



5010 3570
AG

March 21, 2000

Ms. Gwen Tellegan
17810 South Central Avenue
Compton, California 90220

Mr. Donald Hill
2591 Nicholson Street
San Leandro, California 94577

**Subject: Groundwater Monitoring Report, January 2000
2585 Nicholson Street, San Leandro, California
Versar Project No. 4422-002**

Dear Ms. Tellegan and Mr. Hill:

Per the request of Mr. John Schovanec with Bank of America, NT&SA, and in accordance with site access agreements for the 1951 Fairway Drive and 2591 Nicholson Street properties, attached is the above referenced report, dated March 21, 2000, for 2585 Nicholson Street in San Leandro, California. Please refer any questions or responses to Mr. Schovanec at (949) 260-5812.

Sincerely,
Versar, Inc.

Scott Allin, REA
Senior Program Manager

Attachment

cc: John Schovanec (Bank of America, NT&SA)

Trnsall.wpd/4422-001

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March 21, 2000

Mr. John A. Schovanec
Bank of America, N.A.
Environmental Services Department #305478
4000 MacArthur Boulevard, Suite 100
Newport Beach, California 92660

*Adding Clean Serv
S.T.D. 3570
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Reference: Groundwater Monitoring Report (January 2000)
2585 Nicholson Street in San Leandro, California
ES# 305582
Versar Project No. 4422-001

Dear Mr. Schovanec:

Versar, Inc. (Versar) has prepared this groundwater monitoring report on behalf of Bank of America, N.A. (Bank of America) summarizing work performed at the property located at 2585 Nicholson Street in San Leandro, California (Site). Figures 1 and 2, Attachment I present the Site location and Site layout, respectively. The following sections describe the scope of work, Site location, and Site background.

This letter report presents the results of the quarterly groundwater monitoring and sampling event conducted at the Site on January 20, 2000. The results of this monitoring event are presented graphically on Figures 3 and 4 in Attachment I, and are summarized in tables in Attachment II. This report has been prepared in response to the request by the Alameda County Health Care Services (ACHCS) letters dated July 14, 1999, and October 29, 1999, regarding groundwater monitoring at 2585 Nicholson Street, San Leandro, California.

The Site is located at 2585 Nicholson Street in San Leandro, California. The nearest cross street is Republic Avenue. The Site is currently occupied by Crane Works and consists of a single-story commercial office building at the north end of the property, and covered parking/work area over the western and southern edges of the property.

BACKGROUND

According to information presented in the McLaren/Hart soil and groundwater characterization report (McLaren/Hart, 1998), two underground storage tanks (USTs) were removed from the Site in 1991. Soil and groundwater samples collected during the UST removal activities identified total petroleum hydrocarbons (TPH) as diesel and gasoline in both media. Reportedly, overexcavation was performed during UST removal activities. In 1992, Hageman-



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Aguiar (HA) performed an on Site soil and groundwater investigation, and installed one monitoring well (MW-1) on the central portion of the Site. Groundwater samples were collected by HA from MW-1 between 1992 and 1995. HA identified free-floating product in MW-1 during some of the sampling events, at a maximum thickness of 1.25 inches. An oil absorbent sock was placed in the well to collect the free-floating product. In 1998, McLaren/Hart performed a limited investigation of soil and groundwater, both on and off-Site. McLaren/Hart concluded that adequate definition of petroleum hydrocarbons in soil and groundwater had been completed, and that the contaminant plume was relatively stable with minimal off-Site migration of petroleum hydrocarbons. McLaren/Hart recommended installation of additional monitoring wells to confirm the direction of groundwater flow beneath the Site.

In April 1999, Versar installed four additional monitoring wells, and sampled all the Site wells, as described in our *Monitoring Well Installation and Groundwater Monitoring Report*, dated June 30, 1999. The monitoring well locations are depicted on Figure 2, Site Plan. Versar detected petroleum hydrocarbons as gasoline in the southern half of the Site; benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected in well MW-1 near the center of the Site. The groundwater gradient was calculated to be approximately 0.001 feet/foot and flowing in a southeasterly direction.

In November 1999, Versar performed a Risk-Based Corrective Action (RBCA) analysis of residual petroleum hydrocarbons at the Site. The purpose for the RBCA analysis is to determine the magnitude of risk, if any, to human health associated with known Site soil and groundwater contamination. The analysis was prepared using default parameters and existing Site data. Versar's RBCA analysis found that residual concentrations of aromatic hydrocarbons in first encountered groundwater at the location of maximum impact do not present an actionable risk to human health.

In their July 14, 1999 letter, ACHCS requested information regarding the depth of gas, electric, and storm drain trenches adjacent to the Site, as depicted on Figure 2 of Versar's, June 30, 1999, *Monitoring Well Installation and Groundwater Sampling Report*. Utility information was obtained in October and November 1999 and reported in Versar's January 6, 2000, *Groundwater Monitoring and Utility Survey Report*. Versar measured the depth of utilities adjacent to the Site, as requested by ACHCS. The only utility identified with the potential to influence groundwater migration was identified upgradient from the Site. Based on this information, Versar concluded there was no evidence that utilities are effecting plume migration at the Site and no further assessment is warranted.



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Versar has been monitoring shallow groundwater condition at five wells on a quarterly basis since April 1999. Prior to April 1999, monitoring well MW-1 was sampled 11 times between June 1992 and September 1995.

QUARTERLY GROUNDWATER MONITORING ACTIVITIES

Versar performed groundwater monitoring of the Site on January 20, 2000, sampling the wells for TPH as gasoline (TPHg) and BTEX. Two wells were sampled for TPH as diesel (TPHd) and three of the wells were sampled for parameters indicative of intrinsic bio-remediation. Versar's quarterly groundwater monitoring program for the Site included the following tasks:

- Measure groundwater levels in monitoring wells MW-1, MW-2, MW-3, MW-4, and MW-5, and calculate the hydraulic gradient and flow direction.
- Purge and collect groundwater samples from the five monitoring wells (MW-1, MW-2, MW-3, MW-4, and MW-5);
- Obtain measurements of groundwater temperature, electrical conductivity, pH, oxidation/reduction potential (redox), and dissolved oxygen (DO) in monitoring wells MW-1, MW-2, MW-3, MW-4, and MW-5.
- Submit the groundwater samples to a California-certified analytical laboratory for analysis of one or more of the following TPHd, TPHg, BTEX, methane, nitrate, sulfate, ferrous iron, and alkalinity.
- Prepare a letter report summarizing the results.

