GW - 113

REPORTS

YEAR(S):

1993

FINAL REPORT

INSTALLATION OF MONITORING WELLS

EUNICE COMPRESSOR STATION

TRANSWESTERN PIPELINE COMPANY

AUGUST, 1993

Brown & Root Environmental

A Division of Halliburton NUS Corporation

Brown & Root Environmental

10200 Bellaire Boulevard (77072-5299)
Post Office Box 4574
Houston, TX 77210-4574

August 31,1993

Mr. Larry Campbell
Transwestern Pipeline Company
P.O. Box 1717
Roswell, New Mexico

Re: Final Report, Installation of Monitor Well at Eunice Compressor Station, Eunice, New Mexico Brown & Root Environmental Project No. 8T27

Dear Mr. Campbell:

Enclosed please find three copies of the subject document. Please feel free to call me at (713) 575-4762 if you have any questions or comments.

Sincerely,

BROWN & ROOT ENVIRONMENTAL

Susanne Richard
Project Manager

SR/rk

c: GES File 8T27 3.1

0:\PROJECTS\NG22.BA\2

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1.0 BACKGROUND INFORMATION

Brown & Root Environmental (B&R Environmental) was requested by Transwestern Pipeline Company (Transwestern) to install one monitor well at Northern Natural Gas's Eunice Compressor Station located in Eunice, New Mexico. The facility is an active natural gas pipeline compressor station located approximately 5 miles south of Eunice. The location of the site is shown in Figure 1.

Initial construction of the plant occurred in the 1950's.

In 1991 Metric Corporation conducted an investigation of the facility and installed two monitor wells (i.e., Monitor Wells MW-1 and MW-2) on the north and south property boundary.

This investigation was conducted to determine groundwater gradient and constituents. B&R Environmental installed one monitor well approximately 50 feet north of an historic above ground storage tank area along the western boundary of the facility.

N

PROPERTY LINE

MW-1

WAREHOUSE & OFFICE BUILDING

FIBERGLASS USED FILTER SUMPS

COMPRESSOR BUILDING

GAS COOLER

GAS COOLER

GAS COOLER

GAS COOLER

J.W. COOLER

J.W. COOLER

J.W. COOLER

J.W. COOLER

METER BUILDING

MW-3

LOCATION OF REMOVED PIPELINE LIQUIDS TANKS

MW-2

LEGEND

MW-2 ⊙ – MONITOR WELL LOCATIONS BY METRIC CORPORATION

MW-3 ● – MONITOR WELL LOCATION BY BROWN & ROOT ENVIRONMENTAL

40 20 0 40

SCALE - FEET

DRAWN BY	D. GROSSHANDLER
DATE:	8/17/93
ENGINEER	S. RICHARD
DATE:	8/17/93
CAD DWG. NO.	PLATE2.DWG

BORING AND WELL LOCATIONS
EUNICE GAS COMPRESSOR STATION
LEA COUNTY, NEW MEXICO
TRANSWESTERN PIPELINE COMPANY

SCALE: 1"=40' | BRE DWG. NO.: 8T27-1B2 | REV. 0

Brown & Root Environmental
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2.0 FIELD ACTIVITIES

This section describes the field activities undertaken on April 13 through 16, 1993, by B&R Environmental. During this time period Monitor Well MW-3 was installed and developed, then subsequently purged and sampled.

The well location selected by Transwestern personnel was on the western side of the property, north of the historic above ground storage tank area.

On April 13th a 2-inch monitor well was installed using a Failing 1500 Air Rotary drilling rig. The boring was drilled with a 6 1/4-inch drill bit to a total depth of 65 feet without sampling. The boring log associated with Monitor Well MW-3 is included in Appendix A. Baroid E-Z Mud was used to keep the borehole open during installation of the well. The well consisted of 50 feet of 2-inch Schedule 40 PVC riser and 10 feet of 0.010 slotted 2-inch Schedule 40 PVC screen. A graded sand filter pack was emplaced to 3 feet above the screen, then a 3 foot bentonite seal was set above the sand pack. A mixture of Portland cement and bentonite was used to grout the annulus of the borehole from the top of the bentonite seal to the surface. A monitor well construction diagram for Monitor Well MW-3 is included within Appendix A. The locations of Monitor Wells MW-1 through MW-3 are shown in Figure 1.

Twenty gallons of groundwater were removed from the monitor well to initiate development of the well. The well development form for Monitor Well MW-3 is included within Appendix B. On April 14, approximately a quart of chlorox was poured into the well and the well was surged to mix the solution and break down the drilling mud.

On April 15th, another 15 gallons were removed from Monitor Well MW-3 to purge E-Z Mud possibly still in the well. Disposable bailers had been left within Monitor Wells MW-1 and MW-2 by metric. These bailers were found to have reacted with the water present in the wells (i.e., the plastic bailers had become brittle and were encrusted with a carbonaceous coating). All three wells, MW-1 and MW-2 (installed by Metric) and MW-3 (B&R Environmental installation) were then purged of a minimum of five well volumes of water and sampled on April 16, 1993. A minimum of five well volumes of water were purged from each well to attempt to remove 1) the reacted material out of MW-1 and MW-2, and 2) possible E-Z Mud left in NW-3. Previously unused disposable bailers were used to purge and sample the wells. Sample log sheets are contained within Appendix C.

The groundwater samples were placed in appropriate sample containers, then placed in coolers with ice and packed for shipment. The samples were delivered to Pace Laboratory in Houston, Texas via an overnight carrier.

The location of Monitor Well MW-3 was surveyed in order to determine its horizontal and vertical location relative to the site datum (i.e., 100.00 foot datum at the top of casing of Monitor Well MW-1). Depth to groundwater was measured in each of the monitor wells at the site using an electronic water level indicator prior to commencement of purging operations on April 16, 1993.

3.0 LABORATORY ANALYSIS

The groundwater samples collected from Monitor Wells MW-1 through MW-3 were analyzed for volatile organic compounds by EPA Method SW 846 8240, semivolatile organic compounds by EPA Method SW-846 8270, total dissolved solids (TDS) by EPA Method 160.1, and metals by the EPA SW-846 6010 series.

The analytical results for the groundwater samples recovered from Monitor Wells MW-1 through MW-3 are presented in Table 1. The complete laboratory analysis report, including QA/QC documentation, is included within Appendix D.

TABLE 1

ANALYTICAL RESULTS FOR GROUND WATER SAMPLES
EUNICE PLANT, ROSWELL NEW MEXICO

ANALYTE	SAMPLE IDENTIFICATION MW-1	MW-2	MW-3
VOLATILES			
1,1,1-Trichloroethane	< 5 ug/L	< 5 ug/L	< 5 ug/L
1,1,2,2-Tetrachloroethane	< 5 ug/L	< 5 ug/L	< 5 ug/L
1,1,2-Trichloroethane	< 5 ug/L	< 5 ug/L	< 5 ug/L
1,1-Dichloroethane	< 5 ug/L	< 5 ug/L	< 5 ug/L
1,1-Dichloroethene	< 5 ug/L	< 5 ug/L	< 5 ug/L
1,2-Dichloroethane	< 5 ug/L	< 5 ug/L	< 5 ug/L
1,2-Dichloroethene (total)	< 5 ug/L	< 5 ug/L	< 5 ug/L
1,2-Dichloropropane	< 5 ug/L	< 5 ug/L	< 5 ug/L
2-Chloroethylvinylether	< 10 ug/L	< 10 ug/L	< 10 ug/L
Acrolein	< 100 ug/L	< 100 ug/L	< 100 ug/L
Acrylonitrile	< 100 ug/L	< 100 ug/L	< 100 ug/L
Benzene	< 5 ug/L	3,800 ug/L	2,000 ug/L
Bromoform	< 5 ug/L	< 5 ug/L	< 5 ug/L
Bromomethane	< 10 ug/L	< 10 ug/L	< 10 ug/L
Carbon tetrachloride	< 5 ug/L	< 5 ug/L	< 5 ug/L
Chlorobenzene	< 5 ug/L	< 5 ug/L	< 5 ug/L
Chlorodibromomethane	< 5 ug/L	< 5 ug/L	< 5 ug/L
Chloroethane	< 10 ug/L	< 10 ug/L	< 10 ug/L
Chloroform	< 5 ug/L	< 5 ug/L	< 5 ug/L
Chloromethane	< 10 ug/L	< 10 ug/L	< 10 ug/L
Dichlorobromomethane	< 5 ug/L	< 5 ug/L	< 5 ug/L
Ethylbenzene	< 5 ug/L	1,000 ug/L	640 ug/L
Methylene Chloride	< 5 ug/L	< 5 ug/L	< 5 ug/L
Tetrachloroethene	< 5 ug/L	< 5 ug/L	< 5 ug/L
Toluene	< 5 ug/L	< 5 ug/L	1,700 ug/L
Trichloroethene	< 5 ug/L	< 5 ug/L	< 5 ug/L
Vinyl chloride	< 10 ug/L	< 10 ug/L	< 10 ug/L
cis-1,3-Dichloropropene	< 5 ug/L	< 5 ug/L	< 5 ug/L
trans-1,3-Dichloropropene	< 5 ug/L	< 5 ug/L	< 5 ug/L
SEMI-VOLATILES			
1,2,4-Trichlorobenzene	< 10 ug/L	< 10 ug/L	< 40 ug/L
1,2-Dichlorobenzene	< 10 ug/L	< 10 ug/L	< 40 ug/L
1,2-Diphenylhydrazine (Azobz)	< 10 ug/L	< 10 ug/L	< 40 ug/L
1,3-Dichlorobenzene	< 10 ug/L	< 10 ug/L	< 40 ug/L
1,4-Dichlorobenzene	< 10 ug/L	< 10 ug/L	< 40 ug/L
2,4,6-Trichlorophenol	< 10 ug/L	< 10 ug/L	< 40 ug/L
2,4-Dichlorophenol	< 10 ug/L	< 10 ug/L	< 40 ug/L
2,4-Dimethylphenol	< 10 ug/L	18 ug/L	< 40 ug/L
2,4-Dinitrophenol	< 50 ug/L	< 50 ug/L	< 200 ug/L
2,4-Dinitrotoluene	< 10 ug/L	< 10 ug/L	< 40 ug/L
2,6-Dinitrotoluene	< 10 ug/L	< 10 ug/L	< 40 ug/L
2-Chloronapthalene	< 10 ug/L	< 10 ug/L	< 40 ug/L
2-Chlorophenol	< 10 ug/L	< 10 ug/L	< 40 ug/L
2-Nitrophenol	< 10 ug/L	< 10 ug/L	< 40 ug/L

