

GW - 2

MONITORING REPORTS

DATE:

1994-1992



GPM GAS SERVICES COMPANY
A DIVISION OF PHILLIPS PETROLEUM COMPANY

4044 PENBROOK
ODESSA, TX 79762

OIL CONSERVATION DIVISION
RECEIVED

7 AM 8 52

October 5, 1994

Mr. William Olson
Hydrogeologist
New Mexico Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

RE: THIRD QUARTER AND ANNUAL 1994 ANALYTICAL RESULTS, LEE PLANT
DISCHARGE PLAN GW - 2

Dear Mr. Olson:

GPM Gas Corporation (GPM) herein submits the laboratory analytical reports and a brief summary of the results for the third quarter and annual groundwater sampling event at our Lee Plant. Groundwater samples were collected by our consultant, GCL, on July 26, 1994, pursuant to the requirements of NMOCD Discharge Plan GW - 2.

Depth to groundwater and product thickness measurements were collected from **all** monitor wells. Results of the measurements indicate that groundwater continues to flow northeast to southwest beneath the site. Figure 1 shows the current configuration for groundwater flow. Floating product was present in monitor wells, MW-4, and NW-5, in thicknesses of 1.15 feet and 4.08 feet, respectively. A slight hydrocarbon odor was detected in MW-15.

Quarterly and annual groundwater sampling was conducted at the following monitor wells: MW-2, MW-5, MW-7, MW-9, MW-10, MW-11, MW-12, MW-13, MW-16, MW-18, MW-19 and MW-20. In addition to the required sampling, GCL collected samples from monitor wells, MW-21 and MW-22, the shallow and intermediate wells that monitor efficacy of the vapor extraction/air sparging system. All samples were submitted to NDRC Laboratories, Inc., in Houston, Texas, following strict chain-of-custody procedures and were analyzed for dissolved aromatic hydrocarbons using EPA method 602.

A brief summary of the analytical results is provided below:

A high concentration of benzene (3820 ppb) was detected in MW-16 which is located north of, and upgradient from the plant. We believe that upgradient, offsite sources may be contributing to hydrocarbons that are detected in this well. During the 1993 annual sampling event, benzene was measured at 1190 ppb in this well. Concentrations of BTEX in MW-18, located upgradient and to the northwest of the plant site, remain relatively unchanged.

Mr. William Olson
October 5, 1994
page 2

BTEX concentrations in MW-21 and MW-22 have experienced an overall decrease since May 1994. Analytical results for the last two sampling events are as follows:

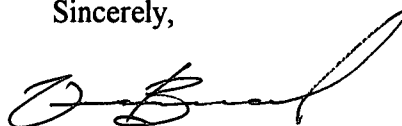
	MW-21		MW-22	
	<u>May 94 - Jul 94</u>		<u>May 94 - Jul 94</u>	
Benzene	517	77.7 ppb	6.6	4.7 ppb
Toluene	52	51.1	2.4	1.1
Ethylbenzene	<10	<1.0	<1.0	<1.0
Xylenes	<30	10.5	7.1	<3.0

BTEX concentrations in groundwater collected from interior plant monitor wells, MW-2 and MW-7, are below WQCC standards. Additional interior wells, MW-5 and MW-10 continue to experience elevated concentrations of BTEX.

BTEX concentrations in the down-gradient compliance monitor wells, MW-11, 12, 13, 19 and 20 are below WQCC standards.

If you have any questions regarding the contents of this letter or the attachments, please call me at (915) 368-1085.

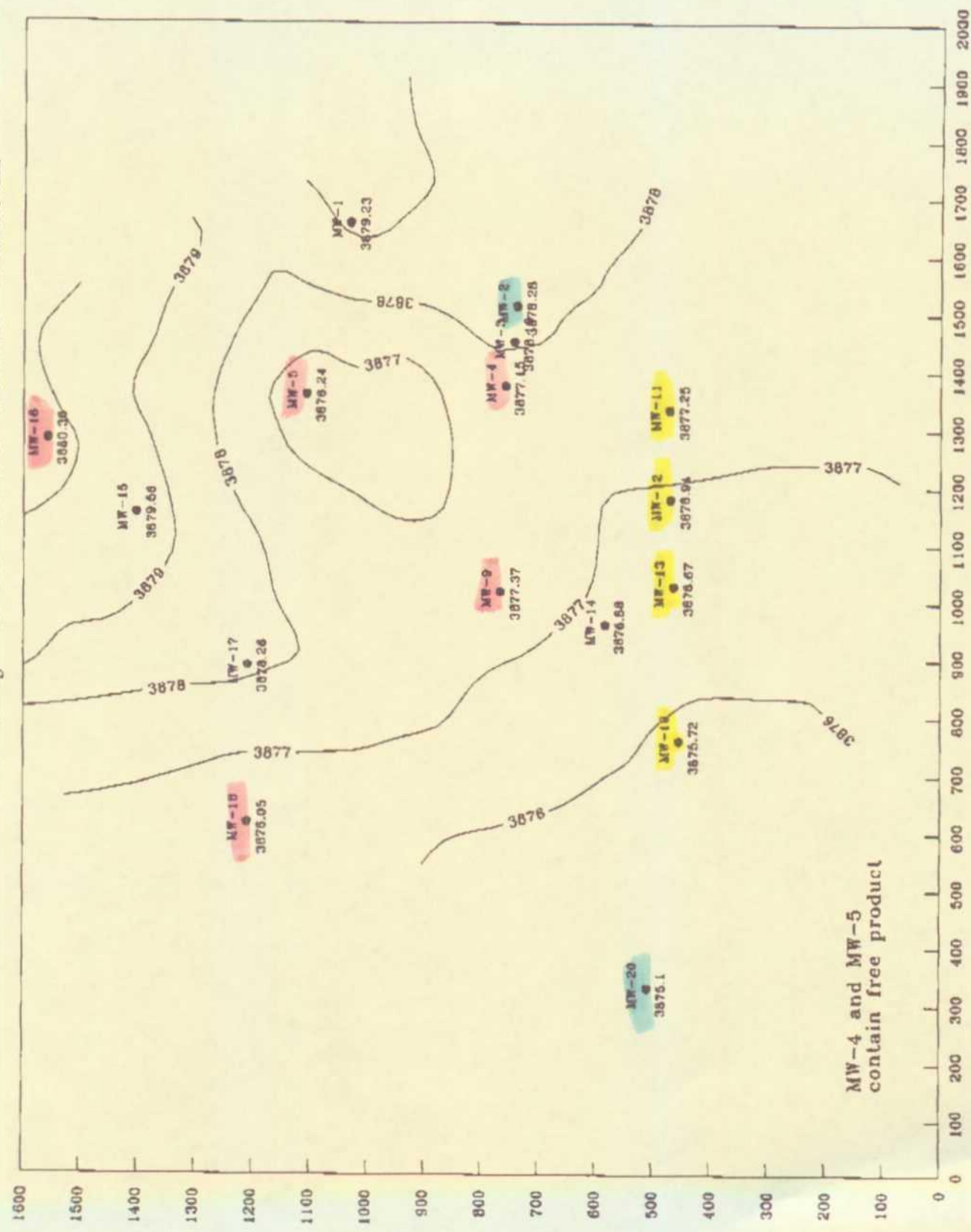
Sincerely,



Vince Bernard
Safety and Environmental Director
New Mexico Region

cc: Maureen Gannon - GCL

Figure 1
GPM Lee Plant July 1994 Water Table Contour





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SUMMARY REPORT

CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : GPM/Gannon

JOB NUMBER : H94-4834
REPORT DATE : 2-AUG-1994

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
1	9407261335 MW-9	Groundwater	26-JUL-1994
2	9407261420 MW-19	Groundwater	26-JUL-1994
3	9407261430 MW-19A	Groundwater	26-JUL-1994
4	9407261500 MW-13	Groundwater	26-JUL-1994

BTEX ANALYSIS, EPA 8020		1	2	3	4
Benzene $\mu\text{g/L}$		495	5.4	5.7	6.5
Toluene $\mu\text{g/L}$	<	10	< 1.0	< 1.0	1.2
Ethyl benzene $\mu\text{g/L}$	<	10	< 1.0	< 1.0	< 1.0
Xylenes $\mu\text{g/L}$	<	30	< 3.0	< 3.0	< 3.0

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Kuei-Mei Li
Kuei-Mei Li
Technical Director



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SUMMARY REPORT

CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : GPM/Gannon

JOB NUMBER : H94-4834
REPORT DATE : 2-AUG-1994

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
5	9407261520 MW-12	Groundwater	26-JUL-1994
6	9407261545 MW-11	Groundwater	26-JUL-1994
7	9407251450 MW-7	Groundwater	25-JUL-1994
8	9407251520 MW-10	Groundwater	25-JUL-1994

BTEX ANALYSIS, EPA 8020		5	6	7	8
Benzene	µg/L	3.7	1.9	2.8	4160
Toluene	µg/L	< 1.0	1.1	1.8	210
Ethyl benzene	µg/L	< 1.0	< 1.0	1.2	230
Xylenes	µg/L	< 3.0	< 3.0	5.0	860

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SUMMARY REPORT

CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : GPM/Gannon

JOB NUMBER : H94-4834
REPORT DATE : 2-AUG-1994

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
9	9407260840 MW-20	Groundwater	26-JUL-1994
10	9407260915 MW-2	Groundwater	26-JUL-1994
11	9407251545 WS-1	Groundwater	25-JUL-1994
12	9407261000 MW-5	Groundwater	26-JUL-1994

BTEX ANALYSIS, EPA 8020		9	10	11	12
Benzene	µg/L	< 1.0	< 1.0	19.5	66400
Toluene	µg/L	< 1.0	< 1.0	< 1.0	17100
Ethyl benzene	µg/L	< 1.0	< 1.0	2.3	630
Xylenes	µg/L	< 3.0	< 3.0	< 3.0	< 1500

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SUMMARY REPORT

CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : GPM/Gannon

JOB NUMBER : H94-4834
REPORT DATE : 2-AUG-1994

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
13	9407261045 MW-16	Groundwater	26-JUL-1994
14	9407261130 MW-18	Groundwater	26-JUL-1994
15	9407261200 MW-21	Groundwater	26-JUL-1994
16	9407261300 MW-22	Groundwater	26-JUL-1994

BTEX ANALYSIS, EPA 8020		13	14	15	16
Benzene	µg/L	3820	56.5	77.7	4.7
Toluene	µg/L	1660	8.3	51.1	1.1
Ethyl benzene	µg/L	120	2.3	< 1.0	< 1.0
Xylenes	µg/L	< 300	< 3.0	10.5	< 3.0

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DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-1

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9407261335 MW-9

PROJECT : GPM/Gannon

DATE SAMPLED : 26-JUL-1994

ANALYSIS METHOD : EPA 8020

ANALYZED BY : RGR

ANALYZED ON : 1-AUG-1994

DILUTION FACTOR : 10

BTEX ANALYSIS					
TEST REQUESTED	DETECTION LIMIT		RESULTS		
Benzene	10	µg/L	495	µg/L	
Toluene	10	µg/L	<	10	µg/L
Ethyl benzene	10	µg/L	<	10	µg/L
Xylenes	30	µg/L	<	30	µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	96.7 %

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DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-2

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9407261420 MW-19

PROJECT : GPM/Gannon

DATE SAMPLED : 26-JUL-1994

ANALYSIS METHOD : EPA 8020

ANALYZED BY : RGR

ANALYZED ON : 1-AUG-1994

DILUTION FACTOR : 1

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 $\mu\text{g/L}$	5.4 $\mu\text{g/L}$
Toluene	1.0 $\mu\text{g/L}$	< 1.0 $\mu\text{g/L}$
Ethyl benzene	1.0 $\mu\text{g/L}$	< 1.0 $\mu\text{g/L}$
Xylenes	3.0 $\mu\text{g/L}$	< 3.0 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 $\mu\text{g/L}$	99.3 %

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DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-3

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9407261430 MW-19A
PROJECT : GPM/Gannon
DATE SAMPLED : 26-JUL-1994
ANALYSIS METHOD : EPA 8020
ANALYZED BY : RGR
ANALYZED ON : 29-JUL-1994
DILUTION FACTOR : 1

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	5.7 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	96.2 %

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DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-4

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9407261500 MW-13
PROJECT : GPM/Gannon
DATE SAMPLED : 26-JUL-1994
ANALYSIS METHOD : EPA 8020
ANALYZED BY : RGR
ANALYZED ON : 29-JUL-1994
DILUTION FACTOR : 1

