1R - 234

REPORTS

DATE:

1995

Shell Oil Products Company

Two Shell Plaza
P. O. Box 2099
Houston, TX 77252-2099

HAND DELIVERED

December 6, 1995

RECEIVED

DEC 0 8 1995

Environmental Bureau
Oil Conservation Division

William Olson
State of New Mexico Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, New Mexico 87504

SUBJECT: QUARTERLY REPORTS, DENTON AND LEA STATIONS, LEA COUNTY NEW MEXICO

Dear Mr. Olson,

Enclosed are the fourth quarter 1995 groundwater monitoring reports for Lea and Denton Stations. Product recovery continues at both locations and there were no significant changes in water quality or groundwater elevations during the report period. No additional wells developed phase separated hydrocarbon. We can discuss this further on the 8th.

Sincerely,

Neal Stidham
Staff Engineer
Shell Oil Products Company
Representing Shell Pipe Line Corporation

cc: Paul Newman (w/copy)
EOTT Energy Corp.

Jerry Sexton (w/copy)
OCD-Hobbs

CURA INC.
Engineering & Environmental Consultants
10301 Northwest Freeway • Suite 400 • Houston, Texas 77092 • 713/686-0050 • FAX 713/686-8656

November 27, 1995

Mr. Neal D. Stidham
Shell Oil Products Company
Two Shell Plaza, Room 1452
777 Walker Street
Houston, Texas 77002

RE: QUARTERLY GROUNDWATER MONITORING REPORT
FOURTH QUARTER, 1995
DENTON STATION
LEA COUNTY, NEW MEXICO

CURA PROJECT NO. 24-93678

Mr. Stidham:

CURA, Inc., has completed the groundwater monitoring and sampling operations at the above-referenced site. The work was performed in accordance with the scope of services requested by Shell Oil Products Company in your letter dated January 25, 1995.

Monitoring wells MW-1 through MW-12 were gauged and checked for phase-separated hydrocarbons (PSH) on October 12 and 13, 1995. Following gauging operations, monitoring wells MW-2, MW-6 and MW-9 were developed and sampled. In accordance with water quality monitoring requirements set forth by the New Mexico Oil Conservation Division (NMOCD), the groundwater samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and dissolved oxygen content (DO). The New Mexico Water Quality Control Commission (WQCC) regulations do not contain a groundwater standard for total petroleum hydrocarbons (TPH). Therefore, the NMOCD does not require that groundwater samples be analyzed for TPH. Monitoring wells MW-1, MW-3, MW-5, MW-7, and water well WW-1 were not sampled due to the presence of PSH.

Groundwater Sampling and PSH Recovery

The monitoring wells were gauged on October 12 and 13, 1995, to determine the depth to groundwater and PSH thickness (if any). A summary of groundwater elevations and PSH thicknesses is presented in Table 1, Appendix B.

PSH was initially discovered on site in water well WW-1 in February of 1993, and recovery operations were initiated immediately. In September, 1993, additional on-site monitoring wells

MW-1, MW-2, and MW-3 were installed. No PSH was observed in these wells during drilling or sampling operations. In March of 1994 measurable thicknesses of PSH were identified in monitoring wells MW-1 and MW-3 during routine gauging operations. CURA installed on-site monitoring wells MW-4 through MW-9 in May, 1994. PSH was observed in monitoring wells MW-5 and MW-7 following installation and site-wide PSH recovery operations were initiated. In July, 1995, on-site well MW-10 and off-site wells MW-11 and MW-12 were installed by Environmental Spill Control of Hobbs, New Mexico. No PSH was observed in these wells during drilling or sampling operations.

A remediation system was installed on-site in May, 1995, in order to provide automated oil recovery. The system is designed with product-only pumps that remove crude oil from the wells to a temporary holding tank. Once sufficient volumes of oil have accumulated in the tank, the oil is then transferred to an on-site sump for return to the pipeline. During the Fourth Quarter of 1995, the remediation system recovered approximately 22 gallons of oil. To date, a cumulative total of approximately 738 gallons of oil has been recovered from Denton Station by the recovery system (57 gallons) and prior hand bailing operations (681 gallons). Cumulative and quarterly PSH thicknesses and volumes recovered are summarized in Table 3 of this report.

The performance of the remediation system continues to be adversely affected by the viscosity of the oil and flow rate through the subsurface. Pump inlets are positioned to remove oil from the top of the water column in each well. Once pumped off, the oil must again accumulate in the wells to sufficient thicknesses to activate the pumps. As such, the limiting factor to oil removal at this site remains a function of the natural oil inflow to the wells.

Monitoring well gauging data obtained on October 12 and 13, 1995, indicates that the apparent direction of groundwater flow is toward the southeast which is consistent with previous measurements. During gauging operations, PSH was observed in monitoring well MW-1, in pumping wells MW-3, MW-5, MW-7, and in water well WW-1.

The monitoring wells were purged by removing approximately three well volumes of water or bailing the wells dry. The purged groundwater is stored on site in labelled 55-gallon drums pending analysis and proper disposal. After development, dissolved oxygen (DO) measurements were performed on site and groundwater samples were obtained from the monitoring wells using a disposable bailer. The groundwater samples were preserved at 4°C in accordance with EPA protocol for transportation to SPL Laboratories in Houston, Texas, for analysis of BTEX using EPA Method 8020. Quality Assurance/Quality Control information is included in Appendix D.

Analytical Results

The groundwater samples obtained on October 12 and 13, 1995, indicate no significant change in dissolved hydrocarbon concentrations or in the distribution of PSH thicknesses across the site since the last sampling event in July, 1995. Consistent low to non-detectable hydrocarbon concentrations in downgradient monitoring wells MW-2 and MW-9 continue to indicate that southern (downgradient) delineation of the plume has been achieved.

Dissolved oxygen concentrations were obtained as a possible indicator of the natural biological activity of hydrocarbon degrading microorganisms in the groundwater. Microbial and mineral oxidation reactions within a dissolved hydrocarbon plume typically result in depletion of DO so that an inverse relationship between DO and BTEX will be found where natural attenuation of the contaminant plume has occurred. DO levels recorded during the 1995 Fourth Quarter Sampling suggest that sufficient DO is present in the groundwater to encourage biological degradation of dissolved hydrocarbon. CURA will continue to monitor DO levels as a means of documenting the occurrence of natural attenuation. A summary of groundwater analytical results is presented in Table 2, Appendix B. The laboratory reports and chain-of-custody are included in Appendix C.

CURA appreciates the opportunity to provide you with our professional consulting services. If you have any questions or concerns, please do not hesitate to contact Brad Smith at (713) 686-0050.

Respectfully,
CURA, Inc.

for James W. Leach
Environmental Geologist

Bradley S. Smith
Project Manager

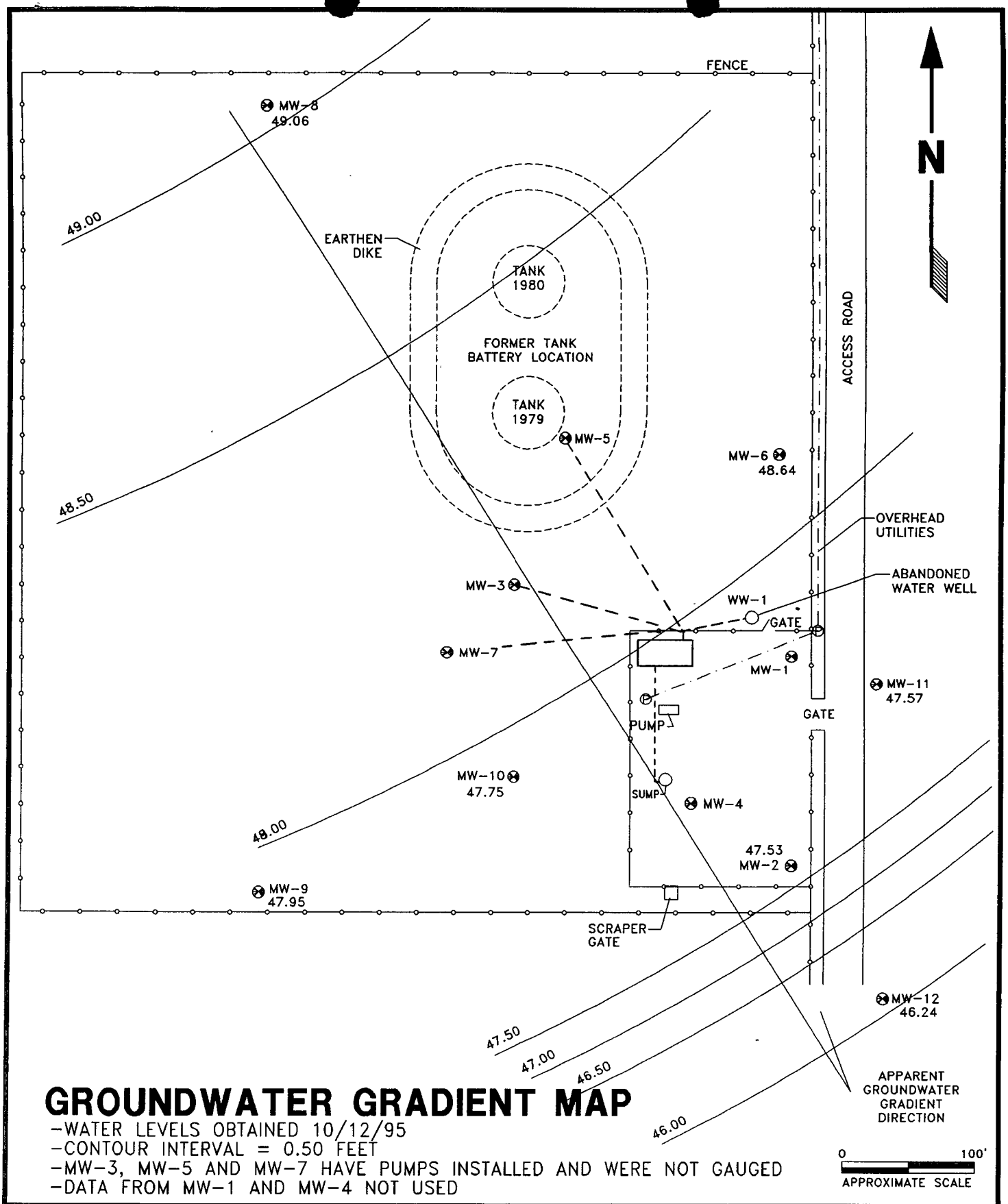
JWL/chs

Attachments

APPENDICES

APPENDIX A

FIGURES



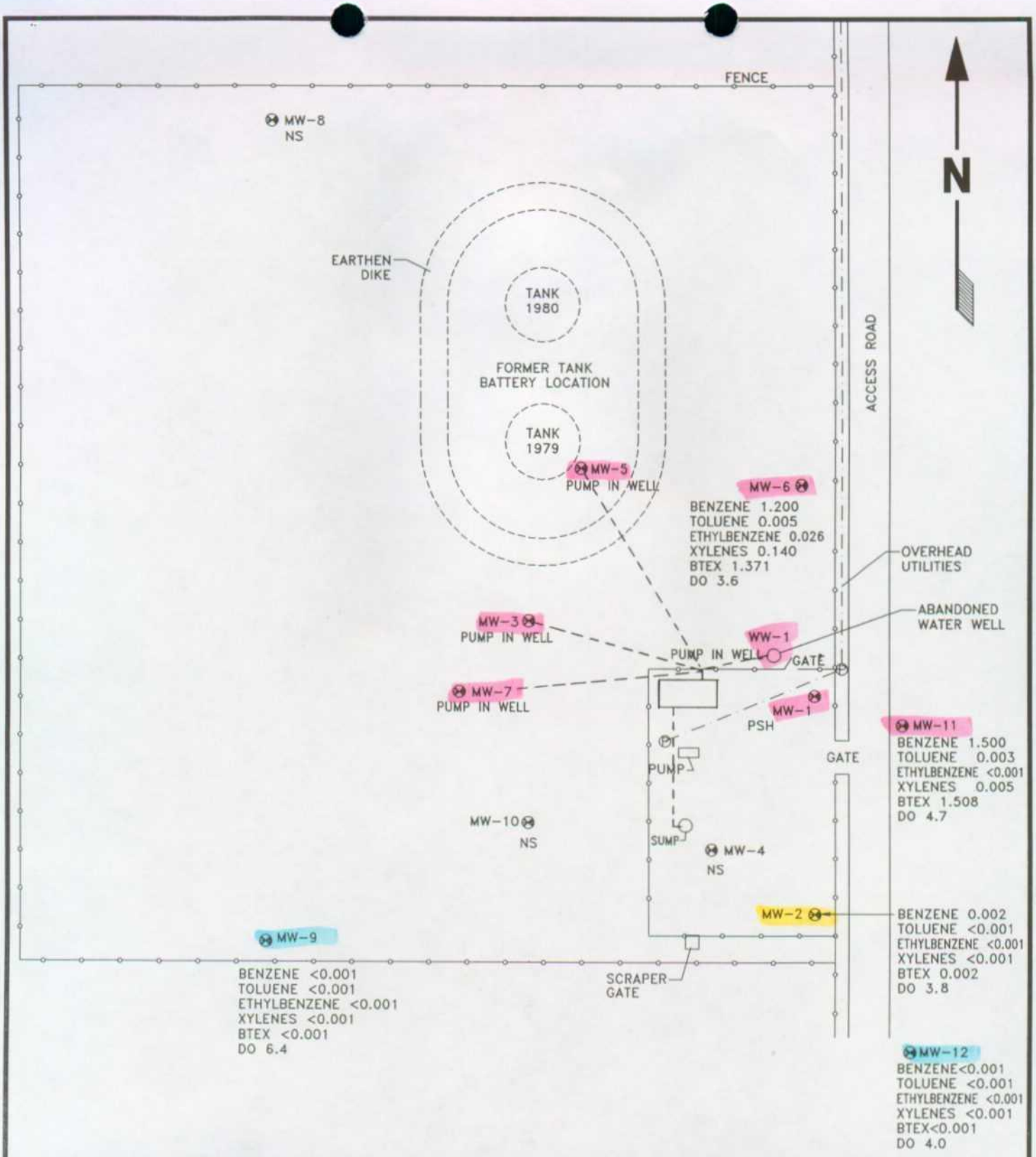
GROUNDWATER GRADIENT MAP

-WATER LEVELS OBTAINED 10/12/95
-CONTOUR INTERVAL = 0.50 FEET
-MW-3, MW-5 AND MW-7 HAVE PUMPS INSTALLED AND WERE NOT GAUGED
-DATA FROM MW-1 AND MW-4 NOT USED

CURA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG. C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-8219

DENTON STATION
SHELL PIPE LINE CORPORATION
LEA COUNTY, NEW MEXICO

DATE:	SCALE:
OCT 1995	SEE ABOVE
PROJECT NO.	FIGURE NO.
24-93678	1



DISSOLVED HYDROCARBON CONCENTRATION MAP

-SAMPLES OBTAINED 10/12/95
-CONCENTRATIONS LISTED IN mg/l (ppm)

0 100'
APPROXIMATE SCALE

CURA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG. C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-8219

DENTON STATION
SHELL PIPE LINE CORPORATION
LEA COUNTY, NEW MEXICO

DATE:	SCALE:
OCT 1995	SEE ABOVE
PROJECT NO.	FIGURE NO.
24-93678	2

APPENDIX B

TABLES

TABLE 1
DENTON STATION
SUMMARY OF RELATIVE GROUNDWATER LEVEL ELEVATIONS AND PHASE-SEPARATED HYDROCARBON THICKNESSES

Monitoring Well	Date Gauged	Relative Ground Surface Elevation (feet)	Relative Top of Casing Elevation (feet)*	Depth to Water Below Top of Casing (feet)	Corrected Relative Groundwater Elevation (feet)**	Phase-Separated Hydrocarbon Thickness (feet)
MW-1	02/08/95	101.07	103.47	56.17	47.88	0.71
	04/25/95	101.07	103.47	57.84	46.29	0.80
	07/18/95	101.07	103.47	58.31	45.81	0.80
	08/28/95	101.07	103.47	--	--	--
	10/12/95	**101.07**	**103.47**	**55.24**	**48.83**	**0.73**
MW-2	02/08/95	99.17	101.35	54.03	47.32	0.00
	04/25/95	99.17	101.35	54.05	47.30	0.00
	07/18/95	99.17	101.35	54.12	47.23	0.00
	08/28/95	99.17	101.35	54.15	47.20	0.00
	10/12/95	**99.17**	**101.35**	**53.82**	**47.53**	**0.00**
MW-3	02/08/95	101.01	102.68	60.79	48.12	7.60
	03/28/95	101.01	102.68	61.35	48.01	8.15
	04/25/95	101.01	102.68	61.30	46.64	6.42
	07/18/95	101.01	102.68	--	--	--
	08/28/95	101.01	101.00	--	--	--
	10/12/95	**101.01**	**101.00**	**60.17**	**45.66**	**5.82**
MW-4	02/08/95	99.98	101.46	53.78	47.68	0.00
	04/25/94	99.98	101.46	54.21	47.25	0.00
	07/18/95	99.98	101.46	54.82	46.64	0.00
	08/28/95	99.98	101.46	54.03	47.43	0.00
	10/12/95	**99.98**	**101.46**	**53.97**	**47.49**	**0.00**
MW-5	02/08/95	101.71	103.54	61.91	48.31	8.15
	03/28/95	101.71	103.54	61.42	47.99	7.16
	04/25/95	101.71	103.54	61.50	46.84	5.86
	07/18/95	101.71	103.54	--	--	--
	08/28/95	101.71	103.54	--	--	--
	10/12/95	**101.71**	**101.86**	**58.74**	**47.20**	**4.92**
MW-6	02/08/95	101.52	103.41	55.26	48.16	0.00
	04/25/95	101.52	103.41	56.57	46.84	0.00
	07/18/95	101.52	103.41	55.90	47.71	0.00
	08/28/95	101.52	103.41	55.71	47.70	0.00
	10/12/95	**101.52**	**103.41**	**54.77**	**48.64**	**0.00**
MW-7	02/08/95	100.82	102.66	61.16	48.08	8.02
	03/28/95	100.82	102.66	60.86	48.06	7.64
	04/25/95	100.82	102.66	59.13	48.86	6.51
	07/18/95	100.82	102.66	--	--	--
	08/28/95	100.82	102.66	--	--	--
	10/12/95	**100.82**	**100.69**	**59.14**	**46.92**	**6.47**

TABLE 1
DENTON STATION
SUMMARY OF RELATIVE GROUNDWATER LEVEL ELEVATIONS AND PHASE-SEPARATED HYDROCARBON THICKNESSES

Monitoring Well	Date Gauged	Relative Ground Surface Elevation (feet)	Relative Top of Casing Elevation (feet)*	Depth to Water Below Top of Casing (feet)	Corrected Relative Groundwater Elevation (feet)**	Phase-Separated Hydrocarbon Thickness (feet)
MW-8	02/08/95	101.56	103.49	54.59	48.90	0.00
	04/25/95	101.56	103.49	54.63	48.86	0.00
	07/18/95	101.56	103.49	55.00	48.49	0.00
	08/28/95	101.56	103.49	55.02	48.47	0.00
	10/12/95	**101.56**	**103.49**	**54.43**	**49.06**	**0.00**
MW-9	02/08/95	99.66	101.71	53.96	47.75	0.00
	04/25/95	99.66	101.71	64.86	46.85	0.00
	07/18/95	99.66	101.71	54.06	47.65	0.00
	08/28/95	99.66	101.71	54.13	47.58	0.00
	10/12/95	**99.66**	**101.71**	**53.76**	**47.95**	**0.00**
MW-10	08/28/95	99.66	99.79	52.11	47.48	0.00
	10/12/95	**99.66**	**99.79**	**52.04**	**47.75**	**0.00**
MW-11	08/28/95	100.98	100.97	53.83	47.14	0.00
	10/12/95	**100.98**	**100.97**	53.40	**47.57**	**0.00**
MW-12	08/28/95	98.50	98.39	51.49	46.90	0.00
	10/12/95	**98.50**	**98.39**	**52.15**	**46.24**	**0.00**
WW-1	02/08/95	100.55	102.21	57.40	47.93	3.80
	04/25/95	100.55	102.21	59.43	47.36	5.58
	07/18/95	100.55	102.21	--	--	--
	08/28/95	100.55	102.21	--	--	--
	10/12/95	**100.55**	**102.21**	--	--	--

* Measured from a relative datum (benchmark = 100.00 feet) located at the northeast corner of the concrete sump pad. The monitor well casings were marked to provide consistent reference points for future gauging operations.

** Correction Equation for Phase-Separated Hydrocarbons: Corrected Groundwater Elevation = Top of Casing Elevation - (Depth to Water Below Top of Casing - [SG] [PSH Thickness])

Specific Gravity (SG) = 0.73 for gasoline, 0.85 for diesel, 0.82 for crude oil.

TABLE 2

DENTON STATION

WATER SAMPLE ANALYTICAL RESULTS

Monitoring Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	Total BTEX	TPH	Dissolved Oxygen
MW-1	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	04/25/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	07/18/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	10/12/95	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**
MW-2	02/08/95	0.048	<0.001	<0.001	<0.001	0.048	---	0.8
	04/25/95	0.084	<0.001	<0.001	<0.001	0.084	---	4.0
	07/18/95	0.110	<0.001	<0.001	<0.001	0.110	---	3.2
	10/12/95	**0.002**	**<0.001**	**<0.001**	**<0.001**	**0.002**	**---**	**3.8**
MW-3	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	04/25/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	07/18/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	10/12/95	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**
MW-4	02/08/95	---	---	---	---	---	---	---
	04/25/95	---	---	---	---	---	---	---
	07/18/95	---	---	---	---	---	---	---
	10/12/95	**---**	**---**	**---**	**---**	**---**	**---**	**---**
MW-5	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	04/25/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	07/18/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	10/12/95	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**
MW-6	02/08/95	1.200	<0.005	0.031	0.090	1.321	---	1.0
	04/25/95	1.200	<0.005	0.033	0.120	1.353	---	2.6
	07/18/95	1.100	<0.001	0.046	0.209	1.356	---	2.6
	10/12/295	**1.200**	**0.005**	**0.026**	**0.140**	**1.371**	**---**	**3.6**
MW-7	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	04/25/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	07/18/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	10/12/95	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**
MW-8	02/08/95	---	---	---	---	---	---	---
	04/25/95	---	---	---	---	---	---	---
	07/18/95	---	---	---	---	---	---	---
	10/12/95	**---**	**---**	**---**	**---**	**---**	**---**	**---**

TABLE 2
DENTON STATION
WATER SAMPLE ANALYTICAL RESULTS

Monitoring Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	Total BTEX	TPH	Dissolved Oxygen
MW-9	02/08/95	<0.001	<0.001	<0.001	<0.001	<0.001	---	2.3
	04/25/95	<0.001	<0.001	<0.001	<0.001	<0.001	---	8.4
	07/18/95	<0.001	<0.001	<0.001	<0.001	<0.001	---	7.4
	10/12/95	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**---**	**6.4**
MW-10	08/28/95	--	--	--	--	--	--	--
	10/12/95	**--**	**--**	**--**	**--**	**--**	**--**	**--**
MW-11	08/28/95	--	--	--	--	--	--	--
	10/13/95	**1.500**	**0.003**	**<0.001**	**0.005**	**1.508**	**--**	**4.7**
MW-12	08/28/95	--	--	--	--	--	--	--
	10/13/95	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**--**	**4.0**

A total dissolved solids (TDS) concentration of 515 ppm was reported for MW-2 on 09-27-93.

BTEX results listed in m/l (parts per million; ppm) with method detection limits listed on the certificate of analysis.
TPH and TDS results listed in mg/l (parts per million; ppm) with a method detection limit of 1 ppm.
Analyses were conducted using EPA Method 8020 (BTEX), EPA Method 418.1 (TPH), and EPA Method 160.1 (TDS) by SPL Environmental Laboratories.
--- Not sampled.

TABLE 3

DENTON STATION

PHASE-SEPARATED HYDROCARBON RECOVERY

Monitoring Well	Date	PSH Thickness (feet)	PSH Recovery (gallons)	PSH Cumulative Recovery (gallons)	Type of Recovery
WW-1	02/08/95	3.80	8.0	309.0	Hand bailed
	04/25/95	5.58	6.0	315.0	Hand bailed
	08/17/95	--	7.0	322.0	Remediation system
	10/1295	**--**	5.0	**327.0**	
MW-1	02/08/95	0.71	1.15	7.1	Hand bailed
	04/25/95	0.80	0.9	8.0	Hand bailed
	08/17/95	0.80	1.0	9.1	Hand bailed
	10/12/95	**0.73**	**1.0**	**10.1**	Hand bailed
MW-3	02/08/95	7.68	10.0	87.0	Hand bailed
	03/28/95	8.15	10./0	97.0	Hand bailed
	04/25/95	6.42	10.0	107.0	Hand bailed
	05/10/95	--	4.0	111.0	Hand bailed
	07/18/95	--	15.0	126.0	Remediation system
	10/12/95	**5.82**	**8.0**	**134.0**	Remediation system
MW-5	02/08/95	8.15	10.0	99.7	Hand bailed
	03/28/95	7.16	10.0	109.7	Hand bailed
	04/25/95	5.86	10.0	119.7	Hand bailed
	05/10/95	--	4.0	124.0	Remediation system
	07/18/95	--	15.0	139.0	Remediation system
	10/12/95	**4.92**	**5.0**	**144.0**	Remediation system
MW-7	02/08/95	8.02	12.0	80.0	Hand bailed
	03/28/95	7.64	10.0	90.0	Hand bailed
	04/25/95	6.51	10.0	100.0	Hand bailed
	05/10/95	--	4.0	104.0	Remediation system
	07/18/95	--	15.0	104.0	Remediation system
	10/12/95	**6.47**	**4.0**	**123.0**	Remediation system

-- PSH thickness not measured because of equipment in well.
Total system recovery as of 10/12/95 = 57 gallons.
Total cumulative recovery as of 10/12/95 = 738 gallons.

APPENDIX C
ANALYTICAL RESULTS

9510810

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING

CHAIN OF CUSTODY RECORD NO. H 23474

Date: 10-18-95
Page 1 of 1

SITE ADDRESS: Shell Pipe Line
Dayton Station
~~WIC #~~ POS # 24-93678504
CONSULTANT NAME & ADDRESS: CURA INC
231 W. Wadley, C-200, Midland TX
CONSULTANT CONTACT: Brad Smith (Houston)
PHONE: (915) 570-8408 FAX (915) 570-8409
SAMPLED BY: Bill D. Smith

CHECK ONE BOX ONLY CT/DT

- QUARTERLY MONITORING ☒ 5461
- SITE INVESTIGATION ☐ 5441
- SOIL FOR DISPOSAL ☐ 5442
- WATER FOR DISPOSAL ☐ 5443
- AIR SAMPLER - SYS O+M ☐ 5452
- WATER SAMPLE - SYS O+M ☐ 5453
- OTHER ☐

SAMPLE I.D.	DATE	TIME	COMP.	GRAB	MATRIX: H2O	SOIL	AIR	SLUDGE	OTHER	METHOD PRESERVED: HCl	HNO3	H2SO4	NONE	OTHER: ICE	NO. OF CONTAINERS	CONTAINER SIZE	ANALYSIS REQUEST: BTEX 602 ☐ / 8020 ☒ WITH MTBE ☐	BTEX/GAS HYDROCARBONS PID/FID ☐ WITH MTBE	VOL 624/PPL ☐ / 8240/TAL ☐	PNA/PAH 8310 ☐ / 8100 ☐	SEMI-VOL 625/PPL ☐ / 8270/TAL ☐	TPH/IR 418.1 ☐ / SM503 ☐	TPH/GC 8015 Mod. GAS ☐ / 8015 Mod DIESEL ☐	TCLP METALS ☐ VOL ☐ SEMI-VOL ☐ PEST ☐ HERB ☐	EP TOX METALS ☐ PESTICIDES ☐ HERBICIDES ☐	REACTIVITY ☐ CORROSIVITY ☐ IGNITABILITY ☐	OTHER	REMARKS
MW-9	10-12-95	1300		✓	✓					✓				✓	3	40 ml VOA	✓											
MW-6	10-12-95	1330		✓	✓					✓				✓	3	40 ml	✓											
MW-2	10-12-95	1400		✓	✓					✓				✓	3	40 ml	✓											
MW-11	10-13-95	1330		✓	✓					✓				✓	3	40 ml	✓											
MW-12	10-13-95	1400		✓	–					–				–	3	40 ml	–											Added 10/20 BS

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Bill D. Smith	10-18-95	1000			
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
			S. West	10/19/95	1038

BILL NO.:
LABORATORY: SPL Houston
SHELL CONTACT: Neil Stidham PHONE: FAX:

TURN AROUND TIME (CHECK ONE)
7 DAYS ☐ 14 DAYS ☐ (NORMAL)
48 HOURS ☐ 4°C Intact OTHER ☒ Per Shell contract

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN OF CUSTODY WITH INVOICE AND RESULTS

DISTRIBUTION: PINK Sampling Coordinator - WHITE & YELLOW Accompanies Shipment - WHITE Returned with Report

FEDEX #664291015 3

CORRECTED COPY

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9510810-03

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 11/27/95

PROJECT: 24-93678504
SITE: Denton Station
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-2

PROJECT NO: H 23474
MATRIX: WATER
DATE SAMPLED: 10/12/95 14:00:00
DATE RECEIVED: 10/19/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	2	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL BTEX	2		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	98
4-Bromofluorobenzene	77

METHOD 5030/8020 ***
Analyzed by: AA
Date: 10/20/95

(P) - Practical Quantitation Limit ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

CORRECTED COPY

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9510810-02

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 11/27/95

PROJECT: 24-93678504
SITE: Denton Station
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-6

PROJECT NO: H 23474
MATRIX: WATER
DATE SAMPLED: 10/12/95 13:30:00
DATE RECEIVED: 10/19/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	1200	5 P	µg/L
TOLUENE	5	5 P	µg/L
ETHYLBENZENE	26	5 P	µg/L
TOTAL XYLENE	140	5 P	µg/L
TOTAL BTEX	1371		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	114
4-Bromofluorobenzene	64

METHOD 5030/8020 ***
Analyzed by: AA
Date: 10/22/95

(P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

CORRECTED COPY

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9510810-01

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 11/27/95

PROJECT: 24-93678504
SITE: Denton Station
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-9

PROJECT NO: H 23474
MATRIX: WATER
DATE SAMPLED: 10/12/95 13:00:00
DATE RECEIVED: 10/19/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL BTEX	ND		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	99
4-Bromofluorobenzene	83

METHOD 5030/8020 ***
Analyzed by: AA
Date: 10/20/95

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

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HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9510810-04

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 11/27/95

PROJECT: 24-93678504
SITE: Denton Station
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-11

PROJECT NO: H 23474
MATRIX: WATER
DATE SAMPLED: 10/13/95 13:30:00
DATE RECEIVED: 10/19/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	1500	25 P	µg/L
TOLUENE	3	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	5	1 P	µg/L
TOTAL BTEX	1508		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	96
4-Bromofluorobenzene	75

METHOD 5030/8020 ***
Analyzed by: AA
Date: 10/22/95

(P) - Practical Quantitation Limit ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

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HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9510810-05

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 11/27/95

PROJECT: 24-93678504
SITE: Denton Station
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-12

PROJECT NO: H 23474
MATRIX: WATER
DATE SAMPLED: 10/13/95 14:00:00
DATE RECEIVED: 10/19/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL BTEX	ND		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	98
4-Bromofluorobenzene	82

METHOD 5030/8020 ***
Analyzed by: AA
Date: 10/20/95

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

QUALITY CONTROL

DOCUMENTATION

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **

METHOD 8020

Matrix: Aqueous

Batch Id: HP_U951017215900

Units: µg/L

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Benzene	ND	50	60	120	61 - 123
Toluene	ND	50	58	116	62 - 122
EthylBenzene	ND	50	54	108	56 - 119
O Xylene	ND	50	65	130	32 - 160
M & P Xylene	ND	100	120	120	32 - 160

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
BENZENE	ND	20	22	110	22	110	0	25	39 - 150
TOLUENE	ND	20	20	100	21	105	4.88	26	56 - 134
ETHYLBENZENE	ND	20	19	95.0	19	95.0	0	38	61 - 128
O XYLENE	ND	20	22	110	22	110	0	20	40 - 130
M & P XYLENE	ND	40	39	97.5	39	97.5	0	20	43 - 152

Analyst: AA

Sequence Date: 10/21/95

SPL ID of sample spiked: 9510810-01A

Sample File ID: U___538A.TX0

Method Blank File ID:

Blank Spike File ID: U___552.TX0

Matrix Spike File ID: U___549.TX0

Matrix Spike Duplicate File ID: U___550.TX0

* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery = [(<1> - <2>) / <3>] x 100

LCS % Recovery = (<1> / <3>) x 100

Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100

(**) = Source:

(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID): 9510677-05A 9510677-06A 9510810-01A 9510810-03A 9510810-05A 9510810-04A 9510813-02A 9510813-04A 9510807-01A 9510807-02A 9510813-03A 9510677-04A 9510677-03A 9510677-01A

Ann Bennefield

QC Officer

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 8020

Matrix: Aqueous
Units: µg/L

Batch Id: HP_U951021234000

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Benzene	ND	50	52	104	61 - 123
Toluene	ND	50	49	98.0	62 - 122
EthylBenzene	ND	50	50	100	56 - 119
O Xylene	ND	50	56	112	32 - 160
M & P Xylene	ND	100	99	99.0	32 - 160

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
BENZENE	ND	20	20	100	20	100	0	25	39 - 150
TOLUENE	ND	20	20	100	20	100	0	26	56 - 134
ETHYLBENZENE	ND	20	18	90.0	17	85.0	5.71	38	61 - 128
O XYLENE	ND	20	21	105	22	110	4.65	20	40 - 130
M & P XYLENE	ND	40	37	92.5	38	95.0	2.67	20	43 - 152

Analyst: AA
Sequence Date: 10/23/95
SPL ID of sample spiked: 9510854-04A
Sample File ID: U___587.TX0
Method Blank File ID:
Blank Spike File ID: U___628.TX0
Matrix Spike File ID: U___603.TX0
Matrix Spike Duplicate File ID: U___604.TX0

* = Values Outside QC Range
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source:
(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID): 9510948-02A 9510948-01A 9510939-01A 9510810-02A 9510810-04A 9510807-03A 9510854-10A 9510854-12A 9510854-13A 9510854-15A 9510854-16A 9510855-01A 9510855-02A 9510807-02A 9510854-06A 9510854-04A 9510948-03A 9510854-05A 9510854-08A 9510854-11A

QC Officer

APPENDIX D

QUALITY ASSURANCE/QUALITY CONTROL SAFETY PLAN AND LIMITATIONS

QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

A strict Quality Assurance Plan was incorporated throughout all phases of the on-site operations and sampling procedures. Soil or solid material samples were collected using new disposable or properly decontaminated reusable stainless steel equipment. Water or liquid samples were collected with new disposable bailers or decontaminated pump equipment. All non-reusable equipment was disposed of and reusable equipment was decontaminated between sampling stations to eliminate the potential of cross-contamination. The water samples were transferred from the bailers into airtight septum-sealed 40-ml glass VOA vials, one-liter amber glass jars with Teflon-lined lids, or other sample containers appropriate for the required analyses.

The samples were sealed with QA/QC seals, preserved with acid (if required), and maintained at 4°C in accordance with Environmental Protection Agency (EPA) requirements (EPA 600/4-82-029) for shipment to the laboratory. A chain-of-custody (COC) which documents sample collection times and delivery times to the laboratory was completed for each set of samples. The COC is included with the analytical results in the Appendix.

CURA utilizes laboratories that maintain strict quality controls, i.e. equipment calibration and standardization, appropriate analytical methods, preparation of quality control samples, and complete chains-of-custody. Analyses were performed on all samples using the EPA-, state-, or local agency-directed methods. The maximum recommended holding times were not exceeded unless noted in the text.

SAFETY PLAN

The sampling operations were performed at level D personal protection. CURA personnel involved in on-site activities have completed the Occupational Safety and Health for Hazardous Waste Field Operation training course (OSHA 29 CFR 1910.120). Applicable safety equipment was on site to CURA personnel.

LIMITATIONS

It should be noted that all subsurface investigations are inherently limited in the sense that conclusions are drawn and recommendations are developed from samples which depict subsurface conditions at representative locations over relatively short periods of time. Subsurface conditions elsewhere may differ from those at the sampling locations. In addition, subsurface conditions at sampling locations may vary over longer periods of time than can be observed in a study of this type. The passage of time, manifestation of latent conditions, or occurrence of future events may require further site exploration, data collection and analysis, and reevaluation of the findings, observations, conclusions, and recommendation expressed in this report.