TABLE 1 (continued)

ANALYTICAL RESULTS FOR GROUND WATER SAMPLES
EUNICE PLANT, ROSWELL NEW MEXICO

ANALYTE	SAMPLE IDENTIFICATION MW-1	MW-2	MW-3
SEMI-VOLATILES			
3,3'-Dichlorobenzidine	< 20 ug/L	< 20 ug/L	< 80 ug/L
4,6-Dinitro-o-cresol	< 50 ug/L	< 50 ug/L	< 200 ug/L
4-Bromophenylphenylether	< 10 ug/L	< 10 ug/L	< 40 ug/L
4-Chlorophenylphenylether	< 10 ug/L	< 10 ug/L	< 40 ug/L
4-Nitrophenol	< 50 ug/L	< 50 ug/L	< 200 ug/L
Acenapthene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Acenapthylene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Anthracene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Benzidine	< 50 ug/L	< 50 ug/L	< 200 ug/L
Benzo(a)anthracene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Benzo(a)pyrene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Benzo(b)fluoranthene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Benzo(g,h,i)perylene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Benzo(k)fluoranthene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Butylbenzylphthalate	< 10 ug/L	< 10 ug/L	< 40 ug/L
Chrysene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Di-n-butylphthalate	< 10 ug/L	< 10 ug/L	< 40 ug/L
Di-n-octylphthalate	< 10 ug/L	< 10 ug/L	< 40 ug/L
Dibenzo(a,h)anthracene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Diethylphthalate	< 10 ug/L	< 10 ug/L	< 40 ug/L
Dimethylphthalate	< 10 ug/L	< 10 ug/L	< 40 ug/L
Fluoranthene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Hexachlorobenzene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Hexachlorobutadiene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Hexachlorocyclopentadiene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Hexachloroethane	< 10 ug/L	< 10 ug/L	< 40 ug/L
Indeno(1,2,3-cd)pyrene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Isophorone	< 10 ug/L	< 10 ug/L	< 40 ug/L
N-Nitrosodi-n-propylamine	< 10 ug/L	< 10 ug/L	< 40 ug/L
N-Nitrosodimethylamine	< 10 ug/L	< 10 ug/L	< 40 ug/L
N-Nitrosodiphenylamine	< 10 ug/L	< 10 ug/L	< 40 ug/L
Naphthalene	< 10 ug/L	14 ug/L	40 ug/L
Nitrobenzene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Pentachlorophenol	< 50 ug/L	< 50 ug/L	< 200 ug/L
Phenanthrene	< 10 ug/L	< 10 ug/L	< 40 ug/L
Phenol	< 10 ug/L	< 10 ug/L	61 ug/L
Pyrene	< 10 ug/L	< 10 ug/L	< 40 ug/L
bis(2-Chlororthoxy)methane	< 10 ug/L	< 10 ug/L	< 40 ug/L
bis(2-Chlororethyl)ether	< 10 ug/L	< 10 ug/L	< 40 ug/L
bis(2-Chloroisoprophyl)ether	< 10 ug/L	< 10 ug/L	< 40 ug/L
bis(2-Ethylhexyl)phthalate	< 10 ug/L	< 10 ug/L	< 40 ug/L
p-Chloro-m-cresol	< 10 ug/L	< 10 ug/L	< 40 ug/L
SOLIDS, DISSOLVED	1,700 mg/L	6,200 mg/L	2,200 mg/L
METALS			
Arsenic, Total (As)	0.078 mg/L	0.040 mg/L	0.027 mg/L
Selenium, Total (Se)	< 0.003 mg/L	< 0.003 mg/L	< 0.003 mg/L
Barium, Total (Ba)	1.3 mg/L	1.6 mg/L	2.2 mg/L
Cadmium, Total (Cd)	< 0.005 mg/L	< 0.005 mg/L	< 0.005 mg/L
Chromium, Total (Cr)	0.03 mg/L	0.03 mg/L	0.01 mg/L
Lead, Total (Pb)	< 0.05 mg/L	< 0.05 mg/L	< 0.05 mg/L
Mercury, Total (Hg)	< 0.0002 mg/L	< 0.0002 mg/L	< 0.0002 mg/L
Silver, Total (Ag)	< 0.01 mg/L	< 0.01 mg/L	< 0.01 mg/L

4.0 FINDINGS

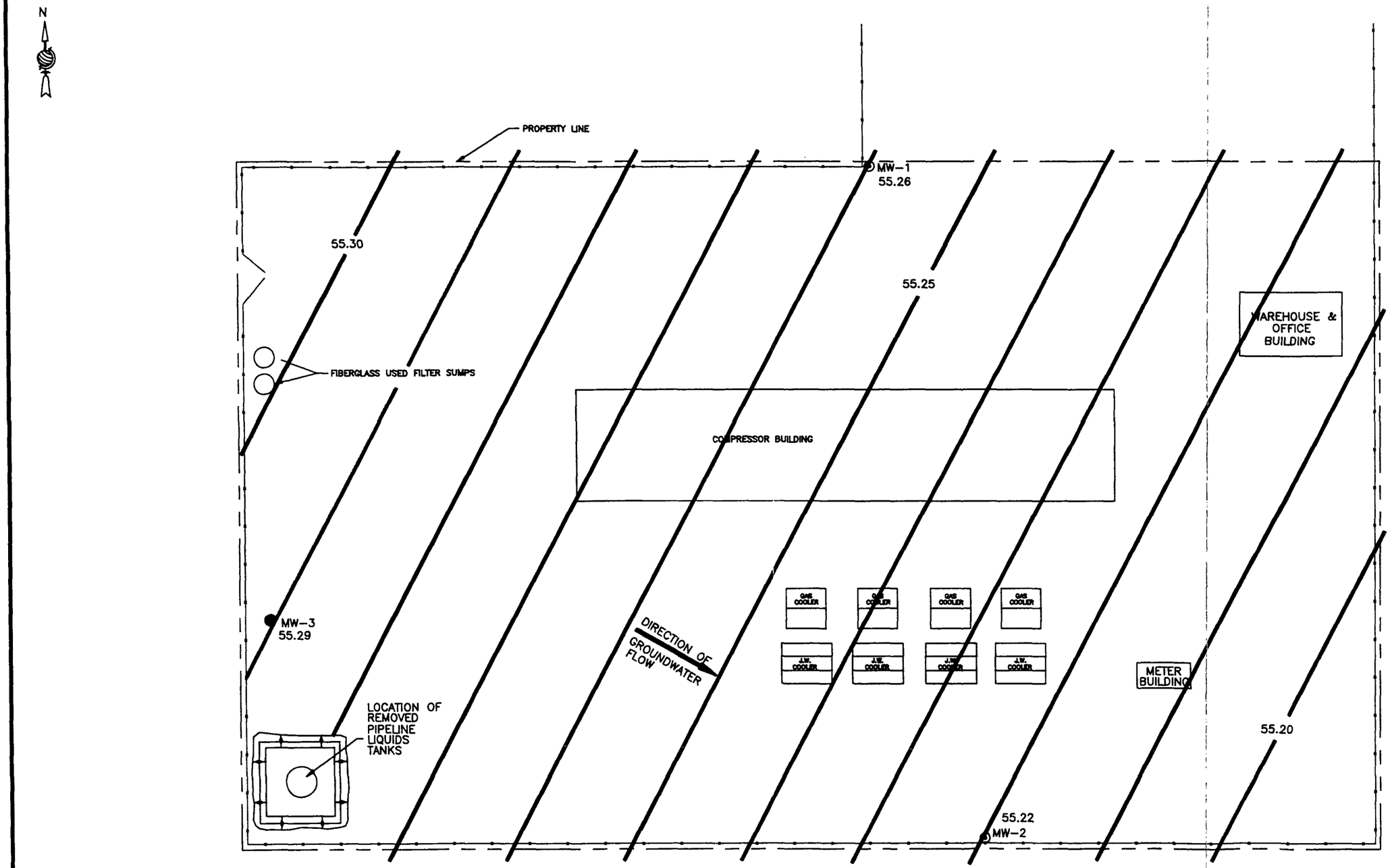
The near surface geology at the Transwestern Eunice, New Mexico, facility consists of interbedded units of caliche, sand, sandstone, and limestone. Groundwater was encountered at a depth of 52 feet below grade within a loosely consolidated silty sand unit.

