Reviewed on 8/30/95 by Asteck. Wait for next QMR. Monthly H_2O measurements have shown gw flow to vary from NW → NE.

GEOMATRIX

GROUNDWATER INVESTIGATION AND QUARTERLY MONITORING REPORT

National Guard Organizational Maintenance Shop No. 35
16501 Ashland Avenue
San Lorenzo, California

Prepared for

Division of State Architect
400 P Street
Sacramento, California 95814

June 1995
Project No. 2868

Geomatrix Consultants

GEOMATRIX

GEOMATRIX CONSULTANTS

100 Pine Street, 10th Floor
San Francisco, California 94111
Tel: (415)434-9400 Fax: (415)434-1365

FAX TRANSMITTAL

TO: Amy Leach
Alameda County

FAX: (510) 337 9335

FROM: Lesa Rowles

PROJECT NO: 2868

DATE: 8/30/95

TIME: 3:30 PM

COMMENTS:

Per your request are:
1) A revised lab sheet for MW-4
2) back up for the fact that MW-4 is an equipment blank
3) a chain-of-custody for the well sample
5) a cover page with my registered geologist staff (is this o.k.?) let me know if you need a "certification page."
Thanks, Lesa

PAGES INCLUDING THIS TRANSMITTAL: 5

Note: If any problems arise during transmission, please call (415) 434-9400.

CHROMALAB, INC.

Environmental Services (SDB)

May 9, 1995

Submission #: 9505048

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: May 3, 1995

re: 1 sample for BTEX analysis.

Matrix: WATER
Sampled: May 3, 1995 *Run#:* 6553 *Analyzed:* May 9, 1995
Method: EPA 602/8020

Spl # CLIENT SMPL ID	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
87173 MW-4 (Equipment Blank) LDR	N.D.	N.D.	N.D.	N.D.
Reporting Limits	0.5	0.5	0.5	0.5
Blank Result	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)	108	107	107	111

Jack Kelly
Chemist

Ali Kharrazi
Organic Manager

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

Geomatrix Consultants
100 Pine Street, 10th Floor
San Francisco, California 94111
(415) 434-9400

MONITORING WELL SAMPLING RECORD AND WELL DEVELOPMENT DATA

Well ID: MW-3
Sample ID.: MW-3 Duplicate ID.: —
Sample Depth: 14
Project No: 2568
Project Name: National Guard #3
Date: 5-3-95
Sampled By: CFR JAA

Initial Depth to Water: 4.70
Depth to Water after Purging: —
Total Depth of Well: 17'
Well Diameter: 2"
1 Casing Volume = 2.1
4 Casing Volumes = 8.4
Method of Purging: diaphragm pump
Method of Sampling: disposable bailer

TIME	INTAKE DEPTH	RATE (gpm)	CUM. VOL (gal)	TEMP. (°C)	pH (units)	CONDUCTIVITY (µmhos/cm)	REMARKS (color, turbidity & sediment)
0920	14		2.5	18.7	6.6	1200	clear
0922	10		5.0	18.6	6.5	1200	"
0924	10		7.5	18.6	6.7	1200	clear; gauge 7.0 ft
0925	10		10.2	18.8	6.6	1200	" "
0930	15'	SAMPLE		18.7	6.6	1200	clear

Ph CALIBRATION (CHOOSE TWO)					Model or Unit No.: #1 (See file-1)
Buffer Solution	pH 4.0	pH 7.0	pH 10.0		
Temp. °C	17.2	16.5			
Instrument Reading	4.0	7.0			

SPECIFIC CONDUCTANCE - CALIBRATION:						Model or Unit No.:
KCL Solution (µmhos/cm at 20°C	1409	12856				
Temp. °C	17.1	16.8				
Instrument Reading	1500	12500				

Notes: Collect 3 VOAs (HCL) for TPH Gas + BTEX, 2 Amber liters (HCL) for TPH diesel
Collect Equipment blank for TPH BTEX prior to sampling well. Called MW-4 @ 0945

* *

revised 9/91

Chain-of-Custody Record

№ 6254

Date: 5/3/95

Page 1 of 1

Project No.: 2868

Samplers (Signatures): Charles Rome

ANALYSES

REMARKS

Date	Time	Sample Number	EPA Method 8010	EPA Method 8020	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	TPH as BTEX	Cooled	Soil (S) or Water (W)	Acidified	Number of containers
5/3/95	0853	MW-1					X	X	X	Y	W	Y	5
	0905	MW-2					X	X	X	Y	W	Y	5
	0930	MW-3					X	X	X	Y	W	Y	5
↓	0945	MW-4					X	X	X	Y	W	Y	3

Additional comments

Turnaround time: Standard

Results to: Lisa Rowles

Total No. of containers: 18

Relinquished by:	Date:	Relinquished by:	Date:	Relinquished by:	Date:	Method of shipment:
Signature: Charles Rome	5/3/95	Signature:		Signature:		Pick up
Printed name: Charles Rome		Printed name:		Printed name:		Laboratory comments and Log No.
Company: Geomatrix		Company:		Company:		
Received by:	Time:	Received by:	Time:	Received by:	Time:	
Signature:	1200	Signature:	1453	Signature:		
Printed name:		Printed name:		Printed name:		
Company:		Company: 5/3/95		Company:		

Geomatrix Consultants
100 Pine St. 10th Floor
San Francisco, CA. 94111
(415) 434-9400

28 June 1995
Project 2868

Ms. Amy Leach
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway, Rm 250
Alameda, California 94502

Subject: Groundwater Investigation and Quarterly Monitoring Report
National Guard Organizational Maintenance Shop No. 35
16501 Ashland Avenue
San Lorenzo, California

Dear Ms. Leach:

On behalf of the Division of State Architect and the National Guard, Geomatrix Consultants, Inc. (Geomatrix), is submitting the subject report, which documents current groundwater conditions near a former underground gasoline storage tank at 16501 Ashland Avenue in San Lorenzo. The investigation work was completed in accordance with our Work Plan dated 14 December 1994 and revised scope of work as discussed with you by telephone and outlined in your letter dated 22 December 1994. Due to severe weather conditions during the first quarter of the year and access limitations to the neighboring property where most of the investigative work was done, the investigation field work was not conducted until late April. Quarterly sampling was conducted in response to your letter dated 22 December 1994.

If you have any questions or require additional information, please contact either of the undersigned.

Sincerely yours,

Geomatrix Consultants, Inc.

REGISTERED GEOLOGIST
LISA D. ROWLES
No. 4559
exp 11/1996
STATE OF CALIFORNIA

Lisa D. Rowles, R.G.
Project Manager

Sally E. Goodin, R.G.
Project Director

Attachment

cc. H. Lin, P.E., Division of the State Architect

100 Pine Street, 10th Floor
San Francisco, CA 94111
(415) 434-9400 • FAX (415) 434-1365

GEOMATRIX

28 June 1995
Project 2868

Ms. Amy Leach
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway, Rm 250
Alameda, California 94502

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If you have any questions or require additional information, please contact either of the undersigned.

Sincerely yours,

Geomatrix Consultants, Inc.

Lisa D. Rowles, R.G.
Project Manager

Sally E. Goodin, R.G.
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Attachment

cc. H. Lin, P.E., Division of the State Architect

GEOMATRIX

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Geomatrix Consultants

TABLE OF CONTENTS

GEOMATRIX

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

GROUNDWATER INVESTIGATION AND QUARTERLY MONITORING REPORT

National Guard
Organizational Maintenance Shop No.35
San Lorenzo, California

1.0 INTRODUCTION

This report presents the results of a groundwater investigation and quarterly groundwater monitoring conducted on behalf of the Division of the State Architect (DSA) at and in the vicinity of the National Guard Organizational Maintenance Shop No. 35 located at 16501 Ashland Avenue, San Lorenzo, California (the Site; Figure 1). Geomatrix Consultants, Inc. (Geomatrix) performed the investigation in accordance with our Work Plan dated 14 December 1994 (Geomatrix, 1994) and revised scope of work as discussed by telephone and outlined in the Alameda County Department of Environmental Health (ACDEH) letter to Mike Golden of DSA dated 22 December 1994. Quarterly sampling was conducted in response to the 22 December letter from ACDEH. The work was designed to complete the investigation of impacts on groundwater near a former underground gasoline storage tank.

This report summarizes the work conducted previously at the site and presents the field methods utilized for the investigation, the results of this and the previous work, conclusions regarding site conditions, and recommendations for the site.

2.0 PREVIOUS WORK

An underground gasoline storage tank was removed from the site in April 1993 by AATR Enterprise, and gasoline-containing soil and groundwater were reportedly observed in the excavation. A subsequent investigation of soil and groundwater at the site, conducted by Tetra Tech, Inc., indicated that 450 milligrams per kilogram (mg/kg) of gasoline was detected in soil at a depth of 10 feet, approximately 8 feet north of the former tank location, and 4100 micrograms per liter (μg/l) of gasoline was detected in a groundwater sample collected from well MW-3, located approximately 30 feet north of the former tank

location (Figure 2). Except for two soil samples with gasoline detected at less than 8 mg/kg, gasoline was not detected in any of the other soil samples collected (27 samples from 11 locations) or in groundwater samples collected from the other two monitoring wells (MW-1, located 30 feet to the southeast and MW-2, located 10 feet to the southwest of the former tank location). This initial work characterized the presence and extent of gasoline in soil and groundwater immediately around the former tank and in the downgradient directions to the northeast and north (Figure 2).

In November 1994 when Geomatrix was hired to complete the work, the hydraulic gradient direction for groundwater at the site had changed from north-northeasterly (Tetra Tech, 1993) to westerly (Geomatrix, 1994). For this reason, the additional investigation was designed to assess the extent of gasoline to the west and northwest of where gasoline had been detected previously.

3.0 FIELD METHODS

The recent fieldwork at and in the vicinity of the site consisted of the measurement of water levels in the three existing monitoring wells on 20 April, 2 May, and 9 June 1995, the collection of discrete-depth groundwater samples at 5 locations on 20 April 1995, and the collection of groundwater samples from the three wells on 2 May 1995.

3.1 WATER LEVEL MEASUREMENTS

Groundwater levels were measured in the three monitoring wells (MW-1, MW-2, and MW-3) prior to performing the discrete-depth sampling program in April, before collecting groundwater samples from the wells in May and in June to perform the requested monthly measurements. Water levels were measured in the wells to the nearest 0.01 foot using a steel tape. Prior to each measurement, the steel tape was rinsed with municipal water and dried with a paper towel. The elevation of the water table was calculated by subtracting the depth to water from the elevations of the tops of the well casings.

3.2 DISCRETE-DEPTH GROUNDWATER SAMPLING AND ANALYSIS

Four shallow groundwater samples (GP-1 through GP-4), and one deep sample (GP-5) were collected at selected locations north and northwest of the former underground gasoline storage tank in April 1995 (Figure 2). Prior to sampling activities, an underground utility clearance was performed at each boring location by Cruz Brothers of San Jose, California. In addition, and as required by law, Geomatrix contacted Underground Service Alert (USA) four days prior to sampling to mark the utilities in the adjacent street.

The samples of groundwater were collected by Vironex Inc. of Foster City, California, using a Geoprobe 5400 subsurface sampling system. At four of the sampling locations (GP-1 through GP-4) two-inch diameter soil borings were advanced to 12 feet below ground surface (bgs). During borehole advancement, the Geomatrix field geologist described the soil core on boring logs, noting lithology (according to the unified soil classification system), color, moisture content, and visual grain size distribution. Copies of the boring logs are included in Appendix A.

To collect samples of groundwater from the four borings (GP-1 - GP-4), new 1-inch-diameter PVC pipes were placed in the boreholes with 5 feet of 0.20 inch slotted screen placed from 7 to 12 feet bgs. Samples of groundwater were collected with a clean stainless steel bailer. At GP-5, samples of groundwater were collected with a discrete-depth sampling device that was hydraulically pushed to 25 feet bgs and then pulled back to 22 feet to allow it to open and collect water. This deeper sampling depth was selected based on the stratigraphy established during the previous investigation where a sandy layer was observed in nearby borings at depths generally below 22 feet bgs. The groundwater samples at GP-5 were then collected by lowering a stainless steel bailer into the sampling device.

The groundwater samples were carefully poured from the bailer into EPA-approved sample containers (amber liter bottles and acidified 40-milliliter volatile organic analysis bottles), properly labeled, and placed in an ice-cooled chest until delivery to the analytical laboratory under Geomatrix chain-of-custody procedures.

Following sample collection, each borehole was filled with bentonite pellets that were hydrated with water after placement. All coring and sampling equipment was cleaned with Alconox and municipal water before each use.

The groundwater samples were analyzed by Chromalab, Inc., of Pleasanton, California, a state-certified analytical laboratory, for total petroleum hydrocarbons (TPH) as diesel using modified EPA method 8015, TPH as gasoline using EPA method 8015, and benzene, toluene, xylenes, and ethylbenzene (BTXE) using EPA method 8020 as specified in the California Leaking Underground Fuel Tank (LUFT) guidelines. Copies of the laboratory reports and chain-of-custody records are included in Appendix C.

