

3R - 186

REPORTS

DATE:

1997



Certified Mail: #Z 295 387 297; #Z 295 387 296

February 27, 1998

Mr. William C. Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87504

RECEIVED

MAR 02 1998

Environmental Bureau
Oil Conservation Division

Re: 1997 Groundwater Annual Report

Dear Mr. Olson:

In accordance with reporting requirements, El Paso Field Services (EPFS) has enclosed annual updates for 57 groundwater impacted locations that were identified during our pit closure project of 1994/1995.

Of the 57 reports, EPFS hereby requests your approval for closure of 11 of these locations. The 11 reports for which EPFS requests closure, are in 2 separate binders entitled "Request for Closure".

After you have had an opportunity to review these updates, EPFS would like to schedule a meeting with you to discuss issues related to closure criteria for some of the more complex locations that are currently being addressed.

If you have any questions regarding this information, please call me at 505/599-2141. I will contact you within the next quarter to schedule a meeting.

Sincerely,

A handwritten signature in cursive script that reads 'Sandra D. Miller'.

Sandra D. Miller
Environmental Manager

xc: Mr. Bill Liesse, BLM w/o enclosures
Mr. Denny Foust, NMOCD - Aztec w/enclosures; **Certified Mail #Z 295 387 298; #Z 295 387 299**
Ms. Charmaine Tso, Navajo EPA w/enclosures; **Certified Mail #Z 295 387 292**

SAN JUAN BASIN PIT CLOSURES
San Juan Basin, New Mexico

El Paso Field Services Pit Project Groundwater Report
Annual Report

March 1998

Prepared For

El Paso Field Services
Farmington, New Mexico

Project 17520

PHILIP
ENVIRONMENTAL

EPFS GROUNDWATER PITS

1997 ANNUAL GROUNDWATER REPORT

HAMMOND #41 A
Meter/Line ID - 89894

SITE DETAILS

Legals - Twn: 27N Rng: 8W Sec: 25 Unit: O
NMOCD Hazard Ranking: 40 Land Type: FEDERAL
Operator: R & G DRILLING COMPANY

PREVIOUS ACTIVITIES

Site Assessment: Jun-94	Excavation: Jul-94 (250 cy)	Soil Boring: Jul-95
Geoprobe: Nov-96	Re-Excavation: Mar-97 (1,140 cy)	Monitor Well: May-97

1997 ACTIVITIES

Monitor Well Installation - One groundwater monitor well was installed in the center of the former pit.

Quarterly Groundwater Monitoring - Quarterly groundwater monitoring was initiated on 6/9/97. Groundwater analytical data are presented in Table 1.

Re-Excavation - The pit was re-excavated on 3/25/97.

CONCLUSIONS

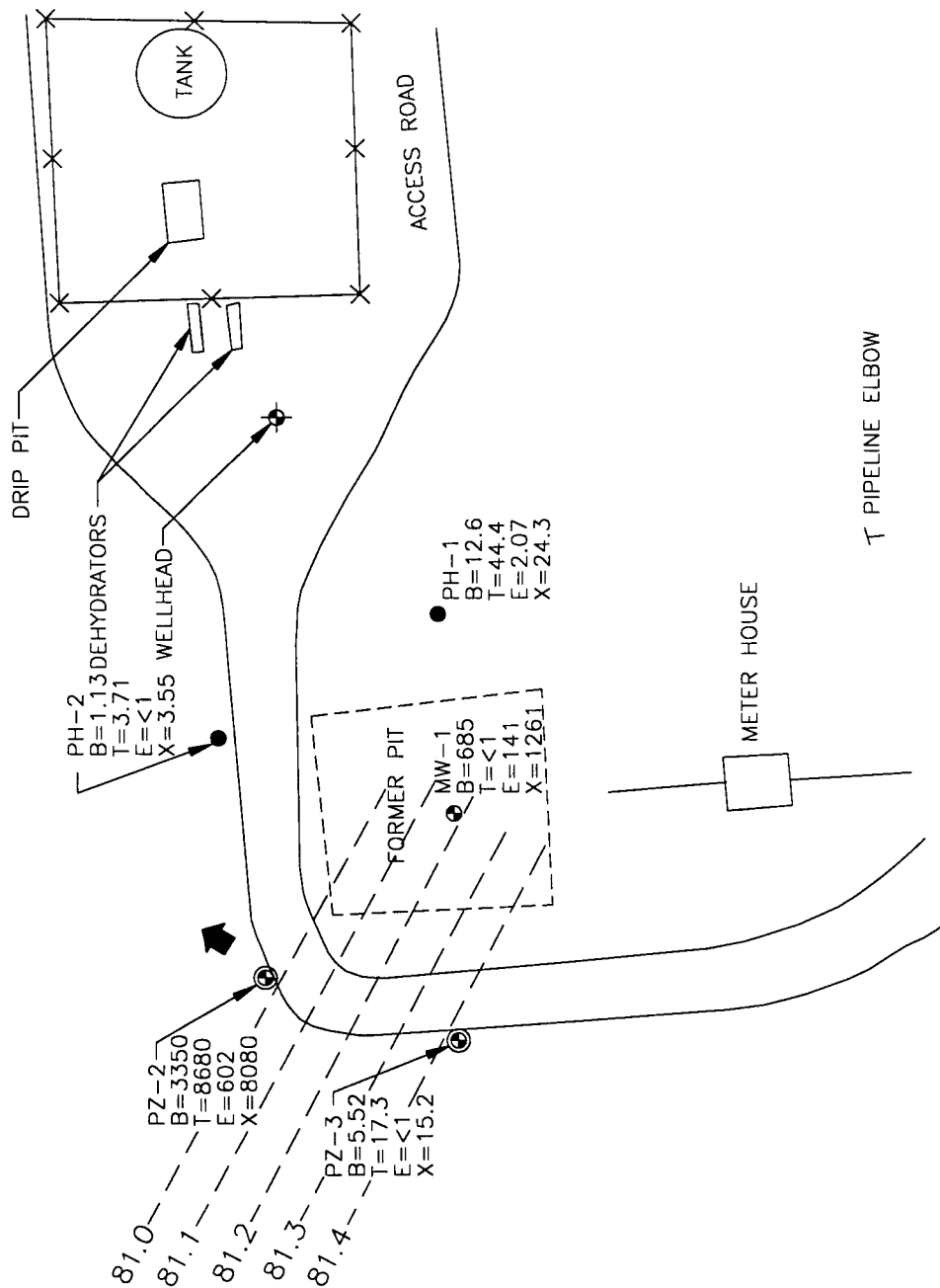
Based on groundwater levels collected from Geoprobe data, the groundwater flow trends to the northeast on this site, as presented in Figure 1. The pit was re-excavated to a depth of approximately 19 feet beneath ground surface. Approximately 1,140 cubic yards of soil were excavated and disposed of at Envirotech's landfarm. Following re-excavation, a groundwater monitoring well was installed in the center of the former pit, and quarterly sampling was initiated.