Based on water level data collected by B&R Environmental on April 16, 1993, the groundwater gradient at the site dips very slightly toward the southeast, as shown in Figure 2.

The total dissolved solids (TDS) content of the groundwater samples recovered from Monitor Wells MW-1 and MW-3 were 1,700 mg/L and 2,200 mg/L, respectively, which indicated that groundwater from these wells is defined as slightly saline (Texas Water Commission, TWC). The TDS content of the groundwater sample recovered from Monitor Well MW-2 was 6,200 mg/L, indicating that groundwater from this well is defined as moderately saline.

There were no volatile or semivolatile organic constituents detected in the groundwater sample recovered from Monitor Well MW-1.

Benzene and ethylbenzene were detected in the groundwater sample collected from Monitor Well MW-2 at concentrations of 3,800 ug/L and 1,000 ug/L, respectively. These compounds were also detected in the groundwater sample recovered from Monitor Well MW-3, at respective concentrations of 2,000 ug/L and 640 ug/L. Toluene was also



LEGEND

BH-13 ⊙ – MONITOR WELL LOCATIONS BY METRIC CORPORATION

MW-3 ● – MONITOR WELL LOCATION BY BROWN & ROOT ENVIRONMENTAL

CONTOUR INTERVAL = 0.01'

40 20 0 40

SCALE - FEET

NOTE

ELEVATIONS RELATIVE TO 100 FOOT DATUM AT MW-1 TOP OF CASING.

DRAWN BY	D. GROSSHANDLER
DATE:	8/19/93
ENGINEER	S. RICHARD
DATE:	8/19/93
CAD DWG. NO.	PLATE3A.DWG

GROUNDWATER ELEVATION MAP 4/16/93
EUNICE GAS COMPRESSOR STATION
LEA COUNTY, NEW MEXICO
TRANSWESTERN PIPELINE COMPANY

SCALE: 1"=40' | BRE DWG. NO: 8T27-1B3 | REV. 0

Brown & Root Environmental
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concentration of 1,700 ug/L. There were no other volatile organic compounds detected in the groundwater samples recovered from Monitor Wells MW-2 and MW-3. The total volatile organics concentrations of the groundwater samples recovered from Monitor Wells MW-2 and MW-3 are 4,800 ug/L and 4,340 ug/L, respectively.

Naphtalene was detected in the groundwater samples recovered from Monitor Wells MW-2 and MW-3 at concentrations of 14 ug/L and 40 ug/L, respectively. 2, 4-Dimethylphenol was also detected in the groundwater sample recovered from Monitor Well MW-2 at a concentration of 18 ug/L. There were no other semivolatile organic compounds detected in the groundwater samples recovered from Monitor Wells MW-2 and MW-3. The total semivolatile organics concentrations of the groundwater samples recovered from Monitor Wells MW-2 and MW-3 are 32 ug/L and 40 ug/L, respectively.

Low concentrations of arsenic (0.027 mg/L to 0.078 mg/L), barium (1.3 mg/L to 2.2 mg/L), and chromium (0.01 mg/L to 0.03 mg/L) were detected in each of the groundwater samples recovered from Monitor Wells MW-1 through MW-3. There were no other detections of metals in these groundwater samples.

5.0 CONCLUSIONS

The following conclusions can be drawn as a result of the investigation performed by B&R Environmental at Northern Natural Gas's Eunice Compressor Station located near Eunice, New Mexico:

- Groundwater is present, in a silty sand unit, at a depth of approximately 52 feet below grade.

- The water table gradient is nearly flat at the site, dipping approximately 1 inch every 358 feet to southeast (as shown in Figure 2).

- There were no detections of volatile or semivolatile organic compounds in the groundwater sample recovered from Monitor Well MW-1. This well is located along the northern boundary of the site, north of the Compressor Building.

- The volatile organic compounds benzene and ethylbenzene and the semivolatile organic compounds naphthalene and 2, 4-Dimethylphenol were detected at low concentrations in the groundwater sample recovered from Monitor Well MW-2. The total volatile organics concentration within the groundwater sample recovered from this well was 4,800 ug/L, and the total semivolatile organics concentration within the sample was 32 ug/L. Monitor Well MW-2 is located along the southern boundary of the site, to the south of the gas and jacket water coolers.

- The volatile organic compounds benzene, ethylbenzene, and toluene along with the semivolatile organic compound naphthalene were detected at low concentrations in the groundwater sample recovered from Monitor Well MW-3. The total volatile organics concentration within the groundwater sample recovered from this well is 4,340 ug/L, and the total semivolatile organics concentration with the same sample was 40 ug/L. Monitor Well MW-3 is located along the western boundary of the site, between the fiberglass used filter sumps and the former location of the pipeline liquids tanks.

APPENDIX A
MONITORING WELL MW-3
BORING LOG AND WELL CONSTRUCTION DIAGRAM

HALLIBURTON NUS
Environmental Corporation

BORING/WELL NUMBER **MW-3** SHEET **1** OF **2**

PROJECT **TRANSWESTERN**

LOCATION **EUNICE, NEW MEXICO**

COORDINATES

PROJECT NUMBER **8T27**

SURFACE ELEVATION **N.R.** DATUM **Grade**

LOGGED BY **S. Richard** DATE DRILLED **4/13/93**

ELEVATION FEET	SOIL DESCRIPTION	STRATA	SAMPLE INFORMATION: Depth Feet	Sample Type	Sample ID	Inches Adv. / Inches Rec.	Penetrometer Blow Counts	PID/FID (ppm)	WELL CONSTRUCTION DETAIL & REMARKS
	GROUND SURFACE								T.O.C. Elev. N.R.
	Interbedded hard Limestone (caliche) and moist medium to fine grained Sand.		5						Well drilled without sampling. Lithologic interpretation based on cuttings and drill breaks.
	Clayey Sand (SC) - tan, fine grained		10						6.25-inch diameter borehole
	Limestone - white, with sandy interbeds below 18 feet BLS		15						
	Well-indurated Limestone with sandy layers		20						Cement-bentonite grout
	Sand (SP)		25						
	Limestone (caliche) with interbedded		30						2-inch PVC casing

DRILLING CONTRACTOR: **West Texas Water Well Driller**

DRILLER: **R. Kieth**

DRILLING METHOD: **Air Rotary**

DRILLING EQUIPMENT: **Failing 1500**

DIAMETER, TYPE & INTERVAL OF CASING: **2-inch PVC 0 to 50 feet**

WELL SCREEN/INTERVAL: **2-inch PVC (0.010 slot) 50 to 60**

FILTER PACK-INTERVAL/QUANTITY: **Graded Sand 47 to 65 feet**

WELL SEAL-INTERVAL/QUANTITY: **Bentonite 44 to 47 feet**

HALLIBURTON NUS
Environmental Corporation

BORING/WELL NUMBER **MW-3** SHEET **2** OF **2**

PROJECT **TRANSWESTERN**

LOCATION **EUNICE, NEW MEXICO**

COORDINATES

PROJECT NUMBER **8T27**

SURFACE ELEVATION **N.R.** DATUM **Grade**

LOGGED BY **S. Richard** DATE DRILLED **4/13/93**

ELEVATION FEET	SOIL DESCRIPTION	STRATA	SAMPLE INFORMATION: Depth Feet	Sample Type	Sample ID	Inches Adv. / Inches Rec.	Penetrometer Blow Counts	PID/FID (ppm)	WELL CONSTRUCTION DETAIL & REMARKS
	CONTINUED FROM PREVIOUS PAGE								
	medium- to fine-grained sand (SC) and clay								
	Sandstone								
	Silty Sand (SM) - fine grained, moist		40						
			45						Hydrated bentonite seal
			50						Graded sand filter pack
	Wet at 52 feet BLS		55						2-inch PVC screen (0.010-inch slots)
			60						
	Total depth = 65 feet BLS		65						

APPENDIX B
MONITORING WELL MW-3
WELL DEVELOPMENT FORM

HALLIBURTON NUS
Environmental Corporation

WELL DEVELOPMENT
FIELD SHEET

DATE 4/13

CLIENT TRANSWESTERN JOB NUMBER 5T72 LOCATION EUNICE SITE NUMBER

WELL NUMBER: MW-3

WELL CASING SIZE AND TYPE: 2" PVC

WELL DEPTH: 60'

STATIC WATER LEVEL: 54'

ONE CASING VOLUME: 1 gal

PURGE METHOD: 15' 1 3/4 inch Bailer

START PURGE: 1400

END PURGE: 1500

TOTAL AMOUNT PURGED: (GALLONS) 20 gal

TOTAL AMOUNT PURGED: (WELL VOLUMES)
1 2 3 4 5 6

VOLUME #	TEMPERATURE	pH	SPECIFIC CONDUCTIVITY

LITHOLOGY OF SCREENED INTERVAL: fine grained sand

COMMENTS

PICKING UP 1/2 gal AT FIRST

LAST 10 gal 1/4 gal per trip

APPENDIX C
MONITORING WELL MW-1, MW-2, AND MW-3 GROUNDWATER SAMPLE LOG SHEETS

GROUND WATER
SAMPLE LOG SHEET

HALLIBURTON NUS
Environmental Corporation

☐ MONITORING WELL DATA
☐ DOMESTIC WELL DATA
☐ OTHER

PROJECT NAME JUNIOR C.S. PROJECT NUMBER 8T27

NUS SAMPLE NO. MW-1 SOURCE MONITOR WELL #1 (NORTH)