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	6.5 µg/L
Toluene	1.0 µg/L	1.2 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	95.9 %

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DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-5

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9407261520 MW-12

PROJECT : GPM/Gannon

DATE SAMPLED : 26-JUL-1994

ANALYSIS METHOD : EPA 8020

ANALYZED BY : RGR

ANALYZED ON : 1-AUG-1994

DILUTION FACTOR : 1

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	3.7 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	102 %

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DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-6

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9407261545 MW-11

PROJECT : GPM/Gannon

DATE SAMPLED : 26-JUL-1994

ANALYSIS METHOD : EPA 8020

ANALYZED BY : RGR

ANALYZED ON : 29-JUL-1994

DILUTION FACTOR : 1

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 $\mu\text{g/L}$	1.9 $\mu\text{g/L}$
Toluene	1.0 $\mu\text{g/L}$	1.1 $\mu\text{g/L}$
Ethyl benzene	1.0 $\mu\text{g/L}$	< 1.0 $\mu\text{g/L}$
Xylenes	3.0 $\mu\text{g/L}$	< 3.0 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 $\mu\text{g/L}$	95.1 %

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DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-7

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9407251450 MW-7
PROJECT : GPM/Gannon
DATE SAMPLED : 25-JUL-1994
ANALYSIS METHOD : EPA 8020
ANALYZED BY : RGR
ANALYZED ON : 1-AUG-1994
DILUTION FACTOR : 1

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	2.8 µg/L
Toluene	1.0 µg/L	1.8 µg/L
Ethyl benzene	1.0 µg/L	1.2 µg/L
Xylenes	3.0 µg/L	5.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	101 %

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DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-8

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9407251520 MW-10
PROJECT : GPM/Gannon
DATE SAMPLED : 25-JUL-1994
ANALYSIS METHOD : EPA 8020
ANALYZED BY : RGR
ANALYZED ON : 29-JUL-1994
DILUTION FACTOR : 200

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	200 $\mu\text{g/L}$	4160 $\mu\text{g/L}$
Toluene	200 $\mu\text{g/L}$	210 $\mu\text{g/L}$
Ethyl benzene	200 $\mu\text{g/L}$	230 $\mu\text{g/L}$
Xylenes	600 $\mu\text{g/L}$	860 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 $\mu\text{g/L}$	89.8 %

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DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-9

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9407260840 MW-20

PROJECT : GPM/Gannon

DATE SAMPLED : 26-JUL-1994

ANALYSIS METHOD : EPA 8020

ANALYZED BY : RGR

ANALYZED ON : 1-AUG-1994

DILUTION FACTOR : 1

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 $\mu\text{g/L}$	< 1.0 $\mu\text{g/L}$
Toluene	1.0 $\mu\text{g/L}$	< 1.0 $\mu\text{g/L}$
Ethyl benzene	1.0 $\mu\text{g/L}$	< 1.0 $\mu\text{g/L}$
Xylenes	3.0 $\mu\text{g/L}$	< 3.0 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 $\mu\text{g/L}$	104 %

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DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-10

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9407260915 MW-2
PROJECT : GPM/Gannon
DATE SAMPLED : 26-JUL-1994
ANALYSIS METHOD : EPA 8020
ANALYZED BY : RGR
ANALYZED ON : 1-AUG-1994
DILUTION FACTOR : 1

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	< 1.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	101 %

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DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-11

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9407251545 WS-1
PROJECT : GPM/Gannon
DATE SAMPLED : 25-JUL-1994
ANALYSIS METHOD : EPA 8020
ANALYZED BY : RGR
ANALYZED ON : 29-JUL-1994
DILUTION FACTOR : 1

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	19.5 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	2.3 µg/L
Xylenes	3.0 µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	83.9 %

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DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-12

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9407261000 MW-5
PROJECT : GPM/Gannon
DATE SAMPLED : 26-JUL-1994
ANALYSIS METHOD : EPA 8020
ANALYZED BY : RGR
ANALYZED ON : 2-AUG-1994
DILUTION FACTOR : 500

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	500 $\mu\text{g/L}$	66400 $\mu\text{g/L}$
Toluene	500 $\mu\text{g/L}$	17100 $\mu\text{g/L}$
Ethyl benzene	500 $\mu\text{g/L}$	630 $\mu\text{g/L}$
Xylenes	1500 $\mu\text{g/L}$	< 1500 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 $\mu\text{g/L}$	87.3 %

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DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-13

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9407261045 MW-16
PROJECT : GPM/Gannon
DATE SAMPLED : 26-JUL-1994
ANALYSIS METHOD : EPA 8020
ANALYZED BY : RGR
ANALYZED ON : 2-AUG-1994
DILUTION FACTOR : 100

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	100 $\mu\text{g/L}$	3820 $\mu\text{g/L}$
Toluene	100 $\mu\text{g/L}$	1660 $\mu\text{g/L}$
Ethyl benzene	100 $\mu\text{g/L}$	120 $\mu\text{g/L}$
Xylenes	300 $\mu\text{g/L}$	< 300 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 $\mu\text{g/L}$	93.5 %

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-14

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9407261130 MW-18

PROJECT : GPM/Gannon

DATE SAMPLED : 26-JUL-1994

ANALYSIS METHOD : EPA 8020

ANALYZED BY : RGR

ANALYZED ON : 1-AUG-1994

DILUTION FACTOR : 1

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	56.5 µg/L
Toluene	1.0 µg/L	8.3 µg/L
Ethyl benzene	1.0 µg/L	2.3 µg/L
Xylenes	3.0 µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	91.5 %

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-15

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9407261200 MW-21
PROJECT : GPM/Gannon
DATE SAMPLED : 26-JUL-1994
ANALYSIS METHOD : EPA 8020
ANALYZED BY : RGR
ANALYZED ON : 1-AUG-1994
DILUTION FACTOR : 1

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	77.7 µg/L
Toluene	1.0 µg/L	51.1 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	10.5 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	90.4 %

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Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
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DATE RECEIVED : 27-JUL-1994

REPORT NUMBER : H94-4834-16

REPORT DATE : 2-AUG-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9407261300 MW-22
PROJECT : GPM/Gannon
DATE SAMPLED : 26-JUL-1994
ANALYSIS METHOD : EPA 8020
ANALYZED BY : RGR
ANALYZED ON : 2-AUG-1994
DILUTION FACTOR : 1

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	4.7 µg/L
Toluene	1.0 µg/L	1.1 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	98.5 %

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



☒ Albuquerque
505 Marquette NW, Ste. 1100
Albuquerque, NM 87102
(505) 842-0001
FAX: (505) 842-0595

☐ NASA-WSTF
PO Drawer MM
Las Cruces, NM 88004
(505) 524-5353
FAX: (505) 524-5315

☐ Boston
180 Canal Street
Boston, MA 02114
(617) 723-4664
FAX: (617) 367-1386

☐ Chicago
626 W. Jackson Blvd., Ste. 800
Chicago, IL 60606
(312) 648-9988
FAX: (312) 648-0818

ORIGINAL

7012

Chain of Custody

☐ Hartford
380 South Center Street
Windsor Locks, CT 06096
(203) 627-6528
FAX: (203) 627-7815

☐ Los Angeles
19600 Fairchild, Ste. 120
Irvine, CA 92715
(714) 955-0201
FAX: (714) 955-0965

☐ Mid Atlantic Region
4221 Forbes Blvd., Ste. 240
Lanham, MD 20706-4325
(301) 459-9677
FAX: (301) 459-3064

☐ New York
261 Madison Avenue
New York, NY 10016
(212) 983-8510
FAX: (212) 983-8795

☐ San Francisco
2200 Powell Street, Ste. 880
Emeryville, CA 94608
(510) 547-3886
FAX: (510) 547-3631

Date 7/26/94 Page 1 of 2

Lab Name NDRC/Inchcape Testing Service

Address 11155 South Main
Houston, TX 77025
Telephone (713) 661-8150

Samplers (SIGNATURES) [Signature]

Sample Number	Matrix	Location
9407261335	H2O	MW-9
9407261420	H2O	MW-19
9407261430	H2O	MW-19A
9407261500	H2O	MW-13
9407261520	H2O	MW-12
9407261545	H2O	MW-11

Analysis Request

Halogenated Volatiles 601/8010	Aromatic Volatiles 602/8020	Phenols, Sub Phenols 604/8040	Pesticides/PCB 606/8060	Polynuclear Aromatic Hydrocarbons 610/8310	Volatiles 624/8240	Base/New/Acid Compounds GC/MS 625/8270	Total Organic Carbon (TOC) 415/9060	Total Organic Halides (TOX) 9020	Petroleum Hydrocarbons 418.1	TPH/BTEX Modified 8015	TCLP-Vol., Semi-Vol. Herbicides, Pesticides TCLP-Metals	RCRA Metals (9)	Priority Pollutant Metals (13)	CAM Metals (18) Tl/C/STL/C	Flash Point	Corrosivity	Reactivity	Oil & Grease	Cyanide Total/Amenable	Chemical Oxygen Demand (COD)	Number of Containers
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

DUE: 8-1-94

7/27-7/28/94 to A. Montoya and decided to run by same method - 1st time used - 8020. 15 months for first time.

Project Information	Sample Receipt
Project <u>EPM</u>	Total No. of Containers
Project Director <u>Gannon</u>	Chain of Custody Seals
Charge Code No. <u>3023 002</u>	Rec'd Good Condition/Cold
Shipping ID. No. <u>5394481352</u>	Conforms to Record
Via: <u>FED EX</u>	Lab No.
Special Instructions/Comments:	

Relinquished By	Relinquished By	Relinquished By
1. <u>[Signature]</u> 7/26/94	2. <u>[Signature]</u>	3. <u>[Signature]</u>
(Printed Name) <u>Maureen D Gannon</u>	(Printed Name)	(Printed Name)
(Date)	(Date)	(Date)
(Company)	(Company)	(Company)
Received By	Received By	Received By
1. <u>[Signature]</u>	2. <u>[Signature]</u>	3. <u>[Signature]</u>
(Printed Name)	(Printed Name)	(Printed Name)
(Date)	(Date)	(Date)
(Company)	(Company)	(Company)

10:30
175/NDRC
12794



Environmental Science
and Engineering
A BDM International Company

Albuquerque
505 Marquette NW, Ste. 1100
Albuquerque, NM 87102
(505) 842-0001
FAX: (505) 842-0595

Mid Atlantic Region
4221 Forbes Blvd., Ste. 240
Lanham, MD 20706-4325
(301) 459-9677
FAX: (301) 459-3064

NASA-WSTF
PO Drawer MM
Las Cruces, NM 88004
(505) 524-5353
FAX: (505) 524-5315

No 8421

Chain of Custody

Date 7/25/94 Page 2 of 2

Analysis Request									
Lab Name NDRC/Inchcape Testing Service									
Address 11155 South Main									
Houston, TX 77025									
Telephone (713) 661-8150									
Samplers (SIGNATURES)									
Sample Number	Matrix	Location							
9407251450	H2O	MW-7	3	3	3	3	3	3	3
9407251520	H2O	MW-10	3	3	3	3	3	3	3
9407260840	H2O	MW-20	3	3	3	3	3	3	3
9407260915	H2O	MW-2	3	3	3	3	3	3	3
9407251545	H2O	WS-1	3	3	3	3	3	3	3
9407261000	H2O	MW-5	3	3	3	3	3	3	3
9407261045	H2O	MW-16	3	3	3	3	3	3	3
9407261130	H2O	MW-18	3	3	3	3	3	3	3
9407261200	H2O	MW-21	3	3	3	3	3	3	3
9407261300	H2O	MW-22	3	3	3	3	3	3	3

Project Information		Sample Receipt	
Project	GPM Lee Plant	Total No. of Containers	
Project Director	Gannon	Chain of Custody Seals	
Charge Code No.	302300Z	Rec'd Good Condition/Cold	
Shipping ID. No.		Conforms to Record	
	5394401352	Lab No.	
Via:	FED EX		
Special Instructions/Comments:			

Relinquished By		Relinquished By	
(Signature)	(Time)	(Signature)	(Time)
Maurice D Gannon	7/26/94		
(Printed Name)	(Date)	(Printed Name)	(Date)
GCL	7/26/94		
(Company)	(Company)	(Company)	(Company)
Received By		Received By	
(Signature)	(Time)	(Signature)	(Time)
(Printed Name)	(Date)	(Printed Name)	(Date)
(Company)	(Company)	(Company)	(Company)
Received By (Laboratory)		Received By (Laboratory)	
(Signature)	(Time)	(Signature)	(Time)
(Printed Name)	(Date)	(Printed Name)	(Date)
(Laboratory)	(Laboratory)	(Laboratory)	(Laboratory)

