First Half 2006 Biannual Groundwater Monitoring Report

Fernbridge Market
Fernbridge, California
Case No. 12345

Prepared for:

Lindsay Investments

Consulting Engineers & Geologists, Inc.

812 W. Wabash
Eureka, CA 95501-2138
707-441-8855

April 2006
098076

CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash • Eureka, CA 95501-2138 • 707-441-8855 • Fax 707-441-8877 • info@shn-eureka.com

Reference: 098076

April 26, 2006

Mr. Bob Stone
Humboldt County Division of Environmental Health
100 H Street, Suite 100
Eureka, CA 95501

Subject: First Half 2006 Biannual Groundwater Monitoring Report, Fernbridge Market, Fernbridge, California; Case No. 12345

Dear Mr. Stone:

SHN Consulting Engineers & Geologists, Inc. is submitting this first half 2006 biannual groundwater monitoring report for the Fernbridge Market, located at 623 Fernbridge Drive in Fernbridge, California. SHN performed the biannual groundwater monitoring and sampling at the site on February 7, 2006, as requested by the Humboldt County Division of Environmental Health.

If you have any questions, please call me at (707) 441-8855.

Sincerely,

SHN Consulting Engineers & Geologists, Inc.

Patrick Barsanti

Patrick Barsanti
Project Manager

PNB/EJN:kas

Enclosure: Report
copy w/encl: Lindsay Investments

Reference: 098076

First Half 2006 Biannual Groundwater Monitoring Report

Fernbridge Market
Fernbridge, California
Case No. 12345

Prepared for:

Lindsay Investments

Prepared by:

Consulting Engineers & Geologists, Inc.
812 W. Wabash Ave.
Eureka, CA 95501-2138
707-441-8855

April 2006

QA/QC:PNB ___

G:\1998\098076_Fernbridge_Mkt\rpt\1stHalf06GWM-rpt.doc

Table of Contents

		Page
1.0	Introduction	1
1.1	Background	1
1.2	Objective	2
1.3	Scope of Work	2
2.0	Field Activities	2
2.1	Monitoring Well Sampling	2
2.2	Laboratory Analysis	2
2.3	Equipment Decontamination Procedures	2
2.4	Investigation-Derived Waste Management	3
3.0	Groundwater Monitoring Results	3
3.1	Hydrogeology	3
3.2	Groundwater Analytical Results	3
3.3	Natural Attenuation Parameters	4
4.0	Discussion and Recommendations	5
5.0	References Cited	5

Appendices

A. Field Notes
B. Historic Monitoring Data
C. Laboratory Analytical Report

List of Illustrations

Figures

		Follows Page
1.	Site Location Map	1
2.	Site Plan	1
3.	Groundwater Contour Map, February 7, 2006	3

Tables

		Page
1.	Groundwater Elevations, February 7, 2006	3
2.	Groundwater Analytical Results, February 7, 2006	4
3.	DO, DCO_2, and ORP Measurement Results, February 7, 2006	4

Abbreviations and Acronyms

<	denotes a value that is "less than" the method detection limit
mV	millivolts
ppm	parts per million
ug/L	micrograms per Liter
BTEX	Benzene, Toluene, Ethylbenzene, and total Xylenes
DCO_2	Dissolved Carbon Dioxide
DO	Dissolved Oxygen
EC	Electrical Conductivity
EPA	U.S. Environmental Protection Agency
HCDEH	Humboldt County Division of Environmental Health
MTBE	Methyl Tertiary-Butyl Ether
MW-#	Monitoring Well Number
NAVD88	North American Vertical Datum 88
ORP	Oxidation-Reduction Potential
SHN	SHN Consulting Engineers & Geologists, Inc.
TPHG	Total Petroleum Hydrocarbons as Gasoline
UST	Underground Storage Tank

1.0 Introduction

This report presents the activities and results of the first half 2006 biannual groundwater monitoring conducted at the Fernbridge Market, located at 623 Fernbridge Drive in the community of Fernbridge, California (Figure 1). On February 7, 2006, SHN Consulting Engineers & Geologists, Inc. (SHN) performed the biannual groundwater monitoring and sampling, as requested by the Humboldt County Division of Environmental Health (HCDEH). SHN is submitting this biannual groundwater monitoring report on behalf of Lindsay Investments.

1.1 Background

The Fernbridge Market site formerly contained two 650-gallon Underground Storage Tanks (USTs) used for the storage of gasoline (Figure 2). The former USTs and associated dispenser pump were used for fueling vehicles (retail sales). When Lindsay Investments purchased the site, the dispenser pump had been removed, but the USTs remained in place. The ages of the former USTs were not known. The piping located between the USTs and the dispenser pump was buried underground, and the dispenser was located within 15 feet of the former USTs.

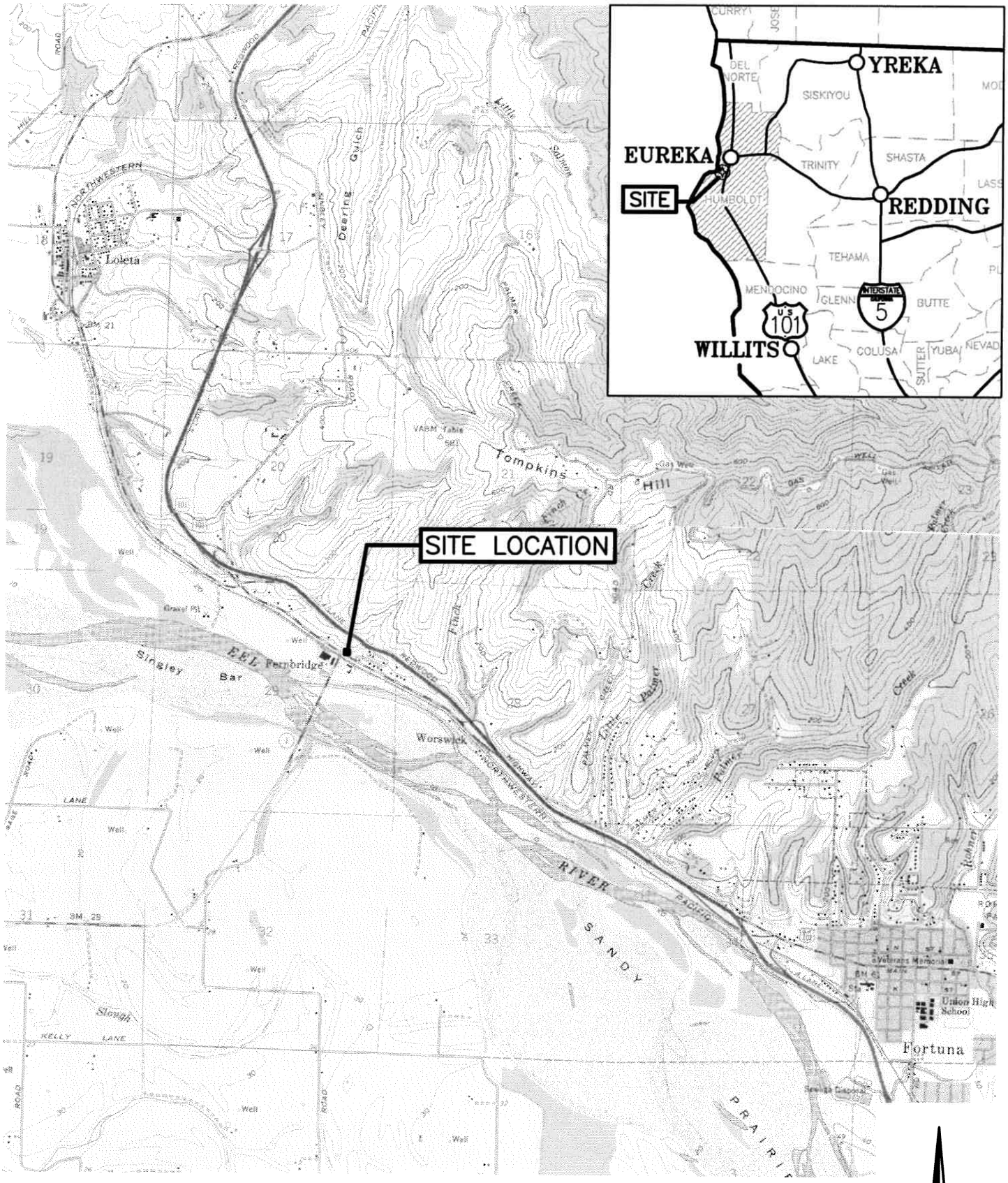
On March 13, 1996, the USTs were removed and visible evidence of petroleum contamination was observed in the soil. Based upon observations by the HCDEH and the subsequent laboratory test results, an unauthorized release report was filed. On March 4, 1999, SHN conducted an initial soil and groundwater investigation adjacent to and hydraulically downgradient of the former USTs. Petroleum hydrocarbons were identified in soil and groundwater at the site. Based upon the investigation results, the HCDEH requested that a soil and groundwater investigation be conducted to assess site conditions downgradient of the former USTs.

