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AUG 16 90

LAREDO INTERNATIONAL AIRPORT

FUEL FARM SITE ASSESSMENT

LUST ID No. 95021

AUG 16 90

ENVIRONMENTAL ASSOCIATES, INC.
EAI LTC
LEAK-TEC CORPORATION

Post Office Box 1780
Hurst, Texas 76053
(817) 572-0347
FAX (817) 478-9871

August 6, 1990

CITY OF LAREDO, TEXAS
Mr. Amador Escudero, P.E.,
City Engineer
4001 North Bartlett Avenue
Laredo, Texas 78041

Re: Site Assessment in connection with Subsurface Release of Jet A and/or Aviation Gasoline at the Laredo International Airport Active Fuel Farm located as indicated on site drawing. (LUST ID No. 95021)

Dear Mr. Escudero:

We have completed our Site Assessment to the point of making recommendations in this report for immediate remedial activity for "free product" removal and additional recommendations to address ongoing groundwater treatment.

In this report, we address each item covered in the letter from Texas Water Commission, Mr. Dan Airey, dated April 18, 1990.

1. Investigation at this site was actually begun with the installation of vapor monitoring points in the pattern of installation as shown on the site map, Attachment #1. A local map is also included in Attachment #1. Upon completion of the installation of the monitoring points, readings were obtained. These vapor readings revealed >1000 ppm of petroleum vapors in all points installed in the tank cavity. The points installed along the product lines did not reveal remarkable readings. Copies of the reports of monitoring are enclosed as Attachment #2.

   We reported our findings to Mr. Jose Flores, Airport Director and recommended that we make an inspection of the site with him and the Fixed Base Operators using the fuel farm.

   We met for inspection of the site on March 9, 1990 and our comments and recommendations at that time are included in Attachment #3.

In our efforts to fully abate the overall problem, we have recommended that "recovery wells" be installed in either end of the cavity for recovery of free product. The wells were installed on April 10, 1990 and developed to show free product on the groundwater. Mr. Jose Flores, Airport Manager has caused product from these wells to be recovered daily. During this activity we have recognized that a more vigorous recovery program should be started at the earliest possible moment. This should be considered separate from the treatment of groundwater, in the event there is time needed to set water treatment in motion.

Since that time the City of Laredo has reported the problem to the Texas Water Commission.

The city has also had the tanks tightness tested and the verbal report confirms the tanks tight. A tightness test is being scheduled for the product lines. When written reports are made available from these two tests we will hopefully have a better understanding of the nature of the release.

At this point we believe a combination of factors contributed to the release. We will not be able to give absolute answers to the cause of the release but we know some part of the system has released product and this product is currently impacting the groundwater at this site.

During the installation of monitoring wells on July 22, 1990, we discussed the loading and unloading site and the containment of spill/release possibilities. The loading site is curbed to prevent spill/release from running off the surrounding surface.

There is a run off line from the loading site to the secondary containment (intercepter) to the west of the pumping facility. This sump also has a gathering line to the pumping facility. The amount of product recovered from this secondary containment would strongly suggest two possibilities: 1. A large amount of fuel is being spilled/leaked/released at the loading facility. 2. The pumping facility has leaked large amounts of fuel from valves and/or subsurface lines leading to and from the pumping facility.

2. In an effort to determine the vertical and horizontal extent of the contamination we have set four (4) monitoring wells, see Attachment #4 for Well Logs. The wells are positioned as shown on Attachment #1.

   We have tried to position the wells on a radius to properly develop the groundwater gradient, see Attachment #5 for groundwater gradient. These wells were also positioned so that we could get an indication of horizontal migration of the contamination.

   Upon development of the wells we found all wells down gradient are highly contaminated. Only one of the wells, however, developed free product. We are quite pleased with the positioning of the wells. We believe we can show strong evidence to support our immediate and long term recommendations for Part I-IV for remedial action.

   We need to install at least one down gradient nonimpacted well and this may require more than one well. We believe most important at this time is remediation and can install the down gradient well(s) concurrent with this activity.

   We have identified Parts I-IV as independent actions because we believe all options must remain open to change the direction of the remedial action plan. The monitoring protocol during recovery of free product and groundwater treatment will develop ongoing data for continuing evaluation of effectiveness of the activity.

3. Included with this report is a full evaluation of the geology, soils and groundwater conditions, see Attachment #6. Also included in this section of the report are well logs for the monitoring wells installed on July 21, 1990 and well logs for the recovery wells installed April 10, 1990.

   There are no water wells in this area. Drinking water is drawn from the Rio Grande and treated at the city water works built at the river.

4. A copy of the site map is included as Attachment #1 with all pertinent facilities and investigation points identified.

5. All reports of sample analyses are included and identified in Attachment #7.

NOTE: Special attention is directed to Sample #583-01. This was a sample taken from the well identified as RW6 at the north side of the tank cavity. As you can see this proved to be Jet Fuel.

Next, pay special attention to Samples #599-15 and #599-16. These samples were taken from the developed wells identified as MW #1 and MW #3. As you can see these samples are highly contaminated with gasoline constituents, Benzene, Toluene, Xylene and Ethyl Benzene. As you will note MW #1 is the worst of the lot. To me this indicates that a good portion of the contamination is Aviation Fuel rather than Jet Fuel.

6. The only wastes to be addressed at this time are contaminated cuttings from drilling the wells, contaminated water from the development of the wells and free product recovered since April 10, 1990. All wastes are properly contained on site until appropriate disposal is arranged.

7. A local map is included with the site identified, see Attachment #1. Color photos of the site and all facilities are included as Attachment #8.

8. We will make our recommendations in 4 parts. They are included in the following two pages of this correspondence, labeled "RECOMMENDATIONS".

Sincerely,

Thomas W. Taylor, CHMM
CHCM, CSE, CSM

CERTIFIED HAZARDOUS CONTROL MANAGER
THOMAS W. TAYLOR
2136
CHCM

Encl: Report and Recommendations

CC: Ms Anne Miller, Responsible party
Remediation Section, PST Division
Texas Water Commission

Mr. Jeff Lewellin, District #11,
Texas Water Commission

RECOMMENDATIONS

As mentioned earlier in this report, the recommendations are in 4 parts. In part #1, we will discuss abatement in the form of removing the secondary containment to the west of the pumping facility. In part #2, we will address the recovery of free product on the groundwater. In part #3, we will address the recovery, treatment and disposition of affected groundwater. In part #4 we will discuss monitoring and reporting.

We would emphasize the need to start a vigorous recovery of free product immediately with the groundwater treatment to begin as soon as possible.

PART #I
CURRENT SECONDARY CONTAINMENT REMOVAL

Of great importance at this point is the removal of the secondary containment being used at this time. First, it does not properly address "secondary containment" as defined in 40 CFR 112 and second, the gathering lines could release/leak an enormous amount of fuel to the groundwater and subsurface soil.

When this containment is removed it will be necessary to construct proper secondary containment for the loading facility and pumping facility. The lack of secondary containment at these two facilities could very well be the major cause of the problem now affecting this site. With the knowledge that the tanks at this facility have tested tight, we are caused to look at the spill and containment pump must be considered a part of the abatement of the problem at this site. As such, it is one of the first items to be addressed, as pointed out in item #1 of the letter from Mr. Dan Airey, dated April 18, 1990.

PART #II
FREE PRODUCT RECOVERY

In this most urgent phase of remediation we recommend that a continuous pneumatic pump system be installed in a "trench" excavated to a level at least 5' below static water level. The trench should be placed in approximately the same area as the recovery well at the south end of tank cavity. The trench should be backfilled with the most permeable material available so that rapid recharge is created in the "trench".

In the trench we would set two (2) six inch wells, screened to a point approximately 1' above the static water level.

These wells will serve as installation points for two pneumatic pumps. One pump will be dedicated to development of a "cone of depression" the other pump will recover free product.

Pumping frequency by timer and floating actuater will be developed for the system over a period of approximately 72 hours of charting recharge rates. This will allow for the pumping frequency to take advantage of recharge of "free product".

PART III
GROUNDWATER TREATMENT

The treatment system which we recommend is being used successfully at the present time at a similar site and actually enhances the free product recovery. The two parts, product recovery and water treatment, become a synergistic system.

Each system must be altered to a site specific protocol. After set-up the system may perform in several parameters automatically. The time required to set up the system and set the parameters is approximately 72 hours. During these 72 hours each parameter will be checked and adjusted at approximately 4 hour intervals. For the next 30 days operation, a technician will inspect the system and make any corrections required on a weekly basis. From that point system will be inspected monthly.

PART IV
MONITORING AND REPORTING

The Texas Water Commission will set parameters for monitoring and reporting. This will be accomplished by our inspection people and you will receive reports at the intervals established.

In our opinion, Parts I & II need to be accomplished, as "emergency measures", immediately. Parts III & IV should be addressed at the same time to take advantage of reduced cost by installing the entire system at the same time.

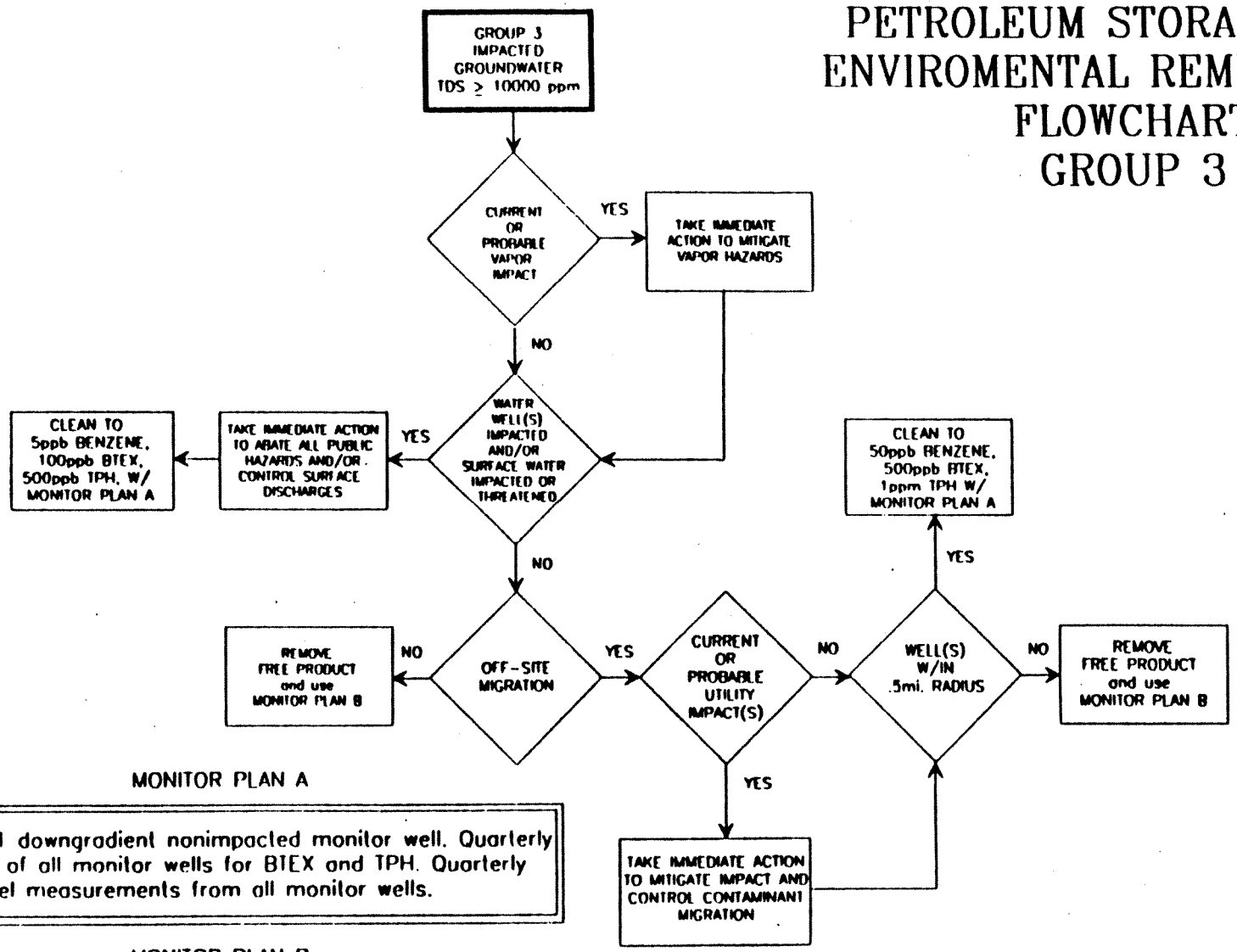
We thank you for the privilege of working for you and look forward to working with you in the future, as the needs of the city dictate.

twt/sp

Sincerely,

Thomas W. Taylor, Sr.
CHCM,CSE,CSM

PETROLEUM STORAGE TANK ENVIROMENTAL REMEDIATION FLOWCHART GROUP 3



MONITOR PLAN A

At least 1 downgradient nonimpacted monitor well. Quarterly sampling of all monitor wells for BTEX and TPH. Quarterly water level measurements from all monitor wells.

MONITOR PLAN B

At least 1 downgradient nonimpacted monitor well. Monthly monitor well observation for free product. Remove any observed free product.