Relinquished By		Relinquished By	
(Signature)	(Time)	(Signature)	(Time)
(Printed Name)	(Date)	(Printed Name)	(Date)
(Company)	(Company)	(Company)	(Company)
Received By (Laboratory)		Received By (Laboratory)	
(Signature)	(Time)	(Signature)	(Time)
(Printed Name)	(Date)	(Printed Name)	(Date)
(Laboratory)	(Laboratory)	(Laboratory)	(Laboratory)

Relinquished By		Relinquished By	
(Signature)	(Time)	(Signature)	(Time)
(Printed Name)	(Date)	(Printed Name)	(Date)
(Company)	(Company)	(Company)	(Company)
Received By (Laboratory)		Received By (Laboratory)	
(Signature)	(Time)	(Signature)	(Time)
(Printed Name)	(Date)	(Printed Name)	(Date)
(Laboratory)	(Laboratory)	(Laboratory)	(Laboratory)

Distribution: White, Canary-Laboratory • Pink, GCL



GPM GAS SERVICES COMPANY
A DIVISION OF PHILLIPS PETROLEUM COMPANY

OIL CONSERVATION DIVISION
RECEIVED

JUL 14 AM 8 50

July 8, 1994

Mr. William Olson
Hydrogeologist
New Mexico Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

RE: SECOND QUARTER 1994 ANALYTICAL RESULTS, LEE PLANT
DISCHARGE PLAN GW-2

Dear Mr. Olson:

GPM Gas Corporation (GPM) herein submits the laboratory analytical reports for groundwater sampling at our Lee Plant for the second quarter of 1994 (see attached analytical results, report date May 12, 1994). Sample collection was conducted on May 3, 1994, pursuant to the requirements of NMOCD Discharge Plan GW-2. NDRC Laboratories Inc., Houston, Texas, performed the sample analyses. Our consultant, GCL, strictly adhered to chain-of-custody procedures to ensure integrity of the samples during transport to the laboratory.

Depth to groundwater and product thickness measurements and quarterly groundwater sampling were conducted at monitor wells MW-11, MW-12, MW-13, MW-19 and MW-20. No free-phase floating product was encountered in any of these wells. Groundwater samples from each of these wells were analyzed for dissolved aromatic hydrocarbons using EPA Method 602.

MW-11 showed benzene and toluene concentrations below detection with small increases in ethylbenzene and xylenes. MW-12 experienced decreases in benzene and toluene concentrations with slight elevations in ethylbenzene and xylene levels. BTEX concentrations were below detection levels at MW-13, MW-19 and MW-20.

In addition to quarterly sampling, GPM collected groundwater samples from MW-21 and MW-22, the shallow and middle screened wells monitoring the vapor extraction/air sparging system. Analytical results for these wells appear below:

	MW-21	MW-22
Benzene	517 ppb	6.6 ppb
Toluene	52	2.4
Ethylbenzene	<10	<1.0
Xylenes	<30	7.1

Mr. William Olson

July 8, 1994

Page 2

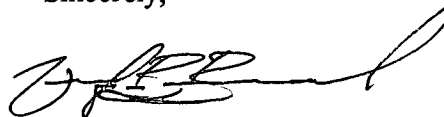
These results show a significant decrease in BTEX concentrations from initial sampling conducted in July of 1993 (refer to Status Report - Lee Plant Remediation System, March 30, 1994) and again in March of 1994 (see attached analytical results, report date April 1, 1994).

As we indicated to the OCD via letter correspondence, February 9, 1994, recovery wells MW-8 and MW-10 were no longer operating. GPM performed well restoration activities on these wells during the week of March 21, 1994. Operations commenced at MW-8 with the removal of the pump and associated plumbing. The static water level and total depth of the well were measured and recorded. A bailer was used to remove water and any scale or debris from the well that might have been present. Significant quantities of filter sand and what appeared to be frac sand were removed from this well. In addition, small pieces of white material resembling PVC-casing were also retrieved. Based on observations about the condition of this well, GPM and our consultants, GCL and Larry's Drilling, concluded that the well was damaged to the point that no mechanical cleaning or acidization would be effective in restoring the well; thus, further clean-out operations were halted.

Operations then commenced on MW-7 where total well depth and the static water level were taken and recorded. Water bailed from this well showed no signs of sand or debris that might indicate well damage. Acidizing was done using dry acid supplied by Cotey Chemical Corporation. Following the manufacturer's recommendations, three gallons of dry acid were added to the well. Surging of the acid was performed for four hours using a 2.5-inch diameter swabbing tool. The acid was allowed to remain in the well overnight and the well was then surged for two hours the following morning. Afterwards, a water sample was recovered for pH analysis. Fresh water was then added to the well to neutralize the acid prior to removal. The pump was replaced in the well and the fresh water was removed. The pumping rate was then set to the maximum yield of the well (0.5 gallons per minute) and put on line with the recovery system.

GPM will provide OCD with a groundwater contour map of the site by next week as discussed between you and GCL in a phone conversation on Monday, June 27, 1994. If you have any questions regarding the contents of this letter or the analytical results, please call me at (915) 368-1085.

Sincerely,



Vince Bernard
Safety, Environmental & Equipment
Inspection Supervisor

/sm
Attachments



Inchcape Testing Services

NDRC Laboratories

RECEIVED APR 15 1994

SUMMARY REPORT

CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : 3023.001/GPM

JOB NUMBER : H94-2101
REPORT DATE : 1-APR-1994

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
1	9403231030/MW-21	Groundwater	23-MAR-1994
2	9403231215/MW-22	Groundwater	23-MAR-1994

BTEX ANALYSIS, EPA 602		1	2		
Benzene	µg/L	2520	6.6		
Toluene	µg/L	260	< 1.0		
Ethyl benzene	µg/L	< 100	< 1.0		
Xylenes	µg/L	< 300	< 3.0		

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 25-MAR-1994

REPORT NUMBER : H94-2101-1
REPORT DATE : 1-APR-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9403231030/MW-21
PROJECT : 3023.001/GPM
DATE SAMPLED : 23-MAR-1994
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	100 $\mu\text{g/L}$	2520 $\mu\text{g/L}$
Toluene	100 $\mu\text{g/L}$	260 $\mu\text{g/L}$
Ethyl benzene	100 $\mu\text{g/L}$	< 100 $\mu\text{g/L}$
Xylenes	300 $\mu\text{g/L}$	< 300 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 $\mu\text{g/L}$	97.0 %

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 25-MAR-1994

REPORT NUMBER : H94-2101-2

REPORT DATE : 1-APR-1994

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9403231215/MW-22

PROJECT : 3023.001/GPM

DATE SAMPLED : 23-MAR-1994

ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 $\mu\text{g/L}$	6.6 $\mu\text{g/L}$
Toluene	1.0 $\mu\text{g/L}$	< 1.0 $\mu\text{g/L}$
Ethyl benzene	1.0 $\mu\text{g/L}$	< 1.0 $\mu\text{g/L}$
Xylenes	3.0 $\mu\text{g/L}$	< 3.0 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 $\mu\text{g/L}$	97.2 %

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

REPORT DATE : 12-APR-1994

REPORT NUMBER : H94-2101

SAMPLE SUBMITTED BY : H + GCL

ATTENTION : Ms. Annette Montoya

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes
BATCH NO.	8020D_11	8020D_11	8020D_11	8020D_11
LCS LOT NO.	---	---	---	---
PREP METHOD	---	---	---	---
DATE PREPARED	---	---	---	---
PREPARED BY	---	---	---	---
ANALYSIS METHOD	EPA 602	EPA 602	EPA 602	EPA 602
DATE ANALYZED	31-MAR-1994	31-MAR-1994	31-MAR-1994	31-MAR-1994
ANALYZED BY	RGR	RGR	RGR	RGR
UNITS	µg/L	µg/L	µg/L	µg/L
METHOD BLANK	< 1.00	< 1.00	< 1.00	< 3.00
MS RECOVERY %	106	106	108	105
MSD RECOVERY %	101	103	103	102
MS/MSD RPD %	4.2	3.1	4.8	3.4
BS RECOVERY %	NA	NA	NA	NA
BSD RECOVERY %	NA	NA	NA	NA
BS/BSD RPD %	NA	NA	NA	NA
DUPLICATE RPD %	NA	NA	NA	NA
TCLP RECOVERY %	NA	NA	NA	NA
LCS RECOVERY %	98.8	99.9	100.0	98.9
SPIKE SAMPLE ID	2139-2	2139-2	2139-2	2139-2
TCLP SAMPLE ID	---	---	---	---
DUP SAMPLE ID	---	---	---	---

NA

Not Applicable

Kuei-Mei Li



DISTRIBUTION: WHITE, CANARY • LABORATORY • PINK, H⁺GGL

Incoming Samples ☐

Temperature of Cooler(s): -42

3/25/99 10:30
Date/Time

RECEIVED MAY 2 3 1994



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

SUMMARY REPORT

CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : 3023-001/GPM

JOB NUMBER : H94-3166
REPORT DATE : 12-MAY-1994

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
1	9405031045 MW-11	Groundwater	3-MAY-1994
2	9405031200 MW-12	Groundwater	3-MAY-1994
3	9405031215 MW-12a	Groundwater	3-MAY-1994
4	9405031315 MW-13	Groundwater	3-MAY-1994

BTEX ANALYSIS, EPA 602	1	2	3	4
Benzene $\mu\text{g/L}$	< 1.0	< 1.0	< 1.0	< 1.0
Toluene $\mu\text{g/L}$	< 1.0	1.6	< 1.0	< 1.0
Ethyl benzene $\mu\text{g/L}$	1.3	1.1	< 1.0	< 1.0
Xylenes $\mu\text{g/L}$	3.9	4.1	< 3.0	< 3.0

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

SUMMARY REPORT

CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : 3023-001/GPM

JOB NUMBER : H94-3166
REPORT DATE : 12-MAY-1994

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
5	9405031430 MW-19	Groundwater	3-MAY-1994
6	9405041000 MW-21	Groundwater	4-MAY-1994
7	9405041115 MW-22	Groundwater	4-MAY-1994
8	9405041230 MW-20	Groundwater	4-MAY-1994

BTEX ANALYSIS, EPA 602		5	6	7	8
Benzene	µg/L	< 1.0	517	6.6	< 1.0
Toluene	µg/L	< 1.0	52	2.4	< 1.0
Ethyl benzene	µg/L	< 1.0	< 10	< 1.0	< 1.0
Xylenes	µg/L	< 3.0	< 30	7.1	< 3.0

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 6-MAY-1994

REPORT NUMBER : H94-3166-1
REPORT DATE : 12-MAY-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9405031045
: MW-11
PROJECT : 3023-001/GPM
DATE SAMPLED : 3-MAY-1994
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	< 1.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	1.3 µg/L
Xylenes	3.0 µg/L	3.9 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	105 %

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 6-MAY-1994

REPORT NUMBER : H94-3166-2
REPORT DATE : 12-MAY-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9405031200
: MW-12
PROJECT : 3023-001/GPM
DATE SAMPLED : 3-MAY-1994
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	< 1.0 µg/L
Toluene	1.0 µg/L	1.6 µg/L
Ethyl benzene	1.0 µg/L	1.1 µg/L
Xylenes	3.0 µg/L	4.1 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	115 %

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 6-MAY-1994

REPORT NUMBER : H94-3166-3
REPORT DATE : 12-MAY-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9405031215
: MW-12a
PROJECT : 3023-001/GPM
DATE SAMPLED : 3-MAY-1994
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS			
TEST REQUESTED	DETECTION LIMIT		RESULTS
Benzene	1.0	µg/L	< 1.0 µg/L
Toluene	1.0	µg/L	< 1.0 µg/L
Ethyl benzene	1.0	µg/L	< 1.0 µg/L
Xylenes	3.0	µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	104 %

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 6-MAY-1994

REPORT NUMBER : H94-3166-4

REPORT DATE : 12-MAY-1994

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9405031315

: MW-13

PROJECT : 3023-001/GPM

DATE SAMPLED : 3-MAY-1994

ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	< 1.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	106 %