On May 16, 2000, SHN directed the installation of four groundwater monitoring wells at the Fernbridge Market site (MW-1 through MW-4, Figure 2). SHN has performed quarterly groundwater monitoring at the site since June 6, 2000. Subsequent soil and groundwater investigations were conducted at the site in September 2001 and April 2002.

A remedial action was completed at the site in December 2004 to remove contaminant-impacted material. Approximately 621 tons of petroleum hydrocarbon-impacted soil was removed from the site based on the presence of soil contamination identified from previous site investigations (SHN, February 2005).

Two site-monitoring wells, located within the planned excavation area, were properly abandoned by overdrilling prior to commencement of excavation activities in October 2004 (MW-1 and MW-4, Figure 2). Monitoring well MW-5 was installed at the site in the backfilled portion of the excavation area on February 9, 2005, to replace the abandoned wells.

SHN requested, and was granted in a letter from the HCDEH dated November 7, 2005, a reduction in groundwater monitoring frequency from quarterly to biannual. Beginning in 2006, monitoring events will occur in February and August of each year.

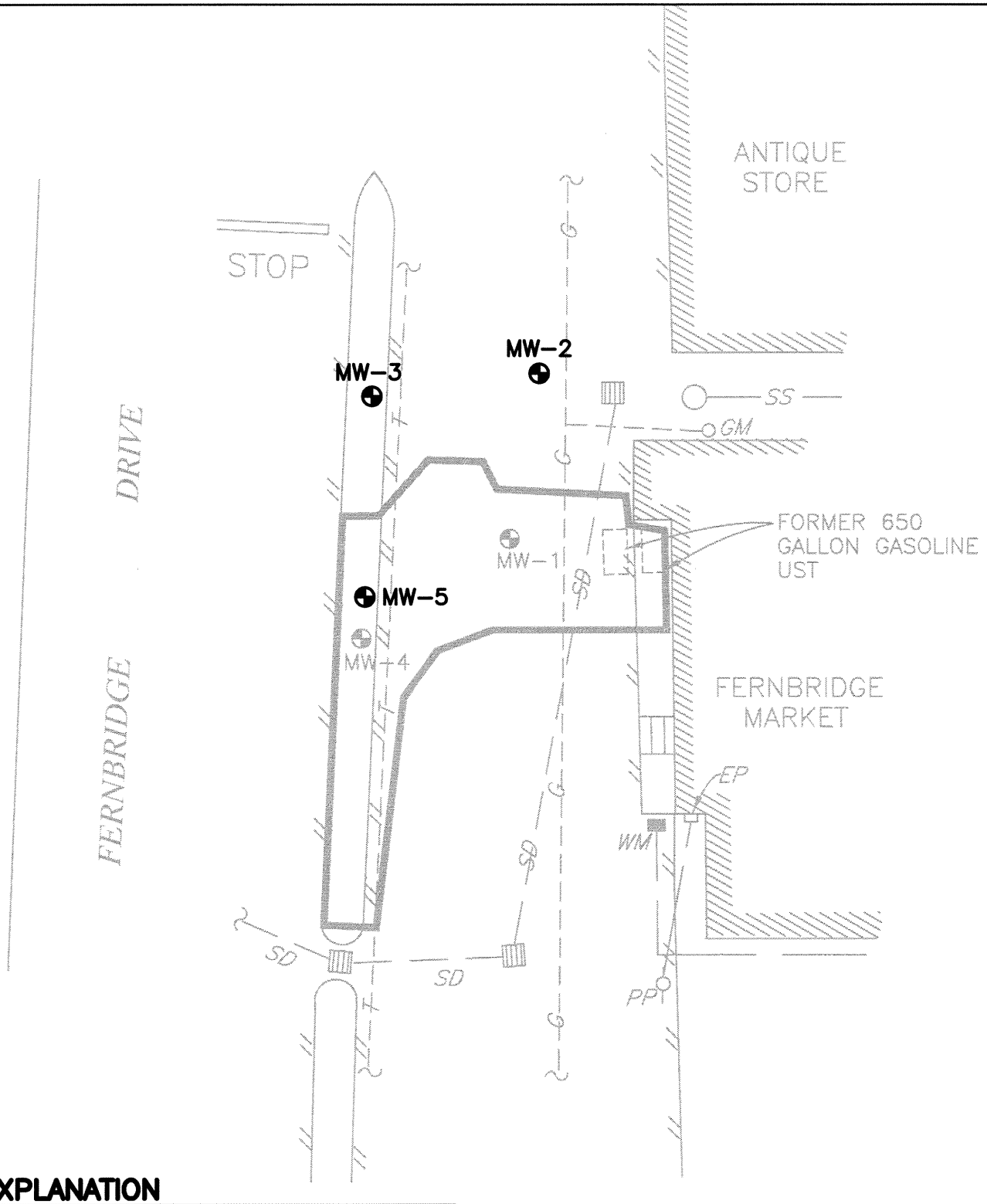


SOURCE: FORTUNA AND FIELDS LANDING USGS 7.5 MINUTE QUADRANGLES

N

1"=3000'±

SHN Consulting Engineers & Geologists, Inc.	Fernbridge Market UST Investigation Fernbridge, California	Site Location Map SHN 098076
	February, 2005	098076-location	Figure 1



EXPLANATION

MW-2	*MONITORING WELL LOCATION AND DESIGNATION*
	EXCAVATION AREA
MW-1	*FORMER SITE MONITORING WELL*

1" = 20'

0 20

SHN Consulting Engineers & Geologists, Inc.	Fernbridge Market Fernbridge, California		Site Plan SHN 098076
	April, 2005	098076-SI1	Figure 2

1.2 Objective

The objective of this groundwater-monitoring program is to assess current groundwater conditions beneath the site, and to evaluate the effectiveness of the mitigation efforts completed to date.

1.3 Scope of Work

This scope of work is intended to meet the objective of this investigation. As part of the investigation, all three groundwater-monitoring wells at the site were measured for depth to water and sampled for field parameters and laboratory analysis. Field notes for first half 2006 site activities are included in Appendix A.

2.0 Field Activities

2.1 Monitoring Well Sampling

As part of the monitoring program, monitoring wells MW-2, MW-3, and MW-5 were purged and sampled (Figure 2). Prior to purging, each monitoring well was measured for depth to water, and checked for the presence of floating product (none was observed). Electrical Conductivity (EC), pH, and temperature were monitored periodically during purging activities using portable instrumentation. All wells were also measured for Dissolved Oxygen (DO), Oxidation-Reduction Potential (ORP), and Dissolved Carbon Dioxide (DCO_2).

A groundwater sample was then collected from each well utilizing a disposable polyethylene bailer. The samples were immediately placed in an ice-filled cooler, and submitted to the laboratory for analyses under appropriate chain-of-custody documentation. Water sampling data sheets are included in Appendix A.

2.2 Laboratory Analysis

Each groundwater sample was analyzed for:

- Total Petroleum Hydrocarbons as Gasoline (TPHG), analyzed in general accordance with U.S. Environmental Protection Agency (EPA) Method No. 8260B;
- Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX), in general accordance with EPA Method No. 8260B; and
- Methyl Tertiary-Butyl Ether (MTBE), in general accordance with EPA Method No. 8260B.

North Coast Laboratories, Ltd., a state-certified analytical laboratory located in Arcata, California, completed the sample analysis.

