

3R - 322

REPORTS

DATE:

2001

JR322



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.

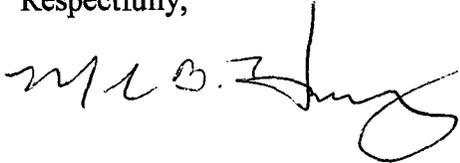
In 2001, three sites met the required remediation standards and were closed with OCD approval. The sites, listed in Table 2, achieved clean closure through a combination of contaminant source removal actions and monitored natural attenuation. Ground water cleanup objectives at each site were met in roughly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

Site Name: Ice Canyon Drip

Reporting Period: 2001

Location: Unit B, Sec 15, Twn 26N, Rng 6W

Canyon: Largo

Operator: Williams

Vulnerable Class: original

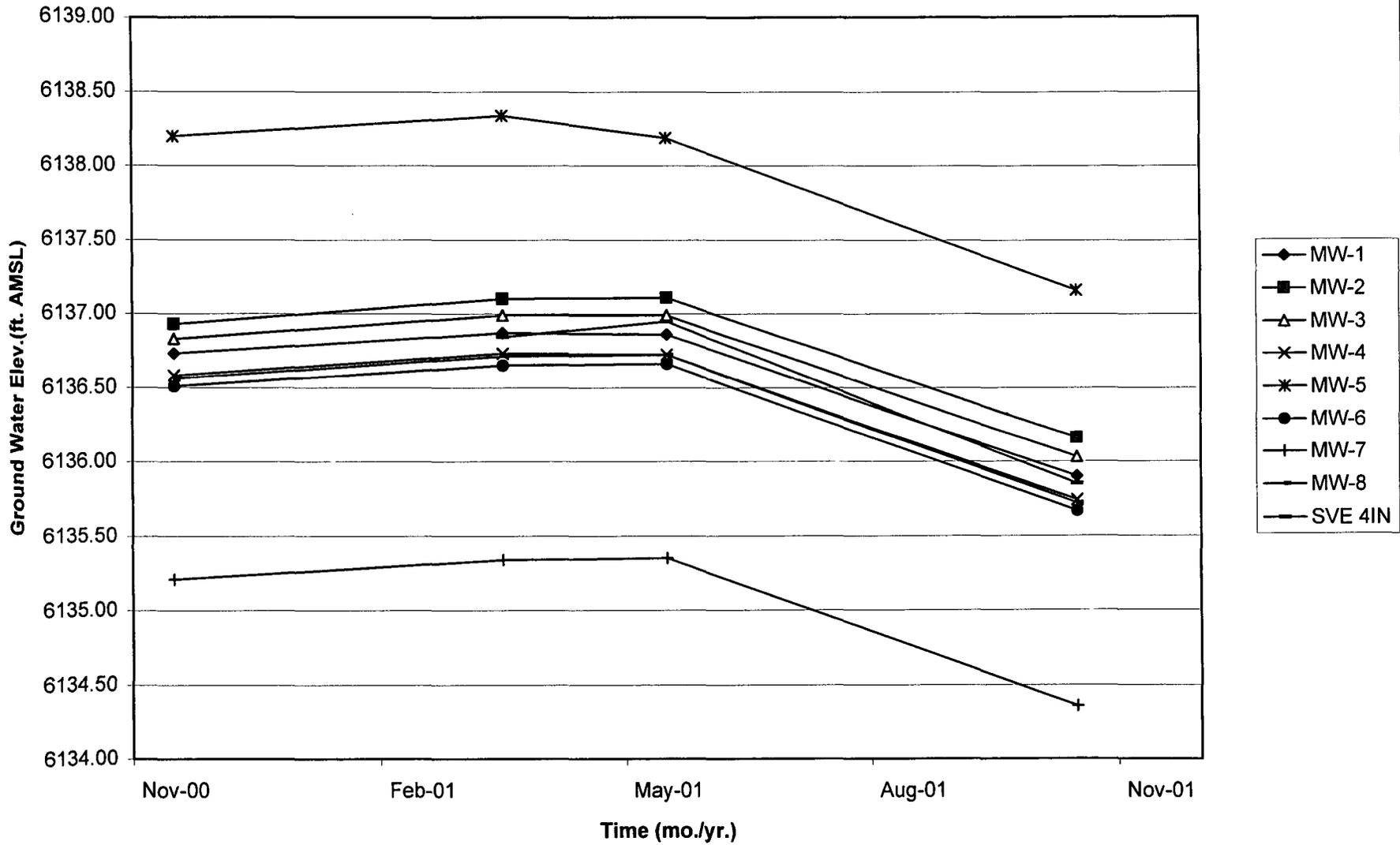
OCD Ranking: 40

Lead Agency: NMOCD

Status Narrative

This site has eight monitoring wells and one 4-inch well installed for a soil-vapor recovery pilot study. To date, thirteen quarters of monitoring have been completed. Accumulations of LNAPL in the 4-inch well have remained steady at approximately 1-foot. Dissolved BTEX levels in downgradient sentinel wells have remained non-detect.

Ice Canyon Line Drip Hydrograph



Analytical Data Summary

Site Name:
Ice Canyon Drip

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
MW-1						
	3/13/01	114013MAR01	<1	<1	<1	<1
	5/4/01	121404MAY01	<1	<1	<1	<1
	10/29/01	144029OCT01	<1.0	<2.0	<2.0	<2.0
MW-2						
	11/13/00	174213NOV00	3590	482	374	4090
	3/13/01	130613MAR01	1540	191	182	1340
	5/4/01	125404MAY01	2640	248	293	2000
	10/29/01	143629OCT01	2000	2.3	300	200
MW-3						
	11/13/00	172413NOV00	<1	<1	<1	<1
