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QUARTERLY STATUS AND MONITORING REPORT
OCTOBER 1992

LPST ID No. 95021
FACILITY ID No. _____

TWC PHASES 3, 4, and 5

AIRPORT FUEL FARM
518 FLIGHTLINE
LAREDO (WEBB COUNTY), TEXAS

CITY OF LAREDO
1110 HOUSTON
LAREDO, TEXAS 78042

PREPARED BY:

RABA-KISTNER CONSULTANTS, INC.

Project No. ASB92-034-00

November 30, 1992

00978

Engineers, Geologists, Chemists, Water Planners, Hygienists and Environmental Scientists

Raba-Kistner Consultants, Inc.

12821 W. Golden Lane
P.O. Box 690287, San Antonio, TX 78269-0287
(512) 699-9090 FAX (512) 699-6426

Project No. ASB92-034-00
November 30, 1992

Mr. Amador Escudero, P.E.
City Engineer
City of Laredo
1110 Houston
P.O. Box 579
Laredo, Texas 78042

Re: Quarterly Status and Monitoring Report - October 1992
Airport Fuel Farm
518 Flightline, Laredo (Webb County), Texas
LPST ID No. 95021

Dear Mr. Escudero:

Raba-Kistner Consultants, Inc. (R-KCI), has completed the Quarterly Status and Monitoring Report for October 1992 at the above-referenced site. The report was initiated as a result of the Texas Water Commission (TWC) directive dated April 24, 1992.

We appreciate the opportunity to work with you on this project. If you have any questions regarding this report, please call Eric Wolff or me at (210) 699-9090.

Very truly yours,

RABA-KISTNER CONSULTANTS, INC.

Kevin L. Wooster
Hydrogeologist
Geosciences Section

B. Mark Dobson, R.G., C.E.G.
Manager
Geosciences Section

KLW/BMD/mem
Copies Submitted: Above (6)

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1.0 INTRODUCTION

Raba-Kistner Consultants, Inc. (R-KCI), has completed the October 1992 quarterly ground-water monitoring at the Airport Fuel Farm in Laredo, Texas. This report provides the results of the sampling and an interpretation of fuel fingerprinting of samples collected during the August 1992 monitoring at the Fuel Farm.

2.0 PURPOSE

These activities were performed in response to a Texas Water Commission (TWC) letter dated April 24, 1992. The location of the site is shown on Plate 1. A Site Plan showing the locations of the monitoring wells is presented on Plate 2.

3.0 CHRONOLOGY OF EVENTS

DATE	R-KCI ACTIVITY
Aug 11, 1992	Ground water in six existing monitoring wells was measured, purged, and sampled.
Aug 17-18, 1992	Additional monitoring wells (MW-7, MW-8, MW-9, and MW-10) were installed.
Aug 19, 1992	Ground-water levels were gauged in all ten wells before development of the four new wells. The new wells were then developed and sampled. A sample of Jet A fuel was obtained for fuel fingerprint analysis.
Aug 28, 1992	August Quarterly Status Report submitted to the TWC.
Oct 8, 1992	Non-beneficial use (NBU) PSTs currently under the jurisdiction of the U.S. Army Corps of Engineers (CORPS) were assigned a LPST identification number, 104866.
Oct 13, 1992	Ground-water levels were gauged in all ten wells. Seven wells not containing light non-aqueous phase liquid (LNAPL) were purged and sampled. A sample of C-2 Avgas was obtained for fuel fingerprint analysis.
Nov 18, 1992	Pre-construction meeting for the removal of the NBU's held by the U.S. Army Corps of Engineers (CORPS).

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Nov 19, 1992 Meeting between the CORPS and the City of Laredo to discuss coordinating future activities at the Airport Fuel Farm site.

4.0 METHODS FOR SITE CONDITIONS MONITORING

Water levels were gauged in ten monitoring and recovery wells on October 13, 1992. These wells were monitored with an interface probe and a disposable bailer to check for the presence of LNAPLs.

Seven monitoring wells were sampled on October 13, 1992, to determine current subsurface conditions at the site. Since the other three wells (MW-2, RW-5, and RW-6) contained a small amount of LNAPLs, they were not sampled. The ground water samples from the seven wells were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX); and total petroleum hydrocarbons (TPH). R-KCl standard Field and Laboratory Methods are discussed in Appendix A, Field and Laboratory Methods.

Fuel fingerprint analyses were performed on a sample of Jet A and C-2 Avgas fuels obtained from the City of Laredo fuel tanks. The gas chromatograph of the fuel samples were compared to the hydrocarbons encountered in recovery wells RW-5 and RW-6.

Recovery wells RW-5 and RW-6 and monitoring wells MW-1, MW-2, and MW-3 were checked daily during the week for LNAPLs by Laredo Airport personnel.

5.0 RESULTS

LNAPLs were detected in MW-2, RW-5, and RW-6 during the October 13, 1992, monitoring event. Approximately 0.25 in., 0.125 in., and 0.25 in. of LNAPL were measured in MW-2, RW-5, and RW-6, respectively. LNAPLs were detected only in RW-5 and RW-6 during the August 19, 1992, sampling event.

A water-table elevation contour map was constructed and is provided on Plate 3c. The previous two water table elevation contour maps are provided on plates 3a and 3b. The ground-water measurements and elevations from this and previous investigations at the site are tabulated on Plate 4. The direction of ground-water flow is to the southwest at a gradient of about 0.0166 ft/ft.

A table summarizing the analytical chemistry results of the current sampling event as well as earlier sampling events is presented on Plate 5. Copies of the signed Reports of Analyses of the October 13, 1992, samples are provided in Appendix B. Hydrographs of the ten monitoring wells are provided on Plates 6a-6j.

Maximum concentrations of BTEX and TPH encountered in the ground-water samples were 12.3 and 14 mg/L, respectively. No samples were analyzed for methyl-tertiary-butyl-ether (MTBE) during the October monitoring event. Results of MTBE confirmation analysis on samples collected from MW-9 and MW-10 from the previous sampling event determined that MTBE was not present.

Results of fuel fingerprint analyses are provided in Appendix B. Chromatograms indicate that the product found in RW-5 and RW-6 are likely derived from C-2 Avgas. Furthermore the hydrocarbons in RW-5 and MW-9 are more similar than those found in RW-6. RW-6 C-2 Avgas chromatogram shows a reduction in the light end of the hydrocarbons chains indicating weathering.

Daily logs of the recovery well gauging by airport personnel are in Appendix C. No recoverable LNAPLs were found during this period.

Based on preliminary calculations of the volume of contaminated soils and ground water, we estimate the total volume of release of fuel exceeds 12,000 gals. This estimate assumes the contaminated area measures 450 ft x 250 ft x 6 ft and the average concentrations is 0.6 g/kg.

6.0 CONCLUSIONS

In summary from the information presented above, the following conclusions regarding the hydrocarbon contamination at the Laredo Airport Fuel Farm can be made:

- The ground-water contaminant plume has not been fully delineated.
- The ground-water contaminant plume geometry is changing.
- The area of soil impacted by petroleum hydrocarbons has not been fully delineated.
- A majority of the hydrocarbons found in the subsurface at the fuel farm are from an Avgas source.
- Most of the LNAPLs under the beneficial use tanks have been removed by the City of Laredo.

7.0 RECOMMENDATIONS

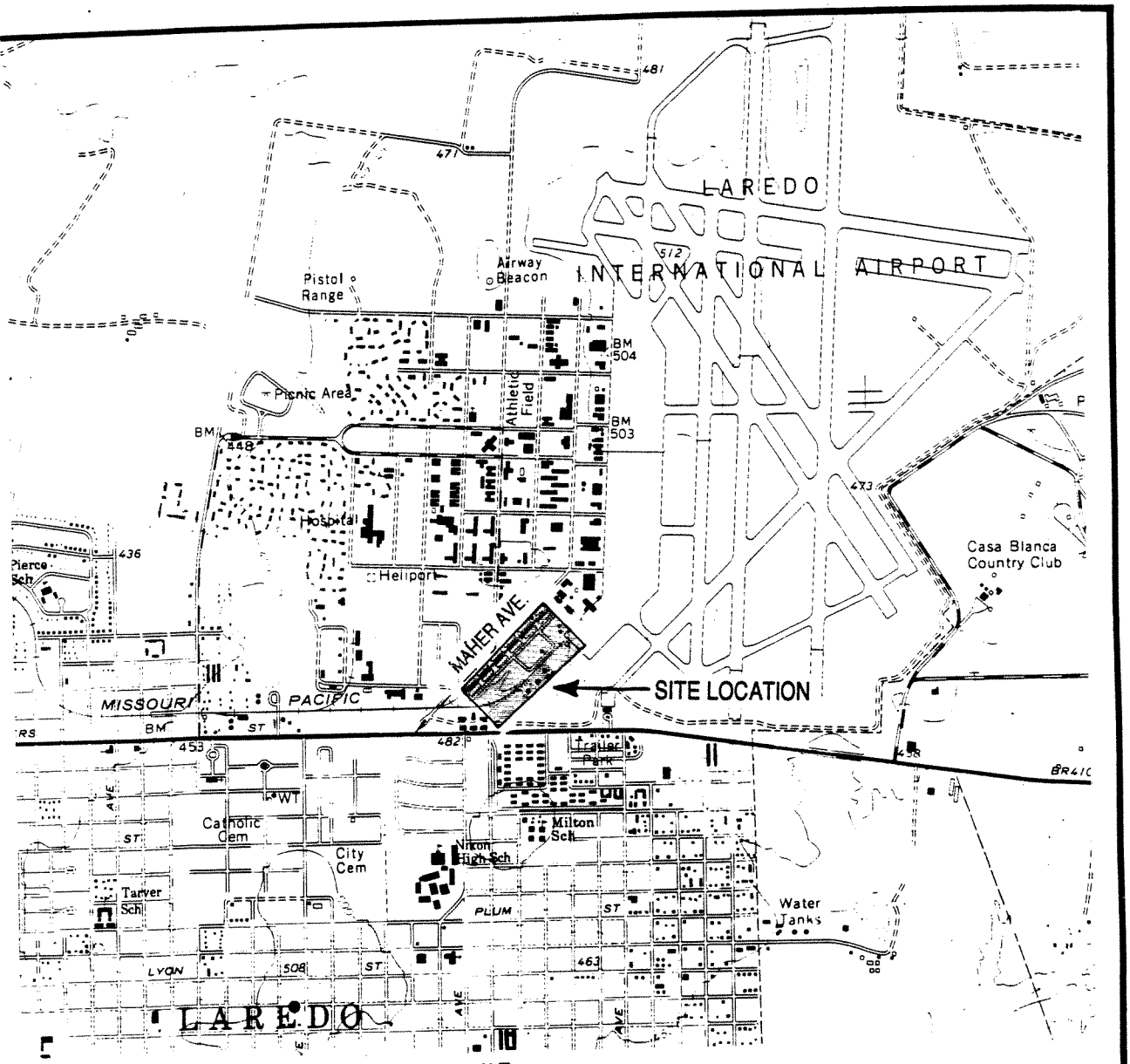
Based on the above information and conclusions the following recommendations are made:

- An effort should be made to combine efforts of all responsible parties to delineate the contamination and determine the level of responsibility for each responsible party.
- A remedial action plan should be prepared that addresses all sources simultaneously.
- Until further delineation is completed, present monitoring wells should be gauged and sampled every three months to monitor the site conditions.
- Wells MW-2, RW-5, and RW-6 should be checked weekly for LNAPLs and if a sufficient amount is present it should be removed.
- A reimbursement application for previous work should be prepared and submitted to the TWC.

Long term information collected during the quarterly monitoring events will be beneficial to the preparation of the Remedial Action Plan. Seasonal fluctuations in the water table should be accounted for in recovery and monitoring well design. Monitoring frequencies, pumping rates, pump locations, and other design parameters all depend on long term water table data. For these reasons we recommend that the quarterly monitoring of all wells be continued for another six months.

After the April monitoring event we may recommend that the number of wells to be gauged and sampled be reduced. Only those necessary for monitoring the migration and/or degradation of the hydrocarbon contamination will need to be sampled.

