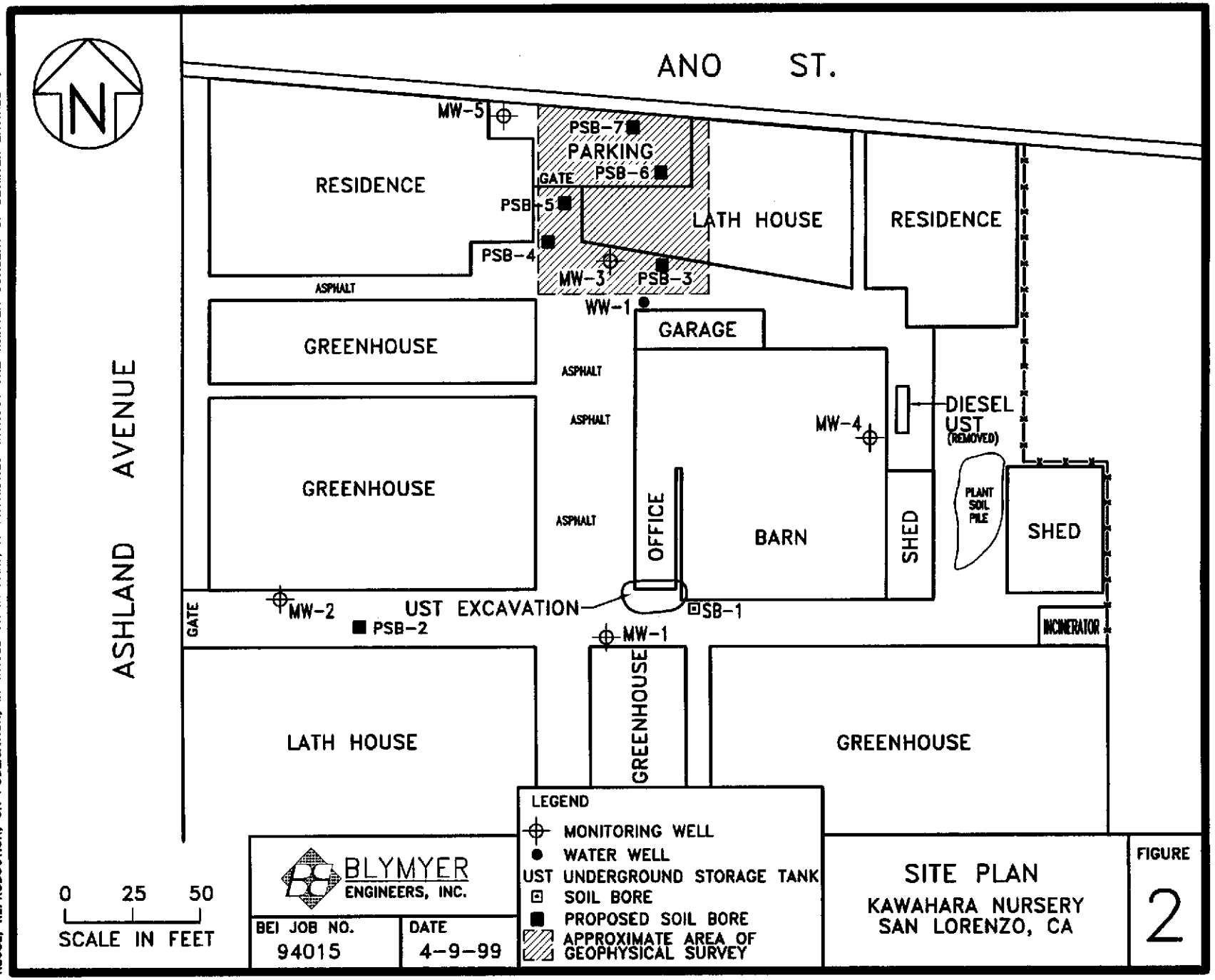
SITE LOCATION MAP

KAWAHARA NURSERY
16550 ASHLAND AVE.
SAN LORENZO, CA

FIGURE 1



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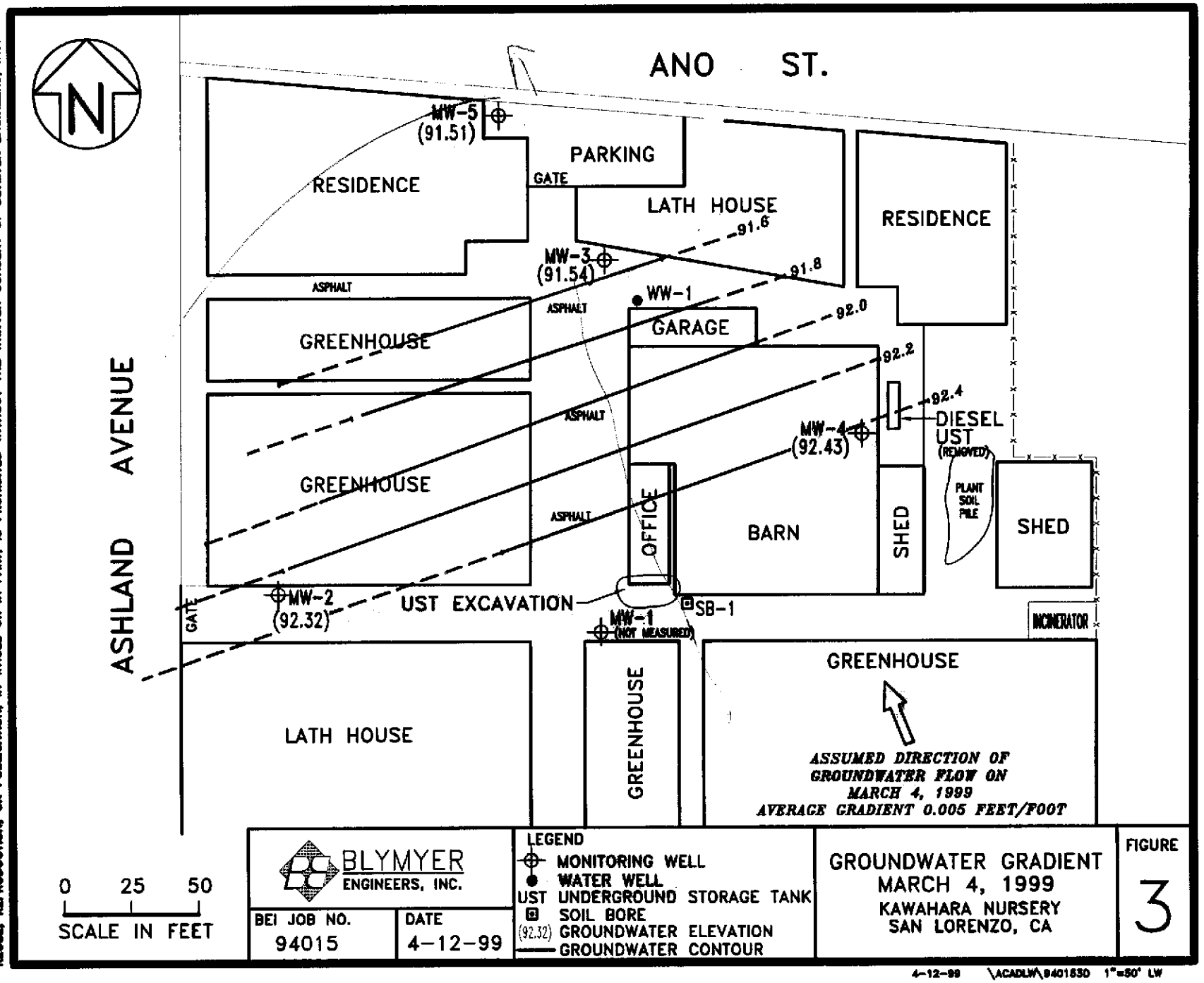