	3/13/01	125013MAR02	<1	<1	<1	<1
	5/4/01	124804MAY01	<1	<1	<1	<1
	10/29/01	142529OCT01	<1.0	<2.0	<2.0	<2.0
MW-4						
	11/13/00	162713NOV00	495	676	79.3	411
	3/13/01	120913MAR01	30.9	20.7	5.03	20.4
	5/4/01	124304MAY01	45.5	23.7	7.63	31.7
	10/29/01	141929OCT01	11	3.3	<2.0	3.4
MW-5						
	11/13/00	165613NOV00	267	19.4	41.8	10.5
	3/13/01	115713MAR01	95.1	55.1	10.6	19.5
	5/4/01	122404MAY01	70.8	50.5	6.20	18.9
	10/29/01	141429OCT01	2.1	<2.0	<2.0	<2.0
MW-6						
	11/13/00	172213NOV00	846	25.0	278	2700
	3/13/01	123113MAR01	741	26.7	240	2630
	5/4/01	123804MAY01	1190	41.7	369	4140
MW-7						
	11/13/00	170913NOV00	<1	<1	<1	1.97
	3/13/01	124013MAR01	<1	<1	<1	<1
	5/4/01	123204MAY01	<1	<1	<1	<1
	10/29/01	141029OCT01	<1.0	<2.0	<2.0	<2.0

Site Name:
Ice Canyon Drip

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
MW-8						
	11/13/00	164413NOV00	<1	<1	<1	<1
	3/13/01	122113MAR01	<1	<1	<1	<1
	5/4/01	121904MAY01	<1	<1	<1	<1
	10/29/01	140529OCT01	<1.0	<2.0	<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 #: 0011510

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

DATE REPORTED: 11/27/00
 DATE COLLECTED: 11/13/00
 DATE RECEIVED: 11/18/00

Reference Fraction:0011510-06A

Sample ID: ICE-SA-MW2

Sample Matrix: WATER

Sample Date Collected: 11/13/0017:42:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		3590	UG/L	10	11/21/00	MB
TOLUENE		482	UG/L	10	11/21/00	MB
ETHYLBENZENE		374	UG/L	10	11/21/00	MB
TOTAL XYLENES		4090	UG/L	10	11/21/00	MB
BFB (SURROGATE)		107	125	75		

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

APPROVED BY:


 TERRY KOESTER
 LABORATORY DIRECTOR

000026

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 #: 0011510

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

DATE REPORTED: 11/27/00
 DATE COLLECTED: 11/13/00
 DATE RECEIVED: 11/18/00

PROJECT: WES/ICE CANYON

Reference Fraction:0011510-01A

Sample ID: ICE-CG-MW3

Sample Matrix: WATER

Sample Date Collected: 11/13/0017:24:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		ND	UG/L	1.0	11/20/00	KKL
TOLUENE		ND	UG/L	1.0	11/20/00	KKL
ETHYLBENZENE		ND	UG/L	1.0	11/20/00	KKL
TOTAL XYLENES		ND	UG/L	1.0	11/20/00	KKL
BFB (SURROGATE)		110	125	75		

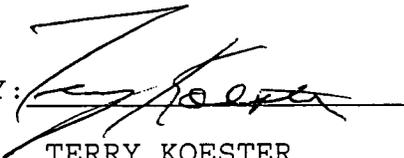
ND=NONE DETECTED

L=PRACTICAL QUANTITAION LIMIT

SU=STANDARD UNITS

B=DETECTED IN METHOD BLANK

APPROVED BY:


 TERRY KOESTER
 LABORATORY DIRECTOR

000021

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 #: 0011510

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

DATE REPORTED: 11/27/00
 DATE COLLECTED: 11/13/00
 DATE RECEIVED: 11/18/00

PROJECT: WES/ICE CANYON

Reference Fraction:0011510-05A

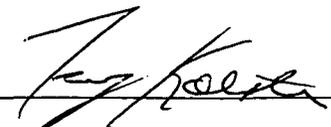
Sample ID: ICE-DG-MW4

Sample Matrix: WATER

Sample Date Collected: 11/13/0016:27:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		495	UG/L	10	11/21/00	MB
TOLUENE		676	UG/L	10	11/21/00	MB
ETHYLBENZENE		79.3	UG/L	10	11/21/00	MB
TOTAL XYLENES		411	UG/L	10	11/21/00	MB
BFB (SURROGATE)		108	125	75		

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

APPROVED BY: 
 TERRY KOESTER
 LABORATORY DIRECTOR


000025

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 #: 0011510

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

DATE REPORTED: 11/27/00
 DATE COLLECTED: 11/13/00
 DATE RECEIVED: 11/18/00

PROJECT: WES/ICE CANYON

Reference Fraction:0011510-07A

Sample ID: ICE-DG-MW5

Sample Matrix: WATER

Sample Date Collected: 11/13/0016:56:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		267	UG/L	1.0	11/20/00	KKL
TOLUENE		19.4	UG/L	1.0	11/20/00	KKL
ETHYLBENZENE		41.8	UG/L	1.0	11/20/00	KKL
TOTAL XYLENES		10.5	UG/L	1.0	11/20/00	KKL
BFB (SURROGATE)		121	125	75		

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

APPROVED BY:



TERRY KOESTER
 LABORATORY DIRECTOR

000027

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 #: 0011510

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

DATE REPORTED: 11/27/00
 DATE COLLECTED: 11/13/00
 DATE RECEIVED: 11/18/00

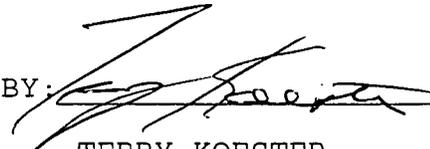
Reference Fraction:0011510-02A
 Sample ID: ICE-DG-MW6
 Sample Date Collected: 11/13/0017:22:00

Sample Matrix: WATER

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		846	UG/L	10	11/21/00	MB
TOLUENE		25.0	UG/L	10	11/21/00	MB
ETHYLBENZENE		278	UG/L	10	11/21/00	MB
TOTAL XYLENES		2700	UG/L	10	11/21/00	MB
BFB (SURROGATE)		114	125	75		

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

APPROVED BY:


 TERRY KOESTER
 LABORATORY DIRECTOR

000022

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 #: 0011510

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

DATE REPORTED: 11/27/00
 DATE COLLECTED: 11/13/00
 DATE RECEIVED: 11/18/00

Reference Fraction:0011510-03A

Sample ID: ICE-DG-MW7

Sample Matrix: WATER

Sample Date Collected: 11/13/0017:09:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		ND	UG/L	1.0	11/21/00	MB
TOLUENE		ND	UG/L	1.0	11/21/00	MB
ETHYLBENZENE		ND	UG/L	1.0	11/21/00	MB
TOTAL XYLENES		1.97	UG/L	1.0	11/21/00	MB
BFB (SURROGATE)		110	125	75		

ND=NONE DETECTED

L=PRACTICAL QUANTITAION LIMIT

SU=STANDARD UNITS

B=DETECTED IN METHOD BLANK

APPROVED BY:


 TERRY KOESTER
 LABORATORY DIRECTOR

000023

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 #: 0011510

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

DATE REPORTED: 11/27/00
 DATE COLLECTED: 11/13/00
 DATE RECEIVED: 11/18/00

PROJECT: WES/ICE CANYON

Reference Fraction:0011510-04A

Sample ID: ICE-DG-MW8

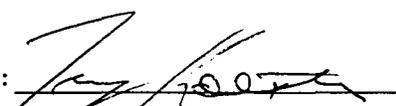
Sample Matrix: WATER

Sample Date Collected: 11/13/0016:44:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		ND	UG/L	1.0	11/20/00	KKL
TOLUENE		ND	UG/L	1.0	11/20/00	KKL
ETHYLBENZENE		ND	UG/L	1.0	11/20/00	KKL
TOTAL XYLENES		ND	UG/L	1.0	11/20/00	KKL
BFB (SURROGATE)		110	125	75		

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

APPROVED BY:


 TERRY KOESTER
 LABORATORY DIRECTOR

000024

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 #: 0103420

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

DATE REPORTED: 03/21/01
 DATE COLLECTED: 03/13/01
 DATE RECEIVED: 03/16/01

Reference Fraction: 0103420-05A

Sample ID: ICE-UG-MW1

Sample Matrix: WATER

Sample Date Collected: 03/13/01 11:40:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		ND	UG/L	1.0	03/19/01	MB
TOLUENE		ND	UG/L	1.0	03/19/01	MB
ETHYLBENZENE		ND	UG/L	1.0	03/19/01	MB
TOTAL XYLENES		ND	UG/L	1.0	03/19/01	MB
BFB (SURROGATE)		104	125	75		

ND=NONE DETECTED

PQL=PRACTICAL QUANTITATION LIMIT

SU=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 #: 0103420

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

DATE REPORTED: 03/21/01
 DATE COLLECTED: 03/13/01
 DATE RECEIVED: 03/16/01

Reference Fraction: 0103420-01A
 Sample ID: ICE-SA-MW2
 Sample Date Collected: 03/13/01 13:06:00

Sample Matrix: WATER

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		1540	UG/L	10	03/19/01	MB
TOLUENE		191	UG/L	10	03/19/01	MB
ETHYLBENZENE		182	UG/L	10	03/19/01	MB
TOTAL XYLENES		1340	UG/L	10	03/19/01	MB
BFB (SURROGATE)		101	125	75		

ND=NONE DETECTED
 P= PRACTICAL QUANTIFICATION 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 #: 0103420

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

DATE REPORTED: 03/21/01
 DATE COLLECTED: 03/13/01
 DATE RECEIVED: 03/16/01

PROJECT: WES/ICE CANYON

Reference Fraction: 0103420-02A

Sample ID: ICE-DG-MW3

Sample Matrix: WATER

Sample Date Collected: 03/13/01 12:50:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		ND	UG/L	1.0	03/19/01	MB
TOLUENE		ND	UG/L	1.0	03/19/01	MB
ETHYLBENZENE		ND	UG/L	1.0	03/19/01	MB
TOTAL XYLENES		ND	UG/L	1.0	03/19/01	MB
BFB (SURROGATE)		90	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

(Handwritten initials)

