WORK PLAN FOR ADDITIONAL SITE ASSESSMENT

BEACON STATION 720
1088 MARINA BOULEVARD
SAN LEANDRO, CALIFORNIA
FOR
ULTRAMAR, INC.

NO. EU-501/E189-01
MAY 17, 1991

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC.
CONSULTANTS IN APPLIED EARTH SCIENCE

EGC

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC.
CONSULTANTS IN APPLIED EARTH SCIENCE

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No. EU-501/E189-01
May 17, 1991

Mr. Terrence A. Fox
Ultramar, Inc.
525 West Third Street
Hanford, California 93232

SUBJECT: Transmittal of Work Plan for Additional Site Assessment, Beacon Station 720, 1088 Marina Boulevard, San Leandro, California

Dear Mr. Fox:

Environmental Geotechnical Consultants, Inc., (EGC), is pleased to present the attached Work Plan for the installation of three additional groundwater monitoring wells and for related tasks at the above-referenced site. Ultramar, Inc., authorized EGC to prepare this Work Plan as part of Task Order Number 720-11-0000-C.

Please don't hesitate to call EGC at your convenience if you have any questions.

Very truly yours,

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC.

Don R. Poindexter, P.E.
Senior Principal

jmc

Attachment: Work Plan

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WORK PLAN FOR ADDITIONAL SITE ASSESSMENT BEACON STATION 720 1088 MARINA BOULEVARD SAN LEANDRO, CALIFORNIA FOR ULTRAMAR, INC.

INTRODUCTION

ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC., (EGC) is submitting this proposed Work Plan for additional site assessment at Beacon Station 720, 1088 Marina Boulevard, San Leandro, California. This Work Plan is being submitted in response to the request from Ultramar, Inc., the present owners of the subject gasoline service station.

SITE BACKGROUND

In March 1987, five groundwater monitoring wells were installed by Groundwater Technology, Inc., (GTI) of Concord, California, on the subject site at the request of Kayo Oil Company (then owners of the property) and subsequent to replacement of three

underground storage tanks used for storing gasoline. The three tanks presently at the site are used for storing regular and premium unleaded gasoline and regular leaded gasoline. Each tank has a capacity of 10,000 gallons and is constructed of double-walled steel wrapped with fiberglass, according to Mr. Terrence A. Fox of Ultramar, Inc. The location of the site is shown on Figure 1, Project Site Location Map. Soil and groundwater samples were collected and analyzed for total hydrocarbon concentration (THC) and the hydrocarbon constituents benzene, toluene and xylenes. The soil was also analyzed for total lead. Analytical results were included in GTI's report of May 15, 1987, (see references) and generally indicated the following:

- Total hydrocarbon concentrations detected in soil ranged from 83 to 2,108 parts per million (ppm) in four of the five borings.
- Dissolved hydrocarbon concentrations detected in groundwater samples ranged from 10.0 to 19.3 ppm.

Groundwater was encountered at approximately 14 feet below existing grade, and measurable free-phase hydrocarbons were not found during groundwater sampling. Reference should be made to the cited GTI report for additional site background including descriptions of the site vicinity and hydrogeologic setting.

Groundwater monitoring has continued at the site on a quarterly basis since the wells were installed. GTI performed this service from April 1987 through November 1988. Du

Pont Environmental Remediation Services (Du Pont) has conducted the groundwater monitoring from February 1989 through February 1991. Ultramar, Inc., purchased the subject site from Conoco in July 1990, according to Mr. Terrence A. Fox of Ultramar, Inc.

Tabulated groundwater elevations and analytical results from the monitoring program are included in Tables 1 and 2, respectively. Because of their length, these tables follow the figures in the presentation of this Work Plan. Based on its most recent sampling episode in February 1991, Du Pont plotted the interpreted groundwater gradient and isopleths showing concentrations of benzene in groundwater below the site. These plots were presented in Du Pont's March 1991 report (see references) and are reproduced here as Figures 2 and 3, titled Groundwater Gradient Plan and Benzene Concentrations in Groundwater, respectively. Generally, the plots and the tabulated data show the following:

- The groundwater flow direction was approximately to the southwest, and the gradient was 0.002-foot per foot on February 7, 1991. Du Pont's report of December 28, 1990, indicates that groundwater flow to the west has also been identified in prior quarterly monitoring episodes.

- Concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline tend to be highest in wells MW-2, MW-4, and MW-5 (63, 41 and 24 ppm, respectively).

- Concentrations of benzene tend to be higher in the same three wells (approximately 2, 5 and 2 ppm, respectively).

SCOPE OF PROPOSED WORK PLAN

The objective of this phase of work at Beacon Station 720 is to complete delineation of the hydrocarbon plume in the downgradient direction. Accordingly, this Work Plan provides for the following scope of work:

1. Obtain the necessary authorization from representatives of the appropriate agencies to proceed with this scope of work.

2. Acquire the appropriate permits for soil borings, hydropunch advancement and groundwater sampling, and installation of groundwater monitoring wells on site and on the adjacent property to the west or in Marina Boulevard.

3. Plan necessary safety equipment and procedures and implement a site-specific Safety Plan for field work. The proposed Site Safety Plan is included in Appendix B.

4. Observe hydropunch advancement at approximately five locations either on the sidewalk or in Marina Boulevard near the sidewalk to delineate the extent of contamination and locate the westernmost groundwater monitoring well appropriately. A mobile analytical laboratory will be used to analyze the grab samples for TPH as gasoline so that hydropunch probes can be installed in a westward progression until contamination is not detected.

5. Depending on the results of the hydropunch study, assist Ultramar, Inc., as needed, in obtaining permission for access to the adjacent site for installation of a groundwater monitoring well.

6. Identify locations for groundwater monitoring wells based on the analytical results from the hydropunch samples.

7. Observe the drilling of three soil borings to a depth approximately 15 feet below the groundwater table or into a competent aquitard. Advancement to 5 feet may be done by hand auger to avoid underground facilities. Locations and identifications of the borings and groundwater monitoring wells are discussed below.

8. Collect driven soil samples from 5-foot intervals from the depth of the existing ground surface to the total depth of each boring.

9. Classify the soil samples in accordance with the Unified Soil Classification System; assess apparent contamination based on discoloration, obvious odor and readings from a field-testing instrument; and package the samples for storage on ice and transfer to the analytical laboratory.

10. Construct groundwater monitoring wells in the borings by using Schedule 40 polyvinyl chloride (PVC) casing. The casing will be 2 inches in diameter with 0.010-inch-wide slots in the screen portion. Screen will be extended from the bottom of the boring to approximately 5 feet above the stabilized water levels encountered to allow for groundwater fluctuation. No. 2 sand will be used as the sand pack. Silty clay predominated in the materials encountered during the GTI exploration of 1987 (see References), and, as a result, fine-screen casing and fine sand in the sand pack are proposed here.

11. Develop the new wells and collect groundwater samples.

12. Assess the recharge rates in two of the existing wells by pumping water from them with a bladder or diaphragm pump and allowing them to recharge.

13. Submit the soil sample from immediately above the groundwater level in each boring to the analytical laboratory for analysis of TPH as gasoline; the hydrocarbon constituents benzene, toluene, ethylbenzene, and xylenes (BTEX); and organic lead.

14. Submit one water sample from each new well (a total of three samples) to the analytical laboratory, also for TPHg and BTEX. The water samples will also be analyzed for total dissolved solids and nitrates.

15. Subcontract the services of a land surveyor registered in the State of California to survey the location of the top of each well casing (including existing wells and those installed as part of this scope of work) relative to the nearest established benchmark.

16. In conjunction with ongoing quarterly groundwater monitoring that is not a part of this Work Plan (see below), evaluate the local groundwater gradient using depths to groundwater and correlative groundwater elevations.

17. Interpret field and laboratory data to evaluate subsurface stratigraphy and the lateral and vertical extent of contamination as evident from this and previous assessments.

18. Prepare a site assessment report introduced by an executive summary and describing our field methods and presenting our conclusions and recommendations. The report will be presented to Ultramar, Inc., in draft form so that it may be reviewed and discussed before formal issue.

In keeping with the present system of boring and well identification used at the site, these borings will be designated B-6 through B-8 and the monitoring wells installed in them will be MW-6 through MW-8. The proposed locations of the borings and wells B-6/MW-6 and B-7/MW-7 are shown on Figure 4, Proposed Well Locations. The approximate area of the hydropunch exploration is shown as a shaded zone on Figure 4 and includes the sidewalk or the street near the sidewalk. Boring and well B-8/MW-8 will be sited based on the results of the hydropunch exploration. Its location is not shown on Figure 4 pending the hydropunch work; however, we expect to locate it either on the sidewalk or in the street (the shaded zone shown on Figure 4) or in the parking lot west of the Beacon station.

Work will be conducted in accordance with EGC's Drilling, Well Construction and Sampling Protocols, which are included in Appendix A, and in accordance with Ultramar's requirements for such activities as described in letters dated April 10 and June 12, 1989. Any samples retained by EGC will be returned to the site for disposal by Ultramar, Inc. Drill cuttings will be stored in stockpiles on and under plastic. Development and purge

water, disposable bailers, and safety equipment used in this field work will be stored in drums on the site. Disposal of these materials will be the responsibility of Ultramar, Inc.

Quarterly groundwater monitoring will also be continuing concurrently at the site, with sampling episodes scheduled for May, August and November 1991. EGC plans to perform the scope of work in this Work Plan in conjunction with the quarterly monitoring episode scheduled for May, if at all feasible, and we will advise Ultramar, Inc., if external circumstances such as permit release by agencies or inaccessibility of offsite areas prohibits coordination.

TIME SCHEDULE

Given the consideration of scheduled quarterly monitoring, we propose to perform the tasks through advancement of hydropunch holes immediately on your notice to proceed. We then propose to install the wells so that they may be sampled as part of the quarterly groundwater monitoring episode scheduled for May 1991. We expect to complete the report for this scope of work within 40 days of completing the field work.

REPORTING RECOMMENDATIONS

It is the responsibility of Ultramar, Inc., to submit copies of this Work Plan to the appropriate agencies. We recommend that copies of this Work Plan be sent to the following agencies:

Alameda County Health Care Services
Hazardous Materials Health Care Services
470 27th Street, Third Floor
Oakland, California 94612
Attention: Mr. Rafat A. Shahid

Regional Water Quality Control Board
San Francisco Bay Region
1111 Jackson Street, Room 6040
Oakland, California 94607
Attention: Mr. Steven Ritchie

REFERENCES

Du Pont Environmental Remediation Services, Quarterly Ground-Water Sampling Report, First Quarter 1991, Beacon Station 720, 1088 Marina Boulevard, San Leandro, California, Job No. 90-Q15-153, March 14, 1991.

