

In Reply
Please Refer to:
3174-F8

July 14, 1995

Mr. Dick Alford
Livermore Valley Joint Unified School District
685 East Jack London Boulevard
Livermore, CA 94550

Subject: Maintenance Yard
2900 Ladd Avenue
Livermore, California

REPORT ON GROUND-WATER SAMPLING

Reference: ENGEO Inc., Report on Soil and Ground-Water Investigation, 2900 Ladd Avenue, Livermore, California, dated July 8, 1994.

Dear Mr. Alford:

This report presents the results of the quarterly ground-water sampling episode at the subject property (Figure 1). The scope of services included the following:

- Purging of the three ground-water monitoring wells with the recovery of a ground-water sample from each of the wells.
- Laboratory analysis of the ground-water samples for TPH as gasoline; benzene, toluene ethyl benzene and xylene (BTEX).
- Preparation of this letter report

Ground-Water Sampling

Field work was conducted on May 23, 1995. Initially, the depth to the top of the ground-water was verified and the well was checked for the presence of free product or petroleum sheen. No free product or sheen was observed. The water levels for MW2, MW3, and MW4 were measured at 17.77, 28.14, 17.28 and 17.68 feet below the top of the well casing respectively.

Prior to sampling, approximately 6 casing volumes of water were removed from the wells using a submersible electric pump. Water quality parameters including, temperature, pH,

and dissolved solids were monitored to allow for adequate purging. The ground-water samples were collected for laboratory testing using a Voss Technologies dedicated polyethylene bailer. The samples were then decanted into precleaned laboratory glassware and cooled in an ice chest until delivery under a documented chain-of-custody to ChromaLab, Incorporated in Pleasanton, California. A copy of the well sampling information forms and the chain of custody are provided as an attachment.

Laboratory Analysis

The ground-water samples was tested for total petroleum hydrocarbons as gasoline, (EPA 5030/8015) and benzene, toluene, ethylbenzene and xylenes (BTEX - EPA 602). A copy of the laboratory test report is provided as an attachment. Table I provides a summary of the laboratory test results.

TABLE I
Laboratory Analysis Summary
 (Concentrations reported in parts per billion)

	TPHg	B	T	E	X
MW2	32-57				
4/20/93	4,500	340	110	8.0	630
5/12/94	7,000	520	220	35	410
2/8/95	170	8.9	4.5	2.1	17
5/23/95	<50	<0.5	<0.5	<0.5	<0.5
MW3	28-53' screen				
7/12/94	<50	<0.5	<0.5	<0.5	<0.5
2/8/95	<50	<0.5	<0.5	<0.5	<0.5
5/23/95	<50	<0.5	<0.5	<0.5	<0.5
MW4	28-53'				
7/12/94	<50	<0.5	<0.5	<0.5	<0.5
2/8/95	<50	<0.5	<0.5	<0.5	<0.5
5/23/95	60	<0.5	<0.5	<0.5	<0.5


Livermore Valley Joint Unified School District
Maintenance Yard, 2900 Ladd Avenue
REPORT ON GROUND-WATER SAMPLING

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The next quarterly sampling episode for the three wells will be undertaken in early August 1995. With your authorization, a copy of this report has been provided to Ms. Eva Chu with the Alameda County Department of Environmental Health. We appreciate the opportunity to be of continued service to you on this project. If you have any questions, please contact our office.

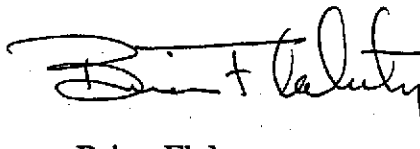
Very truly yours,

ENGEO INCORPORATED



Shawn Munger
RG 5810

Reviewed by:



Brian Flaherty
Vice President
Director, Environmental Services

**ENGEO INCORPORATED
GROUND-WATER SAMPLING INFORMATION**

Job Name: 2900 Ladd Avenue
 Location: Livermore, California
 Client: L.V.J.U.S.D.