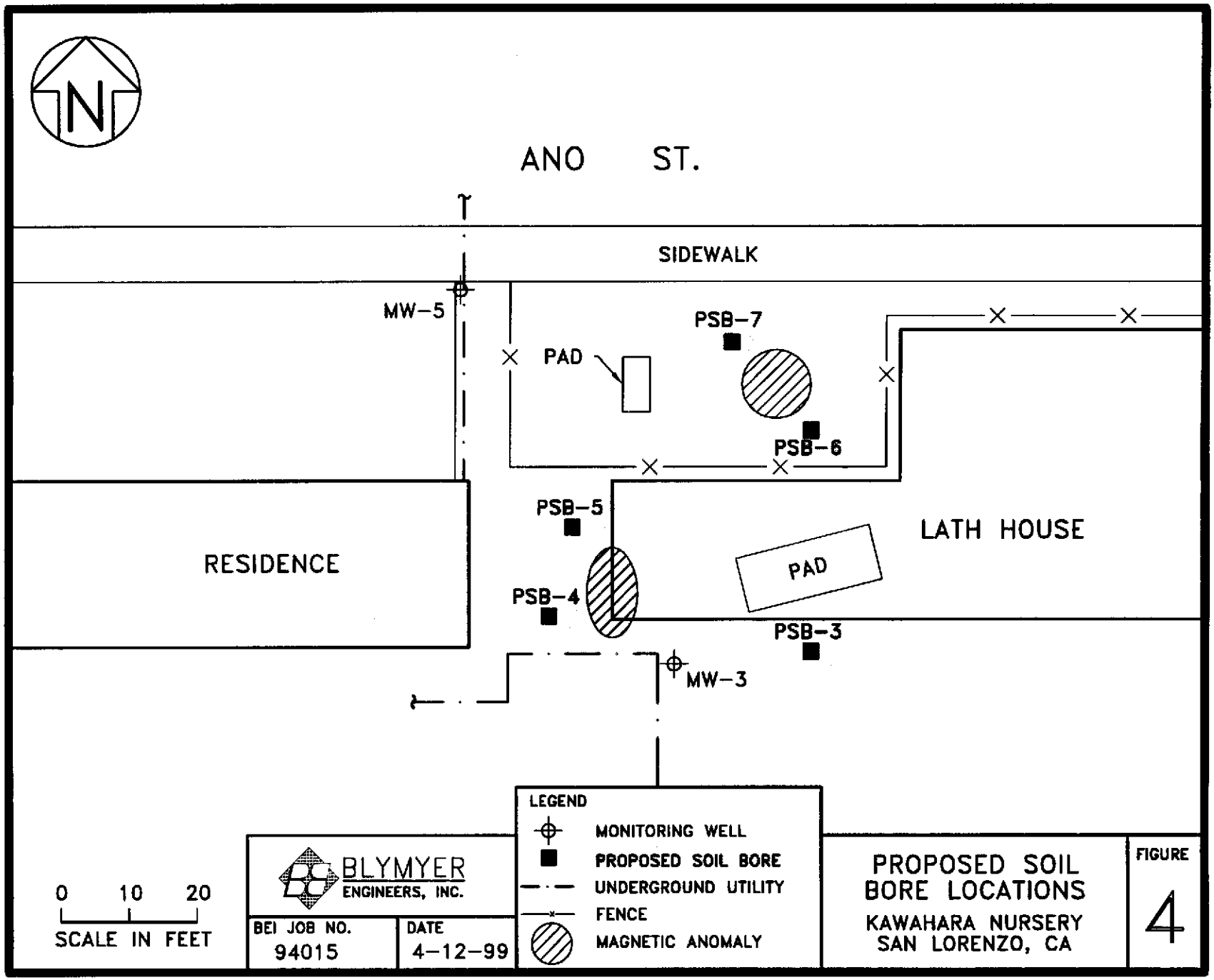

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Appendix A:
Standard Operating Procedures, Blaine Tech Services, Inc.

SUMMARY OVERVIEW OF

STANDARD OPERATING PROCEDURES

FOR THE ROUTINE MONITORING OF GROUNDWATER WELLS

APPLIES TO WELLS WHICH ARE SAMPLED AND ANALYZED
FOR COMPOUNDS ASSOCIATED WITH
PETROLEUM FUELS,
HEAVY METALS,
CHLORINATED SOLVENTS AND
PRIORITY POLLUTANTS
AND OTHER COMMON CONTAMINANTS
RELATED TO INDUSTRY, AGRICULTURE, COMMERCE AND LANDFILL OPERATIONS

REVISED AND REISSUED SEPTEMBER 10, 1995

1. OBJECTIVE INFORMATION

Blaine Tech Services, Inc. performs specialized environmental sampling and documentation as an independent third party. We intentionally limit the scope of our activities and are primarily engaged in the execution of technical assignments which generate objective information. To avoid conflicts of interest which might compromise our impartiality, Blaine Tech Services, Inc. makes no recommendations, does not participate in the interpretation of analytical results and performs no consulting of any kind.

2. SPECIFIC ASSIGNMENTS

All work is performed in accordance with the specific request, authorization and informed consent of the client who may be the property owner, the responsible party or the professional consultant overseeing work at the particular site. The scope of services is defined in individual one-time work orders or in contracts which reference compliance with regulatory requirements, particular client specifications and conformance with our own Standard Operating Procedures. Decisions about what work will be done, how the work will be done and the sequence of events are established in advance of sending personnel to the site. Except where particular procedures and equipment are specified in advance, the determination of how to best complete the individual tasks which comprise the assignment is left to the discretion of our field personnel.