2.3 Equipment Decontamination Procedures

All monitoring and sampling equipment was cleaned prior to being transported to the site. Equipment cleaned onsite was initially washed in a water solution containing Liquinox® cleaner, followed by a distilled water rinse, then by a second distilled water rinse. The groundwater samples were collected using pre-cleaned, disposable bailers, and transferred into laboratory-supplied containers.

2.4 Investigation-Derived Waste Management

All rinse water used for decontaminating field-sampling equipment and the well purge water was temporarily stored on site in a 50-gallon plastic drum. The water was then transported to SHN's 1,000-gallon purge water storage tank located at 812 West Wabash Avenue in Eureka, California. Approximately 16 gallons of decontamination and purge water from the February 7, 2006, sampling event will be tested and discharged, under permit, to the City of Eureka municipal sewer system. A discharge receipt will be included in the next biannual monitoring report.

3.0 Groundwater Monitoring Results

3.1 Hydrogeology

SHN measured depth-to-groundwater elevations in the existing monitoring wells during the first half 2006 monitoring event (Table 1).

Table 1
Groundwater Elevations, February 7, 2006
Fernbridge Market, Fernbridge, California

Sample Location	Top of Casing Elevation[1] (feet)	Depth to Water[2] (feet)	Groundwater Elevation (feet)[1]
MW-2	39.47	4.23	35.24
MW-3	39.75	6.65	33.10
MW-5	39.53	4.56	34.97

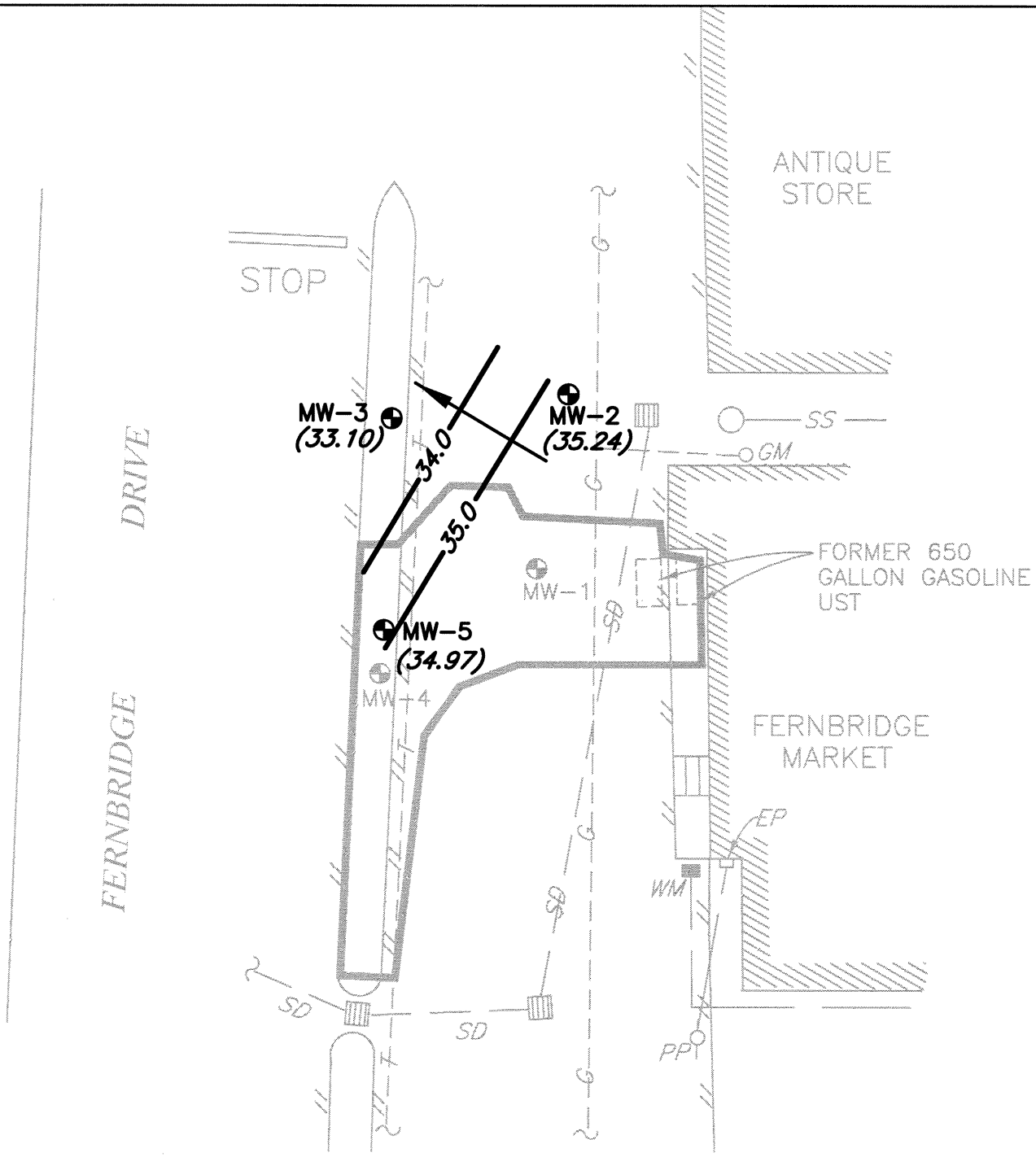
1. Referenced to North American Vertical Datum 88 (NAVD88)
2. Below top of casing

On February 7, 2006, the groundwater flow beneath the Fernbridge Market site was to the southwest, with an approximate gradient of 0.133. A groundwater contour map for the February 7, 2006, monitoring event is presented as Figure 3. Historic groundwater elevations are presented in Appendix B, Table B-1.

3.2 Groundwater Analytical Results

The laboratory analytical results for the groundwater samples collected during the first half 2006 monitoring event are summarized in Table 2. TPHG was detected in the groundwater sample from well MW-5, at a concentration of 7,400 micrograms per Liter (ug/L). BTEX components were also detected in well MW-5 at concentrations of 1,300 ug/L, 280 ug/L, 340 ug/L, and 381 ug/L, respectively. TPHG and BTEX components were not detected in groundwater samples from wells MW-2 and MW-3.

MTBE was detected in the groundwater sample collected from well MW-2 at a concentration of 1.3 ug/L. MTBE was not detected in any other groundwater samples collected during this monitoring event. Historic analytical results are included in Appendix B, Table B-2. The laboratory analytical report and chain-of-custody documentation are included in Appendix C.



EXPLANATION

MW-1	FORMER SITE MONITORING WELL
	EXCAVATION AREA
MW-1	MONITORING WELL LOCATION AND DESIGNATION
(35.31)	GROUNDWATER ELEVATION
—33.0—	GROUNDWATER CONTOUR
←	APPROXIMATE GROUNDWATER FLOW DIRECTION

1" = 20'
0 20

SHN Consulting Engineers & Geologists, Inc.	Fernbridge Market Fernbridge, California		Groundwater Contour Map February 7, 2006 SHN 098076
	March 2006	098076-GWC-FEB-2006	Figure 3

Table 2 Groundwater Analytical Results, February 7, 2006 Fernbridge Market, Fernbridge, California (in ug/L) [1]						
Sample Location	**TPHG[2]**	**Benzene[3]**	**Toluene[3]**	**Ethylbenzene[3]**	**Total Xylenes[3]**	**MTBE[3]**
MW-2	<50[4]	<0.5	<0.5	<0.5	<0.5	**1.3**
MW-3	<50	<0.5	<0.5	<0.5	<0.5	<1.0
MW-5	**7,400[5]**	**1,300**	**280**	**340**	**381**	<2.0

1. ug/L: micrograms per Liter
2. Total Petroleum Hydrocarbons as Gasoline (TPHG), analyzed in general accordance with EPA Method No. 8260B.
3. Benzene, Toluene, Ethylbenzene, total Xylenes, and Methyl Tertiary-Butyl Ether (MTBE), analyzed in general accordance with EPA Method No. 8260B.
4. <: Denotes a value that is "less than" the method detection limit.
5. Appears to be similar to gasoline, but certain peak ratios are not that of a fresh gasoline standard. The reported result represents the amount of material in the gasoline range.