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 6-MAY-1994

REPORT NUMBER : H94-3166-5
REPORT DATE : 12-MAY-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9405031430
: MW-19
PROJECT : 3023-001/GPM
DATE SAMPLED : 3-MAY-1994
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	< 1.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	102 %

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 6-MAY-1994

REPORT NUMBER : H94-3166-6

REPORT DATE : 12-MAY-1994

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9405041000

: MW-21

PROJECT : 3023-001/GPM

DATE SAMPLED : 4-MAY-1994

ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	10 $\mu\text{g/L}$	517 $\mu\text{g/L}$
Toluene	10 $\mu\text{g/L}$	52 $\mu\text{g/L}$
Ethyl benzene	10 $\mu\text{g/L}$	< 10 $\mu\text{g/L}$
Xylenes	30 $\mu\text{g/L}$	< 30 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 $\mu\text{g/L}$	104 %

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 6-MAY-1994

REPORT NUMBER : H94-3166-7
REPORT DATE : 12-MAY-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9405041115
: MW-22
PROJECT : 3023-001/GPM
DATE SAMPLED : 4-MAY-1994
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	6.6 µg/L
Toluene	1.0 µg/L	2.4 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	7.1 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	104 %

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 6-MAY-1994

REPORT NUMBER : H94-3166-8

REPORT DATE : 12-MAY-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9405041230
: MW-20
PROJECT : 3023-001/GPM
DATE SAMPLED : 4-MAY-1994
ANALYSIS METHOD : EPA 602

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	< 1.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	111 %

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

REPORT DATE : 12-MAY-1994

REPORT NUMBER : H94-3166

SAMPLE SUBMITTED BY : H + GCL

ATTENTION : Ms. Annette Montoya

ANALYTE	Benzene	Toluene	Ethylbenzene	Xylenes	Benzene
BATCH NO.	8020C_50	8020C_50	8020C_50	8020C_50	8020C_51
LCS LOT NO.	---	---	---	---	---
PREP METHOD	---	---	---	---	---
DATE PREPARED	---	---	---	---	---
PREPARED BY	---	---	---	---	---
ANALYSIS METHOD	EPA 602	EPA 602	EPA 602	EPA 602	EPA 602
DATE ANALYZED	10-MAY-1994	10-MAY-1994	10-MAY-1994	10-MAY-1994	11-MAY-1994
ANALYZED BY	RGR	RGR	RGR	RGR	RGR
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L
METHOD BLANK	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00
MS RECOVERY %	102	94.3	98.4	103	99.3
MSD RECOVERY %	104	97.3	99.3	105	103
MS/MSD RPD %	2.7	3.1	0.9	1.6	3.2
BS RECOVERY %	NA	NA	NA	NA	NA
BSD RECOVERY %	NA	NA	NA	NA	NA
BS/BSR RPD %	NA	NA	NA	NA	NA
DUPLICATE RPD %	NA	NA	NA	NA	NA
LCS RECOVERY %	99.9	92.2	94.5	101	100
SPIKE SAMPLE ID	2918-1	2918-1	2918-1	2918-1	3166-8
DUP SAMPLE ID	---	---	---	---	---

NA

Not Applicable

Kuei-Mei Li



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

REPORT DATE : 12-MAY-1994

REPORT NUMBER : H94-3166

SAMPLE SUBMITTED BY : H + GCL

ATTENTION : Ms. Annette Montoya

ANALYTE	Toluene	Ethylbenzene	Xylenes
BATCH NO.	8020C_51	8020C_51	8020C_51
LCS LOT NO.	---	---	---
PREP METHOD	---	---	---
DATE PREPARED	---	---	---
PREPARED BY	---	---	---
ANALYSIS METHOD	EPA 602	EPA 602	EPA 602
DATE ANALYZED	11-MAY-1994	11-MAY-1994	11-MAY-1994
ANALYZED BY	RGR	RGR	RGR
UNITS	µg/L	µg/L	µg/L
METHOD BLANK	< 1.00	< 1.00	< 3.00
MS RECOVERY %	89.1	89.6	86.7
MSD RECOVERY %	92.7	93.7	93.3
MS/MSD RPD %	3.9	4.5	7.4
BS RECOVERY %	NA	NA	NA
BSD RECOVERY %	NA	NA	NA
BS/BSR RPD %	NA	NA	NA
DUPLICATE RPD %	NA	NA	NA
LCS RECOVERY %	92.6	95.2	101
SPIKE SAMPLE ID	3166-8	3166-8	3166-8
DUP SAMPLE ID	---	---	---

NA

Not Applicable

Kuei-Mei Li



☒ Albuquerque
505 Marquette NW, Ste. 1100
Albuquerque, NM 87102
(505) 842-0001
FAX: (505) 842-0595

☒ NASA-WSTF
PO Drawer MM
Las Cruces, NM 88004
(505) 524-5353
FAX: (505) 524-5315

☒ Boston
180 Canal Street
Boston, MA 02114
(617) 723-4664
FAX: (617) 367-1386

☒ Chicago
626 W. Jackson Blvd., Ste. 800
Chicago, IL 60606
(312) 648-9988
FAX: (312) 648-0818

☒ Hartford
380 South Center Street
Windsor Locks, CT 06096
(203) 627-6528
FAX: (203) 627-7815

☒ Los Angeles
19600 Fairchild, Ste. 120
Irvine, CA 92715
(714) 955-0201
FAX: (714) 955-0965

☒ Mid Atlantic Region
4221 Forbes Blvd., Ste. 240
Lanham, MD 20706-4325
(301) 459-9677
FAX: (301) 459-3064

☒ New York
261 Madison Avenue
New York, NY 10016
(212) 988-8510
FAX: (212) 983-8795

☒ San Francisco
2200 Powell Street, Ste. 880
Emeryville, CA 94608
(510) 547-3886
FAX: (510) 547-3631

Chain of Custody

Date 5/3/94 Page 1 Of 1

Lab Name NDRG/Inchcape Testing Service
Address 11155 South Main
Houston, TX 77025
Telephone (713) 661-8150

Samplers (SIGNATURES)

[Signature]

Sample Number	Matrix	Location
9405031045	H ₂ O	MW-11
9405031200	H ₂ O	MW-12
9405031215	H ₂ O	MW-12a
9405031315	H ₂ O	MW-13
9405031430	H ₂ O	MW-19
9405041000	H ₂ O	MW-21
9405041115	H ₂ O	MW-22
9405041230	H ₂ O	MW-20

Analysis Request

Halogenated Volatiles 601/8010	Aromatic Volatiles 602/8020 <i>GTEX only</i>	Phenols, Sub Phenols 604/8040	Pesticides/PCB 608/8080	Polynuclear Aromatic Hydrocarbons 610/8310	Volatiles Compounds GC/MS 624/8240	Base/Neutral Acid Compounds GC/MS 625/8270	Total Organic Carbon (TOC) 415/9060	Total Organic Halides (TOX) 9020	Petroleum Hydrocarbons 418.1 TPH/BTEX Modified 8015	TCLP Vol., Semi-Vol. Herbicides, Pesticides	TCLP Metals	RCRA Metals (6)	Priority Pollutant Metals (13)	CAM Metals (18) TRLC/STLC	Flash Point	Corrosivity	Reactivity	Oil & Grease	Cyanide Total/Amenable	Chemical Oxygen Demand (COD)	Number of Containers
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

QC REPORT

DUE: 5-13-94

24-400-4005

Project Information		Sample Receipt	
Project <i>GPM</i>	Total No. of Containers	Relinquished By <i>[Signature]</i>	Relinquished By
Project Director <i>GANNON</i>	Chain of Custody Seals	(Signature) <i>[Signature]</i>	(Signature) <i>[Signature]</i>
Charge Code No. <i>3023-001</i>	Rec'd Good Condition/Cold	(Date) <i>5/5/94</i>	(Date) <i>5/5/94</i>
Shipping ID. No.	Conforms to Record	(Printed Name) <i>GCL</i>	(Printed Name)
	Lab No.	(Company)	(Company)
<i>5394481320</i>		Received By <i>[Signature]</i>	Received By (Laboratory)
Via: <i>FED X</i>		(Signature) <i>[Signature]</i>	(Signature)
Special Instructions/Comments:		(Date) <i>5-5-94</i>	(Date)
<i>602 - BTEX only</i>		(Printed Name) <i>ITS/NDRG</i>	(Printed Name)
		(Company)	(Company)

Incoming Samples ☐

Temperature of Cooler(s): 10°C

5-6-94 10:30
Date/Time

July 7, 1994

RECEIVED

JUL 08 1994

OIL CONSERVATION DIV.
SANTA FE

Mr. William Olson
Hydrogeologist
New Mexico Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

Dear Mr. Olson:

On behalf of GPM Gas Corporation (GPM), GCL is pleased to provide the groundwater contour map for the Lee Plant as an addendum to the Second Quarter Groundwater 1994 Analytical Results, Lee Plant, Discharge Plan GW-2, submitted by GPM to OCD at the end of June. The groundwater levels used to generate the contours were taken during the January 1994 sampling event. A complete round of water level measurements was not taken for during the March sampling event due to a GCL oversight.

In reference to the attached GPM Lee Plant Groundwater Contour Map, the 3,874 feet contour line surrounding monitor well, MW-5, may be due to low hydraulic conductivity in the area or may be an aberration. GPM is currently developing an historical database which should provide a better understanding of such variations.

Please note the correction to the Second Quarter 1994 Analytical Results in paragraph 2 on page 2. The text should read, "As we indicated to the OCD via letter correspondence, **MW-7 and MW-8**, were no longer operating." If you have any questions concerning the map or the contents of this letter, please contact me at 842-0001. Thank you.

Sincerely,
Geoscience Consultants, Ltd. (GCL)

Maureen Gannon
For

Maureen Gannon

Maureen D. Gannon
Senior Engineer

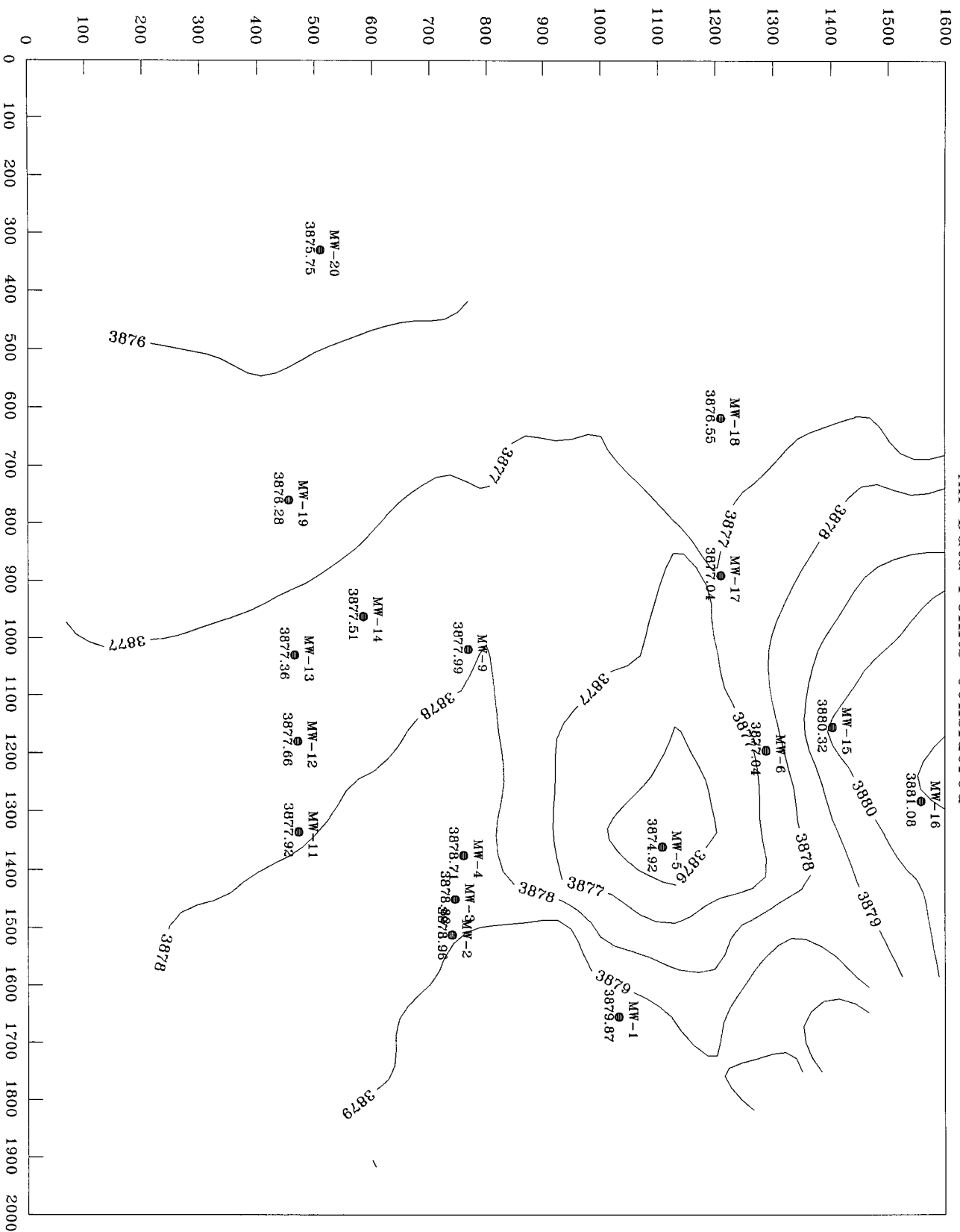
MDG/54030/LEE/OLSON03.LTR

Attachment

cc: V. Bernard, GPM

GPM Lee Plant January 1994 Water Level Contour

All Data Points Considered





GPM GAS CORPORATION

4044 PENBROOK
ODESSA, TEXAS 79762

COI.