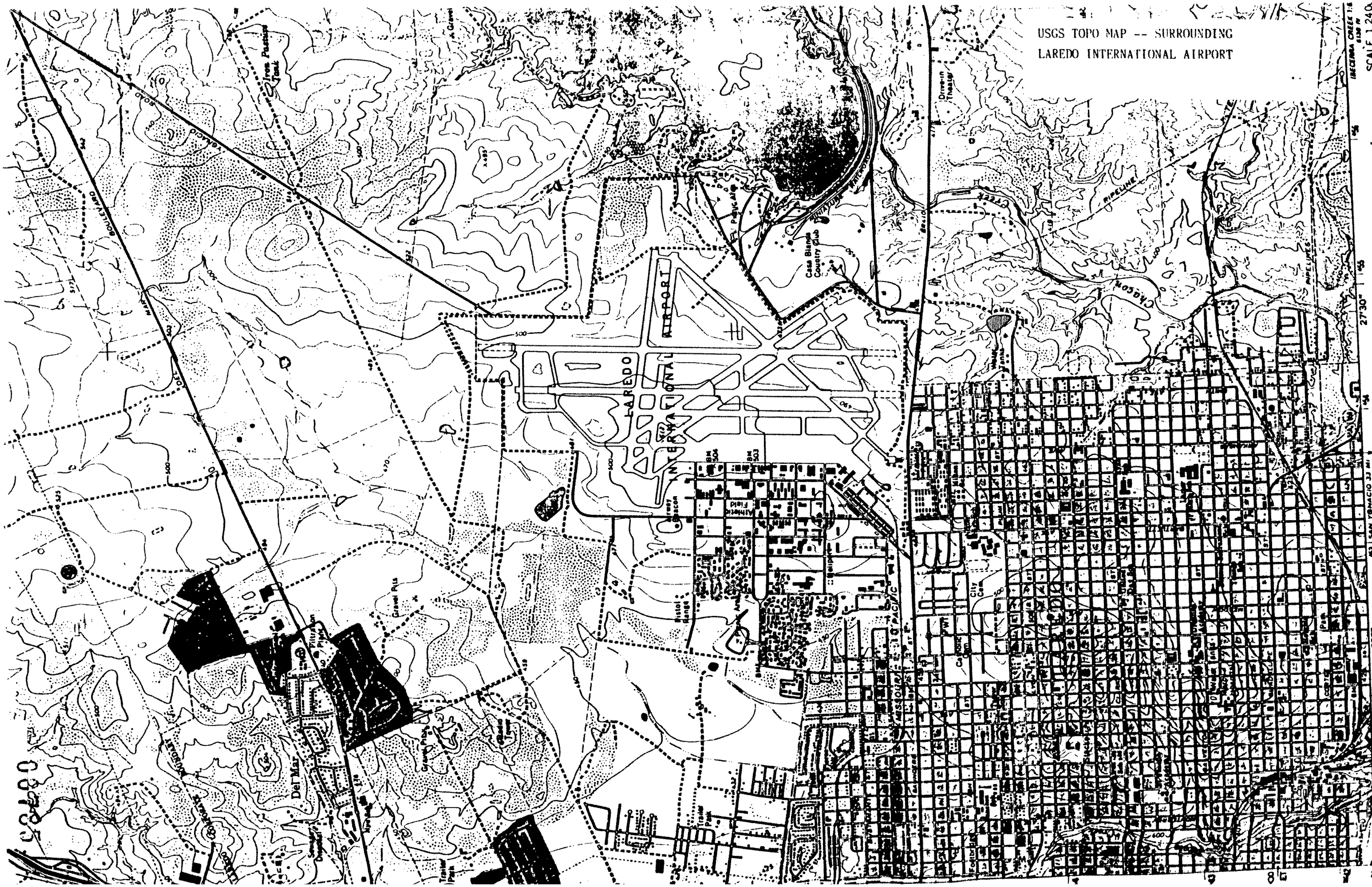
LAREDO
INTERNATIONAL AIRPORT
LAREDO
SAUNDERS ST
MEXICO
RIO GRANDE
FORT MCINTOSH

00783

REPORT INDEX
LAREDO INTERNATIONAL AIRPORT

ATTACHMENT #1	SITE MAP CITY MAP TOPO MAP
ATTACHMENT #2	MONTHLY MONITORING INSTALLATION MONTHLY MONITORING REPORT
ATTACHMENT #3	INSPECTION RECOMMENDATIONS FREE PRODUCT RECOVERY RECORD
ATTACHMENT #4	RECOVERY WELL LOGS MONITORING WELL LOGS
ATTACHMENT #5	GROUNDWATER GRADIENT, NARRATIVE AND DRAWINGS
ATTACHMENT #6	GEOLOGY REPORT
ATTACHMENT #7	CHAIN OF CUSTODY AND ANALYSIS REPORTS
ATTACHMENT #8	COLOR PHOTOS OF SITE

USGS TOPO MAP -- SURROUNDING
LAREDO INTERNATIONAL AIRPORT



Client Main Information Sheet

ac ount number:
ccount type: MOST
B: ng code: 150

UST owner ID number: 3606
Facility ID number: 9940

'e or: LAREDO INTERNATONAL AIRPORT
518 FLIGHTLINE
518 FLIGHTLINE
LAREDO TX 78041 (512) 722-9826
JOE FLORES (AIRPORT DIRECTOR)

si e: LAREDO INTERNATIONAL AIRPORT
518 FLIGHTLINE
LAREDO TX 78041 (512) 722-9826
JOE FLORES (AIRPORT DIERECTOR)

Route number:
Brand: NONE
Open: 08:00:00
Close: 05:00:00

obber:
Special billing information: SEND BILLS TO MR. FLORES AND HE WILL FOREWARD THEM TO THE CITY OF LAREDO FOR PAYMENT. P.O. # B52-863

Number of tanks: 6
Cavities: 1
Lines tested:00/00/00
Tanks tested:00/00/00
Number of lines:
Type lines: Steel

Backfill:

Tank no.	Cavity no.	Capacity	Content	Diameter	Date Installed	Const.
	1	25000	JET	126	00/00/00	Steel
	1	25000	AVG	126	00/00/00	Steel
3	1	25000	JET	126	00/00/00	Steel
4	1	25000	AVG	126	00/00/00	Steel
5	1	25000	JET	126	00/00/00	Steel
6	1	25000	AVG	126	00/00/00	Steel
7					00/00/00	
8					00/00/00	

Type of inventory system used at station:
Type of pumps: Pressure
Brand of pumps:

Number of monitoring points installed: 11
Date points installed: 03/06/90
Installed by: R. Graden

Number of monitoring wells installed:
Date wells installed: 00/00/00
Installed by:

Water table level:

Points remarks:

Depth of monitoring points/wells:

MP1	157	MP7	151
MP2	160	MP8	148
MP3	158	MP9	34
MP4	160	MP10	33
MP5	159	MP11	44
MP6	153	MP12	

00789

LEAK-TEC CORP.

"MOST" MONTHLY MONITORING REPORT for UNDERGROUND STORAGE TANK SYSTEMS

US acility ID #: 9940
.EDO INTERNATIONAL AIRPORT
518 FLIGHTLINE
LAREDO TX 78041

Date inspected: 03/06/90
Time: 04:30:00
Inspected by: R. GRADEN

Route number:

.eport to:
LAREDO INTERNATONAL AIRPORT
518 FLIGHTLINE
518 FLIGHTLINE
LAREDO TX 78041
(512) 722-9826
JOE FLORES (AIRPORT DIRECTOR)

Number of points: 11
Wells:

P#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1			>1000									
2			>1000									
3			>1000									
4			>1000									
5			>1000									
6			>1000									
7			>1000									
8			>1000									
9			clean									
10			75									
11			75									
12												

he readings above are explained as follows:
. Refer to the month column that corresponds to the monitoring date
on the top of this form.
2 Read down this column for the latest readings on the monitoring points.
A lower number represents a lower level of soil contamination.
3 Refer to the facility map for positioning of monitoring points.

Total Petroleum Hydrocarbons reported in parts per million.

M ST remarks:
A_l initial indications are that there is a serious problem at this facility.
The high readings observed at all Vapor Monitoring Points indicate a leak
f om at least one of the tanks.

00787

ENVIRONMENTAL ASSOCIATES, INC.
EAI LTC
LEAK-TEC CORPORATION

Post Office Box 1780
Hurst Texas 76053
(817) 572-0347
FAX (817) 478-9871

March 12, 1990

Mr. Jose L. Flores
Airport Director
Laredo International Airport
Foreign Trade Zone Number 94
518 Flightline/Building #132
Laredo, Texas 78041

Re: Site Inspection of active Fuel Farm
(This site contains six (6) 25,000 gallon fuel tanks, four (4) contain Jet A and two (2) contain Avgas)

Dear Mr. Flores:

On Friday, March 9, 1990 we met with you to inspect the Fuel Farm at which we installed Vapor Monitoring Points. The purpose of this inspection was to determine whether we have a serious problem of contamination or merely high background contamination. We viewed and discussed the possibilities, item by item, as follows:

A. The reason we felt a need to inspect the fuel farm is that when we installed the Vapor Monitoring Points we took vapor samples and each of the samples around the tanks gave readings of >1,000 ppm.

No liquid was encountered when the vapor points were installed. Had there been liquid in the points we would have required monitoring wells to be installed.

The initial high readings obtained at installation caused us to believe an inspection was in order. This is the reason for the trip to Laredo on Friday, March 9, 1990.

1. You brought up the possibility of overfill as the basic problem.

   We do not believe this could be the problem. The reason is that the tanks are filled from a remote system. There is no time when a tanker is in position to spill fuel in the close vicinity of the tanks.

2. We paid close attention the area around the drums used to contain Jet A after sampling.

   This was quickly rulled out since this is not in the area of the highest vapor readings.

3. We then inspected the secondary containment for the site.

   As you pointed out, the containment had not been installed in a way to completely contain any spill in the area as required by 40 CFR 112, (SPCC Plans). You made the point that the elevated readings could have been caused by this situation. Along with this we noted that there were several leaks in the fittings of the piping associated with the pumps.

B. At this point we took readings from the vapor points and found readings of >2,000ppm.

   When we took readings on the North side of the pump emplacement, we found that liquid had come to the vapor points since the installation. The vapor points are not designed to take water samples, however we do know that product is currently sitting on the water in this area.

   1. We discussed the alternatives available to you at this point, as follows:

      (a) The first thing that must be done is report the discovery of free product at this point.

      (b) The second item is to set recovery wells at strategic points in this fuel farm and start to recover the free product.

      (c) We will be available to counsel with you as you work toward a solution to remove the product from the water table.

   2. We fully understand the extenuating circumstances surrounding your facility. You actively re-fuel aircraft for the Department of Defense and must maintain your fueling system in an active mode. We believe the Texas Water Commission will also understand this and will work with you in any way possible. We have always found TWC to be easy to work with so long as they know we are right up front with them.

      We understand that your long range goal is to completely remove this system. In order for you to do this the Fixed Base Operators must install their own fuel farms or you must install an above ground system and lease it to them.

3. We discussed the different methods for maintaining the active fueling mode for the Fixed Base Operators and refueling for the Defense Department as follows:

   (a) One method would be to set a temporary above ground system and take the current system out of service while a Precision Tank Test is performed.

   (b) Build a permanent above ground system and remove the current system without testing for leaks.

   (c) Advise the Fixed Base Operators that you are dealing with a system which must be taken out of service.

      1. The reason the system must be removed from service is for testing.

      2. After the testing you may be required to remove the system completely to perform remedial action due to contamination caused by one or more leaking tanks.

After looking at the condition of the soil and ground water and all the possible solutions, we believe that we should make the following recommendations:

1. We recommend that you notify TWC immediately of the findings at this site.

2. Arrange to set at least two (2) recovery wells in the cavities on either side of the pump facility.

3. Start to recover the fuel from the water table.

4. Make a decision to do one of the following:

   a. Make arrangements for Precision Testing of the facility.

   OR

   b. Bypass the testing, arrange for an alternative system and remove the current system completely and remediate the contamination problem.

Please understand that we will work with you for a solution and will be happy to meet with the City and Fixed Base Operators to help solve the problem.

We are at your service.

twt/sp

Sincerely,

Thomas W. Taylor, Sr.
CHCM,CSE,CSM

NOTE: We are in the process of having the sample analyzed for Hydrocarbon characterization. This will differentiate between Avgas and Jet A. We will then have a little more information for hazard class. This information will be useful as we make recommendations for remediation and/or closure of the site.

LAREDO INTERNATIONAL AIRPORT
DAILY LOG
FUEL RECOVERY WELLS

RECOVERY WELL NO. 1 (NORTH) (RW#6)

APRIL 1990

DATE 1990	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
4/18	11:00A	102.50	113.50	11.00	1.00	GUTIERREZ
4/19	1:40P	104.00	108.00	4.00	1/2	SANTOS/SANCHEZ
4/20	2:45P	105.50	106.50	1.00	1/4	SANTOS/CHAVEZ
4/23	3:42P	102.00	106.00	4.00	1/4	GTZ/CHAVEZ/GARZA
4/24	10:10A	103.50	106.00	2.50	1/4	GTZ/GARZA/SANCHEZ
4/25	11:00A	102.00	107.50	5.50	1/4	SANTOS/CHAVEZ
4/26	10:15A	108.50	110.50	8.00	3/4	SANTOS/CHAVEZ
4/27	9:15A	101.50	110.00	8.50	5/8	SANTOS/CHAVEZ
4/30	3:00P	97.50	119.50	22.00	2.25	SANTOS/CHAVEZ

00792

LAREDO INTERNATIONAL AIRPORT
DAILY LOG
FUEL RECOVERY WELLS

RECOVERY WELL NO. 1 (NORTH)

MAY 1990

DATE 1990	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
5/01	1:30P	102.00	111.00	9.00	7/8	SANTOS/CHAVEZ
5/02	3:45P	101.50	108.75	7.25	1/2	SANTOS/CHAVEZ
5/04	9:25A	106.00	115.00	9.00	5/8	SANTOS/CHAVEZ
5/07	9:25A	106.00	116.50	10.50	1.00	SANTOS/CHAVEZ
5/08	9:25A	106.00	109.50	3.50	1/4	SANTOS/CHAVEZ
5/09	10:50A	105.50	109.50	4.00	1/4	SANTOS/CHAVEZ
5/10	11:10A	106.50	111.00	4.50	1/4	SANTOS/CHAVEZ
5/11	11:25A	105.00	110.25	5.25	1/4	SANTOS/CHAVEZ
5/14	1:30P	106.00	112.50	6.50	1/4	SANTOS
5/15	9:00A	106.50	110.00	3.50	1/8	SANTOS
5/16	9:20A	106.25	110.00	3.75	1/8	SANTOS
5/17	1:20P	108.00	111.75	3.75	1/8	SANTOS
5/18	8:30A	108.50	111.50	3.00	1/8	SANTOS
5/21	8:50A	106.00	109.00	3.00	1/8	SANTOS
5/22	9:10A	107.50	110.00	2.50	1/8	SANTOS
5/23	4:25P	107.50	111.50	3.50	1/8	SANTOS
5/24	8:45A	108.00	110.50	2.50	1/8	SANTOS/CHAVEZ
5/25	8:25A	107.00	110.00	3.00	1/8	SANTOS/CHAVEZ
5/29	8:50A	107.50	110.00	2.50	1/8	SANTOS/CHAVEZ

LAREDO INTERNATIONAL AIRPORT
DAILY LOG
FUEL RECOVERY WELLS

RECOVERY WELL NO. 1 (NORTH)

MAY 1990

DATE 1990	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
5/30	8:55A	107.50	110.00	2.50	1/8	SANTOS/CHAVEZ
5/31	8:45A	108.50	110.50	2.00	1/8	SANTOS/CHAVEZ

LAREDO INTERNATIONAL AIRPORT
DAILY LOG
FUEL RECOVERY WELLS

RECOVERY WELL NO. 1 (NORTH)

JUNE 1990

DATE 1990	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
6-01	8:55A	109.00	110.75	1.75	1/16	SANTOS & CHAVEZ
6-04	9:10A	111.00	113.25	2.25	1/8	SANTOS & CHAVEZ
6-05	8:05A	110.50	112.00	1.50	1/8	SANTOS & CHAVEZ
6-06	8:00A	110.00	111.50	1.50	1/8	SANTOS & CHAVEZ
6-07	7:55A	110.50	111.50	1.00	1/8	SANTOS & CHAVEZ
6-08	7:30A	110.50	111.50	1.00	1/8	RAMOS & CHAVEZ
6-11	7:25A	112.00	113.00	1.00	1/8	RAMOS & CHAVEZ
6-12	7:40A	112.00	113.00	1.00	1/8	RAMOS & CHAVEZ
6-13	7:30A	110.75	111.00	0.25	1/16	RAMOS & CHAVEZ
6-14	7:25A	111.50	111.50	0.00	1/32	RAMOS & CHAVEZ
6-15	8:10A	111.25	111.50	0.25	1/32	SANTOS & CHAVEZ
6-18	7:45A	112.00	113.00	1.00	1/8	RAMOS & CHAVEZ
6-19	7:30A	112.00	112.25	0.25	1/16	RAMOS & CHAVEZ
6-20	8:00A	111.00	111.25	0.25	1/16	SATNOS & CHAVEZ
6-21	9:15A	111.50	111.50	0.50	1/8	SANTOS & CHAVEZ
6-22	8:45A	112.00	112.00	0.50	1/8	SANTOS & CHAVEZ
6-25	7:30A	111.75	111.75	0.75	1/8	RAMOS & CHAVEZ
6-26	8:45A	112.50	113.00	0.50	1/8	CHAVEZ & SANTOS
6-27	7:40A	112.50	112.75	0.25	1/16	SANCHEZ & CHAVEZ