ILLUSTRATIONS



(BASE MAP FROM USGS, 1980; LAREDO EAST QUADRANGLE)

SITE LOCATION MAP
LAREDO AIRPORT

PROJECT NO. ASB92-034-00

Raba-Kistner Consultants Inc

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PLATE 1

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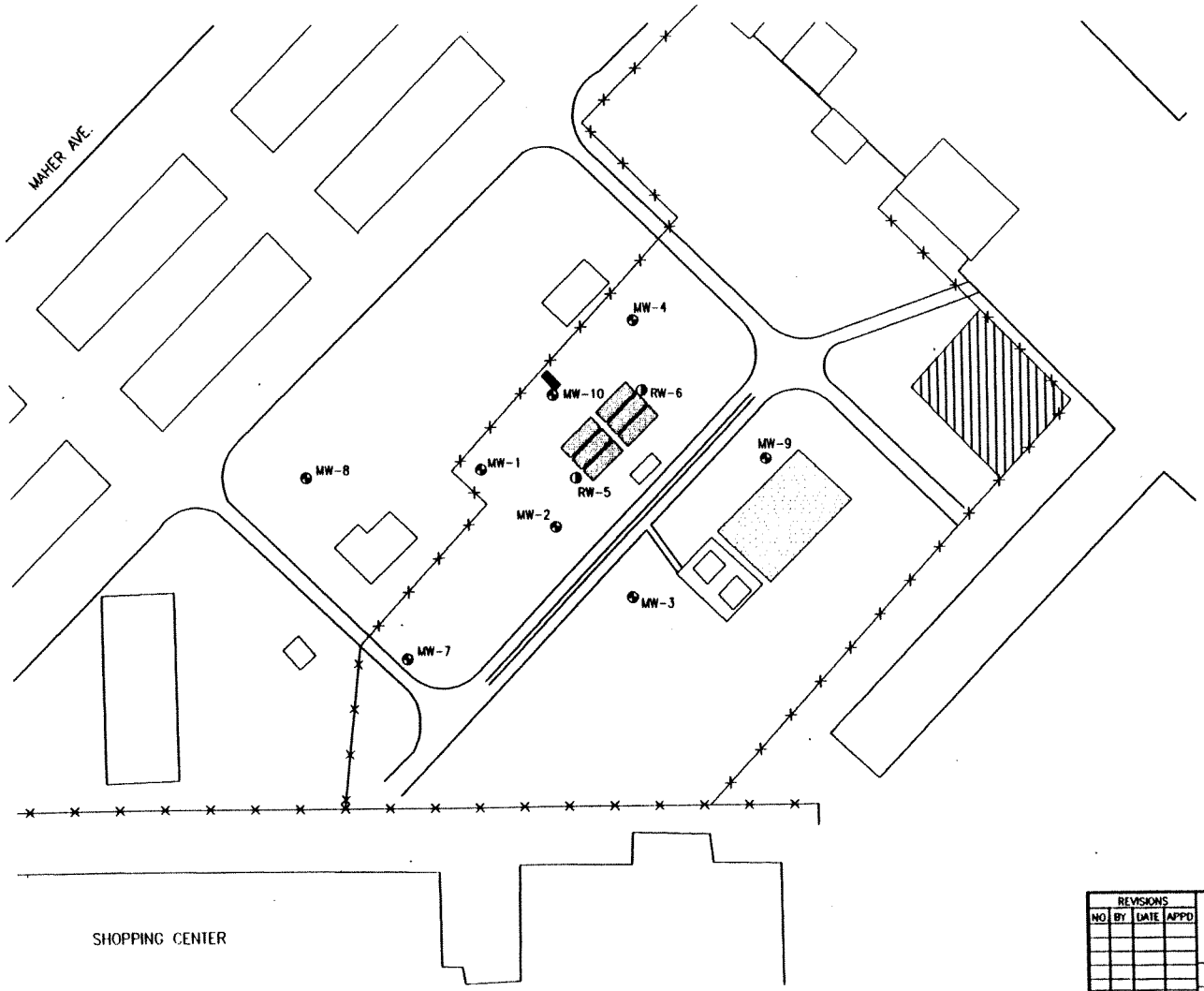

LEGEND

- MONITORING WELL
- RECOVERY WELL
- BENEFICIAL USE PST
- OIL / WATER SEPARATOR
- BUILDING
- FENCE
- NON-BENEFICIAL USE PST TANKHOLD
- BARKER AVIATION BENEFICIAL USE PST TANKHOLD

N

0 100 200

REVISIONS			
NO	BY	DATE	APPD

Raba-Kistner Consultants, Inc.

Engineers Geologists Scientists Chemists

SITE PLAN
LAREDO AIRPORT

SCALE: AS SHOWN PROJECT NO: ASB92-034-00 PLATE 2

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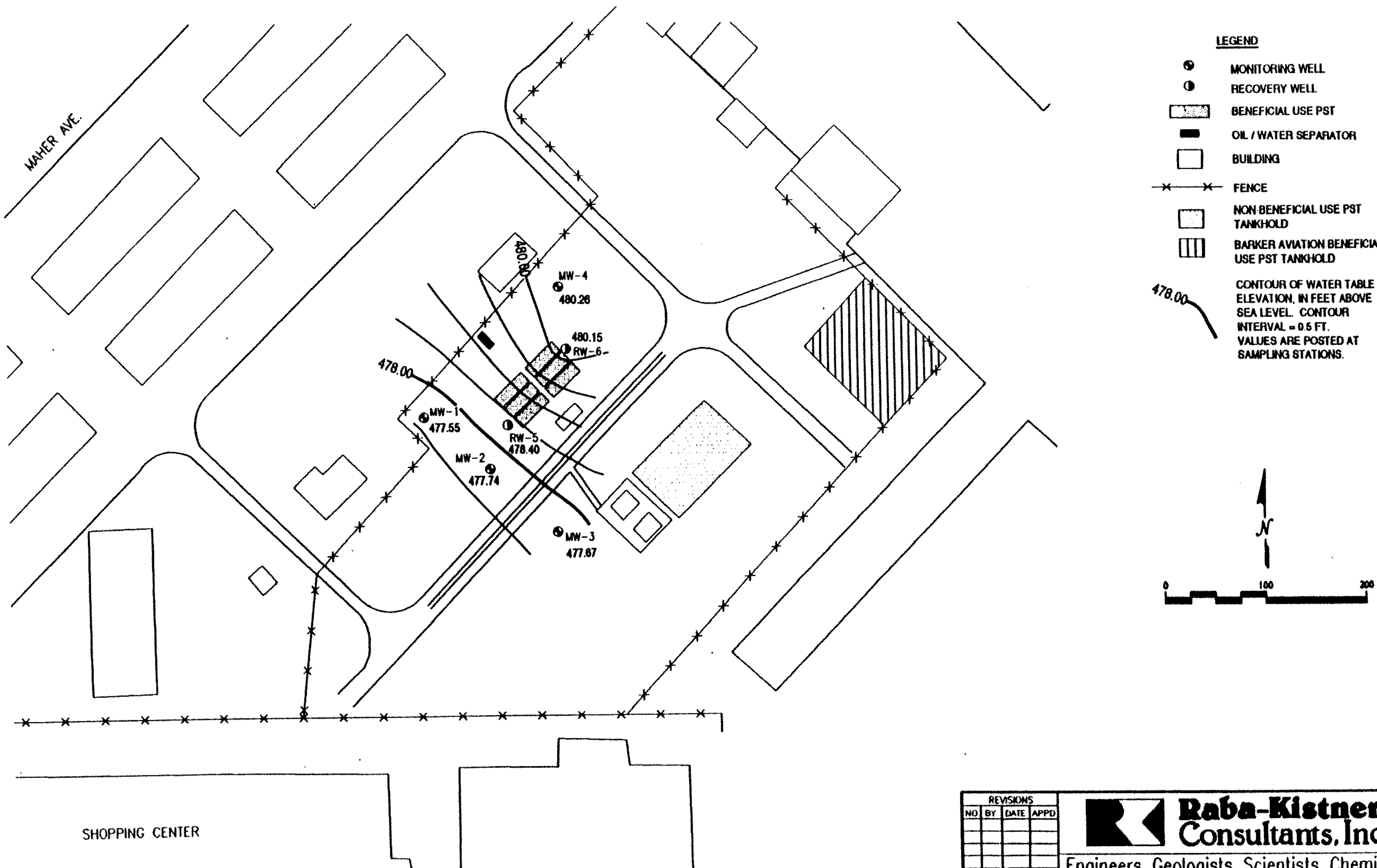

REVISIONS			
NO	BY	DATE	APPD

Raba-Kistner Consultants, Inc.

Engineers Geologists Scientists Chemists

WATER TABLE ELEVATION MAP 8/11/92
LAREDO AIRPORT

SCALE: AS SHOWN PROJECT NO.: ASP92-034-00 PLATE 3a

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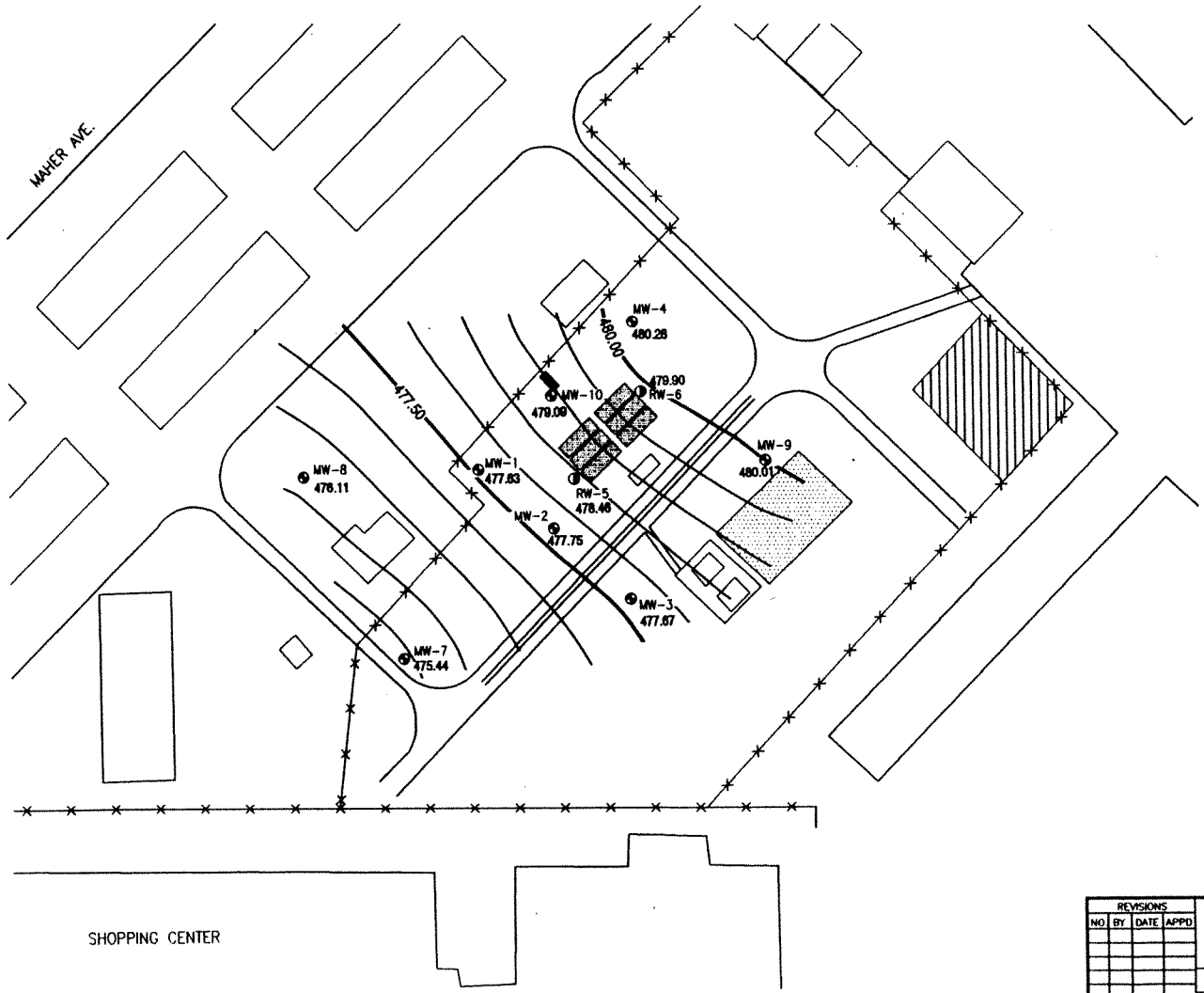

LEGEND

- MONITORING WELL
- RECOVERY WELL
- BENEFICIAL USE PST
- OIL / WATER SEPARATOR
- BUILDING
- FENCE
- NON-BENEFICIAL USE PST TANKHOLD
- BARKER AVIATION BENEFICIAL USE PST TANKHOLD
- 480.00 — CONTOUR OF WATER TABLE ELEVATION, IN FEET ABOVE SEA LEVEL. CONTOUR INTERVAL = 0.5 FT. VALUES ARE POSTED AT SAMPLING STATIONS.

N

0 100 200

00690

REVISIONS			
NO	BY	DATE	APPD

Raba-Kistner Consultants, Inc.

Engineers Geologists Scientists Chemists

WATER TABLE ELEVATION MAP 8/19/92
LAREDO AIRPORT

SCALE: AS SHOWN PROJECT NO.: ASB92-034-00 PLATE 3b

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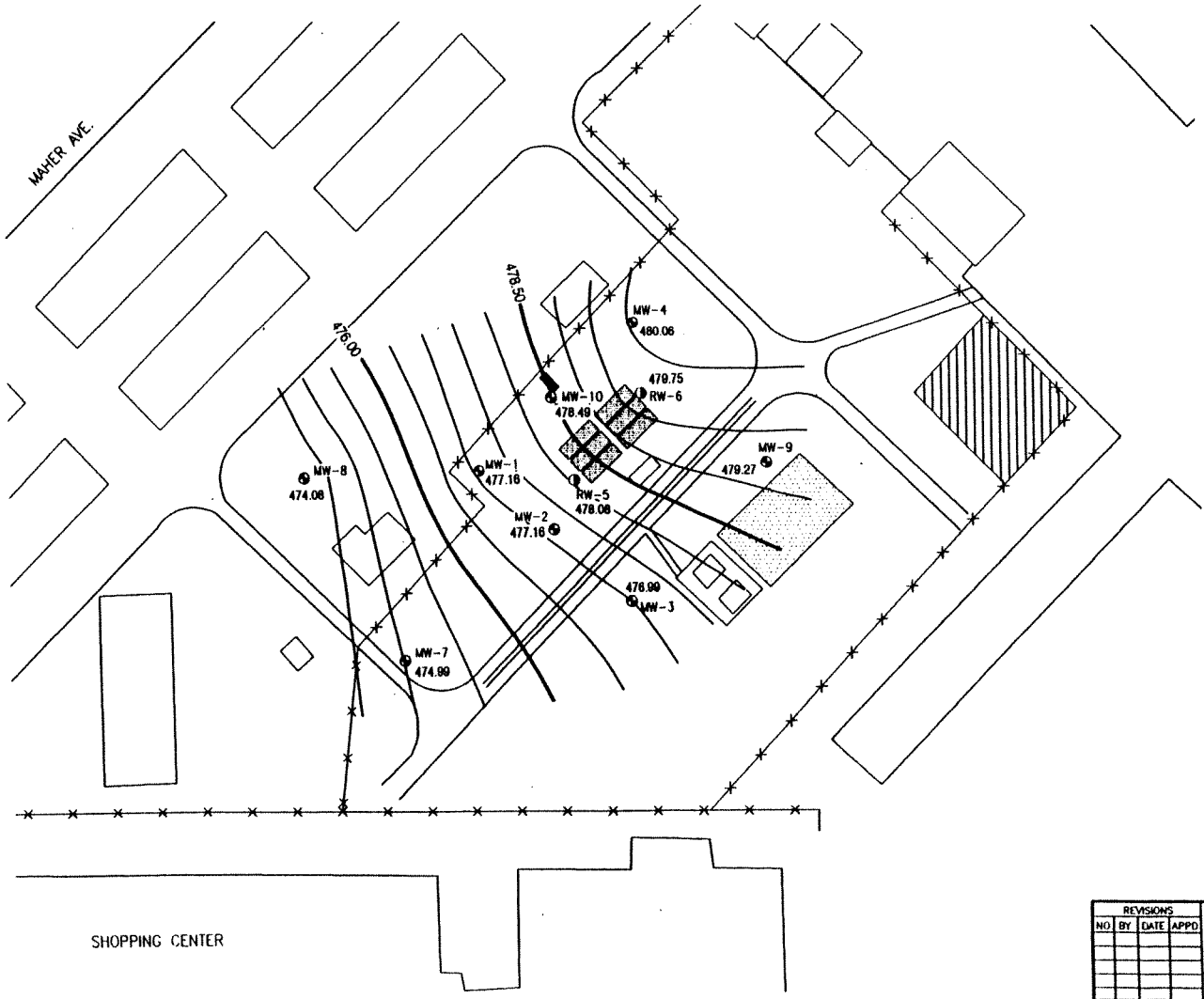