Four groundwater samples were collected cross-gradient and down-gradient using a Geoprobe. A down-gradient sample collected from PZ-2 was in excess of standards for benzene, toluene, and total xylenes. One cross-gradient sample was in excess of standards for benzene only at 12.6 ppb. Groundwater samples collected from MW-1 are in excess of standards for benzene, and total xylenes. Off-site work will be required to determine the downgradient extent of contaminants.

RECOMMENDATIONS

- Discontinue quarterly sampling, and initiate sampling on an annual basis.
- Obtain permission to conduct an off-site investigation.
- Collect groundwater sample further downgradient of MW-1. If no further migration has occurred, site may be candidate for risk based closure.

DWN:	TMM	DES:	CC
CHKD:	CC	APPD:	
DATE:	1/20/98	REV:	0



LEGEND

- ⊙ PZ-1 APPROXIMATE PIEZOMETER LOCATION AND NUMBER
- PH-1 APPROXIMATE PROBEHOLE LOCATION AND NUMBER
- ⊙ MW-1 APPROXIMATE MONITORING WELL LOCATION AND NUMBER

B BENZENE (ug\L)
T TOLUENE (ug\L)
E ETHYL BENZENE (ug\L)
X XYLENE (ug\L)

ug\L MICROGRAMS PER LITER

81.1 GROUNDWATER POTENTIOMETRIC SURFACE

➡ APPROXIMATE GROUNDWATER GRADIENT

NOT TO SCALE

TABLE 1

Sample #	Meter/ Line #	Site Name	Sample Date	MW #	Project	Benzene (PPB)	Toluene (PPB)	Ethyl Benzene (PPB)	Total Xylenes (PPB)	Total RTEX
970478	89894	Hammond #41A	5/21/97	1	Phase II Drilling - Initial	= 150	= 60.1	= 56.7	= 484	= 751
970544	89894	Hammond #41A	6/9/97	1	Sample 4 - 1st Qtr	= 190	= 12.3	= 36.9	= 181	= 420
970990	89894	Hammond #41A	9/17/97	1	Sample 4 - 2nd Qtr	= 1230	< 5	= 263	= 830	= 2323
971289	89894	Hammond #41A	12/9/97	1	Sample 4 - 3rd Qtr	= 685	< 1	= 141	= 261	= 1087

RECORD OF SUBSURFACE EXPLORATION

PHILIP ENVIRONMENTAL SERVICES INC.

4000 Monroe Road

Farmington, New Mexico 87401

(505) 326-2262 FAX (505) 326-2388

Borehole # BH-1
Well # MW-1
Page 1 of

Project Name EPFS GW PITS
Project Number 17520 Phase 6001
Project Location Hammond 41A 89894

Elevation
Borehole Location T27- R 8 - S25- Ltr 0
GWL Depth
Logged By CM CHANCE
Drilled By K Padilla
Date/Time Started 5/5/97 - 1000
Date/Time Completed 5/5/97 - 1100

Well Logged By CM CHANCE
Personnel On-Site D CHARLEY
Contractors On-Site
Client Personnel On-Site
Drilling Method 1/4 ID HSA
Air Monitoring Method PID

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM			Drilling Conditions & Blow Counts
							BZ	BH	S	
0										
5										
10										
15										
20										
25										
30										
35										
40										

Comments:

No samples collected. Backfill to GW. Will drill to 26' & set well.
Slight hydrocarbon odor on EWCI.

Geologist Signature

CM Chance

MONITORING WELL INSTALLATION RECORD

Philip Environmental Services, Inc.