00795

LAREDO INTERNATIONAL AIRPORT
DAILY LOG
FUEL RECOVERY WELLS

RECOVERY WELL NO. 1 (NORTH)

JULY 1990

DATE 1990	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
7-2	8:50A	113.25	113.50	0.25	1/32	SANTOS & CHAVEZ
7-3	8:05A	112.50	113.00	0.50	1/16	SANTOS & CHAVEZ
7-5	7:50A	113.00	113.25	0.25	1/16	SANTOS & CHAVEZ
7-6	9:05A	113.50	114.25	0.75	1/8	SANTOS & CHAVEZ
7-9	7:30A	114.50	116.00	1.50	1/8	CHAVEZ & RAMOS
7-10	7:10A	114.00	115.50	1.50	1/8	CHAVEZ & RAMOS
7-11	7:15A	114.50	115.50	1.00	1/8	CHAVEZ & RAMOS
7-12	7:35A	114.50	115.00	0.50	1/16	CHAVEZ & GUTIERREZ
7-13	8:10A	115.00	116.50	1.50	1/2	SANTOS & CHAVEZ
7-16	7:45A	110.50	112.00	1.50	1/8	SANTOS & CHAVEZ
7-17	7:30A	112.50	113.50	1.00	1/8	SANTOS & CHAVEZ
7-18	7:25A	113.50	114.50	1.00	1/8	SANTOS & CHAVEZ
7-18	10:55A	116.25	117.50	1.25	1/8	SANTOS & CHAVEZ
7-19	7:30A	113.75	114.50	0.75	1/16	SANTOS & CHAVEZ

LAREDO INTERNATIONAL AIRPORT
DAILY LOG
FUEL RECOVERY WELLS

RECOVERY WELL NO. 1 (NORTH)

JUNE 1990

DATE 1990	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
6-28	8:30A	112.25	112.50	0.25	1/16	SANCHEZ & CHAVEZ
6-29	7:40A	113.00	113.25	0.25	1/16	SANCHEZ & CHAVEZ

00797

LAREDO INTERNATIONAL AIRPORT
DAILY LOG
FUEL RECOVERY WELLS

RECOVERY WELL NO. 2 (SOUTH)

APRIL 1990

DATE 1990	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
4/18	11:15A	138.00	165.00	27.00	4.00	GUTIERREZ
4/19	2:00P	141.50	153.00	11.50	2.00	SANTOS/SANCHEZ
4/20	3:00P	141.00	148.50	7.50	2.00	SANTOS/CHAVEZ
4/23	3:50P	139.00	146.00	7.00	3/4	GTZ/CHAVEZ/GARZA
4/24	10:10A	140.00	143.50	3.50	1/4	GTZ/GARZA/SANCHEZ
4/25	11:15A	139.50	142.00	2.50	1/4	SANTOS/CHAVEZ
4/26	10:35A	139.50	141.50	2.00	1/4	SANTOS/CHAVEZ
4/27	9:35A	139.50	140.50	1.00	1/8	SANTOS/CHAVEZ
4/30	4:15P	138.00	140.00	2.00	1/4	SANTOS/CHAVE

00798

LAREDO INTERNATIONAL AIRPORT
DAILY LOG
FUEL RECOVERY WELLS

RECOVERY WELL NO. 2 (SOUTH)

MAY 1990

DATE 1990	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
5/01	1:50P	139.00	140.00	1.00	1/8	SANTOS/CHAVEZ
5/02	4:00P	137.50	138.00	0.50	1/8	SANTOS/CHAVEZ
5/04	9:40A	141.00	142.75	1.75	1/16	SANTOS/CHAVEZ
5/07	9:45A	139.50	140.00	0.50	1/16	SANTOS/CHAVEZ
5/08	9:40A	138.00	139.00	1.00	1/8	SANTOS/CHAVEZ
5/09	11:05A	137.00	137.75	0.75	1/8	SANTOS/CHAVEZ
5/10	11:20A	138.50	140.00	1.50	1/8	SANTOS/CHAVEZ
5/11	11:40A	135.75	137.00	1.25	1/8	SANTOS/CHAVEZ
5/14	1:50P	136.50	138.00	1.50	1/8	SANTOS
5/15	9:10A	136.50	137.75	1.25	1/8	SANTOS
5/16	9:35A	135.50	137.75	2.25	1/8	SANTOS
5/17	1:35P	137.50	139.50	2.00	1/8	SANTOS
5/18	8:45A	137.00	138.00	1.00	1/8	SANTOS
5/21	9:00A	135.00	138.50	3.50	1/8	SANTOS
5/22	9:20A	137.50	140.00	2.50	1/8	SANTOS
5/23	4:35P	135.50	138.00	2.50	1/8	SANTOS
5/24	9:00A	135.00	137.00	2.00	1/8	SANTOS/CHAVEZ
5/25	8:40A	135.00	137.50	2.50	1/8	SANTOS/CHAVEZ
5/29	9:05A	135.50	138.00	2.50	1/8	SANTOS/CHAVEZ

00790

LAREDO INTERNATIONAL AIRPORT
DAILY LOG
FUEL RECOVERY WELLS

RECOVERY WELL NO. 2 (SOUTH)

MAY 1990

DATE 1990	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
5/30	9:10A	135.00	137.00	2.00	1/16	SANTOS/CHAVEZ
5/31	9:00A	135.00	137.00	2.00	1/16	SANTOS/CHAVEZ

00800

LAREDO INTERNATIONAL AIRPORT
DAILY LOG
FUEL RECOVERY WELLS

RECOVERY WELL NO. 2 (SOUTH)

JUNE 1990

DATE 1990	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
6-1	9:15A	135.50	137.50	2.00	1/16	SANTOS & CHAVEZ
6-4	9:30A	136.50	141.00	4.50	1/16	SANTOS & CHAVEZ
6-5	8:20A	135.50	139.00	3.5	1/16	SANTOS & CHAVEZ
6-6	8:15A	135.00	138.50	3.5	3/16	SANTOS & CHAVEZ
6-7	8:14A	135.50	139.00	3.5	3/16	SANTOS & CHAVEZ
6-8	8:45	135.50	139.00	3.5	1/4	RAMOS & CHAVEZ
6-11	7:40A	136.00	140.75	4.75	1/4	RAMOS & CHAVEZ
6-12	7:55A	135.50	138.50	3.00	3/16	RAMOS & CHAVEZ
6-13	7:45A	134.50	138.00	3.50	3/16	RAMOS & CHAVEZ
6-14	7:40A	135.50	138.50	3.00	1/8	RAMOS & CHAVEZ
6-15	8:25A	135.50	138.50	3.00	1/8	SANTOS & CHAVEZ
6-18	8:00A	135.50	142.00	6.50	3/8	RAMOS & CHAVEZ
6-19	7:45A	135.00	140.25	5.25	1/4	RAMOS & CHAVEZ
6-20	8:15A	134.25	138.75	4.50	1/4	SANTOS & CHAVEZ
6-21	9:30A	135.25	140.00	4.75	1/4	SANTOS & CHAVEZ
6-22	9:00A	136.50	141.00	4.50	1/4	SANTOS & CHAVEZ
6-25	7:45A	136.00	142.50	6.50	3/8	RAMOS & CHAVEZ
6-26	9:00A	136.00	140.00	4.00	1/4	SANTOS & CHAVEZ
6-27	7:55A	136.00	140.00	4.00	1/4	SANCHEZ & CHAVEZ

LAREDO INTERNATIONAL AIRPORT
DAILY LOG
FUEL RECOVERY WELLS

RECOVERY WELL NO. 2 (SOUTH)

JUNE 1990

DATE 1990	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
6-28	8:45A	136.00	139.75	3.75	3/16	SANCHEZ & CHAVEZ
6-29	7:55A	136.50	140.50	4.0	1/4	SANCHEZ & CHAVEZ

00802

LAREDO INTERNATIONAL AIRPORT
DAILY LOG
FUEL RECOVERY WELLS

RECOVERY WELL NO. 2 (SOUTH)

JULY 1990

DATE 1990	TIME	(A) TOP OF LIQUID INCHES	(B) TOP OF WATER INCHES	(C) LAYER OF PETROLEUM (B) - (A) INCHES	(D) GALLONS RECOVERED	(E) OPERATOR
7-2	9:05A	136.00	144.50	8.50	1/2	SANTOS & CHAVEZ
7-3	8:20A	135.50	141.25	5.75	3/8	SANTOS & CHAVEZ
7-5	8:05A	136.50	143.25	6.75	1/4	SANTOS & CHAVEZ
7-6	9:15A	136.00	143.25	7.25	1/2	CHAVEZ & SANTOS
7-9	7:45A	135.00	151.25	16.25	1 1/4	RMOS & CHAVEZ
7-10	7:40A	135.50	145.00	9.50	1/2	RAMOS & CHAVEZ
7-11	7:30A	135.50	144.00	8.50	1/2	RAMOS & CHAVEZ
7-12	7:50A	136.50	143.00	6.50	1/2	GUTIERREZ & CHAVEZ
7-13	8:25A	136.00	146.00	10.00	3/4	CHAVEZ & SANTOS
7-16	8:00A	133.50	147.00	13.50	3/4	SANTOS & CHAVEZ
7-17	7:45A	135.75	143.50	7.75	1/2	SANTOS & CHAVEZ
7-18	7:40A	136.00	143.25	7.25	1/2	SANTOS & CHAVEZ
7-18	11:05A	138.50	142.00	3.50	1/4	SANTOS & CHAVEZ
7-19	7:45A	136.00	143.00	7.00	3/8	SANTOS & CHAVEZ

Send original copy certified mail to: Texas Water Commission, P.O. Box 13087, Austin, Texas 78711

Please use black ink.

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

1) OWNER Laredo International Airport (Name) ADDRESS 518 Flight line (Street or RFD) Laredo (City) Tex (State) 78041 (Zip)

2) LOCATION OF WELL: County Webb _____ miles in _____ (NE, SW, etc.) direction from _____ (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ LEGAL DESCRIPTION: Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____

Distance and direction from two intersecting section or survey lines _____

☑ SEE ATTACHED MAP

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☑ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-Watering

5) DRILLING METHOD (Check): ☐ Driven ☐ Mud Rotary ☐ Air Hammer ☐ Jetted ☑ Bored ☐ Air Rotary ☐ Cable Tool ☐ Other _____

6) WELL LOG: Date Drilling: Started 4-10 19 90 Completed 4-10 19 90

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
7.5	Surface	20

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☑ Gravel Packed ☐ Other _____

If Gravel Packed give interval . . . from 20 ft. to 4 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Brown Top soil
5	8	Gray clay
8	13	Black Clay, moist
13	16	Tan clay moist
16	20	Brown clay moist
		Bot well at 20FT in tank pan
		TWO WELLS AT SITE BY SSDC.
		2" WELLS ARE NOT OURS

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SCH 40 PVC .020	20	5	Screen
4	N	SCH 40 PVC	5	0	Blank
		END CAP			

9) CEMENTING DATA [Rule 287.44(1)] Cemented from 2 ft. to 0 ft. No. of Sacks Used 15

ft. to _____ ft. No. of Sacks Used _____

Method used Trunk Cemented by Contractor (TEODORO ACUERO)

10) SURFACE COMPLETION ☑ Specified Surface Slab Installed [Rule 287.44(2)(A)] 4X4 ☐ Pitless Adapter Used [Rule 287.44(3)(B)] ☐ Approved Alternative Procedure Used [Rule 287.71]

11) WATER LEVEL: Static level None ft. below land surface Date 4-10-90 Artesian flow _____ gpm. Date _____

12) PACKERS:

Type	Depth
Boulder Grade Silica sand	20-4
Big Lon Bentonite	4-2

13) TYPE PUMP: N/A ☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other _____ Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS: N/A Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY: Did the drilling penetrate any strata which contained undesirable constituents? ☐ Yes ☑ No If yes, submit "REPORT OF UNDESIRABLE WATER" Type of water? None Depth of strata _____ Was a chemical analysis made? ☐ Yes ☑ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Service Station Drillco, Inc. (Type or print) WELL DRILLER'S LICENSE NO. 2959M

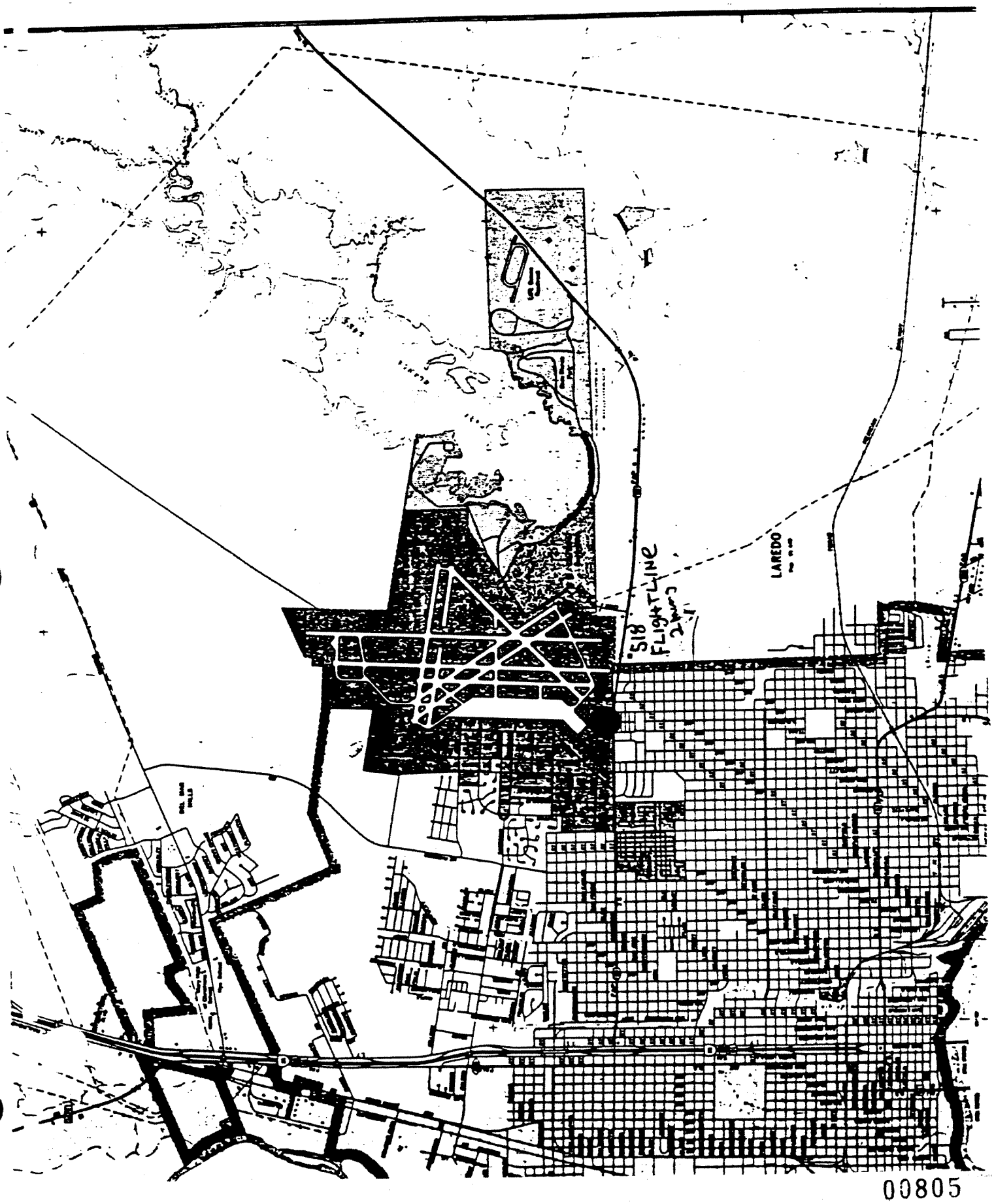
ADDRESS 4412 Bluemel Rd. (Street or RFD) San Antonio (City) Texas (State) 78240 (Zip)