CORRECTED COPY

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-01

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-10

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 08:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	99		
4-Bromofluorobenzene	93		
METHOD 8020***			
Analyzed by: VHZ			
Date: 08/21/95			
Silver, Total	ND	0.005	mg/L
METHOD 6010 ***			
Analyzed by: DQ			
Date: 08/22/95			
Arsenic, Total	ND	0.01	mg/L
METHOD 7060 ***			
Analyzed by: WFL			
Date: 08/23/95			
Barium, Total	0.088	0.005	mg/L
METHOD 6010 ***			
Analyzed by: DQ			
Date: 08/22/95			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

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8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-01

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-10

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 08:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Cadmium, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.005	mg/L
Chromium, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.01	mg/L
Mercury, Total METHOD 7470 *** Analyzed by: PB Date: 08/22/95	ND	0.0002	mg/L
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 08/21/95	08/21/95		
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: AM Date: 08/21/95	08/21/95		

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-01

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-10

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 08:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Lead, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.05	mg/L
Selenium, Total METHOD 7740 *** Analyzed by: WFL Date: 08/23/95	ND	0.008	mg/L
Calcium, Dissolved METHOD 6010 *** Analyzed by: DQ Date: 08/24/95	73.6	0.5	mg/L
Chloride METHOD 325.3 * Analyzed by: ET Date: 08/20/95	28	1	mg/L
Carbonate, as CaCO3 METHOD SM 4500-CO2D ** Analyzed by: DSE Date: 08/21/95	ND	1	mg/L
Specific Conductance METHOD 120.1 * Analyzed by: DSE Date: 08/21/95	626	1	umhos/cm

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

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8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-01

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-10

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 08:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Bicarbonate, as CaCO3 METHOD SM 4500-CO2D ** Analyzed by: DSE Date: 08/21/95	288	1	mg/L
Potassium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	ND	5	mg/L
Magnesium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	17.5	0.5	mg/L
Sodium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	37.4	0.5	mg/L
Nitrate nitrogen(as N) METHOD 353.3 Analyzed by: ET Date: 08/20/95	0.5	0.05	mg/L
pH METHOD 150.1 * Analyzed by: DSE Date: 08/21/95	7.66		pH units

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

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8880 INTERCHANGE DRIVE
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PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-01

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-10

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 08:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Sulfate METHOD 375.4 * Analyzed by: ST Date: 08/21/95	54	8	mg/L
Total Dissolved Solids METHOD 160.1 * Analyzed by: JS Date: 08/21/95	314	4	mg/L

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

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Certificate of Analysis No. H9-9508705-01

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.#
MESA-CAO-B-1312-01-PX-4204-NS
11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-10

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 08:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Naphthalene	5	1.4	µg/L
1-Methylnaphthalene	ND	1.4	µg/L
2-Methylnaphthalene	ND	1.4	µg/L
Acenaphthylene	ND	1.2	µg/L
Acenaphthene	ND	1.2	µg/L
Fluorene	ND	1.0	µg/L
Phenanthrene	ND	0.84	µg/L
Anthracene	ND	1.4	µg/L
Fluoranthene	ND	0.72	µg/L
Pyrene	ND	0.68	µg/L
Benzo (a) anthracene	ND	0.62	µg/L
Chrysene	ND	0.79	µg/L
Benzo (b) fluoranthene	ND	1.4	µg/L
Benzo (k) fluoranthene	ND	1.9	µg/L
Benzo (a) pyrene	ND	1.1	µg/L
Dibenzo (a,h) anthracene	ND	1.6	µg/L
Benzo (g,h,i) perylene	ND	1.3	µg/L
Indeno (1,2,3-cd) pyrene	ND	1.2	µg/L

SURROGATES	% RECOVERY
2-Fluorobiphenyl	78

ANALYZED BY: APM DATE/TIME: 08/22/95 12:45:00
EXTRACTED BY: VM DATE/TIME: 08/20/95 15:00:00
METHOD: 8100 - Polynuclear Aromatic Hydrocarbons
NOTES: * - Practical Quantitation Limit ND - Not Detected
NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

CORRECTED COPY

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-02

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-11

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:00:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	630	5 P	µg/L
TOLUENE	ND	5 P	µg/L
ETHYLBENZENE	ND	5 P	µg/L
TOTAL XYLENE	ND	5 P	µg/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	630		µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	88		
METHOD 8020***			
Analyzed by: VHZ			
Date: 08/23/95			
Silver, Total	ND	0.005	mg/L
METHOD 6010 ***			
Analyzed by: DQ			
Date: 08/22/95			
Arsenic, Total	ND	0.01	mg/L
METHOD 7060 ***			
Analyzed by: WFL			
Date: 08/23/95			
Barium, Total	0.244	0.005	mg/L
METHOD 6010 ***			
Analyzed by: DQ			
Date: 08/22/95			

(P) - Practical Quantitation Limit ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

CORRECTED COPY

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-02

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-11

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:00:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Cadmium, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.005	mg/L
Chromium, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.01	mg/L
Mercury, Total METHOD 7470 *** Analyzed by: PB Date: 08/22/95	ND	0.0002	mg/L
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 08/21/95	08/21/95		
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: AM Date: 08/21/95	08/21/95		

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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Certificate of Analysis No. H9-9508705-02

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-11

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:00:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Lead, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.05	mg/L
Selenium, Total METHOD 7740 *** Analyzed by: WFL Date: 08/23/95	ND	0.008	mg/L
Calcium, Dissolved METHOD 6010 *** Analyzed by: DQ Date: 08/24/95	113	0.5	mg/L
Chloride METHOD 325.3 * Analyzed by: ET Date: 08/20/95	58	1	mg/L
Carbonate, as CaCO3 METHOD SM 4500-CO2D ** Analyzed by: DSE Date: 08/21/95	ND	1	mg/L
Specific Conductance METHOD 120.1 * Analyzed by: DSE Date: 08/21/95	882	1	umhos/cm

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-02

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-11

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:00:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Bicarbonate, as CaCO3 METHOD SM 4500-CO2D ** Analyzed by: DSE Date: 08/21/95	414	1	mg/L
Potassium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	ND	5	mg/L
Magnesium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	26.0	0.5	mg/L
Sodium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	42.2	0.5	mg/L
Nitrate nitrogen(as N) METHOD 353.3 Analyzed by: ET Date: 08/20/95	ND	0.05	mg/L
pH METHOD 150.1 * Analyzed by: DSE Date: 08/21/95	8.10		pH units

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-02

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-11

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:00:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Sulfate METHOD 375.4 * Analyzed by: ST Date: 08/21/95	73	5	mg/L
Total Dissolved Solids METHOD 160.1 * Analyzed by: JS Date: 08/21/95	312	4	mg/L

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

CORRECTED COPY

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-02

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.#
MESA-CAO-B-1312-01-PX-4204-NS
11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-11

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:00:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Naphthalene	ND	1.4	µg/L
1-Methylnaphthalene	ND	1.4	µg/L
2-Methylnaphthalene	ND	1.4	µg/L
Acenaphthylene	ND	1.2	µg/L
Acenaphthene	ND	1.2	µg/L
Fluorene	ND	1.0	µg/L
Phenanthrene	ND	0.84	µg/L
Anthracene	ND	1.4	µg/L
Fluoranthene	ND	0.72	µg/L
Pyrene	ND	0.68	µg/L
Benzo (a) anthracene	ND	0.62	µg/L
Chrysene	ND	0.79	µg/L
Benzo (b) fluoranthene	ND	1.4	µg/L
Benzo (k) fluoranthene	ND	1.9	µg/L
Benzo (a) pyrene	ND	1.1	µg/L
Dibenzo (a,h) anthracene	ND	1.6	µg/L
Benzo (g,h,i) perylene	ND	1.3	µg/L
Indeno (1,2,3-cd) pyrene	ND	1.2	µg/L

SURROGATES	% RECOVERY
2-Fluorobiphenyl	102

ANALYZED BY: APM DATE/TIME: 08/22/95 01:46:00
EXTRACTED BY: VM DATE/TIME: 08/20/95 15:00:00
METHOD: 8100 - Polynuclear Aromatic Hydrocarbons
NOTES: * - Practical Quantitation Limit ND - Not Detected
NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

CORRECTED COPY

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-03

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-12

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	102		
4-Bromofluorobenzene	92		
METHOD 8020***			
Analyzed by: VHZ			
Date: 08/22/95			
Silver, Total	ND	0.005	mg/L
METHOD 6010 ***			
Analyzed by: DQ			
Date: 08/22/95			
Arsenic, Total	ND	0.01	mg/L
METHOD 7060 ***			
Analyzed by: WFL			
Date: 08/23/95			
Barium, Total	0.088	0.005	mg/L
METHOD 6010 ***			
Analyzed by: DQ			
Date: 08/22/95			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

CORRECTED COPY

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-03

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-12

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Cadmium, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.005	mg/L
Chromium, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.01	mg/L
Mercury, Total METHOD 7470 *** Analyzed by: PB Date: 08/22/95	ND	0.0002	mg/L
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 08/21/95	08/21/95		
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: AM Date: 08/21/95	08/21/95		

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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8880 INTERCHANGE DRIVE
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PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-03

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-12

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Lead, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.05	mg/L
Selenium, Total METHOD 7740 *** Analyzed by: WFL Date: 08/23/95	ND	0.008	mg/L
Calcium, Dissolved METHOD 6010 *** Analyzed by: DQ Date: 08/24/95	75.2	0.5	mg/L
Chloride METHOD 325.3 * Analyzed by: ET Date: 08/20/95	45	1	mg/L
Carbonate, as CaCO3 METHOD SM 4500-CO2D ** Analyzed by: DSE Date: 08/21/95	ND	1	mg/L
Specific Conductance METHOD 120.1 * Analyzed by: DSE Date: 08/21/95	670	1	umhos/cm

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-03

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-12

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Bicarbonate, as CaCO3 METHOD SM 4500-CO2D ** Analyzed by: DSE Date: 08/21/95	228	1	mg/L
Potassium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	ND	5	mg/L
Magnesium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	17.4	0.5	mg/L
Sodium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	37.1	0.5	mg/L
Nitrate nitrogen(as N) METHOD 353.3 Analyzed by: ET Date: 08/20/95	1.6	0.1	mg/L
pH METHOD 150.1 * Analyzed by: DSE Date: 08/21/95	8.12		pH units

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-03

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-12

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Sulfate METHOD 375.4 * Analyzed by: ST Date: 08/21/95	62	5	mg/L
Total Dissolved Solids METHOD 160.1 * Analyzed by: JS Date: 08/21/95	468	4	mg/L

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-03

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.#
MESA-CAO-B-1312-01-PX-4204-NS
11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-12

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Naphthalene	ND	1.4	µg/L
1-Methylnaphthalene	ND	1.4	µg/L
2-Methylnaphthalene	ND	1.4	µg/L
Acenaphthylene	ND	1.2	µg/L
Acenaphthene	ND	1.2	µg/L
Fluorene	ND	1.0	µg/L
Phenanthrene	ND	0.84	µg/L
Anthracene	ND	1.4	µg/L
Fluoranthene	ND	0.72	µg/L
Pyrene	ND	0.68	µg/L
Benzo (a) anthracene	ND	0.62	µg/L
Chrysene	ND	0.79	µg/L
Benzo (b) fluoranthene	ND	1.4	µg/L
Benzo (k) fluoranthene	ND	1.9	µg/L
Benzo (a) pyrene	ND	1.1	µg/L
Dibenzo (a,h) anthracene	ND	1.6	µg/L
Benzo (g,h,i) perylene	ND	1.3	µg/L
Indeno (1,2,3-cd) pyrene	ND	1.2	µg/L

SURROGATES	% RECOVERY
2-Fluorobiphenyl	83

ANALYZED BY: APM DATE/TIME: 08/22/95 02:48:00
EXTRACTED BY: VM DATE/TIME: 08/20/95 15:00:00
METHOD: 8100 - Polynuclear Aromatic Hydrocarbons
NOTES: * - Practical Quantitation Limit ND - Not Detected
NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

CORRECTED COPY

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-04

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 11/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Provided by SPL
SAMPLE ID: Trip Blank

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/03/95
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	102
4-Bromofluorobenzene	95

METHOD 8020***
Analyzed by: VHZ
Date: 08/21/95

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 S. Pacheco
Santa Fe, New Mexico 87505

November 7, 1995

CERTIFIED MAIL
RETURN RECEIPT NO. Z-765-962-509

Mr. Neal Stidham
Shell Pipe Line Corporation
Two Shell Plaza
P.O. Box 2099
Houston, Texas 77252-2099

RE: GROUND WATER DEVELOPMENT WATER
DENTON AND LEA CRUDE PUMP STATIONS
LEA COUNTY, NEW MEXICO

Dear Mr. Stidham:

The New Mexico Oil Conservation Division (OCD) has completed a review of Shell Oil Products Company's (SOPC) October 23, 1995 "DEVELOPMENT WATER, DENTON STATION AND LEA STATIONS". This document contains SOPC's request to dispose of monitor well development and purge water on the surface at each station. The request is based upon the analytical results of the waters generated during development and purging.

The above referenced request is approved.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Jerry Sexton, OCD Hobbs District Supervisor
Wayne Price , OCD Hobbs Office

Z 765 962 509

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PS Form **3800**, March 1993

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NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 S. Pacheco
Santa Fe, New Mexico 87505

November 7, 1995

CERTIFIED MAIL
RETURN RECEIPT NO. Z-765-962-509

Mr. Neal Stidham
Shell Pipe Line Corporation
Two Shell Plaza
P.O. Box 2099
Houston, Texas 77252-2099

RE: GROUND WATER INVESTIGATION REPORT
DENTON CRUDE PUMP STATION
LEA COUNTY, NEW MEXICO

Dear Mr. Stidham:

The New Mexico Oil Conservation Division (OCD) has completed a review of Shell Oil Products Company's (SOPC) October 25, 1995 "ADDITIONAL DELINEATION, DENTON STATION". This document contains the results of SOPC's recent investigation of the extent of ground water contamination related to SOPC's Denton Crude Station in Lea County, New Mexico.

The investigation activities as contained in the above referenced document are satisfactory. However, the extent of contamination of contamination was apparently not completely defined since the concentrations of benzene in the eastern downgradient monitor well MW-11 are well in excess of New Mexico Water Quality Control Commission (WQCC) ground water standards. Therefore, the OCD requests that SOPC submit a work plan to the OCD for completing the definition of the extent of contamination to the OCD by January 12, 1996.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Jerry Sexton, OCD Hobbs District Supervisor
Wayne Price , OCD Hobbs Office

Shell Oil Products Company

Two Shell Plaza
P. O. Box 2099
Houston, TX 77252-2099

October 25, 1995

William Olson
State of New Mexico Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, New Mexico 87504

SUBJECT: ADDITIONAL DELINEATION, DENTON STATION

Dear Mr. Olson,

Enclosed is the report for the additinal groundwater investigation at Denton Station. The purpose of the investigation was to establish monitoring wells down gradient of the subsurface plume. This work was conducted to fulfill the conditions of your authorization letter of July 24, 1995. With the exception of benzene in MW-11, all other parameters tested were either below detection or below the State standards for a domestic water supply. Due to a lack of either odor or evidence of contamination during well installation or sampling, MW-11 was resampled on September 18 to confirm the presence or absence of benzene. The September sample was .45 ppm. All wells will be sampled during October and the results provided in the quarterly report. We will review the data collected to date and will contact you with our proposal. If you have any questions please call me at 713-241-2961.

Sincerely,

Neal Stidham
Staff Engineer
Shell Oil Company
Representing Shell Pipe Line Corporation

cc: Paul Newman-EOTT Energy Corp.
Jerry Sexton-OCD Hobbs

Soil Boring and Monitor Well Installation Operations

On July 6, 1995 and July 7, 1995, ESC drilled three soil borings to total depths ranging from 67 to 70 feet below ground surface using an air rotary drilling rig. Monitor well placement was specifically designed to evaluate the hydrogeologic conditions and delineate the extent of hydrocarbon impact. Monitoring wells MW-11 and MW-12 were placed down gradient from MW-1, MW-2, and MW-6 to complete the delineation of the dissolved hydrocarbon plume and to determine if off-site migration of petroleum hydrocarbons has occurred along the eastern property boundary. Monitor well MW-10 was located in a cross gradient position relative to the impacted area to determine the horizontal extent and magnitude of the free-floating crude oil layer previously identified in wells MW-3 and MW-7.

The drill cuttings and soil samples obtained during the drilling operations were monitored for indications of hydrocarbon impact. Soil samples were collected at five foot intervals and immediately above groundwater using a split spoon sampler. The samples were field screened with a Century 128 organic vapor analyzer (OVA). The soil samples collected during drilling registered no OVA readings greater than 1 ppm and exhibited no hydrocarbon odors or staining. Because no indication of any hydrocarbon contaminants were observed, no soil samples were submitted for laboratory analysis. A complete listing of the OVA readings is provided on the drilling logs in Appendix B.

After drilling and logging the borings, the borings were converted to groundwater monitoring wells. The screened interval in each of the wells extends from approximately 50 feet below ground surface to a total depth between 63 to 70 feet and was designed to set the screen approximately 5 feet above the top of the water table and penetrate at least 10 feet of the aquifer.

The monitoring wells were constructed of 2-inch diameter schedule 40 PVC well casing and 0.02-inch factory slotted screen. The screened portion of the monitoring wells was surrounded by a sand pack of clean silica sand with a grain size large than the well screen slots. The sand pack extends from the bottom of the boring to one foot above the top of the screen. Above the sand pack, a 4 foot thick bentonite plug was installed in the annular space of the bore hole to provide a watertight seal. The annular space above the bentonite seal was then grouted to surface with portland cement containing 5% bentonite. Locking well caps and a steel flush-mount well cover surrounded by a 2.5 foot by 2.5 foot concrete pad were installed at each well. Well construction diagrams are included in Appendix B.

Site Hydrogeology

The soils encountered during the drilling operations consisted of approximately 47 feet of light brown to white calcareous silty fine-grained sand (caliche) which overlays a 4 foot thick layer of

red-brown indurated sandstone. The sandstone is underlain by a pink non-calcareous to calcareous fine-grained to medium grained sand (SM). This sand extends from approximately 51 feet to a depth of 70 feet below ground surface (maximum boring depth). The drilling logs are included in Appendix B and provide a more detailed description of the subsurface conditions encountered at the site.

After the additional monitor wells were installed and surveyed, monitor wells MW-1, MW-2, MW-4, MW-6, MW-8, MW-9, MW-10, MW-11, and MW-12 were gauged on July 22, 1995 and August 17, 1995 to determine the presence of free-floating crude, groundwater elevation, and direction of groundwater flow. Depth to the water table ranged from approximately 52 feet to 56 feet below ground surface with the apparent direction of groundwater flow toward the southeast. A hydraulic gradient of 0.00197 was calculated for the eastern half of the site based on the groundwater elevation map (Appendix A).

No free-floating hydrocarbons were observed in the monitoring wells during gauging operations with the exception of a 0.8 foot thick layer in MW-1. Monitor wells MW-3, MW-5, MW-7 and the abandoned water well (WW-1) each contain a hydrocabon-only recovery pump and were not gauged during this investigation. A summary of groundwater elevation measurements and light non-aqueous petroleum liquids (LNAPL) thickness is listed in Table 1 (Appendix C).

Groundwater Sampling and Analytical Results

Monitor wells MW-10, MW-11, and MW-12 were gauged prior to sampling in order to determine the depth to groundwater and calculate the volume of water in the well bore.

The monitor wells were developed on August 17, 1995 by surge bailing using a manual bailer to remove fines. Approximately 21 gallons, 26 gallons, and 24 gallons of water was removed from monitor wells MW-10, MW-11, and MW-12, respectively, during development operations. The purged groundwater was stored on-site in labeled drums pending water analytical results to determine disposal methods in accordance with NMOCD regulations.

After development, dissolved oxygen (DO) measurements were performed on-site and groundwater samples were obtained from the monitoring wells using a dedicated disposable bailer. The groundwater samples were transported on ice to the laboratory for benzene, toluene, ethylbenzene, and total xylenes (BTEX), polynuclear aromatic hydrocarbons (PAH), total dissolved solids (TDS), major cations / anions, and heavy metals analysis using EPA approved methods.

Analytical results from the samples collected by ESC on August 17, 1995 recorded PAH, major cations/anions, TDS and heavy metal concentrations well below the New Mexico Water Quality Control Commission standards for use as a domestic water supply.

Total dissolved BTEX levels ranged from less than the method detection limit of 0.001 mg/l (parts per million; ppm) in monitor wells MW-10 and MW-12 to 0.63 ppm in MW-11. The BTEX concentration recorded for MW-11 was composed entirely of benzene. A second sample collected on September 18, 1995 to confirm the presence of benzene in MW-11 recorded a benzene level of 0.45 ppm.

The elevated dissolved BTEX concentrations exhibited in MW-11 indicate the dissolved hydrocarbon plume extends off-site along the facility's east boundary.

A summary of the water analytical results is presented in Tables 2 and 3 (Appendix C). A dissolved hydrocarbon concentration map is illustrated in Appendix A. The laboratory reports and chains-of-custody are included in Appendix D.

Conclusions

Based on the findings of this subsurface investigation, the free-floating crude oil plume is restricted to an area near the center of the site with the downgradient edge of the plume ending near MW-1. The groundwater analytical results indicate the dissolved hydrocarbon plume is primarily restricted to an on-site area in the southeast corner of the site with the downgradient edge of the plume extending off-site along the facility's east boundary in the vicinity of MW-11.

ESC appreciates the opportunity to provide you with our professional services. If you have any questions, please do not hesitate to contact us.

Respectively,
Environmental Spill Control, Inc.

F. Wesley Root

F. Wesley Root
Division Manager
Geology/Hydrology

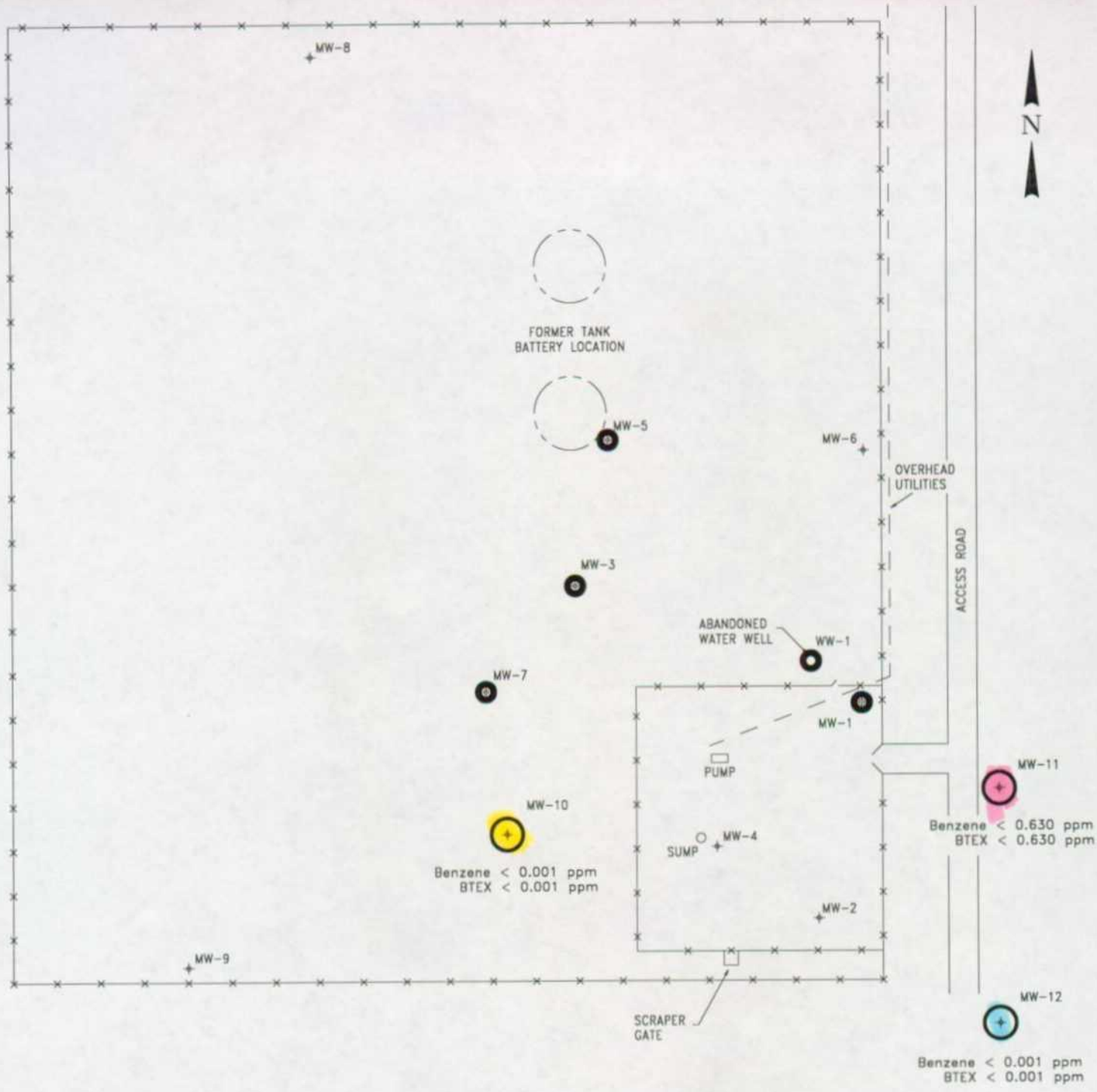
FWR/fwr

Attachments

SO1R128.SAM

APPENDIX A

FIGURES



WELL CONTAINING FREE FLOATING CRUDE OIL

MONITOR WELL

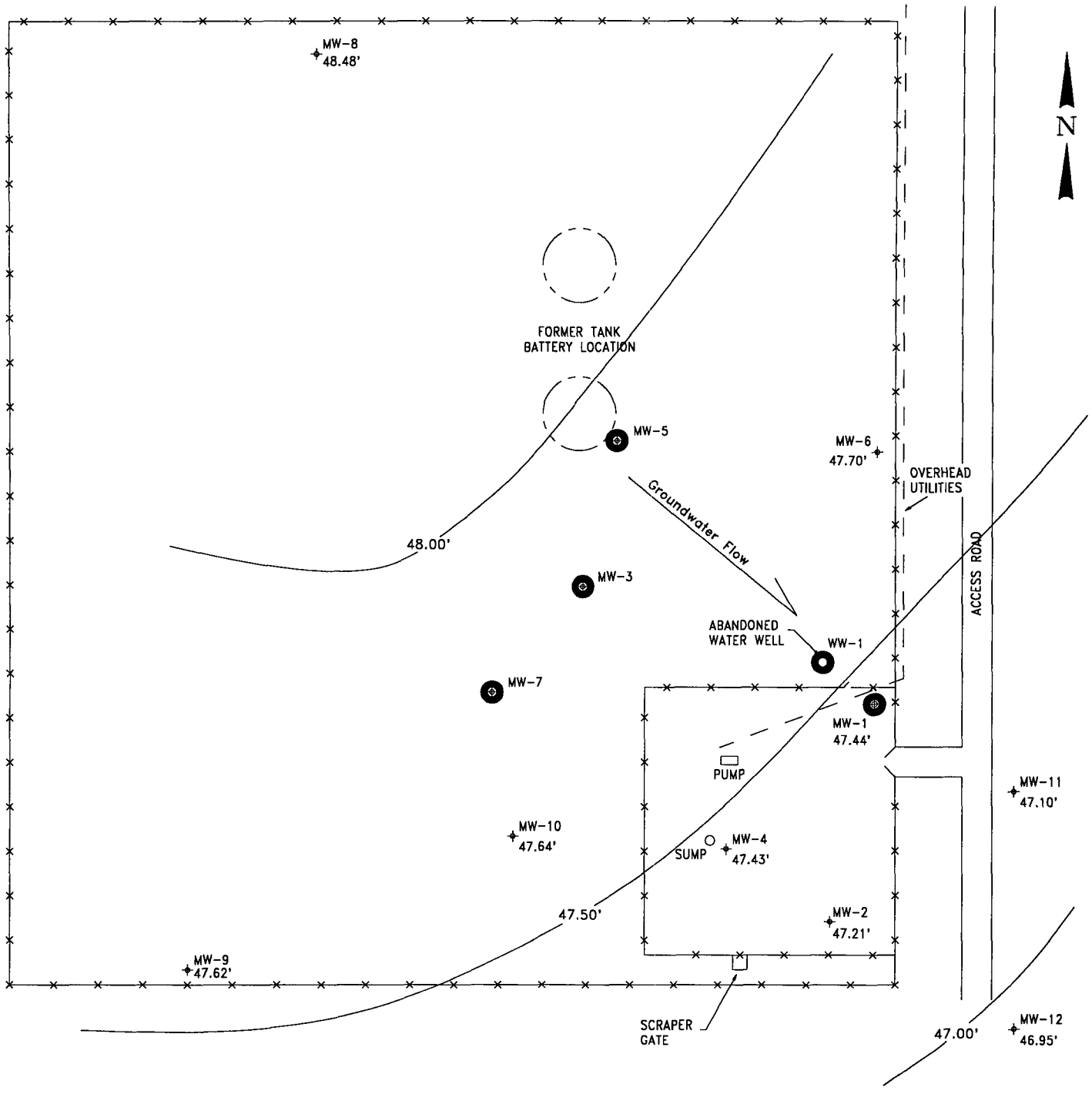
MONITOR WELLS SAMPLED IN AUGUST 1995

SHELL PIPELINE CORP.

DISSOLVED HYDROCARBON CONCENTRATIONS DENTON STATION LEA Co., NEW MEXICO

DATE:7-12-95	DRAWN M.F.G.	REV. DATE 10-17-95	BY:
SCALE: 1" = 100'		JOB #: 128	
DRAWING 1 OF 2		FILE: DENTON.DWG	

ENVIRONMENTAL SPILL CONTROL, Inc.
PHONE (505) 392-6167
FAX (505) 397-5085



WELL CONTAINING FREE FLOATING CRUDE OIL

MONITOR WELL

SHELL PIPELINE CORP.

GROUNDWATER ELEVATION
DENTON STATION
LEA Co., NEW MEXICO

ENVIRONMENTAL
SPILL CONTROL, Inc.
PHONE (505) 392-6167
FAX (505) 397-5085

DATE:9-9-95	DRAWN M.F.G.	REV. DATE 10-17-95	BY:
SCALE: 1" = 100'		JOB #: 128	
DRAWING 2 OF 2		FILE: DENTON.DWG	

APPENDIX B

DRILLING LOGS

Company Drilled for: Shell Pipeline Corporation

Location: Denton Station
SW4 Sec 15, T19S, R37E
Lea Co., New Mexico

ENVIRONMENTAL SPILL CONTROL, Inc.
PHONE (505) 392-6167
FAX (505) 397-5085

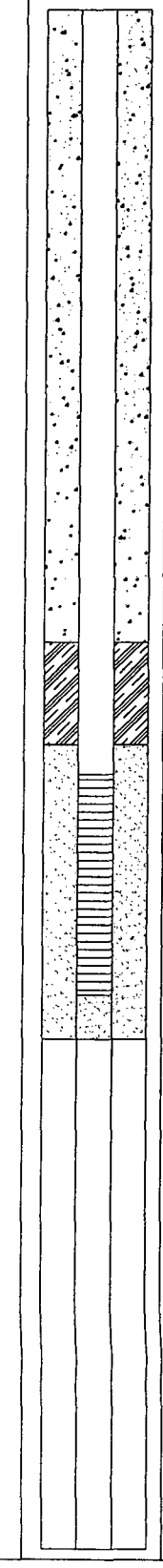
Drilling Log

Well/Bore Number:	Date Drilled:	Driller:	Logged By:
MW-10	7-6-95	AH	F. Wesly Root

Drilling Method:	Depth of Boring:	Depth of Well:	Length of Casing:	Length of Screen:
Air Rotary	70 Feet	67 Feet	52 Feet	15 Feet

Bore Diameter:	Casing Diameter:	Screen Diameter:	Slot Size:	Well Material:
6 Inch	2 Inch	2 Inch	0.02 Inch	SCH 40 PVC

Depth	Lithology	Sample Type	OVA (PPM)	Remarks
0	Ground Surface			
	Fractured caliche covered with a thin layer of sandy loam.	Cuttings	<1	
5	Light gray indurated limestone (caliche).	Split-Spoon	<1	
		Cuttings	<1	
10		Split-Spoon	<1	
		Cuttings	<1	
15	Red-brown slightly calcareous fine-grained sand (caliche).	Split-Spoon	<1	
		Cuttings	<1	
20	Light brown and white calcareous fine-grained sand (caliche) containing scattered indurated caliche lenses.	Split-Spoon	<1	
		Cuttings	<1	
25		Split-Spoon	<1	
		Cuttings	<1	
30	Hard Streak	Split-Spoon	<1	
		Cuttings	<1	
35		Split-Spoon	<1	
		Cuttings	<1	
40		Split-Spoon	<1	
		Cuttings	<1	
45	Hard Streak	Split-Spoon	<1	
		Cuttings	<1	
50	Red-brown indurated sandstone.	Split-Spoon	<1	
		Cuttings	<1	
55	Pink fine to medium grained sand (SM) containing scattered indurated calcareous lenses.	Split-Spoon	<1	.Water encountered during drilling @ 56 ft.
60		Cuttings	<1	
65				
70		Split-Spoon	<1	
	Bottom of boring @ 70'			
75				
80				
85				
90				
95				
100				
105				



Company Drilled for:
Shell Pipeline Corporation

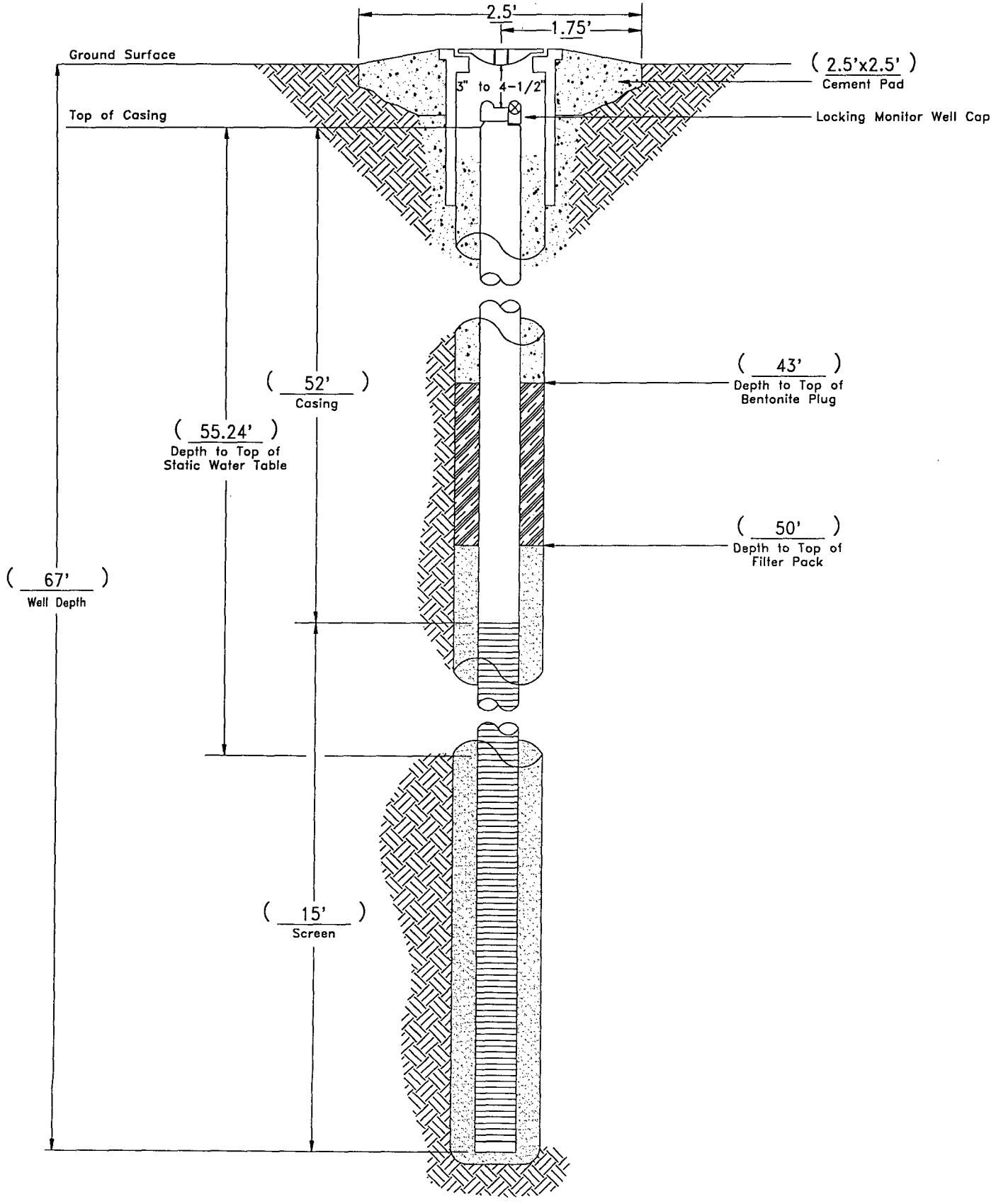
Location: Denton Station
SW4 Sec 15, T19S, R37E
Lea Co., New Mexico

ENVIRONMENTAL SPILL CONTROL, Inc.
PHONE (505) 392-6167
FAX (505) 397-5085

Flush Mount Monitor Well Diagram

Job Number:	Installation Date:	Monitor Well Number:
128	7-6-95	MW-10

Depth:	Bore Size:	Casing Size:	Casing Elevation:	Screen Size:	Top of Water Elevation:
67 Feet	6 Inch	2 Inch	99.79 Feet	0.02 Inch	47.64 Feet



Company Drilled for:
Shell Pipeline Corporation

Location: Denton Station
SW4 Sec 15, T19S, R37E
Lea Co., New Mexico

ENVIRONMENTAL SPILL CONTROL, Inc.
PHONE (505) 392-6167
FAX (505) 397-5085

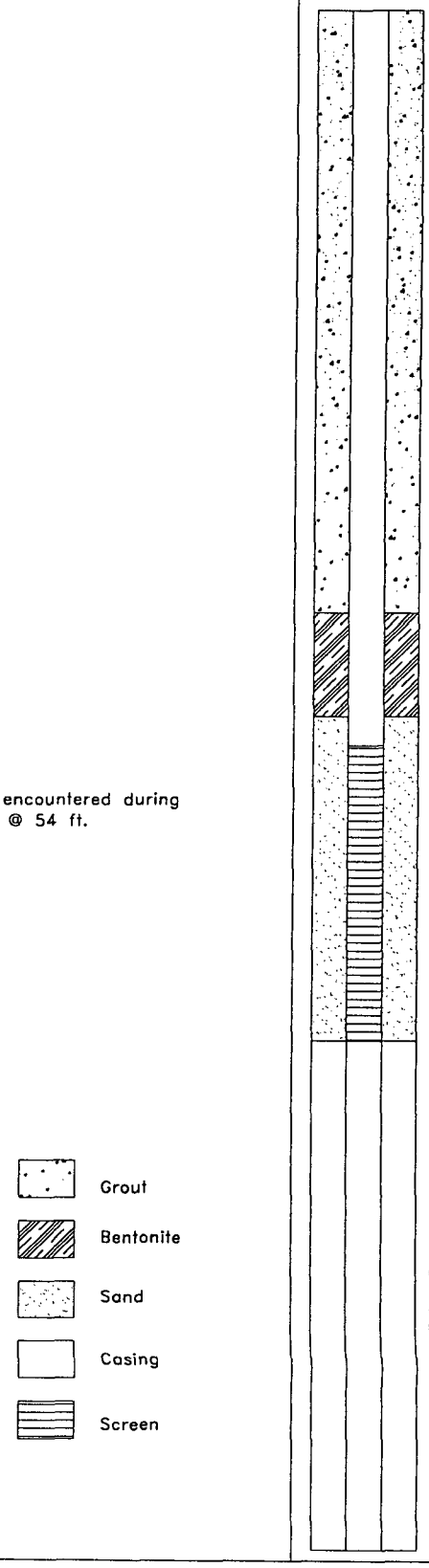
Drilling Log

Well/Bore Number:	Date Drilled:	Driller:	Logged By:
MW-11	7-7-95	AH	F. Wesly Root

Drilling Method:	Depth of Boring:	Depth of Well:	Length of Casing:	Length of Screen:
Air Rotary	70 Feet	70 Feet	50 Feet	20 Feet

Bore Diameter:	Casing Diameter:	Screen Diameter:	Slot Size:	Well Material:
6 Inch	2 Inch	2 Inch	0.02 Inch	SCH 40 PVC

Depth	Lithology	Sample Type	OVA (PPM)	Remarks
0	Ground Surface			
	Fractured caliche covered with a thin layer of sandy loam.	Cuttings	<1	
5	Light gray indurated limestone (caliche).	Split-Spoon	<1	
		Cuttings	<1	
10	Red-brown slightly calcareous fine-grained sand (SM).	Split-Spoon	<1	
	Light brown and white calcareous fine-grained sand (caliche) containing scattered indurated caliche lenses.	Cuttings	<1	
15		Split-Spoon	<1	
		Cuttings	<1	
20		Split-Spoon	<1	
		Cuttings	<1	
25		Split-Spoon	<1	
		Cuttings	<1	
30		Split-Spoon	<1	
		Cuttings	<1	
35		Split-Spoon	<1	
	Pink slightly calcareous to calcareous sand (SM).	Cuttings	<1	
40		Split-Spoon	<1	
		Cuttings	<1	
45		Split-Spoon	<1	
	Red-brown indurated sandstone.	Cuttings	<1	
50		Split-Spoon	<1	
	Pink fine to medium grained sand (SM) containing scattered indurated calcareous lenses.	Cuttings	<1	.Water encountered during drilling @ 54 ft.
55		Split-Spoon	<1	
		Cuttings	<1	
60				
65				
70		Split-Spoon	<1	
	Bottom of boring @ 70'			
75				
80				
85				
90				
95				
100				
105				



Company Drilled for:
Shell Pipeline Corporation

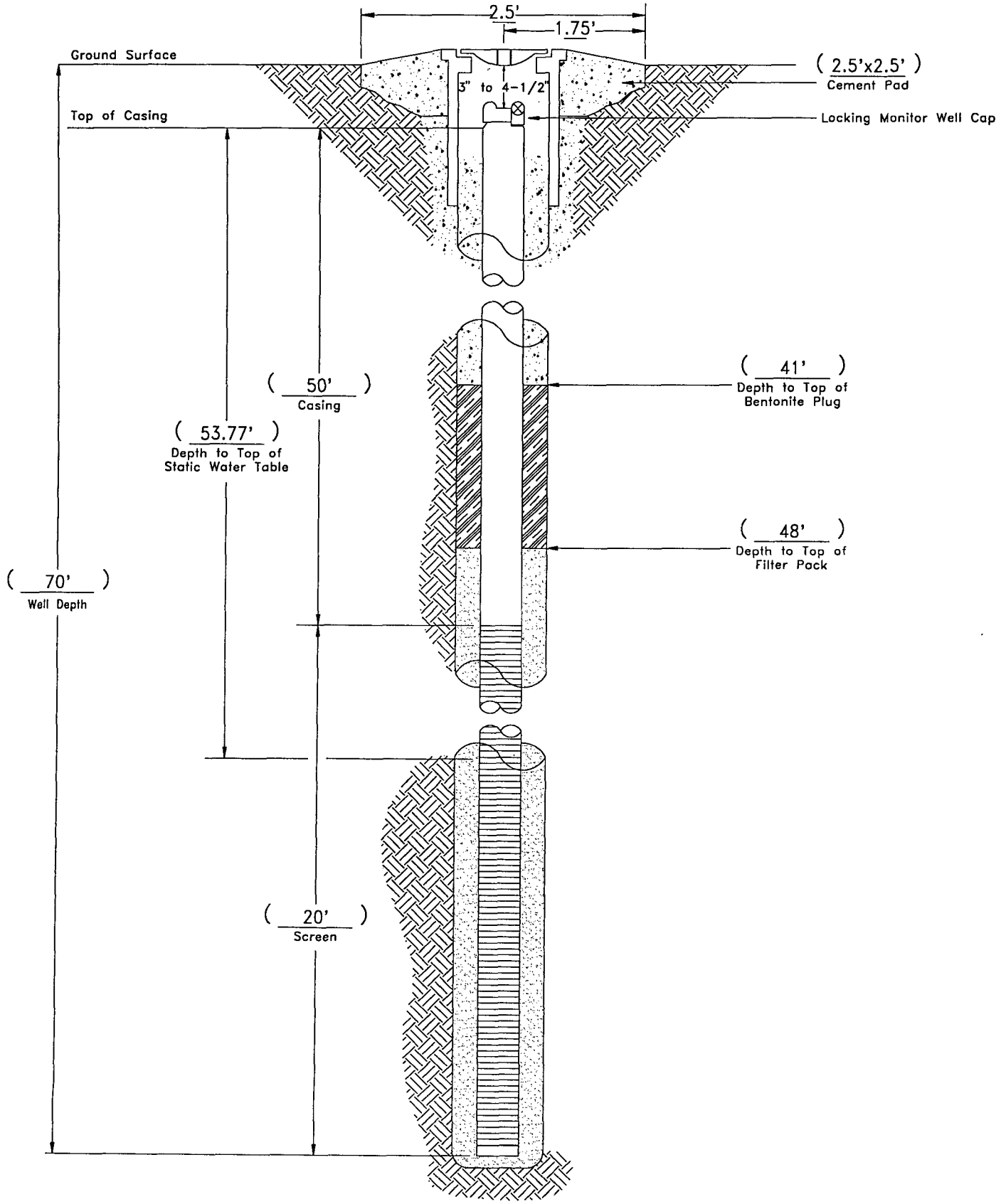
Location: Denton Station
SW4 Sec 15, T19S, R37E
Lea Co., New Mexico