4000 Monroe Rd.

Farmington, NM 87401

(505) 326-2262 FAX (505) 326-2388

Borehole # BH-1

Well # MW-1

Page 1 of 1

Project Name EPFS GW

Project Number 17520

Phase 6002

Site Location Hammond 4/A 89894

On-Site Geologist

CM CHANCE

Personnel On-Site

D CHARLEY

Contractors On-Site

Client Personnel On-Site

Elevation

Well Location T27S25 R8 LTR0

GWL Depth 16.3' 865

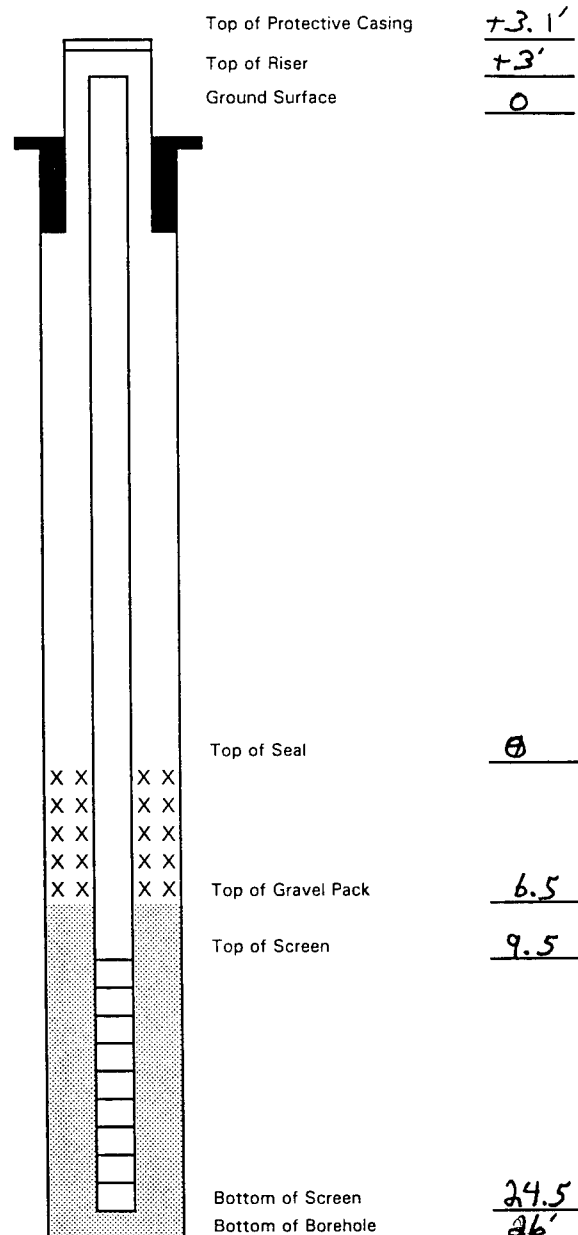
Installed By K Padilla

Date/Time Started 5/5/97-1100

Date/Time Completed 5/5/97-1220

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing	8" steel well vault	+3.1'
Bottom of Protective Casing		2.0'
Top of Permanent Borehole Casing		N/A
Bottom of Permanent Borehole Casing		N/A
Top of Concrete		N/A
Bottom of Concrete		N/A
Top of Grout	Type I/II Portland cement	N/A
Bottom of Grout	Powder Bentonite	N/A
Top of Well Riser	4" SCH 40 PVC	+3'
Bottom of Well Riser	FLUSH THREAD	9.5'
Top of Well Screen	4" SCH 40 PVC	9.5'
Bottom of Well Screen	0.01 SLOT FLUSH THREAD	24.5'
Top of Peltonite Seal	ENVIROPLUG	6.5'
Bottom of Peltonite Seal		9.5'
Top of Gravel Pack	10-20 SILICA SAND	9.5'
Bottom of Gravel Pack		24.5'
Top of Natural Cave-In		24.5'
Bottom of Natural Cave-In		26'
Top of Groundwater		16.3'
Total Depth of Borehole		26'



Comments: Bent. seal hydrated w/ 10 gal potable water. Hydrocarbon odor on FWLT

CM Chance

RE-EXCAVATION

FIELD PIT REMEDIATION/CLOSURE FORM/PHASE II

GENERAL

Meter: 88894 Location: Hammond #41-A

Coordinates: Letter: 0 Section 25 Township: 27 Range: 8

Or Latitude _____ Longitude _____

Date Started : 3-25-97 Area: 07 Run: 51

FIELD OBSERVATIONS

Sample Number(s): MK583

Sample Depth: 19' Feet

Final PID Reading 40 PPM PID Reading Depth 19' Feet
Yes No

Groundwater Encountered ☒ (1) ☐ (2) Approximate Depth 19' Feet

Final Dimensions: Length 55' Width 50' Depth 19'

CLOSURE

Remediation Method :

Excavation ☒ (1) Approx. Cubic Yards 1140

Onsite Bioremediation ☐ (2)

Backfill Pit Without Excavation ☐ (3)

Overburden Cubic Yards 424 CY

Soil Disposition:

Envirotech ☒ (1) ☐ (3) Tierra

Other Facility ☐ (2) Name: _____

Pit Closure Date: 3-28-97

Pit Closed By: Philip Enck

REMARKS

Remarks : we started digging overburdened soil at 12' dug to 19' it water pit appeared clean at water level soil was black after while soil look clean but had very HI PID

Reading Final Reading were N-well 52 PPM S-well 79 PPM W-well 28 PPM E-well 54 PPM Bottom 17 PPM composite 40 PPM used 1 1/2 gallon Hydrogen Peroxide 30%

Signature of Specialist: Morgan Killion

PROJECT NUMBER # 24324		PROJECT NAME Pit Closure Project		DATE: 3-26-97	
SAMPLERS: (Signature) <i>Morgan Killian</i>					
LAB ID	DATE	TIME	MATRIX	FIELD ID	
970228	3-26 TH	1130	soil	MK583	
TOTAL NUMBERS OF CONTAINERS					
SAMPLE TYPE					
TPH EPA 418.1 BTX EPA 8020 LAB PID SEQUENCE #					
REQUESTED ANALYSIS					
REMARKS					
CONTRACT LABORATORY P. O. NUMBER					

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
<i>Morgan Killian</i>	3-26-97 1920	<i>Franco Dean</i>	4-1-97 1200
RELINQUISHED BY: (Signature)	DATE/TIME	RELINQUISHED BY: (Signature)	DATE/TIME
			4-1-97 1200
REQUESTED TURNAROUND TIME:		RESULTS & INVOICES TO:	
☐ ROUTINE ☐ RUSH	CARRIER CO.	FIELD SERVICES LABORATORY EL PASO NATURAL GAS COMPANY P.O. BOX 4990 FARMINGTON, NEW MEXICO 87499	
BILL NO.:		505-599-2144 FAX: 505-599-2261	



4-15-97

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	Field ID MK583	Lab ID 970228
MTR CODE SITE NAME:	89894	Hammond #41-A
SAMPLE DATE TIME (Hrs):	3/26/97	1130
PROJECT:	PHASE III - Excavation <i>4-15-97</i>	
DATE OF TPH EXT. ANAL.:	3/31/97	3/31/97
DATE OF BTEX EXT. ANAL.:	4/7/97	4/7/97
TYPE DESCRIPTION:	VC	Brown sand