LEGEND

- MONITORING WELL
- RECOVERY WELL
- BENEFICIAL USE PST
- OIL / WATER SEPARATOR
- BUILDING
- FENCE
- NON-BENEFICIAL USE PST TANKHOLD
- BARKER AVIATION BENEFICIAL USE PST TANKHOLD
- 476.00 — CONTOUR OF WATER TABLE ELEVATION, IN FEET ABOVE SEA LEVEL. CONTOUR INTERVAL = 0.5 FT. VALUES ARE POSTED AT SAMPLING STATIONS.

N

0 100 200

REVISIONS			
NO.	BY	DATE	APPD

Raba-Kistner Consultants, Inc.

Engineers Geologists Scientists Chemists

WATER TABLE ELEVATION MAP 10/13/92
LAREDO AIRPORT

SCALE: AS SHOWN PROJECT NO: ASR92-034-00 PLATE 3c

WATER LEVEL MEASUREMENTS

PROJECT NAME: LAREDO AIRPORT

FILE NAME: WLVL_WQ1

Well Designation	Date	TOC Elevation (ft)	Depth to Water (ft)	Water Table Elevation (ft)
MW-1	12/07/91	485.43	8.32	477.11
	06/13/92		7.27	478.16
	08/11/92		7.88	477.55
	08/19/92		7.80	477.63
	10/13/92		8.27	477.16
MW-2	12/07/91	487.26	10.11	477.15
	06/13/92		8.91	478.35
	08/11/92		9.52	477.74
	08/19/92		9.51	477.75
	10/13/92		10.10	477.16
MW-3	12/07/91	487.19	10.18	477.01
	06/13/92		8.93	478.26
	08/11/92		9.52	477.67
	08/19/92		9.52	477.67
	10/13/92		10.20	476.99
MW-4	12/07/91	487.84	7.66	480.18
	06/13/92		7.77	480.07
	08/11/92		7.58	480.26
	08/19/92		7.56	480.28
	10/13/92		7.78	480.06
RW-5	12/07/91	488.60	11.60	477.00
	06/13/92		8.39	480.21
	08/11/92		10.20	478.40
	08/19/92		10.14	478.46
	10/13/92		10.52	478.08
RW-6	12/07/91	488.78	9.96	478.82
	06/13/92		8.70	480.08
	08/11/92		8.63	480.15
	08/19/92		8.88	479.90
	10/13/92		9.03	479.75
MW-7	08/19/92	485.24	9.80	475.44
	10/13/92		10.25	474.99
MW-8	08/19/92	484.27	8.16	476.11
	10/13/92		10.19	474.08
MW-9	08/19/92	487.17	7.16	480.01
	10/13/92		7.90	479.27
MW-10	08/19/92	487.34	8.25	479.09
	10/13/92		8.85	478.49

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PROJECT NO. ASB92-034-00

PLATE 4

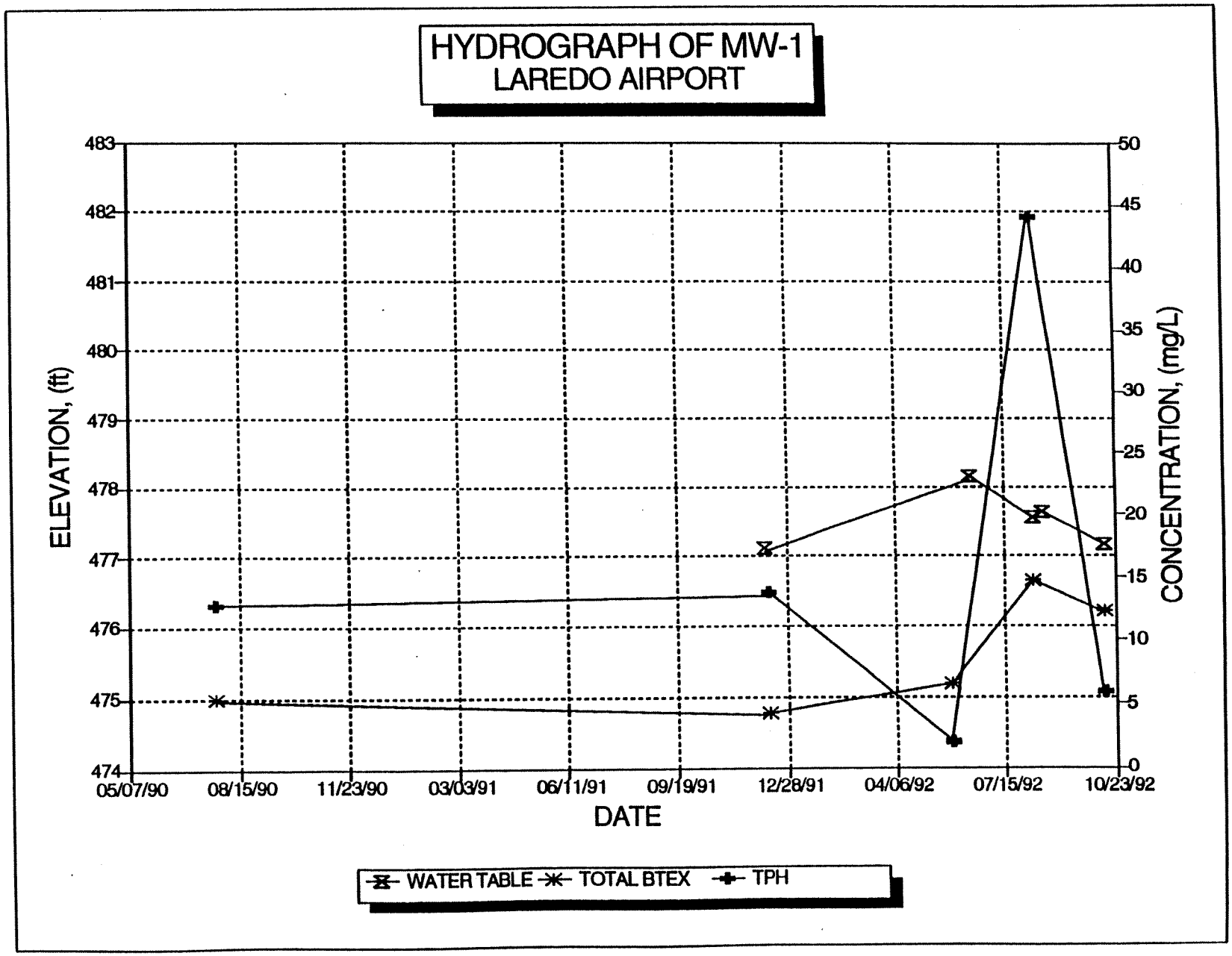
SUMMARY OF ANALYTICAL RESULTS

PROJECT NAME: LAREDO AIRPORT
SAMPLE LOCATION: MONITORING WELLS
SAMPLE TYPE: GROUND WATER

FILE NAME: WATER.WQ1

Sample Designation	Sample Date	Sample * Analyzed by	Benzene (mg/L)	Toluene (mg/L)	Ethyl-benzene (mg/L)	Total Xylenes (mg/L)	Total Detectable BTEX (mg/L)	MTBE (mg/L)	TPH (mg/L)	TDS (mg/L)
MW-1	07/25/90	PAL	4.0	0.730	0.200	0.530	5.46	<0.01	13	
	12/11/91	PAL	3.056	0.531	0.143	0.446	4.176	<0.01	13.8	
	05/27/92	PAL	4.853	0.687	0.277	0.703	6.52	1.494	1.98	
	08/11/92	R-KCI	12	1.5	0.38	0.89	14.77		44	
	10/13/92	R-KCI	11	1.3	<0.5****	<0.5****	12.3		6	
MW-2	12/11/91	PAL	0.329	0.271	0.205	0.516	1.321	<0.01	214	
	05/27/92	PAL	0.698	0.361	0.281	0.662	2.002	0.890	29.6	
	08/11/92	R-KCI	0.33	0.26	0.16	0.39	1.14		53	
	10/13/92	****	****	****	****	****	****	****	****	****
MW-3	07/25/90	PAL	0.860	0.082	0.190	0.280	1.412	<0.01	<10	
	12/11/91	PAL	0.010	0.018	<0.01	0.013	0.041	0.049	3.3	
	05/27/92	PAL	0.480	<0.01	0.028	<0.01	1.38	0.026	1.38	
	08/11/92	R-KCI	0.38	0.31	0.20	0.51	1.4		6	
	10/13/92	R-KCI	0.085	<0.005	0.048	<0.005	0.133		6	
MW-4	07/25/90	PAL	<0.01	<0.01	<0.01	<0.01	—	<0.01	<10	
	12/11/91	PAL								3.510
	05/27/92	PAL	<0.01	<0.01	<0.01	<0.01	—	0.803	<10	
	08/11/92	R-KCI	<0.005	<0.005	<0.005	<0.005	—		<1	
	10/13/92	R-KCI	0.006	0.015	0.006	0.020	0.047		<1	
MW-7	08/19/92	R-KCI	<0.005	<0.005	<0.005	<0.005	—	<0.005	<1	
	10/13/92	R-KCI	0.12	0.054	0.011	0.036	0.221		<1	
MW-8	08/19/92	R-KCI	<0.005	<0.005	<0.005	<0.005	—	<0.005	<1	
	10/13/92	R-KCI	<0.005	<0.005	<0.005	<0.005	—		<1	
MW-9	08/19/92	R-KCI	5.4	2.5	0.73	1.8	10.43	**	12	
	10/13/92	R-KCI	4.8	1.8	0.36	0.9	7.86		6	
MW-10	08/19/92	R-KCI	3.4	0.78	0.24	0.26	4.68	**	4	
	10/13/92	R-KCI	6.2	1.7	0.31	0.98	9.19		14	

* R-KCI = RABA-KISTNER CONSULTANTS, INC.
PAL = PAN AMERICAN LABORATORIES, INC.
** RESULTS PENDING GC/MS.
— THE PRACTICAL QUANTITATION LIMIT WAS ELEVATED DUE TO DILUTION / MATRIX INTERFERENCES.
**** NOT SAMPLED - CONTAINED FREE PRODUCT