Groundwater Sampling Protocol

The methodology and protocol followed for the collection of groundwater samples during this groundwater sampling event are presented in Attachment III, Decontamination and Groundwater Monitoring Well Sampling Procedures.

Quarterly Groundwater Level Measurements

On January 20, 2000, the depth to groundwater in wells MW-1, MW-2, MW-3, MW-4 and MW-5 was measured to characterize groundwater flow direction and gradient. The depths to groundwater at each well, along with historical measurements, are presented in Table 1. Groundwater was measured to be flowing to the east-southeast, at a gradient of 0.001 feet per



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foot. Groundwater surface elevations are 0.16 to 0.36 foot higher than in October 1999. Figure 3 in Attachment I is a groundwater gradient map generated from the January 20, 2000 data.

Groundwater Sampling Activities

On January 20, 2000, groundwater samples were collected from monitoring wells MW-1, MW-2, MW-3, MW-4 and MW-5. Prior to sampling, each well was purged of approximately three casing volumes of groundwater, and the water level allowed to recover to at least 80 percent of the pre-purge level. Measurements of temperature, pH, electrical conductivity, redox, and DO were recorded a minimum of three times during each purged well volume. The groundwater monitoring well purge tables are presented in Attachment V.

Groundwater samples collected from Site wells MW-1, MW-2, MW-3, MW-4, and MW-5 were analyzed for TPHg and BTEX. Groundwater samples collected from Site wells MW-1 and MW-3 were analyzed for TPHd and samples collected from site wells MW-1, MW-2, and MW-3 were analyzed for methane, nitrate, sulfate, and alkalinity by Excelchem Environmental Labs (Excelchem), California State Laboratory Certification No. 2119. The samples were collected, placed in containers, preserved, transported, and analyzed within the time constraints consistent with applicable United States EPA, California EPA, and Regional Water Quality Control Board (RWQCB) procedures, and in conformance with Versar's Decontamination and Groundwater Monitoring Well Sampling Procedures, presented in Attachment III. Purge water from the January 20, 2000 sampling event was stored on Site in two DOT-approved, 55-gallon steel drums pending disposal. The drums containing purge water were removed from the site on February 17, 2000 for disposal.

ANALYTICAL RESULTS

The analytical results of the TPHg, TPHd, and BTEX analyses are summarized in Table 2 in Attachment II. Figure 4 in Attachment I spatially depicts the analytical results for the January 20, 2000 groundwater monitoring event. The analytical results of the methane, nitrate, sulfate, and alkalinity analyses; and DO and redox measurements; are summarized in Table 3 in Attachment II. Analysis for ferrous iron concentrations was initially requested, however, the laboratory was not able to perform the analysis within the method holding period. The laboratory analytical reports are included in Attachment V.

- TPHg was detected in wells MW-1, MW-2, MW-3, MW-4 and MW-5 at concentrations of 22,400 micrograms per liter ($\mu\text{g/L}$), 118 $\mu\text{g/L}$, 163 $\mu\text{g/L}$, 106 $\mu\text{g/L}$ and 231 $\mu\text{g/L}$, respectively.
- TPHd was not detected in MW-1 or MW-3.

- Benzene was detected in wells MW-1, MW-2, MW-3, MW-4, and MW-5 at concentrations of 1,300 $\mu\text{g/L}$, 0.7 $\mu\text{g/L}$, 0.8 $\mu\text{g/L}$, 0.9 $\mu\text{g/L}$, and 1.9 $\mu\text{g/L}$, respectively.
- Toluene was only detected in well MW-1 at a concentration of 402 $\mu\text{g/L}$.
- Ethylbenzene was only detected in well MW-1 at a concentration of 483 $\mu\text{g/L}$.
- Total xylene isomers was only detected in well MW-1 at a concentration of 2,490 $\mu\text{g/L}$.

CONCLUSIONS

Based on the results of this most recent quarterly groundwater monitoring event Versar has made the following conclusions.

- During the January 2000 sampling event, the groundwater gradient was calculated to be 0.001 ft/ft flowing to the east-southeast. Groundwater surface elevations are 0.16 to 0.36 foot higher than in October 1999.
- TPHg and BTEX were detected in the samples collected from well MW-1. Low levels of TPHg and benzene were detected in the samples collected from wells MW-2, MW-3, MW-4, and MW-5. Toluene, ethylbenzene, and total xylenes were not detected in the samples collected from wells MW-2, MW-3, MW-4, and MW-5. This indicates that the area of residual contamination at the Site is located near the center of the property, in the vicinity of MW-1.
- TPHd was not detected in wells MW-1 and MW-3.
- Samples collected from wells MW-1, MW-2, and MW-3 to assess the potential for intrinsic bio-remediation suggest that anaerobic intrinsic biodegradation is occurring at the Site. Methane concentrations are elevated in MW-1, suggesting anaerobic respiration. Nitrate concentrations appear to be less in MW-1, suggesting use of this electron receptor in biological degradation. In addition, redox is strongly negative in MW-1, suggesting biological activity.
- The presence of TPHg and benzene at Site wells other than MW-1 may be the result of the rising groundwater table intersecting a smear zone of petroleum product.



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Groundwater is currently at the highest elevation since monitoring of groundwater table elevation began in April 1999.

- As indicated previously, chromatograms from the July 1999 quarterly monitoring episode indicated the detected petroleum hydrocarbon at the Site is gasoline. Concentrations of TPHd were not detected in wells MW-1 and MW-3 during the January 2000 quarterly episode.