ENVIRONMENTAL
SPILL CONTROL, Inc.
PHONE (505) 392-6167
FAX (505) 397-5085

Flush Mount Monitor Well Diagram

Job Number:	Installation Date:	Monitor Well Number:
128	7-7-95	MW-11

Depth:	Bore Size:	Casing Size:	Casing Elevation:	Screen Size:	Top of Water Elevation:
70 Feet	6 Inch	2 Inch	100.97 Feet	0.02 Inch	47.16 Feet



Company Drilled for: Shell Pipeline Corporation

Location: Denton Station
SW4 Sec 15, T19S, R37E
Lea Co., New Mexico

ENVIRONMENTAL SPILL CONTROL, Inc.
PHONE (505) 392-6167
FAX (505) 397-5085

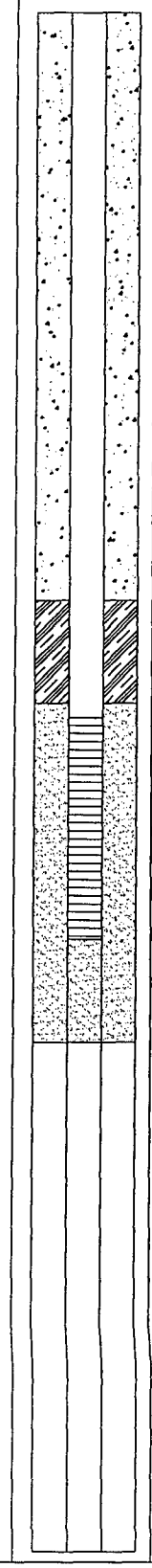
Drilling Log

Well/Bore Number:	Date Drilled:	Driller:	Logged By:
MW-12	7-7-95	AH	F. Wesly Root

Drilling Method:	Depth of Boring:	Depth of Well:	Length of Casing:	Length of Screen:
Air Rotary	70 Feet	63 Feet	48 Feet	15 Feet

Bore Diameter:	Casing Diameter:	Screen Diameter:	Slot Size:	Well Material:
6 Inch	2 Inch	2 Inch	0.02 Inch	SCH 40 PVC

Depth	Lithology	Sample Type	OVA (PPM)	Remarks
0	Ground Surface			
	Fractured caliche covered with a thin layer of sandy loam.	Cuttings	<1	
5	Light gray indurated limestone (caliche).	Split-Spoon	<1	
		Cuttings	<1	
10		Split-Spoon	<1	
		Cuttings	<1	
15		Split-Spoon	<1	
		Cuttings	<1	
20	Light brown and white calcareous fine-grained sand (caliche) containing scattered indurated caliche lenses.	Split-Spoon	<1	
		Cuttings	<1	
25		Split-Spoon	<1	
		Cuttings	<1	
30		Split-Spoon	<1	
		Cuttings	<1	
35		Split-Spoon	<1	
		Cuttings	<1	
40		Split-Spoon	<1	
		Cuttings	<1	
45		Split-Spoon	<1	
		Cuttings	<1	
50	Red-brown indurated sandstone.	Split-Spoon	<1	
		Cuttings	<1	.Water encountered during drilling @ 52 ft.
55	Pink fine to medium grained sand (SM) containing scattered indurated calcareous lenses.	Split-Spoon	<1	
60		Cuttings	<1	
65				
70	Bottom of boring @ 70'	Split-Spoon	<1	
75				
80				
85				
90				
95				
100				
105				



Company Drilled for:
Shell Pipeline Corporation

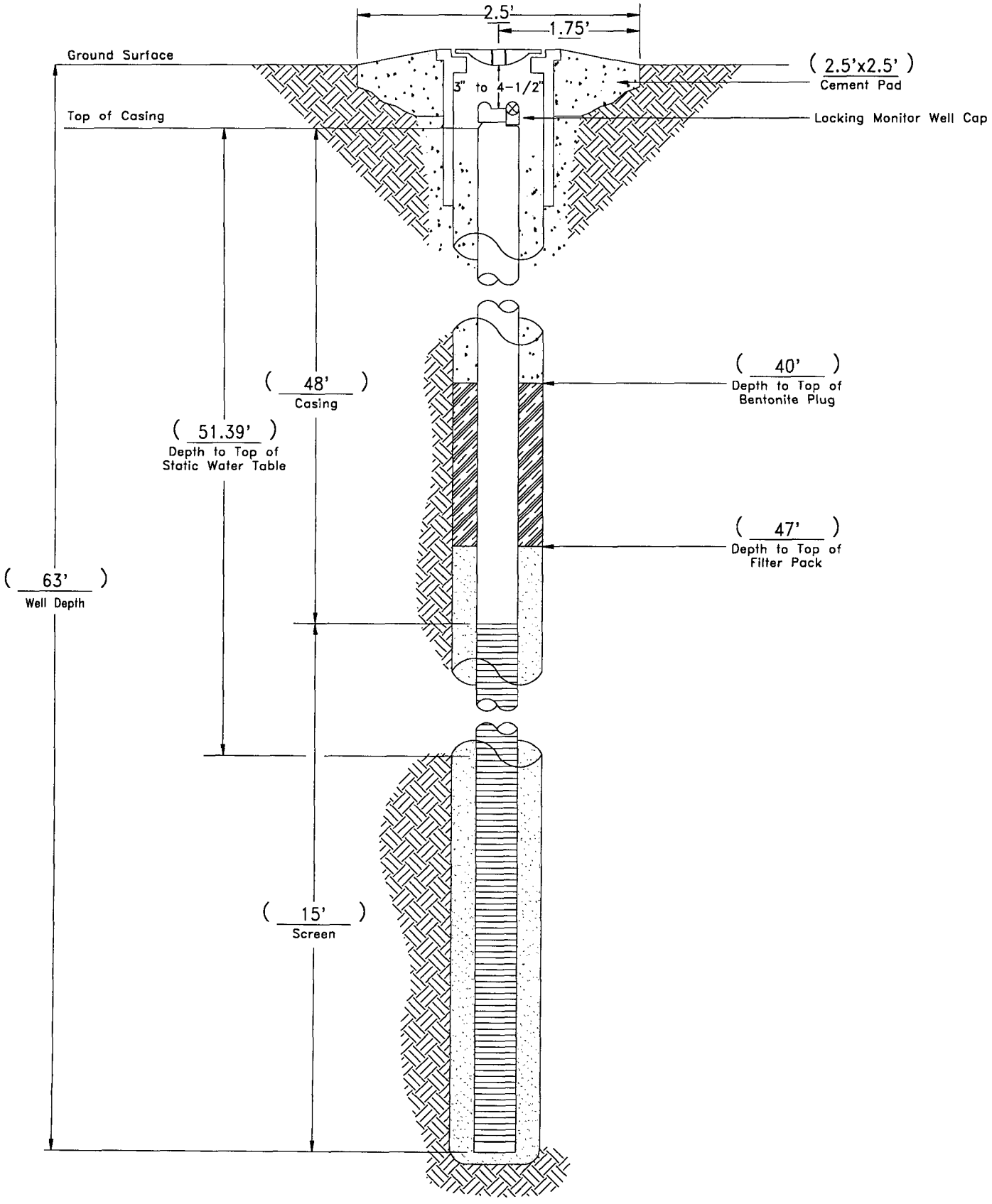
Location: Denton Station
SW4 Sec 15, T19S, R37E
Lea Co., New Mexico

ENVIRONMENTAL
SPILL CONTROL, Inc.
PHONE (505) 392-6167
FAX (505) 397-5085

Flush Mount Monitor Well Diagram

Job Number:	Installation Date:	Monitor Well Number:
128	7-7-95	MW-12

Depth:	Bore Size:	Casing Size:	Casing Elevation:	Screen Size:	Top of Water Elevation:
63 Feet	6 Inch	2 Inch	98.39 Feet	0.02 Inch	46.95 Feet



APPENDIX C

TABLES

TABLE 1
SUMMARY OF GROUNDWATER MEASUREMENTS
DENTON STATION

Well Name	Date Gauged	Depth to Water*	Water Elevation**	Casing Elevation**	Surface Elevation**	LNAPL Thickness
MW-1	07/22/95	56.68	47.45	103.47	101.07	0.80
MW-1	08/15/95	56.69	47.44	103.47	101.07	0.81
MW-2	07/22/95	54.12	47.23	101.35	99.17	0.00
MW-2	08/15/95	54.14	47.21	101.35	99.17	0.00
MW-4	07/22/95	54.02	47.44	101.46	99.98	0.00
MW-4	08/15/95	54.03	47.43	101.46	99.98	0.00
MW-6	07/22/95	55.70	47.71	103.41	101.52	0.00
MW-6	08/15/95	55.71	47.70	103.41	101.52	0.00
MW-8	07/22/95	55.00	48.49	103.49	101.56	0.00
MW-8	08/15/95	55.01	48.48	103.49	101.56	0.00
MW-9	07/22/95	54.06	47.65	101.71	99.66	0.00
MW-9	08/15/95	54.09	47.62	101.71	99.66	0.00
MW-10	07/22/95	52.24	47.55	99.79	100.12	0.00
MW-10	08/15/95	52.15	47.64	99.79	100.12	0.00
MW-11	07/22/95	53.79	47.18	100.97	101.31	0.00
MW-11	08/15/95	53.81	47.16	100.97	101.31	0.00
MW-12	07/22/95	51.43	46.96	98.39	98.45	0.00
MW-12	08/15/95	51.44	46.95	98.39	98.45	0.00

* Well casings are marked to provide consistent reference points for gauging operations.

** Calculated from a relative datum using a benchmark = 100.00 feet.

Correction equation for the water elevation suppression effect caused by the presence of LNAPLs.

Corrected water elevation = Elevation - (Depth to water - (Specific gravity * LNAPL thickness))

where specific gravity = 0.82 for crude oil (measured).

All measurements are in feet.

TABLE 2 DENTON STATION WATER SAMPLE ANALYTICAL RESULTS				
	MW-10	MW-11	MW-11	MW-12
Date Sampled	8-17-95	8-17-95	9-18-95	8-17-95
Volatile Organic Compounds (VOCs)				
Benzene	<0.001	0.63	0.45	<0.001
Toluene	<0.001	<0.005		<0.001
Ethylbenzene	<0.001	<0.005		<0.001
Total Xylenes	<0.001	<0.005		<0.001
Polynuclear Aromatic Hydrocarbons (PAHs)				
Naphthalene	0.005	<0.0014		<0.0014
Acenaphthylene	<0.0012	<0.0012		<0.0012
Acenaphthene	<0.0012	<0.0012		<0.0012
Fluorene	<0.001	<0.001		<0.001
Phenanthrene	<0.00084	<0.00084		<0.00084
Anthracene	<0.0014	<0.0014		<0.0014
Fluoranthene	<0.00072	<0.00072		<0.00072
Pyrene	<0.00068	<0.00068		<0.00068
Benzo(a)anthracene	<0.00062	<0.00062		<0.00062
Chrysene	<0.00079	<0.00079		<0.00079
Benzo(b)fluoranthene	<0.0014	<0.0014		<0.0014
Benzo(k)fluoranthene	<0.0019	<0.0019		<0.0019
Benzo(a)pyrene	<0.0011	<0.0011		<0.0011
Indeno(1,2,3-cd)pyrene	<0.0012	<0.0012		<0.0012
Dibenz(a,h)anthracene	<0.0016	<0.0016		<0.0016
Benzo(g,h,i)perylene	<0.0013	<0.0013		<0.0013

VOC, and PAH results reported in mg/l (parts per million (ppm).
Analyses were conducted using EPA Method 8020 (VOCs) and EPA Method 8100 (PAH) by Southern Petroleum Laboratories. The sample collected on September 19, 1995 from MW-11 was analyzed for benzene only.

TABLE 3
DENTON STATION
WATER SAMPLE ANALYTICAL RESULTS

Analytical Parameter	MW-10	MW-11	MW-12	EPA Analytical Method
Major Cation/Anions				
Silver	<0.005	<0.005	<0.005	6010.000
Arsenic	<0.010	<0.01	<0.01	7060.000
Barium	0.088	0.244	0.088	6010.000
Cadmium	<0.005	<0.005	<0.005	6010.000
Chromium	<0.01	<0.01	<0.01	6010.000
Mercury	<0.0002	<0.0002	<0.0002	7470.000
Lead	<0.05	<0.05	<0.05	6010.000
Selenium	<0.008	<0.008	<0.008	7740.000
Calcium	73.600	113.000	75.200	6010.000
Chloride	28.000	58.000	45.000	325.300
Carbonate	<1.0	<1.0	<1.0	SM4500-C02D
Specific Conductance	626.000	882.000	670.000	120.100
Bicarbonate	288.000	414.000	228.000	SM4500-C02D
Potassium	<5	<5	<5	6010.000
Magnesium	17.500	26.000	17.400	6010.000
Sodium	37.400	42.200	37.100	6010.000
Nitrate	0.500	<0.05	1.600	353.300
Additional Parameters Measured				
Dissolved Oxygen (DO)	4.800	3.400	4.800	
pH	7.660	8.100	8.120	150.100
Sulfate	54.000	73.000	62.000	375.400
TDS	314.000	312.000	468.000	160.100

Analytical results reported in mg/l (parts per million (ppm). Specific conductance results reported in umhos/cm.
Analyses were conducted using the listed EPA Methods by Southern Petroleum Laboratories. Samples were collected on August 17, 1995.

APPENDIX D

ANALYTICAL RESULTS

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: 95 - 09 - 681

Approved for release by:

M. Scott Sample

M. Scott Sample, Laboratory Director *Date:* 9/25/95

Brent Barron, Project Manager *Date:* 9/23/95

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9509681-01

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 09/22/95

PROJECT: ESC Job No. 128
SITE: Lea County, NM
SAMPLED BY: Shell Oil Company
SAMPLE ID: MW-11

PROJECT NO: H16159
MATRIX: WATER
DATE SAMPLED: 09/18/95 17:15:00
DATE RECEIVED: 09/19/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	450	10 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	106		
4-Bromofluorobenzene	77		

METHOD 8020***
Analyzed by: YN
Date: 09/21/95

(P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

QUALITY CONTROL

DOCUMENTATION

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 8020

Matrix: Aqueous
Units: µg/L

Batch Id: HP_J950921101300

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Benzene	ND	50	59	118	61 - 123
Toluene	ND	50	56	112	62 - 122
EthylBenzene	ND	50	57	114	56 - 119
O Xylene	ND	50	57	114	32 - 160
M & P Xylene	ND	100	120	120	32 - 160

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
BENZENE	ND	20	25	125	25	125	0	25	39 - 150
TOLUENE	ND	20	22	110	21	105	4.65	26	56 - 134
ETHYLBENZENE	ND	20	21	105	19	95.0	10.0	38	61 - 128
O XYLENE	ND	20	17	85.0	15	75.0	12.5	20	40 - 130
M & P XYLENE	ND	40	32	80.0	28	70.0	13.3	20	43 - 152

Analyst: YN
Sequence Date: 09/21/95
SPL ID of sample spiked: 9509715-05A
Sample File ID: J___123.TX0
Method Blank File ID:
Blank Spike File ID: J___106.TX0
Matrix Spike File ID: J___136.TX0
Matrix Spike Duplicate File ID: J___137.TX0

* = Values Outside QC Range
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source:
(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID): 9509708-03A 9509681-01A 9509635-09A 9509702-03A 9509715-05A 9509715-06A 9509715-04A 9509692-01A 9509672-01A

QC Officer

CHAIN OF CUSTODY

AND

SAMPLE RECEIPT CHECKLIST

60 9509681

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING

CHAIN OF CUSTODY RECORD NO. H 16159

Date: 9-18-95
Page 1 of 1

Shell Pipe Line Corp
SITE ADDRESS: Denton Station
Lea County, New Mexico
WIC #: ESC Job No. 128
CONSULTANT NAME & ADDRESS: Environmental Spill Control
P.O. Box 5890, 1203 West Dunnam
Hobbs, New Mexico 88241
CONSULTANT CONTACT: F. Wesley Root
PHONE: 505-392-6167 FAX: 505-397-5085
SAMPLED BY: F. Wesley Root

CHECK ONE BOX ONLY CT/DT

- QUARTERLY MONITORING ☐ 5461
- SITE INVESTIGATION ☒ 5441
- SOIL FOR DISPOSAL ☐ 5442
- WATER FOR DISPOSAL ☐ 5443
- AIR SAMPLER - SYS O+M ☐ 5452
- WATER SAMPLE - SYS O+M ☐ 5453
- OTHER ☐

ANALYSIS REQUEST: (CHECK APPROPRIATE BOX)

SAMPLE I.D.	DATE	TIME	COMP.	GRAB	MATRIX: H2O	SOIL	AIR	SLUDGE	OTHER	METHOD PRESERVED: HCl	HNO3	H2SO4	NONE	OTHER	NO. OF CONTAINERS	CONTAINER SIZE	BTEX 602 ☐ 8020 ☐ WITH MTBE ☐	BTEX/GAS HYDROCARBONS PID/FID ☐ WITH MTBE	VOL 624/PPL ☐ 8240/TAL ☐ NBS (+15) ☐	PNA/PAH 8310 ☐ 8100 ☐ 610 ☐	SEMI - VOL 625/PPL ☐ 8270/TAL ☐ NBS (+25) ☐	TPH/IR 418.1 ☐ SM503 ☐ ☐ ☐	TPH/GC 8015 Mod. GAS ☐ 8015 Mod DIESEL ☐	TCLP METALS ☐ VOL ☐ SEMI-VOL ☐ PEST ☐ HERB ☐	EP TOX METALS ☐ PESTICIDES ☐ HERBICIDES ☐	REACTIVITY ☐ CORROSIVITY ☐ IGNITABILITY ☐	OTHER	REMARKS
MW-11	9-18-95	5:15		V	V					V				ICE	3	40mL											V Benzene 8020	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
F. Wesley Root	9-18-95	17:00			
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE) 3°C INTACT	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
				9/19/95	1000

BILL NO.:
LABORATORY: SPL-Houston
SHELL CONTACT: Neal Stidham PHONE: 713-241-2961 FAX: 241-1124

TURN AROUND TIME (CHECK ONE)
7 DAYS ☐ (NORMAL) 14 DAYS ☐
48 HOURS ☐ OTHER ☒ Normal per SPLC contract

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN OF CUSTODY WITH INVOICE AND RESULTS

DISTRIBUTION: PINK Sampling Coordinator - WHITE & YELLOW Accompanies Shipment - WHITE Returned with Report

SPL Houston Environmental Laboratory

Sample Login Checklist

Date: 9/19/95	Time: 1150

SPL Sample ID: 9509681

			Yes	No
1	Chain-of-Custody (COC) form is present.		✓	
2	COC is properly completed.		✓	
3	If no, Non-Conformance Worksheet has been completed.			
4	Custody seals are present on the shipping container.		✓	
5	If yes, custody seals are intact.		✓	
6	All samples are tagged or labeled.		✓	
7	If no, Non-Conformance Worksheet has been completed.			
8	Sample containers arrived intact		✓	
9	Temperature of samples upon arrival: INTACT		3° C	
10	Method of sample delivery to SPL:	SPL Delivery		
		Client Delivery		
		FedEx Delivery (airbill #)	✓	
		Other:		
11	Method of sample disposal:	SPL Disposal	✓	
		HOLD		
		Return to Client		

Name: Q Bryant	Date: 9/19/95

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: 95 - 08 - 705

Approved for release by:

M. Scott Sample, Laboratory Director Date: 8/30/95

Brent Barron, Project Manager Date: 8/30/95

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-01

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 08/29/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-10

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 08:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	99		
4-Bromofluorobenzene	93		
METHOD 8020***			
Analyzed by: VHZ			
Date: 08/21/95			
Silver, Total	ND	0.005	mg/L
METHOD 6010 ***			
Analyzed by: DQ			
Date: 08/22/95			
Arsenic, Total	ND	0.01	mg/L
METHOD 7060 ***			
Analyzed by: WFL			
Date: 08/23/95			
Barium, Total	0.088	0.005	mg/L
METHOD 6010 ***			
Analyzed by: DQ			
Date: 08/22/95			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

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SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-10

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 08:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Cadmium, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.005	mg/L
Chromium, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.01	mg/L
Mercury, Total METHOD 7470 *** Analyzed by: PB Date: 08/22/95	ND	0.0002	mg/L
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 08/21/95	08/21/95		
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: AM Date: 08/21/95	08/21/95		

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
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SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-10

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 08:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Lead, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.05	mg/L
Selenium, Total METHOD 7740 *** Analyzed by: WFL Date: 08/23/95	ND	0.008	mg/L
Calcium, Dissolved METHOD 6010 *** Analyzed by: DQ Date: 08/24/95	73.6	0.5	mg/L
Chloride METHOD 325.3 * Analyzed by: ET Date: 08/20/95	28	1	mg/L
Carbonate, as CaCO3 METHOD SM 4500-CO2D ** Analyzed by: DSE Date: 08/21/95	ND	1	mg/L
Specific Conductance METHOD 120.1 * Analyzed by: DSE Date: 08/21/95	626	1	umhos/cm

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
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SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-10

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 08:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Bicarbonate, as CaCO3 METHOD SM 4500-CO2D ** Analyzed by: DSE Date: 08/21/95	288	1	mg/L
Potassium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	ND	5	mg/L
Magnesium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	17.5	0.5	mg/L
Sodium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	37.4	0.5	mg/L
Nitrate nitrogen(as N) METHOD 353.3 Analyzed by: ET Date: 08/20/95	0.5	0.05	mg/L
pH METHOD 150.1 * Analyzed by: DSE Date: 08/21/95	7.66		pH units

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
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DATE: 08/29/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-10

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 08:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Sulfate METHOD 375.4 * Analyzed by: ST Date: 08/21/95	54	8	mg/L
Total Dissolved Solids METHOD 160.1 * Analyzed by: JS Date: 08/21/95	314	4	mg/L

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
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08/29/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-10

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 08:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Naphthalene	5	1.4	µg/L
Acenaphthylene	ND	1.2	µg/L
Acenaphthene	ND	1.2	µg/L
Fluorene	ND	1.0	µg/L
Phenanthrene	ND	0.84	µg/L
Anthracene	ND	1.4	µg/L
Fluoranthene	ND	0.72	µg/L
Pyrene	ND	0.68	µg/L
Benzo (a) anthracene	ND	0.62	µg/L
Chrysene	ND	0.79	µg/L
Benzo (b) fluoranthene	ND	1.4	µg/L
Benzo (k) fluoranthene	ND	1.9	µg/L
Benzo (a) pyrene	ND	1.1	µg/L
Dibenzo (a,h) anthracene	ND	1.6	µg/L
Benzo (g,h,i) perylene	ND	1.3	µg/L
Indeno (1,2,3-cd) pyrene	ND	1.2	µg/L

SURROGATES	% RECOVERY
2-Fluorobiphenyl	78

ANALYZED BY: APM DATE/TIME: 08/22/95 12:45:00
EXTRACTED BY: VM DATE/TIME: 08/20/95 15:00:00
METHOD: 8100 - Polynuclear Aromatic Hydrocarbons
NOTES: * - Practical Quantitation Limit ND - Not Detected
NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-02

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 08/29/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-11

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:00:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	630	5 P	µg/L
TOLUENE	ND	5 P	µg/L
ETHYLBENZENE	ND	5 P	µg/L
TOTAL XYLENE	ND	5 P	µg/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	630		µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	88		
METHOD 8020***			
Analyzed by: VHZ			
Date: 08/23/95			
Silver, Total	ND	0.005	mg/L
METHOD 6010 ***			
Analyzed by: DQ			
Date: 08/22/95			
Arsenic, Total	ND	0.01	mg/L
METHOD 7060 ***			
Analyzed by: WFL			
Date: 08/23/95			
Barium, Total	0.244	0.005	mg/L
METHOD 6010 ***			
Analyzed by: DQ			
Date: 08/22/95			

(P) - Practical Quantitation Limit ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

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P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 08/29/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-11

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:00:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Cadmium, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.005	mg/L
Chromium, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.01	mg/L
Mercury, Total METHOD 7470 *** Analyzed by: PB Date: 08/22/95	ND	0.0002	mg/L
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 08/21/95	08/21/95		
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: AM Date: 08/21/95	08/21/95		

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
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DATE: 08/29/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-11

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:00:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Lead, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.05	mg/L
Selenium, Total METHOD 7740 *** Analyzed by: WFL Date: 08/23/95	ND	0.008	mg/L
Calcium, Dissolved METHOD 6010 *** Analyzed by: DQ Date: 08/24/95	113	0.5	mg/L
Chloride METHOD 325.3 * Analyzed by: ET Date: 08/20/95	58	1	mg/L
Carbonate, as CaCO3 METHOD SM 4500-CO2D ** Analyzed by: DSE Date: 08/21/95	ND	1	mg/L
Specific Conductance METHOD 120.1 * Analyzed by: DSE Date: 08/21/95	882	1	umhos/cm

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-11

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:00:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Bicarbonate, as CaCO3 METHOD SM 4500-CO2D ** Analyzed by: DSE Date: 08/21/95	414	1	mg/L
Potassium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	ND	5	mg/L
Magnesium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	26.0	0.5	mg/L
Sodium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	42.2	0.5	mg/L
Nitrate nitrogen(as N) METHOD 353.3 Analyzed by: ET Date: 08/20/95	ND	0.05	mg/L
pH METHOD 150.1 * Analyzed by: DSE Date: 08/21/95	8.10		pH units

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-11

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:00:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Sulfate METHOD 375.4 * Analyzed by: ST Date: 08/21/95	73	5	mg/L
Total Dissolved Solids METHOD 160.1 * Analyzed by: JS Date: 08/21/95	312	4	mg/L

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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08/29/95

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SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-11

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:00:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Naphthalene	ND	1.4	µg/L
Acenaphthylene	ND	1.2	µg/L
Acenaphthene	ND	1.2	µg/L
Fluorene	ND	1.0	µg/L
Phenanthrene	ND	0.84	µg/L
Anthracene	ND	1.4	µg/L
Fluoranthene	ND	0.72	µg/L
Pyrene	ND	0.68	µg/L
Benzo (a) anthracene	ND	0.62	µg/L
Chrysene	ND	0.79	µg/L
Benzo (b) fluoranthene	ND	1.4	µg/L
Benzo (k) fluoranthene	ND	1.9	µg/L
Benzo (a) pyrene	ND	1.1	µg/L
Dibenzo (a,h) anthracene	ND	1.6	µg/L
Benzo (g,h,i) perylene	ND	1.3	µg/L
Indeno (1,2,3-cd) pyrene	ND	1.2	µg/L

SURROGATES	% RECOVERY
2-Fluorobiphenyl	102

ANALYZED BY: APM DATE/TIME: 08/22/95 01:46:00
EXTRACTED BY: VM DATE/TIME: 08/20/95 15:00:00
METHOD: 8100 - Polynuclear Aromatic Hydrocarbons
NOTES: * - Practical Quantitation Limit ND - Not Detected
NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-03

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 08/29/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-12

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	102		
4-Bromofluorobenzene	92		
METHOD 8020***			
Analyzed by: VHZ			
Date: 08/22/95			
Silver, Total	ND	0.005	mg/L
METHOD 6010 ***			
Analyzed by: DQ			
Date: 08/22/95			
Arsenic, Total	ND	0.01	mg/L
METHOD 7060 ***			
Analyzed by: WFL			
Date: 08/23/95			
Barium, Total	0.088	0.005	mg/L
METHOD 6010 ***			
Analyzed by: DQ			
Date: 08/22/95			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

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Certificate of Analysis No. H9-9508705-03

Shell Pipeline Corporation
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ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 08/29/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-12

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Cadmium, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.005	mg/L
Chromium, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.01	mg/L
Mercury, Total METHOD 7470 *** Analyzed by: PB Date: 08/22/95	ND	0.0002	mg/L
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 08/21/95	08/21/95		
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: AM Date: 08/21/95	08/21/95		

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

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PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-03

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 08/29/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-12

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Lead, Total METHOD 6010 *** Analyzed by: DQ Date: 08/22/95	ND	0.05	mg/L
Selenium, Total METHOD 7740 *** Analyzed by: WFL Date: 08/23/95	ND	0.008	mg/L
Calcium, Dissolved METHOD 6010 *** Analyzed by: DQ Date: 08/24/95	75.2	0.5	mg/L
Chloride METHOD 325.3 * Analyzed by: ET Date: 08/20/95	45	1	mg/L
Carbonate, as CaCO3 METHOD SM 4500-CO2D ** Analyzed by: DSE Date: 08/21/95	ND	1	mg/L
Specific Conductance METHOD 120.1 * Analyzed by: DSE Date: 08/21/95	670	1	umhos/cm

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

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PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-03

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 08/29/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-12

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Bicarbonate, as CaCO3 METHOD SM 4500-CO2D ** Analyzed by: DSE Date: 08/21/95	228	1	mg/L
Potassium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	ND	5	mg/L
Magnesium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	17.4	0.5	mg/L
Sodium, Dissolved METHOD 6010 Analyzed by: DQ Date: 08/24/95	37.1	0.5	mg/L
Nitrate nitrogen(as N) METHOD 353.3 Analyzed by: ET Date: 08/20/95	1.6	0.1	mg/L
pH METHOD 150.1 * Analyzed by: DSE Date: 08/21/95	8.12		pH units

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-03

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 08/29/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-12

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Sulfate METHOD 375.4 * Analyzed by: ST Date: 08/21/95	62	5	mg/L
Total Dissolved Solids METHOD 160.1 * Analyzed by: JS Date: 08/21/95	468	4	mg/L

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-03

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
08/29/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Environmental Spill Control
SAMPLE ID: MW-12

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/17/95 09:30:00
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Naphthalene	ND	1.4	µg/L
Acenaphthylene	ND	1.2	µg/L
Acenaphthene	ND	1.2	µg/L
Fluorene	ND	1.0	µg/L
Phenanthrene	ND	0.84	µg/L
Anthracene	ND	1.4	µg/L
Fluoranthene	ND	0.72	µg/L
Pyrene	ND	0.68	µg/L
Benzo (a) anthracene	ND	0.62	µg/L
Chrysene	ND	0.79	µg/L
Benzo (b) fluoranthene	ND	1.4	µg/L
Benzo (k) fluoranthene	ND	1.9	µg/L
Benzo (a) pyrene	ND	1.1	µg/L
Dibenzo (a,h) anthracene	ND	1.6	µg/L
Benzo (g,h,i) perylene	ND	1.3	µg/L
Indeno (1,2,3-cd) pyrene	ND	1.2	µg/L

SURROGATES	% RECOVERY
2-Fluorobiphenyl	83

ANALYZED BY: APM DATE/TIME: 08/22/95 02:48:00
EXTRACTED BY: VM DATE/TIME: 08/20/95 15:00:00
METHOD: 8100 - Polynuclear Aromatic Hydrocarbons
NOTES: * - Practical Quantitation Limit ND - Not Detected
NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9508705-04

Shell Pipeline Corporation
P.O.Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-1312-01-PX-4204-NS
DATE: 08/29/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Provided by SPL
SAMPLE ID: Trip Blank

PROJECT NO: H 16156
MATRIX: WATER
DATE SAMPLED: 08/03/95
DATE RECEIVED: 08/18/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	102
4-Bromofluorobenzene	95

METHOD 8020***
Analyzed by: VHZ
Date: 08/21/95

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

QUALITY CONTROL

DOCUMENTATION

** SPL BATCH QUALITY CONTROL REPORT ** PAGE

METHOD 8020

Matrix: Aqueous Batch Id: HP_R950821104600

Units: µg/L

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Benzene	ND	50	51	102	61 - 123
Toluene	ND	50	51	102	62 - 122
EthylBenzene	ND	50	53	106	56 - 119
O Xylene	ND	50	53	106	32 - 160
M & P Xylene	ND	100	110	110	32 - 160

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
BENZENE	4	20	25	105	25	105	0	25	39 - 150
TOLUENE	ND	20	23	115	23	115	0	26	56 - 134
ETHYLBENZENE	ND	20	22	110	22	110	0	38	61 - 128
O XYLENE	ND	20	23	115	23	115	0	20	40 - 130
M & P XYLENE	ND	40	46	115	45	112	2.64	20	43 - 152

Analyst: VHZ

Sequence Date: 08/21/95

SPL ID of sample spiked: 9508702-01A

Sample File ID: R___963.TX0

Method Blank File ID:

Blank Spike File ID: R___950.TX0

Matrix Spike File ID: R___951.TX0

Matrix Spike Duplicate File ID: R___952.TX0

* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery = [(<1> - <2>) / <3>] x 100

LCS % Recovery = (<1> / <3>) x 100

Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100

(**) = Source:

(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID): 9508693-05A 9508693-01A 9508693-02A 9508693-03A 9508739-04A 9508702-01A 9508705-01A 9508707-01A 9508707-02A 9508707-03A 9508707-04A 9508705-03A 9508707-06A 9508707-07A 9508707-08A 9508705-04A 9508707-09A 9507A34-10C

Cynthia Schreiner

Cynthia Schreiner, QC Officer

** SPL BATCH QUALITY CONTROL REPORT ** PAGE

METHOD 8020/602

Matrix: Aqueous Batch Id: HP_J950822194500

Units: µg/L

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50	44	88.0	56 - 135
Benzene	ND	50	49	98.0	61 - 123
Toluene	ND	50	50	100	62 - 122
EthylBenzene	ND	50	46	92.0	56 - 119
O Xylene	ND	50	53	106	32 - 160
M & P Xylene	ND	100	100	100	32 - 160

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	4	20	29	125	26	110	12.8	20	39 - 150
BENZENE	2	20	21	95.0	22	100	5.13	25	39 - 150
TOLUENE	ND	20	16	80.0	17	85.0	6.06	26	56 - 134
ETHYLBENZENE	ND	20	17	85.0	18	90.0	5.71	38	61 - 128
O XYLENE	1	20	19	90.0	18	85.0	5.71	29	40 - 130
M & P XYLENE	1	40	34	82.5	34	82.5	0	20	43 - 152

Analyst: VHZ

Sequence Date: 08/22/95

SPL ID of sample spiked: 9508763-01A

Sample File ID: J___068.TX0

Method Blank File ID:

Blank Spike File ID: J___060.TX0

Matrix Spike File ID: J___063.TX0

Matrix Spike Duplicate File ID: J___064.TX0

* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery = [(<1> - <2>) / <3>] x 100

LCS % Recovery = (<1> / <3>) x 100

Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100

(**) = Source: SPL-Houston Historical Data

(***) = Source:

SAMPLES IN BATCH(SPL ID): 9508763-03A 9508763-02A 9508763-04A 9508763-07A 9508763-05A 9508634-03A 9508634-01A 9508754-12A 9508707-05A 9508705-02A 9508762-03A 9508763-08A 9508763-06A 9508763-01A

Cynthia Schreiner, QC Officer

** SPL BATCH QUALITY CONTROL REPORT ** PAGE

METHOD 8100***

Matrix: Aqueous Batch Id: VARH950821053500

Units: µg/L

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Naphthalene	ND	25	23.0654	92.3	1 - 122
1-Methylnaphthalene	ND	25	21.5136	86.1	1 - 122
2-Methylnaphthalene	ND	25	21.3783	85.5	1 - 122
Acenaphthylene	ND	25	19.6551	78.6	1 - 139
Acenaphthene	ND	25	22.1652	88.7	1 - 124
Fluorene	ND	25	22.5102	90.0	1 - 142
Phenanthrene	ND	25	20.2542	81.0	1 - 155
Anthracene	ND	25	23.5470	94.2	1 - 126
Fluoranthene	ND	25	21.7276	86.9	1 - 142
Pyrene	ND	25	21.0484	84.2	1 - 140
Chrysene	ND	25	21.5292	86.1	1 - 199
Benzo (a) anthracene	ND	25	18.8380	75.4	12 - 135
Benzo (b) fluoranthene	ND	25	21.2077	84.8	6 - 150
Benzo (k) fluoranthene	ND	25	18.6155	74.5	1 - 159
Benzo (a) pyrene	ND	25	15.2472	61.0	1 - 128
Dibenzo (a,h) anthracene	ND	25	15.6523	62.6	1 - 110
Benzo (g,h,i) perylene	ND	25	17.5240	70.1	1 - 116
Indeno (1,2,3-cd) pyrene	ND	25	18.3448	73.4	1 - 116

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
NAPHTHALENE	ND	12.5	11.0097	88.1	11.2710	90.2	2.36	30	1 - 122
1-METHYLNAPHTHALENE	ND	12.5	10.3742	83.0	10.7511	86.0	3.55	30	1 - 122
2-METHYLNAPHTHALENE	ND	12.5	9.4670	75.7	9.7469	78.0	2.99	30	1 - 122
ACENAPHTHYLENE	ND	12.5	8.7932	70.3	8.7802	70.2	0.142	30	1 - 139
ACENAPHTHENE	ND	12.5	10.5174	84.1	10.5372	84.3	0.238	30	1 - 124
FLUORENE	ND	12.5	11.5845	92.7	11.5931	92.7	0	30	1 - 142
PHENANTHRENE	ND	12.5	11.2467	90.0	10.6712	85.4	5.25	30	1 - 155
ANTHRACENE	ND	12.5	11.0395	88.3	11.9653	95.7	8.04	30	1 - 126
FLUORANTHENE	ND	12.5	10.7287	85.8	11.2554	90.0	4.78	30	1 - 142
PYRENE	ND	12.5	10.3152	82.5	10.8240	86.6	4.85	30	1 - 140
CHRYSENE	ND	12.5	10.0235	80.2	10.9880	87.9	9.16	30	1 - 199
BENZO (A) ANTHRACENE	ND	12.5	8.6662	69.3	9.5454	76.4	9.75	30	12 - 135
BENZO (B) FLUORANTHENE	ND	12.5	10.6108	84.9	11.6126	92.9	9.00	30	6 - 150
BENZO (K) FLUORANTHENE	ND	12.5	8.0262	64.2	8.9136	71.3	10.5	30	1 - 159
BENZO (A) PYRENE	ND	12.5	6.3176	50.5	7.5300	60.2	17.5	30	1 - 128
DIBENZO (A,H) ANTHRACENE	ND	12.5	6.5721	52.6	7.0242	56.2	6.62	30	1 - 110

Cynthia Schreiner, QC Officer

Matrix: Aqueous **Batch Id:** VARH950821053500
Units: µg/L

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
BENZO (G,H,I) PERYLENE	ND	12.5	7.3734	59.0	7.9551	63.6	7.50	30	1 - 116
INDENO (1,2,3-CD) PYRENE	ND	12.5	7.2706	58.2	7.5114	60.1	3.21	30	1 - 116

Analyst: APM
Sequence Date: 08/21/95
SPL ID of sample spiked: 9508596-02B
Sample File ID: H___892.TX0
Method Blank File ID:
Blank Spike File ID: H___914.TX0
Matrix Spike File ID: H___894.TX0
Matrix Spike Duplicate File ID: H___895.TX0

* = Values Outside QC Range
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Historical Data
(***) = Source: Temporary Limits

SAMPLES IN BATCH(SPL ID): 9508705-01B 9508705-02B 9508705-03B 9508735-01A 9508735-02A 9508735-04A 9508735-03A

Cynthia Schreiner, QC Officer

ICP Spectroscopy Method 6010 Quality Control Report

Matrix: Water Units: mg/L Analyst: DQ

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Date:082295 Time:0943 File Name: 82295DQ1 Checked: 8/22/95

Laboratory Control Sample

Element	Mth. Blank	True Value	Result	% Recovery	Lower Limit	Upper Limit
Silver	ND	2.00	1.943	97	1.60	2.40
Aluminum						
Arsenic						
Barium	ND	2.00	1.958	98	1.60	2.40
Beryllium	ND	2.00	1.997	100	1.60	2.40
Calcium						
Cadmium	ND	2.00	1.928	96	1.60	2.40
Cobalt						
Chromium	ND	2.00	1.986	99	1.60	2.40
Copper						
Iron	ND	2.00	1.984	99	1.60	2.40
Potassium						
Magnesium						
Manganese						
Sodium						
Nickel	ND	2.00	1.940	97	1.60	2.40
Lead	ND	2.00	1.948	97	1.60	2.40
Antimony	ND	4.00	3.926	98	3.20	4.80
Selenium						
Thallium						
Vanadium	ND	2.00	1.852	93	1.60	2.40
Zinc						

Work Orders in Batch

Work Order	Fractions
95-08-690	01C
95-08-691	01C
95-08-705	01C-3C
95-08-770	01C, 02C
95-08-649	02F
95-08-660	01A

Matrix Spike - Spike Duplicate Results **Work Order Spiked: 95-08-690 01C**

Element	Sample Result	Spike Added	Matrix Spike Result	Matrix Spike Recovery	Matrix Spike Duplicate Result	Matrix Spike Duplicate Recovery	QC Limits % Recovery		Spike RPD %	QC Limits %
Silver	ND	1.0	0.9779	98	0.9561	96	80	120	2.3	20.0
Aluminum										
Arsenic										
Barium	0.1051	1.0	1.108	100	1.086	98	80	120	2.2	20.0
Beryllium	ND	1.0	0.9977	100	0.987	99	80	120	1.1	20.0
Calcium										
Cadmium	ND	1.0	0.9832	98	0.9622	96	80	120	2.2	20.0
Cobalt										
Chromium	ND	1.0	0.9992	100	0.981	98	80	120	1.8	20.0
Copper										
Iron	2.746	1.0	3.814	107	3.682	94	80	120	13.2	20.0
Potassium										
Magnesium										
Manganese										
Sodium										
Nickel	ND	1.0	0.994	99	0.9631	96	80	120	3.2	20.0
Lead	ND	1.0	1.011	101	0.973	97	80	120	3.8	20.0
Antimony	ND	2.0	1.978	99	1.958	98	80	120	1.0	20.0
Selenium										
Thallium										
Vanadium	ND	1.0	0.9447	94	0.9243	92	80	120	2.2	20.0
Zinc										

for Idelis Williams, QC Officer 8/23/95

ICP Spectroscopy Method 6010 Quality Control Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Matrix: Dissolved Units: mg/L Analyst: DQ