Petroleum concentrations identified in well MW-5 have decreased for all constituents when compared to results for the previous monitoring event (third quarter 2005).

3.3 Natural Attenuation Parameters

DO, DCO_2, and ORP were measured in monitoring wells MW-2, MW-3, and MW-5, prior to sampling, and are summarized in Table 3.

Table 3 DO, DCO_2, and ORP Measurement Results, February 7, 2006 Fernbridge Market, Fernbridge, California			
Sample Location	**DO[1] (ppm)[2]**	**DCO_2[3] (ppm)**	**ORP[4] (mV)[5]**
MW-2	5.04	130	58
MW-3	5.40	85	58
MW-5	4.35	75	-63

1. DO: Dissolved Oxygen, field measured using portable instrumentation
2. ppm: Measurement concentration, in parts per million
3. DCO_2: Dissolved Carbon Dioxide, field measured using a field test kit
4. ORP: Oxidation-Reduction Potential measured using portable instrumentation
5. mV: millivolts

During the February 7, 2006, groundwater-monitoring event, DO concentrations ranged from 4.35 parts per million (ppm) in well MW-5 to 5.40 ppm in well MW-3. These DO concentrations appear to be sufficient to support biodegradation. DCO_2 concentrations ranged from 75 ppm in wells MW-5 to 130 ppm in well MW-2. The DCO_2 concentrations measured in the existing wells indicate that biodegradation is occurring. ORP measurements for this quarter ranged from –63 millivolts (mV)

in monitoring well MW-5, to 58 mV in monitoring wells MW-2 and MW-3, indicating that reducing and oxidizing conditions exist at the Fernbridge Market site. Historical natural attenuation parameter measurements are presented in Appendix B, Table B-3.

4.0 Discussion and Recommendations

The following conclusions are based on the results of the first half 2006 biannual groundwater-monitoring event:

- Elevated concentrations of TPHG and BTEX constituents were present in the groundwater sample collected from well MW-5 during the February 7, 2006, monitoring event.
- MTBE was detected in the groundwater sample collected from well MW-2 at a concentration of 1.3 ug/L.
- No detectable concentrations of TPHG or BTEX were present in the groundwater samples from wells MW-2 and MW-3 during the first half 2006 monitoring event.
- Groundwater flow at the site is to the southwest, with an approximate gradient of 0.133.

Groundwater monitoring well MW-5 is located within the gravel backfilled excavation area of the site. The elevated levels of petroleum constituents present in MW-5 are likely associated with the disturbance of contaminated soil during the excavation process (December 2004). This disturbance resulted in desorption of petroleum hydrocarbons into the groundwater within the excavated area.

In the letter dated November 7, 2005, the HCDEH requested an interpretation of well MW-5 petroleum concentrations and intrinsic parameters. The levels of petroleum hydrocarbons observed in the gravel backfilled area of the site have decreased when compared to results from the previous three monitoring events (first, second, and third quarters of 2005) and are expected to continue to decrease over time as a result of biodegradation.

The results of DO and ORP monitoring in well MW-5 indicate aerobic and anaerobic conditions are present. The exact cause of this condition is unclear, however an evaluation of well MW-5 indicated this affect might be attributed to the well construction specifications. Well MW-5 extends to a depth of approximately 15 feet BGS with 10 feet of screened interval. The screened interval for well MW-5 is located within gravel backfill (5 to 10 feet BGS) and fine-grained native soil (10 to 15 feet BGS). The porous gravels and native soils may be providing the contrasting measurements.

Additional monitoring data will be required to ascertain if this condition in well MW-5 is permanent or temporary. The next groundwater-monitoring event is scheduled for August 2006.

5.0 References Cited

SHN Consulting Engineers & Geologists, Inc. (February 25, 2005). *Remedial Action Report of Findings, Fernbridge Market, 623 Fernbridge Drive, Fernbridge, California; Site No. 12345*. Eureka: SHN.

Appendix A

Field Notes

CONSULTING ENGINEERS & GEOLOGISTS, INC.
480 Hemsted Drive • Redding, CA 96002• Tel: 530.221.5424 • FAX: 530.221.0135 •E-mail: shninfo@shn-redding.com
812 W. Wabash • Eureka, CA 95501 • Tel: 707.441.8855 • FAX: 707.441.8877 •E-mail: shninfo@shn-engr.com

DAILY FIELD REPORT

JOB NO 098076
Page of

PROJECT NAME: Fernbridge Market	CLIENT/OWNER: Dick Lindsay	DAILY FIELD REPORT SEQUENCE NO
GENERAL LOCATION OF WORK: Fernbridge CA	OWNER/CLIENT REPRESENTATIVE: Dick Lindsay	DATE: 2/7/06 — DAY OF WEEK: Tue.
TYPE OF WORK: Sampling	WEATHER	PROJECT ENGINEER/ SUPERVISOR: Pat Barsanti / Erik Nielsen
SOURCE & DESCRIPTION OF FILL MATERIAL	KEY PERSONS CONTACTED	TECHNICIAN

DESCRIBE EQUIPMENT USED FOR HAULING, SPREADING, WATERING, CONDITIONING, & COMPACTING

1023 On site. Open up all wells, taking water levels and DO readings.
1113 Purging MW-3 with a disposable bailer. All purge water was caught in 5gal. buckets.
1145 Sampled MW-3 with it's bailer. Locked up well. MW-3
1220 Purging MW-5 with a disposable bailer. All purge water was caught in 5gal. buckets.
1255 Sampled MW-5 with it's bailer. MW-5
1300 Purging MW-2 with a disposable bailer. All purge water was caught in 5gal. buckets.
1325 Sampled MW-2 with it's bailer. Locked up well. MW-2
1335 Clean and loaded up.
1345 Off site.

Note: All purge and decon water was transported to SHN's P.W.S.T. located at 812 W Wabash Ave. Eureka CA 16 gal. Total.

	Purge	Sampled
MW-2	Yes	Yes
MW-3	✓	✓
MW-5		

COPY GIVEN TO:

REPORTED BY: [signature]

CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash • Eureka, CA 95501-2138 • 707/441-8855 • FAX: 707/441-8877 • shninfo@shn-engr.com

Groundwater Elevations

Job No.: 098076 Name: Dustin Tibbets

Client: Dick Lindsay Date: 2/8/06

Location: Fernbridge CA Weather: Clear

Sample Location	Time of Reading	Top of Casing Elevation (feet)	Depth To Water (feet)	Water Surface Elevation (feet)
MW-2	1043	39.47	4.23	35.24
MW-3	1042	39.75	6.65	33.10
MW-5	1039	39.53	4.56	34.97

CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash • Eureka, CA 95501-2138 • 707/441-8855 • FAX: 707/441-8877 • shninfo@shn-engr.com

EQUIPMENT CALIBRATION SHEET

Name: Dustin Tibbets

Project Name: Fernbridge Market

Reference No.: 098076

Date: 2/7/06

Equipment: ☒ pH & EC ☐ PID ☐ $GTCO_2$ ☐ GTLEL
☐ Turbidity ☒ Other Dissolved Oxygen meter

Description of Calibration Procedure and Results:

pH + EC meter calibrated using a 2 buffer method with a pH 7.00 and 4.01, meter was set exactly to 7.00 and 4.01 and conductivity was set at 700 umhos.

DO meter is self calibrating with the Altimeter set at 0

CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash • Eureka, CA 95501-2138 • 707/441-8855 • FAX: 707/441-8877 •shninfo@shn-engr.com

Water Sampling Data Sheet

Project Name:	Fernbridge Market	Date/Time:	2/7/06
Project No.:	098076	Sampler Name:	Dustin Tibbets
Location:	Fernbridge CA	Sample Type:	water
Well #:	MW-3	Weather	Clear
Hydrocarbon Thickness/Depth (feet):		Key Needed:	Dolphin

Total Well Depth (feet)	-	Initial Depth to Water (feet)	=	Height of Water Column (feet)	x	0.163 gal/ft (2-inch well) / ~~0.653 gal/ft (4-inch well)~~	=	1 Casing Volume (gal)
20.05	-	6.65	=	13.40	x		=	2.14X3=6.43

Time	15.6 DO (ppm)	CO_2 (ppm)	ORP (mV)	EC (uS/cm)	Temp (°F)	pH	Water Removed (gal)	Comments
1100	5.40						0	
1118		85	58				.25 gal.	
1121				423	60.1°	6.23	2.25 gal.	
1126	No flow			428	61.2°	6.30	4.5 gal.	
1133	thru cell			423	62.2°	6.31	6.5 gal.	