TOTAL WELL DEPTH: 62

WELL CASING SIZE & DEPTH: 2"

STATIC WATER LEVEL: 55.26

ONE CASING VOLUME: 1.4

START PURGE (HRS.): 1620

END PURGE (HRS.): 1800

TOTAL PURGE TIME (MIN.):

TOTAL AMOUNT PURGED (GAL.):

MONITOR READING:

PURGE METHOD: BAILER

SAMPLE METHOD: BAILER

DEPTH METHOD:

SAMPLE DATE & TIME: 1800

SAMPLED BY: S. RICHARD

SIGNATURE(S): S. Richard

PURGE DATA

VOLUME	PH	S.C.	TEMP.(°C)	TDS	COLOR & TURBIDITY
1	7.25	2.29	69.4		
2	7.28	2.40			
3	6.89	2.12	66.5		
4	6.82	2.37	66.3		
5	6.76	2.39	68.7		

SAMPLE DATA

PH	S.C.	TEMP.(°C)	TDS	COLOR & TURBIDITY
6.79	2.35	67.1		

TYPE OF SAMPLE

☒ LOW CONCENTRATION
☐ HIGH CONCENTRATION
☒ GRAB
☐ COMPOSITE
☐ GRAB - COMPOSITE

ANALYSIS:	PRESERVATIVE
VOA	
SEMI-VOL	
METALS	
TDS	

OBSERVATIONS/NOTES:

GROUND WATER
SAMPLE LOG SHEET

HALLIBURTON NUS
Environmental Corporation

☐ MONITORING WELL DATA
☐ DOMESTIC WELL DATA
☐ OTHER

PROJECT NAME Sunlight (Completion Study) PROJECT NUMBER 5727

NUS SAMPLE NO. MW-2 SOURCE Monitor Well #2 (South)

TOTAL WELL DEPTH:	PURGE DATA					
WELL CASING SIZE & DEPTH: 2" PVC / 62	VOLUME	PH	S.C.	TEMP.(°C)	TDS	COLOR & TURBIDITY
STATIC WATER LEVEL: 54.00	1	6.92	820	69.5		
ONE CASING VOLUME: 1.4	2	7.14	814	74.8		
START PURGE (HRS.): 1530	3	7.11	810	71.2		
END PURGE (HRS.): 1600	4	7.18	827	70.4		
TOTAL PURGE TIME (MIN.):	5	7.12	771	71.1		
TOTAL AMOUNT PURGED (GAL.):	6	7.16	720	70.5		
MONITOR READING:						
PURGE METHOD: BAILER						
SAMPLE METHOD: DISPOSABLE BAILER						
DEPTH METHOD:						

SAMPLE DATE & TIME: 1600	SAMPLE DATA				
	PH	S.C.	TEMP.(°C)	TDS	COLOR & TURBIDITY
SAMPLED BY: S. RICHARD	7.15	7.37	69.8		

SIGNATURE(S): S. Richard

TYPE OF SAMPLE
- ☒ LOW CONCENTRATION
- ☐ HIGH CONCENTRATION
- ☒ GRAB
- ☐ COMPOSITE
- ☐ GRAB - COMPOSITE

ANALYSIS:	PRESERVATIVE
VOA	
SEMI-VOL	
METALS	
TDS	

OBSERVATIONS/NOTES:

GROUND WATER
SAMPLE LOG SHEET

HALLIBURTON NUS
Environmental Corporation

☒ MONITORING WELL DATA
☐ DOMESTIC WELL DATA
☐ OTHER

PROJECT NAME Sunoco Compressor Station PROJECT NUMBER 9727

NUS SAMPLE NO. MW-3 SOURCE Monitor Well MW-3 (WEST)

TOTAL WELL DEPTH: 62.5

WELL CASING SIZE & DEPTH: 2" PVC / 62.5

STATIC WATER LEVEL: 55.06

ONE CASING VOLUME: 1.4

START PURGE (HRS.): 1815

END PURGE (HRS.): 1930

TOTAL PURGE TIME (MIN.):

TOTAL AMOUNT PURGED (GAL.):

MONITOR READING:

PURGE METHOD: Bailer

SAMPLE METHOD: Disposable Bailer

DEPTH METHOD:

SAMPLE DATE & TIME: 1930

SAMPLED BY: S. Richards

SIGNATURE(S):

TYPE OF SAMPLE
☐ LOW CONCENTRATION
☐ HIGH CONCENTRATION
☒ GRAB
☐ COMPOSITE
☐ GRAB - COMPOSITE

ANALYSIS:	PRESERVATIVE
VOA	
SEMI-VOL	
TDS	
METALS - TOT.	

PURGE DATA

VOLUME	PH	S.C.	TEMP. (°C)	TDS	COLOR & TURBIDITY
1	7.15	2.69	67.2		
2	7.20	2.71	65.0		
3	7.29	2.65	63.8		
4	7.24	2.49	63.0		
5	7.23	2.42	64.5		

SAMPLE DATA

PH	S.C.	TEMP. (°C)	TDS	COLOR & TURBIDITY
7.25	2.32	64.1		

OBSERVATIONS/NOTES:

APPENDIX D
ANALYTICAL LABORATORY REPORT

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REPORT OF LABORATORY ANALYSIS

May 11, 1993
Report No.: 00024435
Section A Page 1

LABORATORY ANALYSIS REPORT

CLIENT NAME: TRANSWESTERN PIPELINE COMPANY
ADDRESS: P.O. BOX 1717
ROSWELL, NM 88202-1717
ATTENTION: LARRY CAMPBELL

LSG CLIENT NO: 0734 0001
PACE PROJECT: H07340001
PACE CLIENT: 620562

SAMPLE ID: MW-2 (EUNICE PLANT)
LSG SAMPLE NO: H0234506
P.O. NO.: E52005

DATE SAMPLED: 16-APR-93
DATE RECEIVED: 19-APR-93
APPROVED BY: L Beyer

LN	TEST CODE	DETERMINATION	RESULT	UNIT
1	OVPPW	Volatiles in Water		
		1,1,1-Trichloroethane	< 5	ug/L
		1,1,2,2-Tetrachloroethane	< 5	ug/L
		1,1,2-Trichloroethane	< 5	ug/L
		1,1-Dichloroethane	< 5	ug/L
		1,1-Dichloroethene	< 5	ug/L
		1,2-Dichloroethane	< 5	ug/L
		1,2-Dichloroethene (total)	< 5	ug/L
		1,2-Dichloropropane	< 5	ug/L
		2-Chloroethylvinylether	< 10	ug/L
		Acrolein	< 100	ug/L
		Acrylonitrile	< 100	ug/L
		Benzene	3,800	ug/L
		Bromoform	< 5	ug/L
		Bromomethane	< 10	ug/L
		Carbon tetrachloride	< 5	ug/L
		Chlorobenzene	< 5	ug/L
		Chlorodibromomethane	< 5	ug/L
		Chloroethane	< 10	ug/L
		Chloroform	< 5	ug/L
		Chloromethane	< 10	ug/L
		Dichlorobromomethane	< 5	ug/L
		Ethylbenzene	1,000	ug/L
		Methylene chloride	< 5	ug/L
		Tetrachloroethene	< 5	ug/L
		Toluene	< 5	ug/L
		Trichloroethene	< 5	ug/L
		Vinyl chloride	< 10	ug/L
		cis-1,3-Dichloropropene	< 5	ug/L
		trans-1,3-Dichloropropene	< 5	ug/L

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Houston, TX 77058
TEL: 713-488-1810
FAX: 713-488-4661

REPORT OF LABORATORY ANALYSIS

LABORATORY ANALYSIS REPORT

CLIENT NAME: TRANSWESTERN PIPELINE COMPANY
SAMPLE ID: MW-2 (EUNICE PLANT)
LSG SAMPLE NO: H0234506

LN	TEST CODE	DETERMINATION	RESULT	UNITS
3	OSVPPW	Semi-volatile Extractables in Water		
		1,2,4-Trichlorobenzene	< 10	ug/L
		1,2-Dichlorobenzene	< 10	ug/L
		1,2-Diphenylhydrazine (as Azobenzene)	< 10	ug/L
		1,3-Dichlorobenzene	< 10	ug/L
		1,4-Dichlorobenzene	< 10	ug/L
		2,4,6-Trichlorophenol	< 10	ug/L
		2,4-Dichlorophenol	< 10	ug/L
		2,4-Dimethylphenol	18	ug/L
		2,4-Dinitrophenol	< 50	ug/L
		2,4-Dinitrotoluene	< 10	ug/L
		2,6-Dinitrotoluene	< 10	ug/L
		2-Chloronaphthalene	< 10	ug/L
		2-Chlorophenol	< 10	ug/L
		2-Nitrophenol	< 10	ug/L
		3,3'-Dichlorobenzidine	< 20	ug/L
		4,6-Dinitro-o-cresol	< 50	ug/L
		4-Bromophenylphenylether	< 10	ug/L
		4-Chlorophenylphenylether	< 10	ug/L
		4-Nitrophenol	< 50	ug/L
		Acenaphthene	< 10	ug/L
		Acenaphthylene	< 10	ug/L
		Anthracene	< 10	ug/L
		Benzidine	< 50	ug/L
		Benzo(a)anthracene	< 10	ug/L
		Benzo(a)pyrene	< 10	ug/L
		Benzo(b)fluoranthene	< 10	ug/L
		Benzo(g,h,i)perylene	< 10	ug/L
		Benzo(k)fluoranthene	< 10	ug/L
		Butylbenzylphthalate	< 10	ug/L
		Chrysene	< 10	ug/L
		Di-n-butylphthalate	< 10	ug/L
		Di-n-octylphthalate	< 10	ug/L
		Dibenzo(a,h)anthracene	< 10	ug/L
		Diethylphthalate	< 10	ug/L
		Dimethylphthalate	< 10	ug/L
		Fluoranthene	< 10	ug/L
		Fluorene	< 10	ug/L
		Hexachlorobenzene	< 10	ug/L