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PROJECT NO. ASB92-034-00

PLATE 6a

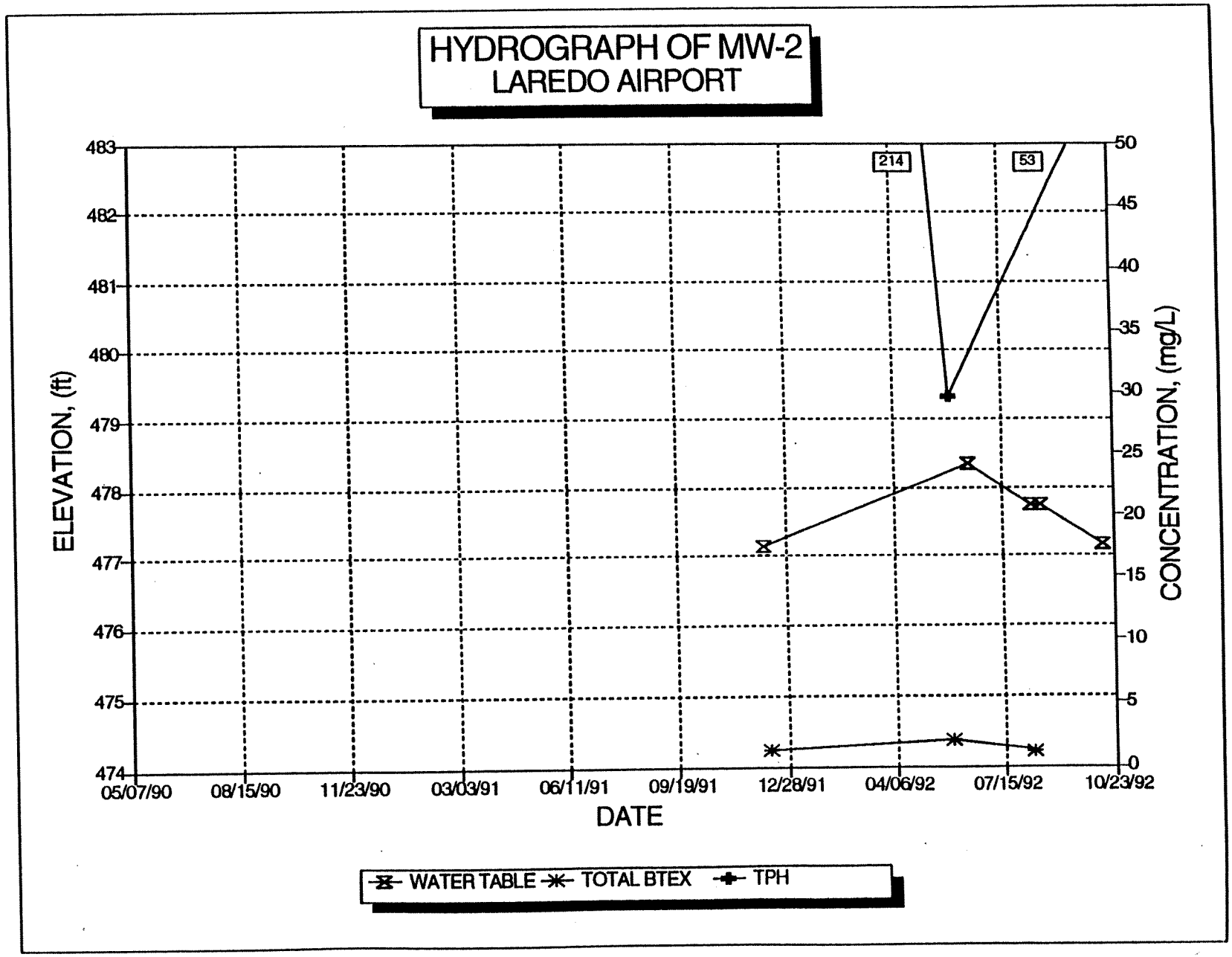

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PLATE 6b

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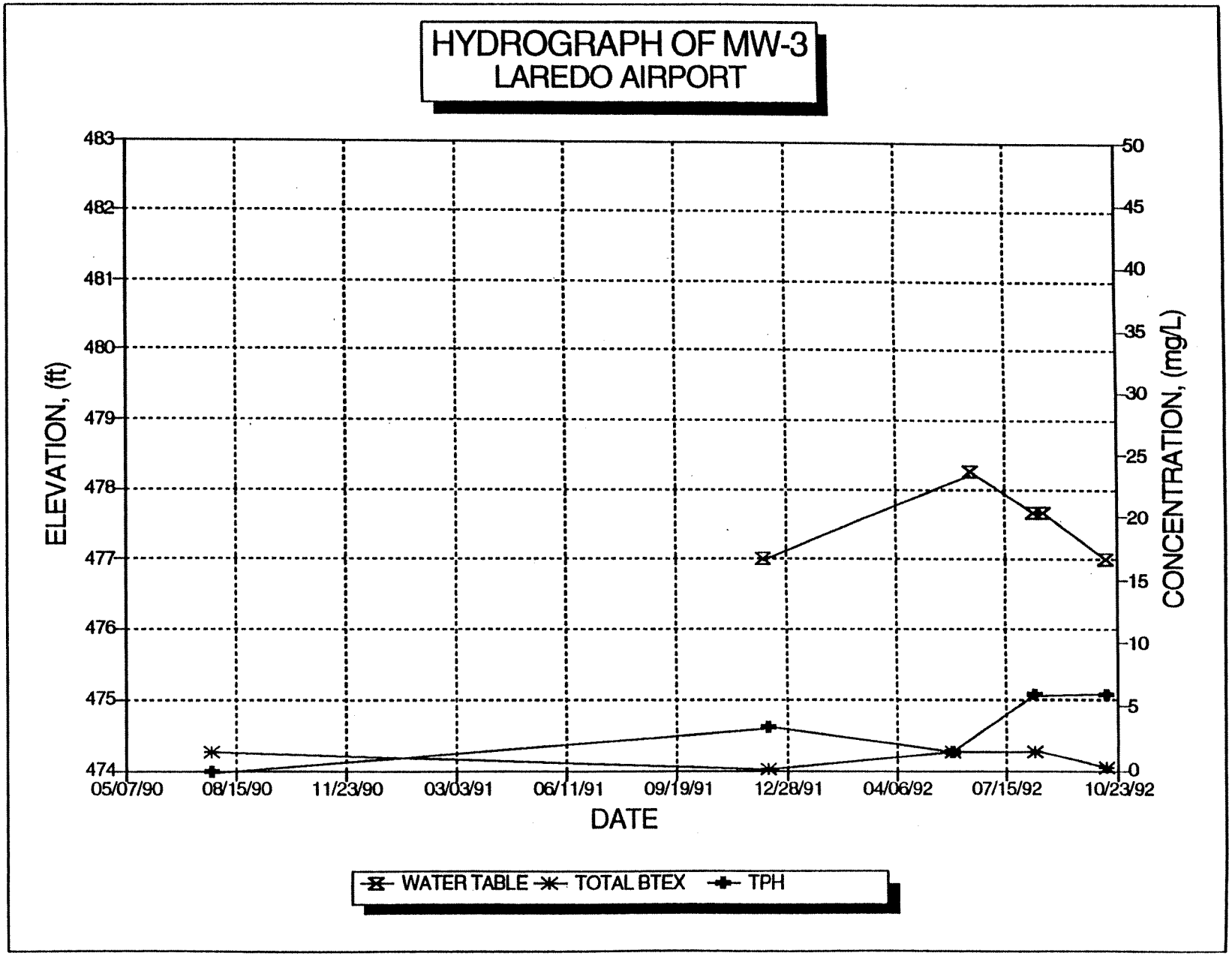

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PLATE 6c

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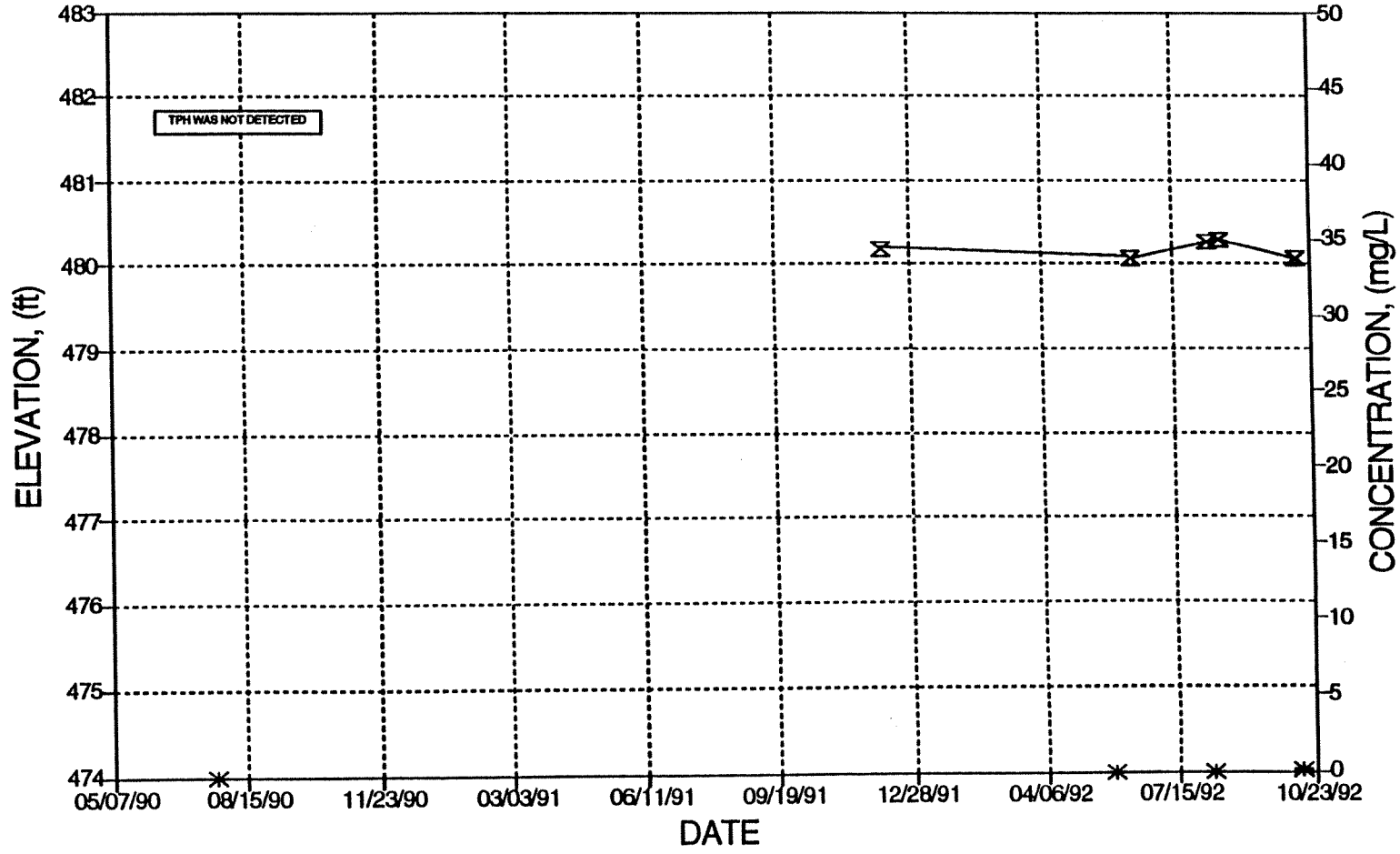
HYDROGRAPH OF MW-4
LAREDO AIRPORT



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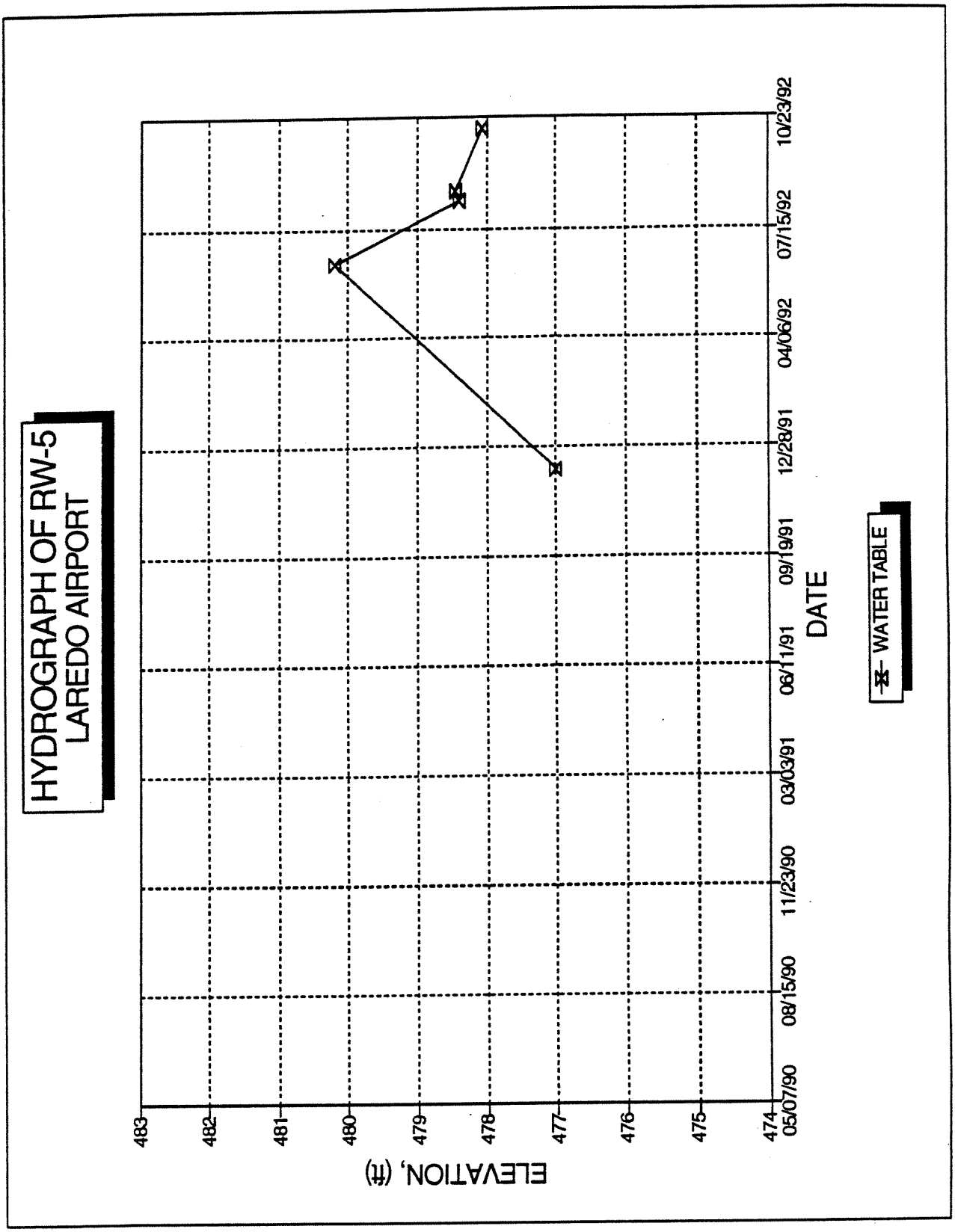