Purge Method: Bailer

Total Volume Removed: 6.5 (gal)

Laboratory Information

Sample ID	# & Type of Containers	Preservative / Type	Laboratory	Analyses
MW-3	3	HCL	NCL	8260 list 4

Well Condition:

Remarks:

Recharge to 16.71 at sample time. – 1145

SHN CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash • Eureka, CA 95501-2138 • 707/441-8855 • FAX: 707/441-8877 •shninfo@shn-engr.com

Water Sampling Data Sheet

Project Name: Fernbridge Market
Date/Time: 2/7/06
Project No.: 098076
Sampler Name: Dustin Tibbets
Location: Fernbridge CA
Sample Type: water
Well #: MW-5
Weather: Clear
Hydrocarbon Thickness/Depth (feet):
Key Needed: Dolphin

Total Well Depth (feet)	-	Initial Depth to Water (feet)	=	Height of Water Column (feet)	x	~~0.163 gal/ft (2-inch well)~~ / ~~0.653 gal/ft (4-inch well)~~	=	1 Casing Volume (gal)
14.80	-	4.56	=	10.24	x	.045	=	.46 X 3 = 1.38

Time	DO (ppm)	CO_2 (ppm)	ORP (mV)	EC (uS/cm)	Temp (°F)	pH	Water Removed (gal)	Comments
1226	4.35	75	-63				.10 gal.	
							~~.25 gal.~~	
1234				386	59.5°	6.25	.25 gal.	empty
	No flow							
	thro cell							

Purge Method: Bailer
Total Volume Removed: .25 (gal)

Laboratory Information

Sample ID	# & Type of Containers	Preservative / Type	Laboratory	Analyses
MW-5	3	HCL	NCL	8260 list 4

Well Condition:

Remarks: Lost 1/2 bailer in well, Can't get out
Recharge to at sample time. ~~1250~~ 1255

SHN CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash • Eureka, CA 95501-2138 • 707/441-8855 • FAX: 707/441-8877 •shninfo@shn-engr.com

Water Sampling Data Sheet

Project Name:	Fernbridge Market	Date/Time:	2/7/06
Project No.:	098076	Sampler Name:	Dustin Tibbets
Location:	Fernbridge CA	Sample Type:	water
Well #:	MW-2	Weather	Clear
Hydrocarbon Thickness/Depth (feet):		Key Needed:	Dolphin

Total Well Depth (feet)	-	Initial Depth to Water (feet)	=	Height of Water Column (feet)	x	0.163 gal/ft (2-inch well) / 0.653 gal/ft (4-inch well)	=	1 Casing Volume (gal)
19.65	-	4.23	=	15.42	x		=	2.47X3= 7.40

Time	14.5 DO (ppm)	CO_2 (ppm)	ORP (mV)	EC (uS/cm)	Temp (°F)	pH	Water Removed (gal)	Comments
1106	5.04						0	
1301		130	58				.25 gal.	
1305				427	61.6°	6.16	2.5 gal.	
1309	No flow			445	62.1°	6.22	5 gal.	
1314	thru cell			460	63.2°	6.26	7.5 gal.	

Purge Method: Bailer

Total Volume Removed: 7.5 (gal)

Laboratory Information

Sample ID	# & Type of Containers	Preservative / Type	Laboratory	Analyses
MW-2	3	HCL	NCL	8260 list 4

Well Condition:

Remarks:

Recharge to 11.41 at sample time. ~ 1325

NORTH COAST LABORATORIES LTD.
5680 West End Road • Arcata • CA 95521-9202
707-822-4649 Fax 707-822-6831

Chain of Custody

LABORATORY NUMBER:

Attention: Pat Barsanti
Results & Invoice to: SHN
Address: 812 West Wabash Avenue
Eureka, CA 95501
Phone: 441-8855
Copies of Report to:
Sampler (Sign & Print): Dusti Sillet

TAT: ☐ 24 Hr ☐ 48 Hr ☐ 5 Day ☐ 5–7 Day
☑ STD (2–3 Wk) ☐ Other:
PRIOR AUTHORIZATION IS REQUIRED FOR RUSHES

REPORTING REQUIREMENTS: State Forms ☐
Preliminary: FAX ☐ Verbal ☐ By: __/__/__
Final Report: FAX ☐ Verbal ☐ By: __/__/__

CONTAINER CODES: 1—½ gal. pl; 2—250 ml pl; 3—500 ml pl; 4—1 L Nalgene; 5—250 ml BG; 6—500 ml BG; 7—1 L BG; 8—1 L cg; 9—40 ml VOA; 10—125 ml VOA; 11—4 oz glass jar; 12—8 oz glass jar; 13—brass tube; 14—other

PRESERVATIVE CODES: a—HNO_3; b—HCl; c—H_2SO_4; d—$Na_2S_2O_3$; e—NaOH; f—$C_2H_3O_2Cl$; g—other

PROJECT INFORMATION

Project Number: Fernbridge Market
Project Name: 098076
Purchase Order Number:

LAB ID	SAMPLE ID	DATE	TIME	MATRIX*	CONTAINER	PRESERVATIVE	ANALYSIS
	MW-3	2/7/06	1145	GW	9	b	8260 list 4
	MW-5	↓	1255	↓	↓		
	MW-2	↓	1325	↓			

SAMPLE CONDITION/SPECIAL INSTRUCTIONS

EDF

RELINQUISHED BY (Sign & Print)	DATE/TIME	RECEIVED BY (Sign)	DATE/TIME
Dusti Sillet	2/7/06		

SAMPLE DISPOSAL
☐ NCL Disposal of Non-Contaminated
☐ Return ☐ Pickup

CHAIN OF CUSTODY SEALS Y/N/NA
SHIPPED VIA: UPS Air-Ex Fed-Ex Bus Hand

MATRIX: DW=Drinking Water; Eff=Effluent; Inf=Influent; SW=Surface Water; GW=Ground Water; S=Soil; O=Other.

ALL CONTAMINATED NON-AQUEOUS SAMPLES WILL BE RETURNED TO CLIENT

Appendix B

Historic Monitoring Data

Table B-1
Historic Groundwater Elevations
Fernbridge Market, Fernbridge, California

Well ID	Date	Top of Casing Elevation (feet)[1]	Depth to Water (feet)[2]	Groundwater Elevation (feet)
MW-1	06/06/00	39.6	4.23	35.37
	09/18/00		4.69	34.91
	12/18/00		4.75	34.85
	03/02/01		4.57	35.03
	06/04/01		5.23	34.37
	09/05/01		4.65	34.95
	12/05/01		4.66	34.94
	03/05/02		4.43	35.17
	06/04/02		5.01	34.59
	09/05/02		5.56	34.04
	12/26/02		4.42	35.18
	03/07/03		4.42	35.18
	06/10/03		4.51	35.09
	11/20/03		4.58	35.02
	03/30/04		4.06	35.54
	Well Destroyed 10/16/04			
MW-2	06/06/00	39.47	4.52	34.95
	09/18/00		4.84	34.63
	12/18/00		4.97	34.50
	03/02/01		4.88	34.59
	06/04/01		5.26	34.21
	09/05/01		5.40	34.07
	12/05/01		5.47	34.00
	03/05/02		4.64	34.83
	06/04/02		5.11	34.36
	09/05/02		5.25	34.22
	12/26/02		4.47	35.00
	03/07/03		4.58	34.89
	06/10/03		5.12	34.35
	11/20/03		4.76	34.71
	03/30/04		4.60	34.87
	06/30/04		5.29	34.18
	03/08/05		4.28	35.19
	06/02/05		5.39	34.08
	08/29/05		5.43	34.04
	02/07/06		4.23	35.24

Table B-1
Historic Groundwater Elevations
Fernbridge Market, Fernbridge, California