Date:082495 Time:0850 File Name: 82495DQ2 Checked: 8/24/95

Laboratory Control Sample

Element	Mth. Blank	True Value	Result	% Recovery	Lower Limit	Upper Limit
Silver	ND	1.00	0.994	99	0.90	1.10
Aluminum						
Arsenic						
Barium	ND	5.00	4.904	98	4.50	5.50
Beryllium						
Calcium	ND	5.00	4.942	99	4.50	5.50
Cadmium	ND	5.00	4.948	99	4.50	5.50
Cobalt						
Chromium	ND	5.00	4.923	98	4.50	5.50
Copper						
Iron						
Potassium	ND	25.00	24.520	98	22.50	27.50
Magnesium	ND	5.00	4.916	98	4.50	5.50
Manganese						
Sodium	ND	5.00	4.907	98	4.50	5.50
Nickel						
Lead	ND	5.00	4.952	99	4.50	5.50
Antimony						
Selenium						
Thallium						
Vanadium						
Zinc						

Work Orders in Batch

Work Order	Fractions
95-08-792	01B, 02B
95-08-793	01A, 02A
95-08-794	01A
95-08-705	01D-03D

Matrix Spike - Spike Duplicate Results **Work Order Spiked: 95-08-792 02B**

Element	Sample Result	Spike Added	Matrix Spike Result	Matrix Spike Recovery	Matrix Spike Duplicate Result	Matrix Spike Duplicate Recovery	QC Limits % Recovery		Spike RPD %	QC Limits %
Silver	ND	1.0	0.927	93	0.9111	91	80	120	1.7	20.0
Aluminum										
Arsenic										
Barium	0.4659	1.0	1.405	94	1.395	93	80	120	1.1	20.0
Beryllium										
Calcium	17.02	10.0	26.01	90	25.85	88	80	120	1.8	20.0
Cadmium	ND	1.0	0.9813	98	0.9825	98	80	120	0.1	20.0
Cobalt										
Chromium	ND	1.0	0.9797	98	0.976	98	80	120	0.4	20.0
Copper										
Iron										
Potassium	6.94	10.0	16.08	91	15.88	89	80	120	2.2	20.0
Magnesium	7.015	10.0	16.6	96	16.51	95	80	120	0.9	20.0
Manganese										
Sodium	7.198	10.0	16.53	93	16.43	92	80	120	1.1	20.0
Nickel										
Lead	ND	1.0	0.9752	98	0.9567	96	80	120	1.9	20.0
Antimony										
Selenium										
Thallium										
Vanadium										
Zinc										

Elements Bench Spiked: All

for Idelis Williams, QC Officer 8/25/95

SPL QUALITY CONTROL SUMMARY

Rev. 4/94

Atomic Absorption Analysis

Element: AS
Test Code: ASQG
Method: P3020
Instrument: A

Date: 8/23/95
Time: 13:32
File #: 0823c

Analyst WFC
Matrix: Soil ☐ Water ☑
Leachate: ☐ Water ☐ Soil ☐ Oil ☐ Other

Units ug/L

Sample #'s in Batch

08545-1c	08768-1c,2c			
08705-1c-3c				
08770-1c,2c				
08649-2F	08769-1c,2c			
08660-1A				

Blank and Check Standard					Matrix Spike and Spike Duplicate Data					
Sample ID	Method Blank	LCS Conc. Theoretical	LCS % Recovery	Sample Conc.	Spike Added	Spike Conc.	Spike Dup. Conc.	Spike % Rec.	Spike Dup. % Rec	% RPD
*08725-1c	ND	50.0	106.0%	ND	50.0	56.7	50.3	113.4%	100.6%	12
LCS 8/16	ND	50.0	107.2%	NA	50.0					

* FLAGS *

* = Values Outside QC Range

☐ MS or MSD out of QA/QC Limits (% Rec. 75-125)

☐ RPD out of QA/QC Limits (20 %)

☐ Soil LCS % Rec. Range _____

*☑ Sample used for QA/QC only

☐ See Case Narrative

Analyst Walley F. Farrar Date 8/23/95

Approved By [signature] Date 8/23/95

[signature] Date 8/25/95

for Idelis Williams, QC Officer

SPL QUALITY CONTROL SUMMARY

Rev. 4/94

Atomic Absorption Analysis

Element: Hg | Date: 8/22/95 | Analyst: [illegible] | Units: mg/L

Test Code: HgCC | Time: 7:52 | Matrix: Soil ☐ Water ☑

Method: 7470 | File #: 0822A | Leachate: ☐ Water ☐ Soil ☐ Oil ☐ Other

Instrument: 3030B

Sample #'s in Batch

9508705-1C - 3C	9508660-1A	9508770-1C, 2C	9508649-2F	

Blank and Check Standard					Matrix Spike and Spike Duplicate Data					
Sample ID	Method Blank	LCS Conc. Theoretical	LCS % Recovery	Sample Conc.	Spike Added	Spike Conc.	Spike Dup. Conc.	Spike % Rec.	Spike Dup. % Rec	% RPD
08649-2F	#3 ND	2.00	#3 84.0	ND	2.00	2.01	2.08	100.5	104.0	3

• FLAGS •

- • = Values Outside QC Range
- ☐ MS or MSD out of QA/QC Limits (% Rec. 75-125)
- ☐ RPD out of QA/QC Limits (20 %)
- ☐ Soil LCS % Rec. Range _____
- ☐ Sample used for QA/QC only
- ☐ See Case Narrative

Analyst [signature] Date 8/22/95

Approved By [signature] Date 8/22/95

[signature] Date 8/22/95

for Idelis Williams, QC Officer

SPL QUALITY CONTROL SUMMARY

Rev. 4/94

Atomic Absorption Analysis

Element: SE
Test Code: SEQG
Method: P3020
Instrument: B

Date: 8/23/95
Time: 10:52
File #: 0823B

Analyst: WFL
Matrix: Soil ☐ Water ☑
Leachate: ☐ Water ☐ Soil ☐ Oil ☐ Other

Units: ug/L

Sample #'s in Batch

08705-1c-3c			
08770-1c,2c	08769-1c-2c		
08649-3F			
08660-1A			
08768-1c,2c			

Blank and Check Standard					Matrix Spike and Spike Duplicate Data					
Sample ID	Method Blank	LCS Conc. Theoretical	LCS % Recovery	Sample Conc.	Spike Added	Spike Conc.	Spike Dup. Conc.	Spike % Rec.	Spike Dup. % Rec	% RPD
* 08725-1c	ND	50.0	107.2%	ND	50.0	38.7	39.7	77.4%	79.4%	3

* FLAGS *

* = Values Outside QC Range

☐ MS or MSD out of QA/QC Limits (% Rec. 75-125)

☐ RPD out of QA/QC Limits (20 %)

☐ Soil LCS % Rec. Range _____

* ☑ Sample used for QA/QC only

☐ See Case Narrative

Analyst: Walley F Ewart Date: 8/23/95

Approved By: [signature] Date: 8/23/95

[signature] Date: 8/23/95

Idelis Williams, QC Officer

Wet Chemistry QA/QC Validation Report

Test Name CHLORIDE

Test Code: CLD Date: 8-20-95 Time 12:00 PM Analyst ET

Samples in Batch: 17 Matrix: LIQUID Units: MG/L Method: 325.3

(Sample #'s Listed Below)

9508737-1A	9508657-1A,2A			
9508464-1E	9508672-1F			
9508734-1A,2A	9508673-1F			
9508705-1D→3D	9508674-1F			
9508630-1B→4B	9508777-1E			

Standards	Actual Concentration	Theoretical Concentration	% Recovery	QC Limits (**) (Mandatory) Upper Limit	Lower Limit
Blank	ND	ND	ϕ	NA	NA
Check Std. 1	100.97	100.00	100.97	102.8	99.3
Check Std. 2					
Check Std. 3					
LCS	12.49	12.06	~~100~~ 103.56	110.00	90.00

Spike Sample ID	Sample Result <2>	Spike Added <3>	Matrix Spike Results <1>	Matrix Spike % Recovery <4>	Matrix Spike Duplicate Results <1>	Matrix Spike Duplicate % Recovery <5>	MS/MSD Relative Percent Difference	QC Limits (**) (Advisory) RPD Max.	Recovery Range
8705-1D	27.99	50.00	77.98	99.98	77.98	99.98	ϕ	2.7	109.3/93.2
8630-1B	30.99	50.00	81.97	101.96	80.97	99.96	1.98	2.7	109.3/93.2

Spike Recovery Calculation

% Rec. = $\frac{|<1> - <2>|}{<3>}$ X 100

* = Values Outside of QC Range

(**) = Source: SPL Houston Historical

Relative Percent Difference Calculation

% RPD = $\frac{<4> - <5>}{<4> + <5> \times 0.5}$ X 100

Reviewed By: [signature] Date: 8/22/95

Approved By: [signature] Date: 8/22/95

[signature] Date: 8/22/95

Idella Williams, QC Officer

WETDUPCA.RC Rev. 4/94

Wet Chemistry QA/QC Validation Report

Test Name: CONDUCTIVITY

A Test Code: COND. Date: 8-21-95 Analyst: DSE

thod 120.1 Time: 8:30am Matrix ☑ Liquid ☐ Soil ☐ Other

f Samples in Batch: 4 Reporting Units: umhos/cm.

Sample #'s in Batch:

	9508705 -1D, 2D & 3D	
	9508777 -1G	

Standards	Actual Concentration	Theoretical Concentration	Percent Recovery	QC Limits (**) (Mandatory) Upper Limit	Lower Limit
ank	0.58	<1.0	ND	NA	NA
eck Standard 1	102	102	100.0	100.5	99.3
eck Standard 2	994	994	100.0		
eck Standard 3	10150	10175	99.8		
S (Outside Source)	1409	1409	100.0		

PLICATES

QA/QC Duplicate SPL Sample ID	Sample Result <1>	Sample Result <2>	Relative Percent Difference	QC LIMITS (**) (Advisory) Relative Percent Difference Max.
508705-1D	625.-	628	0.5	2.7
-2D	880	884	0.4	2.7
-3D	669	671	0.3	
508777-1G	549	552	0.5	

ive Percent Difference (RPD) Calculation:

$$RPD = \frac{|<1> - <2>|}{(<1> + <2>) \times 0.5} \times 100$$

(**) = Source: SPL Houston Historical Data

* = Indicates Value Outside QA/QC Range

Approved By: [signature] Date: 8/21/95

[signature] Date: 8/21/95

for Idelis Williams, QC Officer

iewed By: [signature] Date: 8/21/95

WETDUPCA.RC Rev. 4/94

Wet Chemistry QA/QC Validation Report

Test Name: CARBONATE

AM Test Code: CO3 Date: 8-21-95 Analyst: DSE

ethod 4500D-CO2 Time: 9:00AM Matrix ☑ Liquid ☐ Soil ☐ Other

of Samples in Batch: 5 Reporting Units: mg/L

PL Sample #'s in Batch:

	9508705 -1D → 3D	
	9508657 - 1A, 2A	

Standards	Actual Concentration	Theoretical Concentration	Percent Recovery	QC Limits (**) (Mandatory) Upper Limit	Lower Limit
ank					
heck Standard 1					
heck Standard 2					
heck Standard 3					
CS (Outside Source)	14.0	11.85	118.1	16.65	9.21

UPLICATES

QA/QC Duplicate SPL Sample ID	Sample Result <1>	Sample Result <2>	Relative Percent Difference	QC LIMITS (**) (Advisory) Relative Percent Difference Max.
9508657 -1A	20.	20	0	2.2
-2A	ND	ND	0	2.2

elative Percent Difference (RPD) Calculation:

$$RPD = \frac{|<1> - <2>|}{(<1> + <2>) \times 0.5} \times 100$$

(**) = Source: SPL Houston Historical Data

* = Indicates Value Outside QA/QC Range

Approved By: [signature] Date: 8/21/95

eviewed By: [signature] Date: 8/21/95

[signature] Date: 8/21/95

Idella Williams, QC Officer

WETDUPCALRC Rev. 4/94

Wet Chemistry QA/QC Validation Report

Test Name: BICARBONATE

Test Code: HCO3 Date: 8-21-95 Analyst: DSE

Method 4500-D CO2 Time: 9:00 AM Matrix ☑ Liquid ☐ Soil ☐ Other

Samples in Batch: 5 Reporting Units: Mg/L

Sample #'s in Batch:

9508705-10→30	9508657-1A, 2A	

Standards	Actual Concentration	Theoretical Concentration	Percent Recovery	QC Limits (**) (Mandatory) Upper Limit	Lower Limit
*					
* Standard 1					
* Standard 2					
* Standard 3					
(Outside Source)	14.0	11.85	118.1	16.65	9.21

LICATES

/QC Duplicate PL Sample ID	Sample Result <1>	Sample Result <2>	Relative Percent Difference	QC LIMITS (**) (Advisory) Relative Percent Difference Max.
8657-1A	36.*	36	0	3.0
-2A	520	520	0	3.0

* Percent Difference (RPD) Calculation:

$$RPD = \frac{|<1> - <2>|}{(<1> + <2>) \times 0.5} \times 100$$

(**) = Source: SPL Houston Historical Data

* = Indicates Value Outside QA/QC Range

ved By: _____ Date: 8/21/95

Approved By: _____ Date: 8/21/95

for Idelia Williams, QC Officer Date: 8/21/95

Wet Chemistry QA/QC Validation Report

Test Name NITRATE

Test Code: NO3 Date: 8-20-95 Time 9:00 AM Analyst ET

Samples in Batch: 4 Matrix: LIQUID Units: MG/L Method: 353.3

(Sample #'s Listed Below)

9508705-1D→3D				
9508777-1E				

Standards	Actual Concentration	Theoretical Concentration	% Recovery	QC Limits (**) (Mandatory) Upper Limit	Lower Limit
Blank	ND	ND	0	NA	NA
Check Std. 1 "A"	0.51	0.50	102.00	110.00	90.00
Check Std. 2 "C"	0.51	0.50	102.00		
Check Std. 3 "D"	0.50	0.50	100.00		
LCS	0.51	0.50	102.00		

Spike Sample ID	Sample Result <2>	Spike Added <3>	Matrix Spike Results <1>	Matrix Spike % Recovery <4>	Matrix Spike Duplicate Results <1>	Matrix Spike Duplicate % Recovery <5>	MS/MSD Relative Percent Difference	QC Limits (**) (Advisory) RPD Max.	Recovery Range
8705-2D	ND	0.5	0.53	106.00	0.54	108.00	1.86	20.00	121.7 / 77.3

Spike Recovery Calculation

% Rec. = $\frac{|<1> - <2>|}{<3>}$ X 100

* = Values Outside of QC Range

(**) = Source: SPL Houston Historical

Relative Percent Difference Calculation

% RPD = $\frac{<4> - <5>}{<4> + <5> \times 0.5}$ X 100

Reviewed By: [signature] Date: 8/22/95

Approved By: [signature] Date: 8/22/95

[signature] Date: 8/22/95

for Adelia Williams, QC Officer

WETDUPCA.RC Rev. 4/94

Wet Chemistry QA/QC Validation Report

Test Name: pH Hydrogen

SAM Test Code: pH Date: 8-21-95 Analyst: DSE

Method 150.1 Time: 8:45 Am Matrix: ☒ Liquid ☐ Soil ☐ Other

# of Samples in Batch: 6 Reporting Units: pH units

SPL Sample #'s in Batch:

9508712 ID-2D		
9508705 ID-3D		
9508777 1G		

Standards	Actual Concentration	Theoretical Concentration	Percent Recovery	QC Limits (**) (Mandatory) Upper Limit	Lower Limit
Blank	Temp > 23.5°C	Slope > 99.5%			
Check Standard 1	4.00	4.00	100.0%	4.05	3.95
Check Standard 2	7.05	7.00	100.7%	7.05	6.95
Check Standard 3	10.00	10.00	100.0%	10.05	9.95
LCS (Outside Source)					

DUPLICATES

QA/QC Duplicate SPL Sample ID	Sample Result <1>	Sample Result <2>	~~Relative Percent~~ Difference	QC LIMITS (**) (Advisory) ~~Relative Percent~~ Difference Max.
9508777 1G	7.33 *	7.34	0.01	± 0.05 pH Units

Relative Percent Difference (RPD) Calculation:

$$RPD = \frac{|<1> - <2>|}{(<1> + <2>) \times 0.5} \times 100$$

(**) = Source: SPL Houston Historical Data

* = Indicates Value Outside QA/QC Range

Approved By: [signature] Date: 8/21/95

Reviewed By: [signature] Date: 8/21/95

[signature] for Idelis Williams, QC Officer Date: 8/21/95

Wet Chemistry QA/QC Validation Report

Test Name: Sulfate

Test Code: SO4 Date: 8/21/95 Time: 11:20am Analyst: ST

Samples in Batch: 16 Matrix: Liquid Units: mg/L Method: 375.4

(Sample #'s Listed Below)

508464-1E	9508672-1F			
508734-1A→2A	9508673-1F			
508703-4C,6C,8C	9508674-1F			
508705-1D→3D	9508737-1A			
508657-1A→2A	9508777-1E			

Standards	Actual Concentration	Theoretical Concentration	% Recovery	QC Limits (**) (Mandatory) Upper Limit	Lower Limit
Blank	ND	ND	NA		
Check Std. 1	9.01	10.00	90.1	110	90
Check Std. 2	19.09	20.00	95.5	110	90
Check Std. 3					
LCS	12.75	13.80	92.4	110	90

Spike Sample ID	Sample Result <2>	Spike Added <3>	Matrix Spike Results <1>	Matrix Spike % Recovery <4>	Matrix Spike Duplicate Results <1>	Matrix Spike Duplicate % Recovery <5>	MS/MSD Relative Percent Difference	QC Limits (**) (Advisory) RPD Max.	Recovery Range
508705-1D	6.44	10.00	16.05	96.1	15.75	93.1	3.2	7.0	121.7/79.6
508731A	8.12	10.00	18.32	102.0	18.04	99.2	2.8	↓	↓

Spike Recovery Calculation

Rec. = $\frac{\langle 1\rangle - \langle 2\rangle}{\langle 3\rangle} \times 100$

* = Values Outside of QC Range

(**) = Source: SPL Houston Historical

Relative Percent Difference Calculation

% RPD = $\frac{\langle 4\rangle - \langle 5\rangle}{\langle 4\rangle \div \langle 5\rangle \times 0.5} \times 100$

Reviewed By: Date: 8/21/95

Approved By: Date: 8/21/95

for Idelis Williams, QC Officer Date: 8/21/95

WETDUPCA.RC Rev. 4/94

Wet Chemistry QA/QC Validation Report

Test Name: Total Dissolved Solids

SAM Test Code: TDS
Method 160.1
# of Samples in Batch: 11

Date: 8/21/95
Time: 2:30PM

Analyst: JS
Matrix ☑ Liquid ☐ Soil ☐ Other
Reporting Units: mg/L

SPL Sample #'s in Batch:

9508705-1D→3D		
9508712-1D→2D		
9508738-7B→12B		

Standards	Actual Concentration	Theoretical Concentration	Percent Recovery	QC Limits (**) (Mandatory) Upper Limit	Lower Limit
Blank	ND	<1	NA		
Check Standard 1	262	267.0	98.1	110	90
Check Standard 2					
Check Standard 3					
LCS (Outside Source)					

DUPLICATES

QA/QC Duplicate SPL Sample ID	Sample Result <1>	Sample Result <2>	Relative Percent Difference	QC LIMITS (**) (Advisory) Relative Percent Difference Max.
9508705-1D	314	312	1.3	5
9508738-7B	1032	1004	2.8	4

Relative Percent Difference (RPD) Calculation:

$$RPD = \frac{|<1> - <2>|}{(<1> + <2>) \times 0.5} \times 100$$

(**) = Source: SPL Houston Historical Data

* = Indicates Value Outside QA/QC Range

Approved By: [signature] Date: 8/22/95

Reviewed By: [signature] Date: 8/22/95

for [signature] Date: 8/22/95
Idella Williams, QC Officer

CHAIN OF CUSTODY

AND

SAMPLE RECEIPT CHECKLIST

56 9508705

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING

CHAIN OF CUSTODY RECORD NO. H 16156

Date: 8-17-95
Page 1 of 1

Shell Pipe Line Corp
SITE ADDRESS: Denton Station
Lea County, New Mexico
WIC #: ESC Job No.
CONSULTANT NAME & ADDRESS: Environmental Spill Control
P.O. Box 5890
1203 W. Dunnam, Hobbs, New Mexico 88241
CONSULTANT CONTACT: F. Wesley Root
PHONE: 505-392-6167 FAX: 505-397-5085
SAMPLED BY: F. Wesley Root

CHECK ONE BOX ONLY CT/DT
- QUARTERLY MONITORING ☐ 5461
- SITE INVESTIGATION ☒ 5441
- SOIL FOR DISPOSAL ☐ 5442
- WATER FOR DISPOSAL ☐ 5443
- AIR SAMPLER - SYS O+M ☐ 5452
- WATER SAMPLE - SYS O+M ☐ 5453
- OTHER ____ ☐

SAMPLE I.D.	DATE	TIME	COMP.	GRAB	MATRIX: H2O	SOIL	AIR	SLUDGE	OTHER	METHOD PRESERVED: HCl	HNO3	H2SO4	NONE	OTHER	NO. OF CONTAINERS	CONTAINER SIZE
MW-10	8-17-95	8:30		V	V					V				ICE	3	40 mL
MW-10	8-17-95	8:30		V	V								V	ICE	1	1 Lt
MW-10	8-17-95	8:30		V	V						V			ICE	1	1 Lt
MW-10	8-17-95	8:30		V	V								V	ICE	1	1 Lt
MW-11	8-17-95	9:00		V	V					V				ICE	3	40 mL
MW-11	8-17-95	9:00		V	V								V	ICE	1	1 Lt
MW-11	8-17-95	9:00		V	V						V			ICE	1	1 Lt
MW-11	8-17-95	9:00		V	V								V	ICE	1	1 Lt
MW-12	8-17-95	9:30		V	V					V				ICE	3	40 mL
MW-12	8-17-95	9:30		V	V								V	ICE	1	1 L
MW-12	8-17-95	9:30		V	V						V			ICE	1	1 L
MW-12	8-17-95	9:30		V	V								V	ICE	1	1 L

ANALYSIS REQUEST: (CHECK APPROPRIATE BOX)

BTEX 602 ☐	8020 ☒	WITH MTBE ☐	BTEX/GAS HYDROCARBONS PID/FID ☐	WITH MTBE ☐	VOL 624/PPL ☐	8240/TAL ☐	NBS (+15) ☐	PNA/PAH 8310 ☐	8100 ☒	610 ☐	SEMI - VOL 625/PPL ☐	8270/TAL ☐	NBS (+25) ☐	TPH/IR 418.1 ☐	SM503 ☐	☐	TPH/GC 8015 Mod. GAS ☐	8015 Mod DIESEL ☐	TCLP METALS ☐ VOL ☐	SEMI-VOL ☐	PEST ☐	HERB ☐	EP TOX METALS ☐	PESTICIDES ☐	HERBICIDES ☐	REACTIVITY ☐	CORROSIVITY ☐	IGNITABILITY ☐
V																												
										V																		
V																												
										V																		
V																												
										V																		

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
F. Wesley Root	8-17-95	15:30			
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
			P. Faour	8/18/95	0930

BILL NO.: ____
LABORATORY: SPL - Houston
SHELL CONTACT: Neal Stidham PHONE: 713-241-2961 FAX: 241-1124

TURN AROUND TIME (CHECK ONE)
7 DAYS ☐ (NORMAL) 14 DAYS ☐
48 HOURS ☐ 5°C Intact OTHER ☒ NORMAL PER CONTRACT

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN OF CUSTODY WITH INVOICE AND RESULTS

DISTRIBUTION: PINK Sampling Coordinator - WHITE & YELLOW Accompanies Shipment - WHITE Returned with Report

Shell Oil Products Company

Two Shell Plaza
P. O. Box 2099
Houston, TX 77252-2099

October 23, 1995

William Olson
State of New Mexico Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, New Mexico 87504

SUBJECT: DEVELOPMENT WATER, DENTON AND LEA STATIONS

Dear Mr. Olson,

Enclosed are copies of the laboratory results from sampling the development water at the subject stations. All samples were non-detect for benzene. With your concurrence we will surface discharge this water. If I do not hear from you within 30 days I will assume concurrence and we will proceed. If you have any questions please call me at 713-241-2961.

Sincerely,

Neal Stidham
Staff Engineer
Shell Oil Company
Representing Shell Pipe Line Corporation

cc: Paul Newman-EOTT Energy Corp.
Jerry Sexton-OCD Hobbs

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9509366-01

Cura Inc.
6049 South Loop East
Houston, TX 77033
ATTN: Brad Smith

P.O.# MESA-1312-HOE
DATE: 09/18/95

PROJECT: 24-93677S04
SITE: Lea Station
SAMPLED BY: CURA, Inc.
SAMPLE ID: D.W.

PROJECT NO: H 13835
MATRIX: WATER
DATE SAMPLED: 09/06/95 13:00:00
DATE RECEIVED: 09/12/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	ND	1 P	µg/L
Surrogate	% Recovery		
1,4-Difluorobenzene	102		
4-Bromofluorobenzene	83		

METHOD 8020***
Analyzed by: RR
Date: 09/14/95

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

S[redacted], Inc., - Project Manager

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9509368-01

Cura Inc.
6049 South Loop East
Houston, TX 77033
ATTN: Brad Smith

P.O.# MESA-1312-HOE
DATE: 09/18/95

PROJECT: 24-93678S04
SITE: Denton Station
SAMPLED BY: CURA, Inc.
SAMPLE ID: D.W.

PROJECT NO: H 15784
MATRIX: WATER
DATE SAMPLED: 09/06/95 16:00:00
DATE RECEIVED: 09/12/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	ND	1 P	µg/L
Surrogate	% Recovery		
1,4-Difluorobenzene	102		
4-Bromofluorobenzene	87		

METHOD 8020***
Analyzed by: RR
Date: 09/14/95

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

S[illegible] Inc., - Project Manager

OIL CONSERVATION DIVISION
RECEIVED
'95 SEP 8 AM 8 52

Shell Oil Products Company

Two Shell Plaza
P. O. Box 2099
Houston, TX 77252-2099

August 31, 1995

RECEIVED
SEP 05 1995
Environmental Bureau
Oil Conservation Division

William Olson
State of New Mexico Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, New Mexico 87504

SUBJECT: QUARTERLY REPORTS, DENTON AND LEA STATIONS, LEA COUNTY NEW MEXICO

Dear Mr. Olson,

Enclosed are the third quarter 1995 groundwater monitoring reports for Lea and Denton Stations. The product recovery systems at both stations are now operational. Groundwater analyses show essentially no change from the previous sampling events and phase separated hydrocarbon did not develop in any additonal wells during the report period. I will be submitting the report on the additional subsurface delineation at Denton by mid-September. If you have any questions please call me at 713-241-2961.

Sincerely,

Neal Stidham
Staff Engineer
Shell Oil Products Company
Representing Shell Pipe Line Corporation

cc: Paul Newman (w/copy)
EOTT Energy Corp.

Jerry Sexton (w/copy)
OCD-Hobbs

CURA INC.
Environmental Consultants, Engineers & Scientists
6049 South Loop East • Houston, Texas 77033 • 713/640-1490 • FAX 640-2593

August 30, 1995

Mr. Neal D. Stidham
Shell Oil Products Company
Two Shell Plaza, Room 1452
777 Walker Street
Houston, Texas 77002

RE: QUARTERLY GROUNDWATER MONITORING REPORT
THIRD QUARTER, 1995
DENTON STATION
LEA COUNTY, NEW MEXICO

CURA PROJECT NO. 24-93678

Mr. Stidham:

CURA, Inc. has completed the groundwater monitoring and sampling operations at the above-referenced site. The work was performed in accordance with the scope of services requested by Shell Oil Products Company (SPLC) in their letter dated January 25, 1995.

Monitoring wells MW-1 through MW-9 and water well WW-1 were gauged and checked for phase-separated hydrocarbons (PSH) during sampling operations on July 18, 1995. Monitoring wells MW-2, MW-6 and MW-9 were developed and sampled by CURA on July 18, 1995. In accordance with water quality monitoring requirements set forth by the New Mexico Oil Conservation Division (NMOCD) the groundwater samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and dissolved oxygen content (DO). The New Mexico Water Quality Control Commission (WQCC) regulations do not contain a ground water standard for total petroleum hydrocarbons (TPH). Therefore, the OCD does not require that groundwater samples be analyzed for TPH. Monitoring wells MW-1, MW-3, MW-5, MW-7, and WW-1 were not sampled due to the presence of PSH.

Groundwater Sampling and PSH Recovery

The monitoring wells were gauged on July 18, 1995 to determine the depth to groundwater and PSH thickness (if any). A summary of groundwater elevations and

PSH thicknesses is presented in Table 1, Appendix B.

PSH was initially discovered on site in water well WW-1 in February of 1993, and recovery operations were initiated immediately. In September, 1993 additional on-site monitoring wells MW-1, MW-2, and MW-3 were installed. No PSH was observed in these wells during drilling or sampling operations. In March of 1994 measurable thicknesses of PSH were identified in monitoring wells MW-1 and MW-3 during routine gauging and product recovery operations at water well WW-1. CURA installed on-site monitoring wells MW-4 through MW-9 in May 1994. PSH was observed in monitoring wells MW-5 and MW-7 following installation and site-wide PSH recovery operations were initiated at that time. In July, 1995 on-site well MW-10 and off-site wells MW-11 and MW-12 were installed by Environmental Spill Control of Hobbs, New Mexico. No PSH was observed in these wells during drilling or sampling operations. During the 1995 Third Quarter, approximately 60 gallons of crude oil were removed from the site. To date, a cumulative total of approximately 715 gallons of oil has been recovered from Denton Station. Cumulative and quarterly PSH thicknesses and volumes recovered are summarized in Table 3 of this report.

In order to improve oil recovery operations, a remediation system was installed in May, 1995. The system is designed with product-only pumps that remove crude oil from the wells to a temporary holding tank. Once sufficient volumes of oil have accumulated in the tank, the oil is then transferred to an on-site sump for return to the pipeline. During the Third Quarter of 1995, the remediation system recovered approximately 59 gallons of oil.

The performance of the system is affected predominately by the viscosity of the oil and flow rate through the subsurface. Pump inlets are positioned to remove oil from the top of the water column in each well. Once pumped off, the oil must again accumulate in the wells to sufficient thicknesses to activate the pumps. As such, the limiting factor to oil removal at this site remains a function of the natural oil inflow to the wells.

including monitoring wells MW-10, MW-11, and MW-12 was conducted on August 28, 1995 and also indicates a consistent southeastern gradient direction. PSH was observed in monitoring wells MW-1, MW-3, MW-5, MW-7, and WW-1 during gauging operations.

The monitoring wells were purged by removing approximately three well volumes of water or bailing the wells dry. The purged groundwater was stored on-site in labelled 55-gallon drums pending analysis and proper disposal. After development, DO measurements were performed on-site and groundwater samples were obtained from the monitoring wells using a disposable bailer. The groundwater samples were transported on ice to SPL Laboratories in Houston, Texas for analysis of BTEX using EPA Method 8020. Quality Assurance/Quality Control information is included in Appendix D.

Analytical Results

The groundwater samples obtained on July 18, 1995 indicate no significant change in dissolved hydrocarbon concentrations or in the distribution of PSH thicknesses across the site since the last sampling event in April 1995. In order to further investigate dissolved hydrocarbon impact and accumulations of crude oil along the eastern site boundary, two off-site wells (MW-11 and MW-12) were drilled on the adjacent property in July 1995. A third additional on-site well (MW-10) was installed to provide additional downgradient delineation for oil observed in monitoring well MW-7. No crude oil was observed in any of the three new wells during drilling operations or during subsequent gauging operations conducted on August 28, 1995. Analytical results from groundwater sampling of the three additional wells is not yet available, but will be included in the 1995 Fourth Quarter report. Consistent low to non-detectable hydrocarbon concentrations in downgradient monitoring wells MW-9 and MW-2 continue to indicate that southern (downgradient) delineation of the plume has been achieved.

Dissolved oxygen concentrations (DO) were obtained as a possible indicator of the natural biological activity of hydrocarbon degrading microorganisms in the groundwater. Microbial and mineral oxidation reactions within the dissolved hydrocarbon plume typically result in depletion of DO so that an inverse relationship between DO and BTEX will be found where natural attenuation of the contaminant plume has occurred. DO levels recorded during 1995 Third Quarter sampling suggest that sufficient DO is present in the groundwater to encourage biological degradation of dissolved hydrocarbon. CURA will continue to monitor DO levels as a means of documenting the occurrence of natural attenuation. A summary of groundwater analytical results is presented in Table 2, Appendix B. The laboratory reports and chain-of-custody are included in Appendix C.

CURA appreciates the opportunity to provide you with our professional consulting services. If you have any questions or concerns, please do not hesitate to contact Brad Smith at (713) 640-1490.

Respectfully,
CURA, Inc.

for James W. Leach
Environmental Geologist

Bradley S. Smith
Project Manager

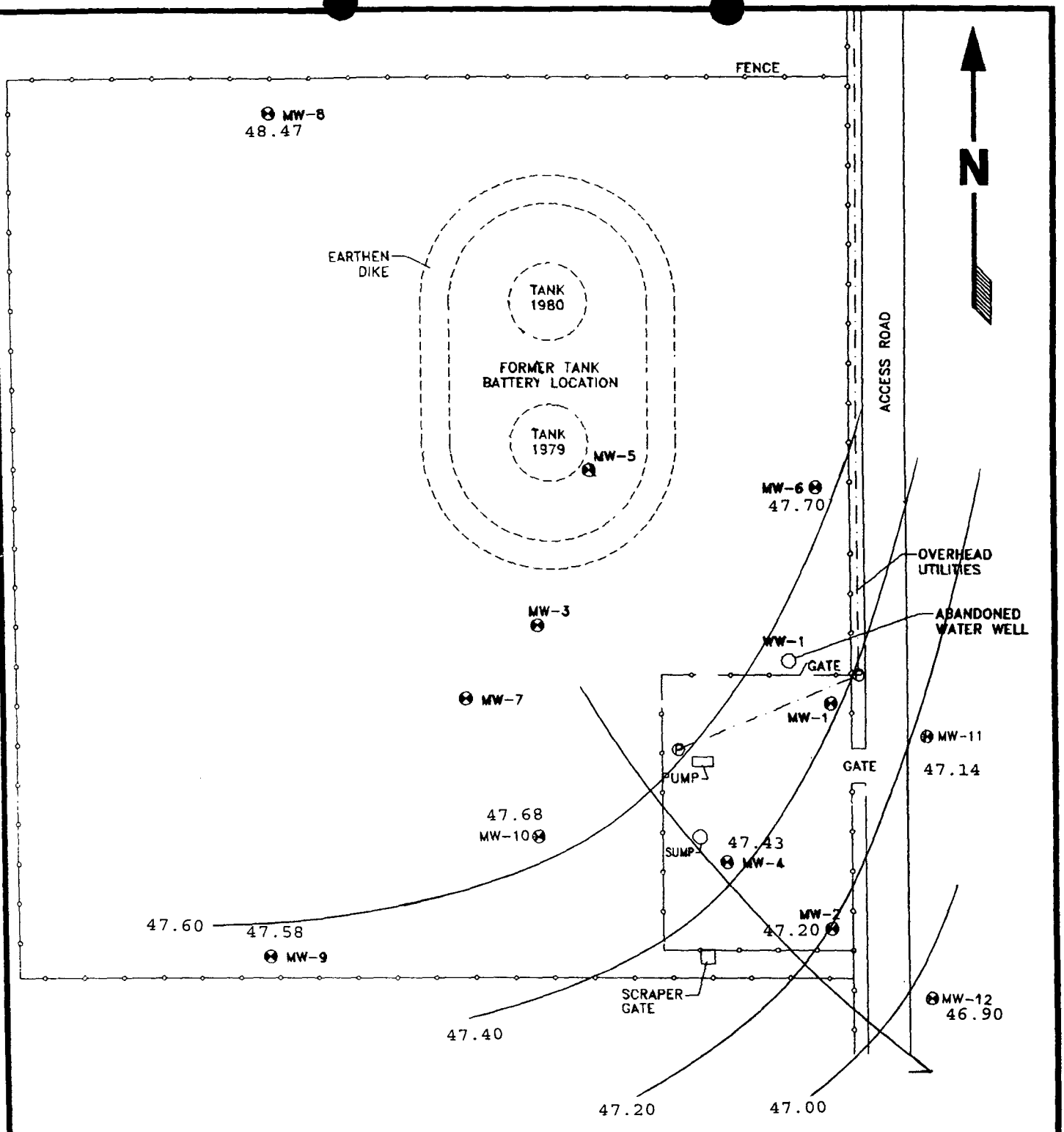
Kevin Van Hook
Senior Project Manager

JWL/chs

Attachments

APPENDICES

APPENDIX A
FIGURES



GROUNDWATER GRADIENT MAP

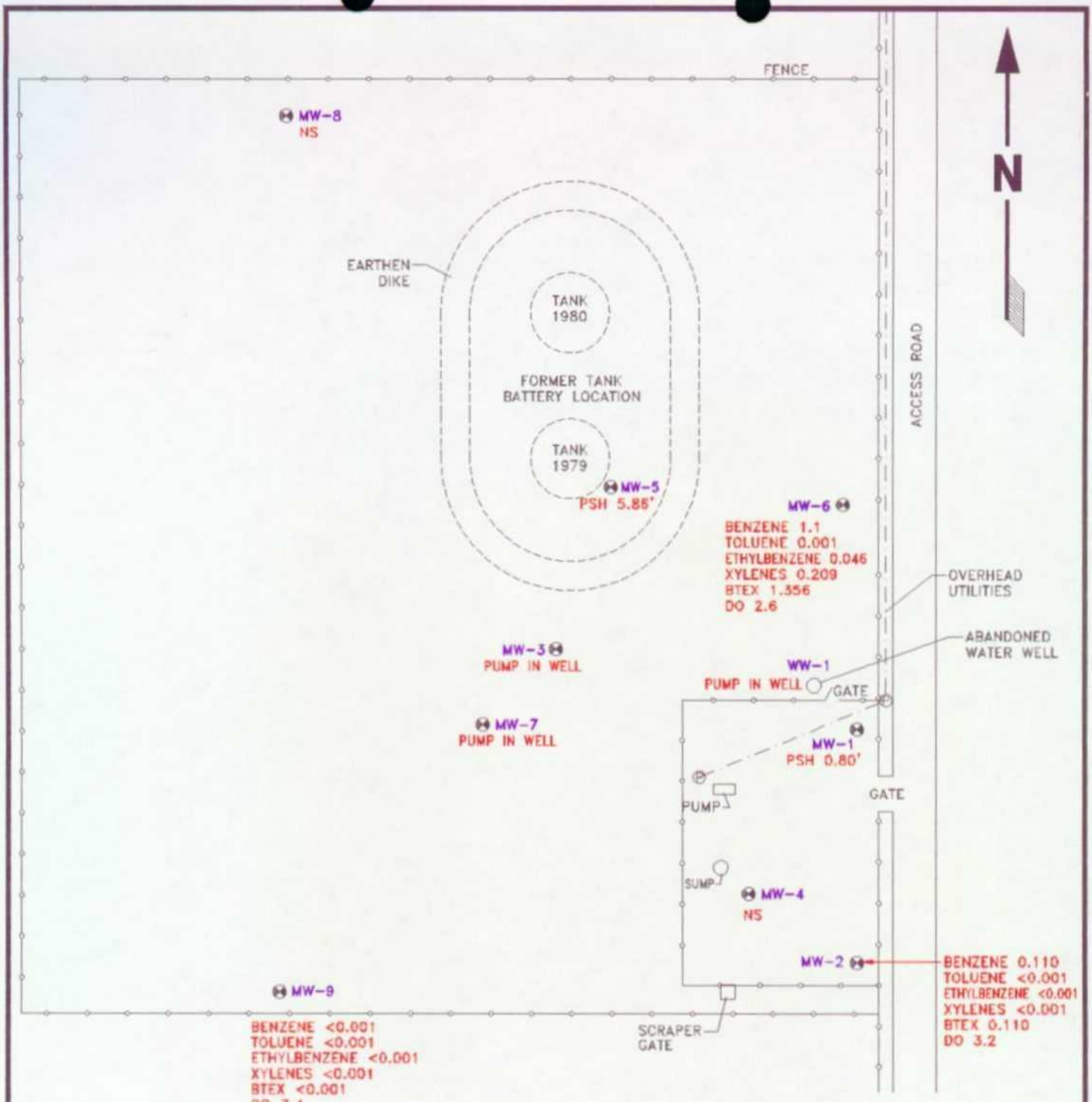
-WATER LEVELS OBTAINED 08/28/95
-CONTOUR INTERVAL = 0.20 FEET
-MW-3, MW-5 AND MW-7 HAVE PUMPS INSTALLED AND WERE NOT GAUGED

