BSK & ASSOCIATES

GEOTECHNICAL CONSULTANTS, INC.

BSK JOB NO. P92270.3

FOURTH QUARTERLY GROUNDWATER MONITORING REPORT - JUNE 1994 AMERICAN BRASS & IRON FOUNDRY 7825 SAN LEANDRO STREET OAKLAND, CALIFORNIA

BSK & Associates

BSK & Associates
1181 Quarry Lane
Building 300
Pleasanton, CA 94566
(510) 462-4000
(510) 462-6283 FAX

July 19, 1994

BSK Job No. P92270.3

American Brass and Iron Foundry
7825 San Leandro Street
Oakland, CA 94621

Attention: Mr. David Robinson
Environmental Engineer

Subject: Fourth Quarterly Groundwater Monitoring Report - June 1994
American Brass and Iron Foundry
7825 San Leandro Street
Oakland, California

As requested and authorized, BSK & Associates has performed the fourth quarterly monitoring of four shallow groundwater monitoring wells, MW-1 through MW-4, at American Brass and Iron Foundry (AB & I), located at 7825 San Leandro Street, Oakland, California (Site). This report presents the project background, groundwater data obtained during this sampling event as well as previous data, conclusions based on this quarter's data, and recommendations for further action, as appropriate. The Site location is shown on the Vicinity Map, Figure 1.

BSK appreciates this opportunity to continue to be of service to American Brass & Iron. If there are questions or comments regarding this report, please contact the undersigned.

Respectfully submitted,
BSK & Associates

Tim W. Berger, C.E.G. 1828
Project Geologist

Alex Y. Eskandari, C.E. 38101
Project Manager

AYE\TWB:ndp
(ENV\P92270Q.294)

Distribution: American Brass & Iron (3 copies)

TABLE OF CONTENTS

TEXT **PAGE**

TABLES

FIGURES

APPENDICES

FOURTH QUARTERLY GROUNDWATER MONITORING REPORT - JUNE 1994 AMERICAN BRASS & IRON FOUNDRY 7825 SAN LEANDRO STREET OAKLAND, CALIFORNIA

Introduction

This quarterly monitoring report has been prepared to meet Alameda County Department of Environmental Health (ACDEH) concerns regarding the status of groundwater at the Site following the removal of four UST during 1991 and 1992, as initially presented in their letter of October 2, 1992, to David Robinson of American Brass & Iron Foundry (AB & I).

Background

American Brass & Iron Foundry has been operating at its present location for more than eighty years. AB & I's current activities include the manufacture of cast iron pipe and fittings. The facility accepts scrap iron and steel, which it stockpiles on-site, and utilizes in its processes.

AB & I maintained three USTs to store petroleum products and one UST to store solvent. AB & I removed the four USTs between August 1991 and June 1992. Removal and disposal of two of the USTs (the 8,000-gallon capacity gasoline tank and the 550-gallon capacity leaded gasoline tank) were described in two consultant's (Levine-Fricke) reports. Documentation of the removal and disposal of the two remaining USTs (the 8,000-gallon capacity 1,1,1-TCA UST and the 10,000-gallon capacity diesel UST) was reported by AB & I.

In general, analytical results for the soil and groundwater samples collected adjacent to the tanks during the tank removal projects showed detectable concentrations of Total Petroleum Hydrocarbons as gasoline (TPHg), Total Petroleum Hydrocarbons as diesel (TPHd), 1,1-DCA, Chloroethane, and 1,1,1-TCA. Affected soil at each former tank location was excavated until confirmation samples indicated the chemicals of concern were at relatively low concentrations, or to where an obstruction made further excavation impossible or hazardous.

BSK & Associates installed four shallow groundwater monitoring wells at the Site in February 1993, one well per former tank location. Soil and groundwater samples revealed soil contamination in the vicinities of the former 500-gallon gasoline tank and the TCA solvent tank, and contaminated groundwater at these two locations as well as the former diesel tank location. The well installation and sampling findings are presented in BSK Report, P92270.3, dated April 30, 1993.

FOURTH QUARTERLY MONITORING ACTIVITIES - JUNE 1994

General

Fourth quarterly monitoring of groundwater monitoring wells MW-1, MW-2, MW-3 and MW-4 was performed by BSK personnel on June 10, 1994, in acccordance with the Groundwater Well Monitoring portion of our Proposal PR93204.3 of July 29, 1993. Field procedures and observations are provided in the following text and figures.

Field Work

Water samples from site wells were obtained after purging each well of approximately four casing volumes, and allowing eighty percent recovery. Observation of water level, and for immiscible product, was performed using an electric sounder and clear point-source bailer prior to purging. The water level was recorded to the nearest 1/100th of a foot. During purging, the water parameters: pH, temperature and conductivity were monitored and recorded at regular intervals on Well Field Logs to assess the influx of fresh formation water. The Well Field Logs are presented in Figures 3 through 6. Water samples for analytical testing were obtained in the order of most to least volatility. Samples were obtained via electric submersible pump or point-source bailer (Teflon¤ or polyethylene disposable), and transferred to the appropriate sample containers, with preservative as needed. Metals samples were field-filtered using a high-capacity in-line 0.45 micron filter prior to preservation. The samples were labeled, and refrigerated to 4°C on-site using water-ice or blue ice for delivery to our State-certified analytical laboratory.

Sampling, purging and decontamination waste water was contained on-site in 55-gallon DOT drums provided by AB & I. Each container was labeled according to the wastewater source, date of accumulation and owner.

Analytical Testing

Analytical testing of soil and water samples obtained from the site were performed by BSK Analytical laboratories in Fresno, California.

The analyses performed for each contaminant type are those specified by the Tri-Regional Water Board Staff Recommendations of August 10, 1992. The analyses are:

Well MW-1
TPHdiesel by GCFID-3510
BTEX by Method 602

Well MW-2
Chlorinated Solvent by EPA Method 601
Oil and Grease by Methods 5520 C&F
TPHgasoline by GCFID-5030
BTEX by EPA Method 602

Well MW-3
TPHgasoline by GCFID-5030
BTEX by Method 602

Well MW-4
TPHgasoline by GCFID-5030
BTEX by Method 602
Total Lead

Samples were submitted to the analytical laboratory utilizing Chain-Of-Custody documentation and procedure.

The results of the chemical analyses of groundwater for this quarter, and previous quarterly test results, are summarized in the following tables; water analyses results and related Action Levels are reported in Parts Per Billion-PPB (ug/l). The Chemical Test Data Sheets and project Chain-Of-Custody documentation are presented in Appendix "A" of this report.