FUTURE ACTIVITIES

Continued quarterly groundwater monitoring is planned for the Site to characterize groundwater fluctuations, flow direction, and contaminant concentrations. Continued analysis of intrinsic bio-remediation indicator parameters will also be performed during the next monitoring event. This information is required in considering closure for the Site by the ACHCS. Concentrations of TPHd were not detected in wells MW-1 and MW-3 during the January 2000 quarterly episode. Given this information, Versar requests TPHd be discontinued from the suite of groundwater analyses.

REFERENCES

Alameda County Health Care Services Agency. Letter to Mr. John Schovanec, Bank of America Environmental Services. Re: Groundwater monitoring at 2584 Nicholson Street, San Leandro, CA. Dated July 14, 1999.

United States Department of the Interior Geological Survey. Map. *San Leandro Quadrangle, 7.5 Minute Series (Topographic)*. 1959, Photorevised 1980.

Versar, Inc.. *Monitoring Well Installation and Groundwater Monitoring Report*. Prepared for Bank of America, N.T. & S.A.. Project No. 4422-001. June 30, 1999.

Versar, Inc.. *Groundwater Monitoring and Utility Survey Report*. Prepared for Bank of America, N.T. & S.A.. Project No. 4422-001. January 6, 2000.



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STATEMENT OF LIMITATIONS

The conclusions presented above are based on the agreed-upon scope of work outlined in the beginning of this report. Versar makes no warranties or guarantees as to the accuracy or completeness of information provided or compiled by others and used by Versar. It is possible that information exists beyond the scope of this investigation. Also, changes in Site use may have occurred sometime in the past due to variations in rainfall, temperature, water usage, economic, agricultural, or other factors. Additional information that was not found or available to Versar at the time of the writing of this report may result in a modification of the conclusions presented. This report is not a legal opinion.

The services performed by Versar have been conducted in a manner consistent with the level of care ordinarily exercised by members of our profession currently practicing under similar conditions. No other warranty expressed or implied is made.

This Quarterly Monitoring Report was prepared by Versar on behalf of Bank of America. Mr. Dale Anderson, Senior Environmental Technician, performed the groundwater sample collection. Mr. Tim Berger, Registered Geologist, prepared the report, and supervised the field activities. Mr. Scott Allin, Registered Environmental Assessor, reviewed the report.

Prepared by:

Tim Berger R.G. 5225
Supervising Geologist
Versar - Pacific Region

Reviewed by:

Scott Allin, R.E.A. 076223
Senior Program Manager
Versar - Pacific Region

- Attachment I - Figures
- Attachment II - Tables
- Attachment III - Decontamination and Groundwater Monitoring Well Sampling Procedures
- Attachment IV - Monitoring Well Purge Tables
- Attachment V - Laboratory Analytical Reports and Chain-of-Custody Documentation

cc: Juliett Shin (Alameda County)
Mike Bakaldin (City of San Leandro)

ATTACHMENT I

Figures



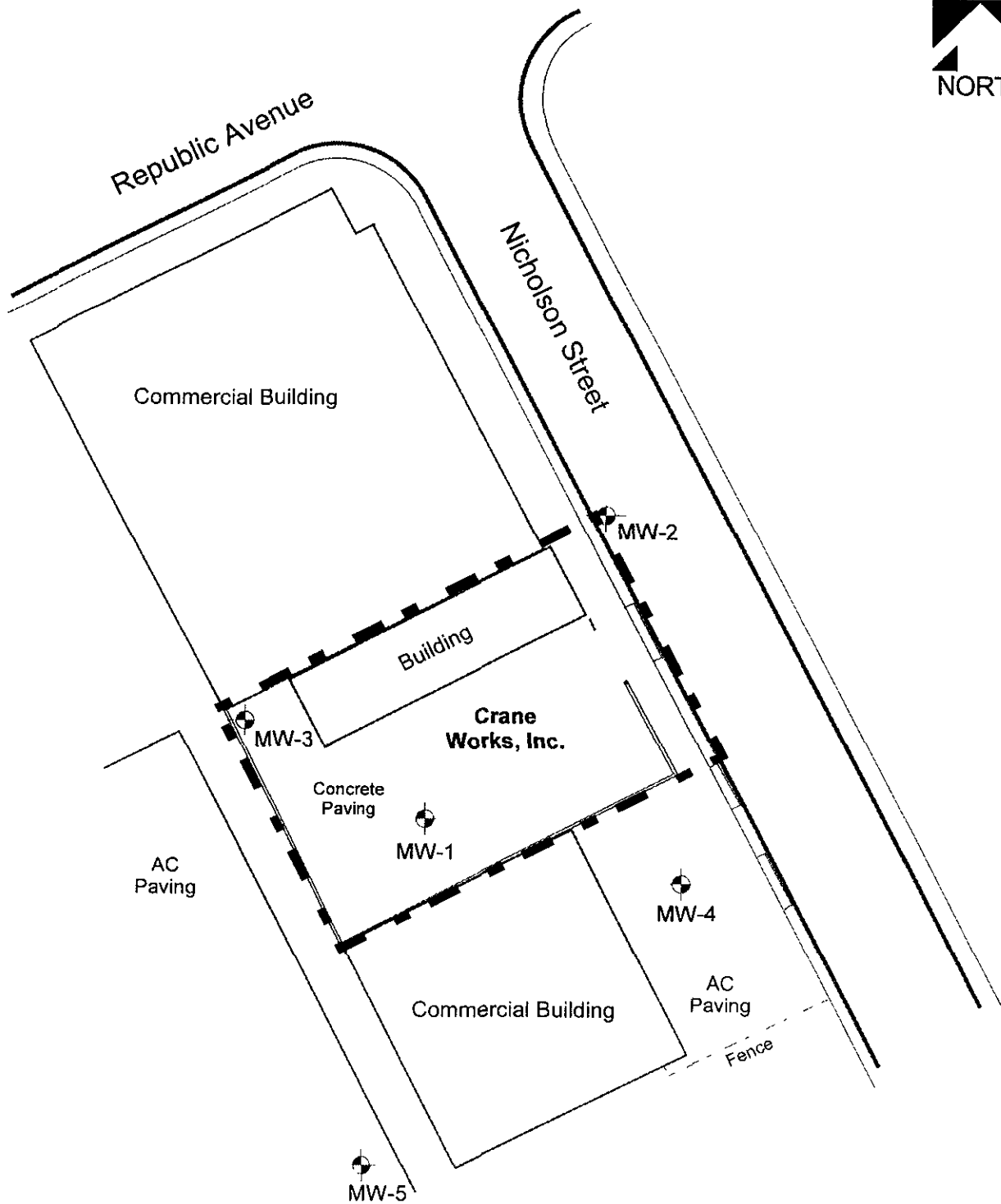
Ref. USGS 7.5 Minute Topographical Quadrangle Maps;
 San Leandro, Calif. c. 1959 Photorevised 1980

