

**3R - 339**

# **REPORTS**

**DATE:**

**2001**

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3R339



*Environmental Services*  
187 County Road 4980  
Bloomfield, New Mexico 87413  
(505) 632-4409 (office)  
(505) 632-4405 (fax)

March 20, 2002

Mr. William Olson  
Hydrologist  
Oil Conservation Division  
1220 S. St. Francis Dr.  
Santa Fe, NM 87505

RECEIVED

APR 04 2002

ENVIRONMENTAL BUREAU  
OIL CONSERVATION DIVISION

**RE: 2001 GROUND WATER SUMMARY REPORT**

Dear Mr. Olson:

Enclosed for your review is the 2001 Ground Water Summary Report. The report presents monitoring data for eighteen sites having petroleum hydrocarbon impacted ground water, which resulted from the past use of unlined surface impoundments. The sites included in the report are listed in Table 1.

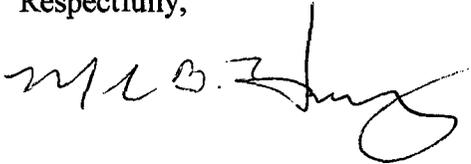
In 2001, three sites met the required remediation standards and were closed with OCD approval. The sites, listed in Table 2, achieved clean closure through a combination of contaminant source removal actions and monitored natural attenuation. Ground water cleanup objectives at each site were met in roughly three years, or less.

Of the eighteen active sites, five have accumulations of LNAPL in one or more monitoring well. In December 2001, the LNAPL accumulations were removed from these wells to evaluate LNAPL recovery rates and to augment the natural attenuation process. In 2002, passive LNAPL collection devices will be deployed or manual LNAPL removal events will be scheduled at some of the sites.

The remaining thirteen active sites either contain concentrations of dissolved BTEX in excess of cleanup standards or have met cleanup standards but have not yet demonstrated four consecutive clean quarters. Pursuant to discussions on the subject with OCD, Williams intends to implement various methods to accelerate the attenuation at select sites. These augmentation methods will be incorporated into an addendum to the Ground Water Management plan.

Thank you for your time to review this submittal. If you have any questions regarding the report, you may call me at (505) 632-4409 or Jim Struhs at (505) 632-4457.

Respectfully,



Mark B. Harvey  
Project Coordinator  
Mark.Harvey@Williams.com



James P. Struhs  
Project Hydrogeologist  
Jim.Struhs@Williams.com

Attachment  
Enclosure

c: Denny Foust, OCD Aztec District Office  
Bill Liess, BLM Farmington District Office

**Table 1. List of Active Sites for 2001 Report**

Count	Site Name	Unit Letter	Section	Township	Range	Longitude	Latitude	OCD Initial Notification
1	Blanco Wash Drip	J	31	27N	8W	-107.721574	36.530995	19-Feb-99
2	Chamberlain 1	F	14	32N	12W	-108.068853	36.990549	30-Sep-99
3	Davis 1	E	11	31N	12W	-108.068919	36.916257	2-Mar-99
4	Dogie East Pit	D	4	25N	6W	-107.478874	36.434196	7-Jul-97
5	Dogie North Pit	D	4	25N	6W	-107.479158	36.435784	7-Jul-97
6	Florance 124	C	27	29N	9W	-107.76698	36.70209	12-Aug-96
7	Florance 40	G	21	30N	8W	-107.67775	36.800088	27-Jan-97
8	Florance M 47X	G	5	30N	9W	-107.799823	36.843166	27-Jan-97
9	Grenier 4A	M	7	31N	11W	-108.036001	36.910167	18-Oct-99
10	Honolulu Drip	B	15	26N	4W	-107.238469	36.492341	18-Jun-96
11	Ice Canyon Drip	J	13	26N	7W	-107.52226	36.484972	1-Dec-97
12	Jicarilla Contract 147-6	C	6	25N	5W	-107.402363	36.433963	13-Aug-98
13	Kaufman 1	H	33	31N	13W	-108.202128	36.860121	9-Mar-00
14	O' Shea 1M	F	3	31N	13W	-108.193596	36.932228	6-Jun-98
15	Patterson A Corn A1	G	2	31N	12W	-108.061165	36.930755	2-Mar-99
16	Pritchard 2	J	6	30N	8W	-107.712068	36.837817	22-Feb-99
17	Wilmerding 1M	C	10	31N	13W	-108.193158	36.91846	5-Jun-98
18	Zachry 18E	O	11	28N	10W	-107.860007	36.670885	6-Sep-96