3. INSPECTION AND GAUGING

Wells are inspected prior to evacuation and sampling. The condition of the wellhead will be checked and noted in the degree of detail requested by the client. Measurements include the depth to water

and the total well depth obtained with industry standard electronic sounders which are graduated in increments of tenths of a foot and hundredths of a foot. The surface of the water in each well is further inspected for the presence of immiscibles and any separate phase hydrocarbon layer is measured in situ with an electronic interface probe and confirmed by visual inspection of the separate phase material in a clear acrylic bailer.

Notations are entered in blank areas on forms provided for the collection of instrument readings and included in the specially prepared field notebook. Data collected in the course of our work may be presented in a TABLE OF WELL MONITORING DATA prepared by our personnel or passed to the client or consultant in their original form on the field data sheets.

4. ADEQUATE PURGE STANDARD

Minimum purge volumes and purge completion standards are established by the interested regulatory agency controlling groundwater monitoring in each particular jurisdiction and by the consultant reviewing technical work performed on the project for submission to the interested regulatory agency. Depth to water measurements are collected by our personnel prior to purging and minimum purge volumes are calculated anew for each well based on the height of the water column and the diameter of the well. Expected purge volumes are never less than three case volumes and are set at no less than four case volumes in several jurisdictions.

5. STABILIZED PARAMETERS

Completion standards include minimum purge volumes, but additionally require stabilization of normal groundwater parameters. Normal groundwater parameter readings include electrical conductivity (EC), pH, and temperature which are obtained at regular intervals during the evacuation process (no less than once per case volume) and at the time of sample collection.

Temperature is considered to have stabilized when successive readings do not fluctuate more than +/- 1 degree Celsius. Electrical conductivity is considered stable when successive readings are within 10%. pH is thought to be stable when successive readings remain constant or vary no more than 0.2 of a pH unit.

Additional completion standards are used in some jurisdictions. Turbidity of <50 NTU is such a completion standard.

6. DEWATERED WELLS

Normal evacuation removes no less than three case volumes of water from the well. However, less water may be removed in cases where the well dewaters and does not recharge.

In a typical accommodation procedure worked out between the consultants and the regulatory agency, a well which does not recharge to 80% of its original volume within two hours (and any additional time our personnel have reason to remain at the site) will require our personnel to return to the site within twenty four hours to sample the well. In such cases, our personnel return to the site within the prescribed time limit and collect sample material from the water which has flowed back into the well case

without regard to what percentage of the original volume this recharge represents.

There are also instances in which the client, consultant and regulators agree that it is better to collect certain types of water samples (for volatile constituents) from the available water remaining in a dewatered well rather than let the water stand for prolonged periods of times and risk the loss of volatile constituents. These arrangements are client specific and are contained in client directives to our personnel. These are carried as printed directives in reference binders in the sampling vehicle and are on file at our office for use by our project coordination personnel.

7. PURGEWATER CONTAINMENT

All purgewater evacuated from each groundwater monitoring well is captured and contained as are all fluids form the on-site decontamination of reusable apparatus (sounders, electric pumps and hoses etc.). Hazardous materials are placed in appropriately labeled DOT drums and left at the site for handling by a licensed hazardous waste hauler who will move the material to a TSDF. Non-hazardous purgewater will be drummed or discharged into an on-site treatment system. Non-hazardous effluent from petroleum industry sites is typically collected in vehicle mounted tanks and transported to the nearest refinery operated by the client.

8. EVACUATION

Wells are purged prior to sampling with a variety of evacuation devices. Small diameter wells which contain a relatively small volume of water are often hand bailed. Larger volumes of water found in deeper wells and larger diameter wells are removed with down hole electric submersible pumps or pneumatic purge pumps.

In a typical evacuation, the well is pumped with a Grundfos brand electrical pump deployed into the well on a long section of hose which is paid out form a reel assembly mounted on the sampling vehicle.

Specialized evacuation devices such as USGS Middleburg bladder pumps can be used in response to special circumstances, but unless specifically dictated by the client, consultant or regulator, the type of device used to evacuate the well will be selected based on its appropriateness and efficiency.

9. SAMPLE COLLECTION DEVICES

Irrespective of the type of device used to evacuate the well, samples are always collected with a specialized sampling bailer. Standard sampling bailers are constructed of either stainless steel or PTFE (Teflon®). Some clients request that their samples be obtained with disposable bailers which are made from a variety of materials (PTFE, polyethylene, PVC etc.) which are represented by the manufacturer to be adequate and appropriate for one time use applications after which the disposable bailer is discarded.

Regardless of the type of bailer used to collect sample material, the number of check valves the bailer contains or the presence or absence of a bottom emptying device, the water which is the sample material is promptly decanted into new sample containers in a manner which reduces the loss of volatile constituents and follows the applicable EPA standard for handling volatile organic and semi-volatile compounds.

The exceptions to this rule are samples which must be field filtered (i.e. for metals) prior to preservation or those that must be fixed or manipulated in the field (e.g. Winkler titration). Such samples are handled according to procedures described in STANDARD METHODS, the SW-846 and other texts.

10. SAMPLE CONTAINERS

Sample material is decanted directly from the sampling bailer into sample containers provided by the laboratory which will analyze the samples. The transfer of sample material from the bailer to the sample container conforms to specifications contained in the USEPA T.E.G.D. The type of sample container, material of construction, method of closure and filling requirements are specific to intended analysis. Chemicals needed to preserve the sample material are commonly already placed inside the sample containers by the laboratory or glassware vendor. The number of replicates is set by the laboratory.

11. QC BLANKS

QC blanks are collected in accordance with the regimen agreed upon by the interested parties and typically include trip blanks, duplicates and equipment blanks.

12. CHAIN OF CUSTODY RECORDS

All samples are labeled and logged on a standardized Chain of Custody form. The Blaine Tech Services, Inc., preprinted Chain of Custody form is a multi-page carbonless form, whereas client and laboratory forms are usually single pages which are replicated by making photocopies. All Chain of Custody forms follow standard EPA conventions set forth in USEPA SW-846 for recording the time, date and signature of the person collecting the samples, and go further to require paired time, date and responsible party entries each time the samples change hands.

According to this convention, each time the samples move from the custody of one person to another person, the Chain of Custody form must record the time, date and signature of the person relinquishing custody of the samples and the time data and signature of the person accepting custody of the samples.