'94 AP.

March 30, 1994

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APR 01 1994

OIL CONSERVATION DIV.
SANTA FE

Mr. Bill Olson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

RE: STATUS REPORT- LEE PLANT REMEDIATION SYSTEM

Dear Bill:

Pursuant to Discharge Plan GW-2 Modification for the Lee Gas Plant (NMOCD, April 26, 1993), GPM Gas Corporation (GPM) is submitting this status report evaluating the air sparging/vapor extraction system effectiveness, as required under section B.4 of the attachment to the GW-2 Modification. The objective of this status report is to provide a summary of system operation to date and present monitoring data obtained thus far.

Lee Plant Remediation System

The plant remediation system involves three concurrent operations:

- pumping and disposal of free product/groundwater
- soil vapor extraction
- air/water injection

The pumping and disposal system consists of pumping groundwater and/or product from recovery well RW-1, and monitor well MW-4, and pumping groundwater from monitor wells MW-6, MW-7, MW-8, and MW-10. Recovered fluids are delivered to the Lee Plant wastewater treatment system.

The installation of the soil vapor extraction (SVE) system began with the drilling and completion of three 2-inch monitor wells, MW-21, MW-22, and MW-23, in July of 1993. These wells were installed between recovery wells RW-1 and MW-4. Plate 1 is a well location map of the plant site.

In August of 1993, a positive displacement blower was connected to RW-1 and the SVE system installation was completed. Groundwater recovery at RW-1 occurs simultaneously with vapor extraction within the same well. Vapors from the vapor extraction system are discharged to the on-site sulfur burner, providing an additional fuel source for the burner. Organic vapor concentrations, measured with an organic vapor monitor (OVM), and pressure drop readings have been recorded at RW-1 since August 1993. Attachment 1 is a copy of the field logbook used to record these measurements.

In November of 1993, air/water injection was added to the remediation system. Monitor well, MW-23, was retrofitted to accommodate a venturi injector. Figure 1 is a schematic of the MW-23 wellhead. Maximum restricted flow through the venturi is 2 gpm. A water line from the plant process water supply delivers water to the injector ranging from 27 to 50 psi. The differential pressure across the venturi draws ambient air into the water stream. Microbubbles are formed in the injection stream and transported down into the formation

Mr. Bill Olson
April 5, 1994
Page 2

by a 1/2-inch drop pipe. A pneumatic packer is installed immediately above the well screen to enhance flow of the air/water mixture into the formation.

System Status

Production by recovery wells at the Lee Plant has declined due to a significant decrease in the water table elevation over the last four years. When MW-9 was completed in 1990, static water level was measured at 97.43 feet below top of casing. In January, 1994, the static water level in this well was found to be 102.8 feet below top of casing. Clearly, the water table has dropped several feet thereby minimizing the water column available in each recovery well. This limits drawdown and therefore recovery from each affected well.

Plate 1 provides a summary (since January of 1992) of the laboratory analyses for all Lee Plant wells sampled under the current Discharge Plan GW-2. BTEX concentrations continue to decrease throughout the plant site. In July of 1993, and March of 1994, additional sampling was conducted at MW-21 and MW-22 to determine the impact of the air/water injection system on contamination within the area of these wells. Table 1 provides results from these two sampling events. BTEX levels in MW-21 and MW-22 have decreased dramatically to levels below laboratory detection.

The SVE system is currently operating at a vacuum of 95 inches of H₂O and a flowrate of 48 cfm. Initial organic vapor concentrations from the SVE system were recorded by means of an OVM in the 500 ppm range. Air samples analyzed by NDRC Laboratories, Houston, Texas, indicate these readings correspond to 1810 mg/m³ total organics or 556 ppm as benzene. After system equilibration, organic vapor concentrations as measured by the OVM have reached a steady state of approximately 85 ppm. Additional air sampling indicates the vapors are composed of approximately 66% benzene, 29% toluene, 1.5% ethyl benzene, and 3.0% xylenes. Figure 1 provides a graphical representation of organic vapor concentrations over time.

The average pumping rate of RW-1 is approximately 2.55 gpm. The air/water injection system has maintained an average injection rate of 1.79 gpm. The DO concentration of water injected into the aquifer ranges from 11 mg/l (November 1993) to 6 mg/l (March 1994). Back pressure from the formation was approximately 2 psi at start-up of the air/water injection system. In March of 1994, a pressure reading of 10 psi was recorded. Increases in back pressure may be due to scaling on the screen or decreasing induced transmissivity of the formation.

System parameters were recorded daily during the initial period of operation, followed by quarterly monitoring. Dissolved oxygen (DO), carbon dioxide (CO₂), pressure (inches of H₂O or psi), and depth to water were recorded at RW-1, MW-2, MW-3, MW-4, MW-8, MW-21, MW-22, and MW-23. Table 2 presents the data collected to date on the system. Current system parameter levels indicate that little if any change has occurred in the DO, CO₂ and water level readings at those wells affected by the SVE/air sparging system. The air sparging unit continues to inject a higher DO level than the DO concentration measured in the extracted water. With the addition of oxygen via aerated water, an increase in CO₂ levels would be expected at RW-1 due to increased microbial activity; however, CO₂ levels have remained relatively constant. This may be due to a very toxic subsurface environment and the lack of nutrients. Laboratory analysis of

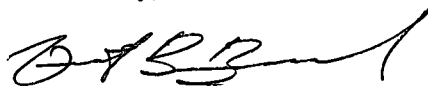
Mr. Bill Olson
April 5, 1994
Page 3

nutrients in a water sample taken from RW-1 indicate low to non-existent levels of nitrogen and phosphorus. See attachment 2 for results.

The pumping and disposal treatment unit has proven its effectiveness in remediating on-site groundwater contamination. The SVE system continuously draws 50 to 100 ppm of organic vapors, demonstrating active remediation of hydrocarbon contamination in soil. In order to monitor the effectiveness of the air/water injection system, samples were collected from MW-21 and MW-22 (refer to table 1). These two wells are located between the injection well and RW-1 and are completed at shallow and intermediate depths, respectively. Previous sampling identified BTEX in the tens of ppm range. GPM believes that the decrease in BTEX concentrations in MW-21 and MW-22 occurring in the past eight months has occurred because the air/water injection system, combined with pumping and vapor extraction, is working effectively in the area around these wells.

GPM will continue to monitor remediation system parameters and provide results to OCD on a quarterly basis. If you have any questions concerning the contents of this letter, please call me.

Sincerely,

A handwritten signature in black ink, appearing to read "V. Bernard", with a stylized flourish at the end.

Vince Bernard
Director of Safety and Environmental Affairs
New Mexico Region
GPM Gas Corporation

cc: Maureen Gannon - GCL

Table 1

BTEX Concentrations for MW-21 and MW-22

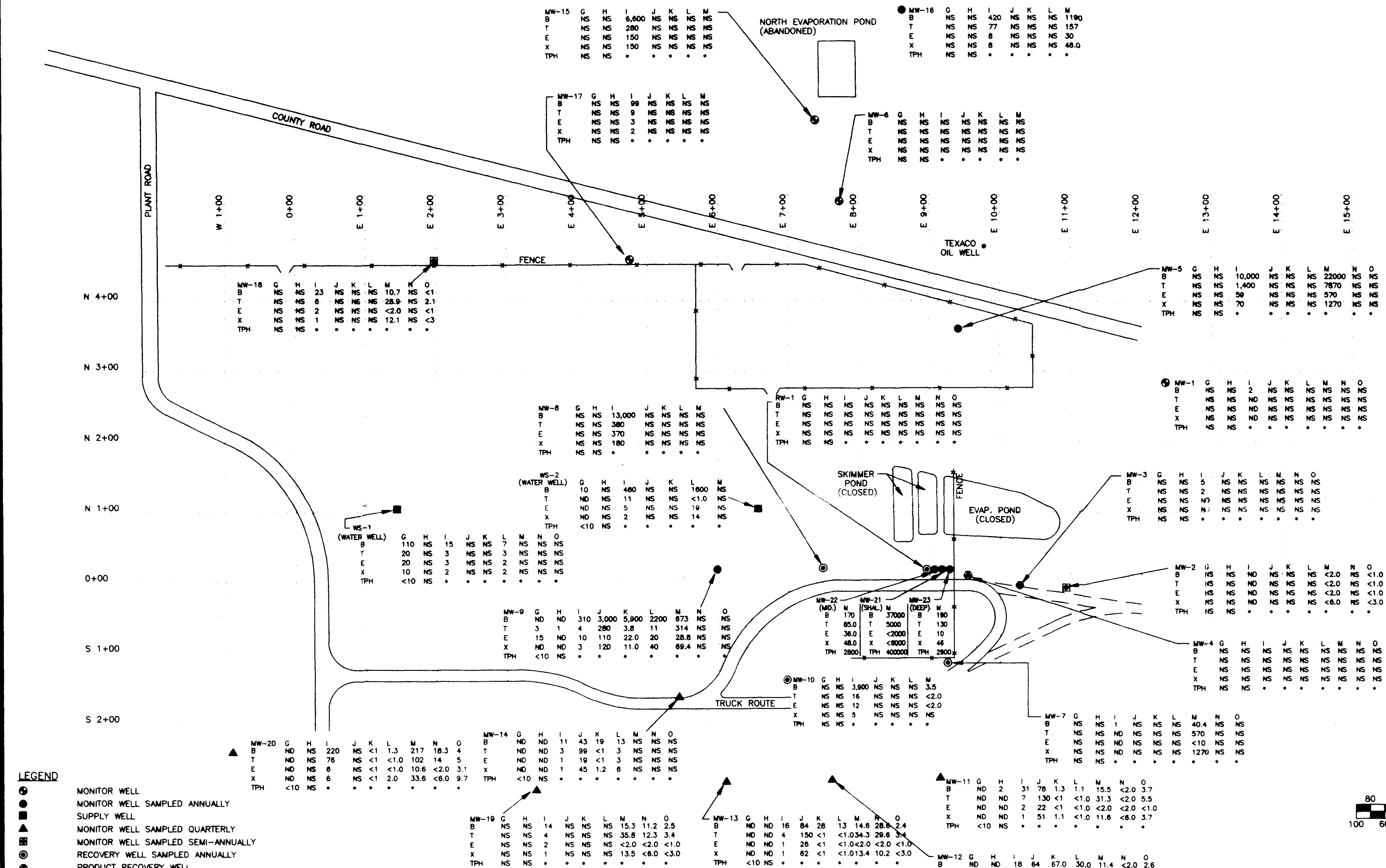
Parameters, BTEX	Monitoring Well 21		Monitoring Well 22	
	7/28/93	3/03/94 ¹	7/28/93	3/03/94 ¹
Benzene	37,000 µ/L	<2.0 µ/L	170 µ/L	<2.0 µ/L
Ethyl benzene	<2000 µ/L	<2.0 µ/L	36.0 µ/L	<2.0 µ/L
Toluene	5000 µ/L	<2.0 µ/L	65.0 µ/L	<2.0 µ/L
Xylenes	<6000 µ/L	<6.0 µ/L	48.0 µ/L	<6.0 µ/L

¹ Result from March 3, 1994, considered preliminary.