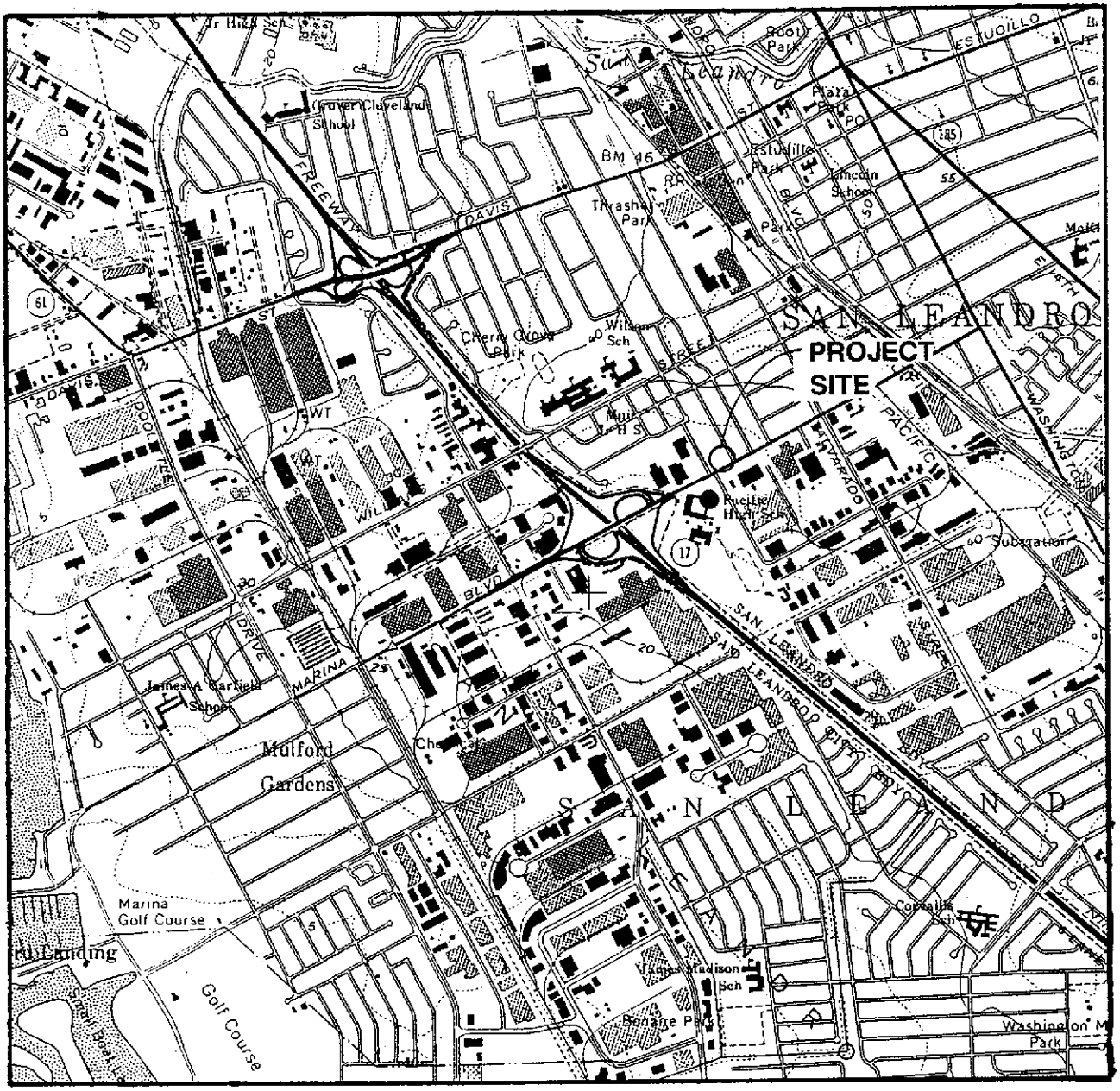
Du Pont Environmental Remediation Services, Quarterly Ground-Water Sampling Report, Fourth Quarter 1991, Beacon Station 720, 1088 Marina Boulevard, San Leandro, California, Job No. 90-Q15-153,December 28, 1990.

Groundwater Technology, Inc., Report: Subsurface Hydrocarbon Investigation, 1088 Marina Boulevard, San Leandro, California, May 15, 1987.

Ultramar, Inc., Format and Procedural Changes for Technical Reports Related to Environmental Investigations, June 12, 1989.

Ultramar, Inc., Recommended Field Methods to be Used on Environmental Investigations Performed for Ultramar, Inc., April 10, 1989.

125311



NOTES

1. BASE MAP TAKEN FROM USGS SAN LEANDRO, CALIFORNIA 7.5 MINUTE TOPOGRAPHIC QUADRANGLE. (1980)

DATE	04/05/91
JOB NO.	E189-01
DWG NO.	E189-01/1
DRAWN	G BENAVIDES
CHK'D	J HOLMES
APP'D	D POINDEXTER

EGC ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC.
CONSULTANTS IN APPLIED EARTH SCIENCE

PROJECT SITE LOCATION MAP

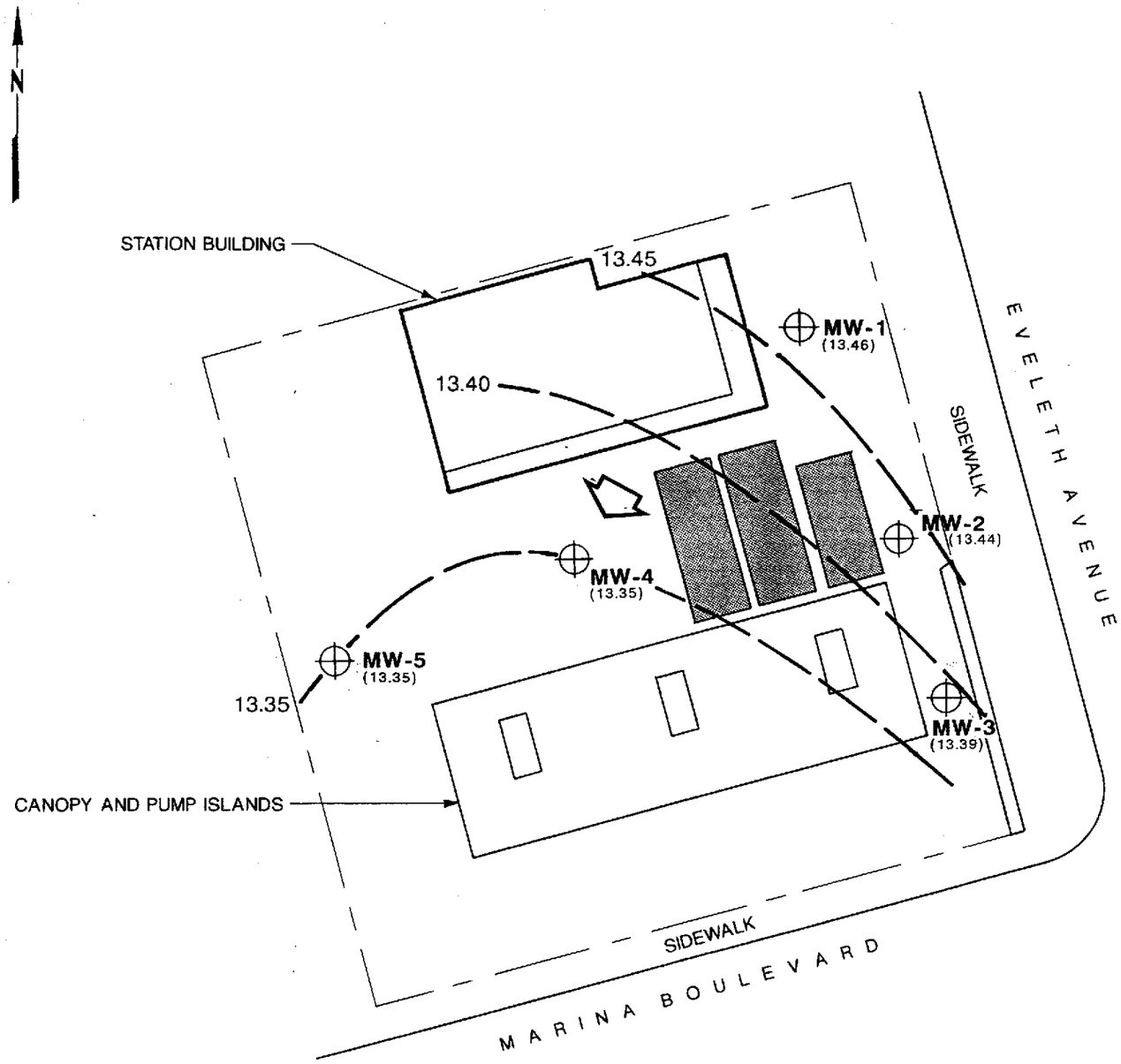
1088 MARINA BLVD., SAN LEANDRO, CALIFORNIA

ULTRAMAR, INC.

FIGURE NO. 1

REV NO.

120619



EXPLANATION

- PROPERTY LIMITS
- MW-5 (13.35) — MONITORING WELL WITH GROUNDWATER ELEVATIONS IN FEET
- UNDERGROUND FUEL STORAGE TANKS
- 13.45 — GROUNDWATER SURFACE CONTOUR WITH GROUNDWATER ELEVATIONS INDICATED IN 0.05-FT INTERVALS
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW FROM WATER LEVEL MEASUREMENTS TAKEN FEBRUARY 7, 1991

0 25 50 FT
APPROXIMATE SCALE

NO.	DATE	ZONE	DESCRIPTION	DRAWN	APPROVED

REVISIONS

NOTES
1. BASE MAP TAKEN FROM PLAN BY DUPONT ENVIRONMENTAL REMEDIATION SERVICES, MARCH 14, 1991.

PROFESSIONAL SEAL

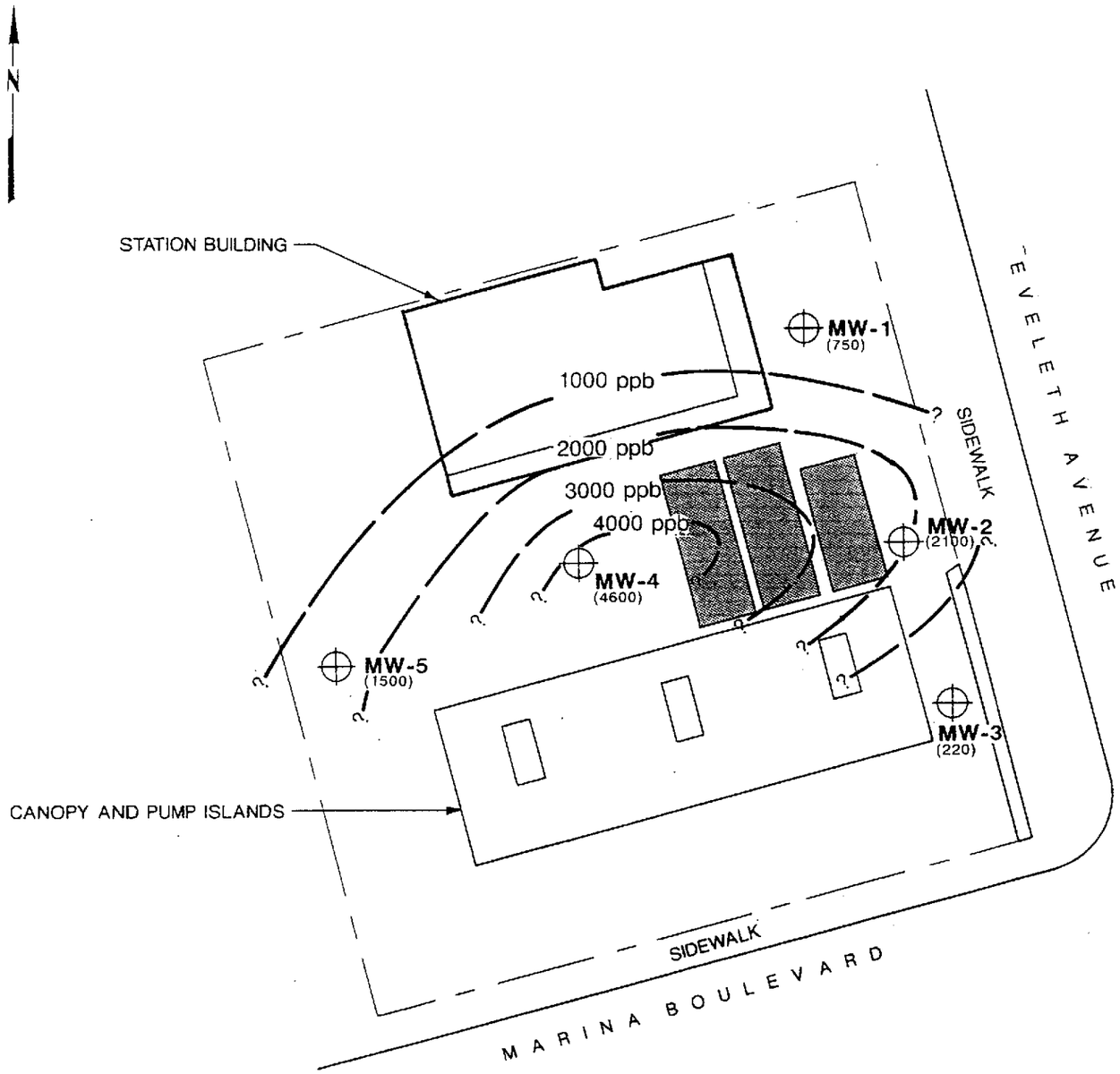
DATE 04/05/91
JOB NO. E189-01
DWG NO. E189-01/2
DRAWN G BENAVIDES
CHK'D J HOLMES
APP'D D POINDEXTER