Job Number: 3174-F8
 Date: May 23, 1995
 By: Keith Nowell

WELL INFORMATION

Well Number: MW-2
 Total Depth (ft): 57.10 (toc)
 Depth to Water (ft): 17.77 (toc)

Diameter (in): 2
 Screen Length: 25'
 Casing Volume (gal): 6.5

PURGING INFORMATION

Bailer: Pump: X (rate): 1.1 gpm
 Volume Removed (gal): 42

Time: (init./fin) 15:09/15:46
 No. of Casing Vol: 6.5

Time	Volume Removed (Gal.)	Total Casing Volumes	Temp °C	Cond (µS)	pH	Comments
15:09	--	--	--	--	--	Initial, petroleum odor, no sheen
15:13	6	0.9	20.4	520	7.2	Turbid
15:16	12	1.8	20.6	550	7.0	Moderately turbid
15:22	18	2.8	20.8	550	7.0	Moderately turbid
15:31	24	3.7	20.8	520	7.0	Slightly turbid
15:37	30	4.6	20.5	530	7.0	Slightly turbid
15:41	36	5.5	20.4	530	7.0	Slightly turbid
15:46	42	6.5	20.4	530	7.0	Clear

SAMPLE INFORMATION

Bailer: X Pump: (gpm):
 Decon Procedure: TSP
 Disposable X

Dist. H₂O
 Other

Sample	Time	Size	Presv.	Test	Comments
MW-2	15:55	40ml	ICE	TPHg/BTEX	

**ENGEO INCORPORATED
GROUND-WATER SAMPLING INFORMATION**

<u>Job Name: 2900 Ladd Avenue</u>	<u>Job Number: 3174-F8</u>
<u>Location: Livermore, California</u>	<u>Date: May 23, 1995</u>
<u>Client: L.V.J.U.S.D.</u>	<u>By: Keith Nowell</u>

WELL INFORMATION

<u>Well Number: MW-3</u>	<u>Diameter (in): 2</u>
<u>Total Depth (ft): 52.88 (toc)</u>	<u>Screen Length: 25'</u>
<u>Depth to Water (ft): 17.28 (toc)</u>	<u>Casing Volume (gal): 5.9</u>

PURGING INFORMATION

<u>Bailer:</u>	<u>Pump: X (rate): 1.1 gpm</u>
<u>Volume Removed (gal): 36</u>	<u>Time: (init./fin) 11:55/12:29</u>
	<u>No. of Casing Vol: 6.1</u>

Time	Volume Removed (Gal.)	Total Casing Volumes	Temp °C	Cond (µS)	pH	Comments
11:55	--	--	--	--	--	Initial, no odor, no sheen
12:00	6	1.0	20.4	480	6.9	Slightly turbid
12:04	12	2.0	19.9	480	7.1	Slightly turbid
12:10	18	3.1	19.5	480	7.2	Slightly turbid
12:16	24	4.1	19.3	490	7.3	Clear
12:24	30	5.1	19.5	480	7.4	Clear
12:29	36	6.1	19.6	480	7.3	Clear

SAMPLE INFORMATION

<u>Bailer: X Pump: (gpm):</u>	<u>Dist. H₂O</u>
<u>Decon Procedure: TSP</u>	<u>Other</u>
<u>Disposable X</u>	

Sample	Time	Size	Presv.	Test	Comments
MW-3	12:50	40ml	ICE	TPHg/BTEX	

**ENGEO INCORPORATED
GROUND-WATER SAMPLING INFORMATION**

Job Name: 2900 Ladd Avenue

Job Number: 3174-F8

Location: Livermore, California

Date: May 23, 1995

Client: L.V.J.U.S.D.

By: Keith Nowell

WELL INFORMATION

Well Number: MW-4

Diameter (in): 2

Total Depth (ft): 53.81 (toc)

Screen Length: 25'

Depth to Water (ft): 17.68 (toc)

Casing Volume (gal): 6.0

PURGING INFORMATION

Bailer: Pump: X (rate): 1.1 gpm

Time: (init./fin) 13:30/14:04

Volume Removed (gal): 36

No. of Casing Vol: 6.0

Time	Volume Removed (Gal.)	Total Casing Volumes	Temp °C	Cond (µS)	pH	Comments
13:30	--	--	--	--	--	Initial, no odor, no sheen
13:36	6	1	19.6	720	7.3	Slightly turbid
13:43	12	2	19.3	590	7.3	Clear
13:48	18	3	19.3	590	7.3	Clear
13:53	24	4	19.3	600	7.2	Clear
13:59	30	5	19.2	580	7.2	Clear
14:04	36	6	19.3	630	7.3	Clear

SAMPLE INFORMATION

Bailer: X Pump: (gpm):

Decon Procedure: TSP

Dist. H₂O

Disposable X

Other

Sample	Time	Size	Presv.	Test	Comments
MW-4	14:25	40ml	ICE	TPHg/BTEX	

CHROMALAB, INC.

Environmental Services (SDB)

June 9, 1995

Submission #: 9505293

ENGE0, INC.

Atten: Keith Nowell

Project: 2900 LADD AVENUE

Project#: 3174-F8

Received: May 23, 1995

re: 3 samples for Gasoline and BTEX analysis.