(Signed) _____ (Licensed Well Driller) (Signed) John Pallar (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available

For TWC use only: Well No. _____ Located on map _____

00804


SIB
FLIGHTLINE
LAREDO

EAR FOR SIGNATURE

State of Texas

REPORT OF UNDESIRABLE WATER

I. To be completed by well driller. (Type or Print)

1. Well Driller: DON MAY JR.

   Company Name: SERVICE STATION DRILLCO INC

   Address: 4412 BLUEMEL (Street or RFD) SAN ANTONIO (City) TEXAS (State)

2. Landowner or Person Having Well Drilled: LAREDO INTERNATIONAL

   Address: AIRPORT (Street or RFD) LAREDO (City) TEXAS (State)

3. Location of Well: County WEBB Labor _____

   League _____ Abstract No. _____

   NW¼, NE¼, SW¼, SE¼, of Section _____ Block _____

   Survey _____

   _____ miles in _____ (NE, SW, etc.) direction

   from IN TANK FIELD AT LAREDO AIRPORT (Town)

4. Reason why Report of Undesirable Water was submitted:

   - ☐ Naturally-occurring, poor-quality groundwater encountered;
   - ☒ Hydrocarbon contamination encountered (includes gasoline, diesel, etc.);
   - ☐ Hazardous material/hazardous waste contamination encountered;
   - ☐ Other; describe _____

5. Date Well Drilled. 7/20/90 Type Well: MONITOR

6. Has a Well Report form relating to this well been forwarded to the Texas Water Commission?

   Yes X No _____ Date 8/7/90

7. I do hereby certify that in drilling, deepening, or otherwise altering the above described well, water injurious to vegetation, to land, or to fresh water has been encountered and the landowner or person having the well drilled has been informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.

   Date: 8/7/90

   Reg. No. 2959M (Signed) _____ (Well Driller)

WELL WAS DRILLED FOR LEAK-TEC INC. ENVIRONMENTAL CO.

II. To be completed by landowner or person having well drilled.

1. I do hereby certify that I have been informed that the above described well encountered water injurious to vegetation, to land or to fresh water and that the well must be completed or plugged in such a manner as to avoid injury or pollution.

   Date _____ (Signed) _____ (Landowner or person having well drilled)

Send Original Copy by Certified Mail to the TEXAS WATER COMMISSION, P.O. Box 13087, Austin, Texas 78711

WWD-015

00806

Send original copy by certified mail to: Texas Water Commission, P.O. Box 13087, Austin, Texas 78711

Please use black ink

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas
WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

OWNER Laredo International Airport (Name) ADDRESS airport (Street or RFD) Laredo (City) Texas (State) 78040 (Zip)

2) LOCATION OF WELL County Webb . _____ miles in _____ (NE, SW, etc.) direction from _____ (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ LEGAL DESCRIPTION:
Section No. _____ Block No _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☑ SEE ATTACHED MAP (C-1)

3) TYPE OF WORK (Check):
☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☐ Domestic ☐ Industrial ☑ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-Watering

5) DRILLING METHOD (Check):
☐ Driven ☐ Mud Rotary ☐ Air Hammer ☐ Jetted ☑ Bored ☐ Air Rotary ☐ Cable Tool ☐ Other _____

6) WELL LOG:
Date Drilling: Started 7-20 19 90 Completed 7-20 19 90

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
7.5	Surface	20

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☑ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from 20 to 8 ft. to Gravel ft. to 8 to 3 ft. Bentonite

From (ft.)	To (ft.)	Description and color of formation material
0	3	lt Brown top soil
3	5	Very hard Gravel stringy
5	8	Waxy clay moist
8	11	Very thick Waxy about Blue clay
11	15	lt Green Clay moist
15	20	Dark Brown clay very moist
Terminated - see skell		

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
4	New	SCH 40 PVC 020 Slot	20	10	Screen
4	New	SCH 40 PVC	10	0	Riser
		Bolt down Locking End Cap			

9) CEMENTING DATA [Rule 287.44(1)]
Cemented from -1.5 ft. to 7.5 ft. No. of Sacks Used 4X4 PAD
_____ ft. to _____ ft. No. of Sacks Used _____
Method used Trunk
Cemented by Contractor

10) SURFACE COMPLETION
☑ Specified Surface Slab Installed [Rule 287.44(2)(A)]
☐ Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
☐ Pitless Adapter Used [Rule 287.44(3)(B)]
☐ Approved Alternative Procedure Used [Rule 287.71]

11) WATER LEVEL:
Static level 12 ft. below land surface Date 7-20-90
Artesian flow _____ gpm. Date _____

12) PACKERS:

Type	Depth
Boulder Grade Silica Sand	20 to 8
Bentonite	8 to 1.5

13) TYPE PUMP:
☐ Turbine ☐ Jet N/A ☐ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS: N/A
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable constituents?
☒ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Brackish Depth of strata 15 FT
Was a chemical analysis made? ☐ Yes ☑ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Service Station Drillco Inc. (Type or print) WELL DRILLER'S LICENSE NO. 2959N

ADDRESS 4412 Bluemel Road (Street or RFD) San Antonio (City) Texas (State) 78240 (Zip)

(Signed) _____ (Licensed Well Driller) (Signed) John Elliot (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available

For TWC use only: Well No _____ Located on map _____

00807

Send original copy by certified mail to: Texas Water Commission, P.O. Box 13087, Austin, Texas 78711

Please use black ink

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

1) OWNER Laredo International Airport (Name) ADDRESS Airport (Street or RFD) Laredo (City) Texas (State) 78040 (Zip)

2) LOCATION OF WELL: County Webb ______ miles in ______ (NE, SW, etc.) direction from ______ (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ LEGAL DESCRIPTION:

Section No. ______ Block No. ______ Township ______ Abstract No. ______ Survey Name ______

Distance and direction from two intersecting section or survey lines ______

☒ SEE ATTACHED MAP #2 #3 #4

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☒ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-Watering x3

5) DRILLING METHOD (Check): ☐ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Driven ☒ Bored ☐ Air Rotary ☐ Cable Tool ☐ Other ______

6) WELL LOG:

Date Drilling Started 7-20 1990; Completed 7-20 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
7.5	Surface	15
	X3	

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☒ Gravel Packed ☐ Other ______

If Gravel Packed give interval ... from 15 ft. to 3 ft. X3

From (ft.)	To (ft.)	Description and color of formation material
0	2	Lt Brown Topsoil
2	5	Very Hard Brown soil
5	8	Dark gray Clay Moist
8	11	Very Dark Gray Very Moist Clay
11	15	Green Clay Sand mix wet

terminated - Set 3 wells in same strata to same Completion Sending only one log as all are same.
X3

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
4	N	SCH 40 PVC .020 SLOT	15	5	Screen
4	N	SCH 40 PVC	5	0	riser
		Bolt down manhole			
		Endcap Locking cap			

X3

9) CEMENTING DATA [Rule 287.44(1)]

Cemented from -1.5 ft. to +.5 ft. No. of Sacks Used 4X4 PAD
______ ft. to ______ ft. No. of Sacks Used ______
Method used Trowel
Cemented by Contractor
X3

13) TYPE PUMP: N/A ☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other ______
Depth to pump bowls, cylinder, jet, etc., ______ ft.

10) SURFACE COMPLETION
☒ Specified Surface Slab Installed [Rule 287.44(2)(A)]
☐ Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
☐ Pitless Adapter Used [Rule 287.44(3)(B)]
☐ Approved Alternative Procedure Used [Rule 287.71]
X3

14) WELL TESTS: N/A Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: ______ gpm with ______ ft. drawdown after ______ hrs.

11) WATER LEVEL:
Static level 12 ft. below land surface Date 7-20-90
Artesian flow ______ gpm. Date ______
X3

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☒ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? Ground Depth of strata 13
Was a chemical analysis made? ☐ Yes ☒ No

12) PACKERS:

Type	Depth
Boulder Grade Silica sand	15 to 3
Baroid Bentonite	3-1.5

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Service Station Drillco Inc. (Type or print) WELL DRILLER'S LICENSE NO. 2959M

ADDRESS 4412 Bluemel Road (Street or RFD) San Antonio (City) Texas (State) 78240 (Zip)

(Signed) [signature] (Licensed Well Driller) (Signed) John Talbert (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available

For TWC use only: Well No ______ Located on map ______

WWD-012 (Rev 05-18-90)

00808

August 6, 1990

WATER GRADIENT
LAREDO INTERNATIONAL AIRPORT
FUEL FACILITY
IDENTIFIED IN ATTACHMENT #1

This water gradient, including the narrative, was developed through the use of the four (4) monitoring wells and two (2) recovery wells identified in Attachment #1.

Additional reference material for this gradient was: USGS Topographic Map, Laredo East Quadrangle, 7.5 minute series; Soil Conservation Survey, Webb, County; County and city maps and geological data in Attachment #6.

wf/sp

William E. French, Ph.D.
Senior Geologist

INTRODUCTION

GROUNDWATER INVESTIGATION
LAREDO INTERNATIONAL AIRPORT

Groundwater investigations at the Laredo International Airport

This groundwater investigation is concerned with the fuel storage facility which is located in the southwestern portion of the Laredo International Airport. The land surface in the site area slopes gently from north to south with an inclination of about 1 foot per 100 feet. There is a raised area over the underground tanks which are located between well number 5 and well number 6.

Surrounding land is higher to the north and to the south of the site. There is a gentle rise to the east with a valley to the south of the airport's runways. From the study area, land surface slope continues toward the southwest into a westerly swale and finally into a northwest flowing stream.

SITE DESCRIPTION

The surface generally slopes away from the central tank area with a maximum relief of 2-3 feet. The generally lower elevation to the west and southwest marks the edge of a swale which extends to a small ravine which drains to the southwest.

Surface soil is fill material from construction. The subsurface materials is unconsolidated sediments of the Claiborne formation (Eocene Age) which forms the uplands adjacent to the Rio Grande Valley. The formation consists mostly of sandstone and sandy mudstone with some layers of shale.

The medium to high permeability characteristic of the sandy soils of the region permits free movement of the groundwater. Under these conditions, the groundwater surface (water table) tends to conform to the land surface. Groundwater moves from higher areas, under uplands, towards depressions or stream valleys.

GROUNDWATER

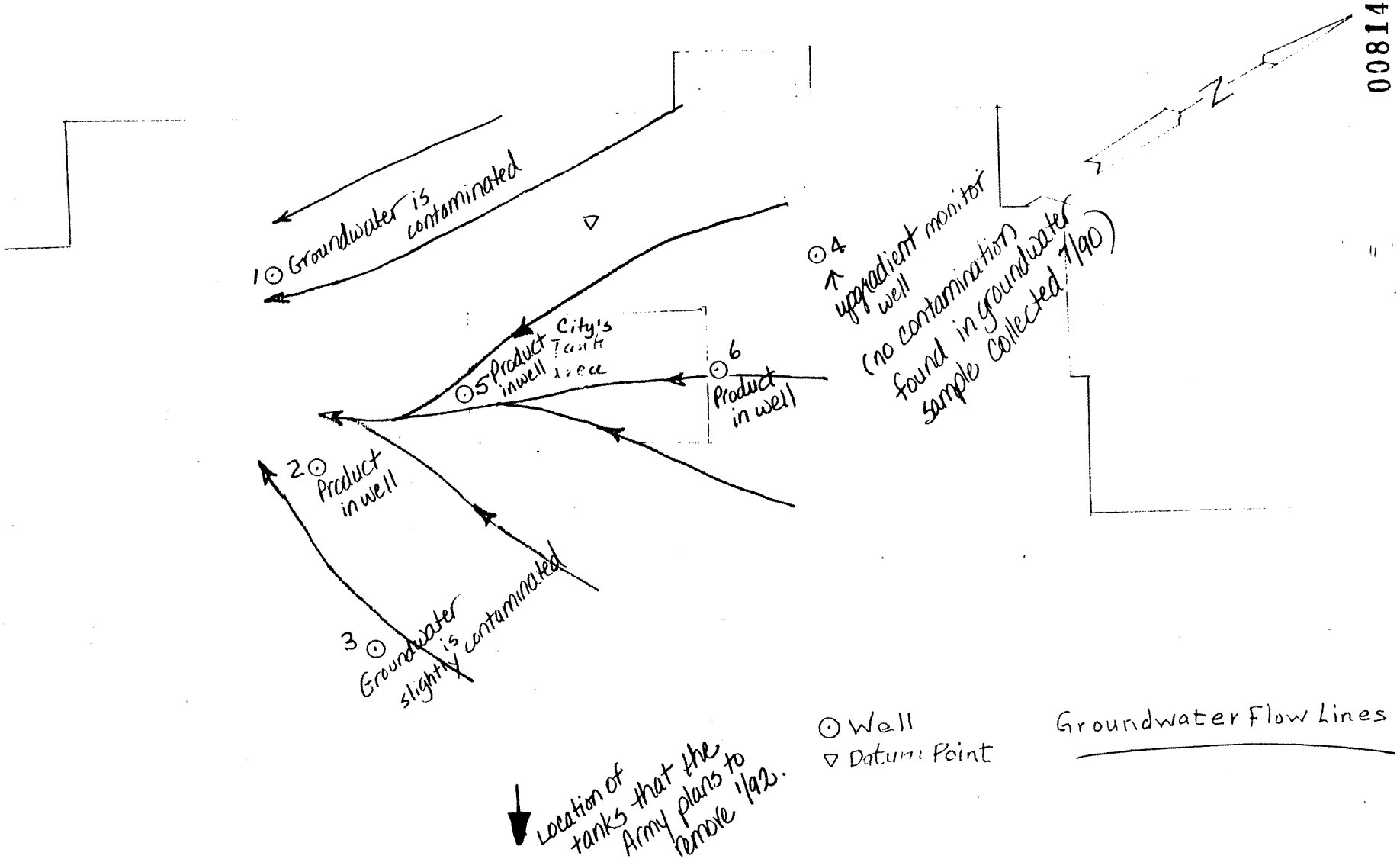
The configuration of the groundwater surface under the project area has been determined by measuring the static water levels in six observation wells. The elevation of the water table is expressed in feet above sea level (msl) by establishing the elevation of the collar at the ground level of each well and subtracting the distance down to the water surface. At this site the ground surface at the instrument site is assumed to be 490 feet above sea level.