EGC ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC.
CONSULTANTS IN APPLIED EARTH SCIENCE

GROUNDWATER GRADIENT PLAN

1088 MARINA BLVD., SAN LEANDRO, CALIFORNIA
ULTRAMAR, INC.

FIGURE NO. 2
REV NO.



EXPLANATION

PROPERTY LIMITS

MW-5 (1500) — MONITORING WELL WITH BENZENE CONCENTRATION IN PARTS PER BILLION

UNDERGROUND FUEL STORAGE TANKS

4000 ppb — ISOPLETH OF BENZENE CONCENTRATION INDICATED IN INTERVALS OF 1000 PARTS PER BILLION BASED ON ANALYTICAL RESULTS FOLLOWING FEBRUARY 7, 1991 SAMPLING

0 25 50 FT

APPROXIMATE SCALE

NO.	DATE	ZONE	DESCRIPTION	DRAWN	APPROVED

REVISIONS

NOTES
1. BASE MAP TAKEN FROM PLAN BY DUPONT ENVIRONMENTAL REMEDIATION SERVICES, MARCH 14, 1991.

PROFESSIONAL SEAL

DATE	04/05/91
JOB NO.	E189-01
DWG NO.	E189-01/3
DRAWN	G BENAVIDES
CHK'D	J HOLMES
APP'D	D POINDEXTER

EGC ENVIRONMENTAL GEOTECHINICAL CONSULTANTS, INC.
CONSULTANTS IN APPLIED EARTH SCIENCE

BENZENE CONCENTRATIONS IN GROUNDWATER

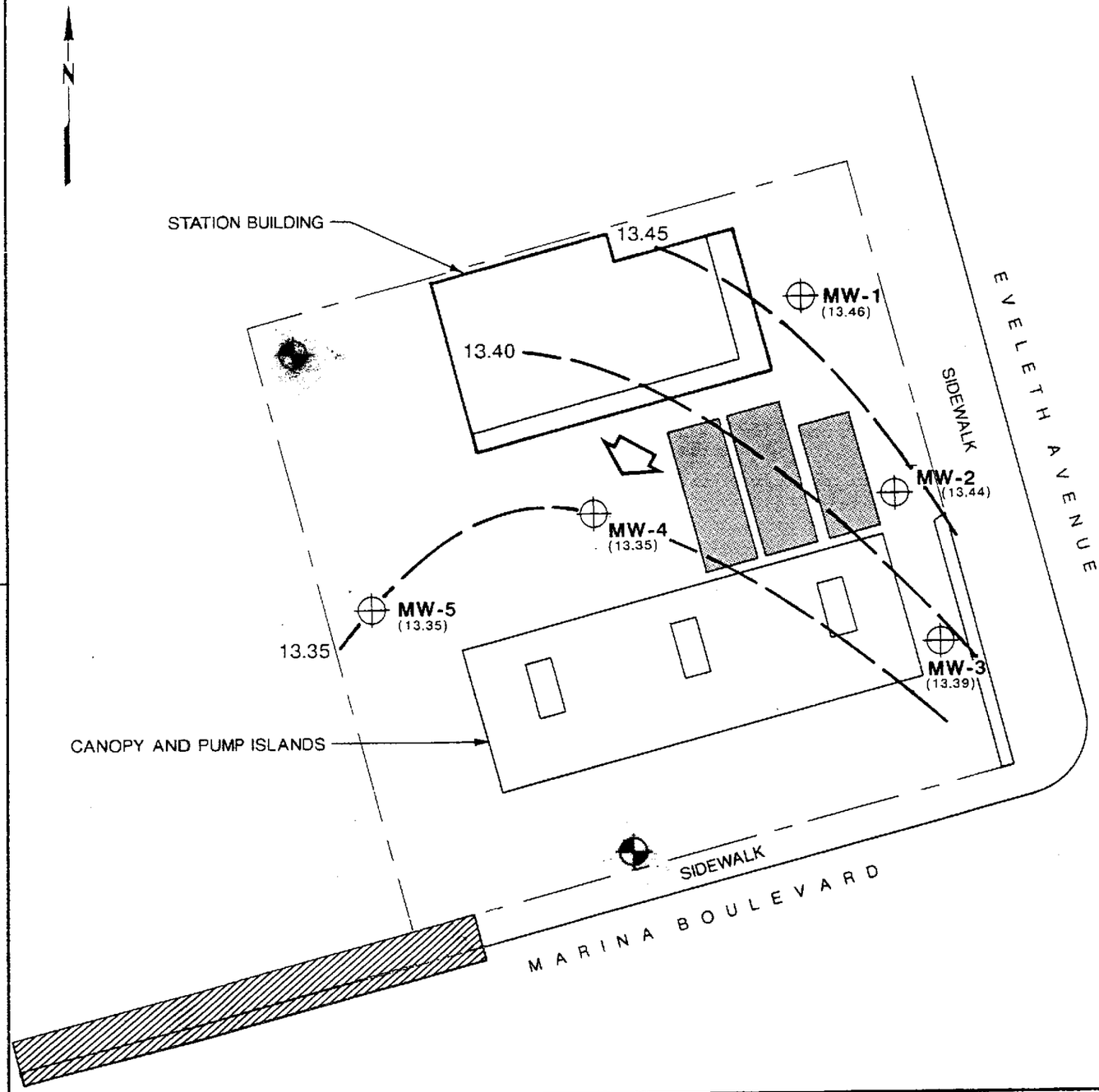
1088 MARINA BLVD., SAN LEANDRO, CALIFORNIA

ULTRAMAR, INC.

FIGURE NO. 3

REV NO.

120619



EXPLANATION

- PROPERTY LIMITS
- MW-5 (13.35) — MONITORING WELL WITH GROUNDWATER ELEVATIONS IN FEET
- UNDERGROUND FUEL STORAGE TANKS
- 13.45 — GROUNDWATER SURFACE CONTOUR WITH GROUNDWATER ELEVATIONS INDICATED IN 0.05-FT INTERVALS
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW FROM WATER LEVEL MEASUREMENTS TAKEN FEBRUARY 7, 1991
- PROPOSED MONITORING WELL LOCATION
- APPROXIMATE HYDROPUNCH EXPLORATION ZONE

0 25 50 FT
APPROXIMATE SCALE

NO.	DATE	ZONE	DESCRIPTION	DRAWN	APPROVED

REVISIONS

NOTES
1. BASE MAP TAKEN FROM PLAN BY DUPONT ENVIRONMENTAL REMEDIATION SERVICES, MARCH 14, 1991.

PROFESSIONAL SEAL

DATE	04/05/91
JOB NO.	E189-01
DWG NO.	E189-01/4
DRAWN	G BENAVIDES
CHK'D	J HOLMES
APP'D	D POINDEXTER

EGC ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC.
CONSULTANTS IN APPLIED EARTH SCIENCE

PROPOSED WELL LOCATIONS

1088 MARINA BLVD., SAN LEANDRO, CALIFORNIA

ULTRAMAR, INC.

FIGURE NO. 4

REV NO.

TABLE 1

GROUNDWATER ELEVATIONS
Beacon Station 720
1088 Marina Boulevard
San Leandro, California

Date Sampled	Depth to Groundwater (Feet)	Groundwater Elevation (Feet)
Groundwater Monitoring Well MW-1:		Elevation of Top of Casing = 29.89 feet
June 23, 1987	14.79	15.10
July 06, 1987	14.93	14.96
August 06, 1987	14.22	15.67
November 04, 1987	15.74	14.15
February 02, 1988	13.99	15.90
May 02, 1988	14.99	14.90
November 21, 1988	13.03	16.86
February 14, 1989	15.86	14.03
May 02, 1989	14.77	15.12
August 10, 1989	16.35	13.54
November 08, 1989	16.46	13.43
February 20, 1990	15.58	14.31
May 18, 1990	16.40	13.49
September 15, 1990	16.83	13.06
November 26, 1990	17.16	12.73
February 07, 1991	16.43	13.46
Groundwater Monitoring Well MW-2:		Elevation of Top of Casing = 29.57 feet
June 23, 1987	14.51	15.06
July 06, 1987	14.63	14.94

TABLE 1
GROUNDWATER ELEVATIONS

Date Sampled	Depth to Groundwater (Feet)	Groundwater Elevation (Feet)
August 06, 1987	14.95	14.62
November 04, 1987	15.45	14.12
February 02, 1988	13.74	15.83
May 02, 1988	14.63	14.94
November 21, 1988	12.99	16.58
February 14, 1989	15.66	13.91
May 02, 1989	14.56	15.01
August 10, 1989	16.22	13.35
November 08, 1989	16.19	13.38
February 20, 1990	15.34	14.23
May 18, 1990	16.20	13.37
September 15, 1990	16.42	13.05
November 26, 1990	16.83	12.74
February 07, 1991	16.13	13.44
Groundwater Monitoring Well MW-3:		Elevation of Top of Casing = 29.13 feet
June 23, 1987	14.13	15.00
July 06, 1987	14.24	14.89
August 06, 1987	14.52	14.61
November 04, 19887	15.09	14.04
February 02, 1988	13.37	15.76
May 02, 1988	14.22	14.91

TABLE 1
GROUNDWATER ELEVATIONS

Date Sampled	Depth to Groundwater (Feet)	Groundwater Elevation (Feet)
November 21, 1988	13.01	16.12
February 14, 1989	15.22	13.91
May 02, 1989	14.16	14.97
August 10, 1989	15.61	13.52
November 08, 1989	15.75	13.38
February 20, 1990	14.95	14.18
May 18, 1990	15.79	13.34
Sepember 15, 1990	16.07	13.06
November 26, 1990	16.36	12.77
February 07, 1991	15.74	13.39
Groundwater Monitoring Well MW-4:		Elevation of Top of Casing = 29.72 feet
June 23, 1987	14.77	14.95
July 06, 1987	14.91	14.81
August 06, 1987	15.19	14.53
November 04, 1987	15.72	14.00
February 02, 1088	14.03	15.69
May 02, 1988	14.89	14.83
November 21, 1988	12.88	16.84
February 14, 1989	15.83	13.89
May 02, 1989	14.75	14.97
August 10, 1989	16.30	13.42
November 08, 1989	16.29	13.43

TABLE 1
GROUNDWATER ELEVATIONS

Date Sampled	Depth to Groundwater (Feet)	Groundwater Elevation (Feet)
February 20, 1990	15.62	14.10
May 18, 1990	16.34	13.38
September 15, 1990	16.79	12.93
November 26, 1990	17.08	12.64
February 07, 1991	16.37	13.35
Groundwater Monitoring Well MW-5:	Elevation of Top of Casing = 29.55 feet	
June 23, 1987	14.63	14.92
July 06, 1987	14.79	14.76
August 06, 1987	15.07	14.48
November 04, 1987	15.61	13.94
February 02, 1988	13.84	15.71
May 02, 1988	14.77	14.78
November 21, 1988	12.84	16.71
February 14, 1989	15.72	13.83
May 02, 1989	14.68	14.87
August 10, 1989	16.03	13.52
November 08, 1989	16.33	13.22
February 20, 1990	15.44	14.11
May 18, 1990	16.22	13.33
September 15, 1990	16.65	12.90
November 26, 1990	16.95	12.60
February 07, 1991	16.20	13.35

Notes:
(1) All elevations surveyed to an arbitrary datum.
(2) Elevations and depths are given in feet.
(3) Groundwater Technology, Inc., made measurements until February 1989.
(4) Du Pont Environmental Remediation Services made measurements from February 1989 through February 1991.