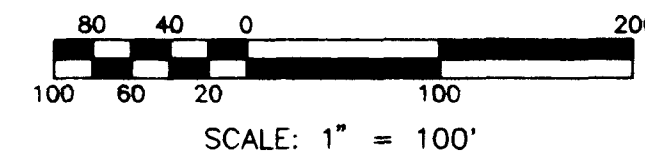
LEGEND

- MONITOR WELL
- MONITOR WELL SAMPLED ANNUALLY
- SUPPLY WELL
- ▲ MONITOR WELL SAMPLED QUARTERLY
- ⊗ MONITOR WELL SAMPLED SEMI-ANNUALLY
- ⊙ RECOVERY WELL SAMPLED ANNUALLY
- ⊕ PRODUCT RECOVERY WELL
- G ANALYTICAL RESULTS FROM JANUARY 1992
- H ANALYTICAL RESULTS FROM APRIL 1992
- I ANALYTICAL RESULTS FROM JULY 1992
- J ANALYTICAL RESULTS FROM OCTOBER 1992
- K ANALYTICAL RESULTS FROM JANUARY 1993
- L ANALYTICAL RESULTS FROM APRIL 1993
- M ANALYTICAL RESULTS FROM JULY 1993
- N ANALYTICAL RESULTS FROM OCTOBER 1993
- NA NOT AVAILABLE
- ND NO DETECTION
- NS NOT SAMPLED
- NI NOT INSTALLED AT THE DATE OF SAMPLING
- O ANALYTICAL RESULTS FROM JANUARY 1994
- B BENZENE
- T TOLUENE
- E ETHYLBENZENE
- X TOTAL XYLENES
- TPH TOTAL PETROLEUM HYDROCARBONS.
- mg/l MILLIGRAMS PER LITER
- * SAMPLING FOR TPH DISCONTINUED

NOTE: CONCENTRATIONS IN MICROGRAMS PER LITER UNLESS OTHERWISE STATED.
WELLS CONTAINING SEPERATE-PHASE HYDROCARBONS ARE NOT SAMPLED.



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APR 01 1994
OIL CONSERVATION DIV.
SANTA FE



GCL

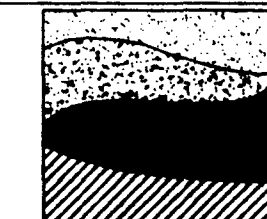


PLATE 1

MONITOR WELL LOCATION MAP WITH BTEX AND TPH
CONCENTRATIONS FROM 1992 TO JANUARY 1994

CLIENT: PHILLIPS PETROLEUM COMPANY

DATE: MARCH 22, 1994

CHECKED BY: M. GANNON

DRAWN BY: HCC

DWG. NO.

BTEXTV3

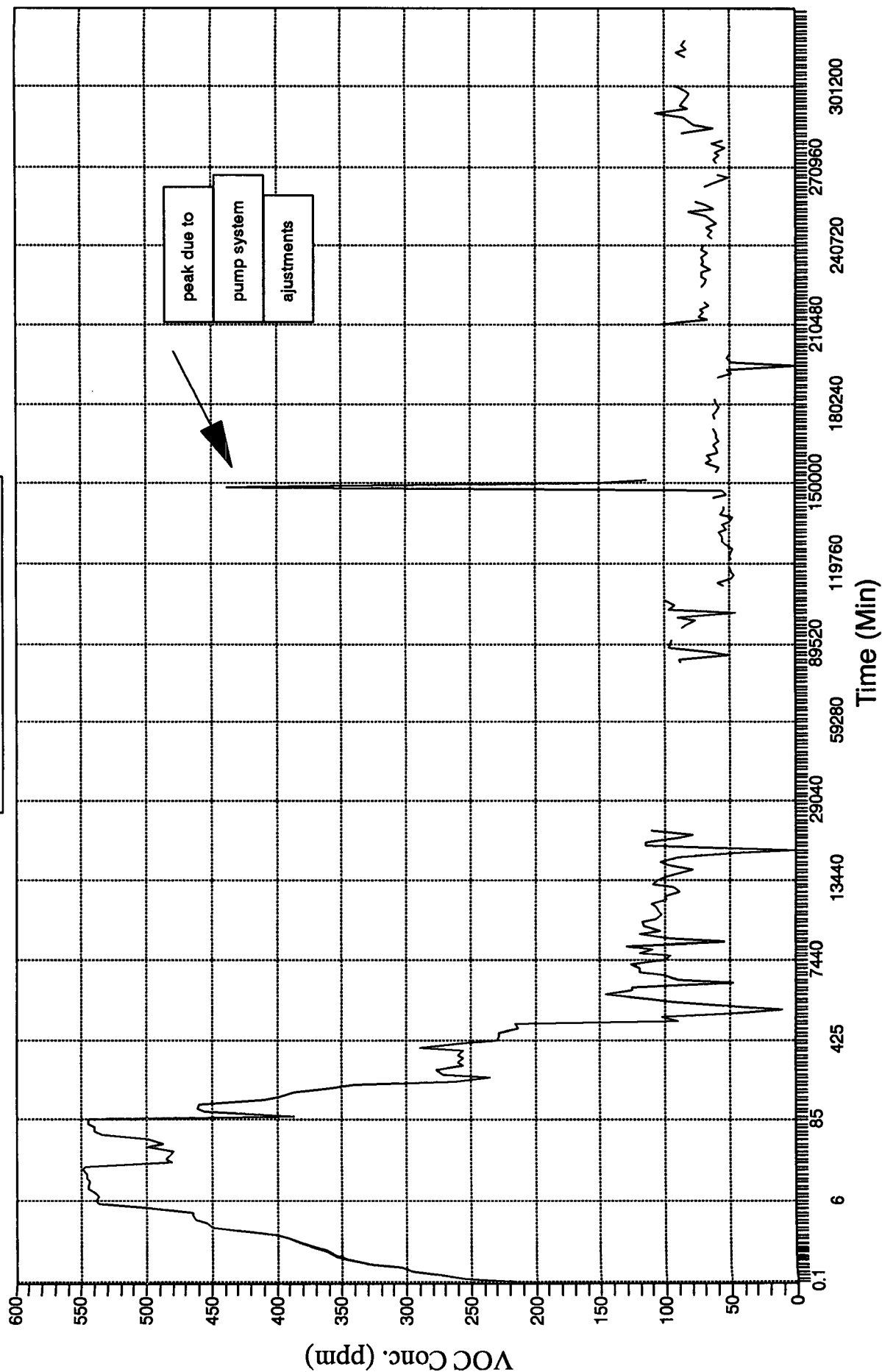
Table 2

System Parameters GPM Lee Plant SVE/Water Injection/Air Sparging

Parameter	DO (mg/l)	CO2 (mg/l)	Pressure (in H2O)	DtW (Ft)	DO (mg/l)	CO2 (mg/l)	Pressure (in H2O)	DtW (Ft)	DO (mg/l)	CO2 (mg/l)	Vacuum (in H2O)	DtW (Ft)	DO (mg/l)	CO2 (mg/l)	Vacuum (in H2O)	DtW (Ft)
Units	(mg/l)	(mg/l)	(in H2O)	(Ft)	(mg/l)	(mg/l)	(in H2O)	(Ft)	(mg/l)	(mg/l)	(in H2O)	(Ft)	(mg/l)	(mg/l)	(in H2O)	(Ft)
Date	11/15/93	11/15	11/15	11/15	11/16/93	11/16	11/16	11/16	11/17/93	11/17	11/17	11/17	11/17/94	1/7	1/7	1/7
RW-1	2.5	62	-122.0	102.57	1.5	73	-95.30	102.12	1.8	63	95.00	103.42	2.5	51	-95	102.44
MW-22	2.0	11	0	102.91	2.5	11	** 0	101.92	2.6	11	-0.32	103.48			4.5	102.54
MW-21	2.0	11	-1.0	102.18	2.1	18	* +2	101.34	2.2	16	+2	103.1			+10	101.45
MW-23	2.2	12	0	103.48	10.0		-0.37	101.80	10.0		-0.2	101.24				101.48
MW-4			-0.4		1.5	135	-0.10		1.6	160	0					
MW-8			0		2.5	100	-0.05		2.1	110						
MW-3			0		0.1				2.0	55						
MW-2			0		0											
*Notes	Pre-Air/Water Start-up RW-1 pump rate = 8.64 gpm * adjusted flow rate RW-1 to 3.1 gpm															
	24-hour average of system parameters RW-1 pump rate = 2.51 gpm MW-23 inject rate = 1.97 gpm Adjusted flow rate RW-1 * Back Pressure ** MW-22 screen below water table								Second 24-hour average of system parameter RW-1 pump rate = 3.09 gpm MW-23 pump rate = 2.75 gpm Total gal pumped RW-1 = 167689 Total gal injected MW-23 = 128130							
	Quarterly sampling event RW-1 pump rate = 2.91 gpm MW-23 pump rate = 2.75 gpm * Since 11/16/93 start up Average (RW-1) gpm = 2.24 Average (MW-23) gpm = 1.71															