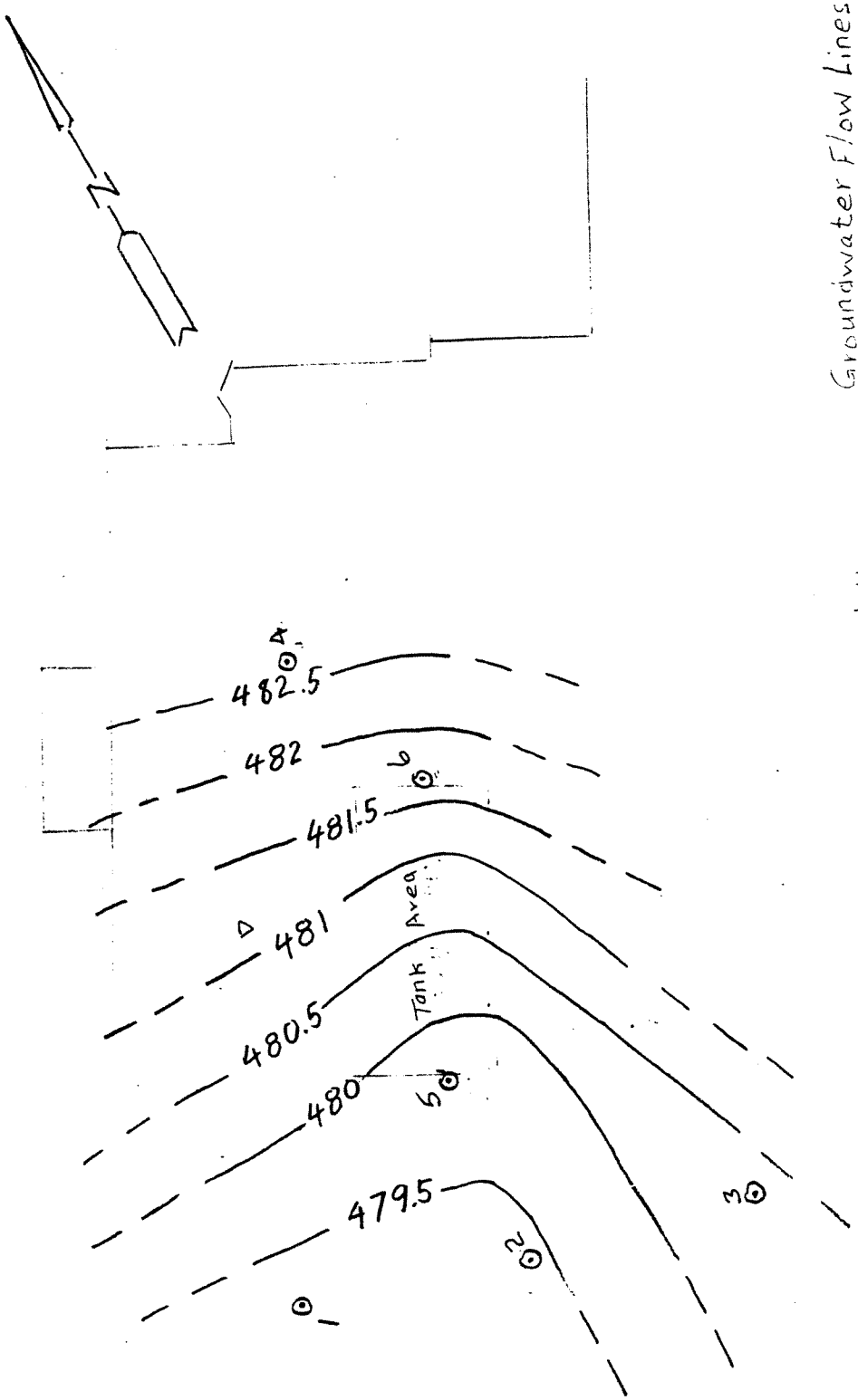
The contour map of the groundwater surface shows a general northeast to southwest inclination from a high of 482.87 feet msl at well number 4 to a low of 479.10 feet msl at well number 1. The lines of groundwater flow direction converge toward the southwest corner of the area. This suggest that groundwater from the tank area would move in a fairly concentrated stream southwestward through the area between wells 1 and 2. There might be some feature, such as a storm drain or excavation which has been filled with more permeable material, which would promote the drainage of groundwater in a southwesterly direction.

A determination of the rate of groundwater movement would require study employing pump tests and/or tracers. The generally high permeability of the subsurface material, when considered with the 1 foot per 40 feet gradient of the groundwater surface suggests that movement is fairly rapid.

FINDINGS

On the basis of these observations, it is evident that from the tank area, groundwater and associated fluids would move to the southwest in a concentrated stream at a fairly high rate of flow. There is a suggestion that the direction of flow would be more westerly as groundwater leaves the area.


1 ⊙ Groundwater is contaminated
⊙ 4 ↑ upgradient monitor well (no contamination found in groundwater sample collected 1/90)
⊙ 5 Product in well
City's Tank Farm
⊙ 6 Product in well
2 ⊙ Product in well
3 ⊙ Groundwater slightly contaminated
Location of tanks that the Army plans to remove 1/92.
⊙ Well
▽ Datum Point
Groundwater Flow Lines


N
482.5
482
481.5
481
480.5
480
479.5
Area
Tank
Groundwater Flow Lines
Feet above mean sea level
⊙ Well
▽ Datum Point

PHYSIOGRAPHY, GEOLOGY, GROUND WATER, AND SOILS FOR WEBB COUNTY, AND, ESPECIALLY, FOR LAREDO, TEXAS

PHYSIOGRAPHY, WATER RESOURCES, AND CLIMATE

Physiography

One of the counties that borders Mexico along the the Rio Grande River, Webb County (Figure 1) has only one city, Laredo, and some small population centers along State Highway 359 (Figure 2). Laredo is a major border crossing into Mexico, being adjacent to its sister city, Nuevo Laredo, in Mexico. Typical of southwest Texas, the 3363 square miles of Webb County is characterized by a rolling arid countryside with some hills and much brush (Dallas Morning News 1989). Laredo is the only major population center on the border for nearly 150 miles to the north (Del Rio) and 100 miles to the south (Rio Grande City).

Physiographically, Webb County is situated within the Arid Plains province, according to Renfro et al. (1973), which stretches along the Rio Grande River from the lower valley Brownsville region to the edge of the Balcones Escarpment and Edwards Plateau (Figure 3). Elevations range from 372 feet above mean sea level (msl) at the river to 945 feet (msl) in the center of the county. The relief can be attributed to the many arroyos and dry creek beds leading down to the Rio Grande River which has a very narrow flood plain throughout this county, with the exception of the Laredo area (Figure 4).

Surface Water Resources

The only major surface water resource, other than the Rio Grande River (with a normally reduced flow resulting from the major impoundment, International Amistad Reservoir), is Casa Blanca Lake at Laredo which dams up San Ygnacio Creek. Most of the creeks in the county are intermittent, and there are only a few major stock tanks in the county. Most of the drinking water is taken from the Rio Grande, as Casa Blanca Lake is undoubtedly very alkaline. The filtration and water plant is located on the Rio Grande River at the center of Laredo. Considering that Laredo is located in an arid area where evaporation exceeds precipitation, both the Rio Grande River and Casa Blanca Lake are characterized by low

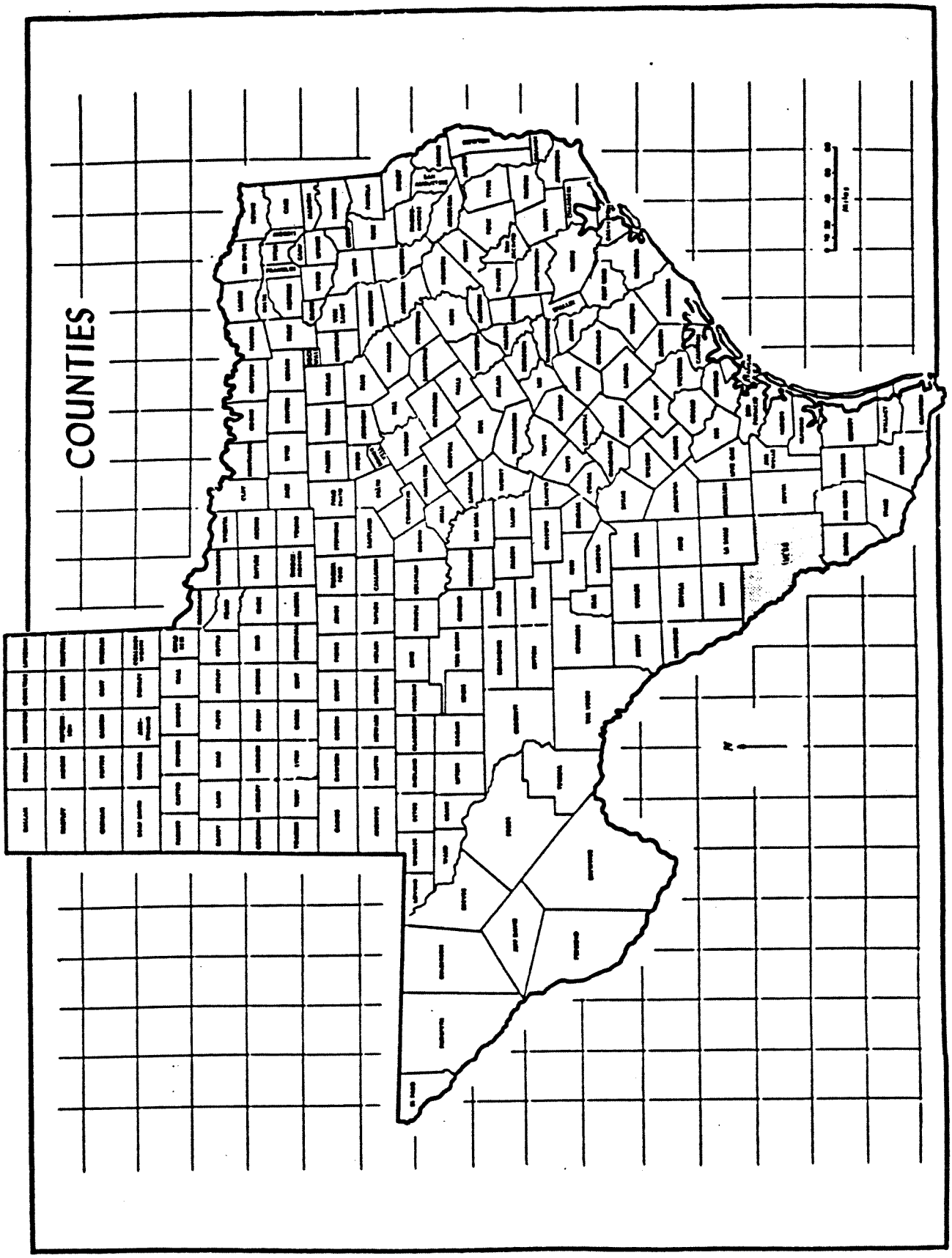


Figure 1. County map of Texas indicating location (shaded area) of Webb County.

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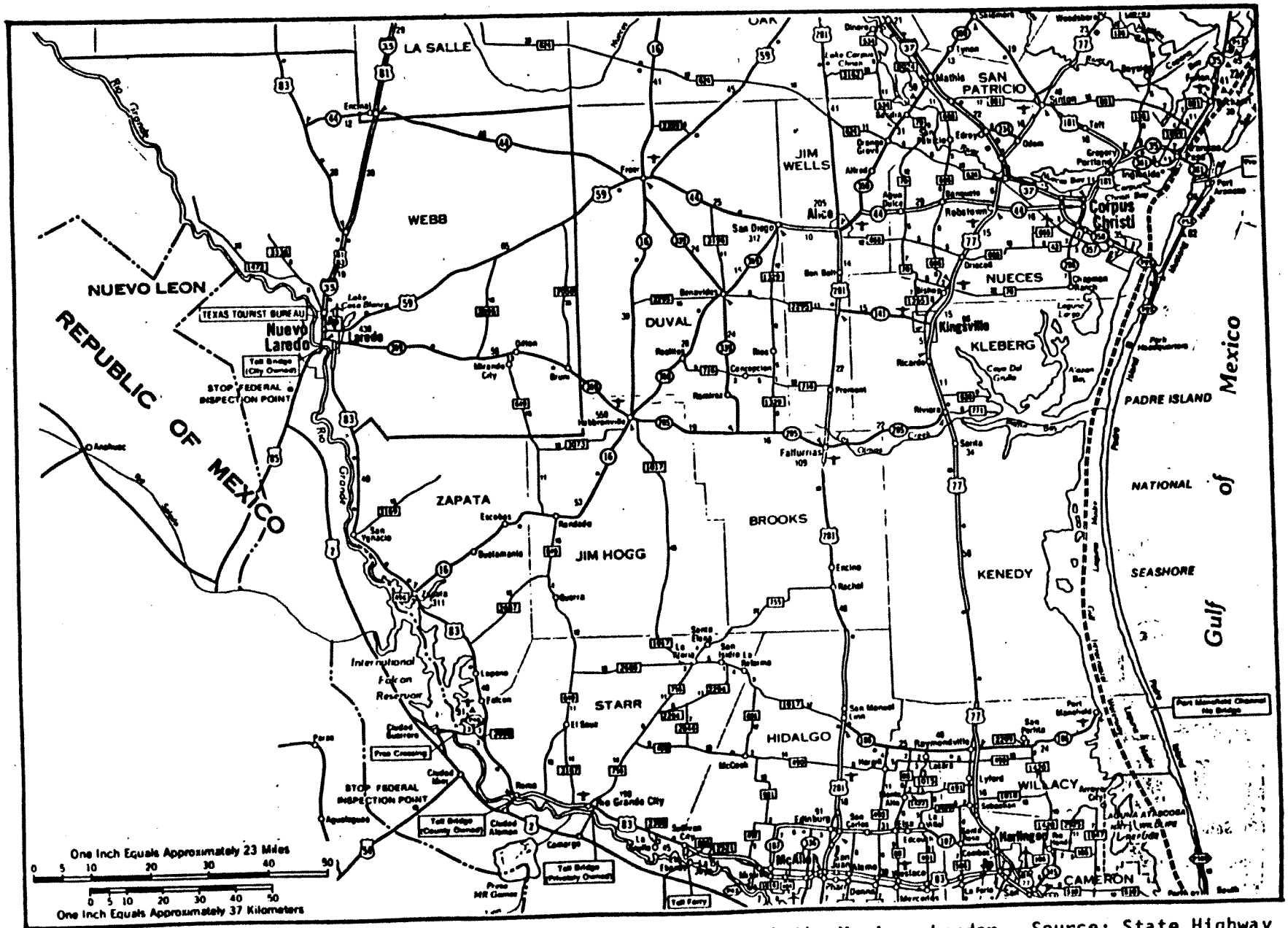