TABLE 2

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
Beacon Station 720
1088 Marina Boulevard
San Leandro, California

Well No.	Date Sampled	Benzene (µg/L)	Ethyl Benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	TPHg (µg/L)	Comments
MW-1	Apr. 16, 1987	2,313	664.1	3,770	3,331	17,276	
	June 23, 1987	1,887	466.7	2,141	1,652	26,027	
	July 06, 1987	776.2	133.2	943.7	422.1	3,938	
	Aug. 06, 1987	1,270	288.7	1,576	873.7	6,079	
	Nov. 04, 1987	1,700	720	4,000	2,200	15,000	
	Feb. 02, 1988	1,500	230	1,700	740	14,000	
	May 02, 1988	3,500	4,900	700	2,700	33,000	
	Nov. 21, 1988	2,200	2,800	560	2,200	15,000	
	Feb. 14; 1989	1,700	340	1,700	1,500	12,000	Odor
	May 02, 1989	1,500	510	2,400	2,400	18,000	Odor, Slight Sheen
	Aug. 10, 1989	1,400	360	1,500	1,600	10,000	Odor
	Nov. 08, 1989	920	190	470	360	7,200	Odor
	Feb. 20, 1990	810	270	540	800	3,300	
	May 18, 1990	1,900	560	500	1,600	5,600	
	Sep. 15, 1990	320	150	110	520	5,200	Odor
	Nov. 26, 1990	370	150	59	370	3,000	Odor
	Feb. 07, 1991	750	480	570	1,800	14,000	
MW-2	Apr. 16, 1987	3,131	1,067	4,239	4,608	17,920	
	June 23, 1987	2,188	1,047	2,622	4,699	49,354	
	July 06, 1987	1,575	457	1,729	1,702	8,676	
	Aug. 06, 1987	2,623	702	3,722	2,882	14,376	
	Nov. 04, 1987	2,200	900	4,100	3,500	19,000	

TABLE 2

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Well No.	Date Sampled	Benzene (µg/L)	Ethyl Benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	TPHg (µg/L)	Comments
MW-2	Feb. 02, 1988	6,200	1,000	6,500	4,000	54,000	
	May 02, 1988	6,800	7,100	1,300	5,400	53,000	
	Nov. 21, 1988	--	--	--	--	--	Free product
	Feb. 14, 1989	6,900	1,100	4,300	5,200	48,000	Film of free product
	May 02, 1989	6,100	2,100	8,800	16,000	111,000	Odor, sheen
	Aug. 10, 1989	4,200	1,000	2,900	5,800	39,000	Odor, sheen
	Nov. 08, 1989	3,700	740	1,500	2,200	45,000	Odor, heavy sheen
	Feb. 20, 1990	5,000	1,600	8,200	11,000	60,000	
	May 18, 1990	6,200	1,300	1,900	610	19,000	
	Sep. 15, 1990	1,400	660	820	3,000	27,000	Odor, sheen
	Nov. 26, 1990	1,100	700	880	3,800	28,000	Odor, sheen
	Feb. 07, 1991	2,100	1,300	1,900	6,200	63,000	Odor, sheen
MW-3	Apr. 16, 1987	1,371	472.3	2,438	2,617	9,967	
	June 23, 1987	646.2	320.9	822.9	1,280	16,824	
	July 06, 1987	340.3	116.5	384.2	420.2	3,395	
	Aug. 06, 1987	441.9	118.2	436.3	417.3	3,107	
	Nov. 04, 1987	320	74	280	250	2,600	
	Feb. 02, 1988	2,200	500	2,300	2,300	44,000	
	May 02, 1988	1,600	840	450	1,700	14,000	
	Nov. 21, 1988	1,200	560	220	810	8,100	
	Feb. 14, 1989	1,500	220	220	500	5,500	Odor
	May 02, 1989	910	530	310	1,900	13,000	Odor
	Aug. 10, 1989	750	190	10	210	2,700	Odor
	Nov. 08, 1989	370	90	ND(20)	58	2,400	Odor
	Feb. 20, 1990	1,200	810	77	460	3,700	
	May 18, 1990	980	330	ND(50)	250	2,300	
	Sep. 15, 1990	240	150	36	230	4,700	Odor

TABLE 2

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Well No.	Date Sampled	Benzene (µg/L)	Ethyl Benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	TPHg (µg/L)	Comments
MW-3	Nov. 26, 1990	170	86	8.4	120	1,400	Odor
	Feb. 07, 1991	220	120	20	230	2,900	
MW-4	Apr. 16, 1987	5,896	893.9	3,797	4,106	19,309	
	June 23, 1987	4,030	850.0	1,842	3,254	31,429	
	July 06, 1987	2,710	308.2	1,247	1,312	8,117	
	Aug. 06, 1987	3,992	447.9	1,589	1,611	10,464	
	Nov. 04, 1987	9,500	2,800	17,000	11,000	55,000	
	Feb. 02, 1988	11,000	1,400	7,400	6,200	47,000	
	May 02, 1988	9,200	6,100	1,300	6,400	58,000	
	Nov. 21, 1988	5,700	3,100	1,600	7,600	48,000	
	Feb. 14, 1989	8,700	900	2,500	3,800	29,000	Odor & sheen
	May 02, 1989	4,800	1,800	5,600	8,800	69,000	Odor, slight sheen
	Aug. 10, 1989	15,000	1,800	6,600	12,000	67,000	Odor, slight sheen
	Nov. 08, 1989	11,000	1,100	3,200	4,400	71,000	Odor, slight sheen
	Feb. 20, 1990	8,100	930	4,500	3,500	19,000	
	May 18, 1990	45,000	5,000	12,000	27,000	100,000	
	Sep. 15, 1990	4,200	740	1,200	3,000	38,000	
	Nov. 26, 1990	2,800	650	810	2,600	19,000	Odor
	Feb. 07, 1991	4,600	1,100	1,600	4,600	41,000	Odor, sheen
MW-5	Apr. 16, 1987	2,267	921.2	3,277	4,536	17,733	
	June 23, 1987	2,239	516.8	953.9	1,587	19,555	
	July 06, 1987	1,335	313.7	799.2	923.9	5,631	
	Aug. 06, 1987	1,890	576.8	881.2	93.4	6,450	
	Nov. 04, 1987	1,300	270	500	640	4,600	
	Feb. 02, 1988	3,100	550	1,500	1,400	24,000	
	May 02, 1988	4,400	1,200	490	1,500	17,000	

Well No.	Date Sampled	Benzene (µg/L)	Ethyl Benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	TPHg (µg/L)	Comments
MW-5	Nov. 21, 1988	5,600	870	590	2,200	19,000	
	Feb. 14, 1989	4,300	410	810	1,300	13,000	Odor
	May 02, 1989	2,900	690	1,500	3,200	24,000	Odor, slight sheen
	Aug. 10, 1989	6,700	860	2,300	4,700	36,000	Odor, slight sheen
	Nov. 08, 1989	5,300	460	860	600	30,000	Odor
	Feb. 20, 1990	1,700	120	220	370	3,400	
	May 18, 1990	18,000	1,500	2,000	5,600	24,000	
	Sep. 15, 1990	2,600	1,000	2,200	4,900	42,000	Odor, sheen
	Nov. 26, 1990	1,900	260	280	800	8,500	Odor, sheen
	Feb. 07, 1991	1,500	610	1,200	2,700	24,000	Odor

Notes:
1) TPHg = Total Petroleum Hydrocarbons as gasoline.
2) Odor refers to petroleum hydrocarbon odor.
3) All results are presented in parts per billion.
4) Groundwater Technology, Inc., collected samples prior to February 1989.
5) Du Pont Environmental Services collected samples from February 1989 through February 1991.

APPENDIX A

DRILLING, WELL CONSTRUCTION AND SAMPLING PROTOCOLS

DRILLING, WELL CONSTRUCTION AND SAMPLING PROTOCOLS

Drilling Protocol

Prior to any drilling activities, Environmental Geotechnical Consultants, Inc. (EGC) will verify that necessary drilling permits have been secured.

Prior to drilling, underground and above ground utilities will be located. To the extent possible, drilling will be conducted so as not to disrupt activities at a project site. EGC shall obtain and review available public data on subsurface geology and if warranted, the location of wells within a quarter-mile of the project site will be identified. Drilling equipment will be properly inspected prior to performing work.

Subsurface investigations are typically performed to assess the lateral and vertical extent of petroleum hydrocarbons or other contaminants which might be present in soils and groundwater. Drilling methods will be selected to optimize field data requirements as well as to be compatible with known or suspected subsurface geologic conditions.

Shallow soil borings will be drilled dry using a truck-mounted hollow-stem auger drilling rig, unless site conditions favor a different drilling method. Drilling and sampling methods will be consistent with ASTM Method D-1452-80. The auger size will be a minimum 8-inch nominal outside-diameter O.D. No drilling fluids will be used during this drilling method. All augers and drill rods will initially be thoroughly steam-cleaned before arriving on-site, to prevent the introduction of contaminants from off-site, and will again be steam-cleaned between borings away from boring locations. Working components of the drilling rig (subs, collars and all parts of the rig chassis near the borehole) will also be steam-cleaned. Cleaned augers, rods and other tools, if required, will be stored and covered when not in use.. Decontamination of drilling equipment will consist of steam cleaning, and/or Alconox wash. Cleaning operations will be observed by a representative of this office and noted on the drilling log.

Soil Sampling Protocol

Soil samples are typically collected at 5-foot intervals with a California Modified split-spoon sampler driven 18 inches by a 140-pound hammer falling 30 inches as a minimum from ground surface to total depth of boring. The number of blows necessary to drive the sampler will be recorded on the boring log to help evaluate the consistency of the materials encountered. Additional soil samples may be collected based on significant lithologic changes and/or potential chemical content. Soil removed from the top two liners (typically each 6 inches in length) and the end cone will be used for visual logging

purposes and disposed of with cuttings removed during drilling operations. The bottom liner will be saved for laboratory analysis. Soil samples from each sampling interval will be described by an EGC geologist in accordance with the Unified Soil Classification System. The exact depth of all borings to 0.5-foot will be determined in the field. Exploratory boring logs shall be prepared under the direction of a Registered Geologist.