0 100'
APPROXIMATE SCALE

CRA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG. C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-8219

DENTON STATION
SHELL PIPE LINE CORPORATION
LEA COUNTY, NEW MEXICO

DATE:	SCALE:
AUG 1995	SEE ABOVE
PROJECT NO.	FIGURE NO.
24-93678	1



DISSOLVED HYDROCARBON CONCENTRATION MAP

-SAMPLES OBTAINED 04/25/95
-CONCENTRATIONS LISTED IN mg/l (ppm)

0 100'
APPROXIMATE SCALE

CURA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG. C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-8219

DENTON STATION
SHELL PIPE LINE CORPORATION
LEA COUNTY, NEW MEXICO

DATE:	SCALE:
APRIL 1995	SEE ABOVE
PROJECT NO.	FIGURE NO.
24-93678	2

APPENDIX B
TABLES

TABLE 1
DENTON STATION
SUMMARY OF RELATIVE GROUNDWATER LEVEL ELEVATIONS AND PHASE-SEPARATED HYDROCARBON THICKNESSES

Monitoring Well	Date Gauged	Relative Ground Surface Elevation (feet)	Relative Top of Casing Elevation (feet)*	Depth to Water Below Top of Casing (feet)	Corrected Relative Groundwater Elevation (feet)**	Phase-Separated Hydrocarbon Thickness (feet)
MW-1	09/27/93	101.07	103.47	55.41	48.06	0.00
	03/29/94	101.07	103.47	55.71	48.02	0.32
	05/10/94	101.07	103.47	55.77	47.83	0.16
	02/08/95	101.07	103.47	56.17	47.88	0.71
	04/25/95	101.07	103.47	57.84	46.29	0.80
	07/18/95	101.07	103.47	58.31	45.81	0.80
	08/28/95	**101.07**	**103.47**	--	--	--
MW-2	09/27/93	99.17	101.35	53.48	47.87	0.00
	03/29/94	99.17	101.35	53.64	47.71	0.00
	05/10/94	99.17	101.35	53.70	47.65	0.00
	02/08/95	99.17	101.35	54.03	47.32	0.00
	04/25/95	99.17	101.35	54.05	47.30	0.00
	07/18/95	99.17	101.35	54.12	47.23	0.00
	08/28/95	**99.17**	**101.35**	**54.15**	**47.20**	**0.00**
MW-3	09/27/93	101.01	102.68	54.32	48.36	8.20
	03/29/94	101.01	102.68	61.27	48.13	0.00
	05/10/94	101.01	102.68	55.68	48.10	1.34
	02/08/95	101.01	102.68	60.79	48.12	7.60
	03/28/95	101.01	102.68	61.35	48.01	8.15
	04/25/95	101.01	102.68	61.30	46.64	6.42
	07/18/95	101.01	102.68	--	--	--
	08/28/95	**101.01**	**101.00**	--	--	--
MW-4	05/10/94	99.98	101.46	53.63	47.83	0.00
	02/08/95	99.98	101.46	53.78	47.68	0.00
	04/25/94	99.98	101.46	54.21	47.25	0.00
	07/18/95	99.98	101.46	54.82	46.64	0.00
	08/28/95	**99.98**	**101.46**	**54.03**	**47.43**	**0.00**
MW-5	05/10/94	101.71	103.54	57.77	48.31	3.10
	02/08/95	101.71	103.54	61.91	48.31	8.15
	03/28/95	101.71	103.54	61.42	47.99	7.16
	04/25/95	101.71	103.54	61.50	46.84	5.86
	07/18/95	101.71	103.54	--	--	--
	08/28/95	**101.71**	**101.86**	--	--	--
MW-6	05/10/94	101.52	103.41	55.25	48.16	0.00
	02/08/95	101.52	103.41	55.26	48.16	0.00
	04/25/95	101.52	103.41	56.57	46.84	0.00
	07/18/95	101.52	103.41	55.90	47.71	0.00
	08/28/95	**101.52**	**103.41**	**55.71**	**47.70**	**0.00**

TABLE 1
DENTON STATION
SUMMARY OF RELATIVE GROUNDWATER LEVEL ELEVATIONS AND PHASE-SEPARATED HYDROCARBON THICKNESSES

Monitoring Well	Date Gauged	Relative Ground Surface Elevation (feet)	Relative Top of Casing Elevation (feet)*	Depth to Water Below Top of Casing (feet)	Corrected Relative Groundwater Elevation (feet)**	Phase-Separated Hydrocarbon Thickness (feet)
MW-7	05/10/94	100.82	102.66	54.71	48.14	0.23
	02/08/95	100.82	102.66	61.16	48.08	8.02
	03/28/95	100.82	102.66	60.86	48.06	7.64
	04/25/95	100.82	102.66	59.13	48.86	6.51
	07/18/95	100.82	102.66	--	--	--
	08/28/95	**100.82**	**100.69**	--	--	--
MW-8	05/10/94	101.56	103.49	54.53	48.96	0.00
	02/08/95	101.56	103.49	54.59	48.90	0.00
	04/25/95	101.56	103.49	54.63	48.86	0.00
	07/18/95	101.56	103.49	55.00	48.49	0.00
	08/28/95	**101.56**	**103.49**	**55.02**	**48.47**	**0.00**
MW-9	05/10/94	99.66	101.71	53.71	48.00	0.00
	02/08/95	99.66	101.71	53.96	47.75	0.00
	04/25/95	99.66	101.71	64.86	46.85	0.00
	07/18/95	99.66	101.71	54.06	47.65	0.00
	08/28/95	**99.66**	**101.71**	**54.13**	**47.58**	**0.00**
MW-10	**08/28/95**	**99.66**	**99.79**	**52.11**	**47.48**	**0.00**
MW-11	**08/28/95**	**100.98**	**100.97**	**53.83**	**47.14**	**0.00**
MW-12	**08/28/95**	**98.50**	**98.39**	**51.49**	**46.90**	**0.00**

TABLE 1
DENTON STATION
SUMMARY OF RELATIVE GROUNDWATER LEVEL ELEVATIONS AND PHASE-SEPARATED HYDROCARBON THICKNESSES

Monitoring Well	Date Gauged	Relative Ground Surface Elevation (feet)	Relative Top of Casing Elevation (feet)*	Depth to Water Below Top of Casing (feet)	Corrected Relative Groundwater Elevation (feet)**	Phase-Separated Hydrocarbon Thickness (feet)
WW-1	02/26/93	100.55	102.21	60.23	48.52	7.97
	03/05/93	100.55	102.21	56.54	48.50	3.45
	03/12/93	100.55	102.21	55.39	48.39	1.91
	03/17/93	100.55	102.21	55.19	48.46	1.76
	03/22/93	100.55	102.21	54.44	48.45	0.83
	03/31/93	100.55	102.21	55.81	48.46	2.51
	04/08/93	100.55	102.21	57.74	48.50	4.92
	04/15/93	100.55	102.21	55.60	48.42	2.21
	04/27/93	100.55	102.21	56.08	48.43	2.81
	05/06/93	100.55	102.21	55.61	48.46	2.27
	05/13/93	100.55	102.21	55.49	48.47	2.13
	05/21/93	100.55	102.21	55.70	48.45	2.36
	05/26/93	100.55	102.21	55.74	48.45	2.41
	05/28/93	100.55	102.21	55.23	48.46	1.80
	06/04/93	100.55	102.21	55.46	48.51	2.15
	06/11/93	100.55	102.21	55.28	48.52	1.94
	06/16/93	100.55	102.21	55.18	48.52	1.82
	03/18/94	100.55	102.21	60.70	48.03	7.96
	03/29/94	100.55	102.21	55.89	48.01	2.06
	05/06/94	100.55	102.21	58.20	47.95	4.80
	05/10/94	100.55	102.21	57.40	47.93	3.80
	05/25/94	100.55	102.21	57.18	47.91	3.51
	06/14/94	100.55	102.21	57.30	48.02	3.78
	07/13/94	100.55	102.21	57.07	48.11	3.62
	09/14/94	100.55	102.21	57.76	48.16	4.53
	10/03/94	100.55	102.21	56.71	49.97	5.45
	10/28/94	100.55	102.21	56.84	50.13	5.80
	11/28/94	100.55	102.21	59.53	47.90	6.31
	12/21/94	100.55	102.21	59.63	47.84	6.42
	02/08/95	100.55	102.21	57.40	47.93	3.80
	04/25/95	100.55	102.21	59.43	47.36	5.58
	07/18/95	100.55	102.21	--	--	--
	08/28/95	**100.55**	**102.21**	--	--	--

* Measured from a relative datum (benchmark = 100.00 feet) located at the northeast corner of the concrete sump pad. The monitor well casings were marked to provide consistent reference points for future gauging operations.

** Correction Equation for Phase-Separated Hydrocarbons: Corrected Groundwater Elevation = Top of Casing Elevation - (Depth to Water Below Top of Casing - [SG] [PSH Thickness])
Specific Gravity (SG) = 0.73 for gasoline, 0.85 for diesel, 0.82 for crude oil.

TABLE 2

DENTON STATION

WATER SAMPLE ANALYTICAL RESULTS

Monitoring Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	Total BTEX	TPH	Dissolved Oxygen
MW-1	09/27/93	0.85	0.067	0.077	0.34	1.334	3	---
	05/10/94	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	04/25/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	07/18/95	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**
MW-2	09/27/93	0.017	<0.001	<0.001	<0.001	0.017	<1	---
	05/10/94	0.010	<0.001	<0.001	<0.001	0.010	<1	6.4
	02/08/95	0.048	<0.001	<0.001	<0.001	0.048	---	0.8
	04/25/95	0.084	<0.001	<0.001	<0.001	0.084	---	4.0
	07/18/95	**0.110**	**<0.001**	**<0.001**	**<0.001**	**0.110**	---	**3.2**
MW-3	09/27/93	1.1	1.7	0.44	0.98	4.22	25	---
	05/10/94	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	04/25/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	07/18/95	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**
MW-4	05/10/94	0.041	<0.001	<0.001	0.004	0.045	2	8.4
	02/08/95	---	---	---	---	---	---	---
	04/25/95	---	---	---	---	---	---	---
	07/18/95	---	---	---	---	---	---	---
MW-5	05/10/94	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	04/25/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	07'/18/95	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**
MW-6	05/10/94	0.680	0.001	0.001	0.083	0.765	1	4.1
	02/08/95	1.200	<0.005	0.031	0.090	1.321	---	1.0
	04/25/95	1.200	<0.005	0.033	0.120	1.353	---	2.6
	07/18/95	**1.100**	**<0.001**	**0.046**	**0.209**	**1.356**	---	**2.6**
MW-7	05/10/94	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	04/25/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	07/18/95	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**	**PSH**

TABLE 2
DENTON STATION
WATER SAMPLE ANALYTICAL RESULTS

Monitoring Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	Total BTEX	TPH	Dissolved Oxygen
MW-8	05-11-94	<0.001	<0.001	<0.001	<0.001	<0.001	<1	8.2
	02/08/95	---	---	---	---	---	---	---
	04/25/95	---	---	---	---	---	---	---
	07/18/95	--	---	---	---	---	---	---
MW-9	05/11/94	<0.001	<0.001	<0.001	<0.001	<0.001	<1	8.2
	02/08/95	<0.001	<0.001	<0.001	<0.001	<0.001	---	2.3
	04/25/95	<0.001	<0.001	<0.001	<0.001	<0.001	---	8.4
	07/18/95	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	---	**7.4**

A total dissolved solids (TDS) concentration of 515 ppm was reported for MW-2 on 09-27-93.

BTEX results listed in m/l (parts per million; ppm) with method detection limits listed on the certificate of analysis.
TPH and TDS results listed in mg/l (parts per million; ppm) with a method detection limit of 1 ppm.
Analyses were conducted using EPA Method 8020 (BTEX), EPA Method 418.1 (TPH), and EPA Method 160.1 (TDS) by SPL Environmental Laboratories.
--- Not sampled.

TABLE 3

DENTON STATION

PHASE-SEPARATED HYDROCARBON RECOVERY

Date	Monitoring Well	PSH Thickness (feet)	PSH Recovery (gallons)	PSH Cumulative Recovery (gallons)	Type of Recovery
02/26/93	WW-1	7.97	35.0	35.0	Hand bailed
03/05/93	WW-1	3.45	25.0	60.0	Hand bailed
03/12/93	WW-1	1.91	20.0	80.0	Hand bailed
03/17/93	WW-1	1.76	4.0	84.0	Hand bailed
03/22/93	WW-1	0.83	3.5	87.5	Hand bailed
03/31/93	WW-1	2.51	8.0	95.5	Hand bailed
04/08/93	WW-1	4.92	13.0	108.5	Hand bailed
04/15/93	WW-1	2.21	8.0	116.5	Hand bailed
04/27/93	WW-1	2.81	9.0	125.5	Hand bailed
05/06/93	WW-1	2.27	7.0	132.5	Hand bailed
05/13/93	WW-1	2.13	6.0	138.5	Hand bailed
05/21/93	WW-1	2.36	6.0	144.5	Hand bailed
05/26/93	WW-1	2.41	8.0	152.5	Hand bailed
05/28/93	WW-1	1.80	5.0	157.5	Hand bailed
06/04/93	WW-1	2.15	6.0	163.5	Hand bailed
06/11/93	WW-1	1.94	5.0	168.5	Hand bailed
06/16/93	WW-1	1.82	5.5	174.0	Hand bailed
03/18/94	WW-1	7.63	20.0	194.0	Hand bailed
03/29/94	WW-1	2.06	5.5	199.5	Hand bailed
05/06/94	WW-1	4.80	12.0	211.5	Hand bailed
05/10/94	WW-1	3.80	8.0	219.5	Hand bailed
05/25/94	WW-1	4.51	15.0	234.5	Hand bailed
06/14/94	WW-1	3.78	8.0	242.5	Hand bailed
07/13/94	WW-1	3.62	6.5	249.0	Hand bailed

TABLE 3
DENTON STATION
PHASE-SEPARATED HYDROCARBON RECOVERY

Date	Monitoring Well	PSH Thickness (feet)	PSH Recovery (gallons)	PSH Cumulative Recovery (gallons)	Type of Recovery
09/14/94	WW-1	4.53	8.0	257.0	Hand bailed
10/03/94	WW-1	5.45	10.0	267.0	Hand bailed
10/28/94	WW-1	5.80	9.0	276.0	Hand bailed
11/22/94	WW-1	2.24	5.0	281.0	Hand bailed
11/28/94	WW-1	6.31	10.0	291.0	Hand bailed
12/21/94	WW-1	6.42	10.0	301.0	Hand bailed
02/08/95	WW-1	3.80	8.0	309.0	Hand bailed
04/25/95	WW-1	5.58	6.0	315.0	Hand bailed
08/17/95	WW-1	--	7	322	Remediation system
03/17/94	MW-1	0.32	0.2	0.2	Hand bailed
05/10/94	MW-1	0.16	<0.01	0.2	Hand bailed
06/14/94	MW-1	0.21	<.01	0.2	Hand bailed
07/13/94	MW-1	0.24	0.1	0.3	Hand bailed
08/22/94	MW-1	0.24	0.7	1.0	Hand bailed
09/14/94	MW-1	0.24	0.8	1.8	Hand bailed
10/03/94	MW-1	0.03	.2	2.0	Hand bailed
10/28/94	MW-1	0.44	1.1	3.1	Hand bailed
11/22/94	MW-1	0.37	1.0	4.1	Hand bailed
12/31/94	MW-1	0.67	1.5	5.6	Hand bailed
02/08/95	MW-1	0.71	1.5	7.1	Hand bailed
04/25/95	MW-1	0.80	0.9	8.0	Hand bailed
08/17/95	MW-1	0.80	1.0	9.1	Hand bailed
03/17/94	MW-3	8.25	7.5	7.5	Hand bailed
05/10/94	MW-3	1.34	7.0	14.5	Hand bailed

TABLE 3

DENTON STATION

PHASE-SEPARATED HYDROCARBON RECOVERY

Date	Monitoring Well	PSH Thickness (feet)	PSH Recovery (gallons)	PSH Cumulative Recovery (gallons)	Type of Recovery
05/25/94	MW-3	3.92	4.5	19.0	Hand bailed
06/14/94	MW-3	1.88	3.0	22.0	Hand bailed
07/13/94	MW-3	2.27	4.0	26.0	Hand bailed
09/14/94	MW-3	8.48	12.0	38.0	Hand bailed
10/03/94	MW-3	8.54	12.0	50.0	Hand bailed
10/28/94	MW-3	6.87	10.0	60.0	Hand bailed
11/22/94	MW-3	3.41	8.0	68.0	Hand bailed
12/21/94	MW-3	6.20	9.0	77.0	Hand bailed
02/08/95	MW-3	7.68	10.0	87.0	Hand bailed
03/28/95	MW-3	8.15	10.0	97.0	Hand bailed
04/25/95	MW-3	6.42	10.0	107.0	Hand bailed
05/10/95	MW-3	---	4.0	111.0	Hand bailed
07/18/95	MW-3	---	15.0	126.0	Remediation system
05/10/94	MW-5	3.10	5.0	5.0	Hand bailed
05/25/94	MW-5	6.80	11.0	16.0	Hand bailed
06/14/94	MW-5	5.70	8.5	24.5	Hand bailed
07/13/94	MW-5	5.67	8.0	32.5	Hand bailed
09/14/94	MW-5	7.20	11.0	39.7	Hand bailed
10/03/94	MW-5	7.17	11.0	50.7	Hand bailed
10/28/94	MW-5	7.56	12.0	62.7	Hand bailed
11/22/94	MW-5	7.37	15.0	77.7	Hand bailed
12/21/94	MW-5	9.12	12.0	89.7	Hand bailed
02/08/95	MW-5	8.15	10.0	99.7	Hand bailed
03/28/95	MW-5	7.16	10.0	109.7	Hand bailed

TABLE 3
DENTON STATION
PHASE-SEPARATED HYDROCARBON RECOVERY

Date	Monitoring Well	PSH Thickness (feet)	PSH Recovery (gallons)	PSH Cumulative Recovery (gallons)	Type of Recovery
04/25/95	MW-5	5.86	10.0	119.7	Hand bailed
05/10/95	MW-5	---	4.0	124.0	Remediation system
07/18/95	MW-5	---	15.0	139.0	Remediation system
05/10/94	MW-7	0.23	1.0	1.0	Hand bailed
05/25/94	MW-7	1.95	2.5	3.5	Hand bailed
06/14/94	MW-7	1.65	1.5	5.0	Hand bailed
07/13/94	MW-7	1.30	1.0	6.0	Hand bailed
08/19/94	MW-7	0.17	1.0	7.0	Hand bailed
09/14/94	MW-7	9.08	15.0	22.0	Hand bailed
10/03/94	MW-7	9.15	15.0	37.0	Hand bailed
10/28/94	MW-7	7.56	12.0	49.0	Hand bailed
12/21/94	MW-7	7.93	11.0	68.0	Hand bailed
02/28/95	MW-7	8.02	12.0	80.0	Hand bailed
03/28/95	MW-7	7.64	10.0	90.0	Hand bailed
04/25/95	MW-7	6.51	10.0	100.0	Hand bailed
05/25/95	MW-7	---	4.0	104.0	Remediation system
07/18/95	MW-7	---	15.0	119.0	Remediation system

--- Indicates product recovery pumps in well.

APPENDIX C
ANALYTICAL RESULTS

9507762 BS

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING

CHAIN OF CUSTODY RECORD NO. H 10238

Date: 7-20-95
Page 1 of 1

SITE ADDRESS: Shell Pipe Line Denton Station
WAC #: 24-93678 504
CONSULTANT NAME & ADDRESS: CURA Inc 731 W. Wadley, L-200 Midland TX
CONSULTANT CONTACT: Brad Smith (Houston)
PHONE: (915) 570-8408 FAX: (915) 570-8409
SAMPLED BY: Bill D. Smith

CHECK ONE BOX ONLY CT/DT

- QUARTERLY MONITORING ☑ 5461
- SITE INVESTIGATION ☐ 5441
- SOIL FOR DISPOSAL ☐ 5442
- WATER FOR DISPOSAL ☐ 5443
- AIR SAMPLER - SYS O+M ☐ 5452
- WATER SAMPLE - SYS O+M ☐ 5453
- OTHER _____ ☐

SAMPLE I.D.	DATE	TIME	COMP.	GRAB	MATRIX: H2O	SOIL	AIR	SLUDGE	OTHER	METHOD PRESERVED: HCl	HNO3	H2SO4	NONE	OTHER: ICE	NO. OF CONTAINERS	CONTAINER SIZE	BTEX 602 ☐ / 8020 ☒ WITH MTBE ☐	BTEX/GAS HYDROCARBONS PID/FID ☐ WITH MTBE	VOL 624/PPL ☐ / 8240/TAL ☐	NBS (+15) ☐	PNA/PAH 8310 ☐ / 8100 ☐	610 ☐	SEMI - VOL 625/PPL ☐ / 8270/TAL ☐	NBS (+25) ☐	TPH/IR 418.1 ☐ / SM503 ☐	☐	TPH/GC 8015 Mod. GAS ☐	8015 Mod DIESEL ☐	TCLP METALS ☐ VOL ☐	SEMI-VOL ☐ PEST ☐ HERB ☐	EP TOX METALS ☐ PESTICIDES ☐	HERBICIDES ☐	REACTIVITY ☐ CORROSIVITY ☐	IGNITABILITY ☐	OTHER	OTHER	OTHER	REMARKS
MW-2	7-18-95	1745		✓	✓					✓				✓	3	40 ml VOA	✓																				
MW-6	7-18-95	1700		✓	✓					✓				✓	3	40 ml VOA	✓																				
MW-9	7-18-95	1600		✓	✓					✓				✓	3	40 ml VOA	✓																				

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Bill D. Smith	7-20-95	0830			
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
			E. Brown	7/21/95	1030

BILL NO.: _____
LABORATORY: SPL Houston
SHELL CONTACT: Nal Stidham PHONE: _____ FAX: _____

TURN AROUND TIME (CHECK ONE)
7 DAYS ☐ (NORMAL) 14 DAYS ☐
48 HOURS ☐ OTHER After Shell Contract

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN OF CUSTODY WITH INVOICE AND RESULTS

DISTRIBUTION: PINK Sampling Coordinator - WHITE & YELLOW Accompanies Shipment - WHITE Returned with Report

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9507762-01

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 07/24/95

PROJECT: 24-93678504
SITE: Denton Station
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-2

PROJECT NO: H 10238
MATRIX: WATER
DATE SAMPLED: 07/18/95 17:45:00
DATE RECEIVED: 07/21/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	110	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL BTEX	110		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	98
4-Bromofluorobenzene	53

METHOD 5030/8020 ***
Analyzed by: LFD
Date: 07/21/95

(P) - Practical Quantitation Limit ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9507762-02

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 07/24/95

PROJECT: 24-93678504
SITE: Denton Station
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-6

PROJECT NO: H 10238
MATRIX: WATER
DATE SAMPLED: 07/18/95 17:00:00
DATE RECEIVED: 07/21/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	1100	10 P	µg/L
TOLUENE	1	1 P	µg/L
ETHYLBENZENE	46	1 P	µg/L
TOTAL XYLENE	209	1 P	µg/L
TOTAL BTEX	1356		µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	116		
4-Bromofluorobenzene	115		
METHOD 5030/8020 ***			
Analyzed by: LFD			
Date: 07/22/95			

(P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9507762-03

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 07/24/95

PROJECT: 24-93678504
SITE: Denton Station
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-9

PROJECT NO: H 10238
MATRIX: WATER
DATE SAMPLED: 07/18/95 16:00:00
DATE RECEIVED: 07/21/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL BTEX	ND		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	93
4-Bromofluorobenzene	53

METHOD 5030/8020 ***
Analyzed by: LFD
Date: 07/21/95

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

QUALITY CONTROL

DOCUMENTATION

METHOD 8020

Matrix: Aqueous Batch Id: HP_J950722113900

Units: µg/L

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Benzene	ND	50	43	86.0	61 - 123
Toluene	ND	150	130	86.7	62 - 122
EthylBenzene	ND	50	44	88.0	56 - 119
O Xylene	ND	100	89	89.0	32 - 160
M & P Xylene	ND	200	180	90.0	32 - 160

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
Benzene	ND	50	44	88.0	44	88.0	0	25	39 - 150
Toluene	ND	150	120	80.0	120	80.0	0	26	56 - 134
EthylBenzene	ND	50	42	84.0	41	82.0	2.41	38	61 - 128
O Xylene	ND	100	78	78.0	72	72.0	8.00	20	40 - 130
M & P Xylene	ND	100	88	88.0	80	80.0	9.52	20	43 - 152

Analyst: LFD

Sequence Date: 07/22/95

SPL ID of sample spiked: 9507768-01A

Sample File ID: J___563.TX0

Method Blank File ID:

Blank Spike File ID: J___560.TX0

Matrix Spike File ID: J___586.TX0

Matrix Spike Duplicate File ID: J___587.TX0

* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery = [(<1> - <2>) / <3>] x 100

LCS % Recovery = (<1> / <3>) x 100

Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100

(**) = Source: SPL-Houston Historical Data

(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID):

9507775-01A 9507765-02A 9507757-04A 9507762-02A
9507757-06A 9507765-01A 9507765-04A 9507756-01A
9507756-02A 9507756-03A 9507795-03A 9507795-02A
9507795-01A 9507795-04A

Cynthia Schreiner, QC Officer

METHOD 8020/602

Matrix: Aqueous Batch Id: HP_J950721130300

Units: µg/L

L A B O R A T O R Y C O N T R O L S A M P L E

S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50	33.0	66.0	56 - 135
Benzene	ND	50	45.0	90.0	61 - 123
Toluene	ND	50	44.0	88.0	62 - 122
EthylBenzene	ND	50	45.0	90.0	56 - 119
O Xylene	ND	50	47.0	94.0	32 - 160
M & P Xylene	ND	100	101.0	101	32 - 160

M A T R I X S P I K E S

S P I K E C O M P O U N D S	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	ND	20	17.0	85.0	17.0	85.0	0	20	39 - 150
Benzene	ND	20	16.0	75.0	16.0	75.0	0	33	39 - 150
Toluene	ND	20	15.0	75.0	15.0	75.0	0	35	56 - 134
EthylBenzene	ND	20	14.0	70.0	14.0	70.0	0	40	61 - 128
O Xylene	ND	20	15.0	75.0	15.0	75.0	0	29	40 - 130
M & P Xylene	ND	40	30.0	75.0	30.0	75.0	0	20	43 - 152

Analyst: LFD

Sequence Date: 07/21/95

SPL ID of sample spiked: 9507649-01A

Sample File ID: J___526.TX0

Method Blank File ID:

Blank Spike File ID: J___524.TX0

Matrix Spike File ID: J___548.TX0

Matrix Spike Duplicate File ID: J___549.TX0

* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery = [(<1> - <2>) / <3>] x 100

LCS % Recovery = (<1> / <3>) x 100

Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100

(**) = Source: SPL-Houston Historical Data

(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID):

9507711-01A 9507711-02A 9507765-03A 9507765-04A
9507762-02A 9507507-12A 9507762-01A 9507762-03A
9507757-07A 9507757-06A 9507765-01A 9507649-01A
9507483-08A 9507483-01A 9507483-06A 9507483-07A
9507649-01A

Cynthia Schreiner, QC Officer

APPENDIX D
QUALITY ASSURANCE/QUALITY CONTROL
SAFETY PLAN AND LIMITATIONS

QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

A strict Quality Assurance Plan was incorporated throughout all phases of the on-site operations and sampling procedures. Soil or solid material samples were collected using new disposable or properly decontaminated reusable stainless steel equipment. Water or liquid samples were collected with new disposable bailers or decontaminated pump equipment. All non-reusable equipment was disposed of and reusable equipment was decontaminated between sampling stations to eliminate the potential of cross-contamination. The water samples were transferred from the bailers into airtight septum-sealed 40-ml glass VOA vials, one-liter amber glass jars with Teflon-lined lids, or other sample containers appropriate for the required analyses.

The samples were sealed with QA/QC seals, preserved with acid (if required), and maintained at 4°C in accordance with Environmental Protection Agency (EPA) requirements (EPA 600/4-82-029) for shipment to the laboratory. A chain-of-custody (COC) which documents sample collection times and delivery times to the laboratory was completed for each set of samples. The COC is included with the analytical results in the Appendix.

CURA utilizes laboratories that maintain strict quality controls, i.e. equipment calibration and standardization, appropriate analytical methods, preparation of quality control samples, and complete chains-of-custody. Analyses were performed on all samples using the EPA-, state-, or local agency-directed methods. The maximum recommended holding times were not exceeded unless noted in the text.

SAFETY PLAN

The sampling operations were performed at level D personal protection. CURA personnel involved in on-site activities have completed the Occupational Safety and Health for Hazardous Waste Field Operation training course (OSHA 29 CFR 1910.120). Applicable safety equipment was on site to CURA personnel.

LIMITATIONS

It should be noted that all subsurface investigations are inherently limited in the sense that conclusions are drawn and recommendations are developed from samples which depict subsurface conditions at representative locations over relatively short periods of time. Subsurface conditions elsewhere may differ from those at the sampling locations. In addition, subsurface conditions at sampling locations may vary over longer periods of time than can be observed in a study of this type. The passage of time, manifestation of latent conditions, or occurrence of future events may require further site exploration, data collection and analysis, and reevaluation of the findings, observations, conclusions, and recommendation expressed in this report.

OIL CONSERVATION DIVISION
2040 S. Pacheco
Santa Fe, New Mexico 87505

July 24, 1995

CERTIFIED MAIL
RETURN RECEIPT NO. Z-765-962-379

Mr. Neal Stidham
Shell Pipe Line Corporation
Two Shell Plaza
P.O. Box 2099
Houston, Texas 77252-2099

RE: GROUND WATER INVESTIGATION3
DENTON CRUDE PUMP STATION
LEA COUNTY, NEW MEXICO

Dear Mr. Stidham:

The New Mexico Oil Conservation Division (OCD) has completed a review of Shell Oil Products Company's (SOPC) June 6, 1995 "SUBSURFACE INVESTIGATION PLAN, DENTON STATION, LEA COUNTY, NEW MEXICO". This document contains SOPC's work plan for investigating the extent of ground water contamination related to SOPC's Denton Crude Station in Lea County, New Mexico.

The above work plan is approved with the following conditions:

1. All monitor wells will be constructed as set out below:

   a. A minimum of 15 feet of well screen will be installed with at least 10 feet of well screen below the water table and 5 feet of well screen above the water table.

   b. An appropriately sized gravel pack will be set around the well screen from the bottom of the hole to 2-3 feet above the top of the well screen.

   c. A 2-3 foot bentonite plug will be placed above the gravel pack.

   d. The remainder of the hole will be sealed with cement containing 3-5 % bentonite.

2. SOPC will develop each well upon completion using EPA approved procedures.

3. SOPC will sample ground water from all monitor wells. Ground water from these monitor wells will be sampled and analyzed for concentrations of benzene, toluene, ethylbenzene, xylene (BTEX), major cations and anions, heavy metals and polynuclear aromatic hydrocarbons using EPA approved methods.

4. SOPC will submit a report on the investigation to the OCD by October 27, 1995. The report will contain:

   a. A description of all activities which occurred during the investigation, conclusions and recommendations.

   b. A summary of the laboratory analytic results of water quality sampling of the monitor wells.

   c. A water table elevation map using the water table elevation of the ground water in all monitor wells.

   d. A geologic log and as built well completion diagram for each well.

5. SOPC will notify the OCD at least one week in advance of all scheduled activities such that the OCD has the opportunity to witness the events and or split samples.

6. All original documents submitted for approval will be submitted to the OCD Santa Fe Office with copies provided to the OCD Hobbs District Office.

Please be advised that OCD approval does not relieve SOPC of liability should the investigation activities determine that contamination exists which is beyond the scope of the work plan, or, if the activities fail to adequately determine the extent of contamination related to SOPC's activities. In addition, OCD approval does not relieve SOPC of responsibility for compliance with any other federal, state or local laws and/or regulations.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Jerry Sexton, OCD Hobbs District Supervisor
Wayne Price , OCD Hobbs Office

Z 765 962 379

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TOTAL Postage & Fees	$
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PS Form **3800**, March 1993

Fold at line over top of envelope to the right of the return address

Shell Oil Products Company

Two Shell Plaza
P. O. Box 2099
Houston, Texas 77252-2099

June 14, 1995

William Olson
State of New Mexico Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, New Mexico 87504

SUBJECT: DEVELOPMENT WATER, DUBLIN, DENTON, AND LEA STATIONS

Dear Mr. Olson,

Enclosed are copies of the laboratory results from sampling the development water at the subject stations. This water was form the last sampling event. The water was analyzed for benzene and was non-detect at Dublin and Denton and 0.35ppm at Lea. With your concurrence we will surface discharge this water. If you have any questions please call me at 713-241-2961.

Sincerely

Neal Stidham
Staff Engineer
Shell Oil Products Company
Representing Shell Pipe Line Corporation

cc: Paul Newman-EOTT Energy Corp.
Jerry Sexton-OCD Hobbs

Verbal approval to Neal Stidham on 7/24/95

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

LCA

SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: 95 - 05 - 815

Approved for release by:

Date: 6/1/95

Brent Barron, Project Manager

Date: 6/2/95

S. Sample, Laboratory Director

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505815-01

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 05/31/95

PROJECT: 24-93677504.03
SITE: Lea Station
SAMPLED BY: Cura, Inc.
SAMPLE ID: Dev. Water

PROJECT NO: H 13360
MATRIX: WATER
DATE SAMPLED: 05/19/95 15:00:00
DATE RECEIVED: 05/23/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	350	1 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	153		
4-Bromofluorobenzene	118		

METHOD 8020***
Analyzed by: SLB
Date: 05/30/95

(P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

QUALITY CONTROL DOCUMENTATION

METHOD 8020/602

Matrix: Aqueous Batch Id: HP_J950528200900

Units: µg/L

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50	44	88.0	56 - 135
Benzene	ND	50	39	78.0	61 - 123
Toluene	ND	50	40	80.0	62 - 122
EthylBenzene	ND	50	40	80.0	56 - 119
O Xylene	ND	50	42	84.0	32 - 160
M & P Xylene	ND	100	88	88.0	32 - 160

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	7	20	29	110	29	110	0	20	39 - 150
Benzene	ND	20	23	115	23	115	0	33	39 - 150
Toluene	ND	20	21	105	22	110	4.65	35	56 - 134
EthylBenzene	ND	20	21	105	21	105	0	40	61 - 128
O Xylene	ND	20	21	105	20	100	4.88	29	40 - 130
M & P Xylene	ND	40	43	108	43	108	0	20	43 - 152

Analyst: YN

Sequence Date: 05/28/95

SPL ID of sample spiked: 9505884-07A

Sample File ID: J___434.TX0

Method Blank File ID:

Blank Spike File ID: J___426.TX0

Matrix Spike File ID: J___429.TX0

Matrix Spike Duplicate File ID: J___430.TX0

* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery = [(<1> - <2>) / <3>] x 100

LCS % Recovery = (<1> / <3>) x 100

Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100

(**) = Source: SPL-Houston Historical Data

(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID):

9505A50-01A 9505816-01A 9505815-01A 9505814-01A
9505A50-02A 9505813-01A 9505813-03A 9505899-05A
9505715-09A 9505A34-01A 9505844-05A 9505690-01B
9505844-03A 9505884-02A 9505884-08A 9505884-09A
9505884-07A 9505844-10A 9505884-10A

Idelis Williams, QC Officer

CHAIN OF CUSTODY
AND
SAMPLE RECEIPT CHECKLIST

4505015

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING

CHAIN OF CUSTODY RECORD NO. H 13360

Date: 5-22-95
Page 1 of 1

SITE ADDRESS: Shell Pipe Line
LEA Station
~~WIC~~ # 24-93677504.03
CONSULTANT NAME & ADDRESS: CURA Inc.
231 W. Wadley, C-200, Midland TX
CONSULTANT CONTACT: Brad Smith (Houston)
PHONE: (915) 570-8408 FAX: (915) 570-8409
SAMPLED BY: Brad Smith

CHECK ONE BOX ONLY CT/DT

- QUARTERLY MONITORING [X] 5461
- SITE INVESTIGATION [ ] 5441
- SOIL FOR DISPOSAL [ ] 5442
- WATER FOR DISPOSAL [ ] 5443
- AIR SAMPLER - SYS O+M [ ] 5452
- WATER SAMPLE - SYS O+M [ ] 5453
- OTHER _____ [ ]

SAMPLE I.D.	DATE	TIME	COMP.	GRAB	MATRIX: H_2O	SOIL	AIR	SLUDGE	OTHER	METHOD PRESERVED: HCl	HNO_3	H_2SO_4	NONE	OTHER: ICE	NO. OF CONTAINERS	CONTAINER SIZE
Dev. Water	5-19-95	1500	✓		✓					✓				✓	3	40 ml VOA

ANALYSIS REQUEST (CHECK APPROPRIATE BOX)

BTEX 602 ☐ 8020 ☐ WITH MTBE ☐	BTEX/GAS HYDROCARBONS PID/FID ☐ WITH MTBE	VOL 624/PPL ☐ 8240/TAL ☐ NBS (+15) ☐	PNA/PAH 8310 ☐ 8100 ☐ 610 ☐	SEMI - VOL 625/PPL ☐ 8270/TAL ☐ NBS (+25) ☐	TPH/IR 418.1 ☐ SM503 ☐ ____ ☐ ____ ☐	TPH/GC 8015 Mod. GAS ☐ 8015 Mod DIESEL ☐	TCLP METALS ☐ VOL ☐ SEMI-VOL ☐ PEST ☐ HERB ☐	EP TOX METALS ☐ PESTICIDES ☐ HERBICIDES ☐	REACTIVITY ☐ CORROSIVITY ☐ IGNITABILITY ☐	OTHER	REMARKS
										Total Benzene ✓	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Bill D. Smith	5-22-95	1500			
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
			S. West	5/23/95	1025

BILL NO.: _____
LABORATORY: SPL Houston
SHELL CONTACT: Neil Stidham PHONE: _____ FAX: _____

TURN AROUND TIME (CHECK ONE)
7 DAYS ☐ (NORMAL) 14 DAYS ☐
48 HOURS ☐ OTHER ☒ per Shell contract

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN OF CUSTODY WITH INVOICE AND RESULTS

DISTRIBUTION: PINK Sampling Coordinator - WHITE & YELLOW Accompanies Shipment - WHITE Returned with Report

3 CX/mtg

FedEx
Federal Express

RECIPIENT'S COPY

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 4530723525

4530723525

Date 12-14

From (Your Name) Please Print

Your Phone Number (Very Important)

Company

Department/Floor No.

Street Address

City **State** **ZIP Required**

To (Recipient's Name) Please Print

Recipient's Phone Number (Very Important)

Company

Department/Floor No.

Exact Street Address *(We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.)*

City **State** **ZIP Required**

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) *(First 24 characters will appear on invoice.)*

IF HOLD AT FEDEX LOCATION, Print FEDEX Address Here

Street Address 4702 TRAVIS

City HOUSTON, State TX. ZIP Required 77002

PAYMENT 1 ☐ Bill Sender 2 ☐ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card 5 ☐ Cash/Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)
- 11 ☐ OTHER PACKAGING
- 16 ☐ FEDEX LETTER*
- 12 ☐ FEDEX PAK*
- 13 ☐ FEDEX BOX
- 14 ☐ FEDEX TUBE

Standard Overnight (Delivery by next business afternoon† No Saturday delivery‡)
- 51 ☒ OTHER PACKAGING
- 56 ☐ FEDEX LETTER*
- 52 ☐ FEDEX PAK*
- 53 ☐ FEDEX BOX
- 54 ☐ FEDEX TUBE

Economy Two-Day (Delivery by second business day ‡)
- 30 ☐ ECONOMY*

* Economy Letter Rate not available. Minimum charge: One pound Economy rate.

Government Overnight (Restricted for authorized users only)
- 46 ☐ GOVT LETTER
- 41 ☐ GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
- 70 ☐ OVERNIGHT FREIGHT** (Confirmed reservation required)
- 80 ☐ TWO-DAY FREIGHT**

5 DELIVERY AND SPECIAL HANDLING (Check services required)

Weekday Service
- 1 ☒ HOLD AT FEDEX LOCATION WEEKDAY (Fill in Section H)
- 2 ☐ DELIVER WEEKDAY

Saturday Service
- 31 ☐ HOLD AT FEDEX LOCATION SATURDAY (Fill in Section H)
- 3 ☐ DELIVER SATURDAY (Extra charge) (Not available to all locations)
- 9 ☐ SATURDAY PICK-UP (Extra charge)

Special Handling
- 4 ☐ DANGEROUS GOODS (Extra charge)
- 6 ☐ DRY ICE Dangerous Goods Shipper's Declaration not required

Dry Ice, 9, UN 1845, ____ X ____ kg, 904 III

☐ DESCRIPTION

12 ☐ HOLIDAY DELIVERY (If offered)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
1	5	
Total 1	Total 5	Total

DIM SHIPMENT (Chargeable Weight) ☐ ____ lbs.