Matrix: WATER

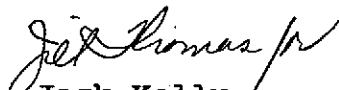
Sampled: May 23, 1995

Run#: 7016

Analyzed: June 7, 1995

Method: EPA 5030/8015M/602/8020

<u>Spl #</u>	<u>CLIENT</u>	<u>SMPL ID</u>	<u>Gasoline</u> (mg/L)	<u>Benzene</u> (ug/L)	<u>Toluene</u> (ug/L)	<u>Ethyl</u> <u>Benzene</u> (ug/L)	<u>Total</u> <u>Xylenes</u> (ug/L)
89543	MW-2		N.D.	N.D.	N.D.	N.D.	N.D.
89544	MW-3		N.D.	N.D.	N.D.	N.D.	N.D.
89545	MW-4		0.06	N.D.	N.D.	N.D.	N.D.
Reporting Limits			0.05	0.5	0.5	0.5	1.0
Blank Result			N.D.	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)			94	100	102	102	101


Jack Kelly
Chemist


Ali Kharrazi
Organic Manager

**CHROMALAB, INC.
SAMPLE RECEIPT CHECKLIST**

Client Name ENGEO Date/Time Received 5/23/95 1650
 Project 2900 LADID AVENUE Received by R. Nyachoto
 Reference/Subm # 22083/ASDS293 Carrier name _____
 Checklist completed by: [Signature] 5/24/95 Logged in by TA 5/23/95
 Signature / Date 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 _____ 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: Chemist Checks pH

Corrective Action: _____

293/89543-89545

22083

ENGEO
INCORPORATED
 2401 CROW CANYON ROAD, SUITE 200
 SAN RAMON, CALIFORNIA 94583
 PHONE (510) 838-1600

SUBM #: 9505293 REP: PH
 CLIENT: ENGEO
 DUE: 05/30/95
 REF #: 22083

CH

RD

PROJECT NUMBER		PROJECT NAME					TPH - GASOLINE (EPA 8015/5030)	TPH - DIESEL (EPA 8015/3550/3510)	PURGEABLE AROMATICS BTEX (EPA 502, 8020)	PURGEABLE HALOCARBONS (EPA 501, 8010)	VOLATILE ORGANICS (EPA 824, 8240)	BASE/NEUTRALS, ACIDS (EPA 625, 8270)	TOTAL OIL & GREASE (SMWW 5520(F1))	OC PESTICIDES/PCB (EPA 608, 8080)	OP PESTICIDES (EPA 614/8140)	TITLE 26 METALS (17)	PRIORITY METALS (13)	REMARKS REQUIRED DETECTION LIMITS	
SAMPLED BY: (SIGNATURE)																			
SAMPLE NUMBER	DATE	TIME	MATRIX	NUMBER OF CONTAINERS	CONTAINER SIZE	PRESERVATIVE													
3174-F8		2900 LADD AVENUE																	
Kend S. Nowell																			
MW-2	5-23-95	1555	Aqueous	3	40ml	Ice	X	X											
MW-3	5-23-95	1250	Aqueous	3	40ml	Ice	X	X											
MW-4	5-23-95	1425	Aqueous	3	40ml	Ice	X	X											
RELINQUISHED BY: (SIGNATURE)							DATE/TIME	RECEIVED BY: (SIGNATURE)					DATE/TIME		RECEIVED BY: (SIGNATURE)				
Kend S. Nowell							5/23/95 1650	Rudie Nyctota											
RELINQUISHED BY: (SIGNATURE)							DATE/TIME	RECEIVED BY: (SIGNATURE)					DATE/TIME		RECEIVED BY: (SIGNATURE)				
RELINQUISHED BY: (SIGNATURE)							DATE/TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)					DATE/TIME		REMARKS				
															5d 7A7				