Dr. By: Dale Anderson
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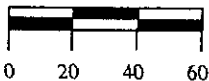
Versar inc.
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SITE LOCATION
 2585 Nicholson Street
 San Leandro, California

Figure
 1



(Scale - Feet)



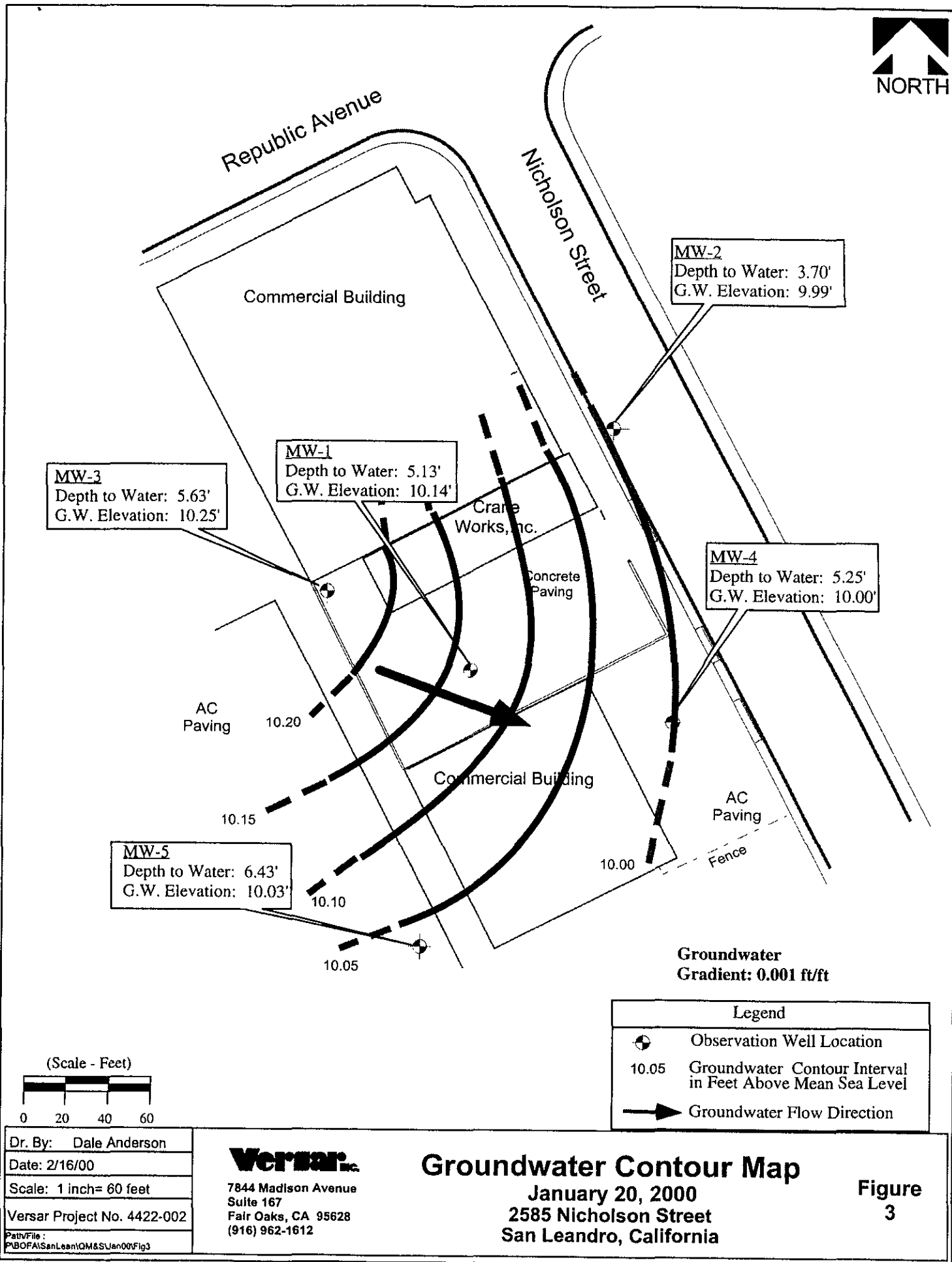
Dr. By: Dale Anderson
Date: 5/10/99
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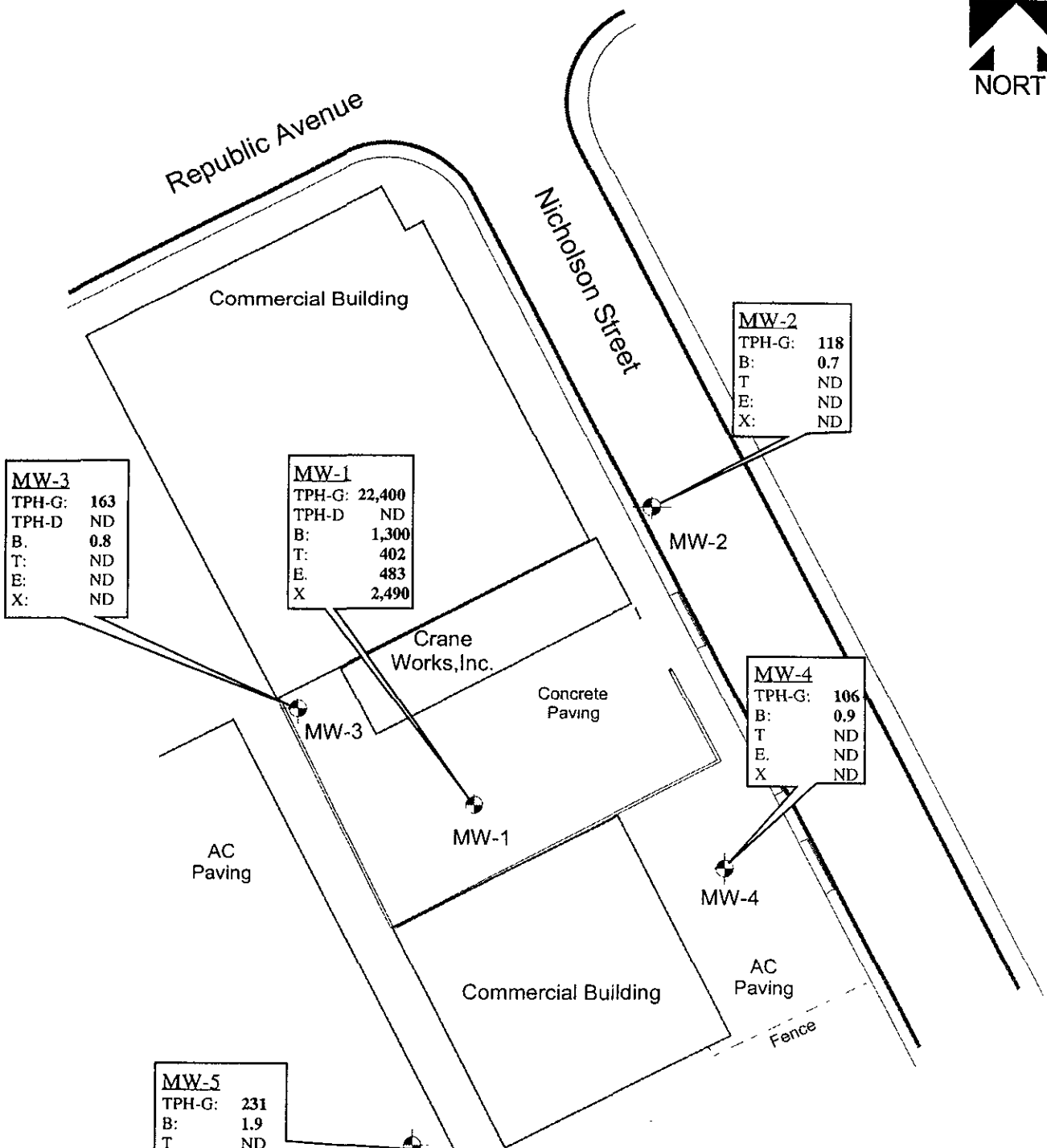