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	<0.5	MG/KG				
TOLUENE	<0.5	MG/KG				
ETHYL BENZENE	<0.5	MG/KG				
TOTAL XYLENES	<1.5	MG/KG				
TOTAL BTEX	<3	MG/KG				
TPH (418.1)	<10	MG/KG			2.46	28
HEADSPACE PID	40	PPM				
PERCENT SOLIDS	91.0	%				

-- TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 102 for this sample All QA/QC was acceptable.
ative:

DF = Dilution Factor Used

Approved By:

John L. Lach

INGVZPIT.XLS

Date:

4/9/97

QUALITY CONTROL REPORT
TPH by Modified 418.1 by Infrared

Date of Analysis: Mar 31, 1997

Sample ID: 970228-970230, 970249-970252

LABORATORY CONTROL SAMPLES: CALIBRATION CHECKS

SAMPLE IDENTIFICATION	SOURCE	TRUE VALUE (PPM)	FOUND (MG/KG)	%R	ACCEPTABLE RANGE 75-125 %R	
					YES	NO
INITIAL CALIBRATION VERIF. "B" Heavy Oil (Lot M3G9616)	HORIBA	100	108	108	X	

Narrative: Acceptable.

LABORATORY DUPLICATES:

SAMPLE NUMBER	TYPE	SAMPLE RESULT (S)MG/KG	DUPLICATE RESULT (D)MG/KG	RPD	ACCEPTABLE RANGE + / - 35%	
					YES	NO
970230	2nd Extract	<10	<10	0	X	

Narrative : Acceptable

LABORATORY SPIKES:

SAMPLE NUMBER	SPIKE ADDED (SA)MG/KG	SAMPLE RESULT (S)MG/KG	SPIKE SAMPLE RESULT (SR)MG/KG	%R	ACCEPTABLE RANGE 75-125 %R	
					YES	NO
970230	1245	<10	1180	95	X	

Narrative: Acceptable.

REFERENCE SOIL (Laboratory Control Sample):

SAMPLE ID	SOURCE	KNOWN VALUE (MG/KG)	SAMPLE RESULT FOUND (MG/KG)	MFG SPECIFIED RANGE	ACCEPTABLE	
					YES	NO
ERA TPH STANDARD #1 LOT # 91030	ENVIRONMENT RESOURCE ASS.	2920	3255	1900 - 3360	X	
ERA TPH STANDARD #2 w/i LOT # 91030	ENVIRONMENT RESOURCE ASS.	1150	1144	750 - 1320	X	

Narrative: Acceptable.

LABORATORY REAGENT BLANK:

SAMPLE ID	SOURCE	TPH LEVEL (MG/KG)	STATUS
Freon Solvent	EPFS Lab	<10.0	ACCEPTABLE
Reagent Blank	EPFS Lab	<10.0	ACCEPTABLE

Narrative: Acceptable.

Reported By: *mdc*

Approved By: *John Felt*

Extracted: 03/31/1997

Date: *4/8/97*



QUALITY CONTROL REPORT
EPA METHOD 8020 - BTEX
Samples: 970228-970230, 970249-970252

QA/QC for 04/07/97 Sample Set

LABORATORY CALIBRATION CHECKS, LABORATORY CONTROL SAMPLES:

SAMPLE NUMBER ICV LA-52589 50 PPB	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE	
					YES	NO
					RANGE	
Benzene	Standard	50.0	48.5	97.0	75 - 125 %	X
Toluene	Standard	50.0	48.8	97.6	75 - 125 %	X
Ethyl benzene	Standard	50.0	48.8	97.6	75 - 125 %	X
m & p - Xylene	Standard	100	98.0	98.0	75 - 125 %	X
o - Xylene	Standard	50.0	48.9	97.8	75 - 125 %	X
SAMPLE NUMBER LCS LA-45476 25 PPB	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE	
					YES	NO
					RANGE	
Benzene	Standard	25.0	24.4	97.6	39 - 150	X
Toluene	Standard	25.0	24.6	98.4	46 - 148	X
Ethyl benzene	Standard	25.0	24.5	98.0	32 - 160	X
m & p - Xylene	Standard	50.0	49.7	99.4	Not Given	X
o - Xylene	Standard	25.0	24.9	99.6	Not Given	X
SAMPLE NUMBER CCV1 LA-52589 50 PPB	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE	
					YES	NO
					RANGE	
Benzene	Standard	50.0	47.0	94.0	75 - 125 %	X
Toluene	Standard	50.0	48.3	96.6	75 - 125 %	X
Ethyl benzene	Standard	50.0	48.3	96.6	75 - 125 %	X
m & p - Xylene	Standard	100	97.2	97.2	75 - 125 %	X
o - Xylene	Standard	50.0	48.4	96.8	75 - 125 %	X
SAMPLE NUMBER CCV2 LA-52589 50 PPB	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE	
					YES	NO
					RANGE	
Benzene	Standard	50.0	47.0	94.0	75 - 125 %	X
Toluene	Standard	50.0	47.8	95.6	75 - 125 %	X
Ethyl benzene	Standard	50.0	47.6	95.2	75 - 125 %	X
m & p - Xylene	Standard	100	95.9	95.9	75 - 125 %	X
o - Xylene	Standard	50.0	47.9	95.8	75 - 125 %	X
SAMPLE NUMBER CCV3 LA-52589 50 PPB	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE	
					YES	NO
					RANGE	
Benzene	Standard	50.0		0.0	75 - 125 %	NA
Toluene	Standard	50.0		0.0	75 - 125 %	NA
Ethyl benzene	Standard	50.0		0.0	75 - 125 %	NA
m & p - Xylene	Standard	100		0.0	75 - 125 %	NA
o - Xylene	Standard	50.0		0.0	75 - 125 %	NA

Narrative: Acceptable.