TABLE 1 - WATER RESULTS

BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES (BTEX)

	CONSTITUENTS			
Sample Location (Action Level)	**Benzene $(1)_1$**	**Toluene $(100)_2$**	**Ethylbenzene $(680)_1$**	**Xylenes $(1750)_1$**
SAMPLE DATE: 06/10/94 (Fourth Quarter)				
MW-1	**ND**	**ND**	**ND**	**ND**
MW-2	**ND**	**ND**	**ND**	**ND**
MW-3	**ND**	**ND**	**ND**	**ND**
MW-4	**4.3**	**ND**	**1.8**	**4.3**

TABLE 1(Continued) - WATER RESULTS BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES (BTEX)				
SAMPLE DATE: 03/04/94 (Third Quarter)				
MW-1	1.1	ND	ND	ND
MW-2	ND	ND	ND	3.6
MW-3	ND	ND	ND	ND
MW-4	ND	0.9	ND	1.1
SAMPLE DATE: 12/03/93 (Second Quarter)				
MW-1	ND	ND	ND	ND
MW-2	ND	250	19	5.1
MW-3	ND	ND	ND	ND
MW-4	ND	ND	1.4	2.8
SAMPLE DATE: 08/20/93 (First Quarter)				
MW-1	2.2	3.7	4.5	17
MW-2	2.9	4.2	6.3	25
MW-3	7.2	9.3	8.6	31
MW-4	5.6	4.9	7.5	22
SAMPLE DATE: 03/10/93 (Initial Well Installation Sampling)				
MW-1	0.6	ND	ND	ND
MW-2	ND	0.8	ND	ND
MW-3	ND	ND	ND	ND
MW-4	1.0	2.0	7.6	19

ND - None Dctected
1 - California Department Of Health Services Drinking Water Standard, Revised 10/23/91
2 - California DOHS Action Level, 7/1/92

TABLE 2 - WATER RESULTS

TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE AND DIESEL, TOTAL AND HYDROCARBON OIL AND GREASE, TOTAL LEAD, AND VOLATILE HALOCARBONS

	CONSTITUENTS					
Sample Location (Action Level)	**TPH Gasoline (NA)**	**TPH Diesel (100)$_1$**	**Total Oil & Grease (NA)**	**Hydrocarbon Oil & Grease (NA)**	**Total Lead (50)**	**Volatile Halocarbons (Determined by Compound)**
SAMPLE DATE: 06/10/94 (Fourth Quarter)						
MW-1	--	**490**	--	--	--	--
MW-2	**920**	--	**2,000**	**2,000**	--	**Chloroethane - 4.2(NA)** **1,1-Dichloroethane - 0.6(0.5)$_3$** **1,1,1-Trichloroethane - 0.8(200)$_3$**
MW-3	**ND**	--	--	--	--	--
MW-4	**460**	--	--	--	**ND**	--
SAMPLE DATE: 03/04/94 (Third Quarter)						
MW-1	--	710	--	--	--	--
MW-2	420	--	ND	ND	--	Chloroethane - 3.7(NA)
MW-3	ND	-	--	--	--	--
MW-4	50	--	--	--	ND	--
SAMPLE DATE: 12/03/93 (Second Quarter)						
MW-1	--	3200$_{(3)}$	--	--	--	--
MW-2	900	--	ND	ND	--	Chloroethane - 3.8(NA)
MW-3	80	--	--	--	--	--
MW-4	1100	--	--	--	ND	--
SAMPLE DATE: 08/20/93 (First Quarter)						
MW-1	--	2100$_{(1)}$	--	--	--	--
MW-2	720$_{(2)}$	--	ND	ND	--	Chloroethane - 4.7(NA)
MW-3	190	--	--	--	--	--
MW-4	350	--	--	--	ND	--

TABLE 2(Continued) - WATER RESULTS TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE AND DIESEL, TOTAL AND HYDROCARBON OIL AND GREASE, TOTAL LEAD, AND VOLATILE HALOCARBONS						
SAMPLE DATE: 03/10/93 (Initial Well Installation Sampling)						
MW-1	--	830	--	--	--	--
MW-2	920	--	1.0	ND	--	Bromoform - $0.6(100)_2$ Chloroethane - 5.0(NA) 1,1-Dichloroethane - $1.7(0.5)_3$ 1,1,1-Trichloroethane - $6.7(200)_3$
MW-3	ND	--	--	--	--	--
MW-4	1800	--	--	--	58.O	--

ND - None Detected
NA - Not Applicable
-- - Not Tested
1 - 1980 EPA 10-Day Suggested No Adverse Response Level (SNARL)
2 - EPA Drinking Water Standard, Revised 7/1/92
3 - California Department of Health Services Drinking Water Standards, Revised 10/23/91.
(1) - "Not Diesel-Like", as reported by analytical laboratory
(2) - "Not Gasoline-Like", as reported by analytical laboratory
(3) - "Appears to be heavier than diesel," as reported by analytical laboratory

FOURTH QUARTERLY MONITORING OBSERVATIONS - JUNE 1994

Regional Hydrogeology

The American Brass & Iron facility is located on the San Leandro alluvial cone of the East Bay Plain. The upper 400 feet of the San Leandro Cone comprises discontinuous beds of sand and gravel which extend westward under San Francisco Bay, and are capped by confining clay layers. Groundwater in this area is used mainly for industrial and irrigation purposes, but is suitable in quality for most uses. Shallow aquifers of limited extent located throughout the Bay Plain, are often perched and unconfined, and typically yield less than 35 gallons per minute from silty sands. These aquifers are often tapped by wells less than 50 feet in depth and used for local irrigation. These minor aquifers are most susceptible to groundwater pollution (Maslonowski, 1984).

Site Hydrogeology

Groundwater was initially encountered in borings for well installations from 8 to 12 feet in depth at the site. Water levels stabilized at a depth below present grade of 5 to 7 feet. Some water from saturated fill material may have contributed to the stabilized levels. Clayey deposits were typically damp to moist, with wet fractures and pores, if present. Sand horizons were wet to saturated.

Two three-point problems were used to assess the groundwater flow direction at the site for this sampling event. The solution utilizing wells MW-2, MW-3 and MW-4 indicates flow to the northeast at a gradient of 0.8 percent. The solution utilizing wells MW-1, MW-2 and MW-3 indicates water flow to the north-northwest, at a gradient of 0.2 percent.