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SITE LAYOUT AND MONITORING WELL LOCATION MAP 2585 Nicholson Street San Leandro, California

Figure
2





MW-2
TPH-G: 118
B: 0.7
T: ND
E: ND
X: ND

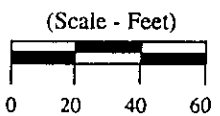
MW-1
TPH-G: 22,400
TPH-D: ND
B: 1,300
T: 402
E: 483
X: 2,490

MW-3
TPH-G: 163
TPH-D: ND
B: 0.8
T: ND
E: ND
X: ND

MW-4
TPH-G: 106
B: 0.9
T: ND
E: ND
X: ND

MW-5
TPH-G: 231
B: 1.9
T: ND
E: ND
X: ND

Legend	
	Extraction and Observation Well Location
NOTE: All Results in Ug/L	
TPH-G:	Total Petroleum Hydrocarbons as Gasoline
B:	Benzene
T:	Toluene
E:	Ethybenzene
X:	Total Xylenes
ND:	Not detected at or above the methods reporting limit.



Dr. By: Dale Anderson
Date: 2/16/00
Scale: 1 inch= 60 feet
Versar Project No. 4422-002
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**Laboratory Analytical Results
 For Groundwater Samples
 January 20, 2000
 2585 Nicholson Street
 San Leandro, California**

**Figure
 4**

ATTACHMENT II

Tables

Table 1
Groundwater Elevation Data
2585 Nicholson Street
San Leandro, California

		Groundwater Monitoring Well					Hydraulic gradient magnitude (ft/ft)	General gradient direction
		MW-1	MW-2	MW-3	MW-4	MW-5		
Well casing elevation (feet amsl)		15.27	13.69	15.88	15.25	16.46	---	---
April 29, 1999	Depth to groundwater (feet toc)	5.33	3.76	5.88	5.40	6.64	0.001	Southeast
	Groundwater elevation (feet amsl)	9.94	9.93	10.00	9.85	9.82		
July 28, 1999	Depth to groundwater (feet toc)	5.85	4.19	6.37	5.84	7.11	0.001	Southeast
	Groundwater elevation (feet amsl)	9.42	9.50	9.51	9.41	9.35		
	Change from previous elevation	-0.52	-0.43	-0.49	-0.44	-0.47		
October 28, 1999	Depth to groundwater (feet toc)	5.45	4.06	5.79	5.60	6.68	0.002	Easterly
	Groundwater elevation (feet amsl)	9.82	9.63	10.09	9.65	9.78		
	Change from previous elevation	0.40	0.13	0.58	0.24	0.43		
January 20, 2000	Depth to groundwater (feet toc)	5.13	3.70	5.63	5.25	6.43	0.001	Easterly
	Groundwater elevation (feet amsl)	10.14	9.99	10.25	10.00	10.03		
	Change from previous elevation	0.32	0.36	0.16	0.35	0.25		