In practice, all samples are continuously maintained in an appropriate cooled container while in our custody and until delivered to the laboratory under a standard Chain of Custody form. If the samples are taken charge of by a different party (such as another person from our office, or a courier who will transport the samples to the laboratory) prior to being delivered to the laboratory, appropriate release and acceptance entries must be made on the Chain of Custody form (time, date, and signature of the person releasing the samples followed by the time, date and signature of the person taking possession of the samples).

13. SAMPLE STORAGE

All sample containers are promptly placed in food grade ice chests for storage in the field and transport (direct or via our facility) to the analytical laboratory which will perform the intended analytical procedures. These ice chests contain quantities of ice as a refrigerant material. The samples are maintained in either an ice chest or a refrigerator until relinquished into the

custody of the laboratory or laboratory courier.

14. ICE

Temperature in the ice chest is lowered and maintained with ice. Our firm produces ice in a restaurant grade commercial ice maker which is supplied with deionized water which has been filtered and polished and is the same grade of water tanked on our sampling vehicles for use in decontamination procedures.

15. DOCUMENTATION CONVENTIONS

All sample containers are identified with a site designation and a discrete sample identification number specific to that particular groundwater well. Additional standard notations (e.g. time, date, sampler) are also made on the label.

Each and every sample container has a label affixed to it. In most cases these labels are generated by our office personnel and are partially preprinted. Labels can also be hand written by our field personnel. The site is identified (usually with a code specified by the client), as is the particular groundwater well from which the sample is drawn (e.g. MW-1, MW-2, S-1, etc.). The time at which the sample was collected and the initials of the person collecting the sample are handwritten onto the label.

Our representative adds the Blaine Tech Services, Inc. Sampling Event Number. This Sampling Event Number also appears on the Chain of Custody form and all other notebook pages and papers associated with the work done at the site on the particular day by this particular technician. The Sampling Event Number also becomes the number of the Blaine Tech Services, Inc. Sampling Report.

The Sampling Event Number is derived form the date on which the work was done, the specific employee who did the work and what the relationship of this particular assignment was to any other assignments performed on that day by this specific employee.

An example Sampling Event Number is 950910-B-2.

The first six digits indicate the date (yymmdd) which is 950910 for September 10, 1995. The alpha character indicates the letter assigned to the specific employee doing the work (e.g. the letter B is assigned to Mr. Richard Blaine). The final digit indicates that this was the second sampling assignment performed by Mr. Blaine on that particular date.

16. DECONTAMINATION

All equipment is brought to the site in clean and serviceable condition and is cleaned after use is each well and before subsequent use in any other well. Equipment is decontaminated before leaving the site.

The primary decontamination device is a commercial steam cleaner. Because high temperature water retains heat better than does a jet of steam and poses fewer hazards to the operator, we have our steam cleaners detuned by the manufacturer to produce hot water several degrees below the transition to live steam.

The steam cleaner / hot pressure washer is operated with high quality deionized water which is produced at our facility and tanked

on our sampling vehicle for use at remote sites.

Decontamination effluent is collected in the same onboard effluent tanks as are used to contain the effluent from purging the groundwater wells at the site. The decon effluent is handled in the same manner as groundwater from the well.

17. FREE PRODUCT SKIMMERS

A skimmer is a free product recovery device sometimes installed in wells with a free product zone on the surface of the water. The presence of the skimmer in the well often prevents normal well gauging and free product zone measurements. The Petro Trap brand 2.0" and 3.0" diameter skimmers which are used on some petroleum industry sites fall into the category of devices that obstruct the well to the extent of preventing normal gauging. Gauging at such sites is performed in accordance with specific directions from the professional consulting firm overseeing work at the site on behalf of the property owner or responsible party.

In cases where the consultant elects to have our personnel pull the skimmers out of the well and gauge the well, our personnel perform the additional task of draining the accumulated free product out of the Petro Trap before putting it back into the well. The recovered free product is measured and recorded. The notation on the amount of free product with subsequently be entered in the VOLUME OF IMMISCIBLES REMOVED column on the TABLE OF WELL GAUGING DATA in the next Blaine Tech Services, Inc. Sampling Report.

18. CERTIFIED LABORATORY

Samples are directed to analytical laboratories which have been certified by the California Department of Health Services as an authorized Hazardous Materials Testing Laboratory and that laboratory's name and DOHS HMTL number should be noted on the Chain of Custody form.

18. REPORTAGE

A typical groundwater monitoring assignment involves the work of several different firms and a series of reports are generated, beginning with a Blaine Tech Services, Inc. Sampling Report. The Sampling Report (whether in extended or abbreviated form) details the particulars of the work that was performed and either presents directly or references descriptions of the methodologies which were used.

An attachment to the Sampling Report is the Chain of Custody form which is a legal document which records that transfer of the samples from Blaine Tech Services, Inc. to the analytical laboratory which will analyze the samples. The laboratory completes its work and issues its own Certified Analytical Report presenting the results of the analyses they conducted. Both our Sampling Report and the laboratory's Analytical Report deal with the objective information. Neither the Sampling Report nor the Analytical Report interprets the data being reported.

Interpretations are provided by professional geologists and engineers who are working as environmental consultants. The consultant reviews the measurements made by our field personnel and plots an updated groundwater gradient map. The most recent analytical results are compared to earlier results to establish trends and information about the presence of various compounds in the groundwater. Anomalous data are examined

with reference to our field data sheets to see if our notes indicate changed site conditions.

In general, the consultant is charged with making sense of the objective information and deciding what it may mean to the property owner and to the people to the State of California. The consultant signs off on is or her review of the objective information, makes whatever recommendations are appropriate and submits the assembled package of related documents to the regulatory agency on behalf of the property owner or responsible party.

The individual reports from Blaine Tech Services, Inc. and the analytical laboratory are distinct objective information documents, linked together by the Chain of Custody. In contrast, groundwater gradient maps require professional judgements and adjustments and are, therefore, within the domain of the professional consultant. Any professional evaluations or recommendation are always made by the consultant under separate cover.

20. FIELD PERSONNEL

All Blaine Tech Services, Inc. field personnel are required to have 40 hours of initial training in Hazardous Waste Operations and Emergency Response per 29 CFR 1910. 120 with 8-hour annual refresher courses. They are also given an 8-hour BATT course in refinery safety orientation. They receive several days of on-the-job-training and are given additional in-house training which included study of all the applicable Codes of Safe Practices form our Injury and Illness Prevention Program, review of the written Hazard Communication Program, familiarization with our written Drug Alcohol Free Work Place Policy and orientation on the Blaine Tech Services, Inc. Comprehensive Quality Assurance Program.