L x W x H

Received At: 1 ☐ Regular Stop 3 ☐ Drop Box 4 ☐ B S C

7

Release

Emp. No. Date

☐ Cash Received
☐ Return Shipment
☐ Third Party ☐ Chg. To Del. ☐ Chg. To Hold

Street Address

City State Zip

Received By: X

Date/Time Received FedEx Employee Number

Federal Express Use	
Base Charges	
Declared Value Charge	
Other 1	
Other 2	
Total Charges	

REVISION DATE 4/94
PART #145412 FXEM 2/95
FORMAT #160
160

SPL HOUSTON ENVIRONMENTAL LABORATORY

SAMPLE LOGIN CHECKLIST

DATE: 5/23/95 TIME: 1025 CLIENT NO. _____
LOT NO. _____ CONTRACT NO. _____

CLIENT SAMPLE NOS. _____

SPL SAMPLE NOS.: 9505815

		YES	NO
1.	Is a Chain-of-Custody form present?	✓	
2.	Is the COC properly completed?	✓	
	If no, describe what is incomplete:		
	If no, has the client been contacted about it? (Attach subsequent documentation from client about the situation)		
3.	Is airbill/packing list/bill of lading with shipment? If yes, ID#: FED EX	✓	
4.	Is a USEPA Traffic Report present?		✓
5.	Is a USEPA SAS Packing List present?		
6.	Are custody seals present on the package?	✓	
	If yes, were they intact upon receipt?	✓	
7.	Are all samples tagged or labeled?	✓	
	Do the sample tags/labels match the COC?	✓	
	If no, has the client been contacted about it? (Attach subsequent documentation from client about the situation)		
8.	Do all shipping documents agree?	✓	
	If no, describe what is in nonconformity:		

9. Condition/temperature of shipping container: 3°C IMPACT GOOD
10. Condition/temperature of sample bottles: ✓
11. Sample Disposal?: SPL disposal ✓ Return to client _____

NOTES (reference item number if applicable): _____

ATTEST: R Ringuay DATE: 5/23/95
DELIVERED FOR RESOLUTION: REC'D _____ DATE: _____
RESOLVED: _____ DATE: _____

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: 95 - 05 - 816

Approved for release by:

Date: 6/1/95

Brent Barron, Project Manager

Date: 6/2/95

S. Sample, Laboratory Director

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505816-01

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 05/31/95

PROJECT: 24-93676504.03
SITE: Dublin Station
SAMPLED BY: Cura, Inc.
SAMPLE ID: Dev. Water

PROJECT NO: H 13358
MATRIX: WATER
DATE SAMPLED: 05/19/95 16:00:00
DATE RECEIVED: 05/23/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	ND	1 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	109		
4-Bromofluorobenzene	94		

METHOD 8020***
Analyzed by: SLB
Date: 05/30/95

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc. - Project Manager

QUALITY CONTROL DOCUMENTATION

METHOD 8020/602

Matrix: Aqueous Batch Id: HP_J950528200900

Units: µg/L

L A B O R A T O R Y C O N T R O L S A M P L E

S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50	44	88.0	56 - 135
Benzene	ND	50	39	78.0	61 - 123
Toluene	ND	50	40	80.0	62 - 122
EthylBenzene	ND	50	40	80.0	56 - 119
O Xylene	ND	50	42	84.0	32 - 160
M & P Xylene	ND	100	88	88.0	32 - 160

M A T R I X S P I K E S

S P I K E C O M P O U N D S	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	7	20	29	110	29	110	0	20	39 - 150
Benzene	ND	20	23	115	23	115	0	33	39 - 150
Toluene	ND	20	21	105	22	110	4.65	35	56 - 134
EthylBenzene	ND	20	21	105	21	105	0	40	61 - 128
O Xylene	ND	20	21	105	20	100	4.88	29	40 - 130
M & P Xylene	ND	40	43	108	43	108	0	20	43 - 152

Analyst: YN

Sequence Date: 05/28/95

SPL ID of sample spiked: 9505884-07A

Sample File ID: J___434.TX0

Method Blank File ID:

Blank Spike File ID: J___426.TX0

Matrix Spike File ID: J___429.TX0

Matrix Spike Duplicate File ID: J___430.TX0

* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery = [(<1> - <2>) / <3>] x 100

LCS % Recovery = (<1> / <3>) x 100

Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100

(**) = Source: SPL-Houston Historical Data

(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID):

9505A50-01A 9505816-01A 9505815-01A 9505814-01A
9505A50-02A 9505813-01A 9505813-03A 9505899-05A
9505715-09A 9505A34-01A 9505844-05A 9505690-01B
9505844-03A 9505884-02A 9505884-08A 9505884-09A
9505884-07A 9505844-10A 9505884-10A

Idelis Williams, QC Officer

CHAIN OF CUSTODY
AND
SAMPLE RECEIPT CHECKLIST

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING

CHAIN OF CUSTODY RECORD NO. H 13358

Date: 5-22-95
Page 1 of 1

SITE ADDRESS: Shell Pipe LINE
Dublin STATION
Proj # 24-93676504.03
CONSULTANT NAME & ADDRESS: CURA Fax.
731 W. Wadley, L-200, Midland TX
CONSULTANT CONTACT: Brad Smith (Houston)
PHONE: (915) 570-8409 FAX: (915) 570-8409
SAMPLED BY: Bill D. Smith

CHECK ONE BOX ONLY CT/DT

- QUARTERLY MONITORING ☐ 5461
- SITE INVESTIGATION ☐ 5441
- SOIL FOR DISPOSAL ☐ 5442
- WATER FOR DISPOSAL ☐ 5443
- AIR SAMPLER - SYS O+M ☐ 5452
- WATER SAMPLE - SYS O+M ☐ 5453
- OTHER _____ ☐

SAMPLE I.D.	DATE	TIME	COMP.	GRAB	MATRIX: H2O	SOIL	AIR	SLUDGE	OTHER	METHOD PRESERVED: HCl	HNO3	H2SO4	NONE	OTHER: ICE	NO. OF CONTAINERS	CONTAINER SIZE
Dev. Water	5-19-95	1600	✓		✓					✓				✓	3	40 ml VOA

ANALYSIS REQUEST: (CHECK APPROPRIATE BOX)

BTEX 602 ☐ 8020 ☐ WITH MTBE ☐	BTEX/GAS HYDROCARBONS PID/FID ☐ WITH MTBE	VOL 624/PPL ☐ 8240/TAL ☐ NBS (+15) ☐	PNA/PAH 8310 ☐ 8100 ☐ 610 ☐	SEMI - VOL 625/PPL ☐ 8270/TAL ☐ NBS (+25) ☐	TPH/IR 418.1 ☐ SM503 ___ ☐ ___ ☐ ___ ☐	TPH/GC 8015 Mod. GAS ☐ 8015 Mod DIESEL ☐	TCLP METALS ☐ VOL ☐ SEMI-VOL ☐ PEST ☐ HERB ☐	EP TOX METALS ☐ PESTICIDES ☐ HERBICIDES ☐	REACTIVITY ☐ CORROSIVITY ☐ IGNITABILITY ☐

OTHER: total Benzene ✓

REMARKS

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Bill D. Smith	5-22-95	1500			
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
			S. West	5/23/95	1025

BILL NO.: _____
LABORATORY: SPL Houston
SHELL CONTACT: Neil Stidham PHONE: _____ FAX: _____

TURN AROUND TIME (CHECK ONE)
7 DAYS ☐ (NORMAL) 14 DAYS ☐
48 HOURS ☐ OTHER per Shell Contract

FedEx# 4530723535

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN OF CUSTODY WITH INVOICE AND RESULTS
DISTRIBUTION: PINK Sampling Coordinator - WHITE & YELLOW Accompanies Shipment - WHITE Returned with Report

3 CONTACT

SPL HOUSTON ENVIRONMENTAL LABORATORY

SAMPLE LOGIN CHECKLIST

DATE: 5/23/95 TIME: 1025 CLIENT NO. _____
LOT NO. _____ CONTRACT NO. _____

CLIENT SAMPLE NOS. _____

SPL SAMPLE NOS.: 9505816

		YES	NO
1.	Is a Chain-of-Custody form present?	✓	
2.	Is the COC properly completed?	✓	
	If no, describe what is incomplete:		
	If no, has the client been contacted about it? (Attach subsequent documentation from client about the situation)		
3.	Is airbill/packing list/bill of lading with shipment? If yes, ID#: HD EX	✓	
4.	Is a USEPA Traffic Report present?		✓
5.	Is a USEPA SAS Packing List present?		✓
6.	Are custody seals present on the package?	✓	
	If yes, were they intact upon receipt?	✓	
7.	Are all samples tagged or labeled?	✓	
	Do the sample tags/labels match the COC?	✓	
	If no, has the client been contacted about it? (Attach subsequent documentation from client about the situation)		
8.	Do all shipping documents agree?	✓	
	If no, describe what is in nonconformity:		

9. Condition/temperature of shipping container: 3C INTACT
10. Condition/temperature of sample bottles: GOOD
11. Sample Disposal?: SPL disposal ✓ Return to client _____

NOTES (reference item number if applicable): _____

ATTEST: RAINSAU DATE: 5/23/95
DELIVERED FOR RESOLUTION: REC'D _____ DATE: _____
RESOLVED: _____ DATE: _____

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: 95 - 05 - 817

Approved for release by:

Date: 6/1/95
Brent Barron, Project Manager

Date: 6/2/95
S. Sample, Laboratory Director

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505817-01

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 05/31/95

PROJECT: 24-93678504.03
SITE: Denton Station
SAMPLED BY: Cura, Inc.
SAMPLE ID: Dev. Water

PROJECT NO: H 13359
MATRIX: WATER
DATE SAMPLED: 05/19/95 14:00:00
DATE RECEIVED: 05/23/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	ND	1 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	109		
4-Bromofluorobenzene	92		

METHOD 8020***
Analyzed by: SLB
Date: 05/31/95

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc. - Project Manager

QUALITY CONTROL DOCUMENTATION

METHOD 8020/602

Matrix: Aqueous Batch Id: HP_J950530210700

Units: µg/L

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50	50	100	56 - 135
Benzene	ND	50	52	104	61 - 123
Toluene	ND	50	51	102	62 - 122
EthylBenzene	ND	50	52	104	56 - 119
O Xylene	ND	50	55	110	32 - 160
M & P Xylene	ND	100	120	120	32 - 160

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	23	20	46	115	43	100	14.0	20	39 - 150
Benzene	ND	20	21	105	21	105	0	33	39 - 150
Toluene	ND	20	22	110	20	100	9.52	35	56 - 134
EthylBenzene	ND	20	21	105	21	105	0	40	61 - 128
O Xylene	ND	20	21	105	20	100	4.88	29	40 - 130
M & P Xylene	ND	40	44	110	42	105	4.65	20	43 - 152

Analyst: SLB

Sequence Date: 05/31/95

SPL ID of sample spiked: 9505A20-01A

Sample File ID: J___462.TX0

Method Blank File ID:

Blank Spike File ID: J___487.TX0

Matrix Spike File ID: J___460.TX0

Matrix Spike Duplicate File ID: J___461.TX0

* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery = [(<1> - <2>) / <3>] x 100

LCS % Recovery = (<1> / <3>) x 100

Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100

(**) = Source: SPL-Houston Historical Data

(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID):

9505894-02B 9505894-01B 9505844-08A 9505994-07A
9505994-06A 9505994-04A 9505994-08A 9505994-03A
9505994-02A 9505994-01A 9505973-02A 9505973-01A
9505884-06A 9505884-04A 9505884-01A 9505817-01A
9505942-01A 9505942-03A 9505A20-01A

Idelis Williams, QC Officer

CHAIN OF CUSTODY
AND
SAMPLE RECEIPT CHECKLIST

4505401 ✓

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING

CHAIN OF CUSTODY RECORD NO. H 13359

Date: 5-22-95
Page 1 of 1

Shell Pipe Line
SITE ADDRESS: Denton Station

AFE #
WBS #: 24-93678504.03

CONSULTANT NAME & ADDRESS: CURA INC
731 W. Wadley, L-200, Midland TX

CONSULTANT CONTACT: Brad Smith (Houston)

PHONE: (915) 570-8408 FAX: (915) 570-8409

SAMPLED BY: Bill D. Smith

CHECK ONE BOX ONLY CT/DT

- QUARTERLY MONITORING ☒ 5461
- SITE INVESTIGATION ☐ 5441
- SOIL FOR DISPOSAL ☐ 5442
- WATER FOR DISPOSAL ☐ 5443
- AIR SAMPLER - SYS O+M ☐ 5452
- WATER SAMPLE - SYS O+M ☐ 5453
- OTHER ☐

SAMPLE I.D.	DATE	TIME	COMP.	GRAB	MATRIX: H2O	SOIL	AIR	SLUDGE	OTHER	METHOD PRESERVED: HCl	HNO3	H2SO4	NONE	OTHER: ICE	NO. OF CONTAINERS	CONTAINER SIZE
Dev. Water	5-19-95	1400	✓		✓					✓				✓	3	40 ml VOA

ANALYSIS REQUEST: (CHECK APPROPRIATE BOX)

BTEX 602 ☐ 8020 ☐ WITH MTBE ☐	BTEX/GAS HYDROCARBONS PID/FID ☐ WITH MTBE	VOL 624/PPL ☐ 8240/TAL ☐ NBS (+15) ☐	PNA/PAH 8310 ☐ 8100 ☐ 610 ☐	SEMI-VOL 625/PPL ☐ 8270/TAL ☐ NBS (+25) ☐	TPH/IR 418.1 ☐ SM503 ____ ☐ ____ ☐	TPH/GC 8015 Mod GAS ☐ 8015 Mod DIESEL ☐	TCLP METALS ☐ VOL ☐ SEMI-VOL ☐ PEST ☐ HERB ☐	EP TOX METALS ☐ PESTICIDES ☐ HERBICIDES ☐	REACTIVITY ☐ CORROSIVITY ☐ IGNITABILITY ☐	OTHER	REMARKS
										total Benzene ✓	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Bill D. Smith	5-22-95	1500			
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
			S. West	5/23/95	1025

BILL NO.:
LABORATORY: SPL Houston
SHELL CONTACT: Neil Stidham PHONE: FAX:

TURN AROUND TIME (CHECK ONE)
7 DAYS ☐ (NORMAL) 14 DAYS ☐
48 HOURS ☐ OTHER ☒ per Shell contract

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN OF CUSTODY WITH INVOICE AND RESULTS
DISTRIBUTION: PINK Sampling Coordinator - WHITE & YELLOW Accompanies Shipment - WHITE Returned with Report

Fed Ex # 453072352 5

CONTACT

SPL HOUSTON ENVIRONMENTAL LABORATORY

SAMPLE LOGIN CHECKLIST

DATE: 5/23/95 TIME: 1025 CLIENT NO. _____
LOT NO. _____ CONTRACT NO. _____

CLIENT SAMPLE NOS. _____

SPL SAMPLE NOS.: 9505817

		YES	NO
1.	Is a Chain-of-Custody form present?	✓	
2.	Is the COC properly completed?	✓	
	If no, describe what is incomplete:		
	If no, has the client been contacted about it? (Attach subsequent documentation from client about the situation)		
3.	Is airbill/packing list/bill of lading with shipment? If yes, ID#: FED EX	✓	
4.	Is a USEPA Traffic Report present?		✓
5.	Is a USEPA SAS Packing List present?		✓
6.	Are custody seals present on the package?	✓	
	If yes, were they intact upon receipt?	✓	
7.	Are all samples tagged or labeled?	✓	
	Do the sample tags/labels match the COC?	✓	
	If no, has the client been contacted about it? (Attach subsequent documentation from client about the situation)		
8.	Do all shipping documents agree?	✓	
	If no, describe what is in nonconformity:		

9. Condition/temperature of shipping container: 3°C INTACT
10. Condition/temperature of sample bottles: GOOD
11. Sample Disposal?: SPL disposal ✓ Return to client ____

NOTES (reference item number if applicable): _____

ATTEST: RAINBOW DATE: 5/23/95
DELIVERED FOR RESOLUTION: REC'D _____ DATE: _____
RESOLVED: _____ DATE: _____

Shell Oil Products Company

Two Shell Plaza
P. O. Box 2099
Houston, Texas 77252-2099

June 6, 1995

William Olson
State of New Mexico Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, New Mexico 87504

SUBJECT: SUBSURFACE INVESTIGATION PLAN, DENTON STATION, LEA COUNTY NEW MEXICO.

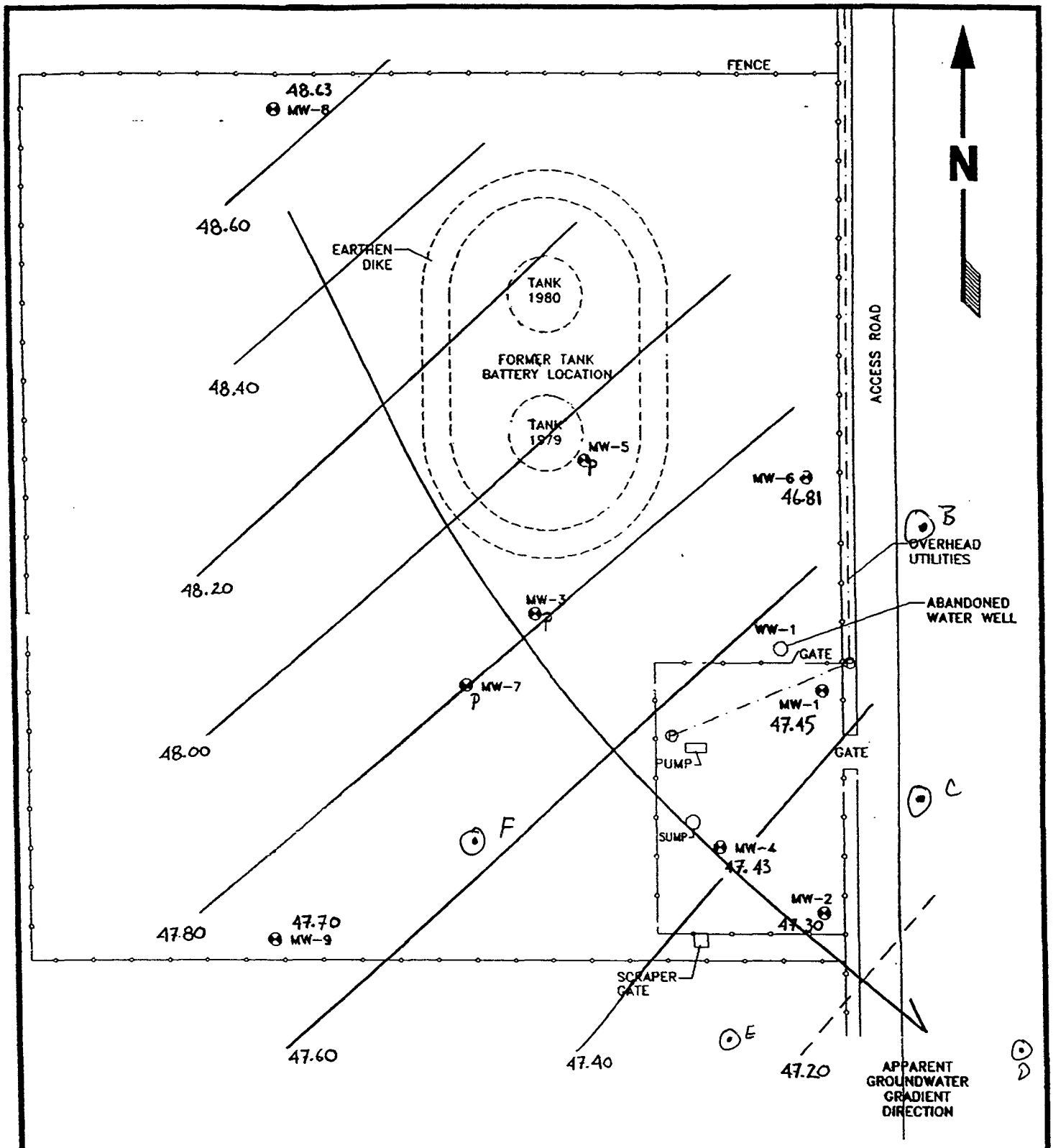
Dear Mr. Olson,

Enclosed is a figure showing the location of our proposed drilling locations at Denton Station. We plan to drill holes B,C, and F and depending upon the findings may drill D and E. Based upon the past monitoring data, the depth to groundwater is approximately 50 feet below the land surface(Table 1). We plan to install 2" PVC monitoring wells which will be screened with 0.020 slotted pipe from approximately 45 feet below land surface to a depth of 60. If conditions warrant we may install 4" wells. The interval between 45 and 60 feet will be continuously cored in order to evaluate hydrocarbon contamination. The core will be screened with an flame ionization detector organic vapor analyzer. Each boring will be logged. Boring will be converted to wells immediately, developed and sampled. Wells will be surveyed and tied to the existing site survey. A report will be prepared including boring logs, analytical results and findings and submitted to the OCD. If you have any questions please call me at 713-241-2961.

Sincerely

Neal Stidham
Staff Engineer
Shell Oil Products Company
Representing Shell Pipe Line Corporation

cc: Paul Newman-EOTT Energy Corp.
Jerry Sexton-OCD Hobbs



GROUNDWATER GRADIENT MAP

-WATER LEVELS OBTAINED 05/25/95
-CONTOUR INTERVAL = 0.2 FEET
-MW-6 NOT USED IN CONTOURS DUE TO INCONSISTENT DATA.

0 100'
APPROXIMATE SCALE

CURA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG. C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-6219

DENTON STATION
SHELL PIPE LINE CORPORATION
LEA COUNTY, NEW MEXICO

DATE:	SCALE:
MAY 1995	SEE ABOVE
PROJECT NO.	FIGURE NO.
15-93678	1

TABLE 1

DENTON STATION

SUMMARY OF RELATIVE GROUNDWATER LEVEL ELEVATIONS AND PHASE-SEPARATED HYDROCARBON THICKNESSES

Monitor Well	Date Gauged	Relative Ground Surface Elevation (feet)	Relative Top of Casing Elevation (feet)*	Depth to Water Below Top of Casing (feet)	Corrected Relative Groundwater Elevation (feet)**	Phase-Separated Hydrocarbon Thickness (feet)
MW-1	09/27/93	101.07	103.47	55.41	48.06	0.00
	03/29/94	101.07	103.47	55.71	48.02	0.32
	05/10/94	101.07	103.47	55.77	47.83	0.16
	02/08/95	101.07	103.47	56.17	47.88	0.71
	04/25/95	101.07	103.47	57.84	46.29	0.80
MW-2	09/27/93	99.17	101.35	53.48	47.87	0.00
	03/29/94	99.17	101.35	53.64	47.71	0.00
	05/10/94	99.17	101.35	53.70	47.65	0.00
	02/08/95	99.17	101.35	54.03	47.32	0.00
	04/25/95	99.17	101.35	54.05	47.30	0.00
MW-3	09/27/93	101.01	102.68	54.32	48.36	8.20
	03/29/94	101.01	102.68	61.27	48.13	0.00
	05/10/94	101.01	102.68	55.68	48.10	1.34
	02/08/95	101.01	102.68	60.79	48.12	7.60
	03/28/95	101.01	102.68	61.35	48.01	81.5
	04/25/95	101.01	102.68	61.30	46.64	6.42
MW-4	05/10/94	99.98	101.46	53.63	47.83	0.00
	02/08/95	99.98	101.46	53.78	47.68	0.00
	04/25/94	99.98	101.46	54.21	47.25	0.00
MW-5	05/10/94	101.71	103.54	57.77	48.31	3.10
	02/08/95	101.71	103.54	61.91	48.31	8.15
	03/28/95	101.71	103.54	61.42	47.99	7.16
	04/25/95	101.71	103.54	61.50	46.84	5.86
MW-6	05/10/94	101.52	103.41	55.25	48.16	0.00
	02/08/95	101.52	103.41	55.26	48.16	0.00
	04/25/95	101.52	103.41	56.57	46.84	0.00
MW-7	05/10/94	100.82	102.66	54.71	48.14	0.23
	02/08/95	100.82	102.66	61.16	48.08	8.02
	03/28/95	100.82	102.66	60.86	48.06	7.64
	04/25/95	100.82	102.66	59.13	48.86	6.51
MW-8	05/10/94	101.56	103.49	54.53	48.96	0.00
	02/08/95	101.56	103.49	54.59	48.90	0.00
	04/25/95	101.56	103.49	54.63	48.86	0.00
MW-9	05/10/94	99.66	101.71	53.71	48.00	0.00
	02/08/95	99.66	101.71	53.96	47.75	0.00
	04/25/95	99.66	101.71	64.86	46.85	0.00

TABLE 1

DENTON STATION

SUMMARY OF RELATIVE GROUNDWATER LEVEL ELEVATIONS AND PHASE-SEPARATED HYDROCARBON THICKNESSES

Monitor Well	Date Gauged	Relative Ground Surface Elevation (feet)	Relative Top of Casing Elevation (feet)*	Depth to Water Below Top of Casing (feet)	Corrected Relative Groundwater Elevation (feet)**	Phase-Separated Hydrocarbon Thickness (feet)
WW-1	02/26/93	100.55	102.21	60.23	48.52	7.97
	03/05/93	100.55	102.21	56.54	48.50	3.45
	03/12/93	100.55	102.21	55.39	48.39	1.91
	03/17/93	100.55	102.21	55.19	48.46	1.76
	03/22/93	100.55	102.21	54.44	48.45	0.83
	03/31/93	100.55	102.21	55.81	48.46	2.51
	04/08/93	100.55	102.21	57.74	48.50	4.92
	04/15/93	100.55	102.21	55.60	48.42	2.21
	04/27/93	100.55	102.21	56.08	48.43	2.81
	05/06/93	100.55	102.21	55.61	48.46	2.27
	05/13/93	100.55	102.21	55.49	48.47	2.13
	05/21/93	100.55	102.21	55.70	48.45	2.36
	05/26/93	100.55	102.21	55.74	48.45	2.41
	05/28/93	100.55	102.21	55.23	48.46	1.80
	06/04/93	100.55	102.21	55.46	48.51	2.15
	06/11/93	100.55	102.21	55.28	48.52	1.94
	06/16/93	100.55	102.21	55.18	48.52	1.82
	03/18/94	100.55	102.21	60.70	48.03	7.96
	03/29/94	100.55	102.21	55.89	48.01	2.06
	05/06/94	100.55	102.21	58.20	47.95	4.80
	05/10/94	100.55	102.21	57.40	47.93	3.80
	05/25/94	100.55	102.21	57.18	47.91	3.51
	06/14/94	100.55	102.21	57.30	48.02	3.78
	07/13/94	100.55	102.21	57.07	48.11	3.62
	09/14/94	100.55	102.21	57.76	48.16	4.53
	10/03/94	100.55	102.21	56.71	49.97	5.45
	10/28/94	100.55	102.21	56.84	50.13	5.80
	11/28/94	100.55	102.21	59.53	47.90	6.31
	12/21/94	100.55	102.21	59.63	47.84	6.42
	02/08/95	100.55	102.21	57.40	47.93	3.80
	04/25/95	100.55	102.21	59.43	47.36	5.58

* Measured from a relative datum (benchmark = 100.00 feet) located at the northeast corner of the concrete sump pad. The monitor well casings were marked to provide consistent reference points for future gauging operations.

** Correction Equation for Phase-Separated Hydrocarbons: Corrected Groundwater Elevation = Top of Casing Elevation - (Depth to Water Below Top of Casing - [SG] [PSH Thickness])
Specific Gravity (SG) = 0.73 for gasoline, 0.85 for diesel, 0.82 for crude oil.

Shell Oil Products Company

Two Shell Plaza
P. O. Box 2099
Houston, Texas 77252-2099

June 1, 1995

RECEIVED

JUN 06 1995

Environmental Bureau
Oil Conservation Division

William Olson
State of New Mexico Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, New Mexico 87504

SUBJECT: QUARTERLY REPORTS, LEA AND DENTON STATIONS, LEA COUNTY NEW MEXICO.

Dear Mr. Olson,

Enclosed are copies of the second quarter, 1995, monitoring reports for Lea and Denton Stations. This information is in response to the approval conditions set forth in your letters of January 10, 1995 and December 5, 1994 respectively. As authorized by your letters of April 28, quarterly sampling for polynuclear aromatic hydrocarbons (PAH) was discontinued but will be done annually, for MW-4, MW-5, MW-6, MW-7, MW-9, and MW-10 at Lea Station and at Denton Station, MW-2, MW-6, and MW-9. Wells containing Phase-Separated Hydrocarbon were not sampled but were measured and reported. If you have any questions please call me at 713-241-2961.

Sincerely

Neal Stidham
Staff Engineer
Shell Oil Products Company
Representing Shell Pipe Line Corporation

cc: Paul Newman-EOTT Energy Corp.
Jerry Sexton-OCD Hobbs

CURA INC.
Environmental Consultants, Engineers & Scientists
6049 South Loop East • Houston, Texas 77033 • 713/640-1490 • FAX 640-2593

May 30, 1995

Mr. Neal D. Stidham
Shell Oil Company
Two Shell Plaza, Room 1452
777 Walker Street
Houston, Texas 77002

RE: QUARTERLY GROUNDWATER MONITORING REPORT
SECOND QUARTER, 1995
DENTON STATION
LEA COUNTY, NEW MEXICO

CURA PROJECT NO. 24-93678

Mr. Stidham:

CURA, Inc., has completed the groundwater monitoring and sampling operations at the above-referenced site. The work was performed in accordance with the scope of services requested by Shell Oil Company in their letter dated January 25, 1995.

Monitoring wells MW-1 through MW-9 and water well WW-1 were gauged and checked for phase-separated hydrocarbons (PSH) during sampling operations on April 25, 1995. Monitoring wells MW-2, MW-6, and MW-9 were developed, and sampled by CURA on April 25, 1995. In accordance with water quality monitoring requirements set forth by the New Mexico Oil Conservation Division (NMOCD) the groundwater samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and dissolved oxygen content (DO). The New Mexico Water Quality Control Commission (WQCC) regulations do not contain a ground water standard for total petroleum hydrocarbons (TPH). Therefore, the NMOCD does not require that groundwater samples be analyzed for TPH. In addition to laboratory analysis for BTEX, dissolved oxygen (DO) levels for each sampled well were measured during field operations. Monitoring wells MW-1, MW-3, MW-5, MW-7, and WW-1 were not sampled due to the presence of PSH.

Groundwater Sampling and PSH Recovery

The monitoring wells were gauged on April 25, 1995 to determine the depth to groundwater and PSH thickness (if any). A summary of groundwater elevations and PSH thicknesses is presented in Table 1, Appendix B.

PSH was initially identified on-site in water well WW-1 in February of 1993. PSH recovery at water well WW-1 was initiated immediately following identification of the product release. In September, 1993 additional on-site monitoring wells MW-1, MW-2, and MW-3 were installed. No PSH was observed in these wells during drilling or sampling operations. In March of 1994, measurable thicknesses of PSH were identified in monitoring wells MW-1 and MW-3 during routine site gauging and product recovery operations at water well WW-1. CURA installed on-site monitoring wells MW-4 through MW-9 in May 1994. PSH was observed in monitoring wells MW-1, MW-3, MW-5 and MW-7 following well installation, and site-wide PSH recovery operations were initiated. During the 1995 Second Quarter PSH recovery has yielded approximately 49 gallons of crude oil from the site. To date, a cumulative total of approximately 675 gallons of PSH have been recovered from Denton Station. Cumulative and quarterly PSH thicknesses and volumes recovered are summarized in Table 3 of this report.

In order to enhance PSH recovery operations at the site, construction of a remedial action system was initiated on May 3, 1995. Recovered crude oil will be pumped into an on-site sump and returned to the pipeline. Approximately 12 gallons of oil were recovered by the product-only pumps in monitoring wells MW-3, MW-5, and MW-7 during the trial run on May 10, 1995. The remedial action system is anticipated to be fully operational in June, 1995.

Monitoring well gauging data obtained during the April 25, 1995 sampling event was indeterminant, and the site was regauged on May 25, 1995. May gauging data indicates that the apparent direction of groundwater flow is toward the south-southeast which is consistent with previous measurements. PSH was observed in monitoring wells MW-1, MW-3, MW-5, MW-7, and WW-1 during gauging operations.

The monitoring wells were purged by removing approximately three well volumes of water or bailing the wells dry. Approximately 25 gallons of water was removed from each of monitoring wells MW-2, MW-6, and MW-9 during development operations. The purged groundwater was stored on-site in labelled 55-gallon drums pending analysis and proper disposal.
After development, DO measurements were performed on-site and groundwater samples were obtained from the monitoring wells using a dedicated disposable bailer. The groundwater samples were transported on ice to the laboratory for analysis of BTEX using EPA Method 8020. Quality Assurance/Quality Control information is included in Appendix D.

Results and Discussion

The groundwater samples obtained on April 25, 1995 indicate no significant change in dissolved hydrocarbon concentrations or in the distribution of PSH thicknesses across the site since the last sampling event in February 1995. Dissolved hydrocarbon impact to monitoring well MW-6 and accumulations of crude oil in water well WW-1 and monitoring well MW-1 along the eastern site boundary continue to suggest the need for additional delineation east of the site. During the

Second Quarter of 1995, Shell Pipe Line Company (SPLC) obtained off-site access from the adjacent landowner, and installation of off-site wells is scheduled for the Third Quarter, 1995. Consistent low to non-detectable hydrocarbon concentrations in downgradient monitoring wells MW-9 and MW-2 continue to indicate that southern (downgradient) delineation of the plume has been achieved.

Dissolved oxygen concentrations (DO) were obtained as a possible indicator of the natural biological activity of hydrocarbon degrading microorganisms in the groundwater. Microbial and mineral oxidation reactions within the dissolved hydrocarbon plume typically result in depletion of DO so that an inverse relationship between DO and BTEX will be found where natural attenuation of the contaminant plume has occurred. DO levels recorded during 1995 Second Quarter sampling suggest that sufficient DO is present in the groundwater to encourage biological degradation of hydrocarbons. CURA will continue to monitor DO levels as a means of documenting the occurrence of natural attenuation. A summary of groundwater analytical results is presented in Table 2, Appendix B. The laboratory reports and chain-of-custody are included in Appendix C.

CURA appreciates the opportunity to provide you with our professional consulting services. If you have any questions or concerns, please do not hesitate to contact Brad Smith at (713) 640-1490.

Respectfully,
CURA, Inc.

for James W. Leach
Environmental Geologist

Bradley S. Smith
Project Manger

Richard G. Burbidge, Ph.D.
Vice President

JWL/chs

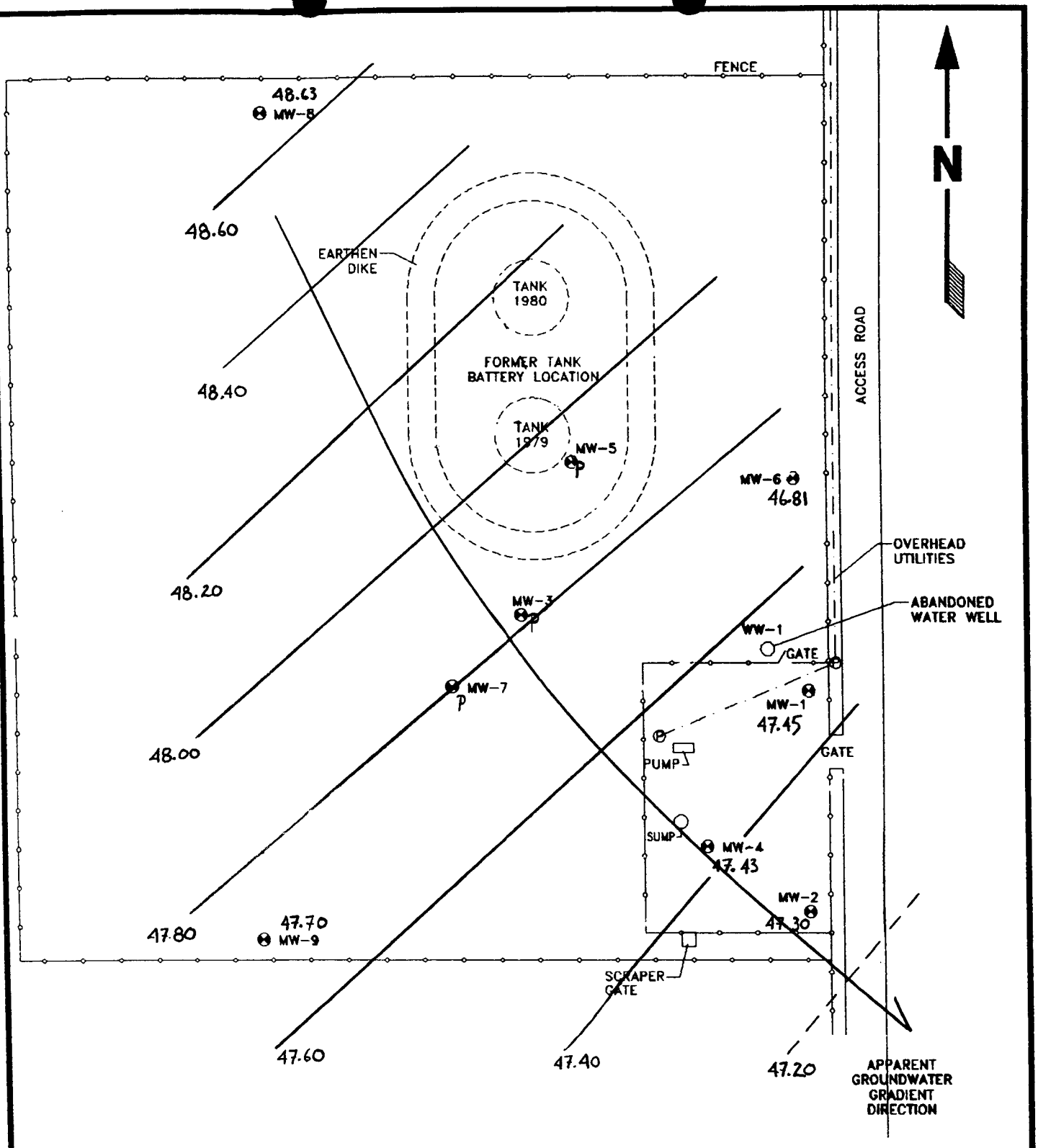
Attachments

2493678.2QR

APPENDICES

APPENDIX A

FIGURES



GROUNDWATER GRADIENT MAP

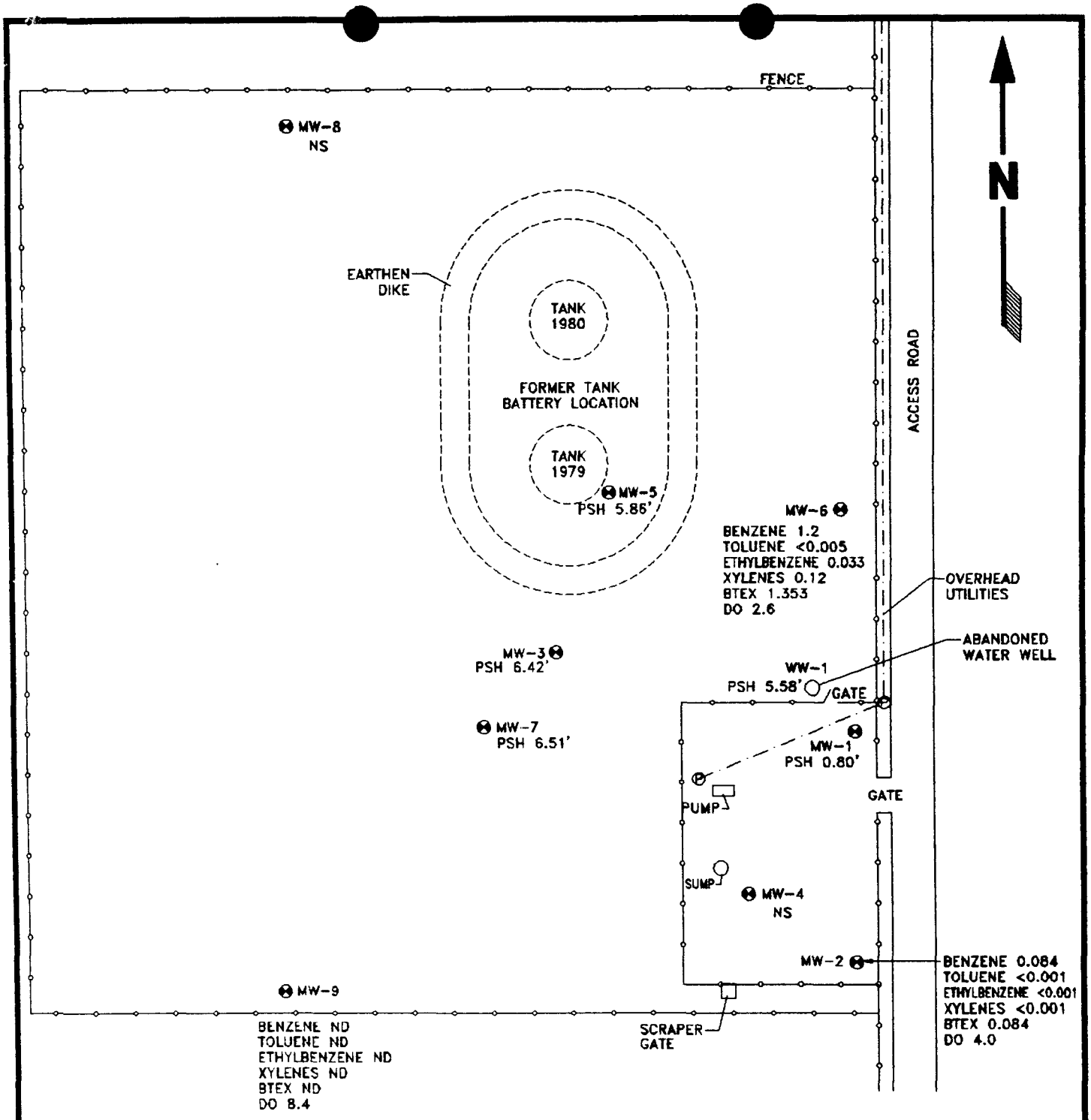
-WATER LEVELS OBTAINED 05/25/95
-CONTOUR INTERVAL = 0.2 FEET
-MW-6 NOT USED IN CONTOURS DUE TO INCONSISTENT DATA.