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LABORATORY ANALYSIS REPORT

CLIENT NAME: TRANSWESTERN PIPELINE COMPANY
SAMPLE ID: MW-2 (EUNICE PLANT)
LSG SAMPLE NO: H0234506

LN	TEST CODE	DETERMINATION	RESULT	UNITS
		Hexachlorobutadiene	< 10	ug/L
		Hexachlorocyclopentadiene	< 10	ug/L
		Hexachloroethane	< 10	ug/L
		Indeno(1,2,3-cd)pyrene	< 10	ug/L
		Isophorone	< 10	ug/L
		N-Nitrosodi-n-propylamine	< 10	ug/L
		N-Nitrosodimethylamine	< 10	ug/L
		N-Nitrosodiphenylamine	< 10	ug/L
		Naphthalene	14	ug/L
		Nitrobenzene	< 10	ug/L
		Pentachlorophenol	< 50	ug/L
		Phenanthrene	< 10	ug/L
		Phenol	< 10	ug/L
		Pyrene	< 10	ug/L
		bis(2-Chloroethoxy)methane	< 10	ug/L
		bis(2-Chloroethyl)ether	< 10	ug/L
		bis(2-Chloroisopropyl)ether	< 10	ug/L
		bis(2-Ethylhexyl)phthalate	< 10	ug/L
		p-Chloro-m-cresol	< 10	ug/L
5	I590	Solids, Dissolved at 180C	6,200	mg/L
6	AASA	Arsenic, Total (As)	0.040	mg/L
7	ASEA	Selenium, Total (Se)	< 0.003	mg/L
8	ABAW	Barium, Total (Ba)	1.6	mg/L
9	ACDW	Cadmium, Total (Cd)	< 0.005	mg/L
10	ACRW	Chromium, Total (Cr)	0.03	mg/L
11	APBW	Lead, Total (Pb)	< 0.05	mg/L
12	AHGW	Mercury, Total (Hg)	< 0.0002	mg/L
13	AAGW	Silver, Total (Ag)	< 0.01	mg/L

COMMENTS:

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Houston, TX 77058
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REPORT OF LABORATORY ANALYSIS

May 11, 1993
Report No.: 00024435
Section A Page 4

LABORATORY ANALYSIS REPORT

CLIENT NAME: TRANSWESTERN PIPELINE COMPANY
ADDRESS: P.O. BOX 1717
ROSWELL, NM 88202-1717
ATTENTION: LARRY CAMPBELL

LSG CLIENT NO: 0734 0001
PACE PROJECT: H07340001
PACE CLIENT: 620562

SAMPLE ID: MW-1 (EUNICE PLANT)
LSG SAMPLE NO: H0234507
P.O. NO.: E52005

DATE SAMPLED: 16-APR-93
DATE RECEIVED: 19-APR-93
APPROVED BY: L Beyer

LN	TEST CODE	DETERMINATION	RESULT	UNITS
1	OVPPW	Volatiles in Water		
		1,1,1-Trichloroethane	< 5	ug/L
		1,1,2,2-Tetrachloroethane	< 5	ug/L
		1,1,2-Trichloroethane	< 5	ug/L
		1,1-Dichloroethane	< 5	ug/L
		1,1-Dichloroethene	< 5	ug/L
		1,2-Dichloroethane	< 5	ug/L
		1,2-Dichloroethene (total)	< 5	ug/L
		1,2-Dichloropropane	< 5	ug/L
		2-Chloroethylvinylether	< 10	ug/L
		Acrolein	< 100	ug/L
		Acrylonitrile	< 100	ug/L
		Benzene	< 5	ug/L
		Bromoform	< 5	ug/L
		Bromomethane	< 10	ug/L
		Carbon tetrachloride	< 5	ug/L
		Chlorobenzene	< 5	ug/L
		Chlorodibromomethane	< 5	ug/L
		Chloroethane	< 10	ug/L
		Chloroform	< 5	ug/L
		Chloromethane	< 10	ug/L
		Dichlorobromomethane	< 5	ug/L
		Ethylbenzene	< 5	ug/L
		Methylene chloride	< 5	ug/L
		Tetrachloroethene	< 5	ug/L
		Toluene	< 5	ug/L
		Trichloroethene	< 5	ug/L
		Vinyl chloride	< 10	ug/L
		cis-1,3-Dichloropropene	< 5	ug/L
		trans-1,3-Dichloropropene	< 5	ug/L
3	OSVPPW	Semi-volatile Extractables in Water		
		1,2,4-Trichlorobenzene	< 10	ug/L
		1,2-Dichlorobenzene	< 10	ug/L
		1,2-Diphenylhydrazine (as Azobenzene)	< 10	ug/L

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LABORATORY ANALYSIS REPORT

CLIENT NAME: TRANSWESTERN PIPELINE COMPANY
SAMPLE ID: MW-1 (EUNICE PLANT)
LSG SAMPLE NO: H0234507

LN	TEST CODE	DETERMINATION	RESULT	UNITS
		1,3-Dichlorobenzene	< 10	ug/L
		1,4-Dichlorobenzene	< 10	ug/L
		2,4,6-Trichlorophenol	< 10	ug/L
		2,4-Dichlorophenol	< 10	ug/L
		2,4-Dimethylphenol	< 10	ug/L
		2,4-Dinitrophenol	< 50	ug/L
		2,4-Dinitrotoluene	< 10	ug/L
		2,6-Dinitrotoluene	< 10	ug/L
		2-Chloronaphthalene	< 10	ug/L
		2-Chlorophenol	< 10	ug/L
		2-Nitrophenol	< 10	ug/L
		3,3'-Dichlorobenzidine	< 20	ug/L
		4,6-Dinitro-o-cresol	< 50	ug/L
		4-Bromophenylphenylether	< 10	ug/L
		4-Chlorophenylphenylether	< 10	ug/L
		4-Nitrophenol	< 50	ug/L
		Acenaphthene	< 10	ug/L
		Acenaphthylene	< 10	ug/L
		Anthracene	< 10	ug/L
		Benzidine	< 50	ug/L
		Benzo(a)anthracene	< 10	ug/L
		Benzo(a)pyrene	< 10	ug/L
		Benzo(b)fluoranthene	< 10	ug/L
		Benzo(g,h,i)perylene	< 10	ug/L
		Benzo(k)fluoranthene	< 10	ug/L
		Butylbenzylphthalate	< 10	ug/L
		Chrysene	< 10	ug/L
		Di-n-butylphthalate	< 10	ug/L
		Di-n-octylphthalate	< 10	ug/L
		Dibenzo(a,h)anthracene	< 10	ug/L
		Diethylphthalate	< 10	ug/L
		Dimethylphthalate	< 10	ug/L
		Fluoranthene	< 10	ug/L
		Fluorene	< 10	ug/L
		Hexachlorobenzene	< 10	ug/L
		Hexachlorobutadiene	< 10	ug/L
		Hexachlorocyclopentadiene	< 10	ug/L
		Hexachloroethane	< 10	ug/L
		Indeno(1,2,3-cd)pyrene	< 10	ug/L

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REPORT OF LABORATORY ANALYSIS

LABORATORY ANALYSIS REPORT

CLIENT NAME: TRANSWESTERN PIPELINE COMPANY
SAMPLE ID: MW-1 (EUNICE PLANT)
LSG SAMPLE NO: H0234507

LN	TEST CODE	DETERMINATION	RESULT	UNITS
		Isophorone	< 10	ug/L
		N-Nitrosodi-n-propylamine	< 10	ug/L
		N-Nitrosodimethylamine	< 10	ug/L
		N-Nitrosodiphenylamine	< 10	ug/L
		Naphthalene	< 10	ug/L
		Nitrobenzene	< 10	ug/L
		Pentachlorophenol	< 50	ug/L
		Phenanthrene	< 10	ug/L
		Phenol	< 10	ug/L
		Pyrene	< 10	ug/L
		bis(2-Chloroethoxy)methane	< 10	ug/L
		bis(2-Chloroethyl)ether	< 10	ug/L
		bis(2-Chloroisopropyl)ether	< 10	ug/L
		bis(2-Ethylhexyl)phthalate	< 10	ug/L
		p-Chloro-m-cresol	< 10	ug/L
5	1590	Solids, Dissolved at 180C	1,700	mg/L
6	AASA	Arsenic, Total (As)	0.078	mg/L
7	ASEA	Selenium, Total (Se)	< 0.003	mg/L
8	ABAW	Barium, Total (Ba)	1.3	mg/L
9	ACDW	Cadmium, Total (Cd)	< 0.005	mg/L
10	ACRW	Chromium, Total (Cr)	0.03	mg/L
11	APBW	Lead, Total (Pb)	< 0.05	mg/L
12	AHGW	Mercury, Total (Hg)	< 0.0002	mg/L
13	AAGW	Silver, Total (Ag)	< 0.01	mg/L