3.3 MONITORING WELL SAMPLING AND ANALYSIS

The three existing monitoring wells were sampled on 2 May 1995. To obtain representative groundwater samples, at least four casing volumes were purged from each well before a groundwater sample was collected. The wells were purged with a diaphragm pump with PVC tubing. The temperature, pH, and specific conductance of the purged groundwater were measured periodically during purging. These parameters stabilized and the produced water was visually clear prior to sample collection.

Groundwater samples were collected with disposable polyethylene bailers. The samples were collecting by carefully pouring water from the bailers into EPA-approved containers, properly labeled, and placed in an ice-filled cooler until delivery to a state-certified analytical laboratory under Geomatrix chain-of-custody procedures. The samples were analyzed by Chromalab for TPH-diesel, TPH-gasoline, and BTXE according to the EPA methods listed in Section 3.2 above. Copies of laboratory analytical results and chain-of-custody records are included in Appendix E.

Groundwater purged from the monitoring wells was stored in two 55-gallon drums at the site until the analytical results were obtained.

4.0 FINDINGS

4.1 HYDROGEOLOGY

The stratigraphy at the site consists predominantly of lean clay with thin interbeds of clayey sand and sand with silt between 4 feet bgs and the bottom of the borings at 12 feet bgs. A permeable (sandy) layer was encountered between 22 and 25 feet at one location.

The water-level elevations calculated from measurements collected by Geomatrix are presented in Table 1. In May 1995 depth to water ranged from 4.7 to 6.13 feet bgs and the groundwater elevation ranged from 30.19 to 29.84 feet above mean sea level. Water levels have risen between 3.19 and 3.58 feet since last November (Table 1).

Potentiometric surface maps for November 1994, and January, April, and May 1995 are shown in Figures 3 through 6. These maps indicate that groundwater flow was generally toward the west in November 1994, toward the west-southwest in January 1995, toward the northeast in April 1995, and toward the north-northeast in May 1995. The hydraulic gradient has ranged from 0.006 foot per foot (ft/ft; 11/94 and 5/95) to 0.016 ft/ft (1/95).

4.2 ANALYTICAL RESULTS

The discrete-depth and monitoring wells groundwater samples were analyzed for TPH as diesel, TPH as gasoline, and BTXE. The analytical results are presented in Table 2. Neither TPH or BTXE were detected in the discrete-depth samples or in the samples from wells MW-1 and MW-2. In the samples collected from monitoring well MW-3, TPH as gasoline was detected at 600 micrograms per liter (μg/l); benzene was detected at 18 μg/l; toluene at 4.2 μg/l; xylenes at 27 μg/l; and ethyl benzene at 110 μg/l; no TPH-diesel was detected. These concentrations are significantly lower than the samples previously collected from well MW-3 on 14 July 1993 when TPH-gasoline was detected at 4100 μg/l and xylenes were detected at 640 μg/l.

Quality control samples were collected during the investigation and well sampling activities to provide quality assurance. For the investigation phase of the work, Geomatrix collected

a field blank and an equipment blank; the laboratory analyzed five method blanks, and one matrix spike/matrix spike duplicates. For the well sampling work, Geomatrix collected a field blank and the laboratory analyzed four method blanks and one matrix spike/matrix spike duplicates. Toluene was detected at the detection limit (0.5 μg/l) in the equipment blank collected during the Geoprobe investigation; no other constituents were detected in the equipment blank or in the other field blanks. All laboratory matrix spike and surrogate recoveries were within quality control limits. The laboratory quality control sample results are presented in Table 3.

The analytical results for groundwater samples obtained during both the previous investigation and the recent investigation are displayed on Figures 3 through 8. The data for the grab groundwater samples collected near the water table (at approximate depths of 10 feet) are presented on Figures 3 and 4; the grab groundwater sample results for the deeper sandy interval at depths below 20 feet are presented on Figures 5 and 6. Monitoring well sample results are presented on Figures 7 and 8.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The data obtained during this and previous investigations, and the monitoring well sampling events indicate that gasoline in soil and groundwater associated with a former underground gasoline tank at the site is very limited in aerial extent; it extends only approximately 50 feet north of the former tank and does not appear to be migrating in the fine-grained sediments. Comparison of the data collected in 1993 when the tank was removed and recently collected data in the vicinity of the tank indicates that the gasoline currently in groundwater is naturally biodegrading.

Given the limited extent of the gasoline in groundwater and the ongoing degradation of the gasoline in groundwater at the site, we conclude that the gasoline should not require remediation. We recommend that groundwater be sampled from the existing wells next quarter to confirm the recent findings and further document the natural degradation.

TABLES

GEOMATRIX

TABLE 1

WATER LEVEL MEASUREMENTS
National Guard Organizational Maintenance Shop
San Lorenzo, California

Well No.	Date	Depth Below TOC (feet)	TOC Elevation (feet, msl)	Groundwater Elevation (feet, msl)
MW-1	11/22/94	8.92	35.53	26.61
	1/6/95	8.31	35.53	27.22
	4/20/95	5.12	35.53	30.41
	5/3/95	5.34	35.53	30.19
	6/9/95	6.14	35.53	29.39
MW-2	11/22/94	9.41	36.32	26.91
	1/6/95	8.50	36.32	27.82
	4/20/95	6.16	36.32	30.16
	5/3/95	6.13	36.32	30.19
	6/9/95	6.92	36.32	29.40
MW-3	11/22/95	7.89	34.54	26.65
	1/6/95	7.03	34.54	27.51
	4/20/95	4.55	34.54	29.99
	5/3/95	4.70	34.54	29.84
	6/9/95	5.51	34.54	29.03

GEOMATRIX

TABLE 2

GROUNDWATER ANALYTICAL RESULTS
APRIL AND MAY 1995

National Guard Organizational Maintenance Shop
San Lorenzo, California

Sample No.	TPH-d[1]	TPH-g[2]	Benzene	Toluene	Xylenes	Ethylbenzene
GP-1[3]	<50	<50	<0.5	<0.5	<0.5	<0.5
GP-2	<50	<50	<0.5	<0.5	<0.5	<0.5
GP-3	<50	<50	<0.5	<0.5	<0.5	<0.5
GP-4[1]	<50	<50	<0.5	<0.5	<0.5	<0.5
MW-1	<50	<50	<0.5	<0.5	<0.5	<0.5
MW-2	<50	<50	<0.5	<0.5	<0.5	<0.5
MW-3	<50	600	18	4.2	110	27

1 TPH-d = total petroleum hydrocarbons as diesel.
2 TPH-g = total petroleum hydrocarbons as gasoline.
3 GP-1, GP-2, GP-3, GP-4, and GP-5 sampled on 20 April 1995; MW-1, MW-2, and MW-3 sampled on 3 May 1995.

GEOMATRIX

TABLE 3

SUMMARY OF PRECISION AND ACCURACY DATA
MAY AND JUNE 1995

National Guard Organizational Maintenance Shop
San Lorenzo, California

Matrix Spike/Matrix Spike Duplicates	Constituent	Precision Data		Accuracy Data	
		RPD[1]	QA Goal[2]	% Recovery	QA Goal
Grab Groundwater Investigation	Gasoline	NA[3]	±20%	95	80-118
	Diesel	4.3	±20%	68.7-71.7	60-130
	Benzene	3.2	±20%	92.0-95.0	80-127
	Toluene	2.0	±20%	100-102	80-122
	Ethylbenzene	2.8	±20%	106-109	81-119
	Xylenes	1.8	±20%	112-114	83-125
Monitoring Well Sampling Event	Diesel	5.3	±20%	76.8-81	60-130
	Benzene	0.9	±20%	112-113	80-127
	Toluene	1.8	±20%	110-112	81-122
	Ethylbenzene	2.7	±20%	110-113	81-119
	Xylenes	1.8	±20%	111-113	83-125

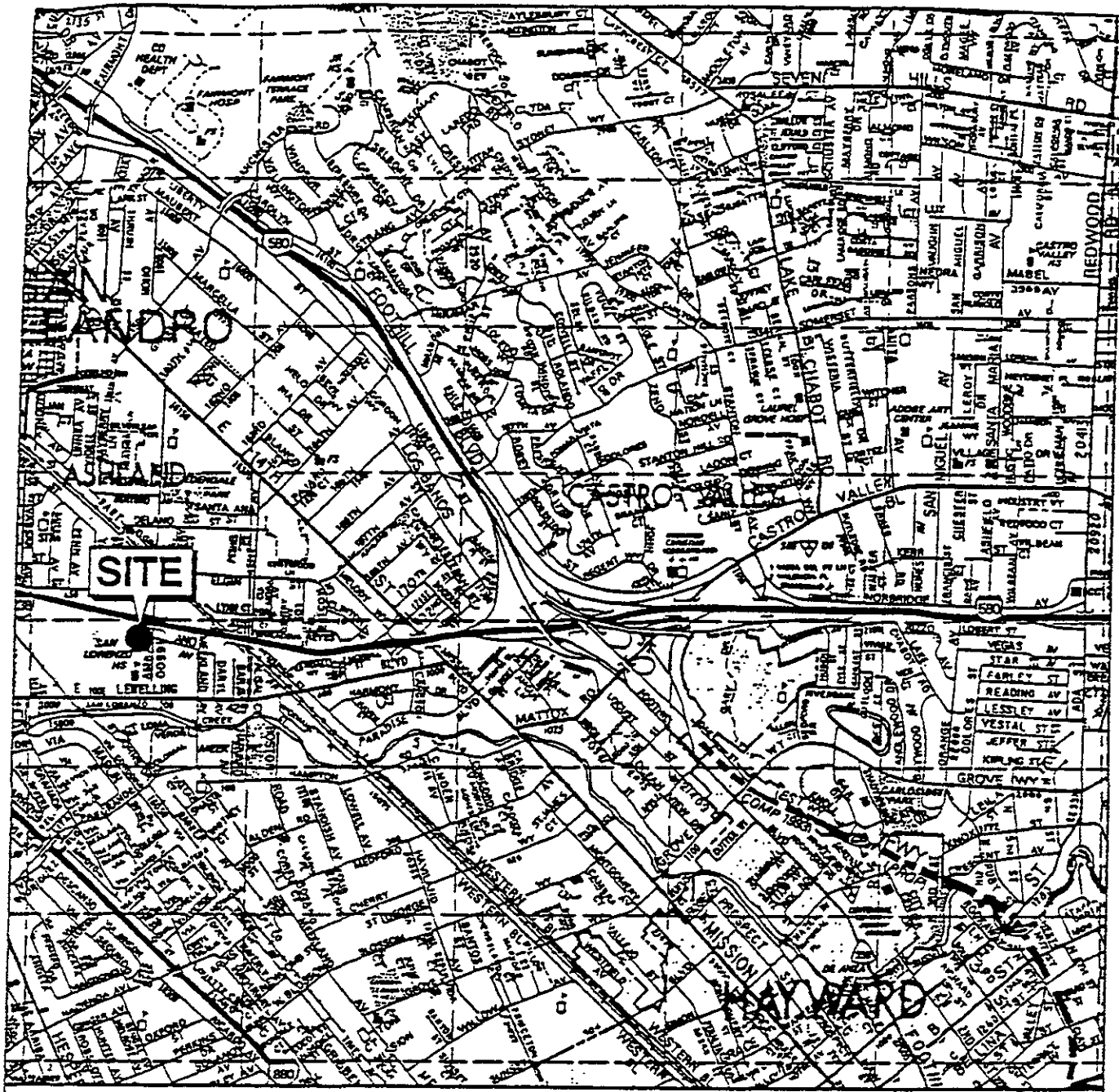
Notes:

1 RPD = Relative percent difference. $RPD = \frac{2 (C_1 - C_2)}{(C_1 + C_2)} \times 100$

2 QA Goal = Quality assurance goal established by laboratory.

3 N/A = Duplicate sample not analyzed; RPD not calculated.

FIGURES



Reference: Thomas Brothers Maps, Alameda County, 1993. (pg 28)