LABORATORY DUPLICATES:

SAMPLE NUMBER	TYPE	SAMPLE RESULT ug/L	DUPLICATE RESULT ug/L	RPD	ACCEPTABLE	
					YES	NO
970230					RANGE	
Benzene	Extraction Dup	<1.0	<1.0	0	+/- 35 %	X
Toluene	Extraction Dup	<1.0	<1.0	0	+/- 35 %	X
Ethyl benzene	Extraction Dup	<1.0	<1.0	0	+/- 35 %	X
m & p - Xylene	Extraction Dup	<2.0	<2.0	0	+/- 35 %	X
o - Xylene	Extraction Dup	<1.0	<1.0	0	+/- 35 %	X

Narrative: Acceptable.

LABORATORY DUPLICATES:

SAMPLE NUMBER	TYPE	SAMPLE RESULT ug/L	DUPLICATE RESULT ug/L	RPD	ACCEPTABLE	
					YES	NO
NA					RANGE	
Benzene	Extraction Dup			0	+/- 35 %	NA
Toluene	Extraction Dup			0	+/- 35 %	NA
Ethyl benzene	Extraction Dup			0	+/- 35 %	NA
m & p - Xylene	Extraction Dup			0	+/- 35 %	NA
o - Xylene	Extraction Dup			0	+/- 35 %	NA

Narrative:

LABORATORY DUPLICATES:

SAMPLE NUMBER	TYPE	SAMPLE RESULT PPM ug/L	DUPLICATE RESULT PPM ug/L	RPD	ACCEPTABLE	
					YES	NO
970230					RANGE	
Benzene	Matrix Duplicate	<1.0	<1.0	0	+/- 35 %	X
Toluene	Matrix Duplicate	<1.0	<1.0	0	+/- 35 %	X
Ethyl benzene	Matrix Duplicate	<1.0	<1.0	0	+/- 35 %	X
m & p - Xylene	Matrix Duplicate	<2.0	<2.0	0	+/- 35 %	X
o - Xylene	Matrix Duplicate	<1.0	<1.0	0	+/- 35 %	X

Narrative: Acceptable.

LABORATORY DUPLICATES:

SAMPLE NUMBER	TYPE (Analysis, Portion, or Sample)	SAMPLE RESULT PPM ug/L	DUPLICATE RESULT PPM ug/L	RPD	ACCEPTABLE	
					YES	NO
NA					RANGE	
Benzene	Matrix Duplicate			0	+/- 35 %	NA
Toluene	Matrix Duplicate			0	+/- 35 %	NA
Ethyl benzene	Matrix Duplicate			0	+/- 35 %	NA
m & p - Xylene	Matrix Duplicate			0	+/- 35 %	NA
o - Xylene	Matrix Duplicate			0	+/- 35 %	NA

Narrative:

LABORATORY SPIKES:

SAMPLE NUMBER	SPIKE ADDED PPB	SAMPLE RESULT PPB	SPIKE SAMPLE RESULT PPB	%R	ACCEPTABLE	
					YES	NO
970230					RANGE	
Benzene	50.0	<1.0	47.4	94.8	75 - 125 %	X
Toluene	50.0	<1.0	48.3	96.6	75 - 125 %	X
Ethyl benzene	50.0	<1.0	48.2	96.4	75 - 125 %	X
m & p - Xylene	100.0	<2.0	97.1	97.1	75 - 125 %	X
o - Xylene	50.0	<1.0	48.4	96.8	75 - 125 %	X

Narrative: Acceptable.

SAMPLE NUMBER	SPIKE ADDED PPB	SAMPLE RESULT PPB	SPIKE SAMPLE RESULT PPB	%R	ACCEPTABLE YES NO
NA	50.00				RANGE
Benzene	50.0			0	75 - 125 % NA
Toluene	50.0			0	75 - 125 % NA
Ethyl benzene	50.0			0	75 - 125 % NA
m & p - Xylene	100.0			0	75 - 125 % NA
o - Xylene	50.0			0	75 - 125 % NA

Narrative:

ADDITIONAL ANALYTICAL BLANKS:

SAMPLE ID AUTO BLANK/BOILED WATER	SOURCE	PPB	STATUS
Benzene	Boiled Water	<1.0	ACCEPTABLE
Toluene	Boiled Water	<1.0	ACCEPTABLE
Ethyl benzene	Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Boiled Water	<3.0	ACCEPTABLE

Narrative: Acceptable.

SAMPLE ID SOIL VIAL BLANK	SOURCE	PPB	STATUS
Benzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Toluene	Vial + Boiled Water	<1.0	ACCEPTABLE
Ethyl benzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Vial + Boiled Water	<3.0	ACCEPTABLE

Narrative: Acceptable.

SAMPLE ID EXTRACTION BLANK	SOURCE	PPB	STATUS
Benzene	0913. ext blk		
Benzene	Methanol	<1.0	ACCEPTABLE
Toluene	Methanol	<1.0	ACCEPTABLE
Ethyl benzene	Methanol	<1.0	ACCEPTABLE
Total Xylenes	Methanol	<3.0	ACCEPTABLE

Narrative: Acceptable.

CARRYOVER CONTAMINATION CHECKS	SOURCE	NARRATIVE (None analyzed with this set)	STATUS
Benzene	Vial + Boiled Water	<1.0	NA
Toluene	Vial + Boiled Water	<1.0	NA
Ethyl benzene	Vial + Boiled Water	<1.0	NA
Total Xylenes	Vial + Boiled Water	<3.0	NA

Narrative:

SAMPLE ID METHANOL CHECK	SOURCE	PPB (Not analyzed with this set)	STATUS
Benzene	Lot # H18318		
Benzene	MeOH/Boiled Water	<2.5	ACCEPTABLE
Toluene	MeOH/Boiled Water	<2.5	ACCEPTABLE
Ethyl benzene	MeOH/Boiled Water	<2.5	ACCEPTABLE
Total Xylenes	MeOH/Boiled Water	<7.5	ACCEPTABLE

Narrative: Acceptable.

Reported By:

onda

Approved By:

John K. L...