0 100'
APPROXIMATE SCALE

CRA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG. C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-6219

DENTON STATION
SHELL PIPE LINE CORPORATION
LEA COUNTY, NEW MEXICO

DATE:	SCALE:
MAY 1995	SEE ABOVE
PROJECT NO.	FIGURE NO.
15-93678	1



DISSOLVED HYDROCARBON CONCENTRATION MAP

- SAMPLES OBTAINED 04/25/95
- CONCENTRATIONS LISTED IN mg/l (ppm)
- NS = NOT SAMPLED

0 100'
APPROXIMATE SCALE

CURA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG. C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-6219

DENTON STATION
SHELL PIPE LINE CORPORATION
LEA COUNTY, NEW MEXICO

DATE:	SCALE:
APRIL 1995	SEE ABOVE
PROJECT NO.	FIGURE NO.
24-93678	2

APPENDIX B

TABLES

TABLE 1

DENTON STATION

SUMMARY OF RELATIVE GROUNDWATER LEVEL ELEVATIONS AND PHASE-SEPARATED HYDROCARBON THICKNESSES

Monitor Well	Date Gauged	Relative Ground Surface Elevation (feet)	Relative Top of Casing Elevation (feet)*	Depth to Water Below Top of Casing (feet)	Corrected Relative Groundwater Elevation (feet)**	Phase-Separated Hydrocarbon Thickness (feet)
MW-1	09/27/93	101.07	103.47	55.41	48.06	0.00
	03/29/94	101.07	103.47	55.71	48.02	0.32
	05/10/94	101.07	103.47	55.77	47.83	0.16
	02/08/95	101.07	103.47	56.17	47.88	0.71
	04/25/95	101.07	103.47	57.84	46.29	0.80
MW-2	09/27/93	99.17	101.35	53.48	47.87	0.00
	03/29/94	99.17	101.35	53.64	47.71	0.00
	05/10/94	99.17	101.35	53.70	47.65	0.00
	02/08/95	99.17	101.35	54.03	47.32	0.00
	04/25/95	99.17	101.35	54.05	47.30	0.00
MW-3	09/27/93	101.01	102.68	54.32	48.36	8.20
	03/29/94	101.01	102.68	61.27	48.13	0.00
	05/10/94	101.01	102.68	55.68	48.10	1.34
	02/08/95	101.01	102.68	60.79	48.12	7.60
	03/28/95	101.01	102.68	61.35	48.01	81.5
	04/25/95	101.01	102.68	61.30	46.64	6.42
MW-4	05/10/94	99.98	101.46	53.63	47.83	0.00
	02/08/95	99.98	101.46	53.78	47.68	0.00
	04/25/94	99.98	101.46	54.21	47.25	0.00
MW-5	05/10/94	101.71	103.54	57.77	48.31	3.10
	02/08/95	101.71	103.54	61.91	48.31	8.15
	03/28/95	101.71	103.54	61.42	47.99	7.16
	04/25/95	101.71	103.54	61.50	46.84	5.86
MW-6	05/10/94	101.52	103.41	55.25	48.16	0.00
	02/08/95	101.52	103.41	55.26	48.16	0.00
	04/25/95	101.52	103.41	56.57	46.84	0.00
MW-7	05/10/94	100.82	102.66	54.71	48.14	0.23
	02/08/95	100.82	102.66	61.16	48.08	8.02
	03/28/95	100.82	102.66	60.86	48.06	7.64
	04/25/95	100.82	102.66	59.13	48.86	6.51
MW-8	05/10/94	101.56	103.49	54.53	48.96	0.00
	02/08/95	101.56	103.49	54.59	48.90	0.00
	04/25/95	101.56	103.49	54.63	48.86	0.00
MW-9	05/10/94	99.66	101.71	53.71	48.00	0.00
	02/08/95	99.66	101.71	53.96	47.75	0.00
	04/25/95	99.66	101.71	64.86	46.85	0.00

TABLE 1

DENTON STATION

SUMMARY OF RELATIVE GROUNDWATER LEVEL ELEVATIONS AND PHASE-SEPARATED HYDROCARBON THICKNESSES

Monitor Well	Date Gauged	Relative Ground Surface Elevation (feet)	Relative Top of Casing Elevation (feet)*	Depth to Water Below Top of Casing (feet)	Corrected Relative Groundwater Elevation (feet)**	Phase-Separated Hydrocarbon Thickness (feet)
WW-1	02/26/93	100.55	102.21	60.23	48.52	7.97
	03/05/93	100.55	102.21	56.54	48.50	3.45
	03/12/93	100.55	102.21	55.39	48.39	1.91
	03/17/93	100.55	102.21	55.19	48.46	1.76
	03/22/93	100.55	102.21	54.44	48.45	0.83
	03/31/93	100.55	102.21	55.81	48.46	2.51
	04/08/93	100.55	102.21	57.74	48.50	4.92
	04/15/93	100.55	102.21	55.60	48.42	2.21
	04/27/93	100.55	102.21	56.08	48.43	2.81
	05/06/93	100.55	102.21	55.61	48.46	2.27
	05/13/93	100.55	102.21	55.49	48.47	2.13
	05/21/93	100.55	102.21	55.70	48.45	2.36
	05/26/93	100.55	102.21	55.74	48.45	2.41
	05/28/93	100.55	102.21	55.23	48.46	1.80
	06/04/93	100.55	102.21	55.46	48.51	2.15
	06/11/93	100.55	102.21	55.28	48.52	1.94
	06/16/93	100.55	102.21	55.18	48.52	1.82
	03/18/94	100.55	102.21	60.70	48.03	7.96
	03/29/94	100.55	102.21	55.89	48.01	2.06
	05/06/94	100.55	102.21	58.20	47.95	4.80
	05/10/94	100.55	102.21	57.40	47.93	3.80
	05/25/94	100.55	102.21	57.18	47.91	3.51
	06/14/94	100.55	102.21	57.30	48.02	3.78
	07/13/94	100.55	102.21	57.07	48.11	3.62
	09/14/94	100.55	102.21	57.76	48.16	4.53
	10/03/94	100.55	102.21	56.71	49.97	5.45
	10/28/94	100.55	102.21	56.84	50.13	5.80
	11/28/94	100.55	102.21	59.53	47.90	6.31
	12/21/94	100.55	102.21	59.63	47.84	6.42
	02/08/95	100.55	102.21	57.40	47.93	3.80
	04/25/95	100.55	102.21	59.43	47.36	5.58

* Measured from a relative datum (benchmark = 100.00 feet) located at the northeast corner of the concrete sump pad. The monitor well casings were marked to provide consistent reference points for future gauging operations.

** Correction Equation for Phase-Separated Hydrocarbons: Corrected Groundwater Elevation = Top of Casing Elevation - (Depth to Water Below Top of Casing - [SG] [PSH Thickness])
Specific Gravity (SG) = 0.73 for gasoline, 0.85 for diesel, 0.82 for crude oil.

TABLE 2
DENTON STATION
WATER SAMPLE ANALYTICAL RESULTS

Monitoring Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	Total BTEX	TPH	Dissolved Oxygen
MW-1	09/27/93	0.85	0.067	0.077	0.34	1.334	3	---
	05/10/94	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	04/25/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
MW-2	09/27/93	0.017	<0.001	<0.001	<0.001	0.017	<1	---
	05/10/94	0.010	<0.001	<0.001	<0.001	0.010	<1	6.4
	02/08/95	0.048	<0.001	<0.001	<0.001	0.048	---	0.8
	04/25/95	0.084	<0.001	<0.001	<0.001	0.084	---	4.0
MW-3	09/27/93	1.1	1.7	0.44	0.98	4.22	25	---
	05/10/94	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	04/25/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
MW-4	05/10/94	0.041	<0.001	<0.001	0.004	0.045	2	8.4
	02/08/95	---	---	---	---	---	---	---
	04/25/95	---	---	---	---	---	---	---
MW-5	05/10/94	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	04/25/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
MW-6	05/10/94	0.680	0.001	0.001	0.083	0.765	1	4.1
MW-6 (Duplicate)	05/10/94	0.920	0.002	0.002	0.100	1.024	1	4.1
	02/08/95	1.200	<0.005	0.031	0.090	1.321	---	1.0
	04/25/95	1.200	<0.005	0.033	0.120	1.353	---	2.6
MW-7	05/10/94	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	04/25/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
MW-8	05-11-94	<0.001	<0.001	<0.001	<0.001	<0.001	<1	8.2
	02/08/95	---	---	---	---	---	---	---
	04/25/95	---	---	---	---	---	---	---
MW-9	05/11/94	<0.001	<0.001	<0.001	<0.001	<0.001	<1	8.2
	02/08/95	<0.001	<0.001	<0.001	<0.001	<0.001	---	2.3
	04/25/95	<0.001	<0.001	<0.001	<0.001	<0.001	---	8.4

A total dissolved solids (TDS) concentration of 515 ppm was reported for MW-2 on 09-27-93.

BTEX results listed in m/l (parts per million; ppm) with method detection limits listed on the certificate of analysis.
TPH and TDS results listed in mg/l (parts per million; ppm) with a method detection limit of 1 ppm.
Analyses were conducted using EPA Method 8020 (BTEX), EPA Method 418.1 (TPH), and EPA Method 160.1 (TDS) by SPL Environmental Laboratories.
--- Not sampled.

TABLE 3
DENTON STATION
PHASE-SEPARATED HYDROCARBON RECOVERY

Date	Monitor Well	PSH Thickness (feet)	PSH Recovery (gallons)	PSH Cumulative Recovery (gallons)	Type of Recovery
02/26/93	WW-1	7.97	35.0	35.0	Hand bailed
03/05/93	WW-1	3.45	25.0	60.0	Hand bailed
03/12/93	WW-1	1.91	20.0	80.0	Hand bailed
03/17/93	WW-1	1.76	4.0	84.0	Hand bailed
03/22/93	WW-1	0.83	3.5	87.5	Hand bailed
03/31/93	WW-1	2.51	8.0	95.5	Hand bailed
04/08/93	WW-1	4.92	13.0	108.5	Hand bailed
04/15/93	WW-1	2.21	8.0	116.5	Hand bailed
04/27/93	WW-1	2.81	9.0	125.5	Hand bailed
05/06/93	WW-1	2.27	7.0	132.5	Hand bailed
05/13/93	WW-1	2.13	6.0	138.5	Hand bailed
05/21/93	WW-1	2.36	6.0	144.5	Hand bailed
05/26/93	WW-1	2.41	8.0	152.5	Hand bailed
05/28/93	WW-1	1.80	5.0	157.5	Hand bailed
06/04/93	WW-1	2.15	6.0	163.5	Hand bailed
06/11/93	WW-1	1.94	5.0	168.5	Hand bailed
06/16/93	WW-1	1.82	5.5	174.0	Hand bailed
03/18/94	WW-1	7.63	20.0	194.0	Hand bailed
03/29/94	WW-1	2.06	5.5	199.5	Hand bailed
05/06/94	WW-1	4.80	12.0	211.5	Hand bailed
05/10/94	WW-1	3.80	8.0	219.5	Hand bailed
05/25/94	WW-1	4.51	15.0	234.5	Hand bailed
06/14/94	WW-1	3.78	8.0	242.5	Hand bailed
07/13/94	WW-1	3.62	6.5	249.0	Hand bailed
09/14/94	WW-1	4.53	8.0	257.0	Hand bailed
10/03/94	WW-1	5.45	10.0	267.0	Hand bailed
10/28/94	WW-1	5.80	9.0	276.0	Hand bailed
11/22/94	WW-1	2.24	5.0	281.0	Hand bailed
11/28/94	WW-1	6.31	10.0	291.0	Hand bailed
12/21/95	WW-1	6.42	10.0	301.0	Hand bailed

TABLE 3
DENTON STATION
PHASE-SEPARATED HYDROCARBON RECOVERY

Date	Monitor Well	PSH Thickness (feet)	PSH Recovery (gallons)	PSH Cumulative Recovery (gallons)	Type of Recovery
02/08/95	WW-1	3.80	8.0	309.0	Hand bailed
03/28/95	WW-1	4.62	10.0	319.0	Hand bailed
04/25/95	WW-1	5.58	6.0	326.0	Hand bailed
03/17/94	MW-1	0.32	0.2	0.2	Hand bailed
05/10/94	MW-1	0.16	<0.01	0.2	Hand bailed
06/14/94	MW-1	0.21	<.01	0.2	Hand bailed
07/13/94	MW-1	0.24	0.1	0.3	Hand bailed
08/22/94	MW-1	0.24	0.7	1.0	Hand bailed
09/14/94	MW-1	0.24	0.8	1.8	Hand bailed
10/03/94	MW-1	0.03	.2	2.0	Hand bailed
10/28/94	MW-1	0.44	1.1	3.1	Hand bailed
11/22/94	MW-1	0.37	1.0	4.1	Hand bailed
12/31/94	MW-1	0.67	1.5	5.6	Hand bailed
02/08/95	MW-1	0.71	1.5	7.1	Hand bailed
03/28/95	MW-1	0.64	1.0	8.1	Hand bailed
04/25/95	MW-1	0.80	1.0	9.1	Hand bailed
03/17/94	MW-3	8.25	7.5	7.5	Hand bailed
05/10/94	MW-3	1.34	7.0	14.5	Hand bailed
05/25/94	MW-3	3.92	4.5	19.0	Hand bailed
06/14/94	MW-3	1.88	3.0	22.0	Hand bailed
07/13/94	MW-3	2.27	4.0	26.0	Hand bailed
09/14/94	MW-3	8.48	12.0	38.0	Hand bailed
10/03/94	MW-3	8.54	12.0	50.0	Hand bailed
10/28/94	MW-3	6.87	10.0	60.0	Hand bailed
11/22/94	MW-3	3.41	8.0	68.0	Hand bailed
12/21/94	MW-3	6.20	9.0	77.0	Hand bailed
02/08/95	MW-3	7.68	10.0	87.0	Hand bailed
03/28/95	MW-3	8.15	10.0	97.0	Hand bailed
04/25/95	MW-3	6.42	10.0	107.0	Hand bailed
05/10/95	MW-3	---	4.0	111.0	Remediation System

TABLE 3
DENTON STATION
PHASE-SEPARATED HYDROCARBON RECOVERY

Date	Monitor Well	PSH Thickness (feet)	PSH Recovery (gallons)	PSH Cumulative Recovery (gallons)	Type of Recovery
05/10/94	MW-5	3.10	5.0	5.0	Hand bailed
05/25/94	MW-5	6.80	11.0	16.0	Hand bailed
06/14/94	MW-5	5.70	8.5	24.5	Hand bailed
07/13/94	MW-5	5.67	8.0	32.5	Hand bailed
09/14/94	MW-5	7.20	11.0	39.7	Hand bailed
10/03/94	MW-5	7.17	11.0	50.7	Hand bailed
10/28/94	MW-5	7.56	12.0	62.7	Hand bailed
11/22/94	MW-5	7.37	15.0	77.7	Hand bailed
12/21/94	MW-5	9.12	12.0	89.7	Hand bailed
02/08/95	MW-5	8.15	10.0	99.7	Hand bailed
03/28/95	MW-5	7.16	10.0	109.7	Hand bailed
04/25/95	MW-5	5.86	10.0	119.7	Hand bailed
05/10/95	MW-5	---	4.0	124.0	Remediation system
05/10/94	MW-7	0.23	1.0	1.0	Hand bailed
05/25/94	MW-7	1.95	2.5	3.5	Hand bailed
06/14/94	MW-7	1.65	1.5	5.0	Hand bailed
07/13/94	MW-7	1.30	1.0	6.0	Hand bailed
08/19/94	MW-7	0.17	1.0	7.0	Hand bailed
09/14/94	MW-7	9.08	15.0	22.0	Hand bailed
10/03/94	MW-7	9.15	15.0	37.0	Hand bailed
10/28/94	MW-7	7.56	12.0	49.0	Hand bailed
12/21/94	MW-7	7.93	11.0	68.0	Hand bailed
02/28/95	MW-7	8.02	12.0	80.0	Hand bailed
03/28/95	MW-7	7.64	10.0	90.0	Hand bailed
04/25/95	MW-7	6.51	10.0	100.0	Hand bailed
05/25/95	MW-7	---	4.0	104.0	Remediation system

--- Indicates product recovery pumps in the well.

APPENDIX C
ANALYTICAL RESULTS

WU47799 00

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING

CHAIN OF CUSTODY RECORD NO. H 13653

Date: 4-26-95
Page 1 of 1

SITE ADDRESS: Shell Pipe Line Denton Station
~~Proj.~~ # 24-93678
CONSULTANT NAME & ADDRESS: CURA Inc 231 W. Wadley, G-200, Midland
CONSULTANT CONTACT: Brad Smith (Houston)
PHONE: (915) 570-8408 FAX: (915) 570-8409
SAMPLED BY: Bill D. Smith

CHECK ONE BOX ONLY CT/DT

- QUARTERLY MONITORING ☒ 5461
- SITE INVESTIGATION ☐ 5441
- SOIL FOR DISPOSAL ☐ 5442
- WATER FOR DISPOSAL ☐ 5443
- AIR SAMPLER - SYS O+M ☐ 5452
- WATER SAMPLE - SYS O+M ☐ 5453
- OTHER _____ ☐

SAMPLE I.D.	DATE	TIME	COMP.	GRAB	MATRIX: H2O	SOIL	AIR	SLUDGE	OTHER	METHOD PRESERVED: HCl	HNO3	H2SO4	NONE	OTHER: ICE	NO. OF CONTAINERS
MW-2	4-25-95	1240		✓	✓					✓				✓	4
MW-6	4-25-95	1200		✓	✓					✓				✓	4
MW-9	4-25-95	1100		✓	✓					✓				✓	4

CONTAINER SIZE: ✓

ANALYSIS REQUEST: (CHECK APPROPRIATE BOX)

- 8TEX 602 ☐ WITH MTBE ☐ 8020 ☒
- 8TEX/GAS HYDROCARBONS PID/FID ☐ WITH MTBE
- VOL 624/PPL ☐ 8240/TAL ☐ NBS (+15) ☐
- 8100 ☐ 610 ☐ 8080 ☒
- SEMI - VOL 625/PPL ☐ 8270/TAL ☐ NBS (+25) ☐
- TPH/IR 418.1 ☐ SM503 ☐ ☐ ☐ ☐
- TPH/GC 8015 Mod. GAS ☐ 8015 Mod DIESEL ☐
- TCLP METALS ☐ VOL ☐ SEMI-VOL ☐ PEST ☐ HERB ☐
- EP TOX METALS ☐ PESTICIDES ☐ HERBICIDES ☐
- REACTIVITY ☐ CORROSIVITY ☐ IGNITABILITY ☐

OTHER

REMARKS

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Bill D. Smith	4-26-95	1000			
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
			E. Brown	4/27/95	1030

BILL NO.: _____
LABORATORY: SPL Houston
SHELL CONTACT: Neil Stidham PHONE: _____ FAX: _____

TURN AROUND TIME (CHECK ONE)
7 DAYS ☐ (NORMAL) 14 DAYS ☐
48 HOURS ☐ OTHER ☐ per Shell contract

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN OF CUSTODY WITH INVOICE AND RESULTS

DISTRIBUTION: PINK Sampling Coordinator - WHITE & YELLOW Accompanies Shipment - WHITE Returned with Report

3 CONTACTS

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9504999-01

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 05/15/95

PROJECT: Proj # 24-93678
SITE: Denton, TX
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-2

PROJECT NO: 24-93678
MATRIX: LIQUID
DATE SAMPLED: 04/25/95 12:40:00
DATE RECEIVED: 04/27/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	84	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL BTEX	84		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	98
4-Bromofluorobenzene	89

METHOD 5030/8020 ***
Analyzed by: SLB
Date: 05/06/95

(P) - Practical Quantitation Limit ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9504999-02

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 05/15/95

PROJECT: Proj # 24-93678
SITE: Denton, TX
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-6

PROJECT NO: 24-93678
MATRIX: LIQUID
DATE SAMPLED: 04/25/95 12:00:00
DATE RECEIVED: 04/27/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	1200	5 P	µg/L
TOLUENE	ND	5 P	µg/L
ETHYLBENZENE	33	5 P	µg/L
TOTAL XYLENE	120	5 P	µg/L
TOTAL BTEX	1353		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	101
4-Bromofluorobenzene	94

METHOD 5030/8020 ***
Analyzed by: AA
Date: 05/07/95

(P) - Practical Quantitation Limit ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9504999-03

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 05/15/95

PROJECT: Proj # 24-93678
SITE: Denton, TX
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-9

PROJECT NO: 24-93678
MATRIX: LIQUID
DATE SAMPLED: 04/25/95 11:00:00
DATE RECEIVED: 04/27/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL BTEX	ND		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	93
4-Bromofluorobenzene	82

METHOD 5030/8020 ***
Analyzed by: AA
Date: 05/06/95

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

QUALITY CONTROL DOCUMENTATION

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 8020

Matrix: Aqueous
Units: µg/L

Batch Id: HP_R950506021900

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Benzene	ND	50	49	98.0	61 - 123
Toluene	ND	150	161	107	62 - 122
EthylBenzene	ND	50	48	96.0	56 - 119
O Xylene	ND	100	102	102	32 - 160
M & P Xylene	ND	200	214	107	32 - 160

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
Benzene	ND	50	43	86.0	41	82.0	4.76	25	39 - 150
Toluene	ND	150	140	93.3	130	86.7	7.33	26	56 - 134
EthylBenzene	ND	50	41	82.0	38	76.0	7.59	38	61 - 128
O Xylene	ND	100	84	84.0	78	78.0	7.41	20	40 - 130
M & P Xylene	ND	100	95	95.0	88	88.0	7.65	20	43 - 152

Analyst: AA
Sequence Date: 05/06/95
SPL ID of sample spiked: 9504A90-01A
Sample File ID: R___914.TX0
Method Blank File ID:
Blank Spike File ID: R___907.TX0
Matrix Spike File ID: R___908.TX0
Matrix Spike Duplicate File ID: R___909.TX0

* = Values Outside QC Range
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data
(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID):

9504999-02A 9504A48-01A 9504A47-01A 9504A08-04A
9504A08-03A 9504A08-02A 9504A08-01A 9504999-03A
9505039-02A 9504A92-04A 9505041-03A 9504A90-01A
9505039-01A 9504A97-03A

Idelis Williams, QC Officer

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **

METHOD 8020

Matrix: Aqueous

Batch Id: HP_R950505101000

Units: µg/L

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Benzene	ND	50	31	62.0	61 - 123
Toluene	ND	150	129	86.0	62 - 122
EthylBenzene	ND	50	43	86.0	56 - 119
O Xylene	ND	100	92	92.0	32 - 160
M & P Xylene	ND	200	179	89.5	32 - 160

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
Benzene	2	50	60	116	64	124	6.67	25	39 - 150
Toluene	ND	150	200	133	200	133	0	26	56 - 134
EthylBenzene	ND	50	59	118	59	118	0	38	61 - 128
O Xylene	ND	100	120	120	120	120	0	20	40 - 130
M & P Xylene	ND	100	130	130	130	130	0	20	43 - 152

Analyst: SLB

Sequence Date: 05/05/95

SPL ID of sample spiked: 9504954-11A

Sample File ID: R___879.TX0

Method Blank File ID:

Blank Spike File ID: R___875.TX0

Matrix Spike File ID: R___877.TX0

Matrix Spike Duplicate File ID: R___878.TX0

* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery = [(<1> - <2>) / <3>] x 100

LCS % Recovery = (<1> / <3>) x 100

Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100

(**) = Source: SPL-Houston Historical Data

(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID):

9504999-01A 9505027-01A 9504A88-06A 9504A88-09A
9504A88-08A 9504A88-05A 9504A88-10A 9504A88-04A
9504A88-03A 9504A88-02A 9504A88-01A 9504A87-01A
9504A87-03A 9504987-01A 9504987-02A 9504987-03A
9504954-04A 9504954-12A 9504954-11A

Idelis Williams, QC Officer

APPENDIX D

QUALITY ASSURANCE/QUALITY CONTROL SAFETY PLAN AND LIMITATIONS

QUALITY ASSURANCE/QUALITY CONTROL

A strict Quality Assurance Plan was incorporated throughout all phases of the on-site operations and sampling procedures. Soil or solid material samples were collected using new disposable or properly decontaminated reusable stainless steel equipment. Water or liquid samples were collected with new disposable bailers or decontaminated pump equipment. All non-reusable equipment was disposed of and reusable equipment was decontaminated between sampling stations to eliminate the potential of cross-contamination. The water samples were transferred from the bailers into airtight septum-sealed 40-ml glass VOA vials, one-liter amber glass jars with Teflon-lined lids, or other sample containers appropriate for the required analyses.

The samples were sealed with QA/QC seals, preserved with acid (if required), and maintained at 4°C in accordance with Environmental Protection Agency (EPA) requirements (EPA 600/4-82-029) for shipment to the laboratory. A chain-of-custody (COC) which documents sample collection times and delivery times to the laboratory was completed for each set of samples. The COC is included with the analytical results in the Appendix.

CURA utilizes laboratories that maintain strict quality controls, i.e. equipment calibration and standardization, appropriate analytical methods, preparation of quality control samples, and complete chains-of-custody. Analyses were performed on all samples using the EPA-, state-, or local agency-directed methods. The maximum recommended holding times were not exceeded unless noted in the text.

SAFETY PLAN

The sampling operations were performed at level D personal protection. CURA personnel involved in on-site activities have completed the Occupational Safety and health for Hazardous Waste Field Operation training course (OSHA 29 CFR 1910.120). Applicable safety equipment was on site to CURA personnel.

LIMITATIONS

It should be noted that all subsurface investigations are inherently limited in the sense that conclusions are drawn and recommendations are developed from samples which depict subsurface conditions at representative locations over relatively short periods of time. Subsurface conditions elsewhere may differ from those at the sampling locations. In addition, subsurface conditions at sampling locations may vary over longer periods of time than can be observed in a study of this type. The passage of time, manifestation of latent conditions, or occurrence of future events may require further site exploration, data collection and analysis, and reevaluation of the findings, observations, conclusions, and recommendation expressed in this report.

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

April 28, 1995

CERTIFIED MAIL
RETURN RECEIPT NO. P-667-242-249

Mr. Neal Stidham
Shell Pipe Line Corporation
Two Shell Plaza
P.O. Box 2099
Houston, Texas 77252-2099

RE: GROUND WATER MONITORING
DENTON CRUDE PUMP STATION
LEA COUNTY, NEW MEXICO

Dear Mr. Stidham:

The New Mexico Oil Conservation Division (OCD) has completed a review of the following Shell Oil Products Company (SOPC) documents:

- March 2, 1995 "QUARTERLY REPORTS, LEA AND DENTON STATIONS, LEA COUNTY, NEW MEXICO".

- March 2, 1995 "QUARTERLY GROUNDWATER MONITORING REPORT, FIRST QUARTER, 1995, DENTON STATION, LEA COUNTY, NEW MEXICO".

These documents contain the results of SOPC's first quarter 1995 ground water monitoring at the Denton Crude Pump Station. The documents also contain a request to discontinue polynuclear aromatic hydrocarbon (PAH) sampling of monitor wells MW-2 and MW-9.

The OCD agrees that the monitor wells MW-2 and MW-9 do not need to be monitored frequently for PAH's due to the limited mobility of these constituents. However, since PAH's are present in excess of New Mexico Water Quality Control Commission (WQCC) ground water standards, the OCD believes that PAH concentrations in downgradient ground water need to be monitored at some interval. Therefore, the OCD modifies their December 5, 1994 PAH monitoring requirements as follows:

1. SOPC will sample and analyze ground water from monitor wells MW-2, MW-6 and MW-9 for PAH's on an annual basis.

Please be advised that OCD approval does not limit SOPC to the above monitoring requirements should future monitoring determine that contamination exists which is beyond the scope of the work plan or should the actions fail to adequately monitor contamination related to SOPC's activities. In addition, OCD approval does not relieve SOPC of responsibility for compliance with any other federal, state or local laws and/or regulations.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Jerry Sexton, OCD Hobbs District Supervisor
Wayne Price, OCD Hobbs Office

P 667 242 249

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TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, June 1990

Fold at line over top of envelope to the right of the return address.

Bill Olson

From: Bill Olson
To: Jerry Sexton
Cc: Wayne Price
Subject: Shell Denton Station
Date: Tuesday, April 25, 1995 2:11PM
Priority: High

Attached is a draft letter modifying the sampling plan for the Shell Denton Station. Please provide me with any comments in writing by 2:00pm on 4/27/95. Thanks!

<<File Attachment: MONITOR1.MOD>>

Bill Olson

From: POSTOFFICE
To: Bill Olson
Subject: Registered: Wayne Price
Date: Wednesday, April 26, 1995 7:08AM

[013] ***** CONFIRMATION OF REGISTERED MAIL *****
Your message:

TO: Wayne Price DATE: 04-25-95
SUBJECT: Shell Denton Station TIME: 14:05

Was accessed on 04-26-95 07:08

Bill Olson

From: Jerry Sexton
Date sent: Thursday, April 27, 1995 3:47PM
To: Bill Olson
Subject: Registered: Jerry Sexton

Your message
To: Jerry Sexton
Subject: Shell Denton Station
Date: Tuesday, April 25, 1995 2:11PM
was accessed on
Date: Thursday, April 27, 1995 3:47PM

Shell Oil Products Company

Two Shell Plaza
P. O. Box 2099
Houston, Texas 77252-2099

March 2, 1995

RECEIVED
MAR - 6 1995
Oil Conservation Division

William Olson
State of New Mexico Oil Conservation Division
Environmental Bureau
2040 S. Pacheco St.
Santa Fe, New Mexico 87504

SUBJECT: QUARTERLY REPORTS, LEA AND DENTON STATIONS, LEA COUNTY NEW MEXICO.

Dear Mr. Olson,

Enclosed are copies of the first quarter, 1995, monitoring reports for Lea and Denton Stations. This information is in response to the approval conditions set forth in your letters of January 10, 1995 and December 5, 1994 respectively. I have accelerated the Lea Station report period due to the economics of sampling all locations in one outing. You had requested MW-5 at Lea to be sampled, however due to the presence of free phase hydrocarbon, we did not. If you feel a water sample from this well is needed, we can work around this issue next quarter. If I do not hear from you we will not sample MW-5 if PSH is present. We are finishing our plan for additional subsurface investigation at Denton Station and will submit it soon. Based upon the results of the PAH analyses I request to discontinue PAH sampling for MW-4, MW-6, MW-7, MW-9 at Lea Station and MW-2 and MW-9 at Denton Station.

If you have any questions please call me at 713-241-2961.

Sincerely

Neal Stidham
Shell Oil Products Company
For Itself and as agent for Shell Oil Company

cc: Paul Newman-EOTT Energy Corp.
Jerry Sexton-OCD Hobbs

CURA INC.
Environmental Consultants, Engineers & Scientists
6049 South Loop East • Houston, Texas 77033 • 713/640-1490 • FAX 640-2593

March 2, 1995

Mr. Neal D. Stidham
Shell Pipe Line Corporation
Two Shell Plaza, Room 1452
777 Walker Street
Houston, Texas 77002

RE: QUARTERLY GROUNDWATER MONITORING REPORT
FIRST QUARTER, 1995
DENTON STATION
LEA COUNTY, NEW MEXICO

CURA PROJECT NO. 15-93678

Mr. Stidham:

CURA, Inc. has completed the groundwater monitoring and sampling operations at the above-referenced site. The work was performed in accordance with the scope of services requested by Shell Pipe Line Corporation (SPLC).

Monitoring wells MW-1 through MW-9 and water well WW-1 were gauged prior to sampling operations on February 8, 1995. Monitoring wells MW-2, MW-6, and MW-9 were developed, and sampled by CURA on February 8, 1995. In accordance with water quality monitoring requirements set forth in the New Mexico Oil Conservation Division (NMOCD) letter dated December 5, 1994, the groundwater samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and polynuclear aromatic hydrocarbons (PAH). The New Mexico Water Quality Control Commission (WQCC) regulations do not contain a ground water standard for total petroleum hydrocarbons (TPH). Therefore, the OCD does not require that groundwater samples be analyzed for TPH. In addition to laboratory analysis for BTEX and PAH, dissolved oxygen (DO) levels for each well were measured during field operations. Monitoring wells MW-1, MW-3, MW-5, MW-7, and WW-1 were not sampled due to the presence of phase-separated hydrocarbons (PSH).

Groundwater Sampling and PSH Recovery

The monitoring wells were gauged on February 8, 1995 to determine the depth to groundwater and PSH thickness (if any). A summary of groundwater elevations and PSH thicknesses is presented in Table 1, Appendix B.

PSH was initially identified on-site in water well WW-1 in February of 1993. PSH recovery at water well WW-1 was initiated immediately following identification of the product release. In September, 1993 additional on-site monitoring wells MW-1, MW-2, and MW-3 were installed. No PSH was observed in these wells during drilling or sampling operations. In March of 1994 measurable thicknesses of PSH were identified in monitoring wells MW-1 and MW-3 during gauging and product recovery operations at water well WW-1. CURA installed on-site monitoring wells MW-4 through MW-9 in May 1994. PSH was observed in monitoring wells MW-1, MW-3, MW-5 and MW-7 following monitoring well installation and site-wide PSH recovery operations were initiated at that time. During the 1995 first quarter monitoring event, approximately 41.5 gallons of PSH were recovered from the site. A cumulative total of approximately 582.8 cumulative gallons of PSH have been recovered from Denton Station. Cumulative and quarterly PSH thicknesses and volumes recovered are summarized in Table 4 of this report. In order to enhance PSH recovery operations, a remedial action system has been designed, ordered, and is being constructed on-site. The product-only recovery system will be fully installed pending landowner approval.

Monitoring well gauging data indicates that the apparent direction of groundwater flow is toward the south-southeast which is consistent with previous measurements. PSH was observed in monitoring wells MW-1, MW-3, MW-5, MW-7, and WW-1 during gauging operations.

The monitoring wells were developed by removing approximately three well volumes of water or bailing the wells dry. Approximately 8 gallons of water was removed from MW-2, and 20 gallons of water each was removed from MW-6 and MW-9 during development operations. The purged groundwater was stored on-site in a labelled 55-gallon drum pending disposal.

After development, DO measurements were performed on-site and groundwater samples were obtained from the monitoring wells using a dedicated disposable bailer. The groundwater samples were transported on ice to the laboratory for analysis of BTEX and PAH using EPA Method 8020

and EPA Method 8100, respectively. Quality Assurance/Quality Control information is included in Appendix D.

Results and Discussion

The groundwater samples obtained on February 9, 1995 indicate no significant change in dissolved hydrocarbon concentrations or in the distribution of PSH thicknesses across the site since the last sampling event in September, 1994. Dissolved oxygen concentrations (DO) were obtained as a possible indicator of the natural biological activity of hydrocarbon degrading microorganisms in the groundwater. Microbial and mineral oxidation reactions within the dissolved hydrocarbon plume typically result in depletion of DO so that an inverse relationship between DO and BTEX will be found where natural attenuation of the contaminant plume has occurred. A summary of groundwater analytical results is presented in Table 2, Appendix B. The laboratory reports and chain-of-custody are included in Appendix C.

CURA appreciates the opportunity to provide you with our professional consulting services. If you have any questions or concerns, please do not hesitate to contact us at (713) 640-1490.

Respectfully,
CURA, Inc.