COMMENTS:

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Houston, TX 77058
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REPORT OF LABORATORY ANALYSIS

LABORATORY ANALYSIS REPORT

CLIENT NAME: TRANSWESTERN PIPELINE COMPANY
ADDRESS: P.O. BOX 1717
ROSWELL, NM 88202-1717
ATTENTION: LARRY CAMPBELL

LSG CLIENT NO: 0734 0001
PACE PROJECT: H07340001
PACE CLIENT: 620562

SAMPLE ID: MW-3 (EUNICE PLANT)
LSG SAMPLE NO: H0234508
P.O. NO.: E52005

DATE SAMPLED: 16-APR-93
DATE RECEIVED: 19-APR-93
APPROVED BY: L Beyer

LN	TEST CODE	DETERMINATION	RESULT	UNITS
1	OVPPW	Volatiles in Water		
		1,1,1-Trichloroethane	< 5	ug/L
		1,1,2,2-Tetrachloroethane	< 5	ug/L
		1,1,2-Trichloroethane	< 5	ug/L
		1,1-Dichloroethane	< 5	ug/L
		1,1-Dichloroethene	< 5	ug/L
		1,2-Dichloroethane	< 5	ug/L
		1,2-Dichloroethene (total)	< 5	ug/L
		1,2-Dichloropropane	< 5	ug/L
		2-Chloroethylvinylether	< 10	ug/L
		Acrolein	< 100	ug/L
		Acrylonitrile	< 100	ug/L
		Benzene	2,000	ug/L
		Bromoform	< 5	ug/L
		Bromomethane	< 10	ug/L
		Carbon tetrachloride	< 5	ug/L
		Chlorobenzene	< 5	ug/L
		Chlorodibromomethane	< 5	ug/L
		Chloroethane	< 10	ug/L
		Chloroform	< 5	ug/L
		Chloromethane	< 10	ug/L
		Dichlorobromomethane	< 5	ug/L
		Ethylbenzene	640	ug/L
		Methylene chloride	< 5	ug/L
		Tetrachloroethene	< 5	ug/L
		Toluene	1,700	ug/L
		Trichloroethene	< 5	ug/L
		Vinyl chloride	< 10	ug/L
		cis-1,3-Dichloropropene	< 5	ug/L
		trans-1,3-Dichloropropene	< 5	ug/L
3	OSVPPW	Semi-volatile Extractables in Water		
		1,2,4-Trichlorobenzene	< 40	ug/L
		1,2-Dichlorobenzene	< 40	ug/L
		1,2-Diphenylhydrazine (as Azobenzene)	< 40	ug/L

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LABORATORY ANALYSIS REPORT

CLIENT NAME: TRANSWESTERN PIPELINE COMPANY
SAMPLE ID: MW-3 (EUNICE PLANT)
LSG SAMPLE NO: H0234508

LN	TEST CODE	DETERMINATION	RESULT	UNITS
		1,3-Dichlorobenzene	< 40	ug/L
		1,4-Dichlorobenzene	< 40	ug/L
		2,4,6-Trichlorophenol	< 40	ug/L
		2,4-Dichlorophenol	< 40	ug/L
		2,4-Dimethylphenol	< 40	ug/L
		2,4-Dinitrophenol	< 200	ug/L
		2,4-Dinitrotoluene	< 40	ug/L
		2,6-Dinitrotoluene	< 40	ug/L
		2-Chloronaphthalene	< 40	ug/L
		2-Chlorophenol	< 40	ug/L
		2-Nitrophenol	< 40	ug/L
		3,3'-Dichlorobenzidine	< 80	ug/L
		4,6-Dinitro-o-cresol	< 200	ug/L
		4-Bromophenylphenylether	< 40	ug/L
		4-Chlorophenylphenylether	< 40	ug/L
		4-Nitrophenol	< 200	ug/L
		Acenaphthene	< 40	ug/L
		Acenaphthylene	< 40	ug/L
		Anthracene	< 40	ug/L
		Benzidine	< 200	ug/L
		Benzo(a)anthracene	< 40	ug/L
		Benzo(a)pyrene	< 40	ug/L
		Benzo(b)fluoranthene	< 40	ug/L
		Benzo(g,h,i)perylene	< 40	ug/L
		Benzo(k)fluoranthene	< 40	ug/L
		Butylbenzylphthalate	< 40	ug/L
		Chrysene	< 40	ug/L
		Di-n-butylphthalate	< 40	ug/L
		Di-n-octylphthalate	< 40	ug/L
		Dibenzo(a,h)anthracene	< 40	ug/L
		Diethylphthalate	< 40	ug/L
		Dimethylphthalate	< 40	ug/L
		Fluoranthene	< 40	ug/L
		Fluorene	< 40	ug/L
		Hexachlorobenzene	< 40	ug/L
		Hexachlorobutadiene	< 40	ug/L
		Hexachlorocyclopentadiene	< 40	ug/L
		Hexachloroethane	< 40	ug/L
		Indeno(1,2,3-cd)pyrene	< 40	ug/L

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LABORATORY ANALYSIS REPORT

CLIENT NAME: TRANSWESTERN PIPELINE COMPANY
SAMPLE ID: MW-3 (EUNICE PLANT)
LSG SAMPLE NO: H0234508

LN	TEST CODE	DETERMINATION	RESULT	UNITS
		Isophorone	< 40	ug/L
		N-Nitrosodi-n-propylamine	< 40	ug/L
		N-Nitrosodimethylamine	< 40	ug/L
		N-Nitrosodiphenylamine	< 40	ug/L
		Naphthalene	40	ug/L
		Nitrobenzene	< 40	ug/L
		Pentachlorophenol	< 200	ug/L
		Phenanthrene	< 40	ug/L
		Phenol	61	ug/L
		Pyrene	< 40	ug/L
		bis(2-Chloroethoxy)methane	< 40	ug/L
		bis(2-Chloroethyl)ether	< 40	ug/L
		bis(2-Chloroisopropyl)ether	< 40	ug/L
		bis(2-Ethylhexyl)phthalate	< 40	ug/L
		p-Chloro-m-cresol	< 40	ug/L
5	1590	Solids, Dissolved at 180C	2,200	mg/L
6	AASA	Arsenic, Total (As)	0.027	mg/L
7	ASEA	Selenium, Total (Se)	< 0.003	mg/L
8	ABAW	Barium, Total (Ba)	2.2	mg/L
9	ACDW	Cadmium, Total (Cd)	< 0.005	mg/L
10	ACRW	Chromium, Total (Cr)	0.01	mg/L
11	APBW	Lead, Total (Pb)	< 0.05	mg/L
12	AHGW	Mercury, Total (Hg)	< 0.0002	mg/L
13	AAGW	Silver, Total (Ag)	< 0.01	mg/L

COMMENTS: BNA: The detection limits were elevated due to the dilution required because of the high concentration of non-target analytes.

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REPORT OF LABORATORY ANALYSIS

May 11, 1993
Report No.: 00024435
Section B Page 1

QUALITY CONTROL REPORT
SUPPLEMENTAL INFORMATION

			SAMPLE PREPARATION			SAMPLE ANALYSIS				
LN	TEST CODE	PREP BATCH	LR-METHOD	DATE/TIME	ANALYST	LR-METHOD	DATE/TIME	ANALYST	ANLS BATCH	INSTRUMENT
SAMPLE ID: MW-2 (EUNICE PLANT)							LSG SAMPLE NO: H0234506			
1	OVPPW	30536	NA			19-8240	26-APR-93 1751	JBP	30431	GCMSR
3	OSVPPW	30375	19-3520	20-APR-93 0800	RE	19-8270	27-APR-93 2021	GMW	30304	GCMSP
5	I590	30399	NA			02-160.1	19-APR-93 2300	DPP	0	0010BA
6	AASA	30387	02-206.2	20-APR-93 0910	SAO	02-206.2	20-APR-93 1518	CMG	0	405MET
7	ASEA	30387	02-270.2			02-270.2	20-APR-93 1720	CMG	0	405MET
8	ABAW	30386	02-4.1.3	20-APR-93 0900	SAO	02-200.7	20-APR-93 1332	JVR	0	400MET
9	ACDW	30386	02-4.1.3			02-200.7	20-APR-93 1332	JVR	0	400MET
10	ACRW	30386	02-4.1.3			02-200.7	20-APR-93 1332	JVR	0	400MET
11	APBW	30386	02-4.1.3			02-200.7	20-APR-93 1332	JVR	0	400MET
12	AHGW	30392	NA			02-245.1	20-APR-93 1230	GSR	0	124WAT
13	AAGW	30387	02-206.2			02-272.1	20-APR-93 1717	CMG	0	300MET

LR Method Literature Reference
02 EPA-Methods for Chemical Analysis of Water & Wastes, 1984.
19 EPA-Test Methods for Evaluating Solid Waste, 3rd ed, Nov. 1986