Head-space analyses will be performed in the field to check for the presence of volatile organic compounds. Head-space analyses will be performed using an organic vapor analyzer (either an TIP, HNU, or OVM). Organic vapor concentrations will be recorded on the EGC field log of boring (see enclosed sample Borehole Log). The selection of soil samples for chemical analysis are typically based on the following criteria:

a. Soil discoloration
b. Soil odors
c. Visual confirmation or chemical in soil
d. Depth with respect to underground tanks
e. Depth with respect to groundwater
f. OVA reading

The soil sampler and brass liners will be cleaned with a tri-sodium phosphate solution, rinsed with clean tap water and air-dried prior to each sampling. Soil samples (full brass liners) selected for chemical analysis are covered with aluminum foil and the ends are capped to prevent volatilization. The samples are labeled and entered onto a Chain-of-Custody form, and placed in a cooler on blue ice for transport to a State-certified analytical laboratory.

Soil borings will be backfilled (sealed) to ground surface using either a neat cement or cement-bentonite grout mixture in accordance with appropriate local regulations.

Pending results by laboratory analysis, excess drill cuttings will remain on-site and, when deemed necessary, covered with a plastic tarp. Confirmed uncontaminated soils may be appropriately disposed of on-site by the client. Soils found to contain levels of contaminants above local or state action levels will be placed in properly labeled 55-gallon drums and left on-site for proper disposal by the client. At the client's request, we will act as the client's agent by assisting in the disposal of the drum-contained material.

Well Construction

Monitoring wells shall be installed using a truck-mounted hollow-stem auger drill rig or an air or mud-rotary drill rig. Typically, the hollow-stem rig is used for wells up to 100 feet, if subsurface conditions are favorable. Wells greater than 100-feet deep are typically drilled using air or mud-rotary techniques.

Monitoring well casing and screen shall be constructed of Schedule 40 minimum, flush-joint threaded polyvinylchloride (PVC). The well screen will be factory mill-slotted. The screen length shall be placed adjacent to the aquifer material to a minimum of 2 feet above static water. Screen shall not be placed in a borehole that creates hydraulic interconnection of two or more aquifer units. Screen slot size will be compatible with encountered aquifer materials. Sand pack shall be not placed that interconnects two or more aquifer units. A minimum 2-foot bentonite pellet or bentonite slurry seal shall be placed above the sand pack. Sand pack, bentonite, and cement seal levels will be confirmed by sounding the annulus with a calibrated weighted tape. The remaining annular space above the bentonite seal shall be grouted with a bentonite-cement mixture and shall be placed from the bottom of the annular space to the ground surface. The bentonite content of the grout shall not exceed 5 percent by weight. A field log of boring and a field well completion form shall be prepared by EGC for each well installed. Monitoring and extraction wells shall be constructed with Class-A cement/ bentonite grout or bentonite pellets tremied into position as a base for well casing if necessary. All screens and casings used will be in a contaminant-free condition when placed in the ground. No thread lubrication shall be used, other than teflon tape, during the connection of the blank to the slotted casing. The well screen shall be set within the aquifer according to the proposed function of the well and the chemistry of the potential contaminants. The screen slot size will be chosen to retain a high percentage of the filter pack or natural formation.

Monitoring wells shall be completed below grade (see enclosed sample Monitoring Well Installation Record) unless special conditions exist that require above-grade completion design. In the event a monitoring well is required in an aquifer unit beneath an existing aquifer, the upper aquifer will be sealed off by installing a steel conductor casing with an annular neat cement or cement-bentonite grout seal. This seal will be tremied pumped from the bottom of the annulus to ground surface.

Prior to drilling borings in deeper aquifers, the upper aquifers will be sealed with steel casing grouted in-place with Class-A cement/bentonite grout tremied into position between the outside wall of the steel casing and the borehole. The steel casing will be installed into the perching layer directly overlying the aquifer into which the monitoring or extraction well is to be completed. When the cement grout has set sufficiently to hold the casing in place, the boring will be advanced through the steel casing.

The tops of all well casings will be sealed and placed in a keyed locking device to prevent entry of surface contamination, unauthorized entry and tampering.

Monitoring wells will be surveyed to obtain top of box elevations to the nearest ±0.01 foot. Water level measurements will be recorded to the nearest ±0.01 foot and referenced to either a project site datum or mean sea level (MSL). A project site datum is typically used for the initial three wells installed at a site to obtain groundwater flow direction and gradient. If additional wells are required, existing and newly installed wells are surveyed relative to MSL.

Well Development

All monitoring wells shall be initially developed in order to clean the well and stabilize sand, gravel and disturbed aquifer materials from around the screened internal perforations. Well development will be accomplished by air-lift pumping, submersible pump, bladder pump, surge block or bailing. All well developing equipment will be decontaminated prior to development using a steam cleaner and/or Alconox detergent wash. Well development shall continue until the well is thoroughly developed and free of sand, silt and turbidity. The adequacy of well development will be assessed by the EGC geologist. Indicator parameters (pH, specific conductance, and temperature) will be monitored and recorded during well development. Field instrument calibrations will be performed according to manufacturer's specifications.

Well Head Completion and Site Clean-Up

Monitoring wells shall be completed below grade unless special conditions exist that require above grade design. Monitoring well casing (including the well locking seal and cap) will be completed approximately two inches below the traffic rated road box cover. The road box shall be completed approximately one inch above the existing grade surface (in non-snow areas only) to allow for precipitate runoff. All concrete work, both inside and outside the road box can be completed with a smooth finish.

The site is to be left as clean as on arrival. All soils and excess concrete from each monitoring well location will be placed in appropriate areas to be disposed of as previously described. Finally, all monitoring well locations will be either broom cleaned or washed down so that soil and concrete stains are removed.

GROUNDWATER SAMPLING AND ANALYSIS

Quality Assurance/Quality Control Objectives

The sampling and analysis procedures employed by EGC for groundwater sampling and monitoring follow specific Quality Assurance/Quality Control (QA/QC) guidelines. Quality Assurance objectives have been established by EGC to develop and implement procedures for obtaining and evaluating water quality and field data in an accurate, precise and complete manner so that sampling procedures and field measurements provide information that is comparable and representative of actual field conditions. Quality Control (QC) is maintained by EGC by using specific field protocols and requiring the analytical laboratory to perform internal and external QC checks. It is the goal of EGC to provide data that are accurate, precise, complete, comparable, and representative. The definitions for accuracy, precision, completeness, comparability, and representativeness are as follows:

1. Accuracy - the degree of agreement of a measurement with an accepted reference or true value.

2. Precision - a measure of agreement among individual measurements under similar conditions. Usually expressed in terms of the standard deviation.

3. Completeness - the amount of valid data obtained from a measurement system compared to the amount that was expected to meet the project data goals.

4. Comparability - expresses the confidence with which one data set can be compared to another.

5. Representativeness - a sample or group of samples that reflects the characteristics of the media at the sampling point. It also includes how well the sampling point represents the actual parameter variations which are under study.

As part of the EGC QA/QC program, applicable federal, state and local reference guidance documents are to be followed. The procedures outlined in these regulations, manuals, handbooks, guidance documents and journals are incorporated into the EGC sampling procedures to assure that: (1) groundwater samples are properly collected, (2) groundwater samples are identified, preserved, and transported in a manner such that they are representative of field conditions, and (3) chemical analyses of samples are accurate and reproducible.

GUIDANCE AND REFERENCE DOCUMENTS USED TO COLLECT GROUNDWATER SAMPLES

U.S.E.P.A. - 339/9-51-002	NEIC Manual for Groundwater/ Subsurface Investigation at Hazardous Waste Sites
U.S.E.P.A. - 503/SW611	Procedures Manual for Groundwater Monitoring at Solid Waste Disposal Facilities (August, 1977)
U.S.E.P.A. - 600/4-79-020	Methods for Chemical Analysis of Water and Wastes (1983)
U.S.E.P.A. - 600/4-82-029	Handbook for Sampling and Sample Preservation of Water and Wastewater (1982)
U.S.E.P.A. - SW-846#, 3rd Edition	Test Methods for Evaluating Solid Waste - Physical/Chemical Methods (November, 1986)
40 CFR 136.3e. Table II (Code of Federal Regulations)	Required Containers, Preservation Techniques, and Holding Times
Resources Conservation and Recovery Act (OSWER 9950.1)	Groundwater Monitoring Technical Enforcement Guidance Document (September, 1986)
California Regional Water Quality Control Board (Central Valley Region)	A Compilation of Water Quality Goals (September, 1988); Updates (October, 1988)
California Regional Water Quality Control Board (North Coast, San Francisco Bay, and Central Valley)	Regional Board Staff Recommendations for Initial Evaluations and Investigation of Underground Tanks: Tri-Regional Recommendations (June, 1988)

Regional Water Quality Control Board (Central Valley Region)	Memorandum: Disposal, Treatment, and Refuse of Soils Contaminated with Petroleum Fractions (August, 1986)
State of California Department of Health Services	Hazardous Waste Testing Laboratory Certification List (March, 1987)
State of California Water Resources Control Board	Leaking Underground Fuel Tank (LUFT) Field Manual (May, 1988), and LUFT Field Manual Revision (April, 1989)
State of California Water Resources Control Board	Title 23, (Register #85.#33-8-17-85), Subchapter 16: Underground Tank Regulations; Article 3, Sections 2632 and 2634; Article 4, Section 2647 (October, 1986)
Alameda County Water District	Groundwater Protection Program: Guidelines for Groundwater and Soil Investigations at Leaking Underground Fuel Tank Sites (November, 1988)
American Public Health Association	Standard Methods for the Examination of Water and Wastewaters, 16th Edition
Analytical Chemistry (journal)	Principles of Environmental Analysis. Volume 55, Pages 2212-2218 (December, 1983)
Santa Clara Valley Water District	Guidelines for Preparing or Reviewing Sampling Plans for Soil and Groundwater Investigation of Fuel Contamination Sites (January, 1989)
American Petroleum Institute	Groundwater Monitoring & Sample Bias; API Publication 4367, Environmental Affairs Department, June 1983

Because groundwater samples collected by EGC are analyzed in the parts per billion (ppb) range for many compounds, care is exercised to prevent contamination of samples. When volatile or semi-volatile organic compounds are included for analysis, EGC sampling crew members will adhere to the following precautions in the field:

1. A clean pair of new, disposable gloves are worn for each well being sampled.

2. When possible, samples are collected from known or suspected wells that are least contaminated (i.e., background) followed by wells in increasing order of contamination.

3. All sample bottles and equipment are kept away from fuels and solvents. When possible, gasoline (used in generators) is stored away from bailers, sample bottles, purging pumps, etc.

4. Bailers are made of Teflon or Stainless Steel. Other materials such as plastic may contaminate samples with phthalate esters which interfere with many Gas Chromatography (GC) analyses.

5. Volatile organic groundwater samples are collected so that air passage through the sample does not occur or is minimal (to prevent volatiles from being stripped from the samples); sample bottles are filled by slowly running the sample down the side of the bottle until there is a positive convex meniscus over the neck of the bottle; the Teflon side of the septum (in cap) is positioned against the meniscus, and the cap screwed on tightly; the sample is inverted and the bottle lightly tapped. The absence of an air bubble indicates a successful seal; if a bubble is evident, the cap is removed, more sample is added, and the bottle is resealed.