The groundwater flow directions and gradients indicated this quarter are similar to those of March 1994. Groundwater levels at the site compared to March 1994 are 0.31 feet to 0.60 higher. Figure 7, Groundwater Flow Direction and Gradient, illustrates groundwater flow direction and gradient determined from data obtained from the Site on June 10, 1994.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on chemical analyses of water samples, field observation and measurement during this quarterly water sampling of groundwater monitoring wells, MW-1 through MW-4, degradation of water quality is apparent at well locations MW-1, MW-2, and MW-4.

Diesel fuel weight hydrocarbons (TPHd) were detected in water at Well MW-1. The TPHd concentration exceeded EPA No Adverse Effects levels. The analytical laboratory reports that the TPHd chromatograph is atypical of Diesel fuel, and may represent other similar weight compounds (see Figure A-2, Chemical Test Data Sheets).

Gasoline weight hydrocarbons (TPHg), Oil and Grease, and three volatile halocarbons were detected in water from Well MW-2. One volatile halocarbon concentration, 1,1-dichloroethane, exceeded drinking water standards. The analytical laboratory reports that the TPHg chromatograph is atypical of Gasoline (see Figure A-3, Chemical Test Data Sheets).

TPHg and BEX were detected at Well location MW-4. The Benzene concentration exceeds the State drinking water standard. No lead was detected this sampling event. The TPHg chromatograph is atypical for gasoline in that the central peaks are absent.

Recommendations

Assessment of the lateral extent of shallow groundwater contamination should be considered in the vicinity of Wells MW-2 and MW-4. The ACDEH has indicated that quarterly monitoring of Well MW-1 would be sufficient at this time (ACDEH letter to AB & I of June 18, 1993).

Quarterly monitoring of the four wells installed should continue to be performed to assess contaminant concentration fluctuation with respect to groundwater level, gradient and flow direction.

LIMITATIONS

This groundwater monitoring well report has been prepared for the exclusive use of American Brass & Iron Foundry Company. Unauthorized use of or reliance on the information contained in this report by others, unless given express written consent by BSK & Associates, is strictly prohibited.

The findings and conclusions presented in this report are based on field observations, and on data obtained from the sources listed in this report. This report has been prepared in accordance with generally accepted methodologies and standards of practice for the area. No other warranty, either expressed or implied, is made as to the findings or conclusions included in this report.

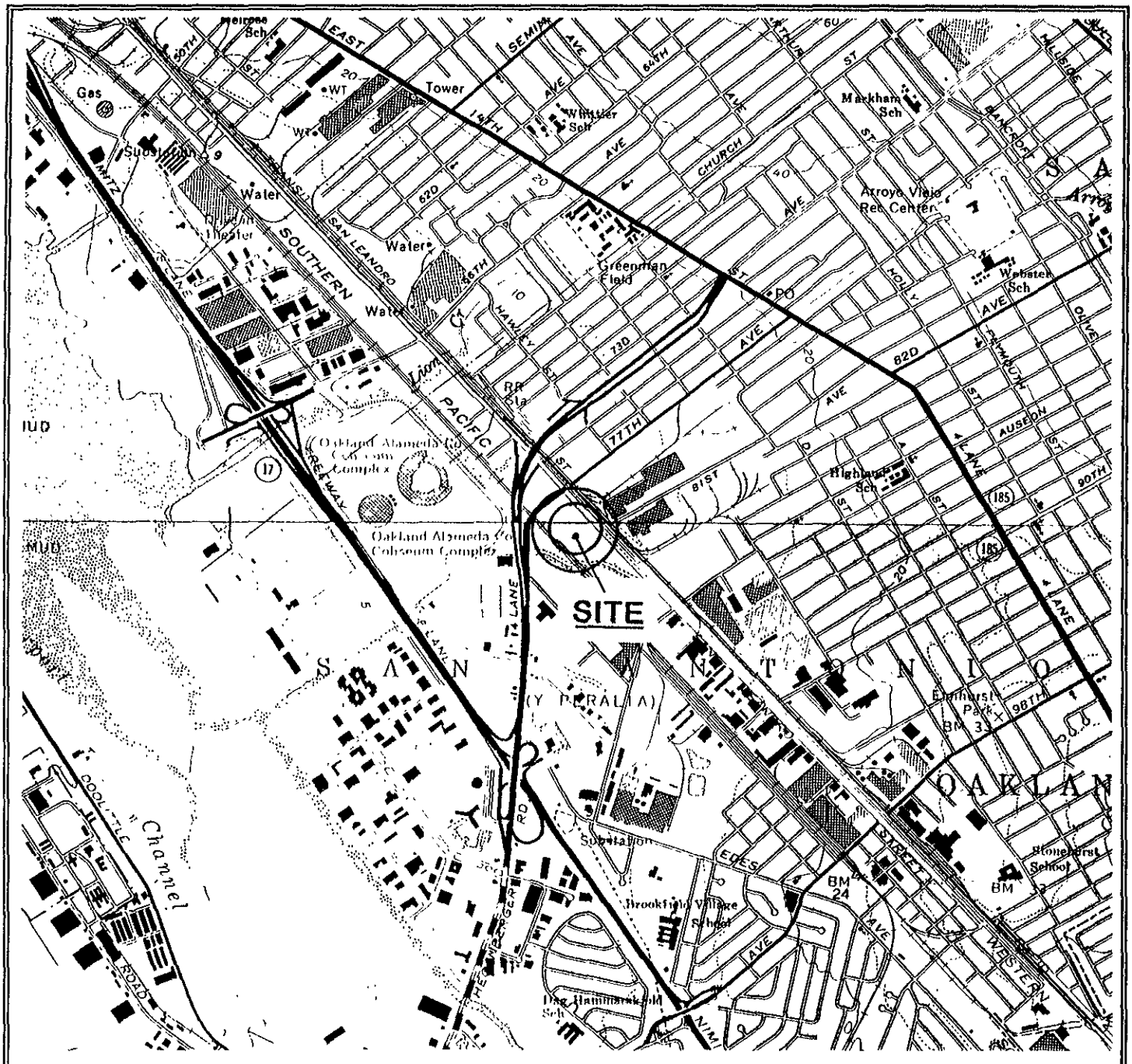
The findings of this report are valid as of the present. The passage of time, natural processes or human intervention on the property or adjacent properties, and changes in the regulations can cause changed conditions which can invalidate the findings and conclusions in this report.