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PLATE 6e

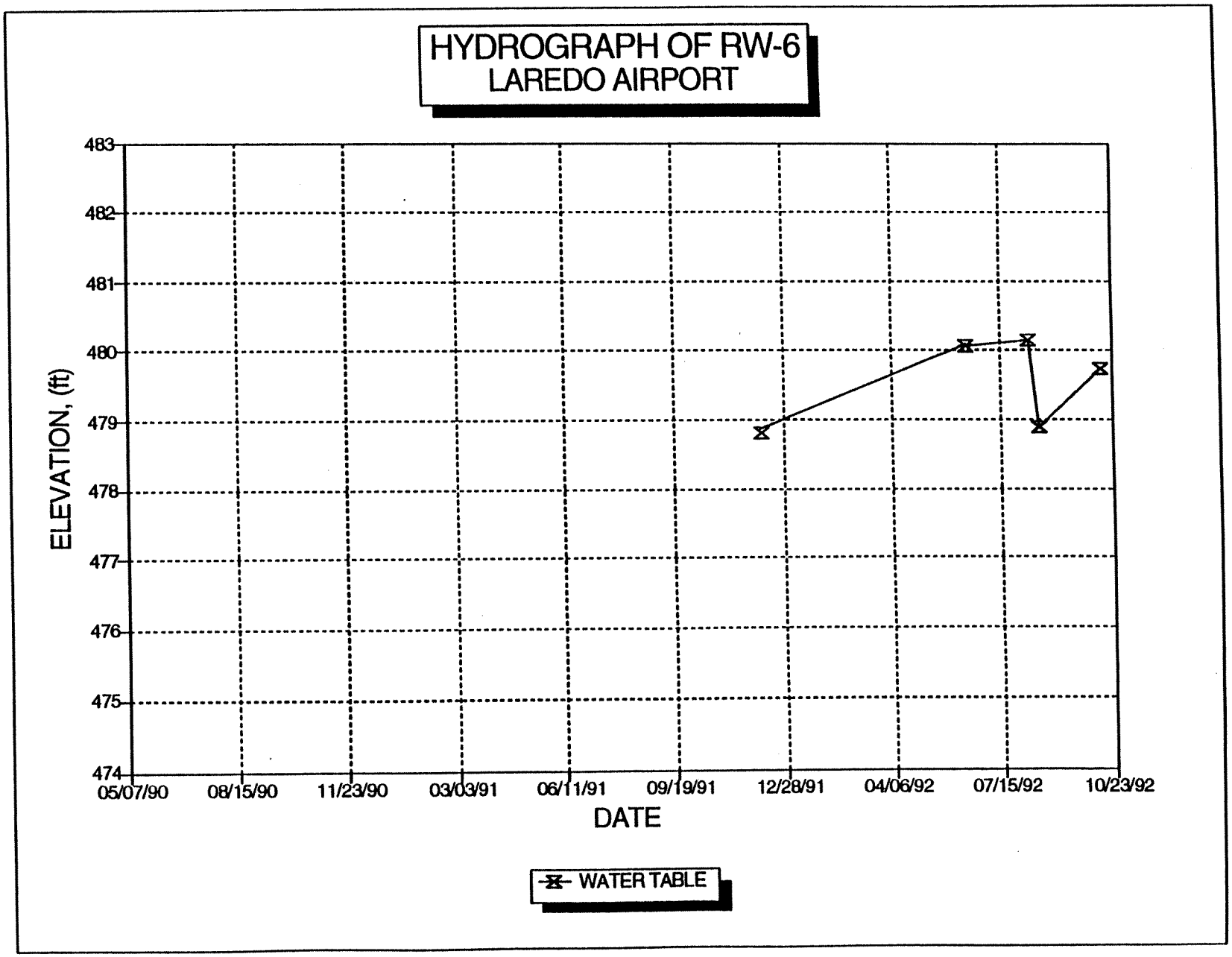

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PLATE 6f

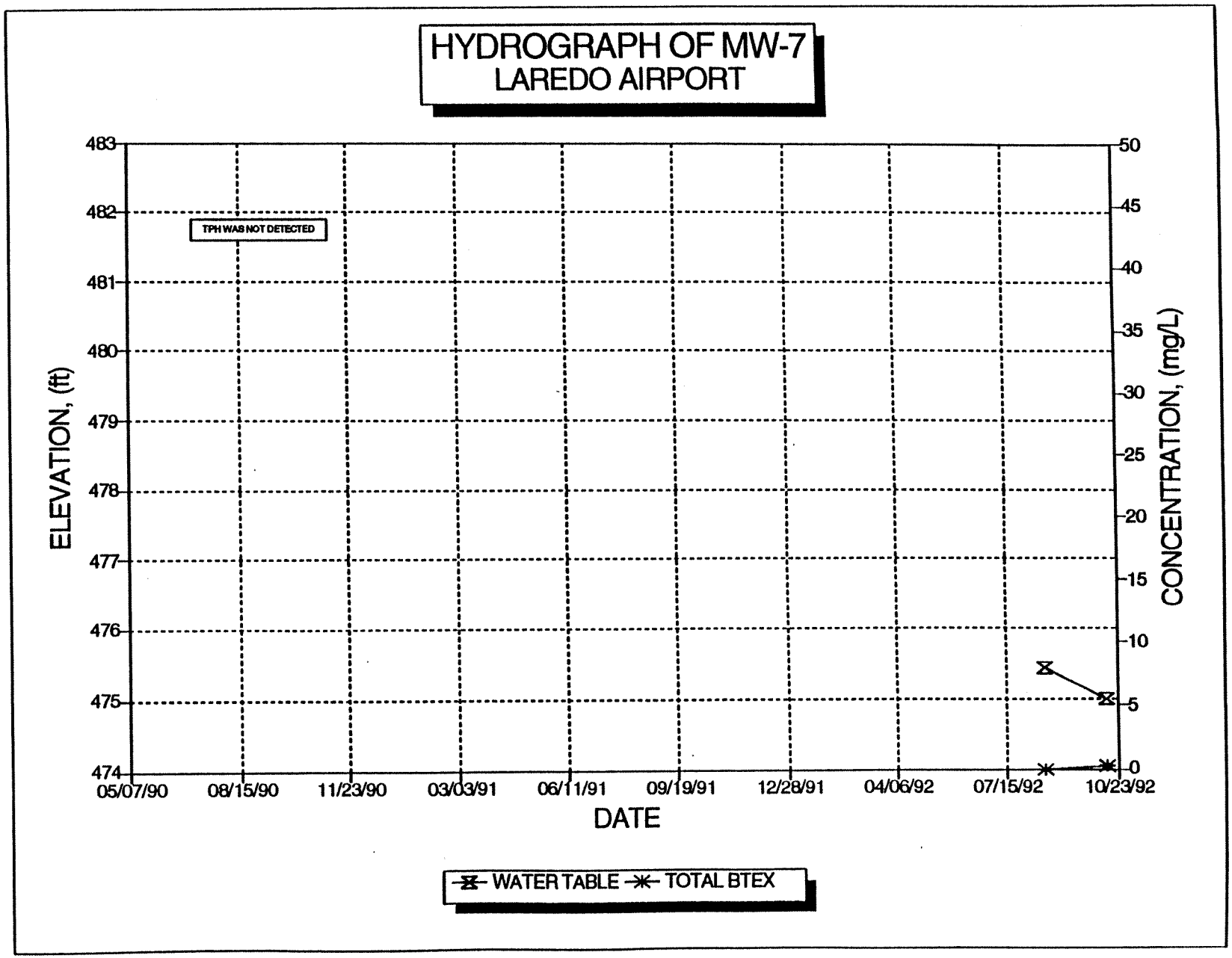

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PLATE 6g

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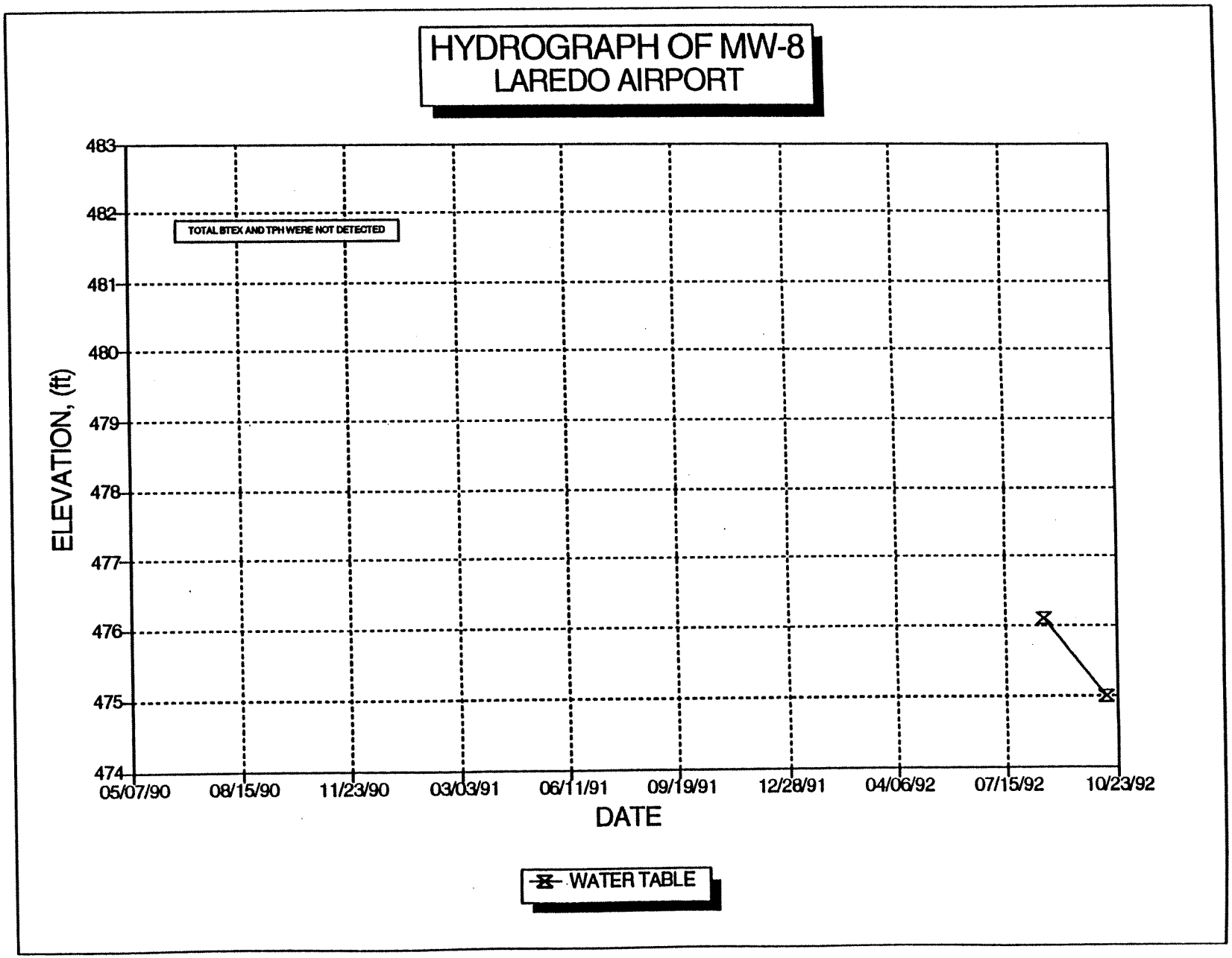

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PLATE 6h

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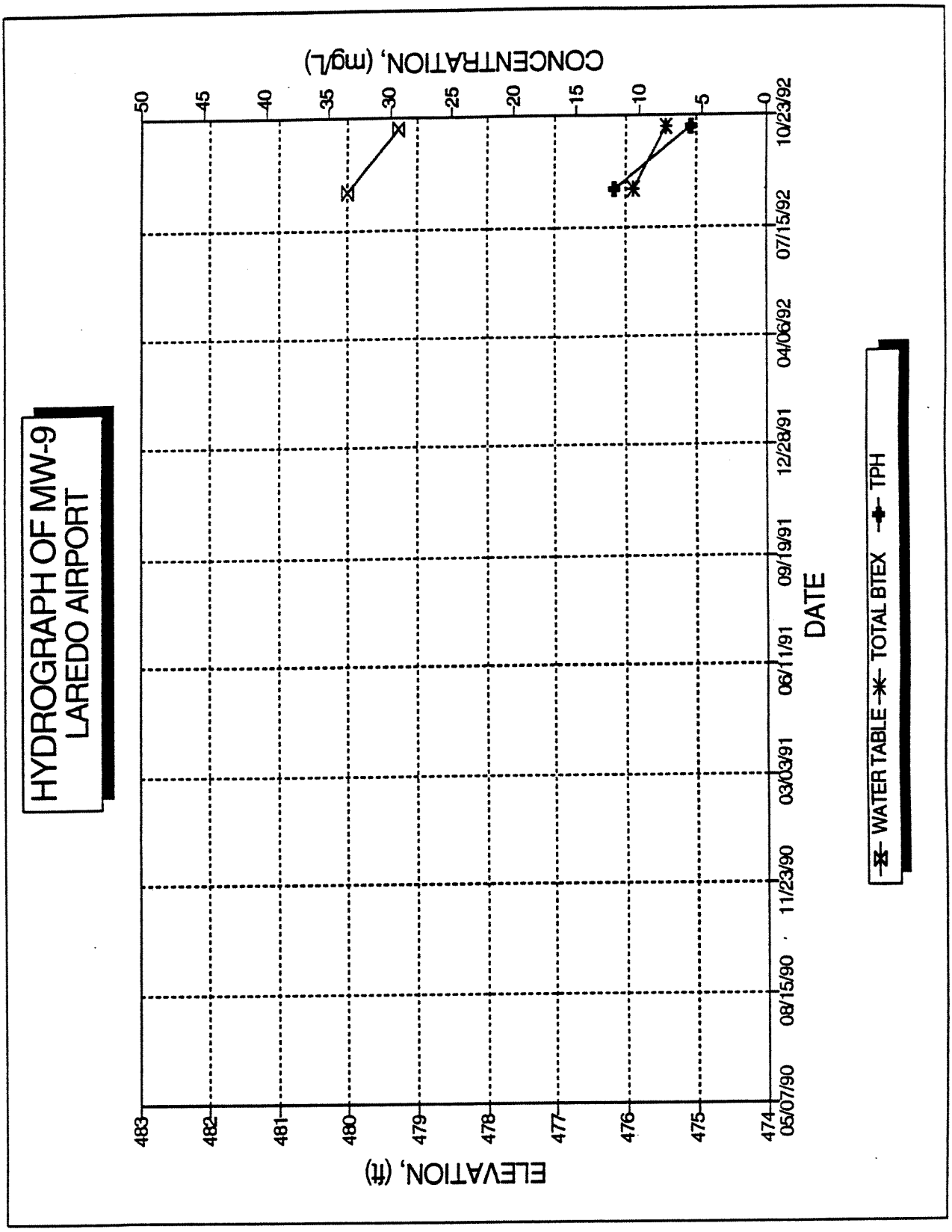