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 #: 0103420

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

DATE REPORTED: 03/21/01
 DATE COLLECTED: 03/13/01
 DATE RECEIVED: 03/16/01

PROJECT: WES/ICE CANYON

Reference Fraction: 0103420-08A

Sample ID: ICE-DG-MW4

Sample Matrix: WATER

Sample Date Collected: 03/13/01 12:09:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		30.9	UG/L	1.0	03/19/01	MB
TOLUENE		20.7	UG/L	1.0	03/19/01	MB
ETHYLBENZENE		5.03	UG/L	1.0	03/19/01	MB
TOTAL XYLENES		20.4	UG/L	1.0	03/19/01	MB
BFB (SURROGATE)		100	125	75		

ND=NONE DETECTED

P= PRACTICAL QUANTIFICATION LIMIT

S= STANDARD UNITS

B= DETECTED IN METHOD BLANK

APPROVED BY: TERRY KOESTER

TERRY KOESTER
 LABORATORY DIRECTOR

PK

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 #: 0103420

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

DATE REPORTED: 03/21/01
 DATE COLLECTED: 03/13/01
 DATE RECEIVED: 03/16/01

Reference Fraction:0103420-06A
 Sample ID: ICE-DG-MW5
 Sample Date Collected: 03/13/0111:57:00

Sample Matrix: WATER

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		95.1	UG/L	1.0	03/19/01	MB
TOLUENE		55.1	UG/L	1.0	03/19/01	MB
ETHYLBENZENE		10.6	UG/L	1.0	03/19/01	MB
TOTAL XYLENES		19.5	UG/L	1.0	03/19/01	MB
BFB (SURROGATE)		104	125	75		

ND=NONE DETECTED
 =PRACTICAL QUANTITAION LIMIT
 =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 #: 0103420

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

DATE REPORTED: 03/21/01
 DATE COLLECTED: 03/13/01
 DATE RECEIVED: 03/16/01

PROJECT: WES/ICE CANYON

Reference Fraction: 0103420-04A

Sample ID: ICE-DG-MW6

Sample Matrix: WATER

Sample Date Collected: 03/13/01 12:31:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		741	UG/L	10	03/19/01	MB
TOLUENE		26.7	UG/L	10	03/19/01	MB
ETHYLBENZENE		240	UG/L	10	03/19/01	MB
TOTAL XYLENES		2630	UG/L	10	03/19/01	MB
BFB (SURROGATE)		97	125	75		

N=NONE DETECTED

L=PRACTICAL QUANTITATION LIMIT

SU=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 #: 0103420

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

DATE REPORTED: 03/21/01
 DATE COLLECTED: 03/13/01
 DATE RECEIVED: 03/16/01

Reference Fraction: 0103420-03A

Sample ID: ICE-DG-MW7

Sample Matrix: WATER

Sample Date Collected: 03/13/01 12:40:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		ND	UG/L	1.0	03/19/01	MB
TOLUENE		ND	UG/L	1.0	03/19/01	MB
ETHYLBENZENE		ND	UG/L	1.0	03/19/01	MB
TOTAL XYLENES		ND	UG/L	1.0	03/19/01	MB
BFB (SURROGATE)		100	125	75		

ND=NONE DETECTED

=PRACTICAL QUANTITAION LIMIT

SU=STANDARD UNITS

B=DETECTED IN METHOD BLANK

APPROVED BY: TERRY KOESTER

TERRY KOESTER
 LABORATORY DIRECTOR

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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 #: 0103420

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

DATE REPORTED: 03/21/01
 DATE COLLECTED: 03/13/01
 DATE RECEIVED: 03/16/01

PROJECT: WES/ICE CANYON

Reference Fraction: 0103420-07A

Sample ID: ICE-DG-MW8

Sample Matrix: WATER

Sample Date Collected: 03/13/01 12:21:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		ND	UG/L	1.0	03/19/01	MB
TOLUENE		ND	UG/L	1.0	03/19/01	MB
ETHYLBENZENE		ND	UG/L	1.0	03/19/01	MB
TOTAL XYLENES		ND	UG/L	1.0	03/19/01	MB
BFB (SURROGATE)		100	125	75		

ND=NONE DETECTED

=PRACTICAL QUANTITAION 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 #: 0105205