This report is neither certification nor guarantee that the property is free of, or contains hazardous substance contamination, other than that mentioned in the report.

DISTRIBUTION

A copy of this report should be forwarded by the client to the Alameda County Department of Environmental Health for their review. An extra copy of this report has presented to American Brass and Iron Foundry for this purpose.

* * * *



SCALE 1:24000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET

DOTTED LINES REPRESENT 5-FOOT CONTOURS

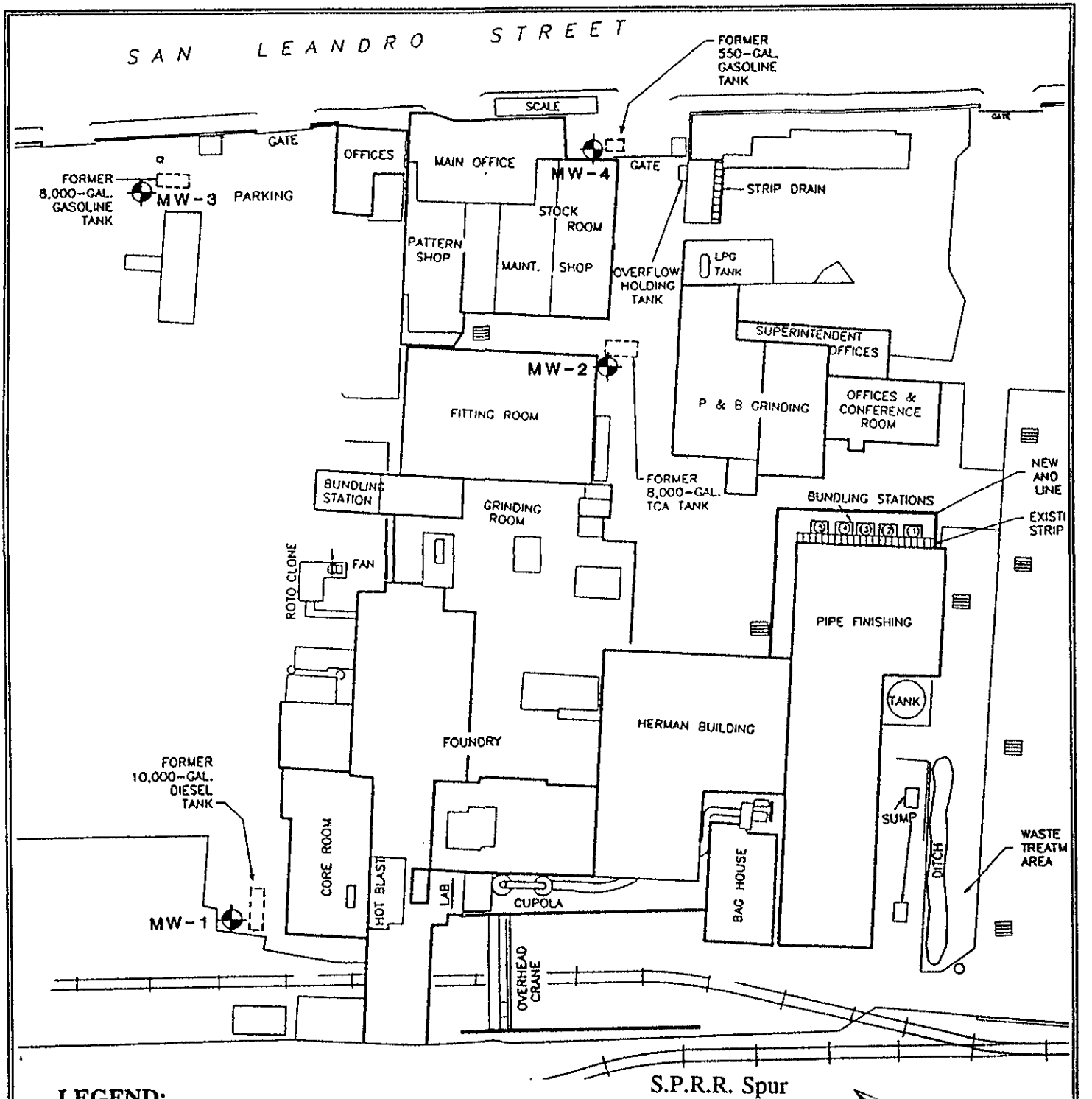
NATIONAL GEODETIC VERTICAL DATUM OF 1929

DEPTH CURVES IN FEET—DATUM IS MEAN LOWER LOW WATER

NORTH

Source: USGS 7.5 Minute Topographic Maps, Oakland East and San Leandro Quadrangles

FOURTH QUARTERLY GROUNDWATER MONITORING AMERICAN BRASS & IRON FOUNDRY 7825 SAN LEANDRO STREET OAKLAND, CALIFORNIA	**VICINITY MAP** **Job No. P92270.3** **July 1994** **FIGURE: 1**	**BSK & ASSOCIATES**



LEGEND:

⊕ - Groundwater Monitoring Well Location and Designation

Basemap Source: Levine-Fricke Work Plan 92P-404I, 10/30/91

Scale: 1" = 80'

FOURTH QUARTERLY GROUNDWATER MONITORING AMERICAN BRASS & IRON FOUNDRY 7825 SAN LEANDRO STREET OAKLAND, CALIFORNIA	**SITE PLAN** **Job No. P92270.3** **July 1994** **FIGURE: 2**	**BSK & ASSOCIATES**

BSK Job No.: P92270.3
Date: July 1994
Figure No.: 3

WELL FIELD LOG

Well Observation: x **Date:** 06/10/94
Sample Collection: x **Date:** 06/10/94

Project Name: American Brass & Iron
Location: Oakland, CA
Personnel: FRG
Weather: Clear, ± 80° F.