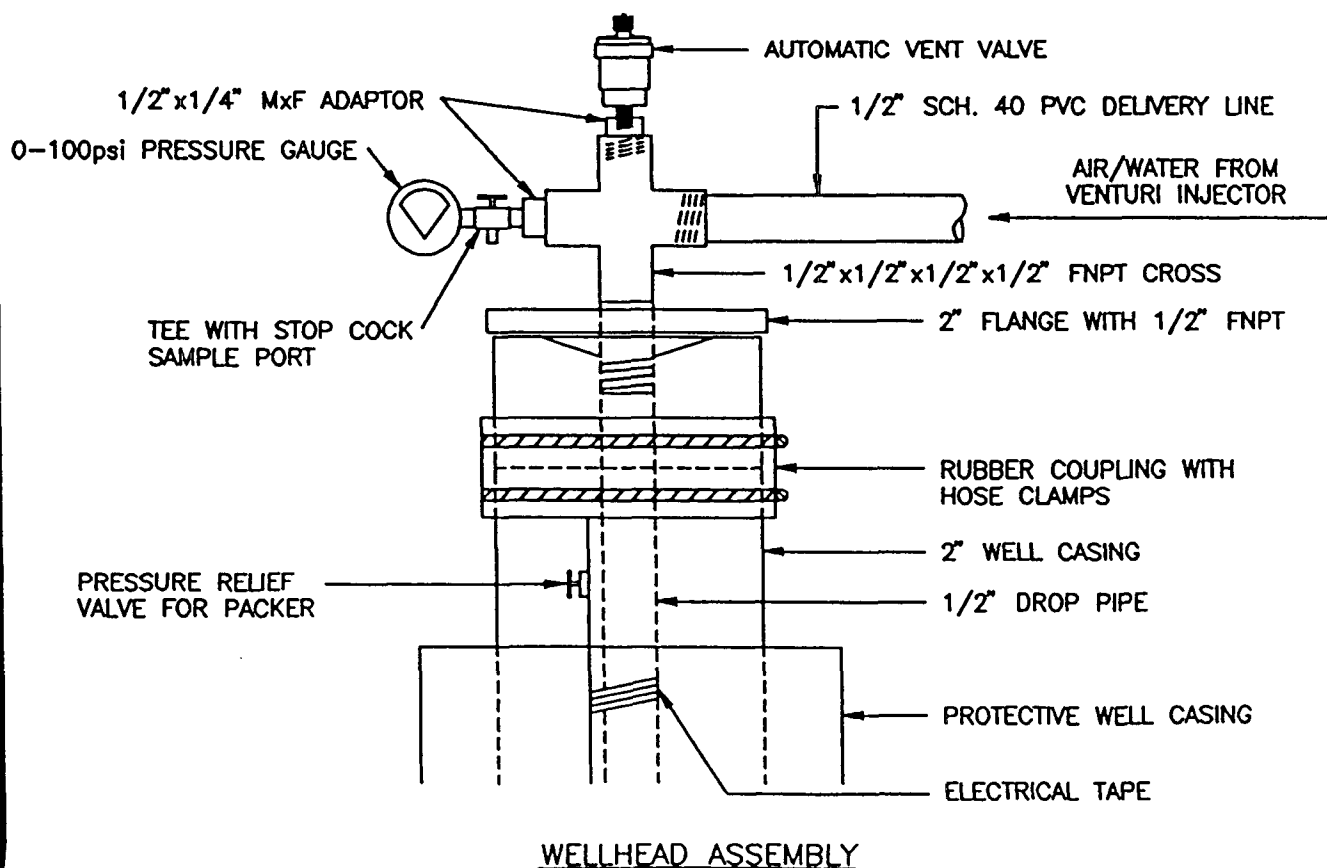
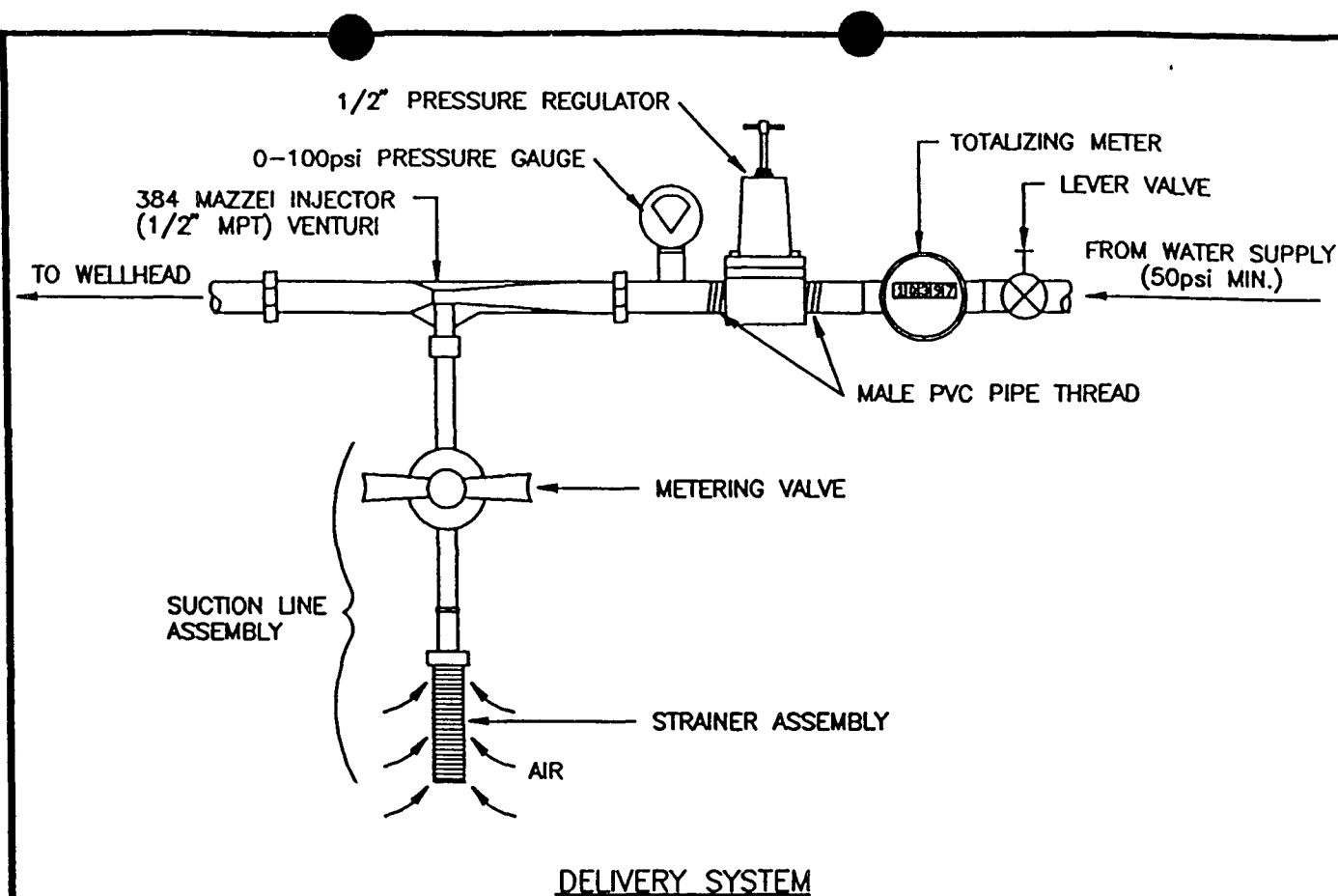
Parameter	DO (mg/l)	CO2 (mg/l)	Pressure (in H2O)	DtW (Ft)
Units	(mg/l)	(mg/l)	(in H2O)	(Ft)
Date	3/23/94	3/23	3/23	3/23
RW-1	1.75	45	102.00	102.88
MW-22	2.50	10		102.82
MW-21	2.00	15	-4.25	102.18
MW-23	6.00	0	10.00	
MW-4			-0.40	
MW-8		25		102.05
MW-3	2.50	40	0	
MW-2	2.50	25	0	
*Notes	Well Restoration Trip RW-1 pump rate = 1.70 gpm * adjusted flow rate RW-1 RW-1 pump rate = 1.85 gpm MW-23 pump rate = 1.66 gpm			

FIGURE 1
GPM Lee Plant SVE data



— VOC/Time

G:\54030\lee\c_sve.wq1



GCL



CLIENT: GPM

DATE: 3/23/94

AUTHOR: EH

CK'D BY: EH

REV. NO.: 1

DRAWN BY: HCC

FILE: AWINJSYS

FIGURE 2
GPM
AIR/WATER INJECTION
SYSTEM

Attachment 1

Field Logbook for OVM and Pressure Readings on RW-1

Monitor well data

hr	Current/ppm	Max/ppm	Interval/hrs	RW-1/vac	mw-21/vac	mw-4/vac
Date 9-30						
11:30 pm	87.5			-6.9	-1.7	-1.4
Date 10-1						
11:30 pm	88.7			-7.0	-1.7	-1.5
Date 10-2						
11:30 pm	49.7			-7.0	-1.8	-1.8
Date 10-3						
11:30 pm	64.6			-7.0	-1.7	-1.6
Date 10-4						
11:30 pm	76.4			-7.0	-1.8	-1.8
Date 10-5						
11:30 pm	95.7			-6.9	-1.8	-1.8
Date 10-6						
11:30 pm	92.8			-7.0	-1.8	-1.8
Date 10-7						
11:30 pm						
Date 10-8						
11:30 pm						
Date 10-9	86.1			-7.0	-1.8	-1.6
11:30 pm						
Date 10-10	82.8			-6.5	-1.8	-1.6
11:30 pm						
Date 10-11	75.6			-7.0	-1.7	-1.5
11:30 pm						
Date 10-12	90.1			-6.9	-1.8	-1.5
11:30 pm						
Date 10-13	95.3			-6.7	-1.5	-1.6
11:30 pm						
Date 10-14	96.2			-6.6	-1.4	-1.4
11:30 pm						
Date 10-16	92.4			-6.8	-1.7	-1.4
11:30 pm						
Date 10-16	98.1			-6.8	-1.7	-1.6
11:30 pm						
Date 10-17						
11:30 pm						
Date 10-18						
11:30 pm						
Date 10-19						
11:30 pm						
Date 10-20	54.4			-6.9	-1.6	-1.6
11:30 pm						
Date 10-21	58.6			-6.8	-1.6	-1.2
11:30 pm						
Date 10-22	49			-6.6	-1.4	-1.2
11:30 pm						
Date 10-23	46.2			-6.8	-1.2	6

Monitor well data

Time/hr	Current/ppm	Max/ppm	Interval/hrs	HW-1/vac	mw-21/vac	mw-4/vac
Date 10-24	48.9			-7	-1.4	-1.2
11:30 pm						
Date 10-25	49.2			-7	-1.5	-1.4
11:30 pm						
Date 10-26						
11:30 pm						
Date 10-27						
11:30 pm	48.7			-7	-1.6	-1.4
Date 10-28						
11:30 pm	50.1			-7	-1.8	-1.6
Date 10-29						
11:30 pm	48.6			-7	-1.6	-1.5
Date 10-30						
11:30 pm	47.6			-7	-1.5	-1.4
Date 10-31						
11:30 pm	53.7			-7	-1.6	-1.4
Date 11-1						
11:30 pm	55.6			-7	-1.7	-1.6
Date 11-2						
11:30 pm	55.8			-7	-1.8	-1.8
Date 11-3						
11:30 pm	58.1			-7	-1.8	-1.6
Date 11-4						
11:30 pm	52.2			-7	-1.6	-1.5
Date 11-5						
11:30 pm	55.6			-5	-1.8	-1.5
Date 11-6						
11:30 pm	50.1			-6	-1.7	-1.5
Date 11-7						
11:30 pm	47.9			-6	-1.7	-1.4
Date 11-8						
11:30 pm	56.2			-7	-1.7	-1.5
Date 11-9						
11:30 pm	53.8			-7	-1.6	-1.5
Date 11-10	5					
11:30 pm	54.2			-7	-1.3	-1.4
Date 11-11						
11:30 pm	Shut Down					
Date 11-12						
11:30 pm	62.8			-7	-1.6	-1.4
Date 11-12						
11:30 pm	52.3			-7	-1.6	-1.5
Date 11-14						
11:30 pm	55.7			-6.8	-1.7	-1.5
Date 11-15						
11:30 pm	52.9	Restarted pump 2:30pm		-6.5	-1.4	-1.3
Date 11-16						

Monitor Wells
Lee Plant

Date	RW-1	RW-1	MW-4	MW-21	MW-23
	OVM	GPM	VAC	VAC	PSI
STD.		2.5	-0.2	-1.0	50

11/19/93	60	3.0	-.3	-.4	50	24455
11/20	58	3.0	-.2	-.4	50	
11/21	68	3.0	-.3	-.4	50	
11/22	64	3.0	-.4	-.4	40	
11/23	67	3.0	-.3	-.4	32	2032
11/24	59	3.0	-.3	-.4	32	2286
11-25	59.6	2.19	-.5	-2.0	26	2633
11-26	62.3	2.3	-.5	-1.5	26	2892
11-27	58.2	2.16	-.4	-1.2	26	3088
11-28	60.3	2.09	-.4	-1.3	26	3206
11-29	59.7	2.6	-.4	-1.8	27	3501
11-30	62.3	2.9	-.4	-2.2	26	3742
12-1						
12-2						
12-3	60.8	2.2	-.5	-.4	28	
12-4	62.4	2.2	-.5	-.5	28	
12-5	60.5	2.2	-.5	-.5	28	
12-6	52.8	2.5	-.4	-.6	28	
12-7	59.5	2.2	-.5	-.6	30	
12-8	61.7	2.2	-.5	-.5	30	
12-9						
12-14	59.4	2.07	-.6	-3.6	49	0075
12-18	48.6	2.14	-.7	-3.5	27	
12-19	52.4	2.2	-.7	-.4	30	
12-20	58.1	2.1	-.7	-.4	29	
12-21						
12-22						

Do on daylight's!