Field personnel also receive 29 CFR 1910 Supervisor Training to better prepare them to establish safe work sites at remote locations and supervise their own work, including compliance with site specific Site Safety Plans (SSP). Client requirement binders and Standard Operating Procedures are also provided. Blaine Tech Services, Inc. Policies and extensive in house training materials covering Basics and Diverse Sampling Assignments are included in advance employee training.

Blaine Tech Services, Inc. field personnel routinely commence work at OSHA level D and can upgrade to appropriate levels of additional protection as needed. They maintain their personal protective equipment in accordance with OSHA requirements and the specific mandates of our Respiratory Protection Program. All field personnel are trained and expected to comply with the requirements of any site specific Safety Plan which is in effect at any given site. Our personnel are prepared and able to follow the directions of any Site Safety Officer (SSO) administering the Site Safety Plan and, in the absence of an SSO, can apply the pertinent provisions of the SSP to themselves and to other Blaine Tech Services, Inc. personnel.

21. WORK ORIENTATION

Blaine Tech Services, Inc. field personnel are chosen from applicants who usually have bachelors' degrees in the sciences, environmental studies or related fields. People from the observational sciences (like botanists) often do better field sampling than young engineers who want to learn consulting (and are encouraged to find work

with a good consulting firm). We notice that we employ a disproportionate number of people with degrees in fire science.

The academic concentration, however, has proven less important than the broader aptitude, durability and willingness of the applicant to deal with the range of problems which attend executing exacting procedures in a noisy workplace largely unprotected from sun, wind and rain.

Put simply, there is a lot of physical work that surrounds the science. Those who succeed at field sampling are those who can manage the physical work, handle emergencies and make field repairs without losing track of the particular requirements of the procedure they are performing.

22. PLAIN BUT IMPORTANT

Blaine Tech Services, Inc. has concentrated on providing high quality environmental sampling and documentation for well over a decade. During that time we have contributed mechanical and procedural innovations, helped establish higher quality and performance standards and have assisted in the replacement of inefficient sole-source-vendor monopolies with the new practice of separating projects into identifiable modules in which professional, technical and contractor functions are evaluated, bid and awarded individually – on the basis of price and actual performance.

Real as these advances are, sampling remains unglamorous and even misunderstood. Some engineers have expressed the view that field sampling is such a menial activity that it may as well be performed by their newest employees who are paying their dues before being allowed to do *real* work such as data interpretation, computer modeling, and the design of remediation systems.

We assert the contrary view, that sample collection is at least as important as sample analysis in the laboratory. This is based on the fact that no amount of care in the laboratory can – retroactively – put back into a sample, the integrity and quality that has been lost by indifferent sample collection. It can even be argued that objective scientific information is *more credible* when it is produced by people who are wholly impartial and really have no interest in any particular outcome.

Blaine Tech Services, Inc. exists because there is technical work which needs to be done that is neither glamorous nor highly remunerative, but is still important enough that it needs to be done correctly.

Any questions can be directed to our senior project coordinator, Mr. Kent Brown who can be reached at: **(408) 573-0555.**

Select voice mail extension number **203.**

WELL GAUGING DATA

Project # 990304-P2 Date 3-4-99 Client Blymyer Engineers

Site Kawahara Nursery

Well ID	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	
MW-1		Inaccessible							
MW-2	2					6.95	18.65		
MW-3	2					7.98	19.25		
MW-4	2					8.03	19.73		
MW-5	2					6.63	19.98		

WELL MONITORING DATA SHEET

Project #: 990304-P2	Client: Blymyer Engineers
Sampler: Paul	Start Date: 3-4-99
Well I.D.: MW-3	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth: 19.25	Depth to Water: 7.98
Before: After:	Before: After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH

Purge Method: ✓ Bailer; Disposable Bailer; Middleburg; Electric Submersible; Extraction Pump; Other: _____

Sampling Method: ✓ Bailer; Disposable Bailer; Extraction Port; Other: _____

1.8 (Gals.) X 3 = 5.4 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
(2")	0.16	5"	1.02
3"	0.37	6"	1.47
4"	0.65	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
10:12	67.2	6.7	1500	9	2.0	Pre Purge DO=1.2
10:15	66.8	6.7	1475	6	4.0	
10:17	66.6	6.8	1450	5	5.5	

Did well dewater? Yes (No) Gallons actually evacuated: 5.5

Sampling Time: 10:22 Sampling Date: 3-4-99

Sample I.D.: MW-3 Laboratory: Entech

Analyzed for: ~~TPH-G~~ BTEX MTBE (TPH-D) Other: see scope

Equipment Blank I.D.: @ Time Duplicate I.D.:

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

D.O. (if req'd):	Pre-purge:	1.2 mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 990304-P2	Client: Blymyer Engineers
Sampler: Paul	Start Date: 3-4-99
Well I.D.: MW-4	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth: 19.73	Depth to Water: 8.03
Before: After:	Before: After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH

Purge Method: ✓ Bailer
Disposable Bailer
Middleburg
Electric Submersible
Extraction Pump
Other: _____

Sampling Method: ✓ Bailer
Disposable Bailer
Extraction Port
Other: _____

1.8 (Gals.) X 3 = 5.5 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
(2")	0.16	5"	1.02
3"	0.37	6"	1.47
4"	0.65	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
10:30	68.4	7.2	1700	9	2.0	Pre Purge DO = 2.1
10:33	67.8	7.1	1756	12	4.0	
10:36	67.6	7.1	1800	11	5.5	

Did well dewater? Yes (No) Gallons actually evacuated: 5.5

Sampling Time: 10:40 Sampling Date: 3-4-99

Sample I.D.: MW-4 Laboratory: Entech

Analyzed for: TPH-G BTEX MTBE TPH-D Other: See Scope

Equipment Blank I.D.: @ Time Duplicate I.D.:

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

D.O. (if req'd):	Pre-purge:	2.1 mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 990304-P2	Client: Blymyer Engineers
Sampler: Paul	Start Date: 3-4-99
Well I.D.: MW-5	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth: 9.98	Depth to Water: 6.63
Before: After:	Before: After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH

Purge Method: ✓ Bailer / Disposable Bailer / Middleburg / Electric Submersible / Extraction Pump / Other: ___

Sampling Method: ✓ Bailer / Disposable Bailer / Extraction Port / Other: ___

2.0 (Gals.) X 3 = 6.0 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.16	5"	1.02
3"	0.37	6"	1.47
4"	0.65	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
10:49	67.8	7.0	1000	9	2	Ave Purge D.O. = 1.8
10:51	67.4	7.1	1000	12	4	
10:54	67.2	7.1	1050	7	6	