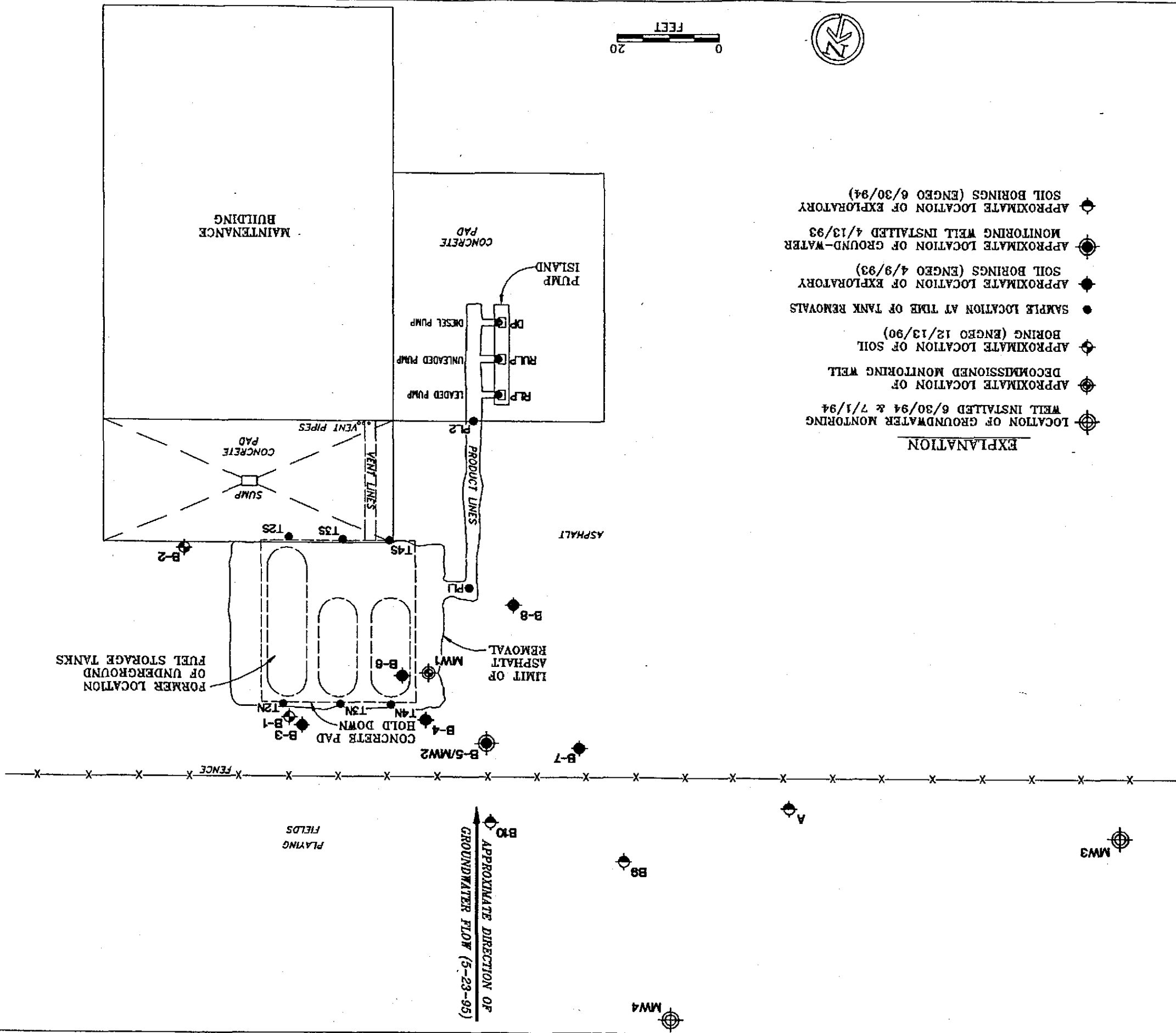
DISTRIBUTION: ORIGINAL ACCOMPANIES SHIPMENT; COPY TO PROJECT FIELD FILES

Received @ 6°C



- LOCATION OF GROUNDWATER MONITORING WELL INSTALLED 6/30/94 & 7/1/94
- ⊕ APPROXIMATE LOCATION OF DECOMMISSIONED MONITORING WELL
- ◆ APPROXIMATE LOCATION OF SOIL BORING (ENGO 12/13/90)
- SAMPLE LOCATION AT TIME OF TANK REMOVALS
- ◆ APPROXIMATE LOCATION OF EXPLORATORY SOIL BORINGS (ENGO 4/9/93)
- ⊕ APPROXIMATE LOCATION OF GROUND-WATER MONITORING WELL INSTALLED 4/13/93
- ◆ APPROXIMATE LOCATION OF EXPLORATORY SOIL BORINGS (ENGO 6/30/94)

EXPLANATION



▲ APPROXIMATE DIRECTION OF GROUNDWATER FLOW (5-23-95)

ENGE
INCORPORATED

REVISED MONITORING WELL LOCATIONS
L.V.J.U.S.D. MAINTENANCE YARD
2900 LADD AVENUE
LIVERMORE, CALIFORNIA

JOB NO.: 3174-F8
DATE: JULY 1996
DRAWN BY: [Signature]
CHECKED BY: [Signature]

FIGURE NO.
1