WELL INFORMATION:

Well Number	MW-1-	**Date Purged**	06/10/94
Depth to Water - feet(TOC)	6.97	**Purge Method**	Clear Point-Source Bailer
Well Depth (feet)	20		
Water Volume (gallons)	1.9	**Purge Begin**	10:45
Reference Elevation - feet(TOC)	+9.52	**Purge End**	10:59
Groundwater Elevation (feet)	+2.53	**Purge Rate**	0.6 GPM
Measurement Technique	Solinst Electric Water Sounder		

IMMISCIBLE LAYERS:

Top: None
Bottom: Not observed, fine sand and clay
Detection Method: Visual
Collection Method: Point-Source Bailer

WELL DEVELOPMENT/PURGE DATA:

TIME	VOLUME REMOVED (gallons)	ELECTRICAL CONDUCTIVITY (Ec/Range)	pH	TEMP. (°F)	COLOR/COMMENTS
10:47	2.0	1810	7.87	69.0	None
10:52	4.0	1870	7.52	67.0	"
10:55	6.0	1920	7.46	66.0	"
10:59	8.0	1930	7.45	66.0	"
11:03	Depth to water:	7.05 feet			

SAMPLE COLLECTION DATA:

Sampling Equipment: Teflon Point-Source Bailer

TIME	ANALYSIS	AMOUNT/CONTAINER USED	SAMPLE INTERVAL
11:05	TPHd	2-250 ml amber glass bottles with H_2SO_4	15-17'
"	BTEX	2-40 ml glass vials with Hcl	"

Field Observations: None

BSK Job No.: P92270.3
Date: July 1994
Figure No.: 4

WELL FIELD LOG

Well Observation: x **Date:** 06/10/94
Sample Collection: x **Date:** 06/10/94

Project Name: American Brass & Iron
Location: Oakland, CA
Personnel: FRG
Weather: Clear, ±90° F.

WELL INFORMATION:

Well Number	MW-2	**Date Purged**	06/10/94
Depth to Water - feet(TOC)	4.87	**Purge Method**	4" Electric Submersible Pump
Well Depth (feet)	17		
Water Volume (gallons)	8.0	**Purge Begin**	13:06
Reference Elevation - feet(TOC)	+7.60	**Purge End**	13:27
Groundwater Elevation (feet)	+2.73	**Purge Rate**	1.5 GPM
Measurement Technique	Solinst Electric Water Sounder		

IMMISCIBLE LAYERS:

Top: None
Bottom: Not observed, fines and clay, bay mud odor
Detection Method: Visual
Collection Method: Point-Source Bailer

WELL DEVELOPMENT/PURGE DATA:

TIME	VOLUME REMOVED (gallons)	ELECTRICAL CONDUCTIVITY (Ec/Range)	pH	TEMP. (°F)	COLOR/COMMENTS
13:10	8.0	1710	6.96	76.0	None
13:15	16.0	1690	6.82	76.0	"
13:21	24.0	1690	6.89	76.0	"
13:27	32.0	1690	6.87	76.0	"
13:32	Depth to water:	5.32 feet			

SAMPLE COLLECTION DATA:

Sampling Equipment: Teflon Point-Source Bailer

TIME	ANALYSIS	AMOUNT/CONTAINER USED	SAMPLE INTERVAL
13:40	EPA 601	2-40 ml glass vials with HCl	±10'
"	TPH-G and BTEX	2-40 ml glass vials with HCl	"
"	Total and Hydrocarbon Oil & Grease	1-liter amber glass bottle with H_2SO_4	"

Field Observations: None

BSK Job No.: P92270.3
Date: July 1994
Figure No.: 5

WELL FIELD LOG

Well Observation: x **Date:** 06/10/94
Sample Collection: x **Date:** 06/10/94

Project Name: American Brass & Iron
Location: Oakland, CA.
Personnel: FRG
Weather: Clear, ±75° F.

WELL INFORMATION:

Well Number	MW-3	Date Purged	06/10/94
Depth to Water - feet(TOC)	7.71	Purge Method	Point-Source Bailer
Well Depth (feet)	19		
Water Volume (gallons)	1.8	Purge Begin	09:55
Reference Elevation - feet(TOC)	+9.83	Purge End	10:13
Groundwater Elevation (feet)	+2.12	Purge Rate	0.4 GPM
Measurement Technique	Solinst Electric Water Sounder		

IMMISCIBLE LAYERS:

Top: None
Bottom: Not observed, clay colloids
Detection Method: Visual
Collection Method: Clear Point-Source Bailer

WELL DEVELOPMENT/PURGE DATA:

TIME	VOLUME REMOVED (gallons)	ELECTRICAL CONDUCTIVITY (Ec/Range)	pH	TEMP. (°F)	COLOR/COMMENTS
09:58	2	2260	7.13	73.0	Clear
10:03	2.0	2290	7.13	72.0	"
10:08	6.0	2190	7.19	71.0	"
10:13	8.0	2190	7.19	71.0	"
10:17	Depth to water:	7.90 feet			

SAMPLE COLLECTION DATA:

Sampling Equipment: Teflon Point-Source Bailer

TIME	ANALYSIS	AMOUNT/CONTAINER USED	SAMPLE INTERVAL
10:20	TPH-G & BTEX	2-40 ml glass vials with HCl	± 17'

Field Observations: None

BSK Job No.: P92270.3
Date: July 1994
Figure No.: 6

WELL FIELD LOG

Well Observation: x **Date:** 06/10/94
Sample Collection: x **Date:** 06/10/94

Project Name: American Brass & Iron
Location: Oakland, CA
Personnel: FRG
Weather: Clear, ±87° F.

WELL INFORMATION:

Well Number	MW-4	**Date Purged**	06/10/94
Depth to Water - feet(TOC)	7.74	**Purge Method**	Point-Source Bailer
Well Depth (feet)	26.5		
Water Volume (gallons)	3.0	**Purge Begin**	11:50
Reference Elevation - feet(TOC)	9.52	**Purge End**	12:09
Groundwater Elevation (feet)	+1.78	**Purge Rate**	0.6 GPM
Measurement Technique	Solinst Electric Water Sounder		

IMMISCIBLE LAYERS:

Top: None observed
Bottom: None observed, clay colloids, odor of bay mud
Detection Method: Visual
Collection Method: Clear Point-Source Bailer

WELL DEVELOPMENT/PURGE DATA:

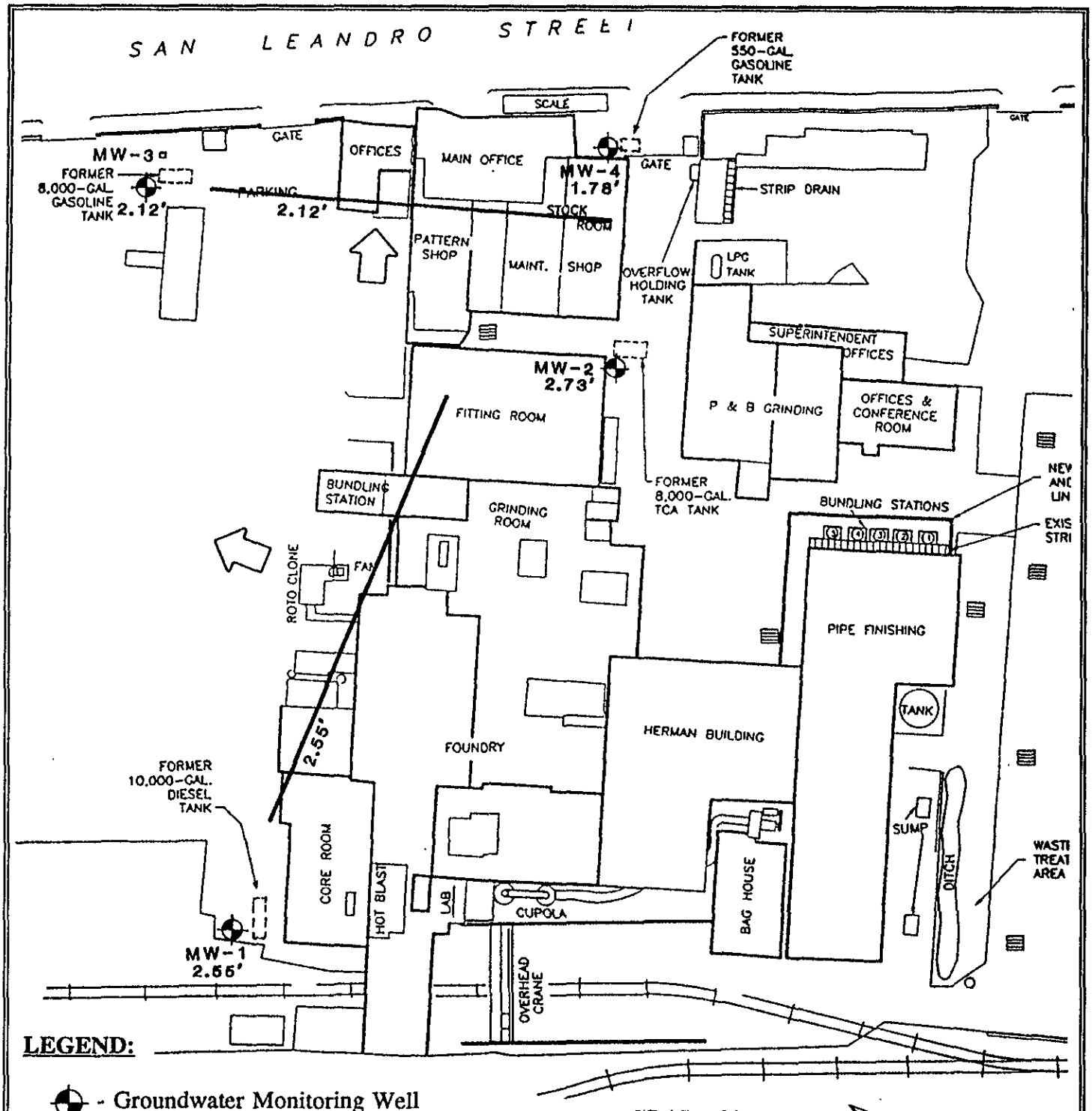
TIME	ELECTRICAL CONDUCTIVITY (Ec/Range)	pH	TEMP. (°F)	COLOR/COMMENTS
11:55	830	7.41	79.0	Clear, odor
11:59	810	7.40	74.0	"
12:03	880	7.41	72.0	"
12:09	880	7.40	72.0	"
12:15	Depth to Water:	7.80 feet		"

SAMPLE COLLECTION DATA:

Sampling Equipment: Teflon Point-Source Bailer

TIME	ANALYSIS	AMOUNT/CONTAINER USED	SAMPLE INTERVAL
12:20	TPH-G & BTEX	2-40 ml glass vials with HCl	±10'
"	Total Lead	1-16 oz. plastic bottle with HNO_3	"

Field Observations: None



LEGEND:

- Groundwater Monitoring Well Location, Designation and Groundwater Elevation on 6/10/94
- Line of Equal Groundwater Elevation And Inferred Flow Direction - 6/10/94

GRADIENT:

Wells 1,2,3 - 0.2%
Wells 2,3,4 - 0.8%

Scale: 1" = 80'

NORTH

POTENTIOMETRIC SURFACE MAP INDICATING GROUNDWATER FLOW DIRECTION AND GRADIENT JUNE 10, 1993	**Job No. P92270.3 July 1994 FIGURE: 7**	**BSK & ASSOCIATES**

APPENDIX "A"

CHEMICAL TEST DATA SHEETS

CHAIN-OF-CUSTODY DOCUMENTS

BSK & Associates

FIGURE: A-1

ANALYTICAL BSK LABORATORIES
1414 Stanislaus Street
Fresno, California 93706
Telephone (209) 497-2889
FAX (209) 485-6935
1-800-877-8310

BSK-Pleasanton
American Brass & Iron

Date Sampled : 06/10/94
Time Sampled : 1105
Date Received : 06/13/94
Date of Analysis : 06/14/94
Report Issue Date: 06/28/94

Case Number : Ch941754
Lab ID Number : 1754-1
Project Number : P92270.3
Sample Description: MW-1

Sample Type: LIQUID

Analyses for BTEX by EPA Method 602M
Prepared by EPA Method 5030

Results Reported in Micrograms per Liter ($\mu g/L$)

Compound	Results	DLR
Benzene	ND	0.3
Toluene	ND	0.3
Ethylbenzene	ND	0.3
Xylene	ND	0.3

Sample DLR = DLR x DLR Multiplier, DLR Multiplier = 1

DLR: Detection Limit for the Purposes of Reporting.
Exceptional sample conditions or matrix interferences may result in higher detection limits.
ND: None Detected
--: Not Analyzed

Cynthia Pigman, QA/QC Supervisor

Jeffrey Creager, Organics Manager

91 1009 BTEXL

FIGURE: A-2

ANALYTICAL BSK LABORATORIES
1414 Stanislaus Street
Fresno, California 93706
Telephone (209) 497-2889
FAX (209) 485-6935
1-800-877-8310

BSK-Pleasanton
American Brass & Iron

Date Sampled : 06/10/94
Time Sampled : 1105
Date Received : 06/13/94
Date of Analysis : 06/22/94
Report Issue Date: 06/28/94

Case Number : Ch941754
Lab ID Number : 1754-1
Project Number : P92270.3
Sample Description: MW-1

Sample Type: LIQUID

Analyses for TPH (Total Petroleum Hydrocarbons) as Diesel by Method DHS GC/FID.