**Table 2. List of Sites Closed in 2001**

Count	Site Name	Unit Letter	Section	Township	Range	Longitude	Latitude	OCD Initial Notification	Status
1	Albright #4 Drip	F	22	29N	10W	-107.868451	36.715299	9-Jul-99	Approved; Wells Abandoned
2	Miles Federal 1E Drip	N	5	26N	7W	-107.602489	36.510939	23-Jun-97	Approved; Wells Abandoned
3	Randleman 1	K	13	31N	11W	-107.945067	36.896329	9-May-97	Pending OCD Approval

## Site Summary Report

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**Site Name:** Pritchard 2A

**Reporting Period:** 2001

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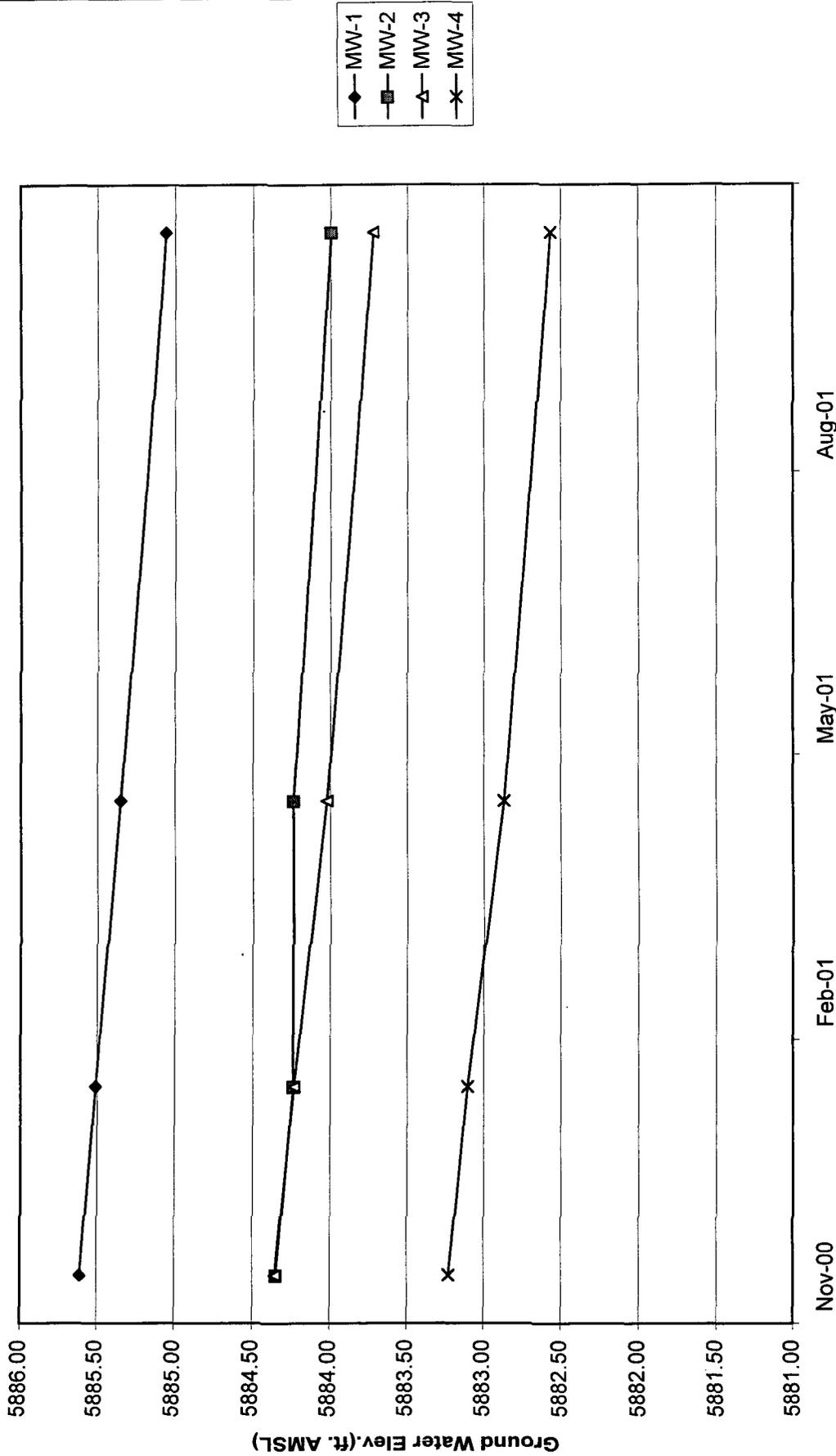
**Location:** Unit J, Sec 6, Twn 30N, Rng 8W  
**Canyon:** Pump  
**Operator:** Williams