Notes and Abbreviations:

ft/ft = feet per foot

amsl = above mean sea level

toc = top of casing

Table 2
Analytical Results for Groundwater Samples
2585 Nicholson Street
San Leandro, California

Monitoring Well No.	Date	Chemicals of Concern										
		TPH-G (µg/L)	TPH-D (µg/L)	TPH-MO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TPH-K (mg/L)	TPH-SS (µg/L)	Naphthalene	2-Methyl-naphthalene
MW-1	Jun-92	10,000	ND	NA	110	81	62	280	--	--	--	--
	Nov-92	9,800	ND	--	23	14	22	96	--	--	--	--
	Apr-93	18,000	560	ND	42	47	50	190	ND	370	--	--
	Jul-93	27,000	ND	ND	40	45	63	190	ND	ND	--	--
	Dec-93	7,800	3,800	ND	13	16	20	77	ND	ND	--	--
	Mar-94	280,000	620	ND	970	880	620	1,700	ND	3,300	--	--
	Jun-94	8,500	ND	ND	23	13	8.5	19	ND	ND	--	--
	Sep-94	2,400	52	ND	5.3	2.6	2.5	6	ND	ND	--	--
	Dec-94	4,800	1,300	ND	32	32	16	50	ND	1,000	--	--
	Apr-95	74,000	3,700	ND	320	350	350	940	ND	570	--	--
	Sep-95	33,000	46,000	ND	140	270	260	1,100	ND	4,900	--	--
	May-99	8,100	ND	ND	1,400	31	82	360	--	--	--	--
	Jul-99	3,500	1,700	--	252	23	43	179	--	--	10	6.5
	Oct-99	4,900	--	--	270	34	<5	370	--	--	--	--
Jan-00	22,400	<50	--	1,300	402	483	2,490	--	--	--	--	
MW-2	Apr-99	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
	Jul-99	<100	<100	--	<1.0	<1.0	<1.0	<1.0	--	--	--	--
	Oct-99	<100	--	--	<1.0	<1.0	<1.0	<1.0	--	--	--	--
	Jan-00	118	--	--	0.7	<0.5	<0.5	<0.5	--	--	--	--
MW-3	Apr-99	ND	540	ND	ND	ND	ND	ND	--	--	ND	ND
	Jul-99	300	<100	--	<1.0	<1.0	<1.0	<1.0	--	--	<5.0	<5.0
	Oct-99	230	--	--	<1.0	<1.0	<1.0	<1.0	--	--	--	--
	Jan-00	163	<50	--	0.8	<0.5	<0.5	<0.5	--	--	--	--
MW-4	Apr-99	110	ND	ND	ND	ND	ND	ND	--	--	--	--
	Jul-99	120	<100	--	<1.0	<1.0	<1.0	<1.0	--	--	--	--
	Oct-99	<100	--	--	<1.0	<1.0	<1.0	<1.0	--	--	--	--
	Jan-00	106	--	--	0.9	<0.5	<0.5	<0.5	--	--	--	--
MW-5	Apr-99	270	ND	ND	ND	ND	ND	ND	--	--	--	--
	Jul-99	570	<100	--	<1.0	<1.0	<1.0	<1.0	--	--	--	--
	Oct-99	540	--	--	<1.0	<1.0	<1.0	<1.0	--	--	--	--
	Jan-00	231	--	--	1.9	<0.5	<0.5	<0.5	--	--	--	--

Notes and Abbreviations.

TPH-G = total petroleum hydrocarbons as gasoline

TPH-D = total petroleum hydrocarbons as diesel

TPH-K = total petroleum hydrocarbons as kerosene

TPH-SS = total petroleum hydrocarbons as stoddard solvent

µg/L = micrograms per liter, equivalent to parts per billion (ppb)

mg/L = milligrams per liter, equivalent to parts per million (ppm)

ND = not detected at or above the methods reporting limit

-- = not analysed

Table 3
 Intrinsic Bioremediation Indicator Analytical Results for Groundwater Samples
 2585 Nicholson Street
 San Leandro, California

Monitoring Well No.	Date	Bioremediation Indicators						
		Methane (µg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Ferrous (mg/L)	Alkalinity (mg/L)	Redox (mV)	D/O (mg/L)
MW-1	Jan-00	2590.0	0.27	46	--	576	-106	2.51
MW-2	Jan-00	1.5	3.04	82	--	530	-048	1.63
MW-3	Jan-00	13.0	1.37	45	--	346	-055	2.61
MW-4	Jan-00	--	--	--	--	--	-060	1.49
MW-5	Jan-00	--	--	--	--	--	-072	1.91

Notes and Abbreviations:

Methane by Gas Chromatography / Mass Spectroscopy

Nitrate by EPA method 353.2

Sulfate by EPA method 375.4

Ferrous iron by EPA method 3500 FE-D

Alkalinity by EPA method 2320B

Redox - Reduction/Oxidation potential in millivolts, field measured with direct reading instrument, average of last three readings.

D/O - Dissolved Oxygen, field measured with direct reading instrument, average of last three readings.

µg/L = micrograms per liter, equivalent to parts per billion (ppb)

mg/L = milligrams per liter, equivalent to parts per million (ppm)

ND = not detected at or above the methods reporting limit.

-- = not analysed

ATTACHMENT III

Decontamination and Groundwater Monitoring Well Sampling Procedures

1.0 DECONTAMINATION PROCEDURES

The decontamination procedures for non-dedicated field equipment and well development/purging equipment are given below. These procedures are followed during all field activities.

1. Non-dedicated well development, purging, and sampling equipment is carefully pre-cleaned prior to each use, as follows:
 - a. Carefully brush off any loose foreign debris with a soft bristle brush.
 - b. Rinse the equipment thoroughly in clean water.
 - c. Wash the equipment in a non-phosphate detergent bath.
 - d. Rinse thoroughly in clean water.
 - e. Rinse thoroughly with deionized water.
 - f. Air dry in a dust-free environment.
 - g. Store in unused plastic bags or other suitable cover until use.
2. Clean disposable gloves are worn by all field personnel when handling decontaminated equipment.