SENT *WILLIAMS GAS PIPELINE*
 TO: *187 COUNTY ROAD #4980*
BLOOMFIELD, NM 87413
JIM STRUHS
 PROJECT: WES/ICE CANYON DRIP

DATE REPORTED: 05/15/01
 DATE COLLECTED: 05/04/01
 DATE RECEIVED: 05/08/01

Reference Fraction: 0105205-07A
 Sample ID: ICE-UG-MW1
 Sample Date Collected: 05/04/01 12:14:00

Sample Matrix: WATER

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		ND	UG/L	1.0	05/09/01	MB
TOLUENE		ND	UG/L	1.0	05/09/01	MB
ETHYLBENZENE		ND	UG/L	1.0	05/09/01	MB
TOTAL XYLENES		ND	UG/L	1.0	05/09/01	MB
BFB (SURROGATE)		104	125	75		

ND=NONE DETECTED
 =PRACTICAL QUANTITATION LIMIT
 S=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 #: 0105205

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

DATE REPORTED: 05/15/01
 DATE COLLECTED: 05/04/01
 DATE RECEIVED: 05/08/01

PROJECT: WES/ICE CANYON DRIP

Reference Fraction: 0105205-01A

Sample ID: ICE-SA-MW2

Sample Matrix: WATER

Sample Date Collected: 05/04/01 12:54:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		2640	UG/L	10	05/09/01	MB
TOLUENE		248	UG/L	10	05/09/01	MB
ETHYLBENZENE		293	UG/L	10	05/09/01	MB
TOTAL XYLENES		2000	UG/L	10	05/09/01	MB
BFB (SURROGATE)		122	125	75		

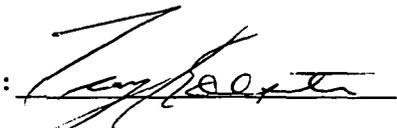
ND=NONE DETECTED

P= PRACTICAL QUANTITATION LIMIT

S= STANDARD UNITS

B= DETECTED IN METHOD BLANK

APPROVED BY:


 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 #: 0105205

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

DATE REPORTED: 05/15/01
 DATE COLLECTED: 05/04/01
 DATE RECEIVED: 05/08/01

PROJECT: WES/ICE CANYON DRIP

Reference Fraction:0105205-02A

Sample ID: ICE-CG-MW3

Sample Matrix: WATER

Sample Date Collected: 05/04/0112:48:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		ND	UG/L	1.0	05/09/01	MB
TOLUENE		ND	UG/L	1.0	05/09/01	MB
ETHYLBENZENE		ND	UG/L	1.0	05/09/01	MB
TOTAL XYLENES		ND	UG/L	1.0	05/09/01	MB
BFB (SURROGATE)		107	125	75		

ND=NONE DETECTED

PQL=PRACTICAL QUANTITAION LIMIT

DU=STANDARD UNITS

B=DETECTED IN METHOD BLANK

APPROVED BY:


 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 #: 0105205

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

DATE REPORTED: 05/15/01
 DATE COLLECTED: 05/04/01
 DATE RECEIVED: 05/08/01

PROJECT: WES/ICE CANYON DRIP

Reference Fraction: 0105205-04A

Sample ID: ICE-DG-MW4

Sample Matrix: WATER

Sample Date Collected: 05/04/01 12:43:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		45.5	UG/L	1.0	05/10/01	MB
TOLUENE		23.7	UG/L	1.0	05/10/01	MB
ETHYLBENZENE		7.63	UG/L	1.0	05/10/01	MB
TOTAL XYLENES		31.7	UG/L	1.0	05/10/01	MB
BFB (SURROGATE)		110	125	75		

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

APPROVED BY:



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 #: 0105205

SENT **WILLIAMS GAS PIPELINE**
 TO: **187 COUNTY ROAD #4980**
BLOOMFIELD, NM 87413
JIM STRUHS
 PROJECT: WES/ICE CANYON DRIP

DATE REPORTED: 05/15/01
 DATE COLLECTED: 05/04/01
 DATE RECEIVED: 05/08/01

Reference Fraction: 0105205-06A
 Sample ID: ICE-DG-MW5
 Sample Date Collected: 05/04/0112:24:00