Figure 2. Highway map of Webb County showing its relationship with the Mexican border. Source: State Highway

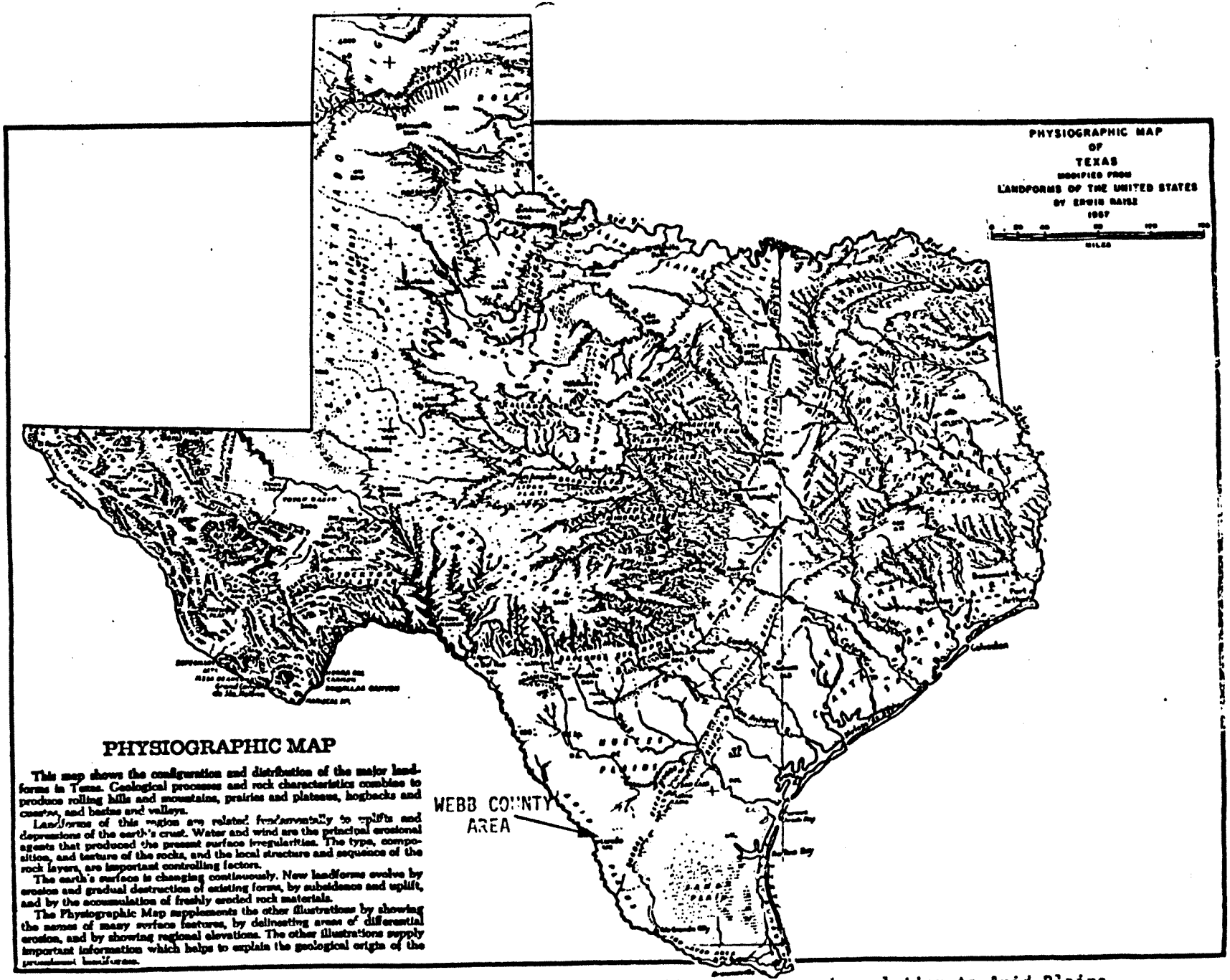

Figure 3. Physiographic map of Texas showing location of Webb County area in relation to Arid Plains.
Adapted from: Renfro, Feray, and King (1973)

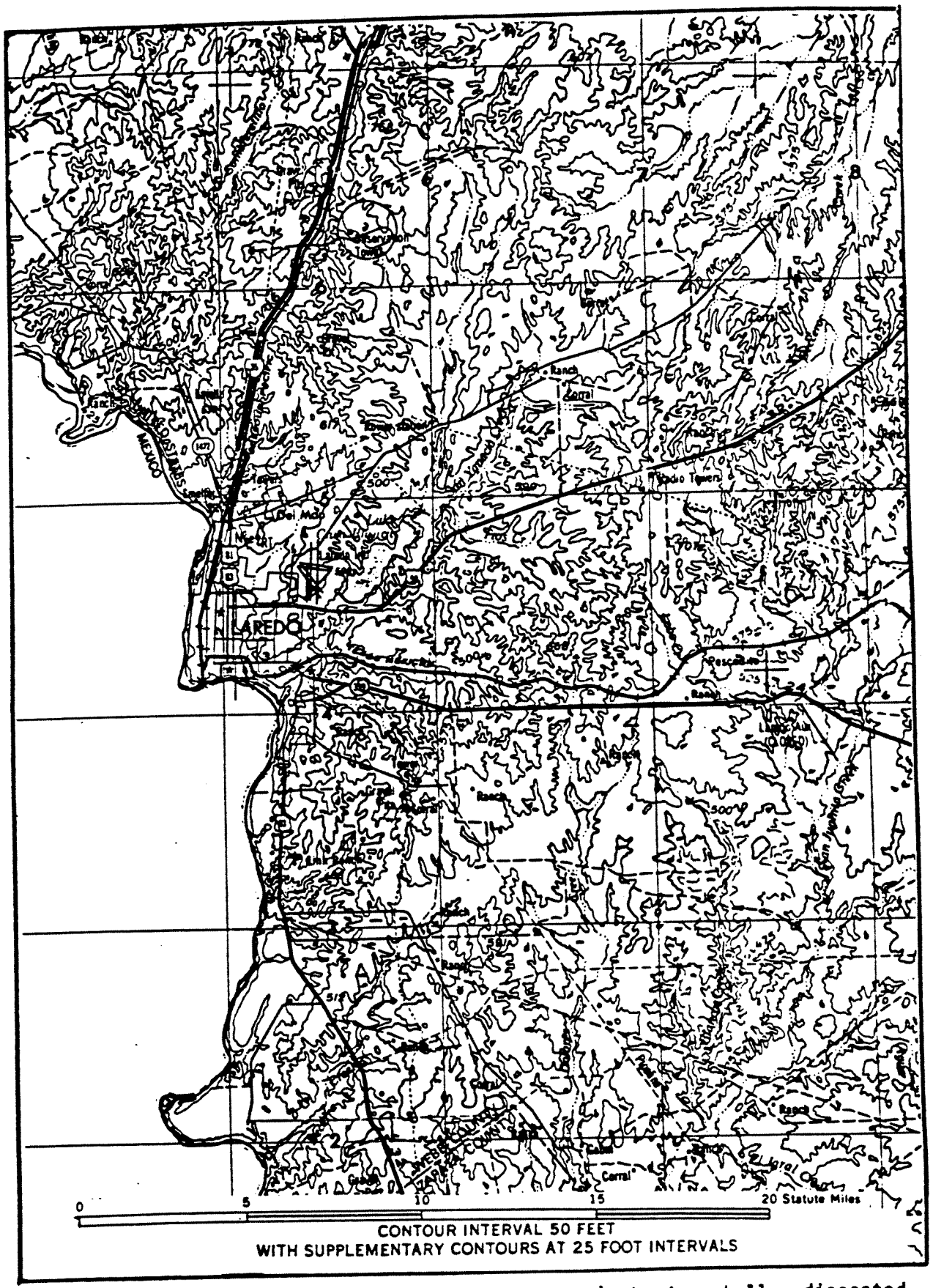

Figure 4. Topography of Laredo, Texas (Webb County) showing shallow dissected arroyo country which drains into the narrow flood plain of the Rio Grande River. Source: U.S. Geological Survey (1978)

water quality, with pH's of 7.9 and 8.0, and dissolved solids of 500 parts per million (ppm) to nearly 1000 ppm at Laredo (Hughes and Leifeste 1965). No water quality records are cited for the area between Amistad and Falcon dams, and river flows are not measured because discharges are controlled by the dams upstream (Buckner et al. 1989).

Climate

Only 17.87 inches of rainfall characterizes the county's precipitation, qualifying the area as semiarid to arid most of the year. The average January minimum air temperature is 47° F and average July maximum air temperature is 99° F, and there are 322 days of growing season (Dallas Morning News 1989). There is some irrigation along the Rio Grande, and the sandy soils and dense bush cover within the county supports a major beef cattle ranching business.

GEOLOGY AND GROUND WATER

Geology

The surface geology of Webb County is entirely Tertiary, although a small amount of Quaternary alluvium should occur in the narrow flood plain of the Rio Grande River. Surface sedimentary rocks for most of Webb County and Laredo are Eocene, Claiborne group sandstone and shales (Renfro et al. 1973); and a band of Eocene, Jackson group outcrops in the eastern part of the county bordering a thin strip of Miocene (Catahoula group ?) and Pliocene (Willis formation ?) in the southeastern corner of Webb County (Figure 5). All rocks are part of the Rio Grande Embayment, and a major fault zone trends to the southeast near the southern border of the county. The Eagle Pass syncline occurs to the northwest of Laredo and trends into Webb County at its northern border (Renfro et al. 1973).

Ground Water and Aquifers

Most of Webb County occurs within the Eocene outcrop/downdip Carrizo-Wilcox aquifer, although it is doubtful that much of this water lies close enough or is of good enough quality to be utilized for human consumption (Figure 6). No minor aquifers are shown to be found in Webb County (Texas Water Development Board 1977).

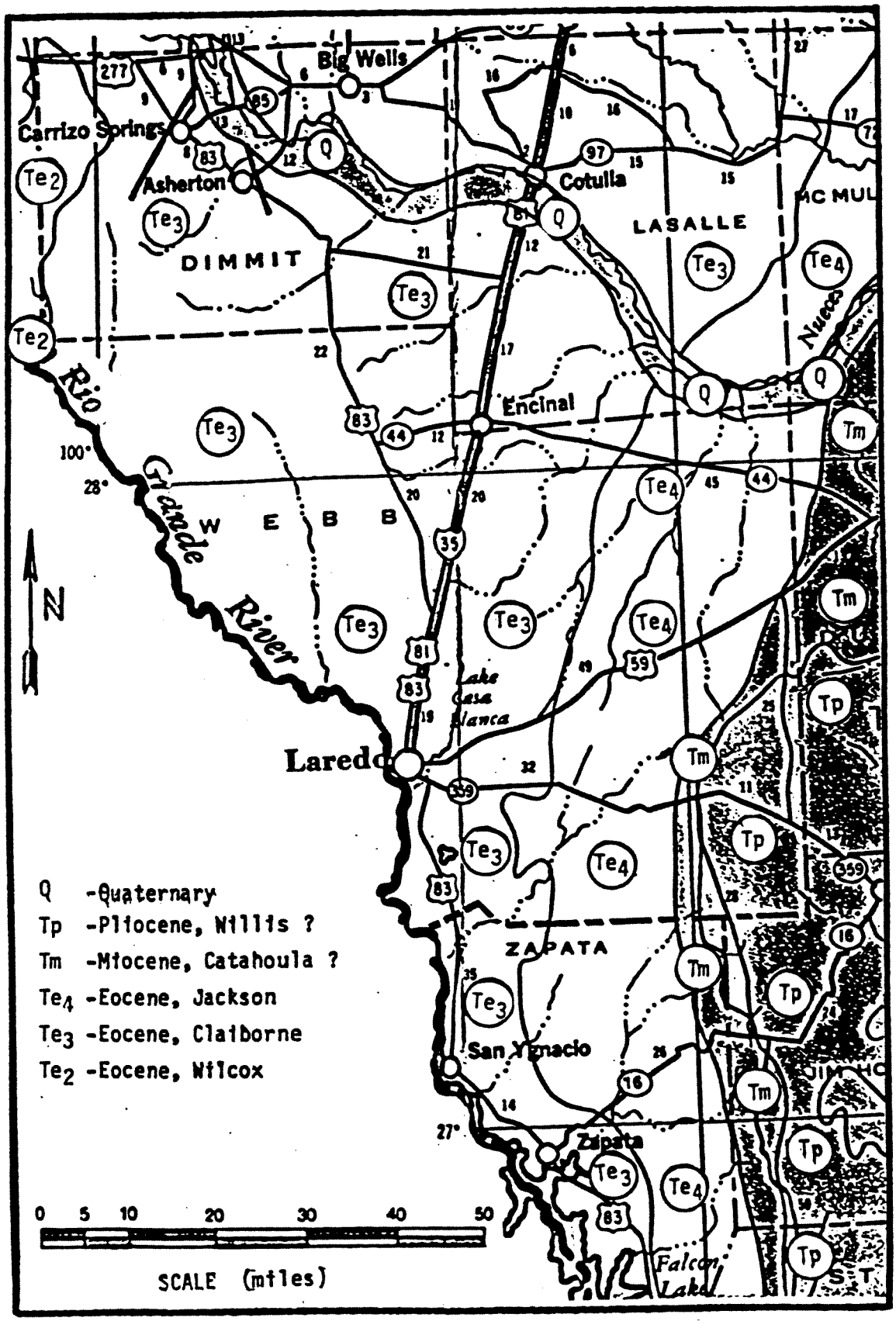

Figure 5. Major features of surface geology of Webb County as taken from Renfro, Feray, and King (1973)