6. Extra Teflon seals are brought into the field in case seals are difficult to handle and/or are dropped. Dropped seals are considered contaminated and are not used. When replacing seals or if seals become flipped, care is taken to assure that the Teflon seal faces down.

Laboratory and field handling procedures of samples are monitored by including QC samples for analysis with every submitted sample lot from a project site. QC samples may include any combination of the following:

1. Trip Blank. Used for purgeable organic compounds only; QC samples are collected in 40 milliliter (ml) sample vials filled in the analytical laboratory with organic-free water. Trip blanks are sent to the project site, and travel with project site samples. Trip blanks are not opened, and are returned from a project site with the project site samples for analysis.

2. Field Blank. Prepared in the field using organic-free water. These QC samples accompany project site samples to the laboratory and are analyzed for specific chemical parameters unique to the project site where they were prepared.

3. Duplicates. Duplicate samples are collected "second samples" from a selected well and project site. They are collected as either split samples or second-run samples collected from the same well.

4. Equipment Blank. Period QC sample collected from field equipment rinsate to verify decontamination procedures.

The number and types of QC samples are determined on a site-specific basis.

SAMPLE COLLECTION

This section describes the routine procedures followed by EGC while collecting groundwater samples for chemical analysis. These procedures include decontamination, water-level measurements, well purging, physical parameter measurements, sample collection, sample preservation, sample handling, and sample documentation. Critical sampling objectives for EGC are to:

1. Collect groundwater samples that are representative of the sampled matrix.

2. Maintain sample integrity from the time of sample collection to receipt by the analytical laboratory.

Sample analyses methods, containers, preservation, and holding times are presented in Table A.

Decontamination Procedures

All physical parameter measuring and sampling equipment are decontaminated prior to sample collection using Alconox or equivalent detergent followed by steam cleaning with deionized water. Any sampling equipment surfaces or parts that might absorb specific contaminants, such as plastic pump valves, impellers, etc., are cleaned in the same manner.

Sample bottles, bottle caps and septa used for sampling volatile organics are thoroughly cleaned and prepared in the laboratory. Sample bottles, bottle caps and septa are protected from all potential chemical contact before actual usage at a sample location.

During field sampling, equipment which has been placed in a well shall be decontaminated by cleaning with Alconox or equivalent detergent followed by steam cleaning with deionized water before purging or sampling the next well.

Water-Level Measurements

Prior to purging and sampling a well, the static-water levels are measured in all wells at a project site using an electric sounder and/or calibrated portable oil-water interface probe. Both static water-level and separate-phase product thickness are measured to the nearest ±0.01 foot. The presence of separate-phase product is confirmed using a clean, acrylic or polyvinyl chloride (PVC) bailer, measured to the nearest ±0.01 foot with an engineer's scale tape.

The monofilament line used to lower the bailer is replaced between wells with new line to preclude the possibility of cross-contamination. Field observations (e.g., well integrity, product color, turbidity, water color, odors, etc) are noted on the EGC Well Sampling Field Data Sheet, a sample of which is attached. Before and after each use, the electric sounder, interface probe and bailer are decontaminated by washing with Alconox or equivalent detergent followed by rinsing with deionized water to prevent cross-contamination.

Well Purging

Before sampling occurs, well casing storage water and interstitial water in the artificial sand pack will be purged using: (1) a positive displacement bladder pump constructed of inert, non-wetting, Teflon and stainless steel; (2) a pneumatic-airlift pumping system; (3) a centrifugal pumping system; or (4) a Teflon or Stainless Steel bailer. Methods of purging will be assessed based on well size, location, accessibility, and known chemical conditions. Individual well purge volumes are calculated from casing volumes. As a general rule, a minimum of 3 to 5 casing volumes will be purged. Wells which dewater or demonstrate slow recharge periods (i.e., low-yield wells) during purging activities may be sampled after fewer purging cycles. If a low-yield (low recovery) well is to be sampled, sampling will not take place until at least 70 percent of the previously measured water column has been replaced by recharge. Removal of stagnant water will either be disposed of or stored in 55-gallon drums for future disposal as outlined for contaminated soil cuttings in the section on soil sampling protocol. Physical parameter measurements (temperature, pH, and specific conductance) are closely monitored throughout the well purging process and are used by the EGC sampling crew as indicators for assessing sufficient purging. Purging is continued until all three physical parameters have stabilized. Specific conductance (conductivity) meters are read to the nearest ±10 umhos/cm, and

are calibrated daily. pH meters are read to the nearest ±0.1 pH units and are calibrated daily. Temperature is read to the nearest 0.1 degree F. Calibration of physical parameter meters will follow manufacturer's specifications. Collected field data during purging activities will be entered on the EGC Well Purging and Sampling Field Data Form shown in the attached sample. Copies of the EGC Field Data Sheets will be reviewed by the EGC Sampling Manager for accuracy and completeness.

DOCUMENTATION

Sample Container Labels

Each sample container will be labeled immediately after the sample is collected. Label information will include:

Sample point designation (i.e., well number or code)
Sampler's identification
Project number
Date and time of collection
Type of preservation used

Well Purging and Sampling Field Data Forms

In the field, the EGC sampling crew will record the following information on the Well Purging and Sampling Field Data Form for each sample collected:

Project number
Client
Location
Source (i.e., well number)
Time and date
Well accessibility and integrity
Pertinent well data (e.g., depth, product thickness, static water-level, pH, specific conductance, temperature)
Calculated and actual purge volumes

Chain-of-Custody

A Chain-of-Custody record (see attached sample) shall be completed and accompany every shipment of samples to the analytical laboratory to establish the documentation necessary to trace sample possession from time of collection. The record will contain the following information:

Sample or station number or sample identification (ID)
Signature of collector, sampler, or recorder
Date and time of collection
Place of collection
Sample type
Signatures of persons involved in chain of possession
Inclusive dates of possession

Samples shall always be accompanied by a Chain-of-Custody record. When transferring the samples, the individual relinquishing and receiving the samples will sign, date, and note the time on the Chain-of-Custody record. EGC will be responsible for notifying the laboratory coordinator when and how many samples will be sent to the laboratory for analysis, and what types of analyses shall be performed.

Sample Handling Storage and Transport

All chemical sampling, handling and storage will be conducted under the direction of our consulting Analytical Chemist. All laboratory chemical testing will be accomplished by a State approved laboratory.

All equipment that contacts samples will be thoroughly cleaned prior to arrival to a site and between samplings. New or used samplers will be steam-cleaned or washed with an anionic detergent solution (i.e., Liquinox or Alconox), rinsed well with tap water, rinsed with distilled water, drained of excess water and air-dried or wiped dry with a clean towel.

Equipment blanks will be taken during the final stage of decontamination at the rate of no more than one per groundwater monitoring well. Selected method blanks will be subjected to chemical analysis for quality control.

All samples will be collected in an order such that those parameters most sensitive to volatilization will be sampled first. A general order of collection for some common groundwater parameters follows:

- Volatile Organic Compounds (VOC's)
- Total Organic Halogens (TOX)
- Total Organic Carbon (TOC)
- Extractable Organics
- Total Metals
- Dissolved Metals
- Phenols
- Sulfate and Chloride
- Turbidity
- Nitrate and Ammonia

All samples will be held at 4°C by packing in ice in a covered ice chest specifically designated for that purpose. At no time will the elapsed time between sample collection and delivery at the outside laboratory be greater than 72 hours. Preservatives will not be added to any sample unless instructed, and preservatives will be supplied and requested by the outside laboratory. Under no circumstances will sample containers be opened by anyone other than laboratory personnel who will perform the specified chemical analysis.

If it is necessary for samples or sample chests to leave the immediate control of the sampler prior to delivery to the laboratory, such as shipment by a common carrier (e.g., Federal Express), a custody seal will be placed on each sample container and/or sample chest to ensure that the samples have not been tampered with during transportation. The custody seal will contain the sampler's signature, the date and time the seal was emplaced.

TABLE A

SAMPLE ANALYSIS METHODS, CONTAINERS, PRESERVATIONS, AND HOLDING TIMES

Parameter	Analytical Method	Reporting Units	Container	Preservation	Maximum Holding Time
Total Petroleum Hydrocarbons (gasoline)	EPA 8015 (modified)	mg/l ug/l	40 ml. vial glass, Teflon	cool, 4 C HCl to pH<2	14 days (maximum)
Benzene Toluene Ethylbenzene Xylenes (BTEX)	EPA 8020	mg/l ug/l	50 ml. vial glass, Teflon lined septum 1 l glass, Teflon	cool, 4 C HCl to pH<2	7 days (w/o preservative) 14 days (w preservative)
Oil & Grease	SM 503E	ug/l	lined septum	H2SO4 to pH<2	28 days (maximum)
Total Petroleum Hydrocarbons (Diesel)	EPA 8015 (modified)	mg/l ug/l	40 ml. vial glass, Teflon lined septum	cool, 4 C	14 days (maximum)
Halogented Volatile Organics (chlorinated solvents)	8010	mg/l ug/l	40 ml. vial glass, Teflon lined septum	cool, 4 C	14 days (maximum)
Non Chlorinated solvents	8020	mg/l ug/l	40 ml. vial glass, Teflon lined septum	cool, 4 C HCl to pH<2	14 days (maximum)
Volatile Orangics	8240	mg/l ug/l	40 ml. vial glass, Teflon lined septum	cool, 4 C	14 days (maximum)
Semi-Volatile Organics	8270	mg/l ug/l	40 ml. vial glass, Teflon lined septum	cool, 4 C	14 days (maximum)
Specific Conductance (field test)		umhos/cm			
pH (field test)		pH units			
Temperature (field test)		Deg F			

BORING COORDINATES	BORING DIA (IN.)	COLLAR ELEV (FT)	TOP OF BEDROCK DEPTH & ELEV (FT)
DRILLING CONTRACTOR	NO. OF CORE BOXES	BORING ANGLE (DEG)	BOTTOM OF BORING DEPTH & ELEV (FT)
DRILL MAKE / MODEL	NO. OF SAMPLES	ANGLE BEARING (DEG)	TOP OF GROUNDWATER DEPTH & ELEV (FT)
LOGGED BY:	TOTAL RECOVERED CORE LENGTH (FT)		
START DATE / COMPLETION DATE	PERCENT RECOVERED (%) CORE LENGTH / DEPTH OF BORING		DATE OF GROUNDWATER MEASUREMENT

REMARKS WATER DATA DRILLING DATA	TOOL SIZE WATER TEST	BLOWS/ROD %	ADVANCE (IN.) RECOVERY (IN.)	ELEV (FT)	DEPTH (FT)	BOX NO. SAMPLE NO.	MATERIAL LOG	MATERIAL CLASSIFICATION AND PHYSICAL DESCRIPTION
					5			
					10			
					15			
					20			
					25			
					30			

DATE	EGC ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC	
JOB NO.	CONSULTANTS IN APPLIED EARTH SCIENCE	
DWG NO.	BOREHOLE LOG	PLATE NO.
DRAWN		
CHK'D		
APP'D		

REMARKS WATER DATA DRILLING DATA	TOOL SIZE WATER TEST	BLOWS/ROD %	ADVANCE (IN.) RECOVERY (IN.)	ELEV (FT)	DEPTH (FT)	BOX NO. SAMPLE NO.	MATERIAL LOG	MATERIAL CLASSIFICATION AND PHYSICAL DESCRIPTION
					35 40 45 50 55 60 65 70			

	DATE	EGC	ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC. CONSULTANTS IN APPLIED EARTH SCIENCE
	JOB NO.		
	DWG NO.	BOREHOLE LOG	PLATE NO.
	DRAWN		
	CHK'D		
	APP'D		