Sample Matrix: WATER

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		70.8	UG/L	1.0	05/09/01	MB
TOLUENE		50.5	UG/L	1.0	05/09/01	MB
ETHYLBENZENE		6.20	UG/L	1.0	05/09/01	MB
TOTAL XYLENES		18.9	UG/L	1.0	05/09/01	MB
BFB (SURROGATE)		125	125	75		

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

APPROVED BY:


 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 #: 0105205

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

DATE REPORTED: 05/15/01
 DATE COLLECTED: 05/04/01
 DATE RECEIVED: 05/08/01

PROJECT: WES/ICE CANYON DRIP

Reference Fraction:0105205-03A

Sample ID: ICE-DG-MW6

Sample Matrix: WATER

Sample Date Collected: 05/04/0112:38:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		1190	UG/L	10	05/10/01	MB
TOLUENE		41.7	UG/L	10	05/10/01	MB
ETHYLBENZENE		369	UG/L	10	05/10/01	MB
TOTAL XYLENES		4140	UG/L	10	05/10/01	MB
BFB (SURROGATE)		110	125	75		

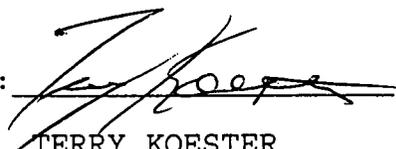
ND=NONE DETECTED

●=PRACTICAL QUANTITAION LIMIT

○=STANDARD UNITS

B=DETECTED IN METHOD BLANK

APPROVED BY:


 TERRY KOESTER
 LABORATORY DIRECTOR

Q W I 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 #: 0105205

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

DATE REPORTED: 05/15/01
 DATE COLLECTED: 05/04/01
 DATE RECEIVED: 05/08/01

PROJECT: WES/ICE CANYON DRIP

Reference Fraction: 0105205-05A

Sample ID: ICE-DG-MW7

Sample Matrix: WATER

Sample Date Collected: 05/04/01 12:32:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B				3.0	
BENZENE		ND	UG/L		1.0	05/10/01 MB
TOLUENE		ND	UG/L		1.0	05/10/01 MB
ETHYLBENZENE		ND	UG/L		1.0	05/10/01 MB
TOTAL XYLENES		ND	UG/L		1.0	05/10/01 MB
BFB (SURROGATE)		99	125		75	

ND=NONE DETECTED

PQL=PRACTICAL QUANTIFICATION LIMIT

STANDARD UNITS

B=DETECTED IN METHOD BLANK

APPROVED BY:



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 #: 0105205

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

DATE REPORTED: 05/15/01
 DATE COLLECTED: 05/04/01
 DATE RECEIVED: 05/08/01

PROJECT: WES/ICE CANYON DRIP

Reference Fraction:0105205-08A

Sample ID: ICE-DG-MW8

Sample Matrix: WATER

Sample Date Collected: 05/04/0112:19:00

TEST	METHOD	RESULT	UNITS	PQL	ANALYZED	BY
BTEX	OA1/8021B			3.0		
BENZENE		ND	UG/L	1.0	05/10/01	MB
TOLUENE		ND	UG/L	1.0	05/10/01	MB
ETHYLBENZENE		ND	UG/L	1.0	05/10/01	MB
TOTAL XYLENES		ND	UG/L	1.0	05/10/01	MB
BFB (SURROGATE)		103	125	75		

ND=NONE DETECTED

P= PRACTICAL QUANTITATION LIMIT

SC=STANDARD UNITS

B=DETECTED IN METHOD BLANK

APPROVED BY:



TERRY KOESTER
 LABORATORY DIRECTOR





ORGANIC ANALYSIS REPORT

Client: Mile High Environmental
Collected: October 29, 2001
Received: October 31, 2001
Analysis Requested: SW8260B/5030A

Contact: Jim Struhs
Analyzed: November 10, 2001

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Lab Sample ID: L48187-01A
Field Sample ID: ICE-UG-MW1
Site ID: Ice Canyon / JPS-103001-04

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:

November 13, 2001

Page 1 of 1



ORGANIC ANALYSIS REPORT

Client: Mile High Environmental
Collected: October 29, 2001
Received: October 31, 2001

Contact: Jim Struhs
Analyzed: November 10, 2001

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Analysis Requested: SW8260B/5030A

Lab Sample ID: L48187-02A
Field Sample ID: ICE-SA-MW2
Site ID: Ice Canyon / JPS-103001-04

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	2.0	*
Toluene	0.0020	0.0023	
Ethylbenzene	0.0020	0.30	*
Total Xylene	0.0020	0.20	

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

* These analytes were obtained from a 1:20 dilution.