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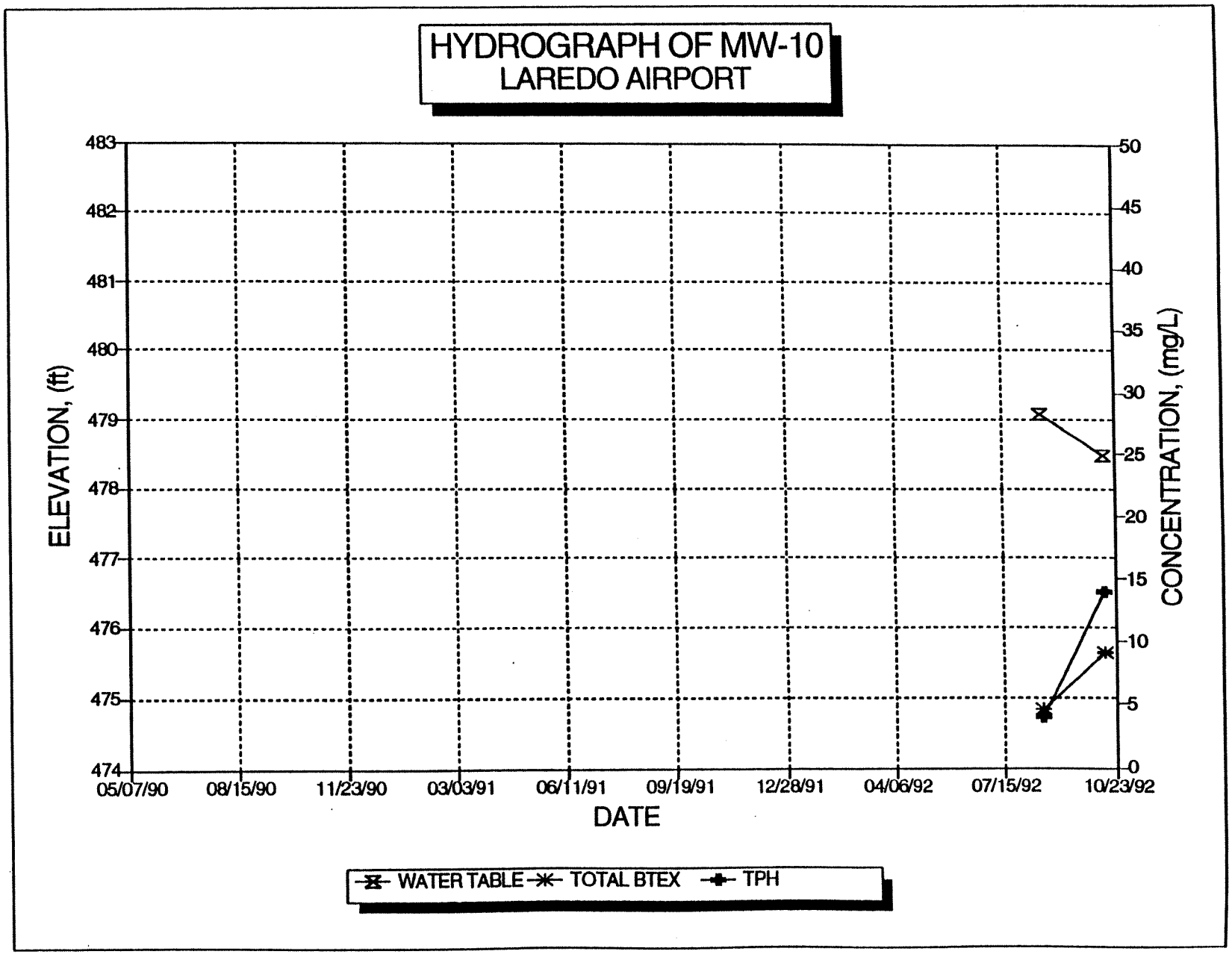
PLATE 6i



PROJECT NO. ASB92-034-00

PLATE 6j

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APPENDIX A

FIELD AND LABORATORY METHODS

FIELD AND LABORATORY METHODS

The field and laboratory procedures employed during this study are those considered to be good standard practice in the Geoscience and Environmental Engineering professions. This appendix describes standard field and laboratory methods used by Raba-Kistner Consultants, Inc. (R-KCI).

FIELD METHODS

EXCAVATION SAMPLING

Purpose

The purpose of excavation sampling is to collect samples for laboratory analysis. Samples are analyzed to determine the levels of contamination in soils and rock. This information is used to assess the extent of contamination within or at the perimeters of the excavation.

Sample Selection

Samples are selected to determine worst-case levels of contamination. Sample selection is based on a combination of the following:

1. Visual observations including staining, soil discoloration, and presence of free product
2. Olfactory observations
3. Organic vapors detected with an organic vapor analyzer (Porta-FID)

R-KCI uses a Porta-FID II flame ionization detector (FID) manufactured by Heath Consultants, Inc., or a HNU Model P1 101 manufactured by HNU Systems, Inc.

The Porta-FID II is designed to detect combustible hydrocarbons in parts per million (ppm) as methane. The instrument is calibrated using a 100 ppm standard of methane. The meter on the Porta-FID is set to zero on site, prior to use, in order to adjust readings for background levels.

The HNU is designed to detect a variety of gases in ppm. The analyzer employs the principle of photoionization. The HNU can be calibrated for each species to be measured or for a combination of species such as found in association with fuel contamination. R-KCI uses a 55 ppm standard mix supplied by HNU Systems, Inc.

Sampling Procedures

Excavation sampling consists of obtaining samples of representative natural material from select portions of the excavation. The sampling is normally conducted following excavation of obviously contaminated soils. The upper 6 to 12 inches of soils are removed to expose fresh soil. A bulk sample of the soil is obtained normally using a backhoe or other heavy equipment on site. A subsample that has not been in contact with the sampling device is selected from the bulk sample.

Sample Handling and Preservation

Samples selected for chemical analysis are immediately placed in appropriate containers, stored in a cooler with ice, and transported to R-KCI's analytical laboratory. Chain-of-custody forms are completed at the time of sample collection and transported with the samples to a laboratory for analyses. If R-KCI's mobile lab is used then samples are analyzed on-site.

SOIL BORINGS

Purpose

The purposes of soil borings are to:

- Determine the soil stratigraphy
- Obtain subsurface soil samples for laboratory testing
- Determine the vertical and horizontal extent of fuel contamination in soils
- Enable installation of monitor wells

Auger Drilling Methods

Borings are drilled using dry, hollow-stem auger methods. R-KCI uses a Mobile B-53 drilling rig. The augers are 8-in. OD and 3-in. ID.

Sampling Procedures and Intervals

Samples are obtained with split-barrel, split-spoon, or Shelby-tube samplers. The sampler is fixed near the bottom of the lead auger and advanced with the auger over an interval of 2 ft. The sampler is then retrieved and the sample removed.

Initial borings are generally sampled continuously from the ground surface. If it is determined that the site's stratigraphy is continuous across the site, subsequent borings may be sampled semi-continuously or at intervals selected to evaluate specific

horizons or zones of contamination. Sampler type and sampled intervals are indicated on the boring logs.

Logging Procedures

Samples and auger cuttings are logged by a geologist. Soils are logged for soil composition, structure, consistency, color, moisture content, occurrence of groundwater, and hydrocarbons. Samples are also screened for evidence of contamination using the FID or HNU. Soil descriptions and FID/HNU measurements are recorded on a field log form. This information is input into a computer boring log program for generation of a final boring log.

Decontamination

To prevent cross contamination, the drilling rig and augers are steam cleaned prior to drilling each boring. Sampling devices are steam cleaned between each use.

MONITOR WELL INSTALLATION

Purpose

If shallow groundwater occurs within the depth of the soil borings, the borings are generally converted to monitor wells. The purposes of monitor wells are to:

- Determine groundwater elevation
- Determine presence of free product on the groundwater
- Collect groundwater samples for laboratory analysis
- Perform tests to evaluate aquifer properties

Well Construction

Monitor wells are constructed of ID PVC casing and screen. Screen slot openings are pre-manufactured at a size of 0.01 in. at an interval of 0.25 in. Casing and screen are threaded and have flush joints.

Sections of casing are assembled at the site to allow for pre-installation inspection. The screened interval extends above the water table by a few feet to ensure product migration into the well during water table fluctuations. Monitor well construction information is presented on the corresponding boring log.

A sand pack of Espey silica sand or equivalent is installed in the annulus between the borehole and the well screen. The sand pack extends from the bottom of the borehole to about 1 ft above the top of

the screen. Commercial granular or powdered bentonite is used to form a 1-ft thick seal above the sand pack. A cement-bentonite grout backfill is then placed from the top of the bentonite seal to about 1 ft below grade. The remaining space allows for placement of protective surface casing.

Surveying

Upon completion of the monitor wells, the relative elevation of the top of casing is determined for each well. The point surveyed on each well is marked by a "V" notch for further measurement reference.

GROUNDWATER MONITORING AND SAMPLING

Water Level Measurements

Water levels are measured in three or more monitor wells to determine the direction of groundwater flow. Water levels are measured to within 0.01 ft. Measurements are made with an Olympus Well Probe (E-line), a Marine Moisture Control interface probe, or a tape and plopper. Water levels are measured as the depth from the top of the PVC casing. These depths are converted to elevations above sea level. The groundwater elevations are contoured to determine the direction of groundwater flow.

Well Purging

Just prior to sampling, monitor wells are purged of approximately three casing volumes. Groundwater is bailed from the well using a disposable bailer suspended from a new nylon rope or string. In wells where the rate of recovery is very slow, a minimum of one casing volume is removed.

Groundwater Sampling

Groundwater samples are generally taken from the monitor wells no sooner than 24 hours after well installation. Sampling of wells is performed with disposable bailers using new nylon rope or string. Water samples are immediately placed in amber bottles with Teflon lids. The bottles are completely filled so as not to leave a head space. Filled sample bottles are placed in a cooler with ice and transported to R-KCI's analytical laboratory within 24 hours of sample collection. Chain-of-custody forms are completed at the time of sample collection and transported with the samples.

ANALYTICAL CHEMISTRY METHODS

The purposes of the laboratory analyses are to determine the levels of contamination in the various media being sampled.

CONTAMINANT CHARACTERIZATION

Benzene, Toluene, Ethylbenzene, and Xylenes; Methyl-Tertiary-Butyl Ether

Gasoline contamination is evaluated by analyzing for four indicator constituents: benzene, toluene, ethylbenzene, and xylenes (collectively referred to as BTEX and when appropriate, methyl-tertiary-butyl ether (MTBE). Samples for BTEX and MTBE analysis are prepared following EPA Method 5030 (purge-and-trap method). BTEX and MTBE in both soil and water are analyzed following GC / PID photoionization detector method 8020. The methods are described in detail in US EPA Publication SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Volumes IA, IB, IC, and II.

The specific methods of analysis used for each study are described on the Report of Analysis. For all three methods, the normal detection limit for each constituent of BTEX and MTBE is 0.005 ppm for water and 0.4 ppm for soil. The results of analyses on soils are presented on the appropriate boring logs and in table form presented in appropriate reports.

Total Petroleum Hydrocarbons

Levels of petroleum hydrocarbon contamination are determined by measuring for total petroleum hydrocarbons (TPH). Soil samples for TPH analysis are prepared following EPA Method 3550 (sonication/Freon-extraction method). TPH in soil and water samples are analyzed following EPA 600/4-79-20, Method 418.1 (Freon-extraction method). The method is described in detail in US EPA Publication 600, Methods for Chemical Analysis of Water and Wastes. The normal detection limit for soil is 10 ppm and the detection limit for water is 1 ppm in method 418.1. The results of analyses on soils are presented on the appropriate boring logs and in table form presented in appropriate reports.

APPENDIX B

REPORTS OF ANALYSES

Report of Analysis

Consulting Geotechnical, Materials and Environmental Engineers
Geologists, Scientists and Chemists

Raba-Kistner
Consultants, Inc.