INSTALLATION

DATE _____ BY _____

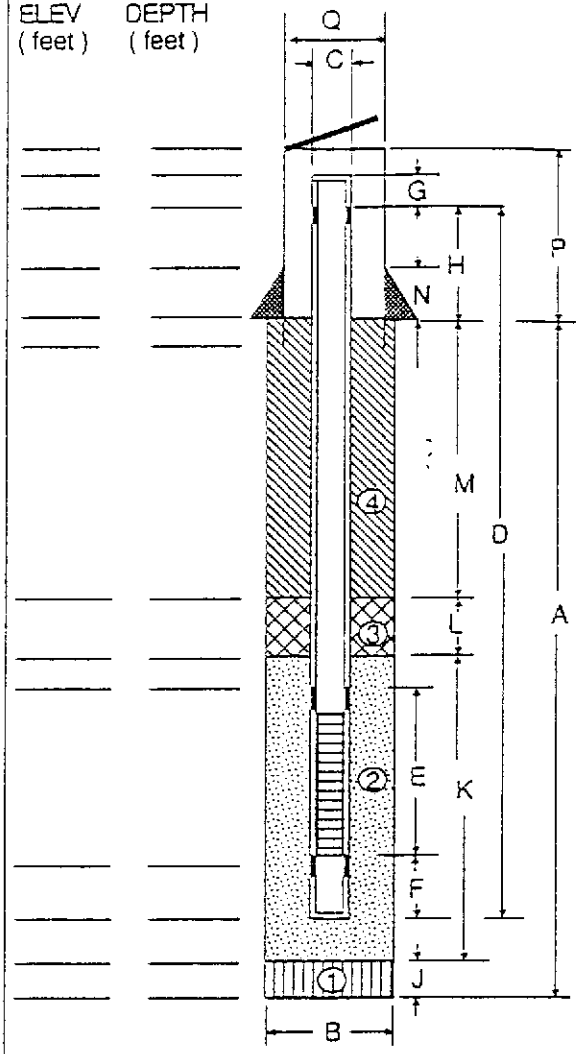
DIMENSIONS

A TOTAL DEPTH OF BORING _____
B BORING DIA _____
C WELL CASING DIA _____
D WELL CASING LENGTH _____
E WELL CASING SLOTTED INTERVAL _____
F WELL CASING BOTTOM PLUG _____
G WELL CASING TOP CAP INTERVAL _____
H WELL CASING RISER HEIGHT _____
J BOTTOM MATERIAL INTERVAL _____
K PERMEABLE MATERIAL INTERVAL _____
L IMPERMEABLE MATERIAL INTERVAL _____
M BACKFILL MATERIAL INTERVAL _____
N BACKFILL MOUND INTERVAL _____
P PROTECTIVE COVER HEIGHT _____
Q PROTECTIVE COVER DIA _____

MATERIALS DATA

WELL CASING _____
WELL CASING SLOT SIZE _____
WELL CASING _____
WELL CASING SLOT SPACING _____
WELL CASING BOTTOM PLUG _____
WELL CASING TOP CAP _____
BOTTOM MATERIAL (1) _____
PERMEABLE (2) _____
INPERMEABLE (3) _____
BACKFILL (4) _____
PROTECTIVE COVER _____

ELEV (feet) DEPTH (feet)



SECTION VIEW

NOTES

DATE	EGC ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC CONSULTANTS IN APPLIED EARTH SCIENCE	
JOB NO.		
DWG NO.	MONITORING WELL INSTALLATION RECORD	PLATE NO.
DRAWN		
CHK'D		
APP'D		

GROUNDWATER SAMPLING DATA

TIME (24 HR CLOCK)	VOLUME REMOVED (GAL)	ELECTRICAL CONDUCTIVITY (µmhos / cm)	pH	TEMPERATURE (° C)	TURBIDITY (NTU)

DEPTH TO BOTTOM OR CASING LENGTH	WELL INSIDE DIAMETER
TOTAL DEPTH TO BOTTOM _____ — DEPTH TO WATER _____ = _____ = △H (FT) _____ △H (FT) _____ x (V.F.) = _____ = WELL CASING VOLUME (GAL) _____	VOLUME FACTOR V. F. = GAL / FT 2" = 0.163 3" = 0.367 4" = 0.653 5" = 1.02 6" = 1.47 8" = 2.61 10" = 4.08 12" = 5.87
DATE (S) PURGED	WELL DEWATERED ☐ YES ☐ NO
PURGE METHOD	DATE SAMPLED
INITIAL DEPTH TO WATER	TIME SAMPLED
TOTAL VOLUME REMOVED (GAL)	SAMPLING METHOD
CASING VOLUMES REMOVED	WEATHER CONDITIONS
PURGE RATE (G P M)	PURGED / SAMPLED BY
DEPTH TO WATER AFTER RECOVERY _____ (FT) = _____ % RECOVERED PRIOR TO SAMPLING	

NOTES

DATE	
JOB NO.	
DWG NO.	
DRAWN	
CHK'D	
APP'D	

EGC ENVIRONMENTAL GEOTECHNICAL CONSULTANTS, INC
CONSULTANTS IN APPLIED EARTH SCIENCE

WELL PURGING AND SAMPLING FIELD DATA

PLATE NO.

Ultramar Inc.

BEACON

CHAIN OF CUSTODY REPORT

Beacon Station No.	Sampler (Print Name)	ANALYSES								Date	Form No. of
Project No.	Sampler (Signature)										
Project Location	Affiliation										
Sample No./Identification	Date	Time	Lab No.	BTEX	TPH (gasoline)	TPH (diesel)				No. of Containers	REMARKS

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Report To:

Bill to: ULTRAMAR INC.
525 West Third Street
Hanford, CA 93230
Attention: _____

WHITE: Return to Client with Report YELLOW: Laboratory Copy PINK: Originator Copy

32-8003 1/90

SITE SAFETY PLAN
prepared by
Environmental Geotechnical Consultants, Inc.
for
Ultramar, Inc.
for the
Additional Site Assessment
at
Beacon Station 720
1088 Marina Boulevard
San Leandro, California

No. EU-501/E189-01
May 17, 1991

Date of Site Safety Plan: May 17, 1991
Date(s) of Related Field Work: Not Scheduled as of May 17, 1991

1. GENERAL

This Site Safety Plan describes basic safety requirements for the soil and groundwater exploration at Beacon Station 720 located at 1088 Marina Boulevard in San Leandro, California. The location of the site in shown on Figure 1, Site Location Map, in the Work Plan for the subject field work. The provisions of this Plan apply to the employees of Environmental Geotechnical Consultants, Inc., and its subcontractors working on this phase of the project. The subcontractors may elect to increase the safety requirements for their work with the prior concurrence of Environmental Geotechnical Consultants, Inc., as described and accepted in writing.

This Site Safety Plan describes the expected potential hazards that may be encountered on site. Field work is expected to begin on --------, 1991. If the site, working conditions or scope of work for this phase of the project change before or during the field work, this Site Safety Plan shall be revised in keeping with these changes by Environmental Geotechnical Consultants, Inc.

2. SCOPE OF WORK

The scope of work for this phase of the project is described in the Work Plan for Additional Site Assessment: Beacon Station 720, 1088 Marina Boulevard, San Leandro, California, prepared by Environmental Geotechnical Consultants, Inc., and dated May 17, 1991. Briefly, the field work shall include the following tasks:

1. Advancing hydropunch probes at approximately five locations to collect grab samples of groundwater.

2. Advancing three soil borings, collecting samples from them, classifying the soil and transferring soil samples to the laboratory for analysis.

3. Installing and developing three groundwater monitoring wells and sampling water from them.

3. PREPARATION FOR FIELD WORK

Authorities including state and local regulatory agencies, the property owner and the occupant of the property (if any) shall be notified of the intended work. Permission and permits to perform

the work shall be obtained as necessary. Advisement shall include notifying these parties of our intent to perform the field work with this Site Safety Plan in place. A utility locating service shall be notified at least 48 hours in advance of the field work to map out or field-mark locations of utilities on public property on or near the proposed site of underground work. The Client shall be requested to provide such information regarding utilities or other underground facilities on private property. Environmental Geotechnical Consultants, Inc., assumes no responsibility for utilities not so located. The first 5 feet of each boring shall be hand-augered, when the Project Manager deems necessary, before any drilling equipment is operated. Areas for stockpiling drill cuttings and for storing drums of water from developing and purging the wells and from steam-cleaning equipment shall be chosen in advance of the field work, and the Client and field crew including subcontractors shall be so advised.

4. RESPONSIBILITY FOR PROJECT SAFETY

As the environmental consultant, the Manager for Health and Safety for Environmental Geotechnical Consultants, Inc., is responsible for the Company Health and Safety Program. The Project Manager for Environmental Geotechnical Consultants, Inc., shall oversee project safety measures on site. The Project Manager is responsible for implementing this Site Safety Plan, for providing a copy of this Plan to subcontractors and other project participants as needed and for advising site workers on health and safety matters. The Project Manager has the authority to suspend or modify work practices if site safety conditions change or to dismiss subcontractors whose conduct does not meet the requirements specified in this Plan.

The Project Manager shall also convey information in this Plan to personnel from Environmental Geotechnical Consultants, Inc., assigned to the project and to the senior representative of each subcontractor on the project. The Project Manager shall address the following safety procedures on site:

- Provisions of the Site Safety Plan, company health and safety policies, and specific procedures;
- Safety supplies and equipment inventory on site;
- Daily safety meetings and advisement of workers regarding hazards;
- Site control, decontamination and contamination-reduction procedures; and

- Reporting accidents or incidents.

5. DESCRIPTION OF ANTICIPATED CONTAMINANTS

The contaminants expected to be encountered on site are gasoline and its hydrocarbon constituents. The anticipated contaminants and their exposure standards are listed in Table 1. The potential levels of exposure should not reach the permissible exposure limits (PEL) or threshold limit values (TLV). The potential exposure pathways are inhalation and skin contact. Protective clothing specified in this Plan shall be mandatory for field personnel. In addition, respirators should be within easy reach in case odors reach irritating levels or irritation of the respiratory tract occurs.

The anticipated contaminants are described briefly below. Information regarding the physical characteristics, incompatibilities, toxic effects, routes of entry, and target organs has been summarized from the NIOSH Pocket Guide to Chemical Hazards.

Benzene

Benzene is a colorless, aromatic liquid that may create an explosion hazard. It is incompatible with strong oxidizers, chlorine, and bromine with iron. Benzene is irritating to the eyes, nose, and respiratory system. Prolonged exposure may result in giddiness, headache, nausea, staggering gait, fatigue, bone marrow depression, or abdominal pain. Routes of entry include inhalation, absorption, ingestion, and skin or eye contact. Its targets are blood, the central nervous system, skin, bone marrow, eyes, and respiratory system. Benzene is carcinogenic.

Toluene

Toluene is a colorless, aromatic liquid that may create an explosion hazard. It is incompatible with strong oxidizers. Prolonged exposure may result in fatigue, confusion, euphoria, dizziness, headache, dilation of pupils, eye tearing, insomnia, dermatitis or photophobia. Routes of entry are inhalation, absorption, ingestion and skin or eye contact. The target organs are the central nervous system, liver, kidneys and skin.