Did well dewater? Yes (No) Gallons actually evacuated: 6

Sampling Time: 11:00 Sampling Date: 3-4-99

Sample I.D.: MW-5 Laboratory: Entech

Analyzed for: TPH-G BTEX MTBE TPH-D (Others) See Scope

Equipment Blank I.D.: @ Time Duplicate I.D.:

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

D.O. (if req'd):	Pre-purge:	1.8 mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 990308-L1	Client: BLYMYER ENG.
Sampler: LAD	Start Date: 3-8-99
Well I.D.: MW-3	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth: 19.28	Depth to Water: 6.99
Before: After:	Before: After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH

Purge Method: Bailer X
Disposable Bailer
Middleburg
Electric Submersible
Extraction Pump
Other: _____

Sampling Method: Bailer X
Disposable Bailer
Extraction Port
Other: _____

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.16	5"	1.02
3"	0.37	6"	1.47
4"	0.65	Other	radius² * 0.163

2.0 (Gals.) X 3 = 6.0 Gals.
1 Case Volume — Specified Volumes — Calculated Volume

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1115	62.0	8.2	1348.	>200.	2.	LIGHT SHEEN
1118	61.5	7.6	1352.	>200	4.	ODOR
1122	61.2	7.4	1330.	>200.	6.	

Did well dewater? Yes (No) Gallons actually evacuated: 6

Sampling Time: 1127 Sampling Date: 3-8-99

Sample I.D.: MW-3 Laboratory: Entech

Analyzed for: TPH-G BTEX MTBE TPH-D Other: N, CO_2, Fe

Equipment Blank I.D.: @ Time Duplicate I.D.:

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 990308-L1	Client: BLYMYER ENG.
Sampler: LAD	Start Date: 3-8-99
Well I.D.: MW-4	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth: 19.69	Depth to Water: 7.56
Before: After:	Before: After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH

Purge Method: Bailer X
Disposable Bailer
Middleburg
Electric Submersible
Extraction Pump
Other: _____

Sampling Method: Bailer X
Disposable Bailer
Extraction Port
Other: _____

1.9 (Gals.) X 3 = 5.7 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.16	5"	1.02
3"	0.37	6"	1.47
4"	0.65	Other	radius^2 * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1155	~~60.2~~ 58.2	8.2	867.	>200.	2.	
1159	60.0	7.7	855.	>200.	4.	
1204	59.2	7.7	844.	>200.	6.	

Did well dewater? Yes (No) Gallons actually evacuated: 6

Sampling Time: 1210 Sampling Date: 3-8-99

Sample I.D.: MW-4 Laboratory: ENTECH

Analyzed for: TPH-G BTEX MTBE TPH-D Other: N, CO_2, Fe

Equipment Blank I.D.: @ Time Duplicate I.D.:

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 990308-L1	Client: BLYMYER ENG.
Sampler: LAD	Start Date: 3-8-99
Well I.D.: MW-5	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth: 20.00	Depth to Water: 5.87
Before: After:	Before: After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH

Purge Method: Bailer ✓
Disposable Bailer
Middleburg
Electric Submersible
Extraction Pump
Other: _____

Sampling Method: Bailer ✓
Disposable Bailer
Extraction Port
Other: _____

2.3 (Gals.) X 3 = 6.9 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
2"	0.16	5"	1.02
3"	0.37	6"	1.47
4"	0.65	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1135	58.6	7.9	930.	>200.	3.	
1139	58.9	7.8	902.	>200.	5.	
1143	58.8	7.7	899.	>200.	7.	

Did well dewater? Yes (No) Gallons actually evacuated: 7.

Sampling Time: 1145 Sampling Date: 3-8-99

Sample I.D.: MW-5 Laboratory: Entech

Analyzed for: TPH-G BTEX MTBE TPH-D Other: N, CO_2, Fe

Equipment Blank I.D.: @ Time Duplicate I.D.:

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

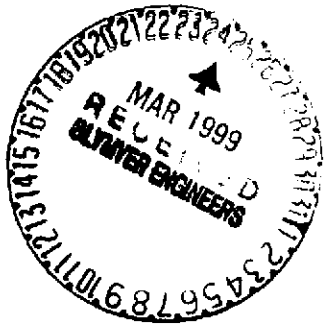
D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
ORP (if req'd):	Pre-purge:	mV	Post-purge:	mV

Appendix C:
Laboratory Reports from Entech Analytical Labs, Inc.

Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554



Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501
Attn: Jeanne Hudson

Date: 3/15/99
Date Received: 3/8/99
Project: BEI 94015
PO #:
Sampled By: Client

Certified Analytical Report

Water Sample Analysis:

Sample ID	MW-3			MW-4			MW-5				
Sample Date	3/4/99			3/4/99			3/4/99				
Sample Time	10:22			10:40			11:00				
Lab #	G5923			G5924			G5925				
	Result	DF	DLR	Result	DF	DLR	Result	DF	DLR	PQL	Method
Results in µg/Liter:											
Analysis Date	3/11/99			3/11/99			3/11/99				
TPH-Diesel	**ND**	1.0	50	**ND**	1.0	50	**ND**	1.0	50	50	8015M
Analysis Date	3/9/99			3/9/99			3/9/99				
TPH-Gas	**1,300**	1.0	50	**ND**	1.0	50	**ND**	1.0	50	50	8015M
MTBE	**5.3**	1.0	5.0	**ND**	1.0	5.0	**ND**	1.0	5.0	5.0	8020
Benzene	**33**	1.0	0.50	**ND**	1.0	0.50	**ND**	1.0	0.50	0.50	8020
Toluene	**ND**	1.0	0.50	**ND**	1.0	0.50	**ND**	1.0	0.50	0.50	8020
Ethyl Benzene	**1.2**	1.0	0.50	**ND**	1.0	0.50	**ND**	1.0	0.50	0.50	8020
Xylenes (total)	**17**	1.0	0.50	**ND**	1.0	0.50	**1.1**	1.0	0.50	0.50	8020

DF=Dilution Factor ND= None Detected above DLR PQL=Practical Quantitation Limit DLR=Detection Reporting Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

Michelle L. Anderson, Lab Director

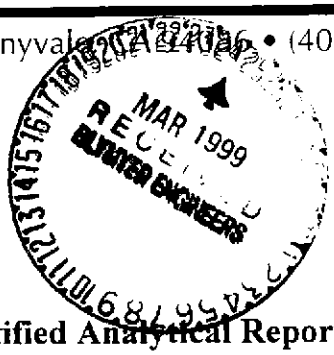
Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501
Attn: Jeanne Hudson