P.O. Box 690287, San Antonio, TX 78269-0287
12821 W. Golden Lane, San Antonio, TX 78249
(512) 699-9090

To: Laredo Airport
c/o R-KCI

Attn: Eric Wolff

Project No.: ASB92-034-00
Task No.:
Assignment No.: 3295
Contract/P.O. No.:
Date Received: 8-20-92
Page 1 of 2 Date: 11-18-92
Final Report

Sample Type/Sample Loc: Water
Date Collected: 8-19-92
Date Completed: 8-24-92
Collected By: R-KCI

TEST METHODS:

TEST	PREPARATION/DATE	ANALYSIS/DATE
BTEX/MTBE	5030/8-20-92	8020/8-20-92
MTBE-Confirmation Analysis		8240/8-25-92
TPH		418.1/8-20-92
Fuel Fingerprint		GC/MS/8-20-92

By _____
Earl S. Moore
Organic Section Manager

By _____
Edward J. Brown
Director, Analytical Chemistry

Test Results:

Analyte	Detection Limit (mg/L)	3295-1 (MW-7) (mg/L)	3295-2 (MW-8) (mg/L)	3295-3 (MW-9) (mg/L)	3295-4 (MW-10) (mg/L)
Benzene	0.005	<0.005	<0.005	5.4	3.4
Toluene	0.005	<0.005	<0.005	2.5	0.78
Ethylbenzene	0.005	<0.005	<0.005	0.73	0.24
Total Xylenes	0.005	<0.005	<0.005	1.8	0.26
MTBE	0.005	<0.005	<0.005	<0.13*	<0.05*
TPH	1	<1	<1	12	4

* The practical quantitation limits were elevated due to dilution. MTBE was not detected via GC/MS confirmation analysis.

Fuel Fingerprint:

Sample Summary

Sample 3295-5 was an oil sample obtained from the Laredo Airport site and was specified to be representative of Jet-A Fuel (possible source suspect). The sample was analyzed via high resolution capillary GC/MS.

Results

The analysis data was used for comparison purposes. The oil from 3295-5 was compared to waterborne oil spill samples. See analysis report for Assignment No.: 3263. The oil exhibited the general characteristics of Jet A.

Test Results:

alyte	Detection Limit (mg/L)	3263-4 (MW-4) (mg/L)	3263-5 (MW-3) (mg/L)	3263-6 (MW-2) (mg/L)	3263-7 (MW-1) (mg/L)
Benzene	0.005	<0.005	0.38	0.33	12
Toluene	0.005	<0.005	0.31	0.26	1.5
Ethylbenzene	0.005	<0.005	0.20	0.16	0.38
Total Xylenes	0.005	<0.005	0.51	0.39	0.89
TPH	1	<1	6	53	44

Fuel Fingerprint Results:

ample Summary

Four samples were received from Laredo airport for fuel fingerprint analysis. Three of these samples were received on 8-12-92 and the other was received on 8-20-92. The fuel fingerprint samples received on 8-12-92 were assigned the following identification numbers 3263-1,2 and were specified to be representative of RW-6 (water) and RW-5 (water) respectively. Sample number 3263-3 was specified to be representative of oil from tank C-2 (aviation gas). The fuel fingerprint sample received on 8-20-92 was specified to be representative of Jet-A and was assigned the identification number 3295-5.

Summary of Methodology

The water samples 3263-1 (RW-6) and 3263-2 (RW-5) were transferred to separatory funnels. Sodium chloride was added to aid in the dissolution of petroleum hydrocarbons. Next, the samples were extracted via the organic solvent, methylene chloride. The solvent extracts were concentrated and subsequently analyzed via high resolution capillary GC/MS.

The oil samples 3263-3 (C-2; aviation gasoline) and 3295-5 (Jet-A) were diluted with methylene chloride and analyzed directly.

Interpretation of Results:

The resulting chromatograms were evaluated using the source/spill matching criteria specified in ASTM D-3328-78.

1) n-alkane profile
2) unresolved envelope
3) isoprenoid hydrocarbons

See attachment IV pages 1-6

Conclusions

The oil recovered from water samples RW-6 and RW-5 are related to the same type of fuel as the oil from tank C-2 (aviation gasoline).

The fuel fingerprint chromatograms for RW-6 and RW-5 when compared to each other show slight differences. The differences are based on concentration. More oil was recovered from RW-5 water sample. The fuel fingerprint data shows that the contamination in both RW-6 and RW-5 exhibits the characteristics of aviation gasoline (C-2). No similarities were noted when comparing RW-6 and RW-5 to Jet-A source suspect 3295-5.

Report of Analysis

Consulting Geotechnical, Materials and Environmental Engineers
Geologists, Scientists and Chemists

Raba-Kistner
Consultants, Inc.

P.O. Box 690287, San Antonio, TX 78269-0287
12821 W. Golden Lane, San Antonio, TX 78249
(512) 699-9090

To: Laredo Airport
c/o R-KCI

Attn: Eric Wolff

Project No.: ASB92-034-00
Task No.: 4000
Assignment No.: 3504
Contract/P.O. No.:
Date Received: 10-14-92
Page 1 of 2 Date: 10-21-92

Sample Type/Sample Loc: Water
Date Collected: 10-13-92
Date Completed: 10-21-92
Collected By: R-KCI

TEST METHODS:

TEST	PREPARATION/DATE	ANALYSIS/DATE
BTEX	5030/10-15,16-92	8020/10-15,16-92
TPH		418.1/10-14-92

By E S Moore
Earl S. Moore
Organic Section Manager

By Edward J. Brown
Edward J. Brown
Director, Analytical Chemistry

Test Results:

Analyte	Detection Limit (mg/L)	3504-1 (MW-4) (mg/L)	3504-2 (MW-9) (mg/L)	3504-3 (MW-3) (mg/L)
Benzene	0.005	0.006	4.8	0.085
Toluene	0.005	0.015	1.8	<0.005
Ethylbenzene	0.005	0.006	0.36	0.048
Total Xylenes	0.005	0.020	0.9	<0.005
TPH	1	<1	6	6

Analyte	Detection Limit (mg/L)	3504-4 (MW-1) (mg/L)	3504-5 (MW-10) (mg/L)	3504-6 (MW-7) (mg/L)
Benzene	0.005	11	6.2	0.12
Toluene	0.005	1.3	1.7	0.054
Ethylbenzene	0.005	<0.5*	0.31	0.011
Total Xylenes	0.005	<0.5*	0.98	0.036
TPH	1	6	14	<1

Analyte	Detection Limit (mg/L)	3504-7 (MW-8) (mg/L)
Benzene	0.005	<0.005
Toluene	0.005	<0.005
Ethylbenzene	0.005	<0.005
Total Xylenes	0.005	<0.005
TPH	1	<1

* The practical quantitation limit was elevated due to dilution/matrix interferences.

R-[illegible]-KISTNER CONSULTANTS, INC. - CHEMISTRY LAB

12821 W. Golden Lane • San Antonio, Texas 78249
Fax (210) 699-6426
Phone (210) 699-9090
Sample Custodian - Ext. 168 Report Results - Ext. 170

Chain of Custody Record and Analysis Request

NOTE: Project Approval and Project Setup must be complete prior to initation of analysis

3504

Company Name: LAREDO AIRPORT
Address:
ph #:
fax #:
Site Location: LAREDO AIRPORT
Project Number: A5692-034-10
Report Results to: #239 ECW
Date Sampled: 10-14-92
Date Rec'd: 10-14-92

ANALYSIS REQUESTED: BTEX; BTEX / MTBE; TPH / 418.1; TVH; TCLP 8 METALS; TCLP VOC; TCLP BNA

R-KCI #	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	AMOUNT SAMPLED	MATRIX: WATER	SOIL	AIR	SLUDGE	OTHER	SAMPLE LOC.	PRESERV. pH / TEMP: ACID	ICE	NONE	OTHER	BTEX	BTEX / MTBE	TPH / 418.1	TVH	TCLP 8 METALS	TCLP VOC	TCLP BNA
1	MW-11	10-13	AM	1-LITER 2-VOA	✓						✓	✓			✓		✓				
2	MW-9	"	AM	1-L 2-V	✓						✓	✓			✓		✓				
3	MW-3	"	PM	1-L 2-V	✓						✓	✓			✓		✓				
4	MW-1	"	PM	1-L 2-V	✓						✓	✓			✓		✓				
5	MW-10	"	PM	1-L 2-V	✓						✓	✓			✓		✓				
6	MW-7	"	PM	1-L 2-V	✓						✓	✓			✓		✓				
7	MW-8	"	PM	1-L 2-V	✓						✓	✓			✓		✓				

CUSTODY RECORD

Reinquished by:	Received by:	Reinquished by:	Received by:	Reinquished by:	Received by:
Time:	Time: 8:15AM	Time:	Time:	Time:	Time:
Date:	Date: 10-14-92	Date:	Date:	Date:	Date:

SPECIAL HANDLING
Emerg 24 hr
Emerg 72 hr
Rush 7 days
Normal 21 days ✓
OTHER (#) bus days
Fax
PDD
TASK # 11000

Specify
Special detection limits:
Special reporting requirements:

SAMPLE RECEIPT REPORT

Samples OK	(Y)	N
Temp 4 C Min	(Y)	N
Custody Seals, Intact	(Y)	N
Head Space in VOAs	Y	(N)
pH adjusted Describe	(Y)	N

COMMENTS:

4107

APPENDIX C

LAREDO AIRPORT DAILY MONITORING

LAREDO INTERNATIONAL AIRPORT

MONITOR WELL NO. 1

DATE	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) – (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
10-1-92	8:50	99	99	-0-		CHAVEZ & SANTOS
10-2-92	8:45	99	99	-0-		CHAVEZ & SANTOS
10-5-92	8:55	99	99	-0-		CHAVEZ & SANTOS
10-6-92	9:00	99	99	-0-		CHAVEZ & SANTOS
10-7-92	8:45	99	99	-0-		CHAVEZ & SANTOS
10-8-92	8:50	99	99	-0-		CHAVEZ & SANTOS
10-9-92	9:00	99	99	-0-		CHAVEZ & SANTOS
10-12-92	8:55	99	99	-0-		CHAVEZ & SANTOS
10-13-92	8:45	99	99	-0-		CHAVEZ & SANTOS
10-14-92	8:50	99	99	-0-		CHAVEZ & SANTOS
10-15-92	8:55	99	99	-0-		CHAVEZ & SANTOS
10-16-92	9:00	99	99	-0-		CHAVEZ & SANTOS
10-19-92	8:50	99	99	-0-		MANDO & SANTOS
10-20-92	8:45	99	99	-0-		CHAVEZ & SANTOS
10-21-92	8:55	99	99	-0-		CHAVEZ & SANTOS
10-22-92	8:50	99	99	-0-		CHAVEZ & SANTOS
10-23-92	9:00	99	99	-0-		CHAVEZ & SANTOS
10-26-92	8:45	99	99	-0-		CHAVEZ & SANTOS
10-27-92	8:50	99	99	-0-		CHAVEZ & SANTOS
10-28-92	9:00	99	99	-0-		CHAVEZ & MANDO
10-29-92	8:45	99	99	-0-		CHAVEZ & SANTOS
10-30-92	8:55	99	99	-0-		CHAVEZ & SANTOS

DAILY LOG
FUEL RECOVERY WELLS
LAREDO INTERNATIONAL AIRPORT

MONITOR WELL NO. 1

DATE	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
9-1-92	8:45	99	99	-0-		CHAVEZ T SANTOS
9-2-92	8:55	99	99	-0-		CHAVEZ T SANTOS
9-3-92	8:50	99	99	-0-		CHAVEZ T SANTOS
9-4-92	9:00	99	99	-0-		CHAVEZ T SANTOS
9-8-92	8:55	99	99	-0-		CHAVEZ T MANDO
9-9-92	8:45	99	99	-0-		CHAVEZ T SANTOS
9-10-92	9:00	99	99	-0-		CHAVEZ T SANTOS
9-11-92	8:50	99	99	-0-		CHAVEZ T SANTOS
9-14-92	8:55	99	99	-0-		CHAVEZ T SANTOS
9-15-92	8:45	99	99	-0-		CHAVEZ T SANTOS
9-16-92	9:00	99	99	-0-		CHAVEZ T SANTOS
9-17-92	8:50	99	99	-0-		CHAVEZ T SANTOS
9-18-92	8:45	99	99	-0-		CHAVEZ T SANTOS
9-21-92	8:50	99	99	-0-		TORRES T SANTOS
9-22-92	9:00	99	99	-0-		CHAVEZ T SANTOS
9-23-92	8:45	99	99	-0-		CHAVEZ T SANTOS
9-24-92	8:55	99	99	-0-		CHAVEZ T SANTOS
9-25-92	9:00	99	99	-0-		CHAVEZ T SANTOS
9-28-92	8:50	99	99	-0-		CHAVEZ T SANTOS
9-29-92	8:45	99	99	-0-		CHAVEZ T SANTOS
9-30-92	8:50	99	99	-0-		CHAVEZ T SANTOS

01020

FUEL RECOVERY WELLS
LAREDO INTERNATIONAL AIRPORT

MONITOR WELL NO. 2

DATE	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) – (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
10-1-92	8:40	114	114	-0-		CHAVEZ & SANTOS
10-2-92	8:35	114	114	-0-		CHAVEZ & SANTOS
10-5-92	8:45	114	114	-0-		CHAVEZ & SANTOS
10-6-92	8:50	114	114	-0-		CHAVEZ & SANTOS
10-7-92	8:35	114	114	-0-		CHAVEZ & SANTOS
10-8-92	8:40	114	114	-0-		CHAVEZ & SANTOS
10-9-92	8:50	114	114	-0-		CHAVEZ & SANTOS
10-12-92	8:45	114	114	-0-		CHAVEZ & SANTOS
10-13-92	8:35	114	114	-0-		CHAVEZ & SANTOS
10-14-92	8:40	114	114	-0-		CHAVEZ & SANTOS
10-15-92	8:45	114	114	-0-		CHAVEZ & SANTOS
10-16-92	8:50	114	114	-0-		CHAVEZ & SANTOS
10-19-92	8:40	114	114	-0-		MANDO & SANTOS
10-20-92	8:35	114	114	-0-		CHAVEZ & SANTOS
10-21-92	8:45	114	114	-0-		CHAVEZ & SANTOS
10-22-92	8:40	114	114	-0-		CHAVEZ & SANTOS
10-23-92	8:50	114	114	-0-		CHAVEZ & SANTOS
10-26-92	8:35	114	114	-0-		CHAVEZ & SANTOS
10-27-92	8:40	114	114	-0-		CHAVEZ & SANTOS
10-28-92	8:50	114	114	-0-		CHAVEZ & MANDO
10-29-92	8:35	114	114	-0-		CHAVEZ & SANTOS
10-30-92	8:45	114	114	-0-		CHAVEZ & SANTOS