2.0 COLLECTION OF SAMPLES

2.1 Groundwater Sampling

Groundwater samples are collected for laboratory analysis using the procedures given below.

1. Open the well and measure the organic vapor concentration with a flame-ionization detector (FID) or photoionization detector (PID).
2. Measure the water levels (if any) in the well using a decontaminated measuring device. All measurements must be made to the nearest 0.01 foot, and measured relative to the top of the casing. Record the depth of the water in the field notebook.

3. Inspect the disposable bailer to ensure that the bottom valve assembly is working correctly.
4. Begin purging the well by inserting a bailer into the PVC monitoring well casing and carefully lower it into the well. Take care to avoid agitating and aerating the fluid column in the well.
5. Slowly withdraw the bailer and transfer the water samples to a sampling containers.
6. Measure the temperature, pH, conductivity, and turbidity. Record these and all subsequent measurements in the field notebook.
7. Continue purging the well (a minimum of three well volumes) until the temperature, pH, conductivity, and turbidity have stabilized, or the well is dry.
8. When the water has recovered to 80 percent of the original level, carefully lower a new disposable bailer into the well and recover groundwater samples.
9. Fill the appropriate sample containers by releasing water from the bailer via the bottom emptying device with a minimum of agitation. The most volatile parameters are collected first, proceeding to the least volatile parameters.
10. Place the purge water in a DOT-approved 55-gallon drums.

3.0 ANALYSIS OF SAMPLES

Samples are submitted to a California state-certified laboratory for analysis.

4.0 SAMPLE HANDLING

4.1 Sample Containers, Preservation, and Holding Times

All samples are collected, placed in containers, preserved, and analyzed within the time constraints with applicable local, provincial, and federal procedures. All sample containers are precleaned in accordance with prescribed EPA methods. A custody seal is placed around all sample container lids to prevent leaks and unauthorized tampering with individual samples following collection and prior to the time of analysis.

4.2 Sample Tracking and Management

All samples are tracked using a standard chain-of-custody form. The chain of custody record includes the following information:

1. Sample number
2. Signature of collector
3. Date and time of collection
4. Sample collection location
5. Sample type
6. Signature of persons involved in the chain-of-possession
7. Inclusive dates of possession
8. Analytical parameters
9. Pertinent field observations

The custody record is completed using waterproof ink. Corrections are made by drawing a line through, initialing the error, and then entering the correct information.

Custody of the samples begins at the time of sample collection and are maintained by the sampling team supervisor until samples are relinquished for shipment to the laboratory, or until samples are hand-delivered to the designated laboratory sample custodian. Partial sample sets being accumulated for hand-delivery to the laboratory are stored in coolers with chain-of-custody records sealed in plastic bags and placed in the cooler with the sample sets.

ATTACHMENT IV

Monitoring Well Purge Tables

MONITORING WELL PURGE TABLE

Project Number: 4422-002				Site Name: Bank of America - San Leandro			
Well Number: MW-1				Date(s) Purged: 1/20/00			
OVM - Ambient:				Purge Method: Centrifugal Pump			
OVM - Vault:				Purge Rate:			
OVM - Casing:				Date & Time Sampled: 1/20/00 1730			
Water Level - Initial: 5.13 @ 1400				Purged & Sampled: Dale Anderson			
Water Level - Final: \approx 5' @ 1720				Sampling Method: Disposable Bailer			
Well Depth: 18.00 ft				Free Product:			
Well Diameter: 6 inch				Sheen:			
Well Casing Volume: 19.0 gal				Odor:			
Time	Purge Water Removed (gal)	Temperature (degrees Celcius)	pH	Electrical Conductivity (μ mhos)	Oxidation - Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity
1630	5	14.6	7.0	881	-131	3.61	HIGH
1635	10	15.6	7.0	890	-134	3.36	LOW
1638	20	16.1	7.0	859	-126	3.03	"
1653	30	16.7	7.0	874	-125	2.74	CLEAR
1700	40	16.4	7.0	894	-121	1.68	"
1705	45	16.6	7.0	869	-118	2.60	"
1707	50	16.9	7.1	885	-109	2.12	"
1710	55	16.5	7.1	879	-104	—	"
1713	60	16.6	7.0	909	-104	2.81	"

MONITORING WELL PURGE TABLE

Project Number: 4422-002				Site Name: Bank of America - San Leandro			
Well Number: MW-2				Date(s) Purged: 1/20/00			
OVM - Ambient:				Purge Method: Dedicated Disposable Bailer			
OVM - Vault:				Purge Rate:			
OVM - Casing:				Date & Time Sampled: 1/20/00 /600			
Water Level - Initial: 3.70 @ 1350				Purged & Sampled: Dale Anderson			
Water Level - Final: 3.75 @ 1554				Sampling Method: Dedicated Disposable Bailer			
Well Depth: 14.20 ft				Free Product:			
Well Diameter: 2 inch				Sheen:			
Well Casing Volume: 1.7				Odor:			
Time	Purge Water Removed (gal)	Temperature (degrees Celcius)	pH	Electrical Conductivity (µmhos)	Oxidation - Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity
1535	0.25	15.1	7.2	958	-041	1.56	Clear
1537	1.0	16.2	7.0	1059	-041	1.32	Low
1539	2.0	17.1	7.1	1021	-046	1.33	"
1542	2.75	17.2	6.9	1072	-040	1.70	"
1544	3.25	17.2	7.1	1085	-048	1.63	"
1546	3.75	17.3	7.1	1045	-046	1.41	"
1548	4.25	17.3	7.1	1097	-048	1.80	"
1550	4.75	17.6	7.1	1097	-047	1.52	"
1552	5.25	17.4	7.1	1092	-048	1.58	"