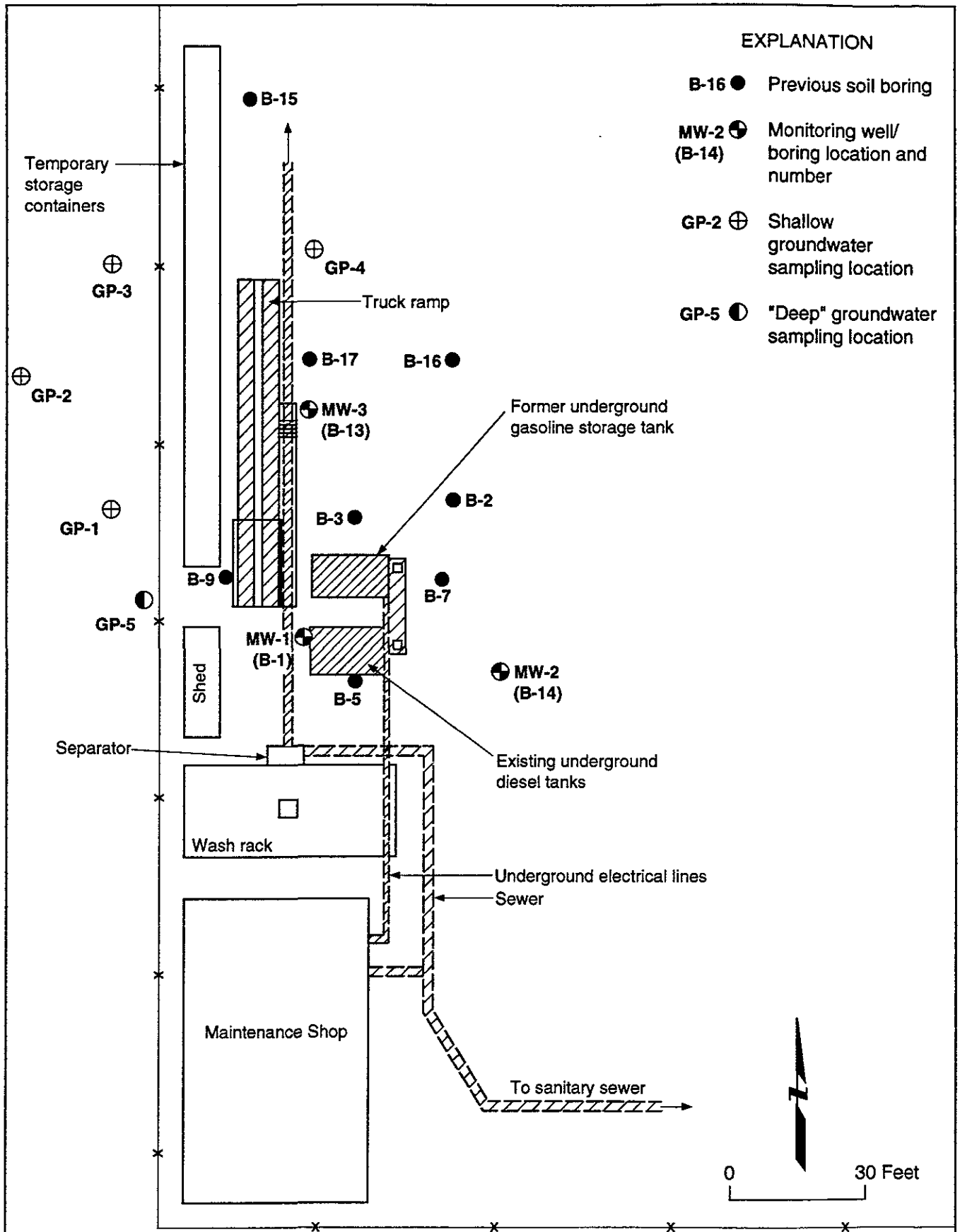
0 2000 Feet

GEOMATRIX

SITE LOCATION MAP
National Guard Organizational Maintenance Shop No. 35
16501 Ashland Avenue
San Lorenzo, California

Figure
1

Project No.
2868



Reference: Tetra Tech, Inc., 1993

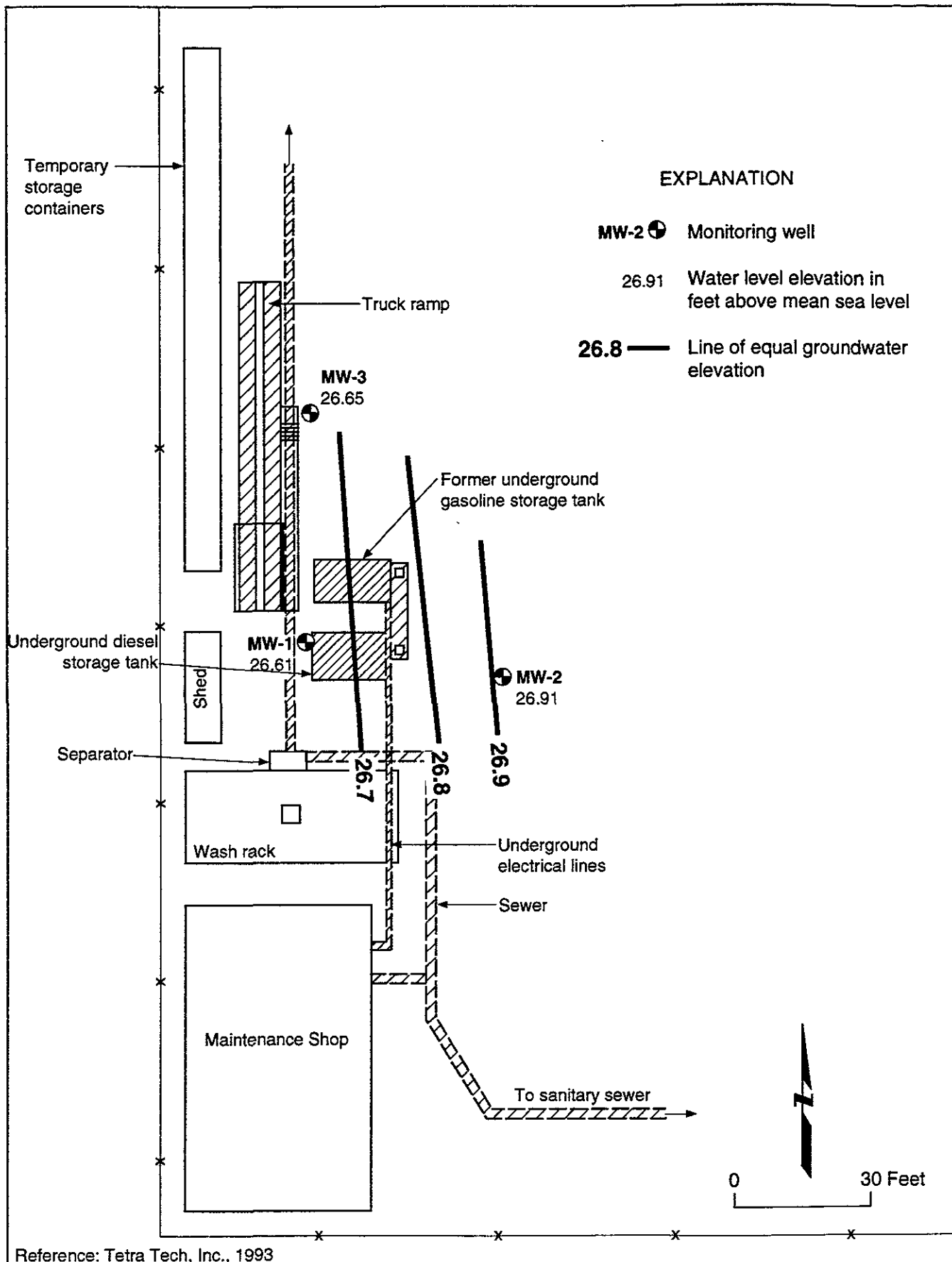
GEOMATRIX

SUBSURFACE SAMPLING LOCATIONS
National Guard Organizational Maintenance Shop #35
16501 Ashland Avenue
San Lorenzo, California

Figure 2

Project No. 2868D

2868D.001



Reference: Tetra Tech, Inc., 1993

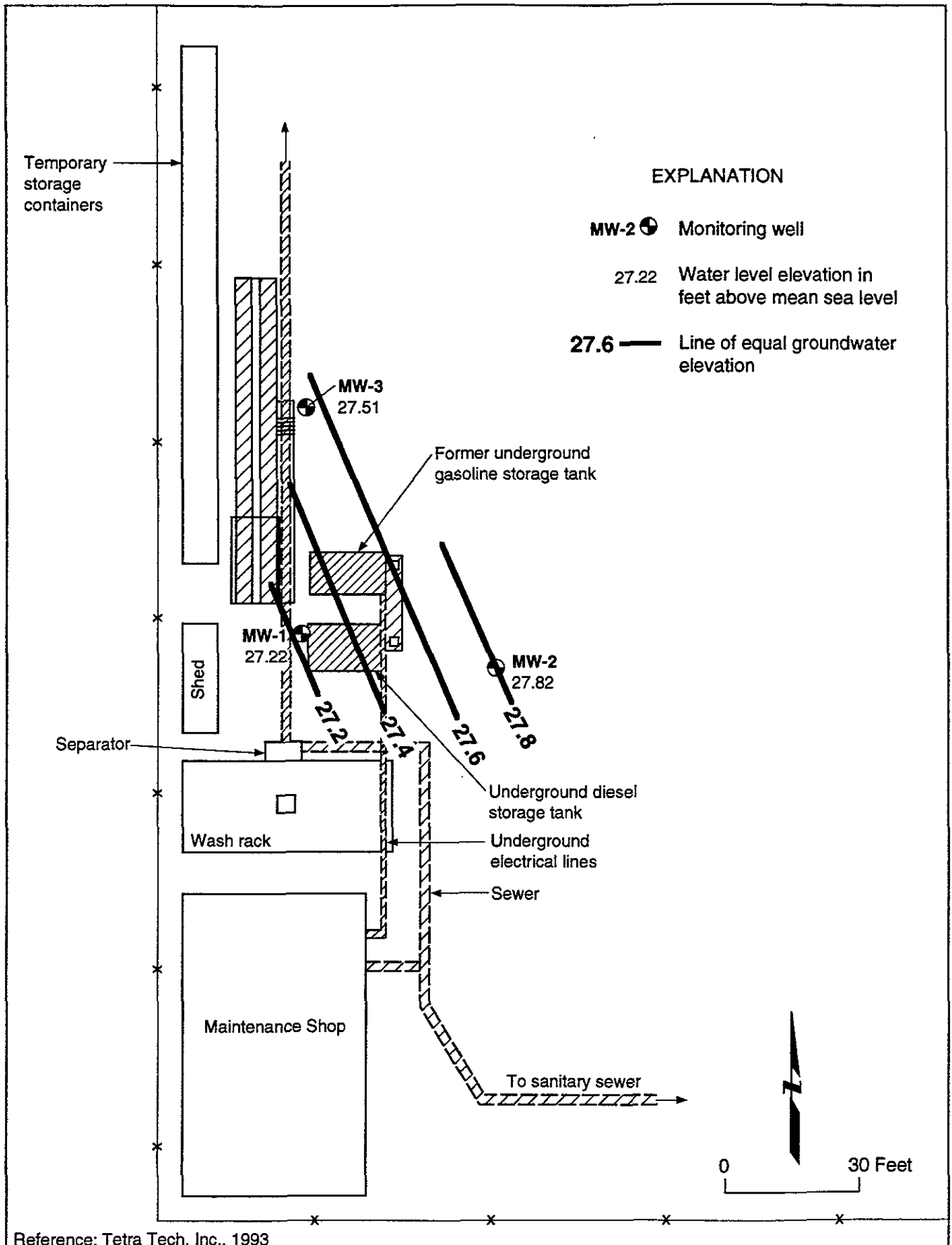
GEOMATRIX

POTENTIOMETRIC SURFACE MAP - 22 NOVEMBER 1994
National Guard Organizational Maintenance Shop #35
16501 Ashland Avenue
San Lorenzo, California

Figure 3

Project No. 2868D

2868D.003



Reference: Tetra Tech, Inc., 1993

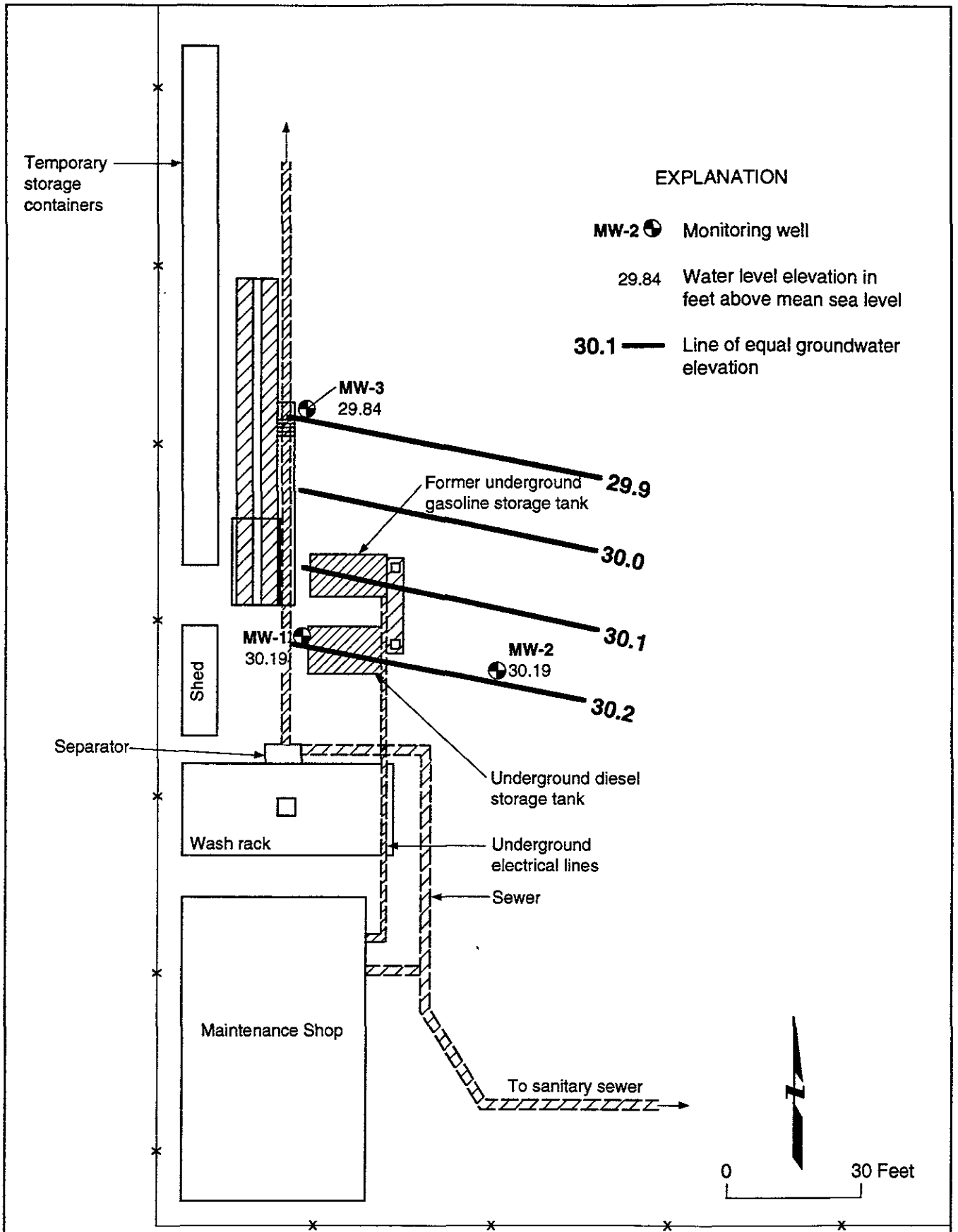
GEOMATRIX

POTENTIOMETRIC SURFACE MAP - 6 JANUARY 1995
National Guard Organizational Maintenance Shop #35
16501 Ashland Avenue
San Lorenzo, California