**Vulnerable Class:** expanded  
**OCD Ranking:** 40  
**Lead Agency:** NMOCD

### Status Narrative

This site has six monitoring wells, with nine quarters of ground water monitoring completed to date. Monitoring wells MW-2, MW-4 and MW-6 contain LNAPL accumulations. The LNAPL thickness in MW-2 increased from 0.56 feet to 1.12 feet during this period. In MW-4, LNAPL increased in thickness from 1.09 feet to 1.64 feet. Accumulations of LNAPL in MW-6 have remained steady at 1.27 feet. Total BTEX concentrations in cross-gradient wells MW-3 and MW-5 have decreased during the period from 263.9 ug/l to 3.5 ug/l and from 413.8 ug/l to 6.1 ug/l, respectively.

# Pritchard 2 Hydrograph



# Analytical Data Summary

Site Name:

Pritchard 2

Reporting Period:

7/1/00 To 12/31/01

Well ID	Sample Date	Sample ID	Benzene ug/l	Toluene ug/l	Ethylbenzene ug/l	Xylene (Total) ug/l
<b>MW-1</b>						
	11/16/00	115716NOV00	89.1	69.5	11.1	39.7
	1/17/01	135517JAN01	316	418	15.1	178
	4/27/01	115827APR01	363	316	5.75	283
	10/16/01	105816OCT01	140	7.3	<2.0	110
<b>MW-3</b>						
	11/16/00	121216NOV00	100	43.6	21.3	99
	1/17/01	140617JAN01	64.8	81.4	8.69	54.9
	4/27/01	125427APR01	1.98	<1	<1	<1
	10/16/01	111016OCT01	<1.0	<2.0	<2.0	<2.0
<b>MW-5</b>						
	11/16/00	122516NOV00	90.9	146	23.9	153
	1/17/01	141817JAN01	199	260	46.7	326
	4/27/01	121627APR01	3.10	8.34	<1	9.27
	10/16/01	112016OCT01	1.8	2.3	<2.0	<2.0

Q W A L L A B O R A T O R I E S, I N C.

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT:

REFERENCE #: 0011508

SENT WILLIAMS GAS PIPELINE  
 TO: 187 COUNTY ROAD #4980  
 BLOOMFIELD, NM 87413  
 JIM STRUHS  
 PROJECT: WES/PRITCHARD 2

DATE REPORTED: 11/27/00  
 DATE COLLECTED: 11/16/00  
 DATE RECEIVED: 11/18/00

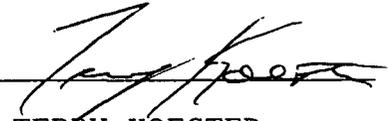
Reference Fraction:0011508-03A  
 Sample ID: PRTCH2-UG-MW1  
 Sample Date Collected: 11/16/0011:57:00

Sample Matrix: WATER

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		89.1	UG/L	1.0	11/20/00	KKL
TOLUENE		69.5	UG/L	1.0	11/20/00	KKL
ETHYLBENZENE		11.1	UG/L	1.0	11/20/00	KKL
TOTAL XYLENES		39.7	UG/L	1.0	11/20/00	KKL
BFB (SURROGATE)		106	125	75		

ND=NONE DETECTED  
 PL=PRACTICAL QUANTITAION LIMIT  
 SU=STANDARD UNITS  
 B=DETECTED IN METHOD BLANK

APPROVED BY:

  
 TERRY KOESTER  
 LABORATORY DIRECTOR

000014

Q W A L L A B O R A T O R I E S, I N C.