Date: 3/15/99
Date Received: 3/8/99
Project: BEI 94015
PO #:
Sampled By: Client

Certified Analytical Report

Water Sample Analysis:

Sample ID	MW-3			MW-4			MW-5				
Sample Date	3/4/99			3/4/99			3/4/99				
Sample Time	10:22			10:40			11:00				
Lab #	G5923			G5924			G5925				
	Result	DF	DLR	Result	DF	DLR	Result	DF	DLR	PQL	Method
310.1 Analysis Date	3/13/99			3/13/99			3/13/99				
375.4 Analysis Date	3/11/99			3/11/99			3/11/99				
Results in mg/Liter:											
Alkalinity	**520**	1.0	2.0	**320**	1.0	2.0	**370**	1.0	2.0	2.0	310.1
Sulfate	**1000**	10	1.0	**390**	10	1.0	**500**	10	1.0	0.10	375.4

· Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

Michelle L. Anderson, Lab Director

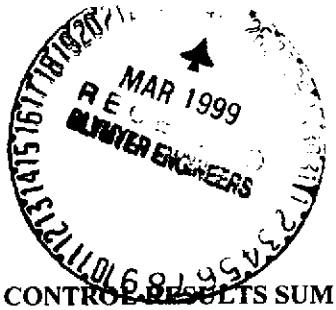
DF=Dilution Factor
PQL= Practical Quantitation Limit

ND=None Detected above DLR
DLR=Detection Reporting Limit

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086



QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography

QC Batch #: GBG4990309
Matrix: Water
Units: µg/L

Date Analyzed: 03/09/99
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB µg/L	SA µg/L	SR µg/L	SP µg/L	**SP % R**	SPD µg/L	**SPD %R**	RPD	QC LIMITS RPD	QC LIMITS %R
Benzene	8020	<0.50	40	ND	40	**99**	38	**96**	3.1	25	82-110
Toluene	8020	<0.50	40	ND	40	**99**	38	**96**	3.8	25	80-111
Ethyl Benzene	8020	<0.50	40	ND	39	**97**	38	**96**	1.3	25	81-111
Xylenes	8020	<0.50	120	ND	118	**99**	117	**97**	1	25	81-111
Gasoline	8015	<50.0	500	ND	544	**109**	513	**103**	5.9	25	70-132

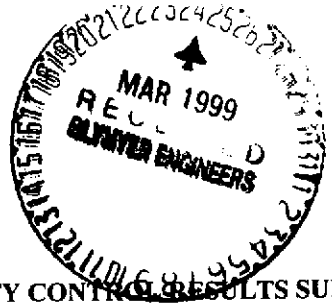
Note: LCS and LCSD results reported for the following Parameters:
All

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike % Recovery
- NC: Not Calculated

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086



QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography
Laboratory Control Spikes

QC Batch #: DW990303
Matrix: Water
Units: µg/L

Date analyzed: 03/10/99
Date extracted: 03/10/99
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB µg/L	SA µg/L	SR µg/L	SP µg/L	**SP %R**	SPD µg/L	**SPD %R**	RPD	QC LIMITS RPD	QC LIMITS %R
Diesel	8015M	<50.0	950	ND	944	**99**	918	**97**	2.8	25	62-137

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R) Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R) Spike Duplicate % Recovery
- NC: Not Calculated

BLAINE
TECH SERVICES INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

CHAIN OF CUSTODY BTS # 990304-P2

CLIENT Blymyer Eng. INC.

SITE Kawahara Nursery
16550 Hesperian Ave
San Lorenzo, CA

LAB Entech DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND

☐ EPA ☐ RWQCB REGION ____
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS
INVOICE & REPORT TO
Blymyer Eng. INC
Project # BEI ~~94105~~ 94015
ATTN Joanna Hudson
* Nitrate & Diss. Fe 2+ ~~Short Hold T.~~ (3)

C = COMPOSITE ALL CONTAINERS

CONDUCT ANALYSIS TO DETECT

SAMPLE I.D.			MATRIX S = SOIL W = H2O	CONTAINERS TOTAL	3/9/99 (3)	TPH-G (8015) (8020) BTEX, MTBE	TPH-D (8015m)	ALKALINITY (310.1)	NITRATE (353.2) *	SULFATE (375.4) *	CHLORIDE (325.3) *	DISS. FERROUS IRON *		ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-3	3/4	10:22	W	9	6	X	X	X	X	X	X	X					G5923
MW-4		10:40	W	9	6	X	X	X	X	X	X	X					G5924
MW-5		11:00	W	9	6	X	X	X	X	X	X	X					G5925

MAR 1999 RECEIVED BLAYMYER ENGINEERS

SAMPLING COMPLETED	DATE	TIME	SAMPLING PERFORMED BY
	3/4	11:00	Paul Sawwa

RESULTS NEEDED NO LATER THAN STANDARD

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	3/8/99	1620	S. Martin	3/8/99	1620
S. Martin	3/8/99	4:45		03/08/99	4:50pm
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME

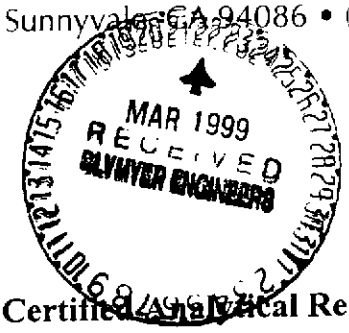
SHIPPED VIA	DATE SENT	TIME SENT	COOLER #	

Entech Analytical Labs, Inc.