Figure 4

Project No. 2868D

2868D.004



Reference: Tetra Tech, Inc., 1993

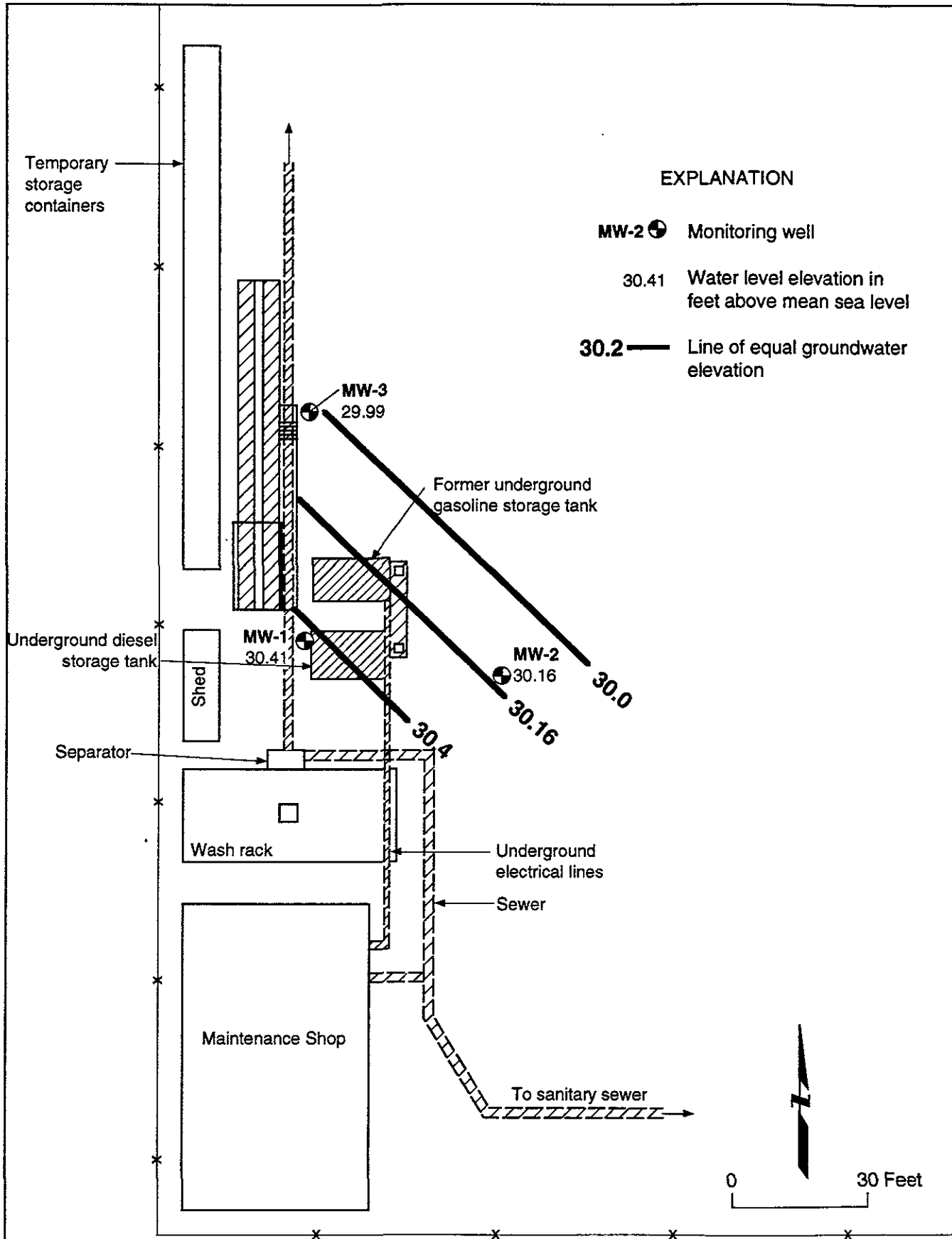
GEOMATRIX

POTENTIOMETRIC SURFACE MAP - 3 MAY 1995
National Guard Organizational Maintenance Shop #35
16501 Ashland Avenue
San Lorenzo, California

Figure 5

Project No. 2868D

2868D.005



Reference: Tetra Tech, Inc., 1993

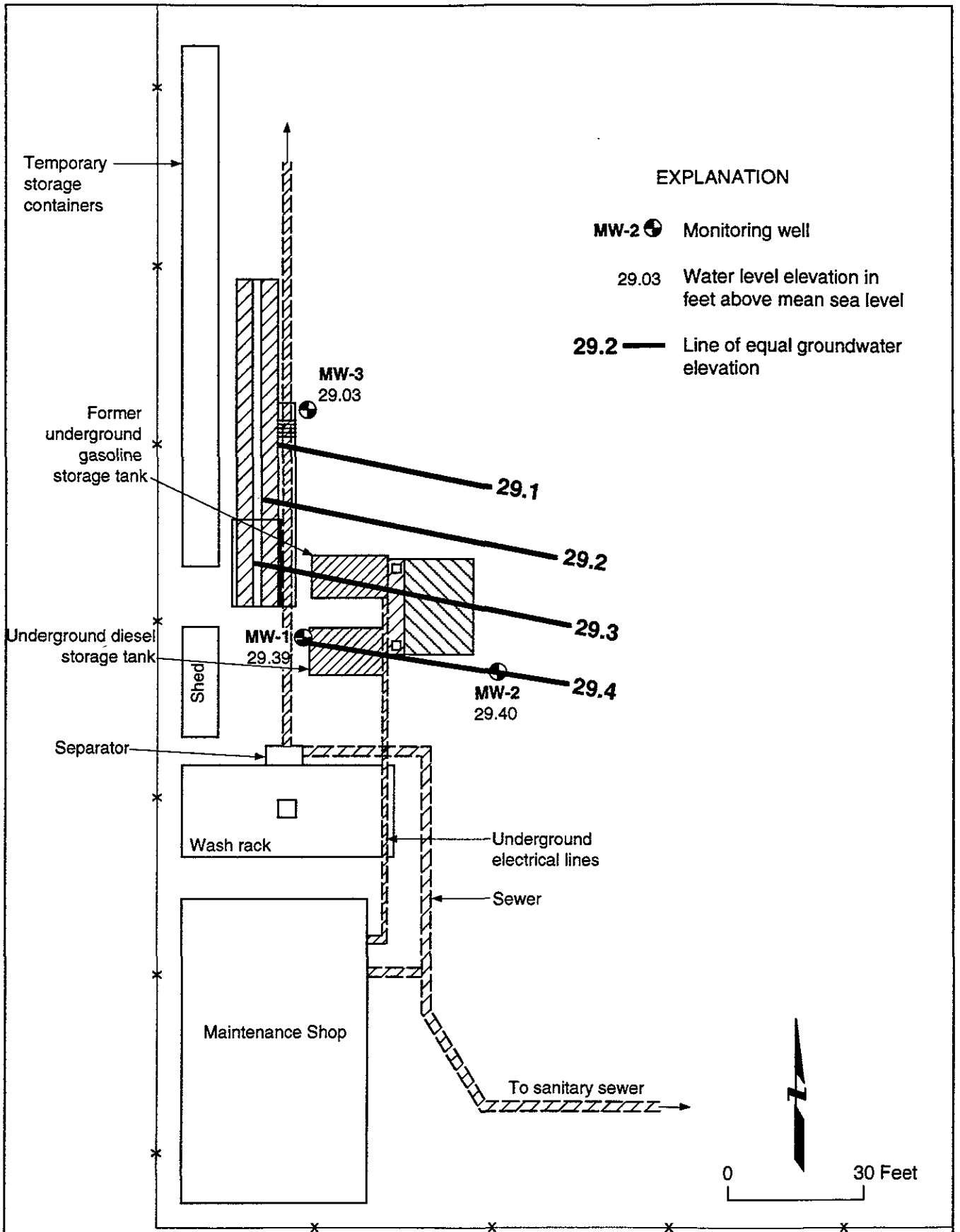
GEOMATRIX

POTENTIOMETRIC SURFACE MAP - 20 APRIL 1995
National Guard Organizational Maintenance Shop #35
16501 Ashland Avenue
San Lorenzo, California

Figure 6

Project No. 2868D

2868D.006



Reference: Tetra Tech, Inc., 1993

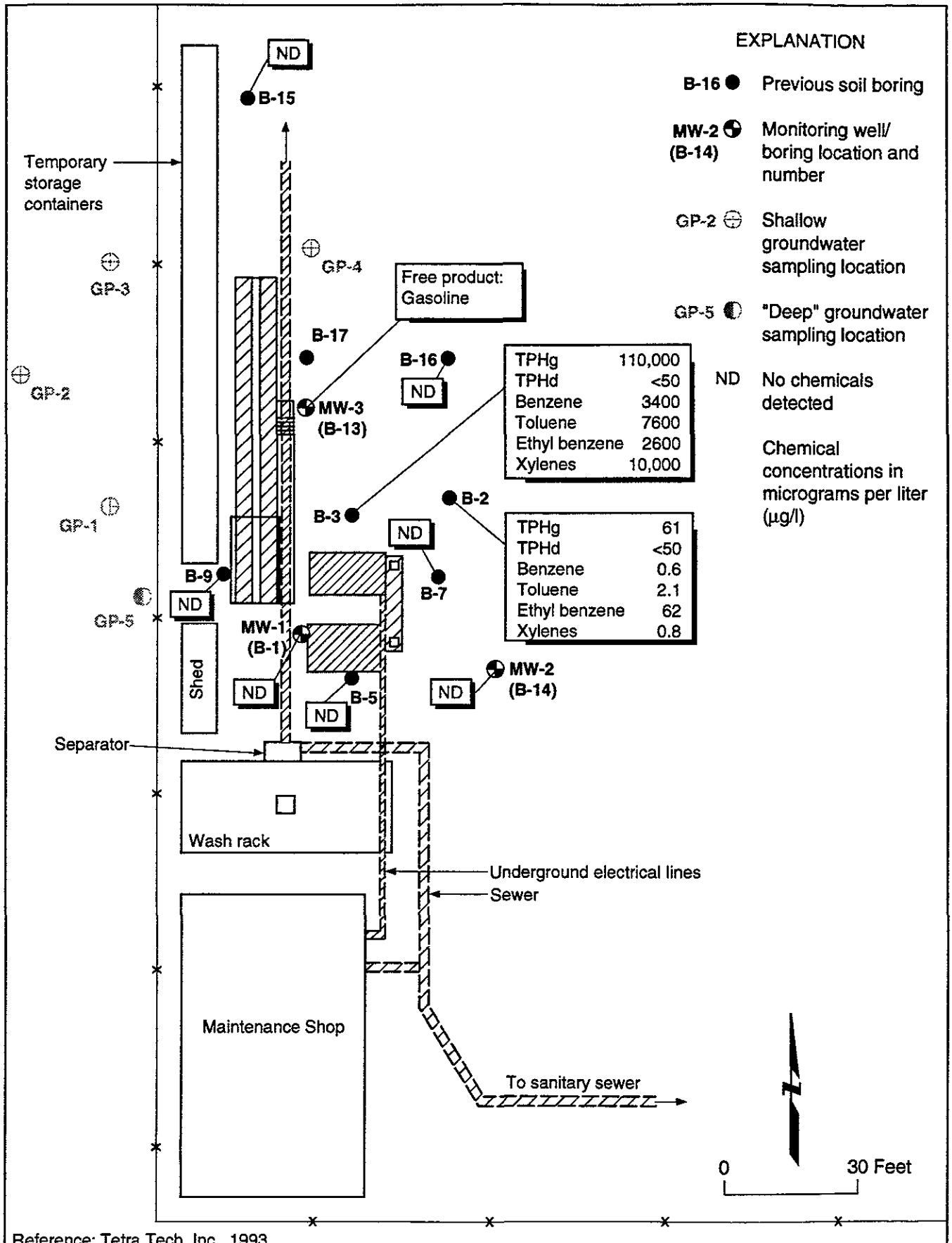
GEOMATRIX

POTENTIOMETRIC SURFACE MAP - 9 JUNE 1995
National Guard Organizational Maintenance Shop #35
16501 Ashland Avenue
San Lorenzo, California