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT:

REFERENCE #: 0011508

SENT WILLIAMS GAS PIPELINE  
 TO: 187 COUNTY ROAD #4980  
 BLOOMFIELD, NM 87413  
 JIM STRUHS  
 PROJECT: WES/PRITCHARD 2

DATE REPORTED: 11/27/00  
 DATE COLLECTED: 11/16/00  
 DATE RECEIVED: 11/18/00

Reference Fraction:0011508-01A  
 Sample ID: PRTCH2-CG-MW3  
 Sample Date Collected: 11/16/0012:12:00

Sample Matrix: WATER

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		100	UG/L	1.0	11/21/00	MB
TOLUENE		43.6	UG/L	1.0	11/21/00	MB
ETHYLBENZENE		21.3	UG/L	1.0	11/21/00	MB
TOTAL XYLENES		99	UG/L	1.0	11/21/00	MB
BFB (SURROGATE)		106	125	75		

ND=NONE DETECTED  
 L=PRACTICAL QUANTITAION LIMIT  
 SU=STANDARD UNITS  
 B=DETECTED IN METHOD BLANK

APPROVED BY:   
 TERRY KOESTER  
 LABORATORY DIRECTOR

000012

Q W A L L A B O R A T O R I E S, I N C.

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(315)232-1970

LABORATORY REPORT:

REFERENCE #: 0011508

SENT WILLIAMS GAS PIPELINE  
 TO: 187 COUNTY ROAD #4980  
 BLOOMFIELD, NM 87413  
 JIM STRUHS  
 PROJECT: WES/Pritchard 2

DATE REPORTED: 11/27/00  
 DATE COLLECTED: 11/16/00  
 DATE RECEIVED: 11/18/00

Reference Fraction:0011508-02A

Sample ID: PRTCH2-DG-MW5

Sample Matrix: WATER

Sample Date Collected: 11/16/0012:25:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		90.9	UG/L	1.0	11/21/00	MB
TOLUENE		146	UG/L	1.0	11/21/00	MB
ETHYLBENZENE		23.9	UG/L	1.0	11/21/00	MB
TOTAL XYLENES		153	UG/L	1.0	11/21/00	MB
BFB (SURROGATE)		107	125	75		

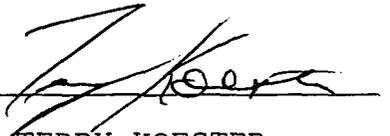
ND=NONE DETECTED

PL=PRACTICAL QUANTITAION LIMIT

SU=STANDARD UNITS

B=DETECTED IN METHOD BLANK

APPROVED BY:

  
 TERRY KOESTER  
 LABORATORY DIRECTOR

000013

Q W A L L A B O R A T O R I E S , I N C .

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT:

REFERENCE #: 0101667

SENT WILLIAMS GAS PIPELINE  
 TO: 187 COUNTY ROAD # 4980  
 BLOOMFIELD, NM 87413  
 JIM STRUHS  
 PROJECT: WES/PRITCHARD 2

DATE REPORTED: 02/02/01  
 DATE COLLECTED: 01/17/01  
 DATE RECEIVED: 01/27/01

Reference Fraction:0101667-03A  
 Sample ID: PRTCH2-UG-MW1  
 Sample Date Collected: 01/17/0113:55:00

Sample Matrix: WATER

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		316	UG/L	1.0	01/29/01	KKL
TOLUENE		418	UG/L	1.0	01/29/01	KKL
ETHYLBENZENE		15.1	UG/L	1.0	01/29/01	KKL
TOTAL XYLENES		178	UG/L	1.0	01/29/01	KKL
BFB (SURROGATE)		90	125	75		

ND=NONE DETECTED  
 P= PRACTICAL QUANTITATION LIMIT  
 S= STANDARD UNITS  
 B=DETECTED IN METHOD BLANK

APPROVED BY: TERRY KOESTER

TERRY KOESTER  
 LABORATORY DIRECTOR  
 TK

Q W A L L A B O R A T O R I E S , I N C .