Date:

4/8/97

**1997 GROUNDWATER
ANALYTICAL**

CHAIN OF CUSTODY RECORD



E.ON Energy
Natural Gas Company

[illegible]



EL PASO FIELD SERVICES



FIELD SERVICES LABORATORY ANALYTICAL REPORT PIT CLOSURE PROJECT

6-11-97

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	RT2	970478
MTR CODE SITE NAME:	89894	Hammond #41A
SAMPLE DATE TIME (Hrs):	5/21/97	1035
PROJECT:	Phase II Drilling - Initial	
DATE OF BTEX EXT. ANAL.:	5/23/97	5/23/97
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	150	PPB	2	D		
TOLUENE	60.1	PPB	2	D		
ETHYL BENZENE	56.7	PPB	2	D		
TOTAL XYLENES	484	PPB	2	D		
TOTAL BTEX	751	PPB				

The Surrogate Recovery was at 95.0 for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

The "D" qualifier indicates that the analyte calculated is based on a secondary dilution factor.

Narrative:

Approved By:

John Savelli

Date:

6/3/97



WELL DEVELOPMENT AND PURGING DATA

☒ Development
☐ Purging

Well Number MW-1
Serial No. WDPD-

Page 1 of 1

Project Name EPES 6W PITS Project Manager CRY CHANCE Project No. 17520

Client Company EL PASO FIELD SERVICES Phase Task No. 6003.77

Site Name HAMMOND #41A Site Address SAN JUAN CO, NM

Development Criteria

☒ 3 to 6 Casing Volumes of Water Removal
☒ Stabilization of Indicator Parameters
☐ Other

Methods of Development

Pump ☐ Centrifugal ☒ Bottom Valve
☐ Submersible ☐ Double Check Valve
☐ Peristaltic ☐ Stainless-steel Kemmerer
☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 27.79 TOR
Initial Depth to Water (feet) 18.79 TOR
Height of Water Column in Well (feet) 9.00
Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing	9.00	5.88	29.40
Gravel Pack			
Drilling Fluids			
Total			29.40

Instruments

Serial No. (if applicable)
☒ pH Meter OYSTER
☐ DO Monitor
☒ Conductivity Meter OYSTER
☒ Temperature Meter OYSTER
☐ Other

Water Disposal

ON GROUND ON SITE

Water Removal Data

Date	Time	Development Method	Removal Rate (gal/min)	Initial Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons)		Product Volume Removed (gallons)		Temperature (°C)	pH	Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)	Comments
						Increment	Cumulative	Increment	Cumulative					
5-21-97	0922		X			5	5			16.2	7.40	2860		DARK BROWN
5-21-97	0941		X			5	10			17.0	7.48	2830		DARK BROWN
5-21-97	0952		X			5	15			15.7	7.54	2770		DARK BROWN
5-21-97	1003		X			5	20			15.8	7.55	2780		DARK BROWN
5-21-97	1011		X			5	25			15.7	7.58	2760		DARK BROWN
5-21-97	1021		X			5	30			15.7	7.57	2760		DARK BROWN

Circle the date and time that the development criteria are met.

Comments WATER NEVER CLEARED UP.

Developer's Signature(s) Robert Chatterton

Date 5-21-97

Reviewer

Date



A 2002

CHAIN OF CUSTODY RECORD

[illegible]



6-18-97

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970544
MTR CODE SITE NAME:	89894	Hammond #41A MW-1
SAMPLE DATE TIME (Hrs):	6/9/97	1346
PROJECT:	Sample 4 - 1st Quarter	
DATE OF BTEX EXT. ANAL.:	6/11/97	6/12/97
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	190	PPB	5	D		
TOLUENE	12.3	PPB	5	D		
ETHYL BENZENE	36.9	PPB	5	D		
TOTAL XYLENES	181	PPB	5	D		
TOTAL BTEX	420	PPB				

The Surrogate Recovery was at 95.4 for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By:

[Signature]

Date:

6/17/97

970544,6/16/97



6-18-97

Field Services Laboratory
Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	970544
DATE SAMPLED:	06/09/97
TIME SAMPLED (Hrs):	1346
SAMPLED BY:	N/A
MATRIX:	Water
METER CODE:	89894
SAMPLE SITE NAME:	Hammond #41A
SAMPLE POINT:	MW-1

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	8.0	Units	06/11/97
Alkalinity as CO ₃	0.0	PPM	06/11/97
Alkalinity as HCO ₃	969	PPM	06/11/97
Calcium as Ca	61	PPM	06/11/97
Magnesium as Mg	13	PPM	06/11/97
Total Hardness as CaCO ₃	204	PPM	06/11/97
Chloride as Cl	29	PPM	06/11/97
Sulfate as SO ₄	977	PPM	06/11/97
Fluoride as F	2.3	PPM	06/11/97
Nitrate as NO ₃ -N	<0.6	PPM	06/11/97
Nitrite as NO ₂ -N	<0.6	PPM	06/11/97
Ammonium as NH ₄ ⁺	<0.2	PPM	06/11/97
Phosphate as PO ₄	<0.6	PPM	06/11/97
Potassium as K	1	PPM	06/11/97
Sodium as Na	787	PPM	06/11/97
Total Dissolved Solids	2,320	PPM	06/11/97
Conductivity	3,230	umhos/cm	06/11/97
Anion/Cation %	1.5%	%, <5.0 Accepted	06/16/97

Lab Remarks:

Reported By: inda

Approved By: [Signature]

Date: 6/17/97



7-21-97

FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	970544
SAMPLE DATE:	06/09/97
SAMPLE TIME (Hrs):	1346
SAMPLED BY:	N/A
MATRIX:	Water
METER CODE:	89894
SAMPLE SITE NAME:	Hammond #41A
SAMPLE POINT:	MW-1

REMARKS:

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
ARSENIC	<.029	0.100
BARIUM	0.16	1.00
CADMIUM	<.0002	0.010
CHROMIUM	0.015	0.050
LEAD	0.008	0.050
MERCURY	<0.0002	0.002
SELENIUM	<0.005	0.050
SILVER	0.0006	0.050

NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

References:

- Method 3015, Microwave Assisted Acid Digestion of Aqueous Samples and Extracts, Test Methods for Evaluating Solid Waste, SW-846, Sept., 1994.
Method 7061A, Arsenic (Atomic Absorption, Gaseous Hydride), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992.
Method 7081, Barium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992.
Method 7131, Cadmium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986.
Method 7191, Chromium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986.
Method 7421, Lead (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986.
Method 245.5, Mercury (Automated Cold Vapor Technique), Methods for the Determination of Metals in Environmental Samples, EPA 600/4-91/010, USEPA, June, 1991.
Method 7741A, Selenium (Atomic Absorption, Gaseous Hydride), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1994.
Method 7761, Silver (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992.