Figure 7

Project No. 2868D

2868D.013



Reference: Tetra Tech, Inc., 1993

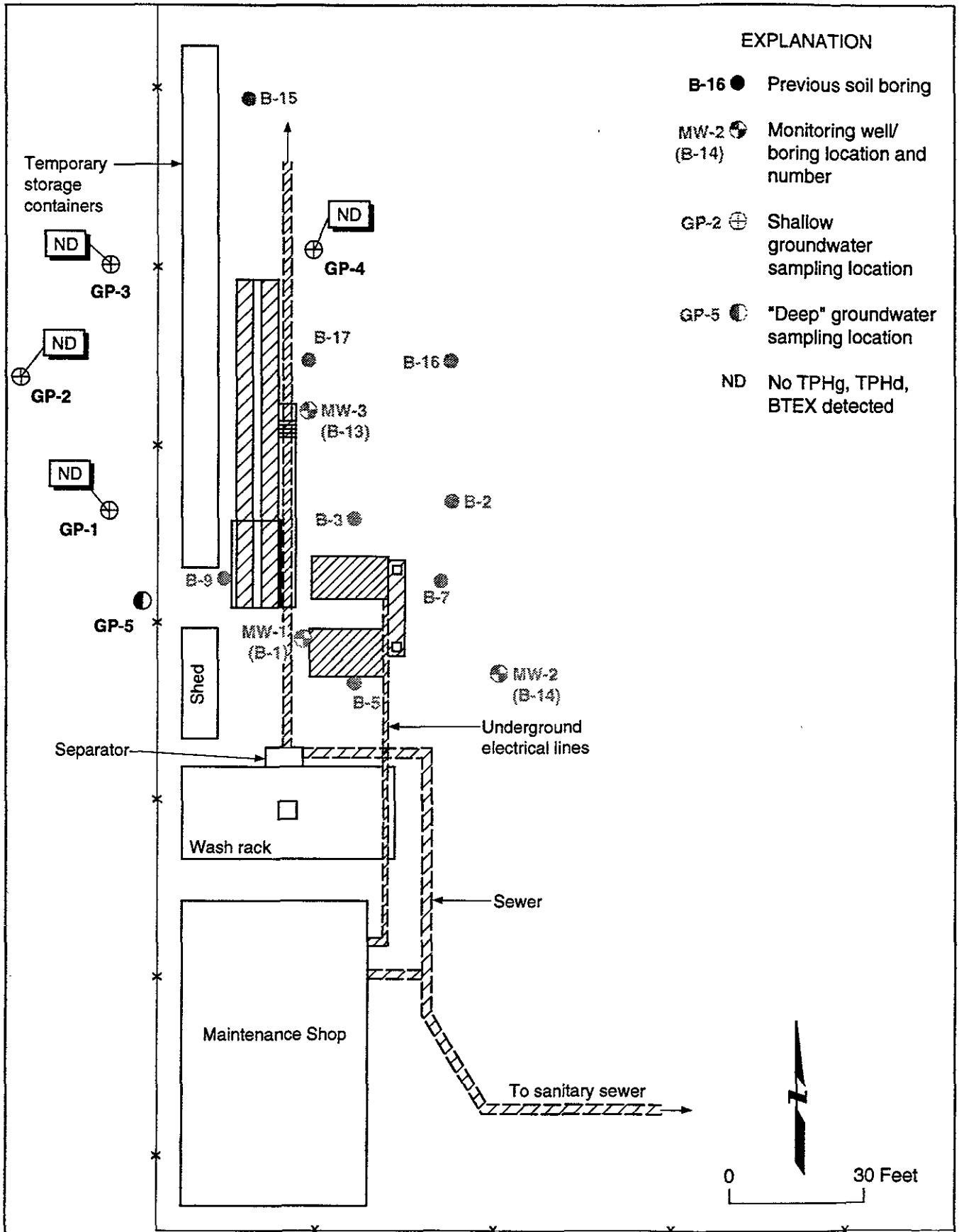
GEOMATRIX

PREVIOUS SHALLOW GRAB GROUNDWATER RESULTS - JULY 1993
National Guard Organizational Maintenance Shop #35
San Lorenzo, California

Figure 8

Project No. 2868D

2868D.007



Reference: Tetra Tech, Inc., 1993

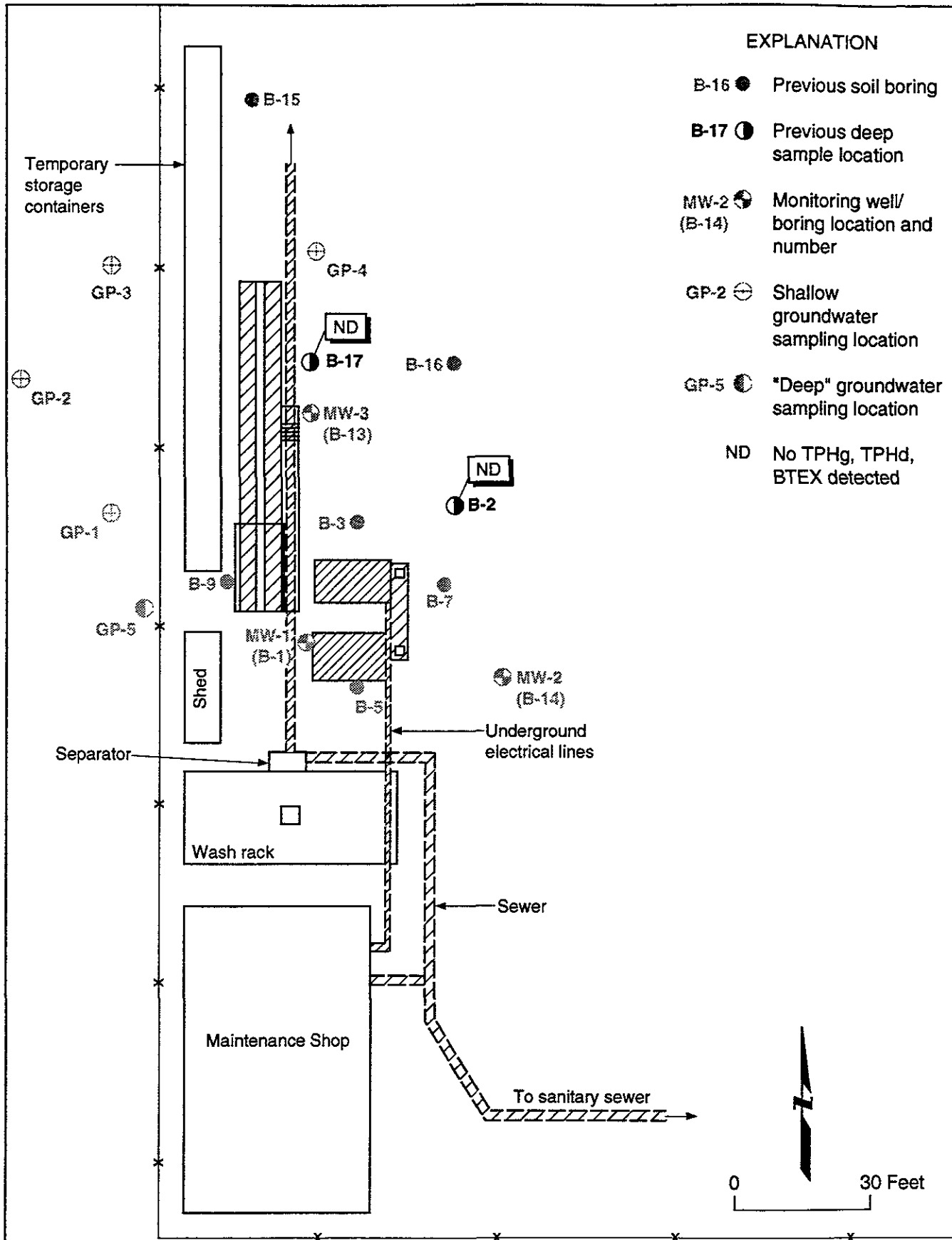
GEOMATRIX

SHALLOW GRAB GROUNDWATER RESULTS - APRIL 1995
National Guard Organizational Maintenance Shop #35
San Lorenzo, California

Figure 9

Project No. 2868D

2868D.008



Reference: Tetra Tech, Inc., 1993

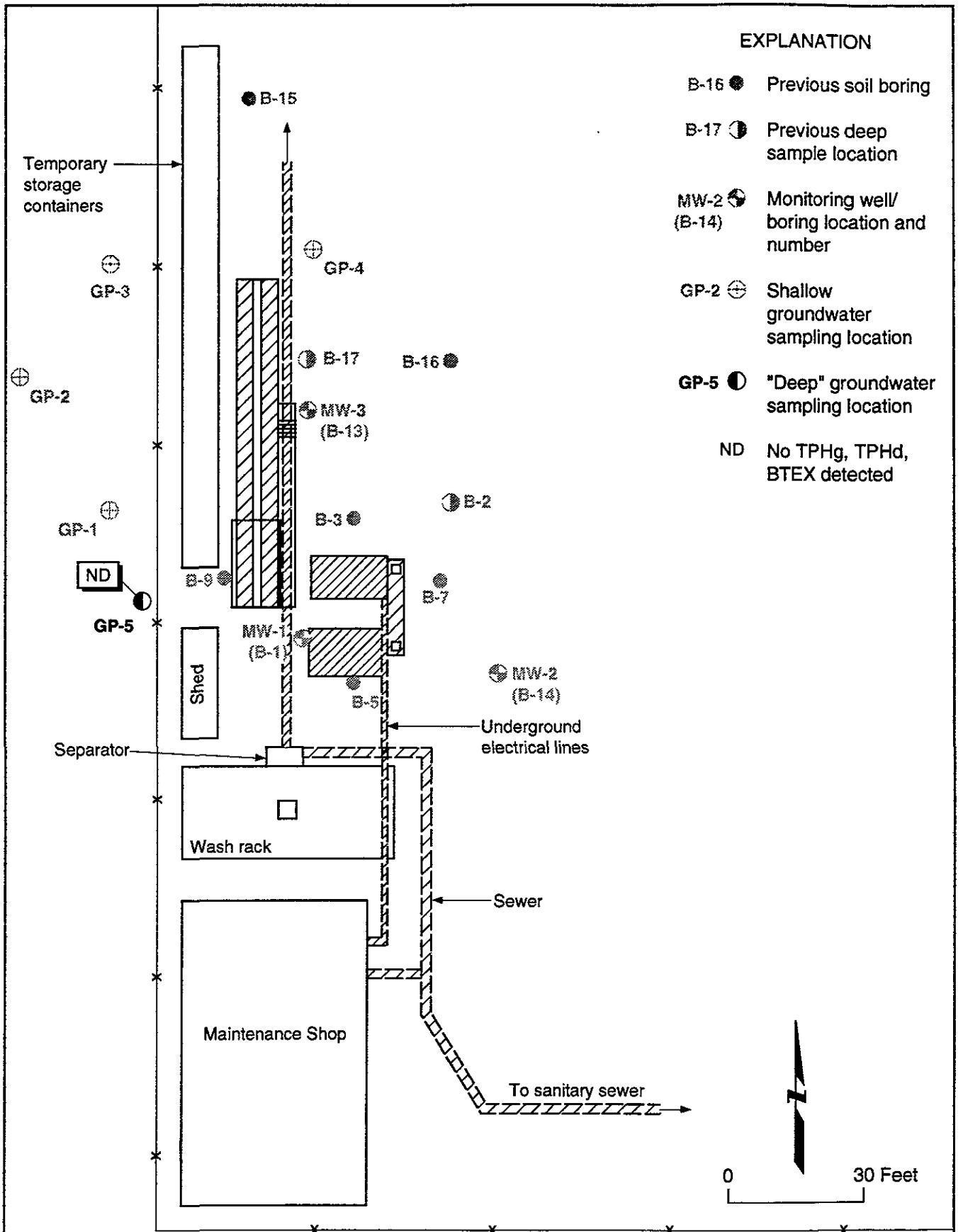
GEOMATRIX

PREVIOUS "DEEP" GRAB GROUNDWATER RESULTS - JULY 1993
National Guard Organizational Maintenance Shop #35
San Lorenzo, California