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT:

REFERENCE #: 0101667

SENT WILLIAMS GAS PIPELINE  
 TO: 187 COUNTY ROAD # 4980  
 BLOOMFIELD, NM 87413  
 JIM STRUHS

DATE REPORTED: 02/02/01  
 DATE COLLECTED: 01/17/01  
 DATE RECEIVED: 01/27/01

PROJECT: WES/PRITCHARD 2

Reference Fraction: 0101667-02A

Sample ID: PRTCH2-CG-MW3

Sample Matrix: WATER

Sample Date Collected: 01/17/01 14:06:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		64.8	UG/L	1.0	01/29/01	KKL
TOLUENE		81.4	UG/L	1.0	01/29/01	KKL
ETHYLBENZENE		8.69	UG/L	1.0	01/29/01	KKL
TOTAL XYLENES		54.9	UG/L	1.0	01/29/01	KKL
BFB (SURROGATE)		88	125	75		

ND=NONE DETECTED

=PRACTICAL QUANTITATION LIMIT

S=STANDARD UNITS

B=DETECTED IN METHOD BLANK

APPROVED BY: TERRY KOESTER

TERRY KOESTER  
 LABORATORY DIRECTOR

*TK*

Q W A L L A B O R A T O R I E S , I N C .

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT:

REFERENCE #: 0101667

SENT WILLIAMS GAS PIPELINE  
 TO: 187 COUNTY ROAD # 4980  
 BLOOMFIELD, NM 87413  
 JIM STRUHS

DATE REPORTED: 02/02/01  
 DATE COLLECTED: 01/17/01  
 DATE RECEIVED: 01/27/01

PROJECT: WES/PRITCHARD 2

Reference Fraction: 0101667-01A

Sample ID: PRTCH2-DG-MW5

Sample Matrix: WATER

Sample Date Collected: 01/17/01 14:18:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		199	UG/L	1.0	01/30/01	KKL
TOLUENE		260	UG/L	1.0	01/30/01	KKL
ETHYLBENZENE		46.7	UG/L	1.0	01/30/01	KKL
TOTAL XYLENES		326	UG/L	1.0	01/30/01	KKL
BFB (SURROGATE)		82	125	75		

ND=NONE DETECTED

P= PRACTICAL QUANTIFICATION LIMIT

SU=STANDARD UNITS

B=DETECTED IN METHOD BLANK

APPROVED BY: TERRY KOESTER

TERRY KOESTER  
 LABORATORY DIRECTOR

*TK*

Q W A L L A B O R A T O R I E S , I N C .

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT:

REFERENCE #: 0105039

SENT WILLIAMS GAS PIPELINE  
 TO: 187 COUNTY ROAD #4980  
 BLOOMFIELD, NM 87413  
 JIM STRUHS  
 PROJECT: WES/PRITCHARD #2

DATE REPORTED: 05/11/01  
 DATE COLLECTED: 04/27/01  
 DATE RECEIVED: 05/01/01

Reference Fraction: 0105039-03A  
 Sample ID: PRTCH2-UG-MW1  
 Sample Date Collected: 04/27/01 11:58:00

Sample Matrix: WATER

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		363	UG/L	1.0	05/05/01	KKL
TOLUENE		316	UG/L	1.0	05/05/01	KKL
ETHYLBENZENE		5.75	UG/L	1.0	05/05/01	KKL
TOTAL XYLENES		283	UG/L	1.0	05/05/01	KKL
BFB (SURROGATE)		104	125	75		

ND=NONE DETECTED  
 P= PRACTICAL QUANTITATION LIMIT  
 S= STANDARD UNITS  
 B= DETECTED IN METHOD BLANK

APPROVED BY: TERRY KOESTER

TERRY KOESTER  
 LABORATORY DIRECTOR

*TK*

Q W A L L A B O R A T O R I E S , I N C .

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT:

REFERENCE #: 0105039

SENT WILLIAMS GAS PIPELINE  
 TO: 187 COUNTY ROAD #4980  
 BLOOMFIELD, NM 87413  
 JIM STRUHS  
 PROJECT: WES/PRITCHARD #2

DATE REPORTED: 05/11/01  
 DATE COLLECTED: 04/27/01  
 DATE RECEIVED: 05/01/01

Reference Fraction: 0105039-01A  
 Sample ID: PRTCH2-DG-MW3  
 Sample Date Collected: 04/27/0112:54:00

Sample Matrix: WATER

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		1.98	UG/L	1.0	05/04/01	KKL
TOLUENE		ND	UG/L	1.0	05/04/01	KKL
ETHYLBENZENE		ND	UG/L	1.0	05/04/01	KKL
TOTAL XYLENES		ND	UG/L	1.0	05/04/01	KKL
BFB (SURROGATE)		102	125	75		

ND=NONE DETECTED  
 =PRACTICAL QUANTITATION LIMIT  
 STANDARD UNITS  
 B=DETECTED IN METHOD BLANK

APPROVED BY: TERRY KOESTER

TERRY KOESTER  
 LABORATORY DIRECTOR

Q W A L L A B O R A T O R I E S , I N C .