Reported By:

onds

Approved By:

John L. L...

Date:

7/17/97



QUALITY CONTROL REPORT

Sample ID: 970544 & 970545
Date Reported: 07/16/97

LABORATORY CONTROL SAMPLE

Analyte	Found Result (mg/L)	Known Value (mg/L)	% Recovery
Arsenic	0.031	0.032	96.6%
Barium	0.062	0.065	95.7%
Cadmium	0.0025	0.0024	104%
Chromium	0.0049	0.0048	103%
Lead	0.033	0.030	111%
Mercury	0.0043	0.0046	93.2%
Selenium	0.038	0.041	94.3%
Silver	0.0051	0.0043	118%

DUPLICATE ANALYSIS (mg/L)

Analyte	Original Sample Result	Duplicate Sample Result	% RPD
Arsenic	ND	ND	NA
Barium	0.181	0.183	1.1%
Cadmium	ND	ND	NA
Chromium	0.0166	0.0153	8.2%
Lead	0.0065	0.0069	6.2%
Mercury	ND	ND	NA
Selenium	ND	ND	NA
Silver	0.0003	0.0004	8.7%

SPIKE ANALYSIS (mg/L)

Analyte	Original Sample Result	Spike Sample Result	Spike Added	Recovery Percent
Arsenic	0.001	0.126	0.100	118%
Barium	0.183	1.253	1.00	107%
Cadmium	ND	0.0103	0.010	103%
Chromium	0.017	0.065	0.050	97.0%
Lead	0.007	0.054	0.050	94.4%
Mercury	ND	0.0018	0.0020	90.0%
Selenium	ND	0.053	0.050	101%
Silver	0.0003	0.0539	0.050	107%

METHOD BLANK

Analyte	Found Result (mg/L)	Detection Level (mg/L)
Arsenic	ND	0.027
Barium	ND	0.019
Cadmium	ND	0.0002
Chromium	ND	0.004
Lead	ND	0.002
Mercury	ND	0.0002
Selenium	ND	0.011
Silver	ND	0.0005

ND: Not Detected at stated detection level.

NA: Not Applicable.

Reported By: mh

Approved By: _____

Date: 7/17/97



Well Number MW-1
Meter Code 89894

Development Criteria

- | | |
|-------------------------------------|--|
| ☒ | 3 to 5 Casing Volumes of Water Removal |
| ☐ | Stabilization of Indicator Parameters |
| ☐ | Other |

☐	Pump	Baller
☐	Centrifugal	☒ Bottom Valve
☐	Submersible	☐ Double Check Valve
☐	Peristaltic	☐ Stainless-steel Kemmerer

☐ Other _____

Initial Depth of Well (feet) 27.40
Initial Depth to Water (feet) 18.89
Height of Water Column in Well (feet) 8.51

Diameter (Inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		5.6	16.9
Gravel Pack			
Drilling Fluids			
Total			

☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☒ Other D.O.C.

KUTZ SQARATOP

[illegible]

Developer's Signature Lennio Bird Date 6-9-97 Reviewer John Staller Date 6/17/97

CHAIN OF CUSTODY RECORD

[illegible]



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970990
MTR CODE SITE NAME:	89894	Hammond #41A
SAMPLE DATE TIME (Hrs):	9/17/97	1233
PROJECT:	Sample 4 2nd Quarter	
DATE OF BTEX EXT. ANAL.:	9/18/97	9/18/97
TYPE DESCRIPTION:	MW-1	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	1230	PPB	5	D1		
TOLUENE	<5	PPB	5	D		
ETHYL BENZENE	263	PPB	5	D		
TOTAL XYLENES	830	PPB	5	D		
TOTAL BTEX	2323	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 86.4 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

The "D1" qualifier indicates that the analyte concentration exceeded the calibration curve limit.

The "D" qualifier indicates that the analyte calculated is based on a secondary dilution factor.

Narrative:

Approved By:

John L. Linder

Date:

9-22-97



Well Development and Purging Data

Well Number MW-1
Meter Code 89894

Site Name HAMMOND #4A

Development Criteria

- | | |
|-------------------------------------|--|
| ☒ | 3 to 5 Casing Volumes of Water Removal |
| ☐ | Stabilization of Indicator Parameters |
| ☐ | Other |

Methods of Development

- | Pump | Bailer |
|--------------------------------------|---|
| ☐ Centrifugal | ☒ Bottom Valve |
| ☐ Submersible | ☐ Double Check Valve |
| ☐ Peristaltic | ☐ Stainless-steel Kemmerer |

☐ Other

Water Removal Data

[illegible]

Comments

Developer's Signature Dennis Bird

Date 9-17-97 Reviewer _____

John Feller

Date 9-22-97

Water Volume Calculation

Initial Depth of Well (feet) 27.40
Initial Depth to Water (feet) 18.79
Height of Water Column in Well (feet) 8.61

Diameter (inches): Well 4 Gravel Pack _____

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		5.7	17.1
Gravel Pack			
Drilling Fluids			
Total			

Instruments

- | | |
|-------------------------------------|--------------------|
| ☒ | pH Meter |
| ☐ | DO Monitor |
| ☒ | Conductivity Meter |
| ☒ | Temperature Meter |
| ☒ | Other <u>0.0</u> |

Water Disposal

KUTZ SEPARATOR

CHAIN OF CUSTODY RECORD

[illegible]

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY ANALYTICAL REPORT PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	971289
MTR CODE SITE NAME:	89894	Hammond #41A
SAMPLE DATE TIME (Hrs):	12/9/97	1040
PROJECT:	Sample 4 3rd Quarter	
DATE OF BTEX EXT. ANAL.:	12/16/97	12/16/97
TYPE DESCRIPTION:	MW-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	685	PPB	5	D		
TOLUENE	<1	PPB	5	D		
ETHYL BENZENE	141	PPB	5	D		
TOTAL XYLENES	261	PPB	5	D		
TOTAL BTEX	1087	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 106.2 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

The "D" qualifier indicates that the analyte calculated is based on a secondary dilution factor.