Ethylbenzene

Ethylbenzene is a colorless, aromatic liquid that may create an explosion hazard. It is incompatible with strong oxidizers and irritates the eyes and mucous membranes. Prolonged

TABLE 1
EXPOSURE LIMITS OF ANTICIPATED CHEMICAL CONTAMINANTS
Beacon Station 720
1088 Marina Boulevard
San Leandro, California

Contaminant	PEL	EL	ED	CL	TWA	STEL	Other Notes
Benzene	1*	---	-------	---	10*	5*	[skin], [carc]
Ethylbenzene	100*	---	-------	---	100*	125*	
Gasoline	300*	---	-------	---	300*	500*	
Toluene	100*	200*	10 min per 8 hours	500*	100*	150*	[skin]
Xylene	100*	200*	30 min per 8 hrs	300*	100*	150*	[skin]

KEY:
PEL - permissible exposure limit: 8-hour, time-weighted average, California Occupational Safety and Health Administration Standard (CAL-OSHA).
EL - excursion limit: maximum concentration of an airborne contaminant to which an employee may be exposed without regard to duration provided the 8-hour time-weighted average for PEL is not exceeded (CAL-OSHA).
ED - excursion duration: maximum time period permitted for an exposure above the excursion limit but not exceeding the ceiling limit (CAL-OSHA).
CL - ceiling limit: maximum concentration of airborne contaminant which employees may be exposed permitted (CAL-OSHA).
TWA - time-weighted average: 8-hour, [(same as threshold limit value (TLV)], American Conference of Governmental Industrial Hygienists (ACGIH).
STEL - short-term exposure limit: 15-minute, time-weighted average (ACGIH).
* - parts of gas or vapor per million parts air (ppm).
[carc] - substance identified as a suspected or confirmed carcinogen.
[skin] - substance may be absorbed into the bloodstream through the skin, mucous membranes or eyes.
Federal OSHA benzene limits given for PEL and STEL; STEL has a 50-minute duration limit.
Federal OSHA gasoline limit given for PEL; STEL is the same for FED-OSHA and ACGIH

exposure may result in headache, dermatitis, narcosis or coma. Routes of entry include inhalation, ingestion and skin or eye contact. The target organs are the eyes, upper respiratory system, skin and the central nervous system.

Xylene Isomers

Xylene is a colorless, aromatic liquid that may create an explosion hazard. It is incompatible with strong oxidizers and irritates the eyes, nose, and throat. Prolonged exposure may result in dizziness, excitement, drowsiness, staggering gait, corneal vacuolization, vomiting, abdominal pain or dermatitis. Routes of entry are inhalation, absorption, ingestion and skin or eye contact. Its targets are the central nervous system, eyes, gastrointestinal tract, blood, liver, kidneys and skin.

6. MINIMUM SAFETY REQUIREMENTS FOR FIELD WORK

The following minimum safety requirements must be observed during field work:

1. Eating, drinking and smoking shall be restricted to a designated area.

2. Workers shall wash hands and faces before eating, drinking or smoking in the designated area.

3. The Project Manager shall take precautions to avoid the following safety hazards: wet or oily surfaces that may cause slipping, falling objects including equipment and tools, falls from heights, tripping hazards and faulty or inadequate protective equipment and tools.

4. Dust, dirt, liquids or other potentially contaminated materials should not be removed from clothing or equipment by blowing or shaking.

5. Gross decontamination and removal of all personal protective equipment shall be performed before leaving the site. Contaminated clothing shall be removed and collected in a drum for disposal.

6. Workers should inform the Project Manager and each other of symptoms indicating toxic materials, excessive heat or other conditions that may endanger health and safety. Such symptoms include dizziness, headaches, blurred vision, nausea, cramps, irritations (of skin, eyes, or respiratory tract), discoloration of skin,

behavioral changes, loss of motor coordination or changes in salivation, pupillary response or speech.

7. PROTECTIVE EQUIPMENT REQUIRED

Field personnel and visitors who enter the designated work areas are required to wear the following protective clothing and equipment: **hard hats, steel-toed boots and safety glasses.**

The following equipment must be worn by field personnel: **hard hats, steel-toed boots** of neoprene or polyvinyl chloride (or chemically resistant over boots if leather steel-toed boots are worn), **safety glasses, gloves** (neoprene, nitrile or polyvinyl chloride) and **standard Tyvek coveralls** during any activity with a splash hazard. As noted above, respirators with appropriate cartridges must be readily available and useable in case site conditions require their use. Subcontractors are responsible for providing the required safety equipment for their employees. Employees of Environmental Geotechnical Consultants, Inc., shall not loan or sell safety equipment to subcontractors, and subcontractors who arrive on site without safety equipment or who refuse to wear it during the course of field work shall be dismissed from the site without compensation.

8. RESPIRATORY PROTECTION

Employees are required to have a physical at the expense of Environmental Geotechnical Consultants, Inc., before respirators are issued to them. As part of their safety training, they are given information on proper methods of wearing and caring for their respirators. Training topics include the following: applicable OSHA regulations 1910.134 and 1910.120, selection of respiratory equipment that is appropriate to the respiratory hazards that may be encountered at the work site, proper fitting of respirators, functions and limitations of respirators and methods of cleaning, disinfecting, inspecting, maintaining and storing respirators.

Respirators must not be used when atmospheres are, or may become, immediately dangerous to life or health or in atmospheres where the identity or concentration of contaminants is unknown. Respirators may not be used in atmospheres containing less than 19.5 percent oxygen.

Cartridges or canisters for respirators are selected and supplied to employees by Environmental Geotechnical Consultants, Inc. Failure to choose or use a respirator equipped with cartridges or filters suitable for the contaminants on site may result in little or no protection against the

contaminated atmosphere. Cartridges designed and specified for protection against specific gases and vapors are not appropriate for protection against airborne particles or other gases or vapors beyond the scope of that type of cartridge. The Site Safety Plan specifies the contaminants to be encountered, and the Project Manager shall provide the cartridges, canisters or filters appropriate to these contaminants if use of respirators may be necessary.

Conditions of use of respirators include but are not limited to the following:

- the concentration of contaminants in the atmosphere;
- temperature and humidity of the ambient atmosphere;
- any previous use of the cartridges and filters;
- the time since removing the cartridges or filters from their protective packaging;
- the level of physical activity of the wearer; and
- other characteristics of the wearer.

The respirator may have failed, cartridges may be inappropriate or abnormal conditions may exist if the wearer observed any of the following conditions:

- chemicals can be smelled or tasted;
- eyes, nose or throat become irritated;
- breathing is difficult;
- the air being inhaled becomes uncomfortably warm;
- headaches, dizziness, cramps, nausea or blurred vision occur;
- skin becomes discolored;
- motor coordination, personality or demeanor change;

- speech ability changes;
- excessive salivation is experienced; and
- others observe changes in pupillary response of the wearer.

If any of the above conditions are noted, the wearer of the respirator must leave the work zone for fresh air and advise the Project Manager immediately of the incident. The Project Manager shall reevaluate safety conditions on site.

9. SITE SAFETY MEETING

Field work each day shall begin with a project-specific site safety meeting; safety meetings shall be held more frequently if conditions warrant or at the Project Manager's discretion. Field personnel from Environmental Geotechnical Consultants, Inc., and its subcontractors shall attend the meeting to be briefed on the provisions of this Site Safety Plan, to review the project tasks and to discuss any safety issues or questions. The meeting shall be led by the Project Manager. In addition, fit-testing of respiratory protective devices shall be conducted as part of the safety orientation meeting when the use of a respirator may be required. On site safety meetings are essential to alerting personnel to the hazards associated with the expected contaminants.

10. WORK ZONES AND BARRICADES

Exclusion zones shall be designated around borings and other excavations. Only essential workers equipped with the specified safety equipment shall be allowed in these exclusion zones. Borings shall be drilled at safe distances from the utilities, as located by the service for public property and the Client for private property.

Cones, wooden barricades or a suitable alternative shall be used to deny public access to work areas. If for any reason the safety of the public (such as a motorist or pedestrian) may be endangered, work shall cease until the situation is remedied. Cones and warning signs shall be used when necessary to redirect motorists or pedestrians and in keeping with any permit requirements.

11. DECONTAMINATION

Gross decontamination shall be done on site at the conclusion of work including work breaks, tasks or use of particular equipment and the work day. Gross decontamination shall include washing contaminated equipment with a trisodium phosphate solution. Steam-cleaning is an acceptable alternative for heavy equipment and tools. Disposal on-site in drums is also an acceptable alternative for items such as gloves and Tyvek suits.

12. EMERGENCY RESPONSE PROCEDURES

If emergency releases or accidents such as fires, explosions or property damage occur, the Manager for Health and Safety at Environmental Geotechnical Consultants, Inc., must be notified immediately. If necessary, local fire or response agencies should be called, and the Client should be advised as soon as time permits. If physical injury occurs, first aid should be administered and the injured worker should be transported to the nearest hospital or emergency medical clinic for treatment. The location of the hospital nearest to the subject site is described below. A physician's attention is required regardless of the severity of the injury.

If personnel are exposed to hazardous materials on site, typical responses should include the following:

- For skin or eye contact, wash and rinse affected area(s) thoroughly with copious amounts of soap and water, then provide appropriate medical attention. Eyes and skin should be rinsed for a minimum of 15 minutes after chemical contamination.

  If inhalation occurs, move the person to fresh air, decontaminate external areas and transport to the hospital.

  If ingestion occurs, decontaminate external areas and transport the worker to the hospital.

  If puncture wounds or lacerations occur, decontaminate external areas and transport the worker to the hospital.

13. EMERGENCY INFORMATION

Fire and Police 911

Ambulance 911

Memorial Hospital. 357-8300
2800 Benedict Drive
San Leandro, California

Directions to Hospital: Go east on Marina Boulevard to Washington Street. Turn left and go north on Washington Street to West Juana Avenue. Turn left and go west on West Juana Avenue to Clarke Street. Turn right and go north on Clarke Street approximately two blocks. Memorial Hospital will be on the left side of the street at the intersection of Clarke Street and Benedict Drive.

Environmental Geotechnical Consultants, Inc. . . . . (415) 786-0243

Poison Control Center . . . . . (800) 523-2222

CHEMTREC . . . . . (800) 424-9300

Note: Only call CHEMTREC if no other source of emergency information can be reached. CHEMTREC stands for Chemical Transportation Emergency Center, a public service of the Chemical Manufacturer's Association. CHEMTREC can usually provide hazard information, warnings, and guidance when given the identification number or the name of the product and the nature of the problem. CHEMTREC can also contact the appropriate experts.

14. LIMITATIONS

This Site Safety Plan was developed in accordance with generally accepted standards of current safety practice in the State of California. The terms of this Plan should not be considered valid after 1 year because of the changing regulations in environmental and safety practice. Environmental Geotechnical Consultants, Inc., is not able to eliminate the risks associated with environmental and hazardous waste or toxic sites. No other representation and no guarantees or warrants, express or implied, are provided by or with this Plan.

This Site Safety Plan has been reviewed by the following persons prior to commencing the field work:

Environmental Geotechnical Consultants, Inc.
Manager for Health and Safety: _____
(Name)

(Signature)

Environmental Geotechnical Consultants, Inc.
Project Manager: _____
(Name)

(Signature)

This Site Safety Plan has been reviewed on site as part of the Site Safety Meeting on the first day of work by all participants in the field work, including employees of Environmental Geotechnical Consultants, Inc., and employees of subcontractors.

Name of Firm	Name of Person (print)	Signature	Date

This Site Safety Plan may be amended or modified in writing. Any amendments or modifications are attached and are listed below. These items have also been reviewed and approved by the personnel named above and by subsequent personnel as designated on the amendments.

Attached Amendments or Modifications: None as of May 17, 1991.