Results Reported in Micrograms per Liter (µg/L)

Analyte	Results	DLR
TPH(D)	490	50

Sample DLR = DLR x DLR Multiplier, DLR Multiplier = 1

NOTE:
Hydrocarbons in the diesel boiling point range are reported, in accordance with the method, as diesel.
Chromatography for this sample is described as inconsistent with the diesel standard because it had the proper boiling range but an atypical response.

LEGEND:
DLR: Detection Limit for the Purposes of Reporting.
Exceptional sample conditions or matrix interferences may result in higher detection limits.
ND: None Detected

Cynthia Pigman, QA/QC Supervisor

Jeffrey Creager, Organics Manager

FIGURE: A-3

ANALYTICAL BSK LABORATORIES
1414 Stanislaus Street
Fresno, California 93706
Telephone (209) 497-2889
FAX (209) 485-6935
1-800-877-8310

BSK-Pleasanton
American Brass & Iron

Date Sampled : 06/10/94
Time Sampled : 1340
Date Received : 06/13/94
Date of Analysis : 06/14/94
Report Issue Date: 06/28/94

Case Number : Ch941754
Lab ID Number : 1754-2
Project Number : P92270.3
Sample Description: MW-2

Sample Type : LIQUID

Analyses for BTEX by EPA Method 8020 and TPH(G) by EPA Method 8015 Prepared by Method 5030

Results Reported in Micrograms per Liter (ug/L)

Compound	Results	DLR
Benzene	ND	0.3
Toluene	ND	0.3
Ethylbenzene	ND	0.3
Total Xylene Isomers	ND	0.3
Total Petroleum Hydrocarbons (G)	920	50

Sample DLR = DLR x DLR Multiplier, DLR Multiplier = 1

DLR: Detection Limit for the Purposes of Reporting.
Exceptional sample conditions or matrix interferences may result in higher detection limits.
ND: None Detected

NOTE:
Hydrocarbons in the gasoline boiling point range are reported, in accordance with the method, as gasoline.
Chromatography for this sample is described as inconsistent with the gasoline standard.

LEGEND:

DLR: Detection Limit for the Purposes of Reporting.
Exceptional sample conditions or matrix interferences may result in higher detection limits.
ND: None Detected

Cynthia Pigman, QA/QC Supervisor

Jeffrey Creager, Organics Manager

B91 1009 BTPLQ.t

FIGURE: A-4

ANALYTICAL BSK LABORATORIES
1414 Stanislaus Street
Fresno, California 93706
Telephone (209) 497-2889
FAX (209) 485-6935
1-800-877-8310

BSK-Pleasanton
American Brass & Iron

Date Sampled : 06/10/94
Time Sampled : 1340
Date Received : 06/13/94
Date of Analysis : 06/15/94
Report Issue Date: 06/28/94

Case Number : Ch941754
Lab ID Number : 1754-2
Project Number : P92270.3
Sample Description: MW-2

Sample Type : LIQUID

Analyses for Volatile Halocarbons by EPA Method 601
Prepared by EPA Method 5030

Results Reported in Micrograms per Liter (μg/L)

Compounds	Results	DLR	Compound	Results	DLR
Bromodichloromethane	ND	0.5	1,2-Dichloroethane	ND	0.5
Bromoform	ND	0.5	1,1-Dichloroethene	ND	0.5
Bromomethane	ND	1.0	cis-1,2-Dichloroethene.....	ND	0.5
Carbon tetrachloride	ND	0.5	trans-1,2-Dichloroethene...	ND	0.5
Chlorobenzene	ND	0.5	1,2-Dichloropropane	ND	0.5
Chloroethane	4.2	0.5	cis-1,3-Dichloropropene ...	ND	0.5
Chloroform	ND	0.5	trans-1,3-Dichloropropene..	ND	0.5
Chloromethane	ND	0.5	Methylene chloride	ND	2.0
Dibromochloromethane	ND	0.5	1,1,2,2-tetrachloroethane..	ND	0.5
1,2-Dichlorobenzene	ND	0.5	Tetrachloroethene	ND	0.5
1,3-Dichlorobenzene	ND	0.5	1,1,1-Trichloroethane	0.8	0.5
1,4-Dichlorobenzene	ND	0.5	1,1,2-Trichloroethane	ND	0.5
Dichlorodifluoromethane ...	ND	2.0	Trichloroethene	ND	0.5
1,1-Dichloroethane	0.6	0.5	Trichlorofluoromethane	ND	0.5
			Vinyl chloride	ND	1.0

Sample DLR = DLR x DLR Multiplier, DLR Multiplier = 1

DLR: Detection Limit for the Purposes of Reporting.
Exceptional sample conditions or matrix interferences may result in higher detection limits.
ND: None Detected
--: Not Analyzed

Cynthia Pigman, QA/QC Supervisor

Jeffrey Creager, Organics Manager

R 0921 601.T

FIGURE: A-5

ANALYTICAL BSK LABORATORIES
1414 Stanislaus Street
Fresno, California 93706
Telephone (209) 497-2889
FAX (209) 485-6935
1-800-877-8310

BSK-Pleasanton
American Brass & Iron

Date Sampled : 06/10/94
Time Sampled : 1340
Date Received : 06/13/94
Date of Analysis : 06/14/94
Report Issue Date: 06/28/94

Case Number : Ch941754
Lab ID Number : 1754-2
Project Number : P92270.3
Sample Description: MW-2

Sample Type : LIQUID

Analyses For Total & Hydrocarbon Oil & Grease By EPA Methods 413.2 & 418.1

Results Reported in Milligrams Per Liter (mg/L)

Analyte	Results	DLR
Total Oil and Grease.....	2	1
Hydrocarbon Oil and Grease	2	1

Sample DLR = DLR x DLR Multiplier, DLR Multiplier = 1

DLR: Detection Limit for the Purposes of Reporting.
Exceptional sample conditions or matrix interferences may result in higher detection limits.