Narrative: _____

Approved By: John Sardi

Date: 1/6/98

971289BTEXMW,1/6/98



Well Development and Purging Data

Site Name HAMMOND #4A

	Development	Purging
1. Identify the data to be purged.	☐	☒
2. Identify the data to be retained.	☐	☒
3. Identify the data to be deleted.	☐	☒
4. Identify the data to be archived.	☐	☒
5. Identify the data to be migrated.	☐	☒
6. Identify the data to be destroyed.	☐	☒
7. Identify the data to be restored.	☐	☒
8. Identify the data to be reloaded.	☐	☒
9. Identify the data to be reindexed.	☐	☒
10. Identify the data to be reprocessed.	☐	☒
11. Identify the data to be retransmitted.	☐	☒
12. Identify the data to be reloaded.	☐	☒
13. Identify the data to be reindexed.	☐	☒
14. Identify the data to be reprocessed.	☐	☒
15. Identify the data to be retransmitted.	☐	☒
16. Identify the data to be reloaded.	☐	☒
17. Identify the data to be reindexed.	☐	☒
18. Identify the data to be reprocessed.	☐	☒
19. Identify the data to be retransmitted.	☐	☒
20. Identify the data to be reloaded.	☐	☒
21. Identify the data to be reindexed.	☐	☒
22. Identify the data to be reprocessed.	☐	☒
23. Identify the data to be retransmitted.	☐	☒
24. Identify the data to be reloaded.	☐	☒
25. Identify the data to be reindexed.	☐	☒
26. Identify the data to be reprocessed.	☐	☒
27. Identify the data to be retransmitted.	☐	☒
28. Identify the data to be reloaded.	☐	☒
29. Identify the data to be reindexed.	☐	☒
30. Identify the data to be reprocessed.	☐	☒
31. Identify the data to be retransmitted.	☐	☒
32. Identify the data to be reloaded.	☐	☒
33. Identify the data to be reindexed.	☐	☒
34. Identify the data to be reprocessed.	☐	☒
35. Identify the data to be retransmitted.	☐	☒
36. Identify the data to be reloaded.	☐	☒
37. Identify the data to be reindexed.	☐	☒
38. Identify the data to be reprocessed.	☐	☒
39. Identify the data to be retransmitted.	☐	☒
40. Identify the data to be reloaded.	☐	☒
41. Identify the data to be reindexed.	☐	☒
42. Identify the data to be reprocessed.	☐	☒
43. Identify the data to be retransmitted.	☐	☒
44. Identify the data to be reloaded.	☐	☒
45. Identify the data to be reindexed.	☐	☒
46. Identify the data to be reprocessed.	☐	☒
47. Identify the data to be retransmitted.	☐	☒
48. Identify the data to be reloaded.	☐	☒
49. Identify the data to be reindexed.	☐	☒
50. Identify the data to be reprocessed.	☐	☒
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55. Identify the data to be retransmitted.	☐	☒
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60. Identify the data to be reloaded.	☐	☒
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62. Identify the data to be reprocessed.	☐	☒
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68. Identify the data to be reloaded.	☐	☒
69. Identify the data to be reindexed.	☐	☒
70. Identify the data to be reprocessed.	☐	☒
71. Identify the data to be retransmitted.	☐	☒
72. Identify the data to be reloaded.	☐	☒
73. Identify the data to be reindexed.	☐	☒
74. Identify the data to be reprocessed.	☐	☒
75. Identify the data to be retransmitted.	☐	☒
76. Identify the data to be reloaded.	☐	☒
77. Identify the data to be reindexed.	☐	☒
78. Identify the data to be reprocessed.	☐	☒
79. Identify the data to be retransmitted.	☐	☒
80. Identify the data to be reloaded.		

Well Number MW-1

Meter Code 89894

Development Criteria

- | | |
|-------------------------------------|--|
| ☒ | 3 to 5 Casing Volumes of Water Removal |
| ☐ | Stabilization of Indicator Parameters |
| ☐ | Other |

Methods of Development

- | | | | | | |
|--------------------------|-------------|--------------------------|--------------------|-------------------------------------|--------------------------|
| ☐ | Pump | ☐ | Bottom Valve | ☒ | Bailer |
| ☐ | Centrifugal | ☐ | Double Check Valve | ☐ | Stainless-steel Kemmerer |
| ☐ | Submersible | ☐ | | | |
| ☐ | Peristaltic | ☐ | | | |

Water Volume Calculation

Initial Depth of Well (feet) 27.40

Initial Depth to Water (feet) 18.47

Height of Water Column in Well (feet) 8.93

4 Diameter (inches): Well Gravel Pack

4 Gravel Pack

	Water Volume in Well	Gallons to be
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100		

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		5.9	17.7
Gravel Pack			
Drilling Fluids			
Total			

Instruments

- | | |
|-------------------------------------|--------------------|
| ☒ | pH Meter |
| ☐ | DO Monitor |
| ☒ | Conductivity Meter |
| ☒ | Temperature Meter |
| ☒ | Other <u>20.0</u> |

Temperature Meter
Other A.D. CHEMETS KIT

Water Disposal

KUTZ SEPARATOR

Water Removal Data

[illegible]

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature Dennis Bird Date 12-9-97 Reviewer John Jorda Date 1/2/98