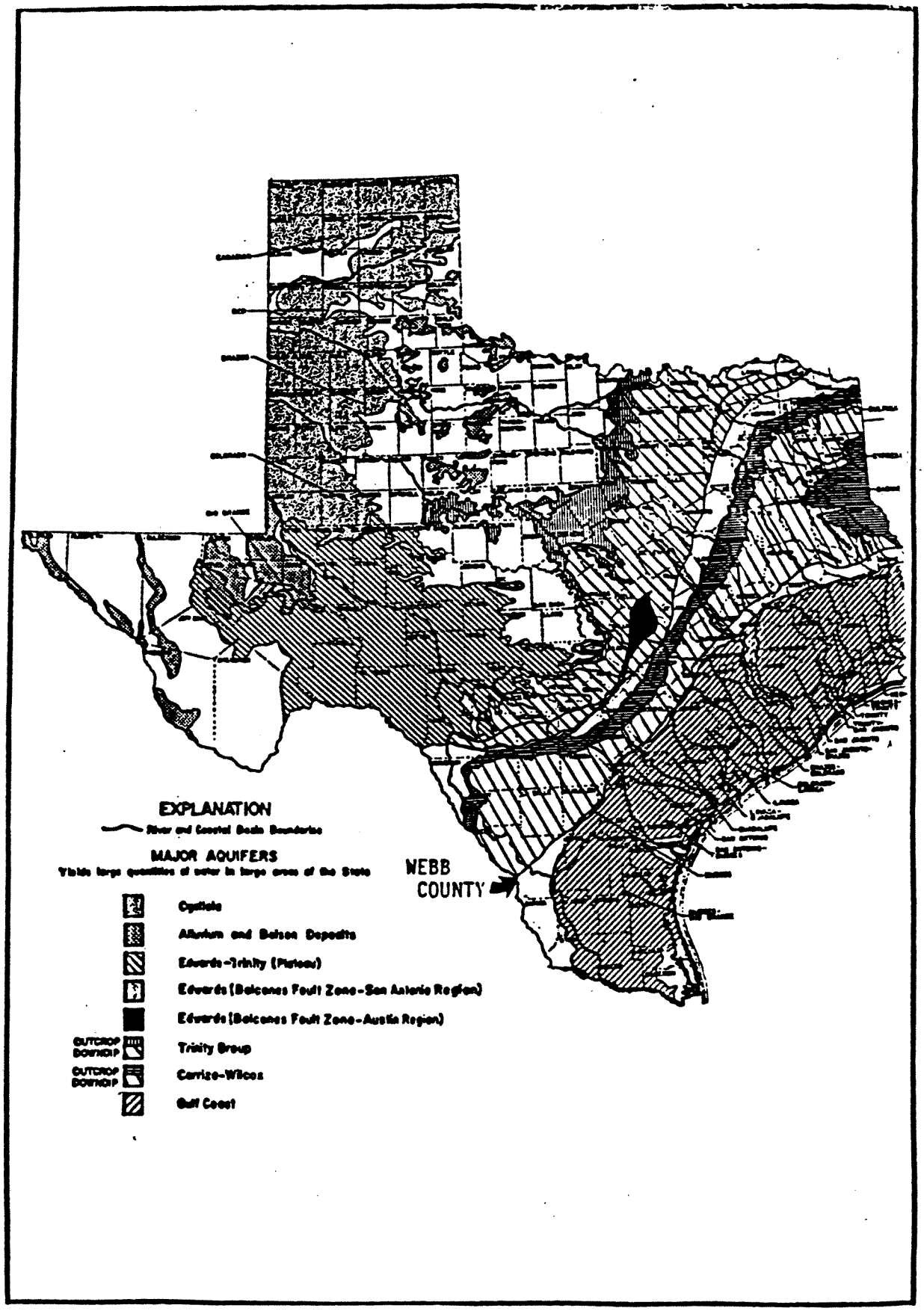

Figure 6. Major aquifers in Texas. Note that Webb County lies partly within the outcrop/downdip Carrizo-Wilcox aquifer. Source: Texas Water Development Board (1977)

00823

In that the soils and sedimentary rocks are sandy and relatively porous, horizontal flows of surface ground-water runoff are shallow. Because the relief slopes into the Rio Grande River over short distances near Laredo, surface and subsurface runoff will drain quickly into the river. No irrigation is taken from ground water and all is from surface drainage (Figure 7) as discussed in Mendieta (1974).

SOILS

All of the soils within Webb County are part of the major group of nearly level to undulating soils of the Rio Grande Plain consisting of Alfisols, Vertisols, Mollisols, Entisols, Aridisols, and Inceptisols (Godfrey et al. 1973). About two-thirds of Webb County (western) soils are characterized as Catarina-Montell-Jimenez soil association--"cracking clayey soils; crumbly clayey soils; soils loamy throughout; and shallow to moderately deep soils over indurated caliche:" (depicted as 27-V on Figure 8). Similar soils, the Monteola-Montell-Zapata association (30-V), occur in the northeast portion of the county.

Somewhat different soils, the Delmita-Zapata (26-A), characterize the extreme southeast corner of the county, and small portions of the northern part of Webb County are made up of the Duval-Webb-Zapata soil association (25-A) as shown on Figure 8. These soils are considered "deep soils with loamy surface layers and loamy or clayey subsoils; and loamy soils with indurated caliche at shallow to moderate depths" (Godfrey et al, 1973).

SUMMARY

It is apparent that surface soils and topography of the Laredo area is conducive to the creation of surface ground-water problems in the event of a leaking underground storage tank, especially in the southern portion of the county with its steep sided, narrow Rio Grande flood plain. Surface soils are cracking, crumbly clay soils with high permeability, but appear to overlie rather stiff caliche soils which can confine water flows from vertical downward migration. Subsurface leaking fluids will migrate quickly to the Rio Grande River, the only major water source in the region. Therefore, subsurface sampling and study will be required in the event of a serious break or leak in an underground storage tank.

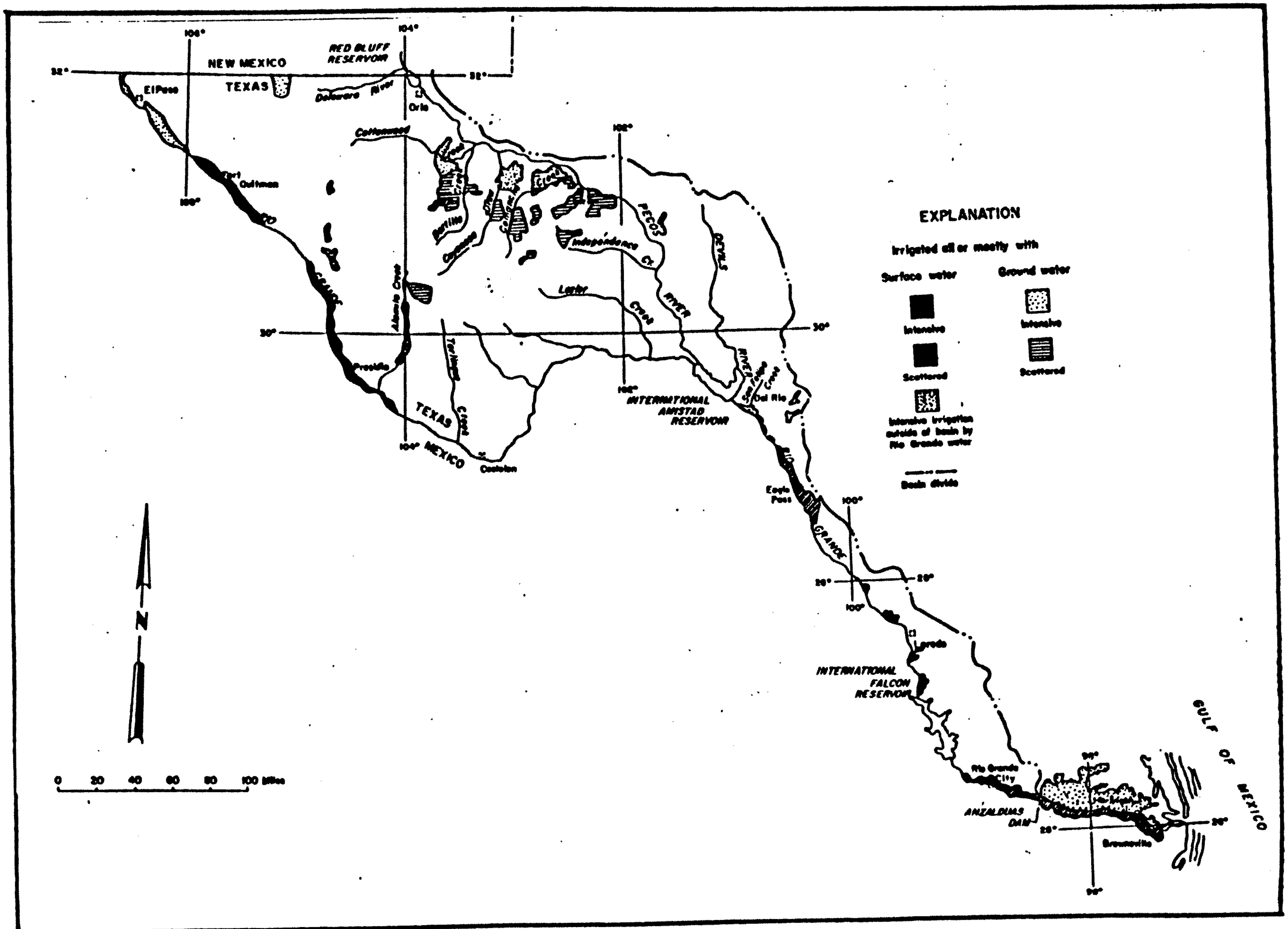

Figure 7. Irrigation in the Texas part of the Rio Grande basin. Source: Mendieta (1974)

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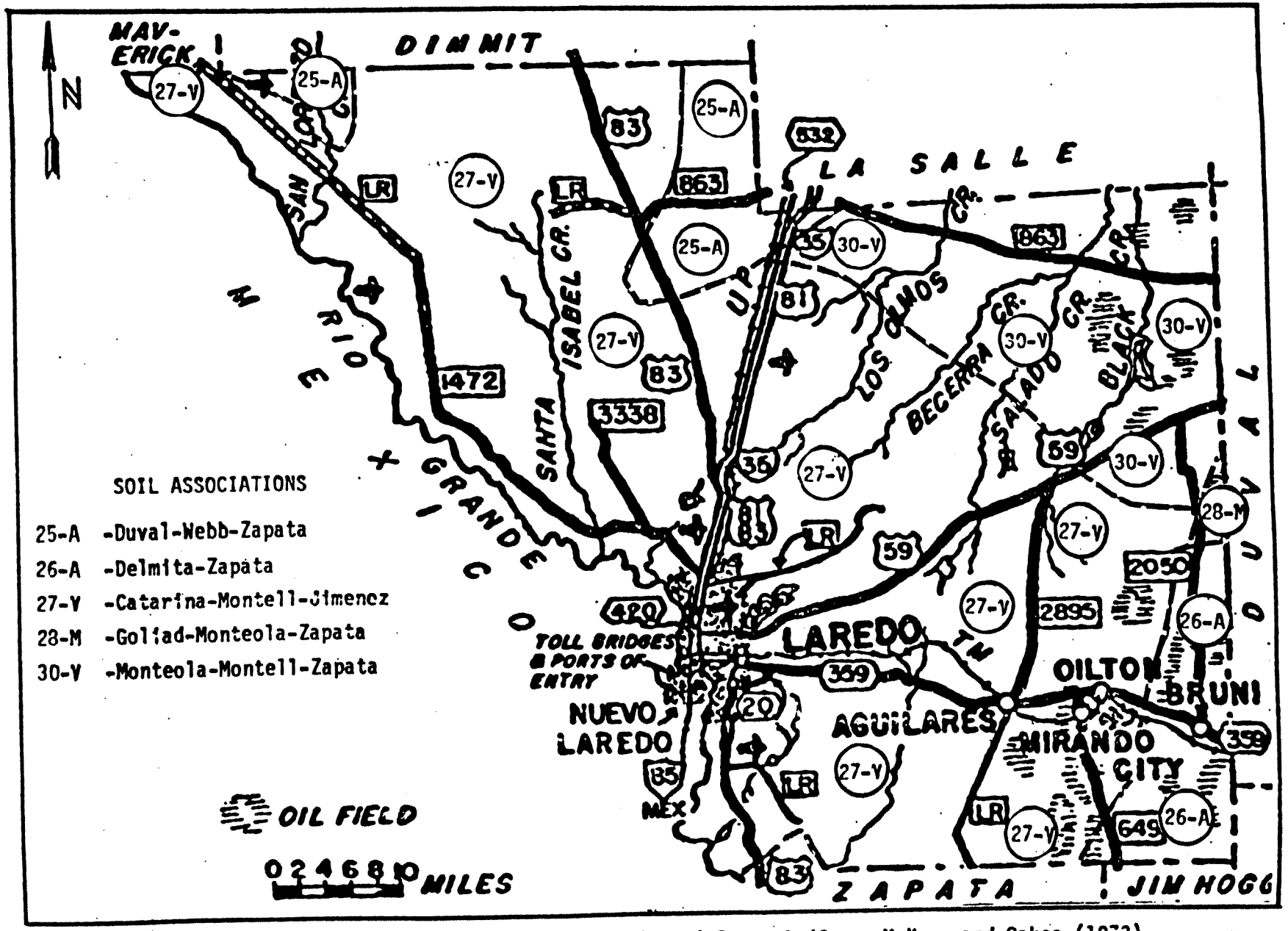

Figure 8. General soil map for Webb County, Texas. Adapted from: Godfrey, McKee, and Oakes (1973).

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Buckner, H.D., E.R. Carrillo, H.J. Davidson, and W.J. Shelby. 1989. Water Resources Data, Texas Water Year 1988. Volume 3. Colorado River Basin, Lavaca River Basin, Guadalupe River Basin, Nueces River Basin, Rio Grande Basin, and Intervening Coastal Basins. U.S. Geological Survey, Water Resources Division prepared in cooperation with the State of Texas and with other agencies, Austin, TX. Water-Data Report TX-88-3. 425 pp.

(The) Dallas Morning News. 1989. 1990-91 Texas Almanac and State Industrial Guide. Mike Kingston and Mary Crawford (editors). A.H. Belo Corporation, Dallas, TX. 607 pp.

Hughes, L.S. and D.K. Leifeste. 1965. Chemical Composition of Texas Surface Waters, 1963. U.S. Geological Survey in cooperation with the Texas Water Development Board and Others. Report 7. 168 pp.

Mendieta, H.B. 1974. Reconnaissance of the Chemical Quality of Surface Waters of the Rio Grande Basin, Texas. U.S. Geological Survey under agreement with the Texas Water Development Board. Rept. 180. 109 pp.

Texas Water Development Board. 1977. Continuing Water Resources Planning and Development for Texas. Phase 1--Planning methods, revised estimates of present water demand and availability, projections of future water needs, and identification of some potential sources of water supply for use in modifying and amending the Texas Water Plan. Vol. 1 of 2. Various pagination. (draft)

MAPS

Godfrey, C.L., G.S. McKee, and H. Oakes. 1973. General Soil Map of Texas. Texas Agricultural Experiment Station, Texas A&M University in cooperation with Soil Conservation Service, U.S. Department of Agriculture. 1 sheet

Renfro, H.B., D.E. Feray, and P.B. King. 1973. Geological Highway Map of Texas. H.B. Renfro Memorial Edition. United States Geological Highway Map Series, Map No. 7. The American Association of Petroleum Geologists. 1 sheet

State Highway and Public Transportation Commission. 1989. Texas Official Highway Travel Map. State Department Highways and Public Transportation, Austin, TX. 1 sheet

U.S. Geological Survey. 1978. Laredo, Texas. Quadrangle NG 14-2. 1 sheet (revised 1978)

CERTIFIED 15 February 1991
Date

COASTAL ECOSYSTEMS MANAGEMENT, INC.

Robert H. Parker

Robert H. Parker, Ph.D.
Certified Senior Ecologist 782
Registered Professional Geologist, Arkansas 1423

00823

ANACHEM INC.