MONITORING WELL PURGE TABLE

Project Number: 4422-002				Site Name: Bank of America - San Leandro			
Well Number: MW-5				Date(s) Purged: 1/20/00			
OVM - Ambient:				Purge Method: Dedicated Disposable Bailer			
OVM - Vault:				Purge Rate:			
OVM - Casing:				Date & Time Sampled: 1/20/00 12:40			
Water Level - Initial: 6.43 @ 1205				Purged & Sampled: Dale Anderson			
Water Level - Final: 6.56 @ 1230				Sampling Method: Dedicated Disposable Bailer			
Well Depth: 15.55 ft				Free Product:			
Well Diameter: 2 inch				Sheen:			
Well Casing Volume: 1.5				Odor:			
Time	Purge Water Removed (gal)	Temperature (degrees Celcius)	pH	Electrical Conductivity (µmhos)	Oxidation - Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity
1209	.25	20.0	6.8	1294	-060	2.14	Low
1215	1.0	18.7	7.0	1287	-073	2.14	11
1217	1.5	18.4	7.0	1128	-072	3.30	Med
1219	2.0	18.2	7.0	1342	-073	2.42	11
1220	2.5	18.6	6.9	1297	-076	1.91	11
1223	3.0	18.0	6.9	936	-072	1.75	11
1224	3.5	17.7	6.9	1287	-071	1.80	11
1226	4.0	18.1	6.9	1330	-074	1.83	11
1228	4.5	18.0	7.0	940	-070	2.09	11

ATTACHMENT V

Laboratory Analytical Reports and Chain-of-Custody Documentation

EXCELICHEM ENVIRONMENTAL LABS



500 Giuseppe Court, Suite 9
Roseville, CA 95678
Phone#: (916) 773-3664 Fax#: (916) 773-4784

ANALYSIS REPORT

Attention: Dale Anderson
Versar
7844 Madison Avenue, Suite 167
Fair Oaks, CA 95628
Project: Bank of America-San Leandro/4422-002
Method: EPA 8015m

Date Sampled: 01/20/00
Date Received: 01/21/00
Matrix: Water

Method: EPA 375.4 Units: mg/L SO₄²⁻ Date Analyzed: 01/24/00

Client Sample I.D.	MW3		MW2		MW1	
LAB. NO.	W0100144		W0100145		W0100146	
ANALYTE	R/L	Results	R/L	Results	R/L	Results
Sulfate	5	45	10	82	5	46

Method: EPA 2320B Units: mg/L as CaCO₃ Date Analyzed: 01/27/00

Client Sample I.D.	MW3		MW2		MW1	
LAB. NO.	W0100144		W0100145		W0100146	
ANALYTE	R/L	Results	R/L	Results	R/L	Results
Total Alkalinity	5.0	346	5.0	530	5.0	576

QA/QC Analyzed: 01/27/00

QA/QC %RECOVERY		
	LCS	LCSD
Total Alkalinity	102	101

Method: EPA RSKSOP-175 Units: µg/L Date Analyzed: 01/24/00

Client Sample I.D.	MW3		MW2		MW1	
LAB. NO.	W0100144		W0100145		W0100146	
ANALYTE	R/L	Results	R/L	Results	R/L	Results
Methane	1.0	13.0	1.0	1.5	5.0	2590

QA/QC Analyzed: 01/24/00

QA/QC %RECOVERY		
	LCS	LCSD
Methane	90	90

Method: EPA 353.2 Units: mg/L Date Analyzed: 02/07/00

Client Sample I.D.	MW3		MW2		MW1	
LAB. NO.	W0100144		W0100145		W0100146	
ANALYTE	R/L	Results	R/L	Results	R/L	Results
Nitrate	0.05	1.37	0.10	3.04	0.05	0.27

ND = Not detected. Compound(s) may be present at concentrations below the reporting limit.

R/L = Reporting Limit

Joseph M. Balls
Laboratory Representative

02/09/00
Date Reported

EXCELCHEM ENVIRONMENTAL LABS



500 Giuseppe Court, Suite 9
Roseville, CA 95678
Phone#: (916) 773-3664 Fax#: (916) 773-4784

ANALYSIS REPORT

Attention: Dale Anderson
Versar
7844 Madison Avenue, Suite 167
Fair Oaks, CA 95628
Project: Bank of America-San Leandro/4422-002
Method: EPA 602/8015m

Date Sampled: 01/20/00
Date Received: 01/21/00
BTEX/TPHg Analyzed: 01/22/00
TPHd Analyzed: 01/24/00
Matrix: Water
Units: µg/L

Client Sample I.D.	MW5		MW4		MW3		MW2		MW1	
LAB. NO.	W0100142		W0100143		W0100144		W0100145		W0100146	
ANALYTE	R/L	Results	R/L	Results	R/L	Results	R/L	Results	R/L	Results
Benzene	0.5	1.9	0.5	0.9	0.5	0.8	0.5	0.7	10	1300
Toluene	0.5	ND	0.5	ND	0.5	ND	0.5	ND	10	402
Ethylbenzene	0.5	ND	0.5	ND	0.5	ND	0.5	ND	10	483
Total Xylenes	0.5	ND	0.5	ND	0.5	ND	0.5	ND	10	2490
TPH as Gasoline	50	231	50	106	50	163	50	118	1000	22400
TPH as Diesel	N/R	N/R	N/R	N/R	50	ND	N/R	N/R	50	ND

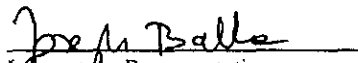
QA/QC % RECOVERY		
	LCS	LCSD
Benzene	97	104
Toluene	99	106
Ethylbenzene	100	105
Total Xylenes	100	106
TPH as Diesel	90	84

QA/QC Analyzed: 01/21,24/00

N/R = Not Requested

ND = Not detected. Compound(s) may be present at concentrations below the reporting limit.

R/L = Reporting Limit


Laboratory Representative

02/09/00
Date Reported