01021

DAILY LOG
FUEL RECOVERY WELLS
LAREDO INTERNATIONAL AIRPORT

MONITOR WELL NO. 2

DATE	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
9-1-92	8:35	114	114	-0-		CHAVEZ SANTOS
9-2-92	8:45	114	114	-0-		CHAVEZ SANTOS
9-3-92	8:40	114	114	-0-		CHAVEZ & SANTOS
9-4-92	8:50	114	114	-0-		CHAVEZ SANTOS
9-8-92	8:45	114	114	-0-		CHAVEZ & MANDO
9-9-92	8:35	114	114	-0-		CHAVEZ SANTOS
9-10-92	8:50	114	114	-0-		CHAVEZ SANTOS
9-11-92	8:40	114	114	-0-		CHAVEZ SANTOS
9-14-92	8:45	114	114	-0-		CHAVEZ SANTOS
9-15-92	8:35	114	114	-0-		CHAVEZ SANTOS
9-16-92	8:50	114	114	-0-		CHAVEZ SANTOS
9-17-92	8:40	114	114	-0-		CHAVEZ SANTOS
9-18-92	8:35	114	114	-0-		CHAVEZ SANTOS
9-21-92	8:40	114	114	-0-		TORRES SANTOS
9-22-92	8:50	114	114	-0-		CHAVEZ SANTOS
9-23-92	8:35	114	114	-0-		CHAVEZ SANTOS
9-24-92	8:45	114	114	-0-		CHAVEZ SANTOS
9-25-92	8:50	114	114	-0-		CHAVEZ SANTOS
9-28-92	8:40	114	114	-0-		CHAVEZ SANTOS
9-29-92	8:35	114	114	-0-		CHAVEZ SANTOS
9-30-92	8:45	114	114	-0-		CHAVEZ SANTOS

01022

LAREDO INTERNATIONAL AIRPORT

MONITOR WELL NO-3

DATE	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) – (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
10-1-92	8:45	116	116	-0-		CHAVEZ & SANTOS
10-2-92	8:40	116	116	-0-		CHAVEZ & SANTOS
10-5-92	8:50	116	116	-0-		CHAVEZ & SANTOS
10-6-92	8:55	116	116	-0-		CHAVEZ & SANTOS
10-7-92	8:40	116	116	-0-		CHAVEZ & SANTOS
10-8-92	8:45	116	116	-0-		CHAVEZ & SANTOS
10-9-92	8:55	116	116	-0-		CHAVEZ & SANTOS
10-12-92	8:50	116	116	-0-		CHAVEZ & SANTOS
10-13-92	8:40	116	116	-0-		CHAVEZ & SANTOS
10-14-92	8:45	116	116	-0-		CHAVEZ & SANTOS
10-15-92	8:50	116	116	-0-		CHAVEZ & SANTOS
10-16-92	8:55	116	116	-0-		CHAVEZ & SANTOS
10-19-92	8:45	116	116	-0-		MANDO & SANTOS
10-20-92	8:40	116	116	-0-		CHAVEZ & SANTOS
10-21-92	8:50	116	116	-0-		CHAVEZ & SANTOS
10-22-92	8:45	116	116	-0-		CHAVEZ & SANTOS
10-23-92	8:55	116	116	-0-		CHAVEZ & SANTOS
10-26-92	8:40	116	116	-0-		CHAVEZ & SANTOS
10-27-92	8:45	116	116	-0-		CHAVEZ & SANTOS
10-28-92	8:55	116	116	-0-		CHAVEZ & MANDO
10-29-92	8:40	116	116	-0-		CHAVEZ & SANTOS
10-30-92	8:50	116	116	-0-		CHAVEZ & SANTOS

DAILY LOG
FUEL RECOVERY WELLS
LAREDO INTERNATIONAL AIRPORT

MONITOR WELL NO. 3

DATE	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
9-1-92	8:40	116	116	-0-		CHAVEZ + SANTOS
9-2-92	8:50	116	116	-0-		CHAVEZ + SANTOS
9-3-92	8:45	116	116	-0-		CHAVEZ + SANTOS
9-4-92	8:55	116	116	-0-		CHAVEZ + SANTOS
9-8-92	8:50	116	116	-0-		CHAVEZ + MANDA
9-9-92	8:40	116	116	-0-		CHAVEZ + SANTOS
9-10-92	8:55	116	116	-0-		CHAVEZ + SANTOS
9-11-92	8:45	116	116	-0-		CHAVEZ + SANTOS
9-14-92	8:50	116	116	-0-		CHAVEZ + SANTOS
9-15-92	8:40	116	116	-0-		CHAVEZ + SANTOS
9-16-92	8:55	116	116	-0-		CHAVEZ + SANTOS
9-17-92	8:45	116	116	-0-		CHAVEZ + SANTOS
9-18-92	8:40	116	116	-0-		CHAVEZ + SANTOS
9-21-92	8:45	116	116	-0-		TORRES + SANTOS
9-22-92	8:55	116	116	-0-		CHAVEZ + SANTOS
9-23-92	8:40	116	116	-0-		CHAVEZ + SANTOS
9-24-92	8:50	116	116	-0-		CHAVEZ + SANTOS
9-25-92	8:55	116	116	-0-		CHAVEZ + SANTOS
9-28-92	8:45	116	116	-0-		CHAVEZ + SANTOS
9-29-92	8:40	116	116	-0-		CHAVEZ + SANTOS
9-30-92	8:50	116	116	-0-		CHAVEZ + SANTOS

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DAILY LOG
FUEL RECOVERY WELLS
LAREDO INTERNATIONAL AIRPORT

RECOVERY WELL NO. 5

DATE	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) – (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
10-1-92	8:30	130.5	130.5	—0—		CHAVEZ & SANTOS
10-2-92	8:25	130.5	130.5	—0—		CHAVEZ & SANTOS
10-5-92	8:35	130.25	130.25	—0—		CHAVEZ & SANTOS
10-6-92	8:40	130.25	130.25	—0—		CHAVEZ & SANTOS
10-7-92	8:25	130.25	130.25	—0—		CHAVEZ & SANTOS
10-8-92	8:30	130.25	130.25	—0—		CHAVEZ & SANTOS
10-9-92	8:40	130.25	130.25	—0—		CHAVEZ & SANTOS
10-12-92	8:35	130	130	—0—		CHAVEZ & SANTOS
10-13-92	8:25	130	130	—0—		CHAVEZ & SANTOS
10-14-92	8:30	130	130	—0—		CHAVEZ & SANTOS
10-15-92	8:35	130	130	—0—		CHAVEZ & SANTOS
10-16-92	8:40	130	130	—0—		CHAVEZ & SANTOS
10-19-92	8:30	129.5	129.5	—0—		MANDO & SANTOS
10-20-92	8:25	129.5	129.5	—0—		CHAVEZ & SANTOS
10-21-92	8:35	129.5	129.5	—0—		CHAVEZ & SANTOS
10-22-92	8:30	129.5	129.5	—0—		CHAVEZ & SANTOS
10-23-92	8:40	129.5	129.5	—0—		CHAVEZ & SANTOS
10-26-92	8:25	129.5	129.5	—0—		CHAVEZ & SANTOS
10-27-92	8:30	129.5	129.5	—0—		CHAVEZ & SANTOS
10-28-92	8:40	129.5	129.5	—0—		CHAVEZ & MANDO
10-29-92	8:25	129.5	129.5	—0—		CHAVEZ & SANTOS
10-30-92	8:35	129.5	129.5	—0—		CHAVEZ & SANTOS

DAILY LOG
FUEL RECOVERY WELLS
LAREDO INTERNATIONAL AIRPORT

RECOVERY WELL NO. 5

DATE	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
9-1-92	8:25	127	127	-0-		CHAVEZ & SANTOS
9-2-92	8:35	127	127	-0-		CHAVEZ & SANTOS
9-3-92	8:30	127	127	-0-		CHAVEZ & SANTOS
9-4-92	8:40	127	127	-0-		CHAVEZ & SANTOS
9-8-92	8:35	127.25	128	.75		CHAVEZ & MANDO
9-9-92	8:25	127	127	-0-		CHAVEZ & SANTOS
9-10-92	8:40	127	127	-0-		CHAVEZ & SANTOS
9-11-92	8:30	127	127	-0-		CHAVEZ & SANTOS
9-14-92	8:35	127	127	-0-		CHAVEZ & SANTOS
9-15-92	8:25	127	127	-0-		CHAVEZ & SANTOS
9-16-92	8:40	127	127	-0-		CHAVEZ & SANTOS
9-17-92	8:30	127	127	-0-		CHAVEZ & SANTOS
9-18-92	8:25	127	127	-0-		CHAVEZ & SANTOS
9-21-92	8:30	127	127	-0-		TORRES & SANTOS
9-22-92	8:40	127	127	-0-		CHAVEZ & SANTOS
9-23-92	8:25	127	127	-0-		CHAVEZ & SANTOS
9-24-92	8:35	127	127	-0-		CHAVEZ & SANTOS
9-25-92	8:40	127	127	-0-		CHAVEZ & SANTOS
9-28-92	8:30	130.5	130.5	-0-		CHAVEZ & SANTOS
9-29-92	8:25	130.5	130.5	-0-		CHAVEZ & SANTOS
9-30-92	8:35	130.5	130.5	-0-		CHAVEZ & SANTOS

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DAILY LOG
FUEL RECOVERY WELLS
LAREDO INTERNATIONAL AIRPORT

RECOVERY WELL NO. 6

DATE	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) – (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
10-1-92	8:20	108	108	-0-		CHAVEZ & SANTOS
10-2-92	8:15	108	108	-0-		CHAVEZ & SANTOS
10-5-92	8:25	111	111	-0-		CHAVEZ & SANTOS
10-6-92	8:30	111	111	-0-		CHAVEZ & SANTOS
10-7-92	8:15	111	111	-0-		CHAVEZ & SANTOS
10-8-92	8:20	111	111	-0-		CHAVEZ & SANTOS
10-9-92	8:30	111	111	-0-		CHAVEZ & SANTOS
10-12-92	8:25	113	113	-0-		CHAVEZ & SANTOS
10-13-92	8:15	113	113	-0-		CHAVEZ & SANTOS
10-14-92	8:20	113	113	-0-		CHAVEZ & SANTOS
10-15-92	8:25	113	113	-0-		CHAVEZ & SANTOS
10-16-92	8:30	113	113	-0-		CHAVEZ & SANTOS
10-19-92	8:20	115	115	-0-		MANDO & SANTOS
10-20-92	8:15	115	115	-0-		CHAVEZ & SANTOS
10-21-92	8:25	115	115	-0-		CHAVEZ & SANTOS
10-22-92	8:20	115	115	-0-		CHAVEZ & SANTOS
10-23-92	8:30	115	115	-0-		CHAVEZ & SANTOS
10-26-92	8:15	115	115	-0-		CHAVEZ & SANTOS
10-27-92	8:20	115	115	-0-		CHAVEZ & SANTOS
10-28-92	8:30	115	115	-0-		CHAVEZ & MANDO
10-29-92	8:15	115	115	-0-		CHAVEZ & SANTOS
10-30-92	8:25	115	115	-0-		CHAVEZ & SANTOS

01027

DAILY LOG
FUEL RECOVERY WELLS
LAREDO INTERNATIONAL AIRPORT

RECOVERY WELL NO. 6

DATE	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) – (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
9-1-92	8:15	106.5	106.5	-0-		CHAVEZ + SANTOS
9-2-92	8:25	106.5	106.5	-0-		CHAVEZ + SANTOS
9-3-92	8:20	106.5	106.5	-0-		CHAVEZ + SANTOS
9-4-92	8:30	106.5	106.5	-0-		CHAVEZ + SANTOS
9-8-92	8:25	107.5	108	.50		CHAVEZ + MANDO
9-9-92	8:15	107.5	108	.50		CHAVEZ + SANTOS
9-10-92	8:30	107.5	108	.50		CHAVEZ + SANTOS
9-11-92	8:20	107.5	108	.50		CHAVEZ + SANTOS
9-14-92	8:25	106	106	-0-		CHAVEZ + SANTOS
9-15-92	8:15	106	106	-0-		CHAVEZ + SANTOS
9-16-92	8:30	106	106	-0-		CHAVEZ + SANTOS
9-17-92	8:20	106	106	-0-		CHAVEZ + SANTOS
9-18-92	8:15	106	106	-0-		CHAVEZ + SANTOS
9-21-92	8:20	106	106	-0-		TORRES + SANTOS
9-22-92	8:30	106	106	-0-		CHAVEZ + SANTOS
9-23-92	8:15	106	106	-0-		CHAVEZ + SANTOS
9-24-92	8:25	106	106	-0-		CHAVEZ + SANTOS
9-25-92	8:30	106	106	-0-		CHAVEZ + SANTOS
[illegible]	8:20	108	[illegible]	-0-		CHAVEZ + SANTOS
9-28-92	8:15	108	108	-0-		CHAVEZ + SANTOS
9-29-92	8:25	108	108	-0-		CHAVEZ + SANTOS