ND: None Detected

Cynthia Pigman, QA/QC Supervisor

Jeffrey Creager, Organics Manager

R920302 OGTHL41

FIGURE: A-6

ANALYTICAL BSK LABORATORIES
1414 Stanislaus Street
Fresno, California 93706
Telephone (209) 497-2889
FAX (209) 485-6935
1-800-877-8310

BSK-Pleasanton
American Brass & Iron

Date Sampled : 06/10/94
Time Sampled : 1020
Date Received : 06/13/94
Date of Analysis : 06/13/94
Report Issue Date: 06/28/94

Case Number : Ch941754
Lab ID Number : 1754-3
Project Number : P92270.3
Sample Description: MW-3

Sample Type : LIQUID

Analyses for BTEX by EPA Method 8020 and TPH(G) by EPA Method 8015 Prepared by Method 5030

Results Reported in Micrograms per Liter (ug/L)

Compound	Results	DLR
Benzene	ND	0.3
Toluene	ND	0.3
Ethylbenzene	ND	0.3
Total Xylene Isomers	ND	0.3
Total Petroleum Hydrocarbons (G)	ND	50

Sample DLR = DLR x DLR Multiplier, DLR Multiplier = 1

DLR: Detection Limit for the Purposes of Reporting.
Exceptional sample conditions or matrix interferences may result in higher detection limits.
ND: None Detected

NOTE:
Hydrocarbons in the gasoline boiling point range are reported, in accordance with the method, as gasoline.

LEGEND:

DLR: Detection Limit for the Purposes of Reporting.
Exceptional sample conditions or matrix interferences may result in higher detection limits.
ND: None Detected

Cynthia Pigman, QA/QC Supervisor

Jeffrey Creager, Organics Manager

R91 1009 BTPIQ.t

FIGURE: A-7

ANALYTICAL BSK LABORATORIES
1414 Stanislaus Street
Fresno, California 93706
Telephone (209) 497-2889
FAX (209) 485-6935
1-800 877-8310

BSK-Pleasanton
American Brass & Iron

Date Sampled : 06/10/94
Time Sampled : 1220
Date Received : 06/13/94
Date of Analysis : 06/14/94
Report Issue Date: 06/28/94

Case Number : Ch941754
Lab ID Number : 1754-4
Project Number : P92270.3
Sample Description: MW-4

Sample Type : LIQUID

Analyses for BTEX by EPA Method 8020 and TPH(G) by EPA Method 8015 Prepared by Method 5030

Results Reported in Micrograms per Liter (ug/L)

Compound	Results	DLR
Benzene	4.3	0.3
Toluene	ND	0.3
Ethylbenzene	1.8	0.3
Total Xylene Isomers	4.3	0.3
Total Petroleum Hydrocarbons (G)	460	50

Sample DLR = DLR x DLR Multiplier, DLR Multiplier = 1

DLR: Detection Limit for the Purposes of Reporting.
Exceptional sample conditions or matrix interferences may result in higher detection limits.
ND: None Detected

NOTE:
Hydrocarbons in the gasoline boiling point range are reported, in accordance with the method, as gasoline.
Chromatography for this sample is described as inconsistent with the gasoline standard.

LEGEND:

DLR: Detection Limit for the Purposes of Reporting.
Exceptional sample conditions or matrix interferences may result in higher detection limits.
ND: None Detected

Cynthia Pigman, QA/QC Supervisor

Jeffrey Creager, Organics Manager

R91 1009 BTPLQ.t

FIGURE: A-8

ANALYTICAL BSK LABORATORIES
1414 Stanislaus Street
Fresno, California 93706
Telephone (209) 497-2889
FAX (209) 485-6935
1-800-877-8310

BSK-Pleasanton
American Brass & Iron

Date Sampled : 06/10/94
Time Sampled : 1220
Date Received : 06/13/94
Report Issue Date: 06/28/94

Case Number : Ch941754
Lab ID Number : 1754-4
Project Number : P92270.3
Sample Description: MW-4

Sample Type : LIQUID

Analyses for Selected Inorganic Constituents

Method No.	Analyte	Results	Units	DLR
EPA 7421	Lead (Pb).....	ND	mg/L	0.005

ND: None Detected
--: Not Analyzed
mg/L: Milligrams per Liter
Std: Standard Units
µmhos/cm: Micromhos per Centimeter at 25°C
DLR: Detection Limit for the Purposes of Reporting. Exceptional sample conditions or matrix interferences may result in higher detection limits.

Cynthia Pigman, QA/QC Supervisor

Inorganics Manager

R910915 SICDW.t

ANALYTICAL
BSK
LABORATORIES
Environmental Services

1414 Stanislaus Street
Fresno, CA 93706
(209) 485-8310
(800) 877-8310
(209) 485-6935 FAX

Analyses Request / Chain of Custody

BSK Log Number: 1754

Analytical Due Date: 6-23-94

Shaded areas for LAB use only

Requested Analyses

Client Name: American Brass & Iron c/o BSK	Report Attention: Tim Berger	Phone # (510) 462-4000
Address: 1181 Quarry Ln #300	Project, Quote or PO #: P92270.3	FAX # (510) 462-6285
City, State, Zip: Pleasanton CA 94566	Copy to:	System #

LAB use only Sample #	Type	# Cont.	Date Sampled	Time Sampled	Sampled by: FRG Sample Description/Location	Comment or Station Code	TPH-G	TPH-D	BTXE	EPA 601	Total Oil & Hydrocarbon Grease	Total Lead
-1	L	3	6/10/94	11:05	MW-1	Record Temp when Received		X	X			
-2		5	6/10/94	13.40	MW-2		X		X	X	X	
-3		2	6/10/94	10:20	MW-3		X		X			
-4	L	3	6/10/94	12:20	MW-4		X		X			X
						Temp on Arrival 5.0 °C 6-13-94						

ANALYST COPY

Matrix Type: L - Liquid S - Solid G - Gas
Type of Hazards Associated with Samples:

Additional Services:
Rush Priority: [ ] - 2 Day [ ] - 5 Day
[ ] - Formal Chain of Custody [ ] - QC Data package

Additional Services Authorized by: _____ (Signature)

Payment Received with Delivery
Date: _____ Amount: $ _____
Check # _____ Initials _____
Reciept # _____

	Signature	Print Name	Company	Date	Time
Requested / Relinquished by:	F. Robert Gregores	F. Robert Gregores	BSK - P	6/13/94	9:00
Received / Relinquished by:					
Received / Relinquished by:					
Received / Relinquished by:					
Received for Laboratory by:	Carol Harris C. Harris	BSK Labs		6-13-94	14:50

FIGURE: A-9