Released by:

Laboratory Supervisor

Report Date: November 13, 2001 Page 1 of 1



ORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: Mile High Environmental
Collected: October 29, 2001
Received: October 31, 2001
Analysis Requested: SW8260B/5030A

Contact: Jim Struhs
Analyzed: November 10, 2001

Lab Sample ID: L48187-03A
Field Sample ID: ICE-CG-MW3
Site ID: Ice Canyon / JPS-103001-04

463 West 3600 South
Salt Lake City, Utah
84115

Analytical Results

MBTEXN/TPH-P

Units = mg/L

Final Dilution Factor: 1

Compound

<u>Reporting Limit</u>	<u>Amount Detected</u>
0.0010	< 0.0010
0.0020	< 0.0020
0.0020	< 0.0020
0.0020	< 0.0020

Benzene

Toluene

Ethylbenzene

Total Xylene

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e-mail: awal@xmission.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by:


Laboratory Supervisor

Report Date: November 13, 2001 Page 1 of 1



ORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: Mile High Environmental
Collected: October 29, 2001
Received: October 31, 2001
Analysis Requested: SW8260B/5030A

Contact: Jim Struhs
Analyzed: November 10, 2001

Lab Sample ID: L48187-04A
Field Sample ID: ICE-DG-MW4
Site ID: Ice Canyon / JPS-103001-04

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	0.011
Toluene	0.0020	0.0033
Ethylbenzene	0.0020	< 0.0020
Total Xylene	0.0020	0.0034

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by:
Laboratory Supervisor

Report Date: November 13, 2001 Page 1 of 1



ORGANIC ANALYSIS REPORT

Client: Mile High Environmental

Collected: October 29, 2001

Received: October 31, 2001

Contact: Jim Struhs

Analyzed: November 10, 2001

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Analysis Requested: SW8260B/5030A

Lab Sample ID: L48187-05A

Field Sample ID: ICE-DG-MW5

Site ID: Ice Canyon / JPS-103001-04

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

0.0021

Toluene

0.0020

< 0.0020

Ethylbenzene

0.0020

< 0.0020

Total Xylene

0.0020

< 0.0020

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by:

Laboratory Supervisor

Report Date:

November 13, 2001

Page 1 of 1



ORGANIC ANALYSIS REPORT

Client: Mile High Environmental
Collected: October 29, 2001
Received: October 31, 2001

Contact: Jim Struhs
Analyzed: November 10, 2001

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Analysis Requested: SW8260B/5030A

Lab Sample ID: L48187-06A
Field Sample ID: ICE-DG-MW7
Site ID: Ice Canyon / JPS-103001-04

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

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by:

Laboratory Supervisor

Report Date:

November 13, 2001

Page 1 of 1



ORGANIC ANALYSIS REPORT

Client: Mile High Environmental
Collected: October 29, 2001
Received: October 31, 2001

Contact: Jim Struhs
Analyzed: November 10, 2001

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Analysis Requested: SW8260B/5030A

Lab Sample ID: L48187-07A
Field Sample ID: ICE-DG-MW8
Site ID: Ice Canyon / JPS-103001-04

463 West 3600 South
Salt Lake City, Utah
84115

Analytical Results

MBTEXN/TPH-P

Units = mg/L

Final Dilution Factor: 1

Compound

<u>Reporting Limit</u>	<u>Amount Detected</u>
0.0010	< 0.0010
0.0020	< 0.0020
0.0020	< 0.0020
0.0020	< 0.0020

Benzene

Toluene

Ethylbenzene

Total Xylene

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by: 
Laboratory Supervisor

Report Date: November 13, 2001 Page 1 of 1

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