Well ID	Date	Top of Casing Elevation (feet)[1]	Depth to Water (feet)[2]	Groundwater Elevation (feet)
MW-3	06/06/00	39.75	5.08	34.67
	09/18/00		5.46	34.29
	12/18/00		6.65	33.10
	03/02/01		6.89	32.86
	06/04/01		7.09	32.66
	09/05/01		7.13	32.62
	12/05/01		6.79	32.96
	03/05/02		6.96	32.79
	06/04/02		7.11	32.64
	09/05/02		7.14	32.61
	12/26/02		6.77	32.98
	03/07/03		7.03	32.72
	06/10/03		7.05	32.70
	11/20/03		6.77	32.98
	03/30/04		6.89	32.86
	06/30/04		6.98	32.77
	03/08/05		6.06	33.69
	06/02/05		7.17	32.58
	08/29/05		7.21	32.54
	02/07/06		6.65	33.10
MW-4	06/06/00	39.73	4.40	35.33
	09/18/00		5.87	33.86
	12/18/00		5.86	33.87
	03/02/01		5.53	34.20
	06/04/01		6.41	33.32
	09/05/01		6.09	33.64
	12/05/01		6.14	33.59
	03/05/02		5.68	34.05
	06/04/02		6.25	33.48
	09/05/02		6.05	33.68
	12/26/02		5.84	33.89
	03/07/03		5.74	33.99
	06/10/03		5.24	34.49
	11/20/03		5.33	34.40
	03/30/04		5.63	34.10
	06/30/04		5.16	34.57
	Well Destroyed 10/16/04			
MW-5	03/08/05	39.53	4.15	35.38
	06/02/05		4.54	34.99
	08/29/05		4.75	34.78
	02/07/06		4.56	34.97

1. Referenced to NAVD88
2. Below top of casing

Table B-2
Historic Groundwater Analytical Data
Fernbridge Market, Fernbridge, California
(in ug/L)[1]

Well ID	Date	TPHG[2]	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE[3]	TBA[4]	1,2-DCA[5]
MW-1	06/06/00	990	320	160	11	84	<1.0[6]	180	140
	09/18/00	470	160	28	11	33	1.1	120	120
	12/18/00	470	150	36	14	43	1.1	71	120
	03/02/01	880	270	35	21	54	<2.5	99	110
	06/04/01	180	71	6.6	3.7	6.5	1.3	50	91
	09/05/01	420	180	31	14	24.5	1.6	160	NA[7]
	12/05/01	490	130	31	9.9	23.4	1.4	110	93
	03/05/02	230	160	9.2	6.4	8.4	1.3	82	85
	06/04/02	160	55	7.6	2.6	5.9	1.7	190	81
	09/05/02	120	43	4.9	2.7	1.4	1.4	110	58
	12/26/02	620	250	20	12	18.5	<2.0	130	100
	03/07/03	240	89	1.4	1.1	0.75	<1.0	170	74
	06/10/03	500	260	8.9	3.1	5	1.3	170	<2.0
	11/20/03	400	180	50	9.4	22.2	<3.0	NA	NA
	03/30/04	1,100	330	8	3.5	5.3	<4.0	NA	NA
	06/30/04	520	210	8.3	2.8	4.9	1.7	NA	NA
	Well Destroyed 10/16/04								
MW-2	06/06/00	<50	<0.50	<0.50	<0.50	<0.50	3.3	<10	<1.0
	09/18/00	<50	<0.50	<0.50	<0.50	<0.50	4.1	<10	<1.0
	12/18/00	<100	<0.50	<0.50	<0.50	<0.50	5.1	<20	<1.0
	03/02/01	<50	<0.50	<0.50	<0.50	<0.50	3.7	<10	<1.0
	06/04/01	<50	<0.50	<0.50	<0.50	<0.50	4.5	<10	<1.0
	09/05/01	<50	<0.50	<0.50	<0.50	<0.50	3.6	<5.0	NA
	12/05/01	<50	<0.50	<0.50	<0.50	<0.50	4.1	<5.0	<1.0
	03/05/02	<50	<0.50	<0.50	<0.50	<0.50	2.5	<5.0	<1.0
	06/04/02	<50	<0.50	<0.50	<0.50	<0.50	3.3	<5.0	<1.0

Table B-2
Historic Groundwater Analytical Data
Fernbridge Market, Fernbridge, California
(in ug/L)[1]

Well ID	Date	TPHG[2]	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE[3]	TBA[4]	1,2-DCA[5]
MW-2 Cont'd	09/05/02	<50	<0.50	<0.50	<0.50	<0.50	**2.8**	<5.0	<1.0
	12/26/02	<50	<0.50	<0.50	<0.50	<0.50	**2.9**	<5.0	<1.0
	03/07/03	<50	<0.50	<0.50	<0.50	**2.7**	**1.7**	<5.0	<1.0
	06/10/03	<50	<0.50	<0.50	<0.50	<0.50	**1.3**	<5.0	<1.0
	11/20/03	<50	<0.50	<0.50	<0.50	<0.50	**3.2**	NA	NA
	03/30/04	<50	<0.50	<0.50	<0.50	<0.50	**2.8**	NA	NA
	06/30/04	<50	<0.50	<0.50	<0.50	<0.50	**2.7**	NA	NA
	03/08/05	<50	<0.50	<0.50	<0.50	<0.50	**1.8**	NA	NA
	06/02/05	<50	<0.50	<0.50	<0.50	<0.50	**2.0**	NA	NA
	08/29/05	<50	<0.50	<0.50	<0.50	<0.50	**1.8**	NA	NA
	02/07/06	<50	<0.50	<0.50	<0.50	<0.50	**1.3**	NA	NA
MW-3	06/06/00	<50	<0.50	<0.50	<0.50	<0.50	<0.50	**12**	**1.4**
	09/18/00	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0
	12/18/00	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0
	03/02/01	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0
	06/04/01	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<1.0
	09/05/01	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	NA
	12/05/01	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.0
	03/05/02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.0
	06/04/02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.0
	09/05/02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.0
	12/26/02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.0
	03/07/03	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.0
	06/10/03	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<1.0
	11/20/03	<50	<0.50	<0.50	<0.50	<0.50	<3.0	NA	NA
	03/30/04	**53**	<0.50	**0.53**	<0.50	**0.94**	<3.0	NA	NA

Table B-2
Historic Groundwater Analytical Data
Fernbridge Market, Fernbridge, California
(in ug/L)[1]

Well ID	Date	TPHG[2]	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE[3]	TBA[4]	1,2-DCA[5]
MW-3 Cont'd	06/30/04	<50	<0.50	<0.50	<0.50	<0.50	<1.0	NA	NA
	03/08/05	<50	<0.50	<0.50	<0.50	<0.50	<1.0	NA	NA
	06/02/05	<50	<0.50	<0.50	<0.50	<0.50	<1.0	NA	NA
	08/29/05	<50	<0.50	<0.50	<0.50	<0.50	<1.0	NA	NA
	02/07/06	<50	<0.50	<0.50	<0.50	<0.50	<1.0	NA	NA
MW-4	06/06/00	<500	<2.0	**59**	<2.0	<2.0	<2.0	<100	<2.0
	09/18/00	<1,000	<4.0	**230**	<4.0	<4.0	<4.0	<200	<10
	12/18/00	**260**	**1.2**	**94**	<1.0	**1.1**	<1.0	<50	<2.5
	03/02/01	**260**	**0.96**	**45**	<0.50	**0.81**	<0.50	<10	<1.0
	06/04/01	<250	<1.3	**130**	<1.3	<1.3	<0.50	<50	<2.5
	09/05/01	<50	<0.50	**200**	<0.50	<0.50	<0.50	<5.0	NA
	12/05/01	**940**	<2.5	**350**	<2.5	**3**	<2.5	<50	<5.0
	03/05/02	**230**	**2**	**150**	<1.0	**1.4**	<1.0	<20	<2.0
	06/04/02	**340**	**16**	**160**	**1.5**	**2.9**	<1.0	<20	**8.3**
	09/05/02	<500	**94**	**20**	**8.4**	<2.5	<2.5	<50	<5.0
	12/26/02	**230**	**17**	**85**	<1.0	**1.2**	<1.0	<20	<2.0
	03/07/03	<200	**7.1**	**13**	<1.0	**1.9**	<1.0	<20	<2.0
	06/10/03	<1,000	**15**	**7.8**	<1.0	<5.0	<5.0	<100	<10
	11/20/03	**93**	**3.1**	**19**	**0.53**	**1.88**	<3.0	NA	NA
	03/30/04	**600**	<25	**61**	<25	<25	<50	NA	NA
	06/30/04	**96**	**1.7**	**20**	<0.50	**0.69**	<1.0	NA	NA
	Well Destroyed 10/16/04								