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CHAIN-OF-CUSTODY

PAGE 1 OF 1

REPORT TO: Tom Taylor Sr	
CLIENT: [illegible]	DATE RECEIVED:
PROJECT NUMBER:	SAMPLED BY: T Taylor Sr
DUE DATE: Normal Turnaround	SAMPLE LOCATION: [illegible]

ITEM NO.	SAMPLE NUMBER	SAMPLE ID.	MATRIX	ANALYSIS REQUESTED	SAMPLE DATE	SAMPLE TIME	PRESERVATIVES /COMMENTS
1.	58501		Liquid	[illegible]	3-13-[illegible]	[illegible]	[illegible]
2.							
3.							
4.							
5.	Note: We believe we have Jet A and Possibly						
6.		Avgas. Would like to know % of					
7.		each					
8.							
9.		Call T Taylor Sr if you have a question					
10.							
11.							
12.							
13.							

ITEMS	DATE	SIGNATURE RECEIVED	ANALYSIS	RELINQUISHED BY	RETURNED BY	DATE	RECEIVED BY
1	3-13-9[illegible]	[illegible]	[illegible]	T Taylor Sr			

ANACHEM INC.

Laboratory Testing • Environmental Analyses
Consulting Chemists • Failure Investigations

REPORT OF: Gasoline Analysis June 1, 1990

CUSTOMER'S NAME: Leak-Tec Corporation SAMPLE LOG: 26808

CUSTOMER'S ID: Job #583-01 MATRIX: Gasoline

DATE RECEIVED: 3/13/90 DATE ANALYZED: 3/19/90

SAMPLE: The sample consisted of 1 glass jar filled with a colored liquid thought to be Jet A or Aviation Gasoline.

TESTS: The sample was run by high resolution capillary gas chromatography to determine if the sample was jet fuel or aviation gasoline.

RESULTS: The sample was determined to be jet fuel.

DISTRIBUTION OF REPORTS:
2-Leak-Tec Corporation
Attn: James Taylor

RESPECTFULLY SUBMITTED,

ANACHEM, INCORPORATED
Hugh L. Waldrum
President

LAB NUMBER: 26808 djw

ANACHEM INC.

Laboratory Testing • Environmental Analyses
Consulting Chemists • Failure Investigations

CHAIN-OF-CUSTODY

PAGE 1 OF 1

REPORT TO: Tom Taylor, Sr
CLIENT: ~~[illegible]~~ Leak-Tec Corp
PROJECT NUMBER: 599-90
DUE DATE: Normal Turn

DATE RECEIVED:
SAMPLED BY: Mike Nesting
SAMPLE LOCATION: Laredo

ITEM NO.	SAMPLE NUMBER	SAMPLE ID.	MATRIX	ANALYSIS REQUESTED	SAMPLE DATE	SAMPLE TIME	PRESERVATIVES /COMMENTS
1.	599-01	5-7' Well #1	Soil	TPH. BTEX	4-10-90	2:30P	Refrigeration
2.	" -02	9-11' Well #1	"	"	"	3:00P	"
3.	" -03	5-7' Well #2	"	"	"	3:30P	"
4.	" -04	9-11' Well #2	"	"	"	4:15P	"
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							

ITEMS	DATE	SIGNATURE RECEIVED	ANALYSIS	RELINQUISHED BY	RETURNED BY	DATE	RECEIVED BY
4	4-18-90	[signature]	TPH. BTEX	Tom Taylor, Sr			

00830

ANACHEM INC.

Laboratory Testing • Environmental Analyses
Consulting Chemists • Failure Investigations

REPORT OF: Soil Analysis — April 20, 1990

CUSTOMER'S NAME: Leak-Tec Corporation — SAMPLE LOG: 27012

CUSTOMER'S ID: "599-90/Laredo" — MATRIX: Soil

DILUTION FACTOR: 100 — COMP. FILE ID.: 27012

DATE RECEIVED: 4/18/90 — DATE ANALYZED: 4/19/90

SAMPLES: The samples consisted of 4 glass jars containing solids identified as soils and labeled Project: 599-90/Laredo with sample I.D.'s shown in the data table.

TESTS: Each sample was analyzed for Benzene, Toluene, Ethyl Benzene and Xylenes by GC/MS using a modification of EPA method 8240. Each sample was also analyzed for Total Petroleum Hydrocarbons using EPA method 418.1.

RESULTS: All results are reported in parts per million (ppm).

	Value 1	Value 2	% Var.
TPH:	80	84	4.8
BENZENE:	99	98	1.0

CONCENTRATION UNITS: BTEX/ppm TPH/ppm

SAMPLE I.D.	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE	TPH
599-01 5'-7'	9.4	71	40	11	7400
599-02 9'-11'	<0.1	<0.1	<0.1	<0.1	80
599-03 5'-7'	22	50	92	19	4000
599-04 9'-11'	31	33	67	17	2160
Blank	<0.01	<0.01	<0.01	<0.01	<1

DISTRIBUTION OF REPORTS:
2-Leak-Tec Corporation
Attn: Tom Taylor, Sr.

RESPECTFULLY SUBMITTED,

James D. Lynch

ANACHEM, INCORPORATED
James D. Lynch, PhD
Chemist

Hugh L. Waldrum
President

LAB NUMBER: 27012 djw

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CHAIN-OF-CUSTODY

PAGE 1 OF 1

REPORT TO: Tom Taylor, Sr.
CLIENT: Leak-Tec
PROJECT NUMBER: 599-90
DUE DATE: Nurmal Turn

DATE RECEIVED:
SAMPLED BY: W. Nesting
SAMPLE LOCATION: Laredo Int. Airport

ITEM NO.	SAMPLE NUMBER	SAMPLE ID.	MATRIX	ANALYSIS REQUESTED	SAMPLE DATE	SAMPLE TIME	PRESERVATIVES /COMMENTS
1.	599-15	Well #1	Water	TPH BTEX MTBE	7-25-90	9:05a	Refrigeration
2.	599-16	Well #3	Water	" " "	"	9:20a	"
3.	599-17	Well #4	"	" " "	"	9:40a	"
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							

ITEMS	DATE	SIGNATURE RECEIVED	ANALYSIS	RELINQUISHED BY	RETURNED BY	DATE	RECEIVED BY
3	7-27-90	X [signature]	see above	Tom Taylor, Sr.			

00832

ANACHEM INC.

Laboratory Testing • Environmental Analyses
Consulting Chemists • Failure Investigations

REPORT OF: Water Analysis — August 1, 1990

CUSTOMER'S NAME: Leak-Tec Corporation — SAMPLE LOG: 27581

CUSTOMER'S ID: "Job #599-90 — MATRIX: Water

DILUTION FACTOR: 5 — COMP. FILE ID.: 27581

DATE RECEIVED: 7/30/90 — DATE ANALYZED: 7/31/90

SAMPLES: The samples consisted of 3 glass jars containing liquids identified as waters and labeled Job #599-90, Sample 599-15, 599-16, and 599-17.

TESTS: Each sample was analyzed for Benzene, Toluene, Ethyl Benzene, Xylenes and Methyl tert Butyl Ether by GC/MS using a modification of EPA method 8240.

Each sample was also analyzed for Total Petroleum Hydrocarbons using EPA method 418.1.

RESULTS: See attached data table for results.

DISTRIBUTION OF REPORTS:
2-Leak-Tec Corporation
Attn: Tom Taylor, Sr.

RESPECTFULLY SUBMITTED,

James D. Lynch

ANACHEM, INCORPORATED
James D. Lynch, PhD
Chemist

Hugh L. Waldrum
President

LAB NUMBER: 27581 djw

Report To: Leak-Tec Corporation
Lab Number: 27581
Page #2

RESULTS: ppm - parts per million ppb - parts per billion

QUALITY CONTROL DATA

	Value 1	Value 2	% Var.
TPH:	680	720	5.6
BENZENE:	98	97	1.0

CONCENTRATION UNITS: BTEX/ppb TPH/ppm MTBE/ppb

SAMPLE RESULTS

SAMPLE I.D.	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE	ppm TPH	ppb MTBE
mw#1 599-15	4000	730	530	300	13	<10
mw#3 599-16	860	82	280	190	<10	<10
" 4 599-17	<10	<10	<10	<10	<10	<10
Blank	<10	<10	<10	<10	<10	<10

H_2O

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05-CORE SAMPLE (no well) CHAIN-OF-CUSTODY

PAGE 1 OF 1

REPORT TO: Tom Taylor, Sr.
CLIENT: Leak-Tec Corp
PROJECT NUMBER: 599-90
DUE DATE: Normal Turn

DATE RECEIVED:
SAMPLED BY: Tom Taylor, Sr.
SAMPLE LOCATION: Laredo Int

ITEM NO.	SAMPLE NUMBER	SAMPLE ID.	MATRIX	ANALYSIS REQUESTED	SAMPLE DATE	SAMPLE TIME	PRESERVATIVES /COMMENTS
1.	599-05	5' depth	Soil	BTEX TPH	7-20-90	11:40A	Refrigeration
2.	~~599-06~~	MW#1 @8'	Soil	" "	"	12:10P	"
3.	599-07	MW#1 @18'	"	" "	"	12:30P	"
4.	599-08	MW#2 @ 8'	"	" "	"	3:10P	"
5.	599-09	MW#2 @ 13'	"	" "	"	3:35P	"
6.	599-10	MW#3 @ 8'	"	" "	"	4:05P	"
7.	599-11	MW#3 @ 13'	"	" "	"	4:30P	"
8.	599-12	MW#4 @ 8"	"	" "	"	5:50P	"
9.	599-13	MW#4 @ 13'	"	" "	"	6:05P	"
10.	599-14	Core @15'	"	" "	"	6:45P	"
11.							
12.							
13.							

ITEMS	DATE	SIGNATURE RECEIVED	ANALYSIS	RELINQUISHED BY	RETURNED BY	DATE	RECEIVED BY
10	7-24-90		above	T. W. Taylor, Sr			

ANACHEM INC.

Laboratory Testing • Environmental Analyses
Consulting Chemists • Failure Investigations

REPORT OF: Soil Analysis — July 27, 1990

CUSTOMER'S NAME: Leak Tec Corporation — SAMPLE LOG: 27546

CUSTOMER'S ID: "599 90" — MATRIX: Soil

DILUTION FACTOR: 100 — COMP. FILE ID.: 27546

DATE RECEIVED: 7/25/90 — DATE ANALYZED: 7/26/90

SAMPLES: The samples consisted of 10 glass jars containing solids identified as soils and labeled Project: 599-90 Samples: 599 05 through 599 11.

TESTS: Each sample was analyzed for Benzene, Toluene, Ethyl Benzene and Xylenes by GC/MS using a modification of EPA method 8240.

Each sample was also analyzed for Total Petroleum Hydrocarbons using EPA method 418.1.

RESULTS: See attached data table for results.

DISTRIBUTION OF REPORTS:
2-Leak-Tec Corporation
Attn: Tom Taylor, Sr.

RESPECTFULLY SUBMITTED,

ANACHEM, INCORPORATED
Charles Ingram
Chemist

LAB NUMBER: 27546 File

Hugh L. Waldrum

Report To: Leak-Tec Corporation
Lab Number: 27546
Page #2

RESULTS: Results are reported in ppm - parts per million.

QUALITY CONTROL DATA

	Value 1	Value 2	% Var.
TPH:	164	176	7.3
BENZENE:	96	97	1.0

CONCENTRATION UNITS: BTEX - ppm TPH - ppm

DETECTION LIMITS: BTEX - <0.1 TPH - <10

ANALYST	DATE ANALYZED	ANALYTE
James Lynch	7/26/90	BTEX
Charles Ingram	7/26/90	TPH

SAMPLE RESULTS

SAMPLE I.D.	BENZENE	TOLUENE	XYLENES	ETHYL BENZENE	TPH
599-05 5' Depth	1.22	3.69	46.56	16.40	6400
599-06 MW#1 @ 8'	11.68	1.78	5.93	1.97	1520
599-07 MW#1 @ 18'	<0.1	<0.1	<0.1	<0.1	164
599-08 MW#2 @ 8'	0.32	1.63	3.34	0.78	2176
599-09 MW#2 @ 13'	<0.1	<0.1	<0.1	<0.1	<10
599-10 MW#3 @ 8'	<0.1	<0.1	0.45	0.11	544
599-11 MW#3 @ 13'	<0.1	<0.1	<0.1	<0.1	<10
599-12 MW#4 @ 8'	<0.1	<0.1	<0.1	<0.1	96
599-13 MW#4 @ 13'	<0.1	<0.1	<0.1	<0.1	<10
599-14 Core @ 15'	<0.1	<0.1	<0.1	<0.1	<10
Blank	<0.01	<0.01	<0.01	<0.01	<10

PHOTOS

The attached photos are organized as follows:

#1. Looking South to Recovery Well #6, at the North end of the Tank Cavity

#2. Looking Southwest to Monitoring Well #1 which identifies part of the down gradient.

#3. Looking Southeast to Monitoring Well #2 which is set within the down gradient.

#4. Looking West to Recovery Well #5 which has shown the ability to yield more product for recovery since it was placed.

#5. Looking North to the Loading and Unloading facility.

#6. Looking North to Monitoring Well #4. This well was clean and is almost directly up gradient from the Tank Cavity.

#7. Looking South at Monitoring Well #3 which is at the outer edge of the plume to the East of the down gradient.


1

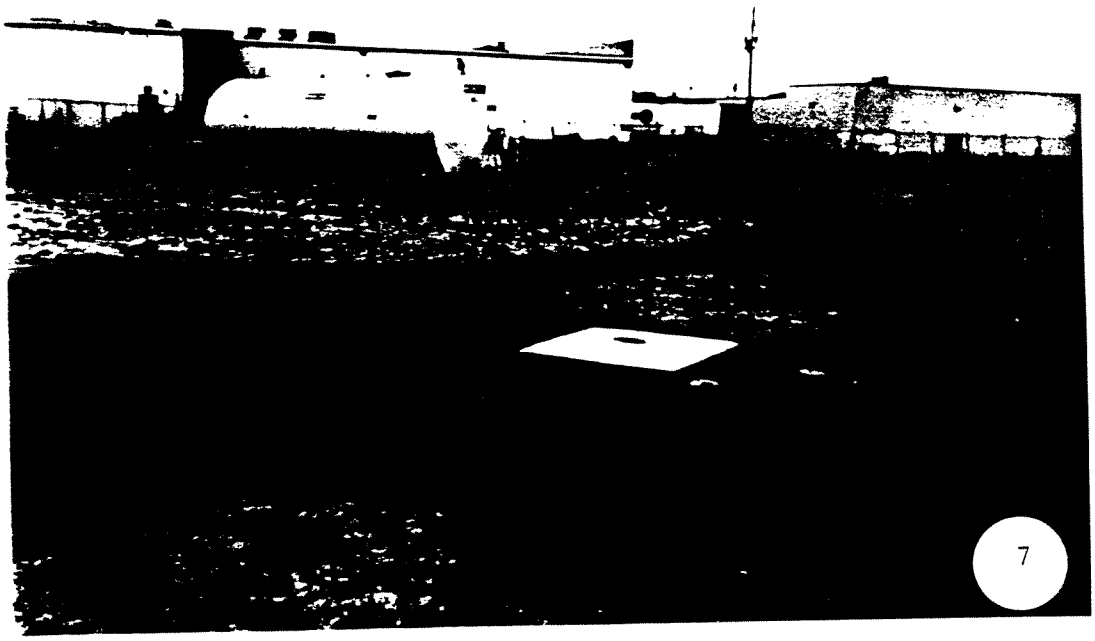

2


3


4


5


6


7