Figure 10

Project No. 2868D

2868D.009



Reference: Tetra Tech, Inc., 1993

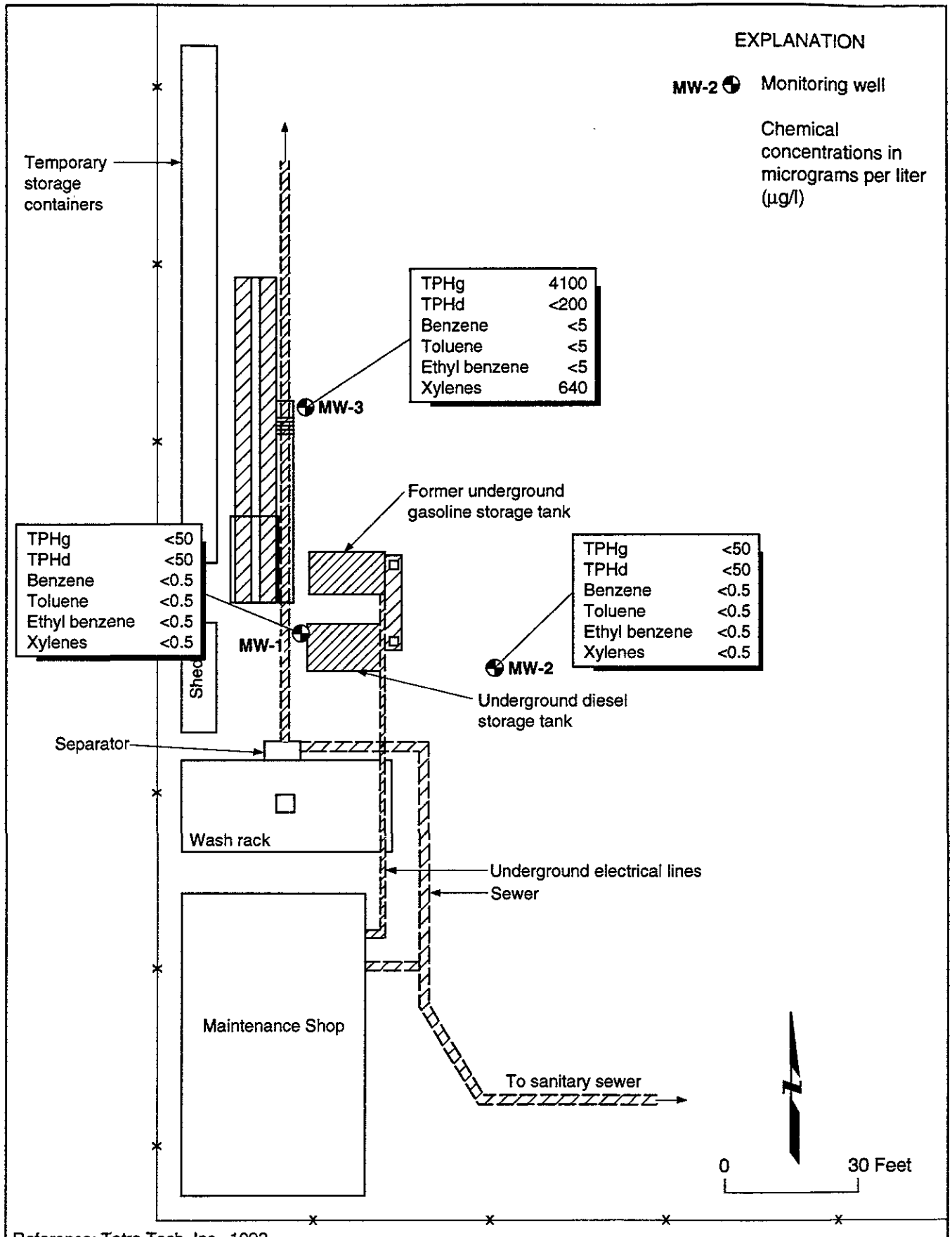
GEOMATRIX

"DEEP" GRAB GROUNDWATER RESULTS - APRIL 1995
National Guard Organizational Maintenance Shop #35
San Lorenzo, California

Figure 11

Project No. 2868D

2868D.010



Reference: Tetra Tech, Inc., 1993

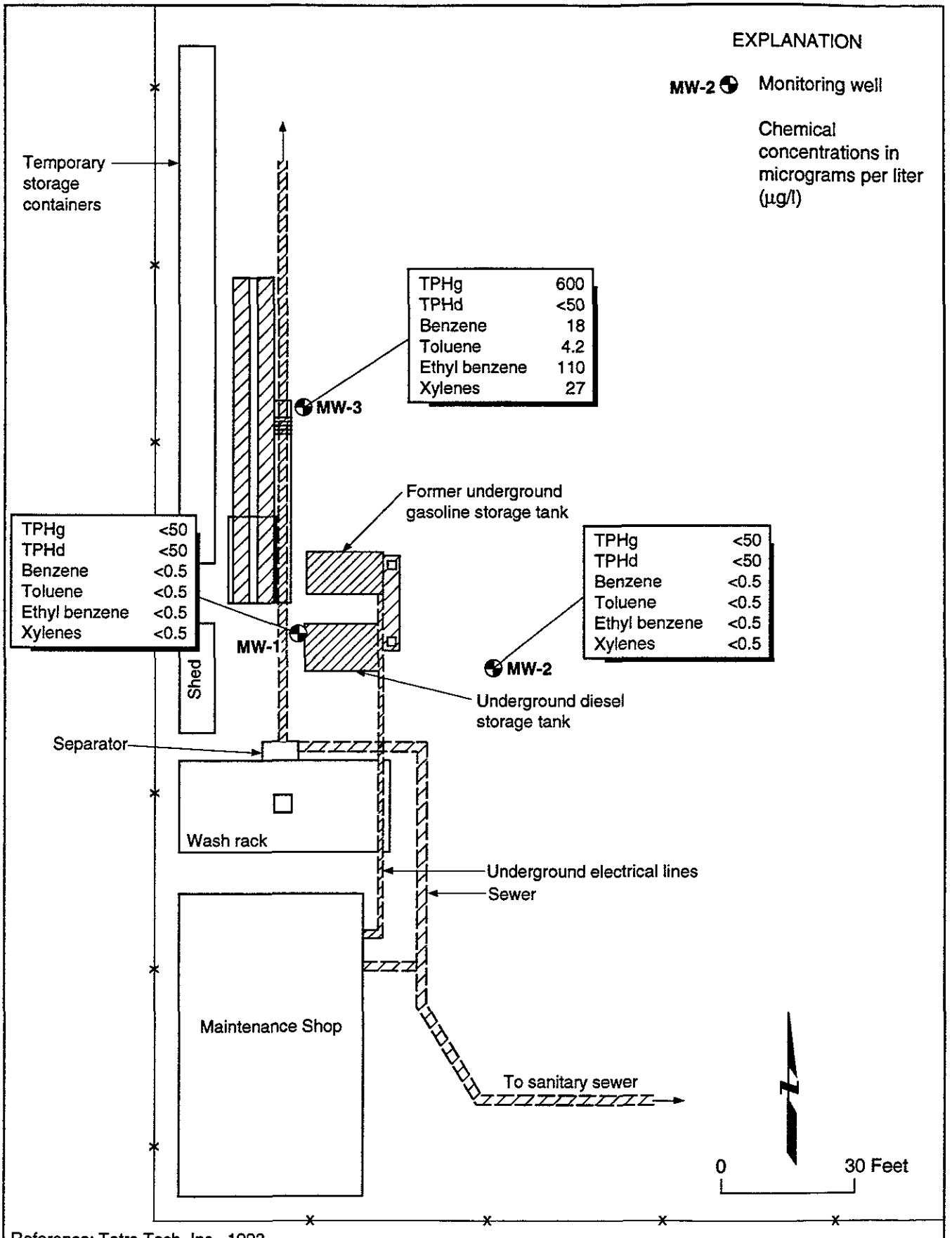
GEOMATRIX

MONITORING WELL SAMPLE RESULTS - JULY 1993
National Guard Organizational Maintenance Shop #35
San Lorenzo, California

Figure 12

Project No. 2868D

2868D.011



Reference: Tetra Tech, Inc., 1993

GEOMATRIX

MONITORING WELL SAMPLE RESULTS - MAY 1995
National Guard Organizational Maintenance Shop #35
San Lorenzo, California

Figure 13

Project No. 2868D

2868D.012

APPENDIX A

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600 FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT National Guard Shop No. 35
16501 Ashland Ave.
San Lorenzo, California

CLIENT
Name Division of the State Architect
Address 400 P Street, 5th Floor Phone (916)445-6939
City Sacramento Zip 95814

APPLICANT
Name Geometrix Consultants
FAX: (415)434-1365
Address 100 Pine St., 10th Floor Phone (415)434-9400
City San Francisco Zip 94111

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	___	General	___
Water Supply	___	Contamination	X
Monitoring	___	Well Destruction	___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger ___
Cable ___ Other Geoprobe 5400 (Direct push)

DRILLER'S LICENSE NO. ___

WELL PROJECTS

Drill Hole Diameter	___	in.	Maximum		
Casing Diameter	___	in.	Depth	___	ft.
Surface Seal Depth	___	ft.	Number	___	

GEOTECHNICAL PROJECTS

Number of Borings	6		Maximum		
Hole Diameter	3	in.	Depth	20	ft.

ESTIMATED STARTING DATE 4/20/95
ESTIMATED COMPLETION DATE 4/21/95

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

FOR OFFICE USE

PERMIT NUMBER 95214
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL
(1.) A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
(3.) Permit is void if project not begun within 90 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

(C.) GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 14 Apr 95
Wyman Hong

APPENDIX B

PROJECT: NATIONAL GUARD ORGANIZATION MAINTENANCE SHOP NO. 35
16501 Ashland Avenue
San Lorenzo, California

Log of Boring No. GP-1

BORING LOCATION: San Lorenzo High School

ELEVATION AND DATUM:

DRILLING CONTRACTOR: Vironex

DATE STARTED: 4/20/95

DATE FINISHED: 4/20/95

DRILLING METHOD: Geoprobe 5400

TOTAL DEPTH: 12 feet

MEASURING POINT:

DRILLING EQUIPMENT: Geoprobe 5400 Subsurface Sampling

DEPTH TO WATER	FIRST	COMPL.	24 HRS.
	7.5	---	--

SAMPLING METHOD: Core

LOGGED BY: Charles Rome

HAMMER WEIGHT: NA

DROP: NA

RESPONSIBLE PROFESSIONAL: Lisa Rowles

REG. NO. RG 4559

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
0					LEAN CLAY (CL) Dark brown (10YR 3/3), moist, 100% low to medium plasticity fines, root fragments to 1 foot	
4					Color change to brown (10YR 5/3)	
7					ATD ▽	
8					Clayey sand (SC); brown (10YR 5/3), wet, 60% fine sand, 40% low plasticity fines	Water sampling interval 7 to 12 feet
11					Silt with sand (ML); brown (10YR 5/3), wet, 25% fine sand, 75% low plasticity fines	
12					Bottom of boring at 12 feet	

B-1 (11/92)

PROJECT: NATIONAL GUARD ORGANIZATION MAINTENANCE SHOP NO. 35
16501 Ashland Avenue
San Lorenzo, California

Log of Boring No. GP-2

BORING LOCATION: San Lorenzo High School

ELEVATION AND DATUM:

DRILLING CONTRACTOR: Vironex

DATE STARTED: 4/20/95

DATE FINISHED: 4/20/95

DRILLING METHOD: Geoprobe 5400

TOTAL DEPTH: 12 feet

MEASURING POINT:

DRILLING EQUIPMENT: Geoprobe 5400 Subsurface Sampling

DEPTH TO WATER: FIRST 8 feet; COMPL. ---; 24 HRS. --

SAMPLING METHOD: Core

LOGGED BY: Charles Rome

HAMMER WEIGHT: NA

DROP: NA

RESPONSIBLE PROFESSIONAL: Lisa Rowles

REG. NO. RG 4559

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID Reading (ppm)	DESCRIPTION (NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.)	REMARKS
					Surface Elevation:	
1					LEAN CLAY (CL) Dark brown (10YR 3/3), moist, 100% low plasticity fines, root fragments to 1 foot	
2						
3						
4						
5						
6						
7					Clayey sand (SC); brown (10YR 5/3), moist, 60% fine to medium sand, 40% low plasticity fines	
8					Moisture increase to wet ATD ▽	Water sampling interval 7 to 12 feet
9						
10					Color change to very dark brown (10YR 2/2)	
11					SILT with SAND (ML) Brown (10YR 5/3), moist, 25% fine sand, 75% low plasticity fines	
12					Bottom of boring at 12 feet	
13						
14						

B-1 (11/92)

PROJECT: NATIONAL GUARD ORGANIZATION MAINTENANCE SHOP NO. 35
16501 Ashland Avenue
San Lorenzo, California

Log of Boring No. GP-3

BORING LOCATION: GP-3

ELEVATION AND DATUM:

DRILLING CONTRACTOR: Vironex

DATE STARTED: 4/20/95

DATE FINISHED: 4/20/95

DRILLING METHOD: Geoprobe 5400

TOTAL DEPTH: 12 feet

MEASURING POINT:

DRILLING EQUIPMENT: Geoprobe 5400 Subsurface Sampling

DEPTH TO WATER | FIRST: 8 feet | COMPL.: --- | 24 HRS.: --

SAMPLING METHOD: Core

LOGGED BY: Charles Rome

HAMMER WEIGHT: NA | DROP: NA

RESPONSIBLE PROFESSIONAL: Lisa Rowles | REG. NO. RG 4559

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol) color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
1					LEAN CLAY (CL) Dark brown (10YR 3/3), moist, 100% low plasticity fines, root fragments to 1 foot	
2						
3						
4					Color change to brown (10YR 3/5)	
5					Clayey sand (SC); brown (10YR 5/3), moist, 60% fine to medium sand, 40% low plasticity fines	
6						
7						
8					Moisture increase to wet ATD ▽	
9						Water sampling interval 7 to 12 feet
10					SILT with SAND (ML) Brown (10YR 5/3), wet, 25% fine sand, 75% low plasticity fines	
11					LEAN CLAY (CL) Dark brown (10YR 3/3), wet, 100% low plasticity fines	
12					Bottom of boring at 12 feet	
13						
14						

B-1 (11/92)

PROJECT: NATIONAL GUARD ORGANIZATION MAINTENANCE SHOP NO. 35 16501 Ashland Avenue San Lorenzo, California			**Log of Boring No. GP-4**
BORING LOCATION: GP-4		ELEVATION AND DATUM:	
DRILLING CONTRACTOR: Vironex		DATE STARTED: 4/20/95	DATE FINISHED: 4/20/95
DRILLING METHOD: Geoprobe 5400		TOTAL DEPTH: 12 feet	MEASURING POINT:
DRILLING EQUIPMENT: Geoprobe 5400 Subsurface Sampling		DEPTH TO WATER: FIRST 8 feet	COMPL. --- / 24 HRS. --
SAMPLING METHOD: Core		LOGGED BY: Charles Rome	
HAMMER WEIGHT: NA	DROP: NA	RESPONSIBLE PROFESSIONAL: Lisa Rowles	REG. NO. RG 4559

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	PID Reading (ppm)	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
0					ASPHALT	
1					LEAN CLAY (CL) Brown (10YR 5/3), moist, 100% low plasticity fines	
2						
3						
4					Clayey Sand (SC); brown (10YR 5/3), moist, 60% fine to medium sand, 40% low plasticity fines	
5						
6						
7						
8					Moisture increase to wet — ATD ▽	
9					Color change to black (2.5Y 2/0)	Water sampling interval 7 to 12 feet
10					SILT with SAND (ML) Brown (10YR 5/3), wet, 25% fine sand, 75% low plasticity fines	
11						
12					Bottom of boring at 12 feet	
13						
14						

B-1 (11/92)

APPENDIX C

CHROMALAB, INC.

Environmental Services (SDB)

May 3, 1995 Submission #: 9504274

GEOMATRIX CONSULTANTS
100 Pine St., Suite 1000
San Francisco, CA 94111

Attn: Lisa Rowles

RE: Analysis for project 2868.

REPORTING INFORMATION

Samples were received cold and in good condition on April 21, 1995. They were refrigerated upon receipt and analyzed as described in the attached report. ChromaLab followed EPA or equivalent methods for all testing reported.

No discrepancies were observed or difficulties encountered with the testing.

SAMPLES TESTED IN THIS REPORT

Client Sample ID	Matrix	Date collected	Sample #
GP-1	WATER	April 20, 1995	85752
GP-2	WATER	April 20, 1995	85753
GP-3	WATER	April 20, 1995	85754
GP-4	WATER	April 20, 1995	85755
GP-5	WATER	April 20, 1995	85756
EQ-1	WATER	April 20, 1995	85757
FB-1	WATER	April 20, 1995	85758

Jill Thomas
Quality Assurance Manager

Eric Tam
Laboratory Director

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

07:55:57 COVERLET

CHROMALAB, INC.

Environmental Services (SDB)

April 26, 1995 *Submission #:* 9504274

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: April 21, 1995

re: 5 samples for Diesel analysis.

Matrix: WATER *Extracted:* April 25, 1995
Sampled: April 20, 1995 *Run#:* 6367 *Analyzed:* April 25, 1995
Method: EPA 3510/8015M

Spl #	CLIENT SMPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
85752	GP-1	N.D.	50	N.D.	107
85753	GP-2	N.D.	50	N.D.	107
85754	GP-3	N.D.	50	N.D.	107
85755	GP-4	N.D.	50	N.D.	107
85756	GP-5	N.D.	50	N.D.	107

Sirirat Chullakorn
Sirirat (Sindy) Chullakorn
Chemist

Ali Kharrazi
Organic Manager

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

May 3, 1995

Submission #: 9504274

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: April 21, 1995

re: **Matrix spike** report for Diesel analysis.

Matrix: WATER
Lab Run#: 6367 *Instrument:* GC2-EXT-S
Method: EPA 3510/8015M

Extracted: April 25, 1995
Analyzed: April 25, 1995

Analyte	Spiked Sample Result	Spike Amt	% Spike Rec	Dup Spike Rec	Control Limits	% RPD	% RPD Lim
DIESEL	N.D. ug/L	200 ug/L	71.7	68.7	60-130	4.3	20

Sample Spiked: 85752
Submission #: 9504274
Client Sample ID: GP-1

SPK1

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Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

May 3, 1995 *Submission #:* 9504274

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: April 21, 1995

re: **Surrogate** report for 5 samples for Diesel analysis.

Matrix: WATER
Lab Run#: 6367
Method: EPA 3510/8015M

Extracted: April 25, 1995
Analyzed: April 25, 1995

Sample#	Client Sample ID	Surrogate	% Recovered	
85752	GP-1	O-TERPHENYL	89	
85753	GP-2	O-TERPHENYL	77	
85754	GP-3	O-TERPHENYL	75	
85755	GP-4	O-TERPHENYL	97	
85756	GP-5	O-TERPHENYL	95	

Sample#	QC Sample Type	Surrogate	% Recovered	
86055	*Method blank (MDB)*	O-TERPHENYL	103	
86056	*Blank Spike (BSP)*	O-TERPHENYL	120	
86058	*Matrix spike (MS)*	O-TERPHENYL	86	SPK1
86059	*Matrix spike duplicate (MSD)*	O-TERPHENYL	68	SPK2

OCSURR RUDO 03-May-95 08:04:17

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Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

April 28, 1995 *Submission #:* 9504274

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: April 21, 1995

re: 2 samples for BTEX analysis.

Matrix: WATER
Sampled: April 20, 1995 *Run#:* 6385 *Analyzed:* April 26, 1995
Method: EPA 602/8020

Spl # CLIENT SMPL ID	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
85757 EQ-1	N.D.	0.5	N.D.	N.D.
85758 FB-1	N.D.	N.D.	N.D.	N.D.
Reporting Limits	0.5	0.5	0.5	0.5
Blank Result	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)	99	110	110	116

Jack Kelly
Chemist

Ali Kharrazi
Organic Manager

QC JACK 15:31:16

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Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

April 28, 1995 *Submission #:* 9504274

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: April 21, 1995

re: **Matrix spike** report for BTEX analysis.

Matrix: WATER
Lab Run#: 6385 *Instrument:* GC1-1 *Analyzed:* April 26, 1995
Method: EPA 602/8020

Analyte	Spiked Sample Result	Spike Amt	% Spike Rec	Dup Spike Rec	Control Limits	% RPD	% RPD Lim
BENZENE	N.D. ug/L	5.0 ug/L	92.0	95.0	80-127	3.2	20
TOLUENE	N.D. ug/L	5.0 ug/L	100	102	80-122	2.0	20
ETHYL BENZENE	N.D. ug/L	5.0 ug/L	106	109	81-119	2.8	20
XYLENES	N.D. ug/L	15 ug/L	112	114	83-125	1.8	20

Sample Spiked: 85755
Submission #: 9504274
Client Sample ID: GP-4

SPK1

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QCMSPK JACK 28-Apr-95 15:31:43

CHROMALAB, INC.

Environmental Services (SDB)

April 28, 1995 *Submission #:* 9504274

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: April 21, 1995

re: **Surrogate** report for 2 samples for BTEX analysis.

Matrix: WATER
Lab Run#: 6385 *Analyzed:* April 26, 1995
Method: EPA 602/8020

Sample#	Client Sample ID	Surrogate	% Recovered	
85757	EQ-1	TRIFLUOROTOLUENE	99	
85758	FB-1	TRIFLUOROTOLUENE	104	

Sample#	QC Sample Type	Surrogate	% Recovered	
86247	*Method blank (MDB)*	TRIFLUOROTOLUENE	99	
86248	*Blank Spike (BSP)*	TRIFLUOROTOLUENE	95	
86372	*Matrix spike (MS)*	TRIFLUOROTOLUENE	101	SPK1
86373	*Matrix spike duplicate (MSD)*	TRIFLUOROTOLUENE	103	SPK2

QCSURR JACK 28-Apr-95 15:32:01

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Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

April 28, 1995 *Submission #:* 9504274

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: April 21, 1995

re: 5 samples for Gasoline and BTEX analysis.

Matrix: WATER
Sampled: April 20, 1995 *Run#:* 6385 *Analyzed:* April 26, 1995
Method: EPA 5030/8015M/602/8020

Spl # CLIENT SMPL ID	Gasoline (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
85752 GP-1	N.D.	N.D.	N.D.	N.D.	N.D.
85753 GP-2	N.D.	N.D.	N.D.	N.D.	N.D.
85754 GP-3	N.D.	N.D.	N.D.	N.D.	N.D.
85755 GP-4	N.D.	N.D.	N.D.	N.D.	N.D.
85756 GP-5	N.D.	N.D.	N.D.	N.D.	N.D.
Reporting Limits	0.05	0.5	0.5	0.5	0.5
Blank Result	N.D.	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)	95	99	110	110	116

Jack Kelly
Chemist

Ali Kharrazi
Organic Manager

QC JACK 15:31-16

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

April 28, 1995 *Submission #:* 9504274

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: April 21, 1995

re: **Matrix spike** report for Gasoline and BTEX analysis.

Matrix: WATER
Lab Run#: 6385 *Instrument:* GC1-1 *Analyzed:* April 26, 1995
Method: EPA 5030/8015M/602/8020

Analyte	Spiked Sample Result	Spike Amt	% Spike Rec	Dup Spike Rec	Control Limits	% RPD	% RPD Lim
GASOLINE	N.D. mg/L	1.0 mg/L	95	--	80-118	N/A	N/A
BENZENE	N.D. ug/L	5.0 ug/L	92.0	95.0	80-127	3.2	20
TOLUENE	N.D. ug/L	5.0 ug/L	100	102	80-122	2.0	20
ETHYL BENZENE	N.D. ug/L	5.0 ug/L	106	109	81-119	2.8	20
XYLENES	N.D. ug/L	15 ug/L	112	114	83-125	1.8	20

Sample Spiked: 85755
Submission #: 9504274
Client Sample ID: GP-4

BPX1

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

April 28, 1995 *Submission #:* 9504274

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: April 21, 1995

re: **Surrogate** report for 5 samples for Gasoline and BTEX analysis.

Matrix: WATER
Lab Run#: 6385 *Analyzed:* April 26, 1995
Method: EPA 5030/8015M/602/8020

Sample#	Client Sample ID	Surrogate	% Recovered
85752	GP-1	TRIFLUOROTOLUENE	106
85753	GP-2	TRIFLUOROTOLUENE	104
85754	GP-3	TRIFLUOROTOLUENE	96
85755	GP-4	TRIFLUOROTOLUENE	103
85756	GP-5	TRIFLUOROTOLUENE	99

Sample#	QC Sample Type	Surrogate	% Recovered	
86247	*Method blank (MDB)*	TRIFLUOROTOLUENE	99	
86248	*Blank Spike (BSP)*	TRIFLUOROTOLUENE	95	
86372	*Matrix spike (MS)*	TRIFLUOROTOLUENE	101	SPK1
86373	*Matrix spike duplicate (MSD)*	TRIFLUOROTOLUENE	103	SPK2

QCSURR JACK 28-Apr-95 15:32:01

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.
SAMPLE RECEIPT CHECKLIST

Client Name GEOMATRIX

Project

Reference/Subm # 211007/9504274

Checklist completed by: [signature] / 4/24/95 (Signature / Date)

Date/Time Received 4/21/95 (Date) / 10:20 (Time)

Received by B. Morrow

Carrier name

Logged in by R.N. 4/21/95 (Initials / Date)

Matrix Water

Shipping container in good condition?	NA ✓	Yes	No
Custody seals present on shipping container?	Intact	Broken	Yes	No
Custody seals on sample bottles?	Intact	Broken	Yes	No
Chain of custpdy present?			Yes ✓	No
Chain of custody signed when relinquished and received?			Yes ✓	No
Chain of custody agrees with sample labels?			Yes ✓	No
Samples in proper container/bottle?			Yes ✓	No
Samples intact?			Yes ✓	No
* Sufficient sample volume for indicated test?			Yes ✓	No
VOA vials have zero headspace?	NA		Yes ✓	No
Trip Blank received?	NA		Yes ✓	No
All samples received within ~~holding~~ time?			Yes ✓	No

Container temperature? 4°C Rec'd on Ice

pH upon receipt <2 pH adjusted Check performed by: NA

Any NO response must be detailed in the comments section below. If items are not applicable, they should be marked NA.