CA ELAP# I-2346

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501
Attn: Jeanne Hudson



Date: 3/15/99
Date Received: 3/8/99
Project: BEI 94015
PO #:
Sampled By: Client

Certified Analytical Report

Water Sample Analysis:

Sample ID	MW-3			MW-4			MW-5				
Sample Date	3/8/99			3/8/99			3/8/99				
Sample Time	11:27			12:10			11:45				
Lab #	G5918			G5919			G5920				
	Result	DF	DLR	Result	DF	DLR	Result	DF	DLR	PQL	Method
310.1 Analysis Date	3/10/99			3/10/99			3/10/99				
SM3500 Analysis Date	3/9/99			3/9/99			3/9/99				
353.3 Analysis Date	3/11/99			3/11/99			3/11/99				
Results in mg/Liter:											
Carbon Dioxide	**4.4**	1.0	1.0	**2.3**	1.0	1.0	**2.1**	1.0	1.0	1.0	310.1
Dissolved Ferrous Iron	**ND**	1.0	0.010	**ND**	1.0	0.010	**ND**	1.0	0.010	0.010	SM3500
Nitrate-Nitrogen	**26**	50	5.0	**13**	100	10	**140**	50	5.0	0.10	353.3

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #I-2346)

Michelle L. Anderson, Lab Director

DF=Dilution Factor
PQL= Practical Quantitation Limit

ND=None Detected above DLR
DLR=Detection Reporting Limit

Environmental Analysis Since 1983

BLAINE
TECH SERVICES INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

CHAIN OF CUSTODY BTJ # 990308-L1

CLIENT Blymyer Engr. Inc

SITE Kanahara Nursery
16510 Ashland Ave.
San Lorenzo, CA

C = COMPOSITE ALL CONTAINERS

CONDUCT ANALYSIS TO DETECT

LAB ENTECH DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND

☐ EPA ☐ RWQCB REGION ____
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS

Invoice & Report to
Blymyer Engr. Inc
Project BEI 94015
Attn Joanna Hudson
* Short Hold Time

SAMPLE I.D.	DATE	TIME	MATRIX S = SOIL W = H2O	CONTAINERS TOTAL		C	# Nitrate	# Carbon Dioxide (Bicarb)	Dissolved Organic Carbon *	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-3	3/8/99	1127	W	7	40ml VOAs		X	X	X				G5918
MW-4		1210	W	7	No PRES		X	X	X				G5919
~~MW-8~~			~~W~~	~~7~~	1 LTR POLY NO PRES								
MW-5		1145	W	7			X	X	X				G5920

SAMPLING COMPLETED DATE 3-8-99 TIME 1210

SAMPLING PERFORMED BY LAD GILCHRIST

RESULTS NEEDED NO LATER THAN Standard

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
M Arts	3/8/99	1620	S. Mahan	3/8/99	1620
S. Mahan	3/8/99	4:45			
			Federal Express	03/08/99	4:50 pm

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #

Appendix D:
Results of Geophysical Survey by JR Associates

J R ASSOCIATES

Engineering Geophysics
1886 Emory Street
San Jose, CA 95126
(408) 293-7390

Transmittal Memo

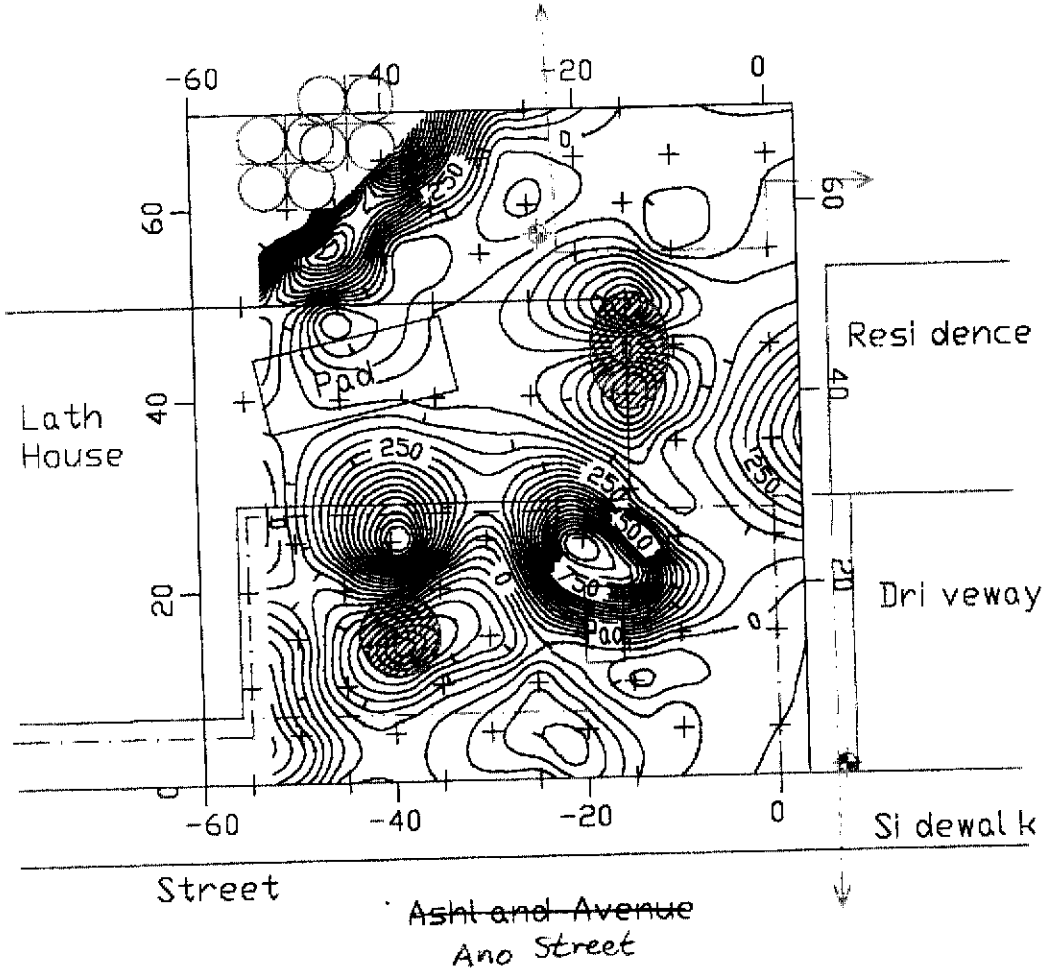
To: Jeanna Hudson
Blymyer Engineers
1829 Clement Avenue
Alameda, CA 94501-1395

Date: March 3, 1999

From: Jim Rezowalli

Regarding: Kawahara Nursery

Enclosed is a contour map of the magnetic data collected at the Kawahara nursery. We found two magnetic anomalies indicative of buried metal. These are shown in red on the contour map and were marked in the field with paint. The radar scans collected in the area did not reveal what the sources of the anomalies were. We can not tell from the radar or magnetic data whether the buried metal are tanks or debris. The anomalies will need to be excavated to determine if they are from buried tanks. Please call if you have any questions.



EXPLANATION

SURFACE METAL

WELL

BURIED PIPE

FENCE

MAGNETIC ANOMALIES

Magnetic Map
Kawahara Nursery
San Lorenzo, California

SCALE: 1" = 20'			DRAWN BY: J.J.R.
DATE: 3-2-1999	JOB NUMBER: 107-161-99		REVISED:

J R ASSOCIATES Civil and Environmental Geophysics
1886 Emory Street, San Jose, CA (408) 293-7390

DRAWING NUMBER: 1