Table B-2
Historic Groundwater Analytical Data
Fernbridge Market, Fernbridge, California
(in ug/L)[1]

Well ID	Date	TPHG[2]	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE[3]	TBA[4]	1,2-DCA[5]
MW-5	03/08/05	**16,000**	**1,400**	**1,200**	**520**	**1,740**	<3.0	NA	NA
	06/02/05	**10,000**	**1,500**	**400**	**330**	**930**	<2.0	NA	NA
	08/29/05	**8,200**	**1,500**	**340**	**430**	**600**	<2.0	NA	NA
	02/06/06	**7,400**	**1,300**	**280**	**340**	**381**	<2.0	NA	NA

1. ug/L: micrograms per Liter
2. TPHG: Total Petroleum Hydrocarbons as Gasoline
3. MTBE: Methyl Tertiary-Butyl Ether
4. TBA: Tertiary-Butyl Alcohol
5. 1,2-DCA: 1,2 Dichloroethane
6. <: Denotes a value that is "less than" the method detection limit.
7. NA: Not Analyzed

Table B-3 Historic DO, DCO_2, and ORP Measurement Results Fernbridge Market, Fernbridge, California				
Well ID	Date	DO[1] (ppm)[2]	DCO_2[3] (ppm)	ORP[4] (mV)[5]
MW-1	09/18/00	0.63	120	45
	12/18/00	0.78	60	94
	03/02/01	0.40	90	93
	06/04/01	0.09	70	183
	09/05/01	0.13	60	72
	12/05/01	0.30	70	161
	03/05/02	0.23	60	81
	06/04/02	0.37	120	215
	09/05/02	0.30	120	234
	12/26/02	0.48	50	125
	03/07/03	1.30	95	246
	06/10/03	0.39	65	234
	11/20/03	0.61	80	265
	03/30/04	0.60	140	280
	06/30/04	0.53	90	39
	09/18/00	0.60	120	110
	Well Destroyed 10/16/04			
MW-2	12/18/00	0.75	80	95
	03/02/01	0.83	80	62
	06/04/01	0.12	80	159
	09/05/01	0.14	80	161
	12/05/01	0.21	70	213
	03/05/02	1.11	70	68
	06/04/02	0.38	70	208
	09/05/02	0.31	85	223
	12/26/02	0.53	80	145
	03/07/03	3.05	90	240
	06/10/03	0.40	50	224
	11/20/03	0.70	50	259
	03/30/04	0.72	70	290
	06/30/04	0.56	60	118
	03/08/05	1.31	100	82
	06/02/05	0.86	40	87
	08/29/05	1.12	50	128
	02/07/06	5.04	130	58
MW-3	12/18/00	1.86	100	75
	03/02/01	3.53	80	54
	06/04/01	2.20	80	152
	09/05/01	1.81	100	164
	12/05/01	3.76	50	56
	03/05/02	3.85	70	37
	06/04/02	1.95	60	200

Table B-3
Historic DO, DCO_2, and ORP Measurement Results
Fernbridge Market, Fernbridge, California

Well ID	Date	DO[1] (ppm)[2]	DCO_2[3] (ppm)	ORP[4] (mV)[5]
MW-3 Cont'd	09/05/02	4.11	80	207
	12/26/02	4.27	60	198
	03/07/03	5.69	60	219
	06/10/03	2.71	60	213
	11/20/03	4.23	70	265
	03/30/04	3.28	80	297
	06/30/04	1.40	60	122
	03/08/05	1.76	80	26
	06/02/05	4.15	35	75
	08/29/05	3.12	50	158
	02/07/06	5.40	85	58
MW-4	12/18/00	0.70	200	42
	03/02/01	0.60	250	65
	06/04/01	0.16	200	117
	09/05/01	0.14	240	118
	12/05/01	0.16	210	134
	03/05/02	0.29	220	64
	06/04/02	0.32	220	174
	09/05/02	0.25	220	210
	12/26/02	0.45	180	145
	03/07/03	0.52	130	244
	06/10/03	0.31	70	251
	11/20/03	0.58	190	240
	03/30/04	0.97	140	283
	06/30/04	0.54	140	-102
	Well Destroyed 10/16/04			
MW-5	03/08/05	2.75	100	65
	06/02/05	4.85	80	121
	08/29/05	2.16	70	-151
	02/07/06	4.35	75	-63

1. DO: Dissolved Oxygen, field measured using portable instrumentation
2. ppm: Measured concenration, in parts per million
3. DCO_2: Dissolved Carbon Dioxide, field measured using a field test kit
4. ORP: Oxidation-Reduction Potential measured using portable instrumentation
5. mV: millivolts

Appendix C

Laboratory Analytical Report

NORTH COAST LABORATORIES LTD.

February 21, 2006

SHN Consulting Engineers and Geologists
812 West Wabash Avenue
Eureka, CA 95501

Attn: Pat Barsanti

RE: 098076, Fernbridge Market

Order No.: 0602125
Invoice No.: 56410
PO No.:

ELAP No. 1247-Expires July 2006

SAMPLE IDENTIFICATION

Fraction	Client Sample Description
01A	MW-3
02A	MW-5
03A	MW-2

ND = Not Detected at the Reporting Limit

Limit = Reporting Limit

All solid results are expressed on a wet-weight basis unless otherwise noted.

REPORT CERTIFIED BY

Laboratory Supervisor(s) | QA Unit | Jesse G. Chaney, Jr. Laboratory Director

5680 West End Road Arcata California 95521-9202 707-822-4649 FAX 707-822-6831

Printed on Recycled Paper

North Coast Laboratories, Ltd. **Date:** *22-Feb-06*

CLIENT: SHN Consulting Engineers and Geologists
Project: 098076, Fernbridge Market
Lab Order: 0602125

CASE NARRATIVE

Gasoline Components/Additives:
Sample MW-5 appears to be similar to gasoline but certain peak ratios are not that of a fresh gasoline standard. The reported result represents the amount of material in the gasoline range.

Some reporting limits were raised for sample MW-5 due to matrix interference.

NORTH COAST LABORATORIES
5680 West End Road • Arcata, California 95521-9202 • 707-822-4649 • FAX 707-822-6831

Date: 21-Feb-06
WorkOrder: 0602125

ANALYTICAL REPORT

Client Sample ID: MW-3 **Received:** 2/7/06 **Collected:** 2/7/06 11:45
Lab ID: 0602125-01A

Test Name: Gasoline Components/Additives **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Methyl tert-butyl ether (MTBE)	ND	1.0	µg/L	1.0		2/17/06
Benzene	ND	0.50	µg/L	1.0		2/17/06
Toluene	ND	0.50	µg/L	1.0		2/17/06
Ethylbenzene	ND	0.50	µg/L	1.0		2/17/06
m,p-Xylene	ND	0.50	µg/L	1.0		2/17/06
o-Xylene	ND	0.50	µg/L	1.0		2/17/06
Surrogate: 1,4-Dichlorobenzene-d4	93.1	80.8-139	% Rec	1.0		2/17/06

Test Name: TPH as Gasoline **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Gasoline	ND	50	µg/L	1.0		2/17/06

Client Sample ID: MW-5 **Received:** 2/7/06 **Collected:** 2/7/06 12:55
Lab ID: 0602125-02A

Test Name: Gasoline Components/Additives **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Methyl tert-butyl ether (MTBE)	ND	2.0	µg/L	1.0		2/17/06
Benzene	1,300	25	µg/L	50		2/19/06
Toluene	280	25	µg/L	50		2/19/06
Ethylbenzene	340	25	µg/L	50		2/19/06
m,p-Xylene	290	25	µg/L	50		2/19/06
o-Xylene	91	25	µg/L	50		2/19/06
Surrogate: 1,4-Dichlorobenzene-d4	92.1	80.8-139	% Rec	1.0		2/17/06