SAMPLE ID: MW-1 (EUNICE PLANT)							LSG SAMPLE NO: H0234507			
1	OVPPW	30492	NA			19-8240	23-APR-93 1900	EHM	30431	GCMSQ
3	OSVPPW	30375	19-3520	20-APR-93 0800	RE	19-8270	27-APR-93 2108	GMW	30304	GCMSP
5	I590	30399	NA			02-160.1	19-APR-93 2300	DPP	0	0010BA
6	AASA	30387	02-206.2	20-APR-93 0910	SAO	02-206.2	20-APR-93 1518	CMG	0	405MET
7	ASEA	30387	02-270.2			02-270.2	20-APR-93 1720	CMG	0	405MET
8	ABAW	30386	02-4.1.3	20-APR-93 0900	SAO	02-200.7	20-APR-93 1332	JVR	0	400MET
9	ACDW	30386	02-4.1.3			02-200.7	20-APR-93 1332	JVR	0	400MET
10	ACRW	30386	02-4.1.3			02-200.7	20-APR-93 1332	JVR	0	400MET
11	APBW	30386	02-4.1.3			02-200.7	20-APR-93 1332	JVR	0	400MET
12	AHGW	30392	NA			02-245.1	20-APR-93 1230	GSR	0	124WAT
13	AAGW	30387	02-206.2			02-272.1	20-APR-93 1717	CMG	0	300MET

LR Method Literature Reference
02 EPA-Methods for Chemical Analysis of Water & Wastes, 1984.
19 EPA-Test Methods for Evaluating Solid Waste, 3rd ed, Nov. 1986

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QUALITY CONTROL REPORT
SUPPLEMENTAL INFORMATION

		SAMPLE PREPARATION				SAMPLE ANALYSIS				
LN	TEST CODE	PREP BATCH	LR-METHOD	DATE/TIME	ANALYST	LR-METHOD	DATE/TIME	ANALYST	ANLS BATCH	INSTRUMENT
SAMPLE ID: MW-3 (EUNICE PLANT)						LSG SAMPLE NO: H0234508				
1	OVPPW	30536	NA			19-8240	26-APR-93 1820	JBP	30431	GCMSR
3	OSVPPW	30375	19-3520	20-APR-93 0800	RE	19-8270	28-APR-93 2041	GMW	30304	GCMSP
5	1590	30399	NA			02-160.1	19-APR-93 2300	DPP	0	0010BA
6	AASA	30387	02-206.2	20-APR-93 0910	SAO	02-206.2	20-APR-93 1518	CMG	0	405MET
7	ASEA	30387	02-270.2			02-270.2	20-APR-93 1720	CMG	0	405MET
8	ABAW	30386	02-4.1.3	20-APR-93 0900	SAO	02-200.7	20-APR-93 1332	JVR	0	400MET
9	ACDW	30386	02-4.1.3			02-200.7	20-APR-93 1332	JVR	0	400MET
10	ACRW	30386	02-4.1.3			02-200.7	20-APR-93 1332	JVR	0	400MET
11	APBW	30386	02-4.1.3			02-200.7	20-APR-93 1332	JVR	0	400MET
12	AHGW	30392	NA			02-245.1	20-APR-93 1230	GSR	0	124WAT
13	AAGW	30387	02-206.2			02-272.1	20-APR-93 1717	CMG	0	300MET

LR Method Literature Reference
02 EPA-Methods for Chemical Analysis of Water & Wastes, 1984.
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QUALITY CONTROL REPORT
SURROGATE STANDARD RECOVERY

LN	TEST CODE	SURROGATE COMPOUND	PERCENT RECOVERY	ACCEPTANCE LIMITS	REF LN
SAMPLE ID:	MW-2 (EUNICE PLANT)		LSG SAMPLE NO:	H0234506	
2	$VOAW	GC/MS Volatiles Surrogates			1
		1,2-Dichloroethane-d4	103	-	
		4-Bromofluorobenzene	98	-	
		Toluene-d8	96	-	
4	$BNAW	GC/MS BNA Surrogates			3
		2,4,6-Tribromophenol	99	-	
		2-Fluorobiphenyl	76	-	
		2-Fluorophenol	48	-	
		Nitrobenzene-d5	82	-	
		Phenol-d5	29	-	
		p-Terphenyl-d14	88	-	
SAMPLE ID:	MW-1 (EUNICE PLANT)		LSG SAMPLE NO:	H0234507	
2	$VOAW	GC/MS Volatiles Surrogates			1
		1,2-Dichloroethane-d4	94	-	
		4-Bromofluorobenzene	97	-	
		Toluene-d8	100	-	
4	$BNAW	GC/MS BNA Surrogates			3
		2,4,6-Tribromophenol	95	-	
		2-Fluorobiphenyl	76	-	
		2-Fluorophenol	45	-	
		Nitrobenzene-d5	76	-	
		Phenol-d5	28	-	
		p-Terphenyl-d14	91	-	
SAMPLE ID:	MW-3 (EUNICE PLANT)		LSG SAMPLE NO:	H0234508	
2	$VOAW	GC/MS Volatiles Surrogates			1
		1,2-Dichloroethane-d4	109	-	
		4-Bromofluorobenzene	99	-	
		Toluene-d8	99	-	
4	$BNAW	GC/MS BNA Surrogates			3
		2,4,6-Tribromophenol	78	-	
		2-Fluorobiphenyl	60	-	
		2-Fluorophenol	31	-	
		Nitrobenzene-d5	82	-	
		Phenol-d5	20	-	
		p-Terphenyl-d14	62	-	

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QUALITY CONTROL REPORT
LABORATORY CONTROL SAMPLE RECOVERY

TEST CODE	DETERMINATION	PERCENT RECOVERY	ACCEPTANCE LIMITS
BATCH: 30386	SAMPLE ID: Lab Control Sample		LSG SAMPLE NO: H0234997
ABAW	Barium, Total (Ba)	100.0	-
ACDW	Cadmium, Total (Cd)	98.0	-
ACRW	Chromium, Total (Cr)	100.0	-
APBW	Lead, Total (Pb)	110.0	-
BATCH: 30387	SAMPLE ID: Lab Control Sample		LSG SAMPLE NO: H0234999
AAGW	Silver, Total (Ag)	100.0	-
AASA	Arsenic, Total (As)	85.0	-
ASEA	Selenium, Total (Se)	90.0	-
BATCH: 30392	SAMPLE ID: Lab Control Sample		LSG SAMPLE NO: H0235007
AHGW	Mercury, Total (Hg)	105.0	-

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QUALITY CONTROL REPORT
METHOD BLANK DATA

BATCH: 30375 SAMPLE ID: Method Blank LSG SAMPLE NO: H0234982

TEST CODE	Determination	RESULT	UNITS
OSVPPW	Semi-volatile Extractables in Water		
	1,2,4-Trichlorobenzene	< 10	ug/L
	1,2-Dichlorobenzene	< 10	ug/L
	1,2-Diphenylhydrazine (as Azobenzene)	< 10	ug/L
	1,3-Dichlorobenzene	< 10	ug/L
	1,4-Dichlorobenzene	< 10	ug/L
	2,4,6-Trichlorophenol	< 10	ug/L
	2,4-Dichlorophenol	< 10	ug/L
	2,4-Dimethylphenol	< 10	ug/L
	2,4-Dinitrophenol	< 50	ug/L
	2,4-Dinitrotoluene	< 10	ug/L
	2,6-Dinitrotoluene	< 10	ug/L
	2-Chloronaphthalene	< 10	ug/L
	2-Chlorophenol	< 10	ug/L
	2-Nitrophenol	< 10	ug/L
	3,3'-Dichlorobenzidine	< 20	ug/L
	4,6-Dinitro-o-cresol	< 50	ug/L
	4-Bromophenylphenylether	< 10	ug/L
	4-Chlorophenylphenylether	< 10	ug/L
	4-Nitrophenol	< 50	ug/L
	Acenaphthene	< 10	ug/L
	Acenaphthylene	< 10	ug/L
	Anthracene	< 10	ug/L
	Benzidine	< 50	ug/L
	Benzo(a)anthracene	< 10	ug/L
	Benzo(a)pyrene	< 10	ug/L
	Benzo(b)fluoranthene	< 10	ug/L
	Benzo(g,h,i)perylene	< 10	ug/L
	Benzo(k)fluoranthene	< 10	ug/L
	Butylbenzylphthalate	< 10	ug/L
	Chrysene	< 10	ug/L
	Di-n-butylphthalate	< 10	ug/L
	Di-n-octylphthalate	< 10	ug/L
	Dibenzo(a,h)anthracene	< 10	ug/L
	Diethylphthalate	< 10	ug/L
	Dimethylphthalate	< 10	ug/L
	Fluoranthene	< 10	ug/L
	Fluorene	< 10	ug/L
	Hexachlorobenzene	< 10	ug/L
	Hexachlorobutadiene	< 10	ug/L

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QUALITY CONTROL REPORT
METHOD BLANK DATA