F. Wesley Root
Environmental Geologist

Bradley S. Smith
Project Manager

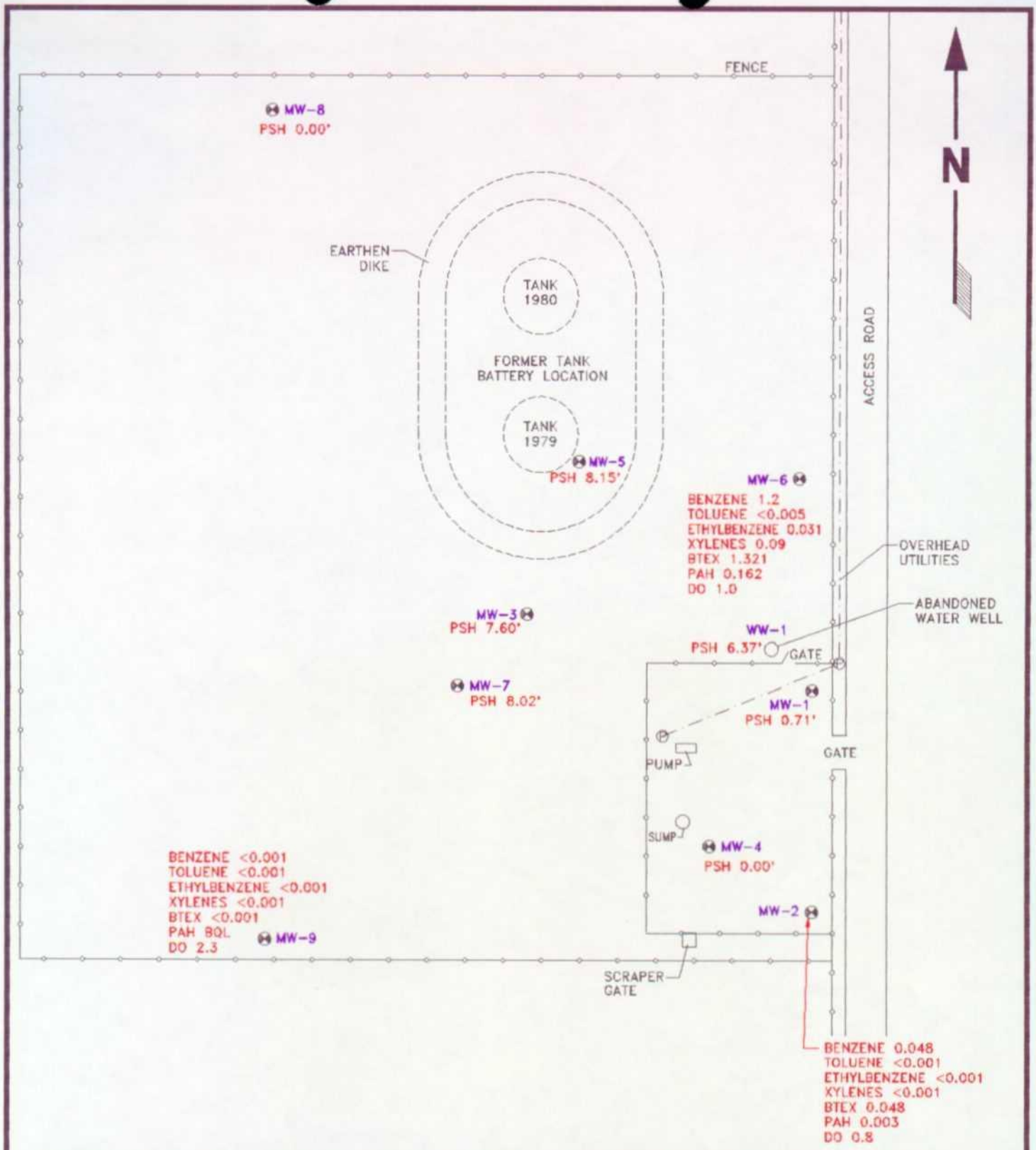
Michael A. Clark, P.E.
Vice President

FWR/chs

Attachments

APPENDIX A

FIGURES



DISSOLVED HYDROCARBON CONCENTRATION MAP

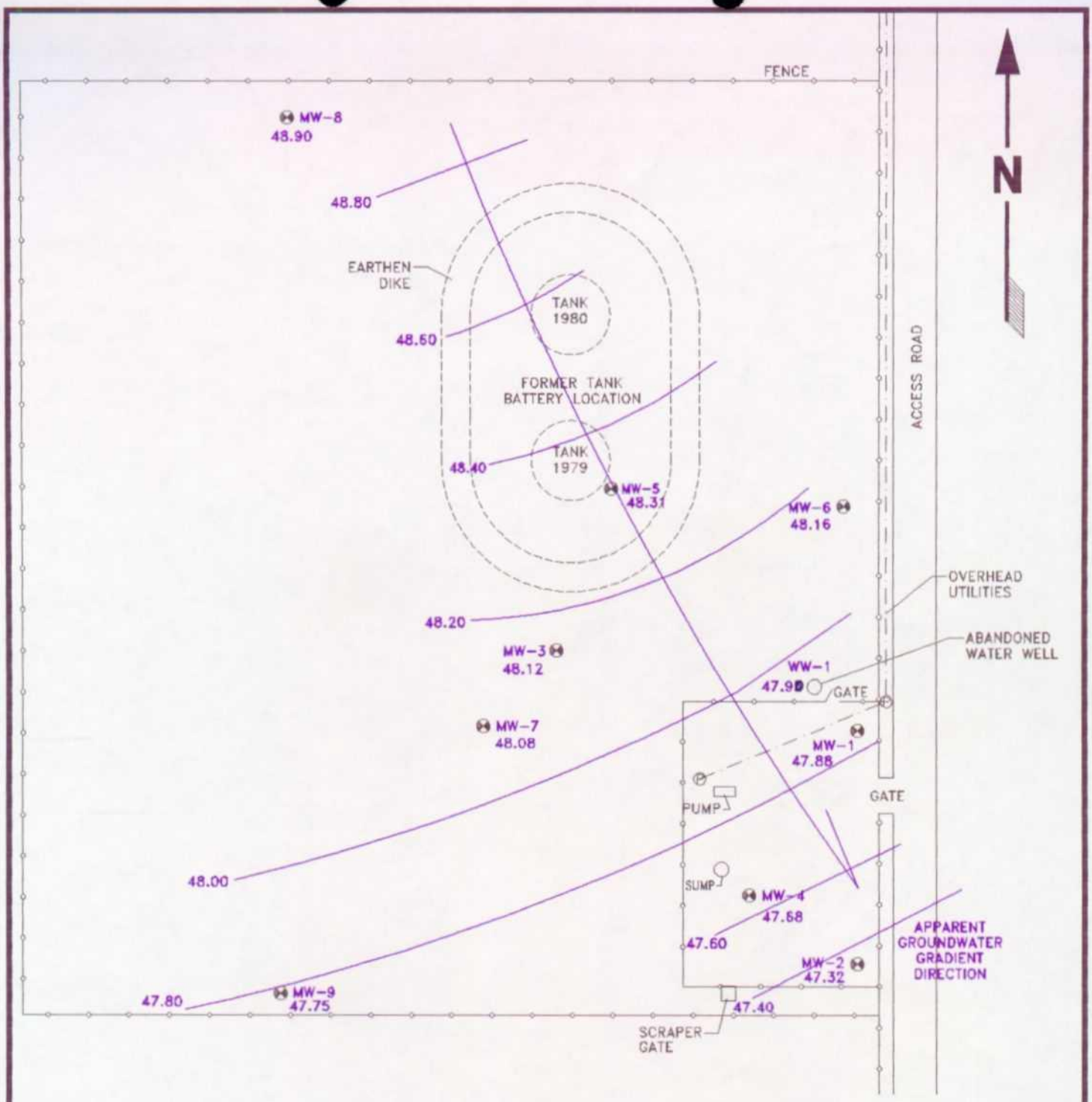
- SAMPLES OBTAINED 02/08/95
- CONCENTRATIONS LISTED IN mg/l (ppm)

0 100'
APPROXIMATE SCALE

CURA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-8219

DENTON STATION
SHELL PIPE LINE CORPORATION
LEA COUNTY, NEW MEXICO

DATE:	SCALE:
FEB 1995	SEE ABOVE
PROJECT NO.	FIGURE NO.
15-93678	1



GROUNDWATER GRADIENT MAP

-WATER LEVELS OBTAINED 02/08/95
-CONTOUR INTERVAL = 0.20 FEET

0 100'
APPROXIMATE SCALE

CURA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG. C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-8219

DENTON STATION
SHELL PIPE LINE CORPORATION
LEA COUNTY, NEW MEXICO

DATE:	SCALE:
FEB 1995	SEE ABOVE
PROJECT NO.	FIGURE NO.
15-93678	2

APPENDIX B

TABLES

TABLE 1
DENTON STATION
SUMMARY OF RELATIVE GROUNDWATER LEVEL ELEVATIONS AND PHASE-SEPARATED HYDROCARBON THICKNESSES

Monitor Well	Date Gauged	Relative Ground Surface Elevation (feet)	Relative Top of Casing Elevation (feet)*	Depth to Water Below Top of Casing (feet)	Corrected Relative Groundwater Elevation (feet)**	Phase-Separated Hydrocarbon Thickness (feet)
MW-1	09/27/93	101.07	103.47	55.41	48.06	0.00
	03/29/94	101.07	103.47	55.71	48.02	0.32
	05/10/94	101.07	103.47	55.77	47.83	0.16
	02/08/95	101.07	103.47	56.17	47.88	0.71
MW-2	09/27/93	99.17	101.35	53.48	47.87	0.00
	03/29/94	99.17	101.35	53.64	47.71	0.00
	05/10/94	99.17	101.35	53.70	47.65	0.00
	02/08/95	99.17	101.35	54.03	47.32	0.00
MW-3	09/27/93	101.01	102.68	54.32	48.36	8.20
	03/29/94	101.01	102.68	61.27	48.13	0.00
	05/10/94	101.01	102.68	55.68	48.10	1.34
	02/08/95	101.01	102.68	60.79	48.12	7.60
MW-4	05/10/94	99.98	101.46	53.63	47.83	0.00
	02/08/95	99.98	101.46	53.78	47.68	0.00
MW-5	05/10/94	101.71	103.54	57.77	48.31	3.10
	02/08/95	101.71	103.54	61.91	48.31	8.15
MW-6	05/10/94	101.52	103.41	55.25	48.16	0.00
	02/08/95	101.52	103.41	55.26	48.16	0.00
MW-7	05/10/94	100.82	102.66	54.71	48.14	0.23
	02/08/95	100.82	102.66	61.16	48.08	8.02
MW-8	05/10/94	101.56	103.49	54.53	48.96	0.00
	02/08/95	101.56	103.49	54.59	48.90	0.00
MW-9	05/10/94	99.66	101.71	53.71	48.00	0.00
	02/08/95	99.66	101.71	53.96	47.75	0.00

TABLE 1
DENTON STATION
SUMMARY OF RELATIVE GROUNDWATER LEVEL ELEVATIONS AND PHASE-SEPARATED HYDROCARBON THICKNESSES

Monitor Well	Date Gauged	Relative Ground Surface Elevation (feet)	Relative Top of Casing Elevation (feet)*	Depth to Water Below Top of Casing (feet)	Corrected Relative Groundwater Elevation (feet)**	Phase-Separated Hydrocarbon Thickness (feet)
WW-1	02/26/93	100.55	102.21	60.23	48.52	7.97
	03/05/93	100.55	102.21	56.54	48.50	3.45
	03/12/93	100.55	102.21	55.39	48.39	1.91
	03/17/93	100.55	102.21	55.19	48.46	1.76
	03/22/93	100.55	102.21	54.44	48.45	0.83
	03/31/93	100.55	102.21	55.81	48.46	2.51
	04/08/93	100.55	102.21	57.74	48.50	4.92
	04/15/93	100.55	102.21	55.60	48.42	2.21
	04/27/93	100.55	102.21	56.08	48.43	2.81
	05/06/93	100.55	102.21	55.61	48.46	2.27
	05/13/93	100.55	102.21	55.49	48.47	2.13
	05/21/93	100.55	102.21	55.70	48.45	2.36
	05/26/93	100.55	102.21	55.74	48.45	2.41
	05/28/93	100.55	102.21	55.23	48.46	1.80
	06/04/93	100.55	102.21	55.46	48.51	2.15
	06/11/93	100.55	102.21	55.28	48.52	1.94
	06/16/93	100.55	102.21	55.18	48.52	1.82
	03/18/94	100.55	102.21	60.70	48.03	7.96
	03/29/94	100.55	102.21	55.89	48.01	2.06
	05/06/94	100.55	102.21	58.20	47.95	4.80
	05/10/94	100.55	102.21	57.40	47.93	3.80
	05/25/94	100.55	102.21	57.18	47.91	3.51
	06/14/94	100.55	102.21	57.30	48.02	3.78
	07/13/94	100.55	102.21	57.07	48.11	3.62
	09/14/94	100.55	102.21	57.76	48.16	4.53
	10/03/94	100.55	102.21	56.71	49.97	5.45
	10/28/94	100.55	102.21	56.84	50.13	5.80
	11/28/94	100.55	102.21	59.53	47.90	6.31
	12/21/94	100.55	102.21	59.63	47.84	6.42
	02/08/95	100.55	102.21	57.40	47.93	3.80

* Measured from a relative datum (benchmark = 100.00 feet) located at the northeast corner of the concrete sump pad. The monitor well casings were marked to provide consistent reference points for future gauging operations.

** Correction Equation for Phase-Separated Hydrocarbons: Corrected Groundwater Elevation = Top of Casing Elevation - (Depth to Water Below Top of Casing - [SG] [PSH Thickness])

Specific Gravity (SG) = 0.73 for gasoline, 0.85 for diesel, 0.82 for crude oil.

TABLE 2
DENTON STATION
WATER SAMPLE ANALYTICAL RESULTS

Monitor Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	Total BTEX	TPH	Dissolved Oxygen
MW-1	09/27/93	0.85	0.067	0.077	0.34	1.334	3	---
	05/10/94	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
MW-2	09/27/93	0.017	<0.001	<0.001	<0.001	0.017	<1	---
	05/10/94	0.010	<0.001	<0.001	<0.001	0.010	<1	6.4
	02/08/95	0.048	<0.001	<0.001	<0.001	0.048	---	0.8
MW-3	09/27/93	1.1	1.7	0.44	0.98	4.22	25	---
	05/10/94	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
MW-4	05/10/94	0.041	<0.001	<0.001	0.004	0.045	2	8.4
	02/08/95	---	---	---	---	---	---	---
MW-5	05/10/94	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
MW-6	05/10/94	0.680	0.001	0.001	0.083	0.765	1	4.1
MW-6 (Duplicate)	05/10/94	0.920	0.002	0.002	0.100	1.024	1	4.1
	02/08/95	1.200	<0.005	0.031	0.090	1.321	---	1.0
MW-7	05/10/94	PSH	PSH	PSH	PSH	PSH	PSH	PSH
	02/08/95	PSH	PSH	PSH	PSH	PSH	PSH	PSH
MW-8	05-11-94	<0.001	<0.001	<0.001	<0.001	<0.001	<1	8.2
	02/08/95	---	---	---	---	---	---	---
MW-9	05/11/94	<0.001	<0.001	<0.001	<0.001	<0.001	<1	8.2
	02/08/95	<0.001	<0.001	<0.001	<0.001	<0.001	---	2.3

A total dissolved solids (TDS) concentration of 515 ppm was reported for MW-2 on 09-27-93.

BTEX results listed in m/l (parts per million; ppm) with a method detection limit of 0.001 ppm.
TPH and TDS results listed in mg/l (parts per million; ppm) with a method detection limit of 1 ppm.
Analyses were conducted using EPA Method 8020 (BTEX), EPA Method 418.1 (TPH), and EPA Method 160.1 (TDS) by SPL Environmental Laboratories.
--- Not sampled.

TABLE 3
DENTON STATION
WATER SAMPLE ANALYTICAL RESULTS
POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)
Monitor wells sampled on 02/08/95

Parameter	Monitor Wells Sampled		
	MW-2	MW-6	MW-9
Naphthalene	<0.0002	0.085	<0.0002
1-Methylnaphthalene	0.001	0.044	<0.0002
2-Methylnaphthalene	0.002	0.032	<0.0002
Acenaphthylene	<0.0001	<0.0001	<0.0001
Acenaphthene	<0.0004	<0.0004	<0.0004
Fluorene	<0.0008	<0.0008	<0.0008
Phenanthrene	<0.0012	<0.0012	<0.0012
Anthracene	<0.001	<0.001	<0.001
Fluoranthene	<0.0008	0.001	<0.0008
Pyrene	<0.0006	<0.0006	<0.0006
Benzo (a) anthracene	<0.004	<0.004	<0.004
Chrysene	<0.0016	<0.0016	<0.0016
Benzo (b) fluoranthene	<0.004	<0.004	<0.004
Benzo (k) fluoranthene	<0.004	<0.004	<0.004
Benzo (a) pyrene	<0.0056	<0.0056	<0.0056
Dibenzo (a,h) anthracene	<0.004	<0.004	<0.004
Benzo (g,h,i) perylene	<0.004	<0.004	<0.004
Indeno (1,2,3-cd) pyrene	<0.004	<0.004	<0.004

TABLE 4
DENTON STATION
PHASE-SEPARATED HYDROCARBON RECOVERY

Date	Monitor Well	PSH Thickness (feet)	PSH Recovery (gallons)	PSH Cumulative Recovery (gallons)	Type of Recovery
02/26/93	WW-1	7.97	35.0	35.0	Hand bailed
03/05/93	WW-1	3.45	25.0	60.0	Hand bailed
03/12/93	WW-1	1.91	20.0	80.0	Hand bailed
03/17/93	WW-1	1.76	4.0	84.0	Hand bailed
03/22/93	WW-1	0.83	3.5	87.5	Hand bailed
03/31/93	WW-1	2.51	8.0	95.5	Hand bailed
04/08/93	WW-1	4.92	13.0	108.5	Hand bailed
04/15/93	WW-1	2.21	8.0	116.5	Hand bailed
04/27/93	WW-1	2.81	9.0	125.5	Hand bailed
05/06/93	WW-1	2.27	7.0	132.5	Hand bailed
05/13/93	WW-1	2.13	6.0	138.5	Hand bailed
05/21/93	WW-1	2.36	6.0	144.5	Hand bailed
05/26/93	WW-1	2.41	8.0	152.5	Hand bailed
05/28/93	WW-1	1.80	5.0	157.5	Hand bailed
06/04/93	WW-1	2.15	6.0	163.5	Hand bailed
06/11/93	WW-1	1.94	5.0	168.5	Hand bailed
06/16/93	WW-1	1.82	5.5	174.0	Hand bailed
03/18/94	WW-1	7.63	20.0	194.0	Hand bailed
03/29/94	WW-1	2.06	5.5	199.5	Hand bailed
05/06/94	WW-1	4.80	12.0	211.5	Hand bailed
05/10/94	WW-1	3.80	8.0	219.5	Hand bailed
05/25/94	WW-1	4.51	15.0	234.5	Hand bailed
06/14/94	WW-1	3.78	8.0	242.5	Hand bailed
07/13/94	WW-1	3.62	6.5	249.0	Hand bailed
09/14/94	WW-1	4.53	8.0	257.0	Hand bailed
10/03/94	WW-1	5.45	10.0	267.0	Hand bailed

TABLE 4
DENTON STATION
PHASE-SEPARATED HYDROCARBON RECOVERY

Date	Monitor Well	PSH Thickness (feet)	PSH Recovery (gallons)	PSH Cumulative Recovery (gallons)	Type of Recovery
10/28/94	WW-1	5.80	9.0	276.0	Hand bailed
11/22/94	WW-1	2.24	5.0	281.0	Hand bailed
11/28/94	WW-1	6.31	10.0	291.0	Hand bailed
12/21/94	WW-1	6.42	10.0	301.0	Hand bailed
02/08/95	WW-1	3.80	8.0	309.0	Hand bailed
03/17/94	MW-1	0.32	0.2	0.2	Hand bailed
05/10/94	MW-1	0.16	<0.01	0.2	Hand bailed
06/14/94	MW-1	0.21	<.01	0.2	Hand bailed
07/13/94	MW-1	0.24	0.1	0.3	Hand bailed
08/22/94	MW-1	0.24	0.7	1.0	Hand bailed
09/14/94	MW-1	0.24	0.8	1.8	Hand bailed
10/03/94	MW-1	0.03	.2	2.0	Hand bailed
10/28/94	MW-1	0.44	1.1	3.1	Hand bailed
11/22/94	MW-1	0.37	1.0	4.1	Hand bailed
12/21/94	MW-1	0.67	1.5	5.6	Hand bailed
02/08/95	MW-1	0.71	1.5	7.1	Hand bailed
03/17/94	MW-3	8.25	7.5	7.5	Hand bailed
05/10/94	MW-3	1.34	7.0	14.5	Hand bailed
05/25/94	MW-3	3.92	4.5	19.0	Hand bailed
06/14/94	MW-3	1.88	3.0	22.0	Hand bailed
07/13/94	MW-3	2.27	4.0	26.0	Hand bailed
09/14/94	MW-3	8.48	12.0	38.0	Hand bailed
10/03/94	MW-3	8.54	12.0	50.0	Hand bailed
10/28/94	MW-3	6.87	10.0	60.0	Hand bailed
11/22/94	MW-3	3.41	8.0	68.0	Hand bailed
12/21/94	MW-3	6.20	9.0	77.0	Hand bailed

TABLE 4
DENTON STATION
PHASE-SEPARATED HYDROCARBON RECOVERY

Date	Monitor Well	PSH Thickness (feet)	PSH Recovery (gallons)	PSH Cumulative Recovery (gallons)	Type of Recovery
02/08/95	MW-3	7.68	10.0	87.0	Hand bailed
05/10/94	MW-5	3.10	5.0	5.0	Hand bailed
05/25/94	MW-5	6.80	11.0	16.0	Hand bailed
06/14/94	MW-5	5.70	8.5	24.5	Hand bailed
07/13/94	MW-5	5.67	8.0	32.5	Hand bailed
09/14/94	MW-5	7.20	11.0	39.7	Hand bailed
10/03/94	MW-5	7.17	11.0	50.7	Hand bailed
10/28/94	MW-5	7.56	12.0	62.7	Hand bailed
11/22/94	MW-5	7.37	15.0	77.7	Hand bailed
12/21/94	MW-5	9.12	12.0	89.7	Hand bailed
02/08/95	MW-5	8.15	10.0	99.7	Hand bailed
05/10/94	MW-7	0.23	1.0	1.0	Hand bailed
05/25/94	MW-7	1.95	2.5	3.5	Hand bailed
06/14/94	MW-7	1.65	1.5	5.0	Hand bailed
07/13/94	MW-7	1.30	1.0	6.0	Hand bailed
08/19/94	MW-7	0.17	1.0	7.0	Hand bailed
09/14/94	MW-7	9.08	15.0	22.0	Hand bailed
10/03/94	MW-7	9.15	15.0	37.0	Hand bailed
10/28/94	MW-7	7.56	12.0	49.0	Hand bailed
12/21/94	MW-7	7.93	11.0	68.0	Hand bailed
02/28/95	MW-7	8.02	12.0	80.0	Hand bailed

APPENDIX C
ANALYTICAL RESULTS

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING

CHAIN OF CUSTODY RECORD NO. H 13650

Date: 2-13-95
Page 1 of 1

SITE ADDRESS: Shell Pipe Line
Denton Station
~~WIC~~ # 15-9367800B.03
CONSULTANT NAME & ADDRESS: Cura Inc
731 W. Wadley, L-200, Midland TX
CONSULTANT CONTACT: Brad Smith (Houston)
PHONE: (915) 570-8408 FAX: (915) 570-8409
SAMPLED BY: Bill Smith

CHECK ONE BOX ONLY CT/DT

- QUARTERLY MONITORING ☐ 5461
- SITE INVESTIGATION ☐ 5441
- SOIL FOR DISPOSAL ☐ 5442
- WATER FOR DISPOSAL ☐ 5443
- AIR SAMPLER - SYS O+M ☐ 5452
- WATER SAMPLE - SYS O+M ☐ 5453
- OTHER _____ ☐

SAMPLE I.D.	DATE	TIME	COMP.	GRAB	MATRIX: H2O	SOIL	AIR	SLUDGE	OTHER	METHOD PRESERVED: HCl	HNO3	H2SO4	NONE	OTHER: Ice	NO. OF CONTAINERS	CONTAINER SIZE	BTEX 602 ☐ 8020 ☒ WITH MTBE	BTEX/GAS HYDROCARBONS PID/FID ☐ WITH MTBE	VOL 624/PPL ☐ 8240/TAL ☐ NBS (+15) ☐	PNA/PAH 8310 ☐ 8100 ☐ 610 ☐	SEMI - VOL 625/PPL ☐ 8270/TAL ☐ NBS (+25) ☐	TPH/IR 418.1 ☐ SM503 ☐ ☐ ☐	TPH/GC 8015 Mod. GAS ☐ 8015 Mod DIESEL ☐	TCLP METALS ☐ VOL ☐ SEMI-VOL ☐ PEST ☐ HERB ☐	EP TOX METALS ☐ PESTICIDES ☐ HERBICIDES ☐	REACTIVITY ☐ CORROSIVITY ☐ IGNITABILITY ☐	OTHER: PAH (by 8100)	REMARKS
MW-2	2-8-95	1830		✓	✓					✓				✓	3	40 ml	✓											
MW-2	2-8-95	1830		✓	✓					~~✓~~			✓	✓	1	1 l											✓	
MW-6	2-8-95	1900		✓	✓					✓				✓	3	40 ml	✓											
MW-6	2-8-95	1800		✓	✓								✓	✓	1	1 l											✓	
MW-9	2-8-95	1700		✓	✓					✓				✓	3	40 ml	✓											
MW-9	2-8-95	1700		✓	✓								✓	✓	1	1 l											✓	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Bill D. Smith	2-14-95	1000			
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

BILL NO.: _____
LABORATORY: SPL Houston
SHELL CONTACT: Neil Stidham PHONE: _____ FAX: _____

TURN AROUND TIME (CHECK ONE)
7 DAYS ☒ (NORMAL) 14 DAYS ☐
48 HOURS ☐ OTHER ☐ per Shell Pipe Line contract

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN OF CUSTODY WITH INVOICE AND RESULTS

DISTRIBUTION: PINK Sampling Coordinator - WHITE & YELLOW Accompanies Shipment - WHITE Returned with Report

CORRECTED COPY

Certificate of Analysis No. H9-9502516-01

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 02/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-2

PROJECT NO: H 13650
MATRIX: WATER
DATE SAMPLED: 02/08/95 18:30:00
DATE RECEIVED: 02/15/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	48	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	48		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	95
4-Bromofluorobenzene	97

METHOD 8020***
Analyzed by: AF
Date: 02/16/95

(P) - Practical Quantitation Limit ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

CORRECTED COPY

Certificate of Analysis No. H9-9502516-01

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
03/01/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-2

PROJECT NO: H 13650
MATRIX: WATER
DATE SAMPLED: 02/08/95 18:30:00
DATE RECEIVED: 02/15/95

ANALYTICAL DATA

PARAMETER	RESULTS	MDL*	UNITS
Naphthalene	ND	0.20	µg/L
1-Methylnaphthalene	1	0.20	µg/L
2-Methylnaphthalene	2	0.20	µg/L
Acenaphthylene	ND	0.10	µg/L
Acenaphthene	ND	0.40	µg/L
Fluorene	ND	0.80	µg/L
Phenanthrene	ND	1.2	µg/L
Anthracene	ND	1.0	µg/L
Fluoranthene	ND	0.8	µg/L
Pyrene	ND	0.60	µg/L
Benzo (a) anthracene	ND	4.0	µg/L
Chrysene	ND	1.6	µg/L
Benzo (b) fluoranthene	ND	4.0	µg/L
Benzo (k) fluoranthene	ND	4.0	µg/L
Benzo (a) pyrene	ND	5.6	µg/L
Dibenzo (a,h) anthracene	ND	4.0	µg/L
Benzo (g,h,i) perylene	ND	4.0	µg/L
Indeno (1,2,3-cd) pyrene	ND	4.0	µg/L

SURROGATES	% RECOVERY
2-Fluorobiphenyl	93

ANALYZED BY: LT
DATE/TIME: 02/16/95 10:57:00
EXTRACTED BY: LJ
DATE/TIME: 02/15/95
METHOD: 8100 - Polynuclear Aromatic Hydrocarbons
NOTES: * - Method Detection Limit
ND - Not Detected
NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

CORRECTED COPY

Certificate of Analysis No. H9-9502516-02

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
DATE: 02/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-6

PROJECT NO: H 13650
MATRIX: WATER
DATE SAMPLED: 02/08/95 18:00:00
DATE RECEIVED: 02/15/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	1200	5 P	µg/L
TOLUENE	ND	5 P	µg/L
ETHYLBENZENE	31	5 P	µg/L
TOTAL XYLENE	90	5 P	µg/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	1321		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	104
4-Bromofluorobenzene	100

METHOD 8020***
Analyzed by: AF
Date: 02/18/95

(P) - Practical Quantitation Limit ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc. - Project Manager

CORRECTED COPY

Certificate of Analysis No. H9-9502516-02

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
03/01/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-6

PROJECT NO: H 13650
MATRIX: WATER
DATE SAMPLED: 02/08/95 18:00:00
DATE RECEIVED: 02/15/95

ANALYTICAL DATA

PARAMETER	RESULTS	MDL*	UNITS
Naphthalene	85	0.20	µg/L
1-Methylnaphthalene	44	0.20	µg/L
2-Methylnaphthalene	32	0.20	µg/L
Acenaphthylene	ND	0.10	µg/L
Acenaphthene	ND	0.40	µg/L
Fluorene	ND	0.80	µg/L
Phenanthrene	ND	1.2	µg/L
Anthracene	ND	1.0	µg/L
Fluoranthene	1	0.8	µg/L
Pyrene	ND	0.60	µg/L
Benzo (a) anthracene	ND	4.0	µg/L
Chrysene	ND	1.6	µg/L
Benzo (b) fluoranthene	ND	4.0	µg/L
Benzo (k) fluoranthene	ND	4.0	µg/L
Benzo (a) pyrene	ND	5.6	µg/L
Dibenzo (a,h) anthracene	ND	4.0	µg/L
Benzo (g,h,i) perylene	ND	4.0	µg/L
Indeno (1,2,3-cd) pyrene	ND	4.0	µg/L

SURROGATES	% RECOVERY
2-Fluorobiphenyl	100

ANALYZED BY: LT DATE/TIME: 02/16/95 10:57:00
EXTRACTED BY: LJ DATE/TIME: 02/15/95
METHOD: 8100 - Polynuclear Aromatic Hydrocarbons
NOTES: * - Method Detection Limit ND - Not Detected
NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

CORRECTED COPY

Certificate of Analysis No. H9-9502516-03

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.#
MESA-CAO-B-131201-PX-4204-NS
DATE: 02/27/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-9

PROJECT NO: H 13650
MATRIX: WATER
DATE SAMPLED: 02/08/95 17:00:00
DATE RECEIVED: 02/15/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL VOLATILE AROMATIC HYDROCARBONS	ND		µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	96
4-Bromofluorobenzene	97

METHOD 8020***
Analyzed by: AF
Date: 02/16/95

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

CORRECTED COPY

Certificate of Analysis No. H9-9502516-03

Shell Pipe Line Corporation
P.O. Box 2648
Houston, TX 77252
ATTN: Neal Stidham

P.O.# MESA-CAO-B-131201-PX-4204-NS
03/01/95

PROJECT: Denton Station
SITE: Lea County, New Mexico
SAMPLED BY: Cura, Inc.
SAMPLE ID: MW-9

PROJECT NO: H 13650
MATRIX: WATER
DATE SAMPLED: 02/08/95 17:00:00
DATE RECEIVED: 02/15/95

ANALYTICAL DATA

PARAMETER	RESULTS	MDL*	UNITS
Naphthalene	ND	0.20	µg/L
1-Methylnaphthalene	ND	0.20	µg/L
2-Methylnaphthalene	ND	0.20	µg/L
Acenaphthylene	ND	0.10	µg/L
Acenaphthene	ND	0.40	µg/L
Fluorene	ND	0.80	µg/L
Phenanthrene	ND	1.2	µg/L
Anthracene	ND	1.0	µg/L
Fluoranthene	ND	0.8	µg/L
Pyrene	ND	0.60	µg/L
Benzo (a) anthracene	ND	4.0	µg/L
Chrysene	ND	1.6	µg/L
Benzo (b) fluoranthene	ND	4.0	µg/L
Benzo (k) fluoranthene	ND	4.0	µg/L
Benzo (a) pyrene	ND	5.6	µg/L
Dibenzo (a,h) anthracene	ND	4.0	µg/L
Benzo (g,h,i) perylene	ND	4.0	µg/L
Indeno (1,2,3-cd) pyrene	ND	4.0	µg/L

SURROGATES	% RECOVERY
2-Fluorobiphenyl	92

ANALYZED BY: LT DATE/TIME: 02/16/95 10:57:00
EXTRACTED BY: LJ DATE/TIME: 02/15/95
METHOD: 8100 - Polynuclear Aromatic Hydrocarbons
NOTES: * - Method Detection Limit ND - Not Detected
NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL, Inc., - Project Manager

QUALITY CONTROL DOCUMENTATION

Matrix: Aqueous Batch Id: HP_R950216190800
Units: µg/L

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Benzene	ND	50	48	96.0	61 - 123
Toluene	ND	50	46	92.0	62 - 122
EthylBenzene	ND	50	50	100	56 - 119
O Xylene	ND	50	52	104	32 - 160
M & P Xylene	ND	100	120	120	32 - 160

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
Benzene	ND	20	19	95.0	19	95.0	0	25	39 - 150
Toluene	ND	20	19	95.0	19	95.0	0	26	56 - 134
EthylBenzene	ND	20	20	100	19	95.0	5.13	38	61 - 128
O Xylene	ND	20	21	105	20	100	4.88	20	40 - 130
M & P Xylene	ND	40	45	112	43	108	3.64	20	43 - 152

Analyst: AF
Sequence Date: 02/16/95
SPL ID of sample spiked: 9502522-01A
Sample File ID: R___073.TX0
Method Blank File ID:
Blank Spike File ID: R___067.TX0
Matrix Spike File ID: R___070.TX0
Matrix Spike Duplicate File ID: R___071.TX0

* = Values Outside QC Range
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data
(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID):

9502514-07A 9502514-06A 9502493-03A 9502493-02A
9502520-01A 9502525-01A 9502502-06A 9502502-05A
9502493-04A 9502525-02A 9502438-01A 9502502-04A
9502502-03A 9502502-02A 9502502-01A 9502528-02A
9502516-03A 9502516-01A 9502522-01A

Idelis Williams, QC Officer

Matrix: Aqueous
Units: µg/L

Batch Id: HP_R950218045700

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Benzene	ND	50	47	94.0	61 - 123
Toluene	ND	50	46	92.0	62 - 122
EthylBenzene	ND	50	49	98.0	56 - 119
O Xylene	ND	50	52	104	32 - 160
M & P Xylene	ND	100	120	120	32 - 160

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
Benzene	ND	20	19	95.0	19	95.0	0	25	39 - 150
Toluene	ND	20	18	90.0	18	90.0	0	26	56 - 134
EthylBenzene	ND	20	18	90.0	19	95.0	5.41	38	61 - 128
O Xylene	ND	20	19	95.0	19	95.0	0	20	40 - 130
M & P Xylene	ND	40	41	102	42	105	2.90	20	43 - 152

Analyst: AF
Sequence Date: 02/18/95
SPL ID of sample spiked: 9502613-10A
Sample File ID: R___132.TX0
Method Blank File ID:
Blank Spike File ID: R___126.TX0
Matrix Spike File ID: R___129.TX0
Matrix Spike Duplicate File ID: R___130.TX0

* = Values Outside QC Range
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data
(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID):

9502613-03A 9502396-08A 9502396-02A 9502503-03A
9502503-02A 9502613-05A 9502516-02A 9502493-01A
9502503-01A 9502514-01A 9502613-11A 9502613-09A
9502613-08A 9502613-10A

Idelis Williams, QC Officer

Matrix: Aqueous Batch Id: VARH950216105700
Units: µg/L

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
NAPHTHALENE	ND	25	21.0587	84.2	1 - 122
ACENAPHTHYLENE	ND	25	20.7778	83.1	1 - 139
ACENAPHTHENE	ND	25	23.3962	93.6	1 - 124
FLUORENE	ND	25	24.2413	97.0	1 - 142
PHENANTHRENE	ND	25	27.0000	108	1 - 155
ANTHRACENE	ND	25	23.000	92.0	1 - 126
FLUORANTHENE	ND	25	31.0349	124	1 - 142
PYRENE	ND	25	31.3821	126	1 - 140
CHRYSENE	ND	25	33.3290	133	1 - 199
BENZO (A) ANTHRACENE	ND	25	30.8053	123	12 - 135
BENZO (B) FLUORANTHENE	ND	25	28.720	115	6 - 150
BENZO (K) FLUORANTHENE	ND	25	26.940	108	1 - 159
BENZO (A) PYRENE	ND	25	23.7800	95.1	1 - 128
DIBENZO (A,H) ANTHRACENE	ND	25	27.1614	109	1 - 110
BENZO (G,H,I) PERYLENE	ND	25	26.8621	107	1 - 116
INDENO (1,2,3-CD) PYRENE	ND	25	25.3634	101	1 - 116

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
NAPHTHALENE	ND	25.00	22.4992	90.0	21.4106	85.6	5.01	30	1 - 122
ACENAPHTHYLENE	ND	25.00	17.5528	70.2	17.0339	68.1	3.04	30	1 - 139
ACENAPHTHENE	ND	25.00	24.3965	97.6	22.0794	88.3	10.0	30	1 - 124
FLUORENE	ND	25.00	24.6257	98.5	23.8591	95.4	3.20	30	1 - 142
PHENANTHRENE	ND	25.0	24.278	97.1	24.088	96.4	0.724	30	1 - 155
ANTHRACENE	ND	25.0	23.0170	92.1	23.3947	93.6	1.62	30	1 - 126
FLUORANTHENE	ND	25.0	28.0754	112	24.0206	96.1	15.3	30	1 - 142
PYRENE	ND	25.00	28.6653	115	28.0485	112	2.64	30	1 - 140
CHRYSENE	ND	25.0	32.0018	128	31.0467	124	3.17	30	1 - 199
BENZO (A) ANTHRACENE	ND	25.0	29.0624	116	28.0126	112	3.51	30	12 - 135
BENZO (B) FLUORANTHENE	ND	25.0	26.0	104	24.0	96.0	8.00	30	6 - 150
BENZO (K) FLUORANTHENE	ND	25.0	29.0166	116	28.0272	112	3.51	30	1 - 159
BENZO (A) PYRENE	ND	25.0	19.3546	77.4	21.7230	86.9	11.6	30	1 - 128
DIBENZO (A,H) ANTHRACENE	ND	25.0	25.9820	104	25.0470	100	3.92	30	1 - 110

SAMPLES IN BATCH(SPL ID): 9502516-02B 9502516-01B 9502516-03B 9502514-05B 9502514-04B 9502514-02B 9502453-01C 9502453-03C 9502453-02C

Idelis Williams, QC Officer

PNA's by GC

Matrix: Aqueous Batch Id: VARH950216105700

Units: µg/L

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
BENZO (G,H,I) PERYLENE	ND	25.0	26.3812	106	24.3651	97.5	8.35	30	1 - 116
INDENO (1,2,3-CD) PYRENE	ND	25.0	26.1334	105	23.326	93.3	11.8	30	1 - 116

Analyst: LT

Sequence Date: 02/16/95

SPL ID of sample spiked: 950209CXBI

Sample File ID: H___842.raw

Method Blank File ID:

Blank Spike File ID: H___906.raw

Matrix Spike File ID: H___848.raw

Matrix Spike Duplicate File ID: H___849.raw

* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery = [(<1> - <2>) / <3>] x 100

LCS % Recovery = (<1> / <3>) x 100

Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100

(**) = Source: 8100, Table 2

(***) = Source: Temporary Limits

SAMPLES IN BATCH(SPL ID): 9502516-02B 9502516-01B 9502516-03B 9502514-05B 9502514-04B 9502514-02B 9502453-01C 9502453-03C 9502453-02C

Idelis Williams, QC Officer

APPENDIX D

QUALITY ASSURANCE/QUALITY CONTROL

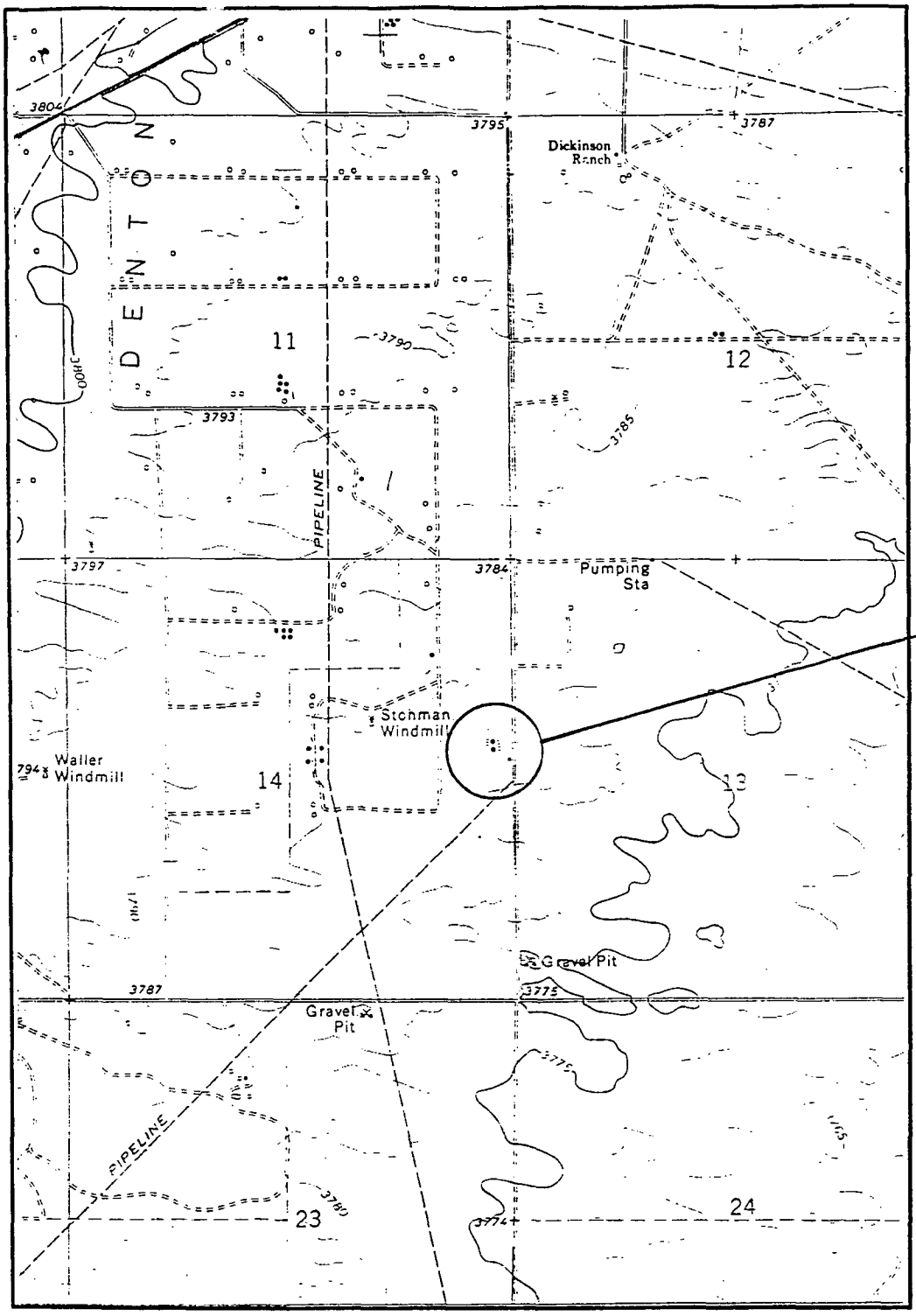
QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

A strict Quality Assurance Plan was incorporated throughout all phases of the monitoring and sampling operations. The samples were collected with new disposable Teflon bailers. The bailers were disposed of between sampling stations to eliminate the potential of cross-contamination. The water samples were transferred from the bailers into airtight septum-sealed 40-ml glass VOA vials with zero head space for BTEX analysis and one-liter amber glass jars with Teflon-lined lids for TPH analysis.

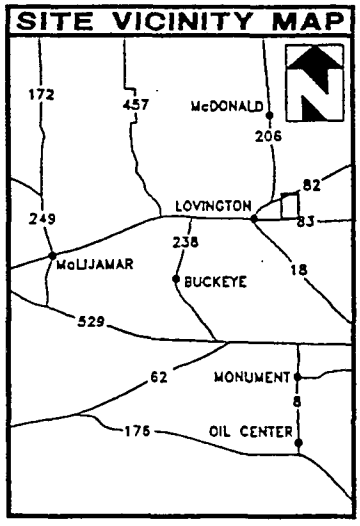
The samples were preserved with hydrochloric acid, sealed with QA/QC seals and maintained at 4°C in accordance with Environmental Protection Agency (EPA) requirements (EPA 600/4-82-029) for shipment to the laboratory. A chain-of-custody (COC) which documents sample collection times and delivery times to the laboratory was completed for each set of samples. The COC is included with the analytical results in the appropriate appendices.

Analyses were performed on all samples using the following TNRCC-recommended analytical methods: EPA Method 8020/5030 (BTEX) and EPA Method 8100 (PAH). The maximum recommended holding time for BTEX analysis is 14 days; the maximum recommended holding time for TPH analysis is 28 days.

CURA maintains the highest quality assurance standards with direct supervision of operations (sample handling and storage). CURA utilizes laboratories that maintain strict quality control; i.e., equipment calibration and standardization, TNRCC-recommended analytical methods, preparation of quality control samples, and complete chains-of-custody. bailed



N



SITE LOCATION MAP

REF: USGS PRAIRIEVIEW, NEW MEXICO TOPOGRAPHIC QUADRANGLE (1970)

CURA INC.
2735 VILLA CREEK DRIVE - TWO METRO SQUARE
BLDG. C - SUITE 250 - DALLAS, TX 75234
620-7117 FAX - 620-8219

DENTON STATION
SHELL PIPE LINE CORPORATION
LEA COUNTY, NEW MEXICO

DATE:	SCALE:
MAR 1993	1"≃2000'
PROJECT NO.	FIGURE NO.
15-92567	1