Test Name: TPH as Gasoline **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Gasoline	7,400	2,500	µg/L	50		2/19/06

NORTH COAST LABORATORIES
5680 West End Road • Arcata, California 95521-9202 • 707-822-4649 • FAX 707-822-6831

Date: 21-Feb-06
WorkOrder: 0602125

ANALYTICAL REPORT

Client Sample ID: MW-2 **Received:** 2/7/06 **Collected:** 2/7/06 13:25
Lab ID: 0602125-03A

Test Name: Gasoline Components/Additives **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Methyl tert-butyl ether (MTBE)	1.3	1.0	µg/L	1.0		2/19/06
Benzene	ND	0.50	µg/L	1.0		2/19/06
Toluene	ND	0.50	µg/L	1.0		2/19/06
Ethylbenzene	ND	0.50	µg/L	1.0		2/19/06
m,p-Xylene	ND	0.50	µg/L	1.0		2/19/06
o-Xylene	ND	0.50	µg/L	1.0		2/19/06
Surrogate: 1,4-Dichlorobenzene-d4	92.5	80.8-139	% Rec	1.0		2/19/06

Test Name: TPH as Gasoline **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Gasoline	ND	50	µg/L	1.0		2/17/06

NORTH COAST LABORATORIES
5680 West End Road • Arcata, California 95521-9202 • 707-822-4649 • FAX 707-822-6831

North Coast Laboratories, Ltd.

Date: 21-Feb-06

CLIENT: SHN Consulting Engineers and Geologists
Work Order: 0602125
Project: 098076, Fernbridge Market

QC SUMMARY REPORT

Method Blank

Sample ID **MB-2/17/06** Batch ID: **R39837** Test Code: **8260OXYW** Units: **µg/L** Analysis Date **2/17/06 8:35:00 AM** Prep Date
Client ID: Run ID: **ORGCMS3_060217B** SeqNo: **572258**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.0									
Benzene	ND	0.50									
Toluene	0.1257	0.50									J
Ethylbenzene	0.2201	0.50									J
m,p-Xylene	0.3693	0.50									J
o-Xylene	ND	0.50									
1,4-Dichlorobenzene-d4	0.932	0.10	1.00	0	93.2%	81	139	0			

Sample ID **MB-2/17/06** Batch ID: **R39836** Test Code: **GASW-MS** Units: **µg/L** Analysis Date **2/17/06 8:35:00 AM** Prep Date
Client ID: Run ID: **ORGCMS3_060217A** SeqNo: **572235**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	26.45	50									J

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

North Coast Laboratories, Ltd.

Date: 21-Feb-06

CLIENT: SHN Consulting Engineers and Geologists
Work Order: 0602125
Project: 098076, Fernbridge Market

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID **LCS-06107** Batch ID: **R39837** Test Code: **8260OXYW** Units: **µg/L** Analysis Date **2/17/06 5:11:00 AM** Prep Date
Client ID: Run ID: **ORGCMS3_060217B** SeqNo: **572255**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	18.45	1.0	20.0	0	92.3%	80	120	0			
Benzene	18.82	0.50	20.0	0	94.1%	78	117	0			
Toluene	19.80	0.50	20.0	0	99.0%	80	120	0			
Ethylbenzene	19.14	0.50	20.0	0	95.7%	80	120	0			
m,p-Xylene	39.54	0.50	40.0	0	98.9%	80	120	0			
o-Xylene	21.12	0.50	20.0	0	106%	80	120	0			
1,4-Dichlorobenzene-d4	0.968	0.10	1.00	0	96.8%	81	139	0			

Sample ID **LCSD-06107** Batch ID: **R39837** Test Code: **8260OXYW** Units: **µg/L** Analysis Date **2/17/06 5:36:00 AM** Prep Date
Client ID: Run ID: **ORGCMS3_060217B** SeqNo: **572256**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	18.46	1.0	20.0	0	92.3%	80	120	18.4	0.0389%	20	
Benzene	19.17	0.50	20.0	0	95.9%	78	117	18.8	1.85%	20	
Toluene	19.87	0.50	20.0	0	99.4%	80	120	19.8	0.353%	20	
Ethylbenzene	19.29	0.50	20.0	0	96.4%	80	120	19.1	0.765%	20	
m,p-Xylene	39.32	0.50	40.0	0	98.3%	80	120	39.5	0.577%	20	
o-Xylene	21.44	0.50	20.0	0	107%	80	120	21.1	1.53%	20	
1,4-Dichlorobenzene-d4	0.979	0.10	1.00	0	97.9%	81	139	0.968	1.08%	20	

Sample ID **LCS-06108** Batch ID: **R39836** Test Code: **GASW-MS** Units: **µg/L** Analysis Date **2/17/06 6:53:00 AM** Prep Date
Client ID: Run ID: **ORGCMS3_060217A** SeqNo: **572232**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	958.7	50	1,000	0	95.9%	80	120	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: SHN Consulting Engineers and Geologists
Work Order: 0602125
Project: 098076, Fernbridge Market

QC SUMMARY REPORT

Laboratory Control Spike Duplicate

Sample ID **LCSD-06108** Batch ID: **R39836** Test Code: **GASW-MS** Units: **µg/L** Analysis Date **2/17/06 7:18:00 AM** Prep Date

Client ID: Run ID: **ORGCMS3_060217A** SeqNo: **572233**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	969.2	50	1,000	0	96.9%	80	120	959	1.09%	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

NORTH COAST LABORATORIES LTD.
5680 West End Road · Arcata · CA 95521-9202
707-822-4649 Fax 707-822-6831

Chain of Custody

P. 1 of 1

0602125

LABORATORY NUMBER:

Attention: Pat Barsanti
Results & Invoice to: SHN
Address: 812 West Wabash Avenue
Eureka, CA 95501
Phone: 441-8855
Copies of Report to:

Sampler (Sign & Print): [signature]

TAT: ☐ 24 Hr ☐ 48 Hr ☐ 5 Day ☐ 5–7 Day
☑ STD (2–3 Wk) ☐ Other:
PRIOR AUTHORIZATION IS REQUIRED FOR RUSHES

REPORTING REQUIREMENTS: State Forms ☐
Preliminary: FAX ☐ Verbal ☐ By: __/__/__
Final Report: FAX ☐ Verbal ☐ By: __/__/__

CONTAINER CODES: 1—½ gal. pl; 2—250 ml pl; 3—500 ml pl; 4—1 L Nalgene; 5—250 ml BG; 6—500 ml BG; 7—1 L BG; 8—1 L cg; 9—40 ml VOA; 10—125 ml VOA; 11—4 oz glass jar; 12—8 oz glass jar; 13—brass tube; 14—other

PRESERVATIVE CODES: a—HNO_3; b—HCl; c—H_2SO_4; d—$Na_2S_2O_3$; e—NaOH; f—$C_2H_3O_2Cl$; g—other

PROJECT INFORMATION

Project Number: Fernbridge Market
Project Name: 098076
Purchase Order Number:

LAB ID	SAMPLE ID	DATE	TIME	MATRIX*
	MW-3	2/7/06	1145	GW
	MW-5	↓	1255	↓
	MW-2	↓	1325	↓

ANALYSIS	CONTAINER	PRESERVATIVE
8260 1st 4	9	6
↓	↓	↓

SAMPLE CONDITION/SPECIAL INSTRUCTIONS

Intact/cold

EDF

RELINQUISHED BY (Sign & Print)	DATE/TIME	RECEIVED BY (Sign)	DATE/TIME
[signature]	2/7/06	[signature]	2/7/06 1616
[signature]	2/7/06		

SAMPLE DISPOSAL
☐ NCL Disposal of Non-Contaminated
☐ Return ☐ Pickup

CHAIN OF CUSTODY SEALS Y/N/NA
SHIPPED VIA: UPS Air-Ex Fed-Ex Bus Hand

***MATRIX:** DW=Drinking Water; Eff=Effluent; Inf=Influent; SW=Surface Water; GW=Ground Water; S=Soil; O=Other.

ALL CONTAMINATED NON-AQUEOUS SAMPLES WILL BE RETURNED TO CLIENT