TEST CODE	Determination	RESULT	UNITS
	Hexachlorocyclopentadiene	< 10	ug/L
	Hexachloroethane	< 10	ug/L
	Indeno(1,2,3-cd)pyrene	< 10	ug/L
	Isophorone	< 10	ug/L
	N-Nitrosodi-n-propylamine	< 10	ug/L
	N-Nitrosodimethylamine	< 10	ug/L
	N-Nitrosodiphenylamine	< 10	ug/L
	Naphthalene	< 10	ug/L
	Nitrobenzene	< 10	ug/L
	Pentachlorophenol	< 50	ug/L
	Phenanthrene	< 10	ug/L
	Phenol	< 10	ug/L
	Pyrene	< 10	ug/L
	bis(2-Chloroethoxy)methane	< 10	ug/L
	bis(2-Chloroethyl)ether	< 10	ug/L
	bis(2-Chloroisopropyl)ether	< 10	ug/L
	bis(2-Ethylhexyl)phthalate	< 10	ug/L
	p-Chloro-m-cresol	< 10	ug/L
BATCH: 30386	SAMPLE ID: Method Blank	LSG SAMPLE NO:	H0234998
ABAW	Barium, Total (Ba)	< 0.1	mg/L
ACDW	Cadmium, Total (Cd)	< 0.005	mg/L
ACRW	Chromium, Total (Cr)	< 0.01	mg/L
APBW	Lead, Total (Pb)	< 0.05	mg/L
BATCH: 30387	SAMPLE ID: Method Blank	LSG SAMPLE NO:	H0235000
AAGW	Silver, Total (Ag)	< 0.01	mg/L
AASA	Arsenic, Total (As)	< 0.003	mg/L
ASEA	Selenium, Total (Se)	< 0.003	mg/L
BATCH: 30399	SAMPLE ID: Method Blank	LSG SAMPLE NO:	H0235017
I590	Solids, Dissolved at 180C	< 10	mg/L
BATCH: 30492	SAMPLE ID: Method Blank	LSG SAMPLE NO:	H0236156
OVPPW	Volatiles in Water		
	1,1,1-Trichloroethane	< 5	ug/L
	1,1,2,2-Tetrachloroethane	< 5	ug/L
	1,1,2-Trichloroethane	< 5	ug/L
	1,1-Dichloroethane	< 5	ug/L
	1,1-Dichloroethene	< 5	ug/L

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QUALITY CONTROL REPORT
METHOD BLANK DATA

TEST CODE	Determination	RESULT	UNITS
	1,2-Dichloroethane	< 5	ug/L
	1,2-Dichloroethene (total)	< 5	ug/L
	1,2-Dichloropropane	< 5	ug/L
	2-Chloroethylvinylether	< 10	ug/L
	Acrolein	< 100	ug/L
	Acrylonitrile	< 100	ug/L
	Benzene	< 5	ug/L
	Bromoform	< 5	ug/L
	Bromomethane	< 10	ug/L
	Carbon tetrachloride	< 5	ug/L
	Chlorobenzene	< 5	ug/L
	Chlorodibromomethane	< 5	ug/L
	Chloroethane	< 10	ug/L
	Chloroform	< 5	ug/L
	Chloromethane	< 10	ug/L
	Dichlorobromomethane	< 5	ug/L
	Ethylbenzene	< 5	ug/L
	Methylene chloride	< 5	ug/L
	Tetrachloroethene	< 5	ug/L
	Toluene	< 5	ug/L
	Trichloroethene	< 5	ug/L
	Vinyl chloride	< 10	ug/L
	cis-1,3-Dichloropropene	< 5	ug/L
	trans-1,3-Dichloropropene	< 5	ug/L
BATCH: 30536	SAMPLE ID: Method Blank	LSG SAMPLE NO:	H0236217
OVPPW	Volatiles in Water		
	cis-1,3-Dichloropropene	< 5	ug/L
	trans-1,3-Dichloropropene	< 5	ug/L
	1,1,1-Trichloroethane	< 5	ug/L
	1,1,2,2-Tetrachloroethane	< 5	ug/L
	1,1,2-Trichloroethane	< 5	ug/L
	1,1-Dichloroethane	< 5	ug/L
	1,1-Dichloroethene	< 5	ug/L
	1,2-Dichloroethane	< 5	ug/L
	1,2-Dichloroethene (total)	< 5	ug/L
	1,2-Dichloropropane	< 5	ug/L
	2-Chloroethylvinylether	< 10	ug/L
	Acrolein	< 100	ug/L
	Acrylonitrile	< 100	ug/L
	Benzene	< 5	ug/L
	Bromoform	< 5	ug/L
	Bromomethane	< 10	ug/L

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METHOD BLANK DATA

TEST CODE	Determination	RESULT	UNITS
	Carbon tetrachloride	< 5	ug/L
	Chlorobenzene	< 5	ug/L
	Chlorodibromomethane	< 5	ug/L
	Chloroethane	< 10	ug/L
	Chloroform	< 5	ug/L
	Chloromethane	< 10	ug/L
	Dichlorobromomethane	< 5	ug/L
	Ethylbenzene	< 5	ug/L
	Methylene chloride	< 5	ug/L
	Tetrachloroethene	< 5	ug/L
	Toluene	< 5	ug/L
	Trichloroethene	< 5	ug/L
	Vinyl chloride	< 10	ug/L

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QUALITY CONTROL REPORT
DUPLICATE AND MATRIX SPIKE DATA

BATCH: 30387 LSG SAMPLE NO: H0234506

TEST	DETERMINATION	ORIGINAL RESULT	DUPLICATE RESULT	UNITS	RANGE / RPD	UNITS	MS RESULT	MS % RCVRY
AASA	Arsenic, Total (As)	0.040	0.039	mg/L	2.5	mg/L	0.064	120.0
ASEA	Selenium, Total (Se)	< 0.003	< 0.003	mg/L	---	mg/L	0.007 *	35.0

* Recovery of the spike indicates the presence of a matrix interference.
This should be considered in evaluating the data.

BATCH: 30386 LSG SAMPLE NO: H0234506

TEST	DETERMINATION	ORIGINAL RESULT	DUPLICATE RESULT	UNITS	RANGE / RPD	UNITS	MS RESULT	MS % RCVRY
ABAW	Barium, Total (Ba)	1.6	1.6	mg/L	0.0	mg/L	3.5	95.0
ACDW	Cadmium, Total (Cd)	< 0.005	< 0.005	mg/L	---	mg/L	0.050	100.0
ACRW	Chromium, Total (Cr)	0.03	0.03	mg/L	0.0	mg/L	0.24	105.0
APBW	Lead, Total (Pb)	< 0.05	< 0.05	mg/L	---	mg/L	0.51	102.0

BATCH: 30387 LSG SAMPLE NO: H0234506

TEST	DETERMINATION	ORIGINAL RESULT	DUPLICATE RESULT	UNITS	RANGE / RPD	UNITS	MS RESULT	MS % RCVRY
AAGW	Silver, Total (Ag)	< 0.01	< 0.01	mg/L	---	mg/L	0.20	100.0

BATCH: 30392 LSG SAMPLE NO: H0234508

TEST	DETERMINATION	ORIGINAL RESULT	DUPLICATE RESULT	UNITS	RANGE / RPD	UNITS	MS RESULT	MS % RCVRY
AHGW	Mercury, Total (Hg)	< 0.0002	< 0.0002	mg/L	---	mg/L	0.0021	105.0

BATCH: 30399 LSG SAMPLE NO: H0234509

TEST	DETERMINATION	ORIGINAL RESULT	DUPLICATE RESULT	UNITS	RANGE / RPD	UNITS	MS RESULT	MS % RCVRY
I590	Solids, Dissolved at 180C	1,600	1,600	mg/L	0.0	mg/L		

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QUALITY CONTROL REPORT
MATRIX SPIKE AND MATRIX SPIKE DUPLICATE DATA

BATCH: PREP ANLS 30304 LSG SAMPLE NO: H0234304

TEST	DETERMINATION	MS RESULT	MSD RESULT	UNITS	RPD	MS PCT RECOVERY	MSD PCT RECOVERY
OSVPPW	1,2,4-Trichlorobenzene	91.7	90.6	ug/L	1.27	92	91
OSVPPW	1,4-Dichlorobenzene	86.1	84.8	ug/L	1.48	86	85
OSVPPW	2,4-Dinitrotoluene	99.7	92.0	ug/L	8.09	100	92
OSVPPW	2-Chlorophenol	182	177	ug/L	2.70	91	88
OSVPPW	4-Nitrophenol	171	166	ug/L	2.88	86	83
OSVPPW	Acenaphthene	86.7	84.1	ug/L	3.07	87	84
OSVPPW	N-Nitrosodi-n-propylamine	79.5	77.7	ug/L	2.25	79	78
OSVPPW	Pentachlorophenol	201	215	ug/L	7.09	100	108
OSVPPW	Phenol	149	148	ug/L	0.206	74	74
OSVPPW	Pyrene	90.0	96.6	ug/L	7.03	90	97
OSVPPW	p-Chloro-m-cresol	177	169	ug/L	4.68	89	85

BATCH: PREP ANLS 30431 LSG SAMPLE NO: H0234451

TEST	DETERMINATION	MS RESULT	MSD RESULT	UNITS	RPD	MS PCT RECOVERY	MSD PCT RECOVERY
OVPPW	1,1-Dichloroethene	49.4	51.1	ug/L	3.38	99	102
OVPPW	Benzene	50.4	49.4	ug/L	2.00	101	99
OVPPW	Chlorobenzene	49.6	50.7	ug/L	2.19	99	101
OVPPW	Toluene	48.7	50.2	ug/L	3.03	97	100
OVPPW	Trichloroethene	50.4	50.3	ug/L	0.199	101	101

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