2911 ROTARY TERRACE, P.O. BOX 562/PITTSBURG, KS 66762/(316)232-1970

LABORATORY REPORT:

REFERENCE #: 0105039

SENT WILLIAMS GAS PIPELINE  
 TO: 187 COUNTY ROAD #4980  
 BLOOMFIELD, NM 87413  
 JIM STRUHS  
 PROJECT: WES/PRITCHARD #2

DATE REPORTED: 05/11/01  
 DATE COLLECTED: 04/27/01  
 DATE RECEIVED: 05/01/01

Reference Fraction: 0105039-02A

Sample ID: PRTCH2-DG-MW5

Sample Matrix: WATER

Sample Date Collected: 04/27/01 12:16:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		3.10	UG/L	1.0	05/04/01	KKL
TOLUENE		8.34	UG/L	1.0	05/04/01	KKL
ETHYLBENZENE		ND	UG/L	1.0	05/04/01	KKL
TOTAL XYLENES		9.27	UG/L	1.0	05/04/01	KKL
BFB (SURROGATE)		103	125	75		

ND=NONE DETECTED

=PRACTICAL QUANTITATION LIMIT

SU=STANDARD UNITS

B=DETECTED IN METHOD BLANK

APPROVED BY: TERRY KOESTER

TERRY KOESTER  
 LABORATORY DIRECTOR  
*(Signature)*



ORGANIC ANALYSIS REPORT

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Client: Mile High Environmental  
Collected: October 16, 2001  
Received: October 23, 2001

Contact: Jim Struhs  
Analyzed: October 26, 2001

Analysis Requested: SW8260B/5030A

Lab Sample ID: L48052-02A  
Field Sample ID: PRTCH-2-UG-MW1  
Site ID: Pritchard 2/JPS-102201-02

463 West 3600 South  
Salt Lake City, Utah  
84115

Analytical Results

MBTEXN/TPH-P

Units = mg/L

Final Dilution Factor: 1

Compound

Reporting  
Limit

Amount  
Detected

Benzene

0.0010

0.14

Toluene

0.0020

0.0073

Ethylbenzene

0.0020

< 0.0020

Total Xylene

0.0020

0.11

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@xmission.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer

Released by:

Laboratory Supervisor

Report Date:

October 30, 2001

Page 1 of 1



# ORGANIC ANALYSIS REPORT

Client: Mile High Environmental  
Collected: October 16, 2001  
Received: October 23, 2001

Contact: Jim Struhs  
Analyzed: October 26, 2001

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030A

Lab Sample ID: L48052-03A  
Field Sample ID: PRTCH-2-CG-MW3  
Site ID: Pritchard 2/JPS-102201-02

463 West 3600 South  
Salt Lake City, Utah  
84115

## Analytical Results

## MBTEXN/TPH-P

Units = mg/L

Final Dilution Factor: 1

### Compound

Reporting Limit	Amount Detected
-----------------	-----------------

Benzene

0.0010 < 0.0010

Toluene

0.0020 < 0.0020

Ethylbenzene

0.0020 < 0.0020

Total Xylene

0.0020 < 0.0020

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@xmission.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer

Released by:

  
Laboratory Supervisor

Report Date:

October 30, 2001

Page 1 of 1



ORGANIC ANALYSIS REPORT

Client: Mile High Environmental  
Collected: October 16, 2001  
Received: October 23, 2001

Contact: Jim Struhs  
Analyzed: October 26, 2001

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030A

Lab Sample ID: L48052-04A  
Field Sample ID: **PRTCH-2-DG-MW5**  
Site ID: Pritchard 2/JPS-102201-02

463 West 3600 South  
Salt Lake City, Utah  
84115

Analytical Results

MBTEXN/TPH-P

Units = mg/L

Final Dilution Factor: 1

Compound

Reporting  
Limit

Amount  
Detected

Benzene

0.0010

**0.0018**

Toluene

0.0020

**0.0023**

Ethylbenzene

0.0020

< 0.0020

Total Xylene

0.0020

**0.0057**

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
-mail: awal@xmission.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer

Released by:

Laboratory Supervisor

Report Date:

October 30, 2001

Page 1 of 1