Client contacted? Date contacted?

Person contacted? Contacted by?

Regarding?

* Comments: Only two containers per sample submitted for diesel. Therefore, one liter had to be split for matrix spike and matrix spike duplicate.

Corrective Action:

SMPLRECD.CK

274/85752-85758

SDMS #: 2504274 REC'D PM
CLIENT: GEOMATRIX
DUE: 04/28/95
REF #: 21607

21607

Chain-of-Custody Record

IR: 0200 | Date: 4/20/95 | Page 1 of 1

Project No.: 2868

Samplers (Signatures): Charles Rome

ANALYSES

Date	Time	Sample Number	EPA Method 8010	EPA Method 8020	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	TPH as BTEX	Cooled	Soil (S) or water (W)	Acidified	Number of containers
4/20/95	0830	GP-1					X	X	X	Y	W	Y	5
	0930	GP-2					X	X	X	Y	W	Y	5
	1015	GP-3					X	X	X	Y	W	Y	8
	1115	GP-4					X	X	X	Y	W	Y	5
	1515	GP-5					X	X	X	Y	W	Y	5
	1100	EQ-1							X	Y	W	Y	3
	1030	FB-1							X	Y	W	Y	3

REMARKS

Additional comments

RECD (1) L for GP-3

5 - Two VOAs broken prior to pick up. TPH

- Please Notify Chemist - 1 VOA only for GP-3

Turnaround time: Standard

Results to: Lisa Rowles

Total No. of containers: 31 / 29 TPH

Relinquished by:	Date:	Relinquished by:	Date:	Relinquished by:	Date:	Method of shipment: Pick up
Signature: Charles Rome	4/21/95	Signature: Diana Rushfeldt		Signature:		Laboratory comments and Log No.:
Printed name: Charles Rome		Printed name: Diana Rushfeldt		Printed name:		
Company: Geomatrix		Company: Geomatrix	4/21/95	Company:		
Received by:	Time:	Received by:	Time: 1024	Received by:	Time:	Rec'd on Ice
Signature: Maryann LeTourneau	0730	Signature: B. Morrow		Signature		
Printed name: MARYANN LETOURNEAU		Printed name: Chromalab		Printed name.		
Company: Geomatrix		Company:		Company:		

Geomatrix Consultants
100 Pine St 10th Floor
San Francisco, CA 94111
(415) 434-9400

CHROMALAB, INC.

Environmental Services (SDB)

May 11, 1995 Submission #: 9505048

GEOMATRIX CONSULTANTS
100 Pine St., Suite 1000
San Francisco, CA 94111

Attn: Lisa Rowles
RE: Analysis for project 2868.

REPORTING INFORMATION

Samples were received cold and in good condition on 05/03/95. They were refrigerated upon receipt and analyzed as described in the attached report. ChromaLab followed EPA or equivalent methods for all testing reported.

No discrepancies were observed or difficulties encountered with the testing.

SAMPLES TESTED IN THIS REPORT

Client Sample ID	Matrix	Date collected	Sample #
MW-1	WATER	May 3, 1995	87170
MW-2	WATER	May 3, 1995	87171
MW-3	WATER	May 3, 1995	87172
MW-4	WATER	May 3, 1995	87173

Jill Thomas
Quality Assurance Manager

Eric Tam
Laboratory Director

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

May 9, 1995

Submission #: 9505048

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: May 3, 1995

re: 3 samples for Gasoline and BTEX analysis.

Matrix: WATER
Sampled: May 3, 1995 *Run#:* 6553 *Analyzed:* May 9, 1995
Method: EPA 5030/8015M/602/8020

Spl # CLIENT SMPL ID	Gasoline (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
87170 MW-1	N.D.	N.D.	N.D.	N.D.	N.D.
87171 MW-2	N.D.	N.D.	N.D.	N.D.	N.D.
87172 MW-3	0.60	18	4.2	110	27
Reporting Limits	0.05	0.5	0.5	0.5	0.5
Blank Result	N.D.	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)	93	108	107	107	111

Jack Kelly
Chemist

Ali Kharrazi
Organic Manager

QCtest JACK 16:53:29

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.
Environmental Services (SDB)

May 9, 1995 *Submission #:* 9505048

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: May 3, 1995

re: **Matrix spike** report for Gasoline and BTEX analysis.

Matrix: WATER
Lab Run#: 6553 *Instrument:* GC1-4 *Analyzed:* May 9, 1995
Method: EPA 5030/8015M/602/8020

Analyte	Spiked Sample Result	Spike Amt	% Spike Rec	Dup Spike Rec	Control Limits	% RPD	% RPD Lim
BENZENE	N.D. ug/L	5.0 ug/L	113	112	80-127	0.9	20
TOLUENE	N.D. ug/L	5.0 ug/L	112	110	81-122	1.8	20
ETHYL BENZENE	N.D. ug/L	5.0 ug/L	113	110	81-119	2.7	20
XYLENES	N.D. ug/L	15 ug/L	113	111	83-125	1.8	20

Sample Spiked: 87173
Submission #: 9505048
Client Sample ID: MW-4

SPK1

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QCMSPK JACK 09-May-95 10:54:06

CHROMALAB, INC.

Environmental Services (SDB)

May 9, 1995 *Submission #:* 9505048

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: May 3, 1995

re: **Surrogate** report for 3 samples for Gasoline and BTEX analysis.

Matrix: WATER
Lab Run#: 6553 *Analyzed:* May 9, 1995
Method: EPA 5030/8015M/602/8020

Sample#	Client Sample ID	Surrogate	% Recovered	
87170	MW-1	TRIFLUOROTOLUENE	104	
87171	MW-2	TRIFLUOROTOLUENE	103	
87172	MW-3	TRIFLUOROTOLUENE	107	

Sample#	QC Sample Type	Surrogate	% Recovered	
87798	*Method blank (MDB)*	TRIFLUOROTOLUENE	108	
87799	*Blank Spike (BSP)*	TRIFLUOROTOLUENE	105	
87801	*Matrix spike (MS)*	TRIFLUOROTOLUENE	106	SPK1
87802	*Matrix spike duplicate (MSD)*	TRIFLUOROTOLUENE	103	SPK2

QCSURR JACK 09-May-95 10:54:31

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CHROMALAB, INC.

Environmental Services (SDB)

May 9, 1995 *Submission #:* 9505048

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: May 3, 1995

re: 1 sample for BTEX analysis.

Matrix: WATER
Sampled: May 3, 1995 *Run#:* 6553 *Analyzed:* May 9, 1995
Method: EPA 602/8020

Spl # CLIENT SMPL ID	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
87173 MW-4	N.D.	N.D.	N.D.	N.D.
Reporting Limits	0.5	0.5	0.5	0.5
Blank Result	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)	108	107	107	111

Jack Kelly
Chemist

Ali Kharrazi
Organic Manager

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CHROMALAB, INC.

Environmental Services (SDB)

May 9, 1995 *Submission #:* 9505048

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: May 3, 1995

re: **Matrix spike** report for BTEX analysis.

Matrix: WATER
Lab Run#: 6553 *Instrument:* GC1-4 *Analyzed:* May 9, 1995
Method: EPA 602/8020

Analyte	Spiked Sample Result	Spike Amt	% Spike Rec	Dup Spike Rec	Control Limits	% RPD	% RPD Lim
BENZENE	N.D. ug/L	5.0 ug/L	113	112	80-127	0.9	20
TOLUENE	N.D. ug/L	5.0 ug/L	112	110	81-122	1.8	20
ETHYL BENZENE	N.D. ug/L	5.0 ug/L	113	110	81-119	2.7	20
XYLENES	N.D. ug/L	15 ug/L	113	111	83-125	1.8	20

Sample Spiked: 87173
Submission #: 9505048
Client Sample ID: MW-4

SPK1

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CHROMALAB, INC.

Environmental Services (SDB)

May 9, 1995 *Submission #:* 9505048

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: May 3, 1995

re: **Surrogate** report for 1 sample for BTEX analysis.

Matrix: WATER
Lab Run#: 6553 *Analyzed:* May 9, 1995
Method: EPA 602/8020

Sample#	Client Sample ID	Surrogate	% Recovered	
87173	MW-4	TRIFLUOROTOLUENE	112	

Sample#	QC Sample Type	Surrogate	% Recovered	
87798	*Method blank (MDB)*	TRIFLUOROTOLUENE	108	
87799	*Blank Spike (BSP)*	TRIFLUOROTOLUENE	105	
87801	*Matrix spike (MS)*	TRIFLUOROTOLUENE	106	SPK1
87802	*Matrix spike duplicate (MSD)*	TRIFLUOROTOLUENE	103	SPK2

QCSURR JACK 09-May-95 10:54:31

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(510) 484-1919 • Facsimile (510) 484-1096
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CHROMALAB, INC.

Environmental Services (SDB)

May 10, 1995 *Submission #:* 9505048

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: May 3, 1995

re: 3 samples for Diesel analysis.

Matrix: WATER *Extracted:* May 8, 1995
Sampled: May 3, 1995 *Run#:* 6565 *Analyzed:* May 9, 1995
Method: EPA 3510/8015M

Spl #	CLIENT SMPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
87170	MW-1	N.D.	50	N.D.	78
87171	MW-2	N.D.	50	N.D.	78

Matrix: WATER *Extracted:* May 8, 1995
Sampled: May 3, 1995 *Run#:* 6565 *Analyzed:* May 10, 1995
Method: EPA 3510/8015M

Spl #	CLIENT SMPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
87172	MW-3	N.D.	50	N.D.	78

Sirirat Chullakorn
Sirirat (Sindy) Chullakorn
Chemist

Ali Kharrazi
Organic Manager

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

May 11, 1995 *Submission #:* 9505048

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: May 3, 1995

re: **Matrix spike** report for Diesel analysis.

Matrix: WATER *Extracted:* May 8, 1995
Lab Run#: 6565 *Instrument:* GC2-EXT-S *Analyzed:* May 9, 1995
Method: EPA 3510/8015M

Analyte	Spiked Sample Result	Spike Amt	% Spike Rec	Dup Spike Rec	Control Limits	% RPD	% RPD Lim
DIESEL	N.D. ug/L	200 ug/L	81.0	76.8	60-130	5.3	20

Sample Spiked: 87170
Submission #: 9505048
Client Sample ID: MW-1

SPK1

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GCMSPK RUDO 11-May-95 07:12:37

CHROMALAB, INC.

Environmental Services (SDB)

May 11, 1995 *Submission #:* 9505048

GEOMATRIX CONSULTANTS

Atten: Lisa Rowles

Project: 2868
Received: May 3, 1995

re: **Surrogate** report for 3 samples for Diesel analysis.

Matrix: WATER
Lab Run#: 6565
Method: EPA 3510/8015M

Extracted: May 8, 1995
Analyzed: May 9, 1995

Sample#	Client Sample ID	Surrogate	% Recovered	
87170	MW-1	O-TERPHENYL	95	
87171	MW-2	O-TERPHENYL	100	
87172	MW-3	O-TERPHENYL	93	

Sample#	QC Sample Type	Surrogate	% Recovered	
87906	*Method blank (MDB)*	O-TERPHENYL	99	
87908	*Blank Spike (BSP)*	O-TERPHENYL	107	
87910	*Matrix spike (MS)*	O-TERPHENYL	99	SPK1
87911	*Matrix spike duplicate (MSD)*	O-TERPHENYL	100	SPK2

DCSURR RUDO 11-May-95 07:12:52

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.
SAMPLE RECEIPT CHECKLIST

Client Name GEO MATRIX

Date/Time Received 5/3/95 (Date) 14:53 (Time)

Project 2868

Received by P. Solis

Reference/Subm # 21801/9505048

Carrier name

Checklist completed by: [signature] 5/4/95 (Signature / Date)

Logged in by TA 5/3/95 (Initials / Date)

Matrix H2O

Shipping container in good condition?		NA___	Yes___	No___
Custody seals present on shipping container?	Intact___ Broken___		Yes___	No___
Custody seals on sample bottles?	Intact___ Broken___		Yes___	No___
Chain of custody present?			Yes✓	No___
Chain of custody signed when relinquished and received?			Yes✓	No___
Chain of custody agrees with sample labels?			Yes✓	No___
Samples in proper container/bottle?			Yes✓	No___
Samples intact?			Yes✓	No___
Sufficient sample volume for indicated test?			Yes✓	No___
VOA vials have zero headspace?		NA___	Yes✓	No___
Trip Blank received?		NA___	Yes___	No✓
All samples received within holding time?			Yes✓	No___

Container temperature?_____

pH upon receipt <2 pH adjusted_____ Check performed by:_____ NA___

Any NO response must be detailed in the comments section below. If items are not applicable, they should be marked NA.

Client contacted?_____ Date contacted?_____

Person contacted?_____ Contacted by?_____

Regarding?_____

Comments:_____

Corrective Action:_____

SMPLRECD.CK