Monitor Wells
Lee Plant

Date	RW-1	RW-1	MW-4	MW-21	MW-23
	OVM	GPM	VAC	VAC	PSI
STD.		2.5	-0.2	-1.0	50

12-26-93	131	2.09	.5	4.0	36	
12-28-93	105	3.1	.5	3.6	25	10757
12-29-93	66.8	2.05	.5	4	38	10953
12-30-93	74	2.04	.6	4.1	38	11136
12-31-93	69.8	2.04	.6	4.2	38	11316
1-1-94	72.2	2.05	.5	4	38	11408
1-2-94	66	2.03	1.2	4.8	38	11781
1-3-94	68.8	2.04	1.0	4.2	38	12181
1-4-94	MACHINE	1.25	.1	1.2	38	12213
1-5-94	BROKE	2.05	.6	4.2	38	12435
1-6-94	"	2.15	.6	4.1	30	12699
1-7-94	73	2.6	.6	3.6	21	12841
1-8-94	69	2.0	.5	4.0	22	
1-9-94	68	2.05	.5	5.5	25	
1-10-94	71	2.04	.5	3.9	25	
1-11-94	71	1.89	.6	4.5	27	
1-12-94	65	2.04	.6	3.7	26	
1-13-94	72	2.05	.5	4.3	27	
1-14-94	70	2.04	.5	4.2	24	
1-15-94	71	2.02	.6	4.0	23	
1-16-94	67	2.07	.5	4.1	24	
1-17-94	71	2.01	.4	4.0	24	
1-18-94	70	2.02	.5	4.2	23	
1-19-94						
1-20-94	64	2.03	1.0	4.8	FROZ	15759
1-21-94	66.5	1.70	0	.6	25	15963
1-22-94	63	2.05	.6	4.4	25	16164
1-23-94	68.5	1.29	.8	4.3	25	16387
1-24-94	60	1.42	1.0	4.6	25	16604

Monitor Wells
Lee Plant

Date	RW-1	RW-1	MW-4	MW-21	MW-23
	OVM	GPM	VAC	VAC	PSI
STD.	2.5	-0.2	-1.0	50	

MW-23

MTR. Reading

1-25-94	64.8	1.07	.8	4.4	27	16794
1-26-94	68.1	1.08	.8	4.4	27	17033
1-27-94	81.3	—	.8	4.3	28	17278
1-28-94	82.5	—	.8	4.4	28	17587
1-29-94	62.3	—	.8	4.2	28	17743
1-30-94	68.6	—	.6	5.8	28	
1-31-94	76.4	—	.7	6.0	28	
2-3-94	69.2		-.4	-.6	28	18904
2-4-94	60.7		-.5	-.6	28	19122
2-5-94	50.9		-.5	-.6	30	19378
2-6-94	58.3		-.4	-.6	28	19552
7						
8						
9	59.8	2.3	-.5	-.6	28	20197
10	62.7	2.6	-.5	-.6	28	20435
11	58.2	2.4	-.5	-.6	28	20716
12	61.3	2.3	-.5	-.6	27	21062
13	52.7	2.5	-.5	-.6	28	21276
14	63.1	2.2	-.4	-.6	28	21523
15	55.6	2.3	-.4	-.1	28	21821
17	86	1.51	-.7	4.3	27	22230
18	62.3	1.59	.7	4.3	27	22460
19	77.5	1.55	1.1	4.8	28	227150
20	81.7	1.60	1.0	4.6	28	229490
21	84.8	1.59	.7	4.2	28	231820
22	107	1.60	.8	4.3	27	234220
23	82	1.60	.9	4.9	27	236590
24	88	1.61	.6	4.4	28	23896
2-25-94	85.3	1.64	1.0	4.6	26	24100

Monitor well data

[illegible]

Attachment 2

Nutrient Laboratory Analytical Results for RW-1

RECEIVED MAR 2 1 1994



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

SUMMARY REPORT

CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : 54030.01/GPM-Lea

JOB NUMBER : H94-966
REPORT DATE : 23-FEB-1994

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
1	9402091130 RW-1	Water	9-FEB-1994
2	9402091135 RW-1	Water	9-FEB-1994

MISCELLANEOUS ANALYSES		1	2		
Ammonia Nitrogen	mg/L	-	0.4		
Nitrate-Nitrogen	mg/L	-	< 0.1		
Ortho Phosphate	mg/L	< 0.10	-		

Inchcape Testing Services

Kuei-Mei Li
Kuei-Mei Li
Technical Director

March 21, 1994



GPM GAS CORPORATION

4044 PENBROOK
ODESSA, TEXAS 79762

**First Quarter 1994 Analytical Results
Lee Plant Discharge Plan GW-2**

Mr. William Olson, Hydrogeologist
New Mexico Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

RECEIVED

MAR 25 1994

OIL CONSERVATION DIV.
SANTA FE

Dear Mr. Olson:

GPM Gas Corporation (GPM) herein submits the laboratory reports for groundwater sampling at our Lee Plant for the first quarter of 1994. Sample collection was conducted on January 6, 1994, pursuant to the requirements of NMOCD Discharge Plan GW-2. NDRC Laboratories, Inc., of Houston Texas performed the sample analyses. Our consultant, GCL, strictly adhered to chain-of-custody procedures to ensure integrity of the samples during transport to the laboratory.

Depth to groundwater and product thickness measurements were taken at all monitor wells with the exception of MW-7, MW-8, and MW-10. Downhole recovery equipment in these wells prevented access to measure water levels and product thicknesses. No free-phase floating product was encountered in any of the wells. Quarterly and semi-annual sampling was performed. The following wells were sampled and analyzed for dissolved aromatic hydrocarbons using EPA Method 602: MW-2, MW-11, MW-12, MW-13, MW-18, MW-19, and MW-20.

BTEX concentrations in MW-2 were below detection levels. In MW-13, MW-18 and MW-19, BTEX concentrations had decreased or were below detection. MW-11 and MW-12 showed very slight increases in benzene and toluene; MW-11 also showed a slight increase in xylenes. Water samples from MW-20 contained lower concentrations of benzene and toluene, and slightly elevated concentrations of ethylbenzene and xylenes.

Recovery wells MW-8 and NW-10 are no longer operating. GPM is acting to restore these wells to operating condition (see letter to NMOCD, February 1994). We will apprise NMOCD of well conditions after restoration activities are complete.

If you have any questions regarding this information or the analytical results, please contact me at (915) 368-1085.

Sincerely,

Vince Bernard
Safety & Environmental Supervisor
New Mexico Region

cc: Maureen Gannon - GCL

RECEIVED JAN 24 1994



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NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

SUMMARY REPORT

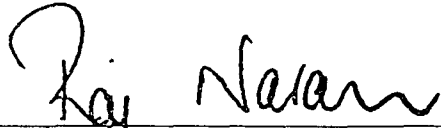
CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : 54030.02/GPM

JOB NUMBER : H94-138
REPORT DATE : 12-JAN-1994

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
1	9401060930 MW-11	Groundwater	6-JAN-1994
2	9401061030 MW-12	Groundwater	6-JAN-1994
3	9401061115 MW-13	Groundwater	6-JAN-1994
4	9401061230 MW-19	Groundwater	6-JAN-1994

BTEX ANALYSIS, EPA 602		1	2	3	4
Benzene	µg/L	3.9	2.6	2.4	2.5
Toluene	µg/L	5.5	4.0	3.4	3.4
Ethyl benzene	µg/L	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes	µg/L	3.7	< 3.0	< 3.0	< 3.0

Inchcape Testing Services


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

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Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

SUMMARY REPORT

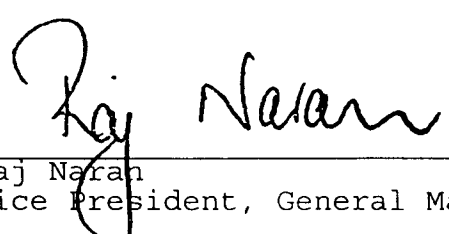
CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : 54030.02/GPM

JOB NUMBER : H94-138
REPORT DATE : 12-JAN-1994

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
5	9401061245 MW-19A	Groundwater	6-JAN-1994
6	9401061315 MW-20	Groundwater	6-JAN-1994
7	9401061400 MW-18	Groundwater	6-JAN-1994
8	9401061500 MW-2	Groundwater	6-JAN-1994

BTEX ANALYSIS, EPA 602		5	6	7	8
Benzene	µg/L	2.6	4.0	< 1.0	< 1.0
Toluene	µg/L	3.5	5.0	2.1	< 1.0
Ethyl benzene	µg/L	< 1.0	3.1	< 1.0	< 1.0
Xylenes	µg/L	< 3.0	9.7	< 3.0	< 3.0

Inchcape Testing Services


Raj Naran
Vice President, General Manager



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Houston, TX 77025
Tel. 713-661-8150
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DATE RECEIVED : 7-JAN-1994

REPORT NUMBER : H94-138-1
REPORT DATE : 12-JAN-1994

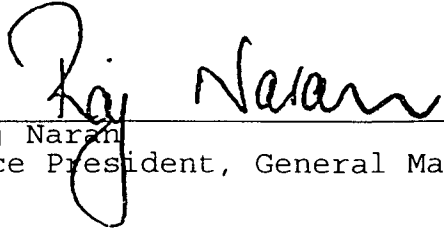
SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9401060930
: MW-11
PROJECT : 54030.02/GPM
DATE SAMPLED : 6-JAN-1994
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	3.9 µg/L
Toluene	1.0 µg/L	5.5 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	3.7 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	106 %

Inchcape Testing Services


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 7-JAN-1994

REPORT NUMBER : H94-138-2
REPORT DATE : 12-JAN-1994

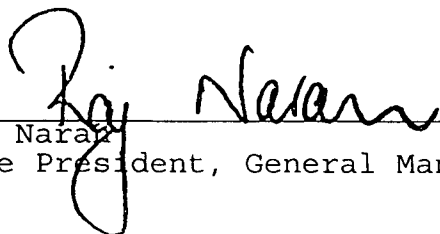
SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9401061030
: MW-12
PROJECT : 54030.02/GPM
DATE SAMPLED : 6-JAN-1994
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS			
TEST REQUESTED	DETECTION LIMIT		RESULTS
Benzene	1.0	µg/L	2.6 µg/L
Toluene	1.0	µg/L	4.0 µg/L
Ethyl benzene	1.0	µg/L	< 1.0 µg/L
Xylenes	3.0	µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	107 %

Inchcape Testing Services


Raj Narayan
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 7-JAN-1994

REPORT NUMBER : H94-138-3

REPORT DATE : 12-JAN-1994

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9401061115

: MW-13

PROJECT : 54030.02/GPM

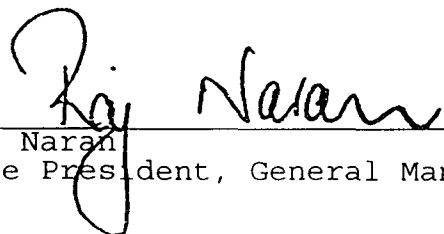
DATE SAMPLED : 6-JAN-1994

ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	2.4 µg/L
Toluene	1.0 µg/L	3.4 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	105 %

Inchcape Testing Services


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 7-JAN-1994

REPORT NUMBER : H94-138-4

REPORT DATE : 12-JAN-1994

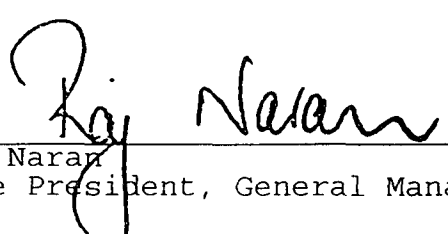
SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9401061230
: MW-19
PROJECT : 54030.02/GPM
DATE SAMPLED : 6-JAN-1994
ANALYSIS METHOD : EPA 602

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	2.5 µg/L
Toluene	1.0 µg/L	3.4 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	109 %

Inchcape Testing Services


Raj Narayan
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 7-JAN-1994

REPORT NUMBER : H94-138-5

REPORT DATE : 12-JAN-1994

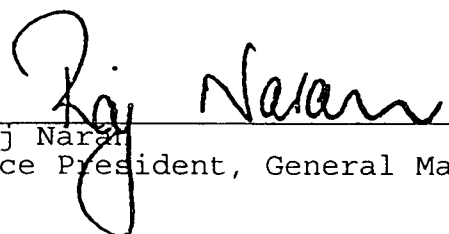
SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9401061245
: MW-19A
PROJECT : 54030.02/GPM
DATE SAMPLED : 6-JAN-1994
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	2.6 µg/L
Toluene	1.0 µg/L	3.5 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	110 %

Inchcape Testing Services


Raj Narain
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

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Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 7-JAN-1994

REPORT NUMBER : H94-138-6

REPORT DATE : 12-JAN-1994

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9401061315

: MW-20

PROJECT : 54030.02/GPM

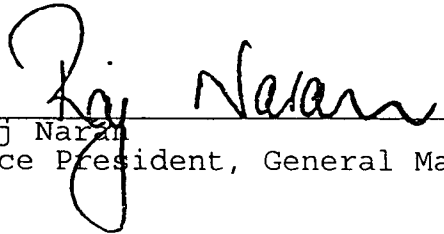
DATE SAMPLED : 6-JAN-1994

ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	4.0 µg/L
Toluene	1.0 µg/L	5.0 µg/L
Ethyl benzene	1.0 µg/L	3.1 µg/L
Xylenes	3.0 µg/L	9.7 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	106 %

Inchcape Testing Services


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 7-JAN-1994

REPORT NUMBER : H94-138-7

REPORT DATE : 12-JAN-1994

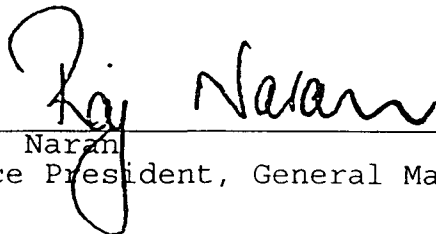
SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9401061400
: MW-18
PROJECT : 54030.02/GPM
DATE SAMPLED : 6-JAN-1994
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 $\mu\text{g/L}$	< 1.0 $\mu\text{g/L}$
Toluene	1.0 $\mu\text{g/L}$	2.1 $\mu\text{g/L}$
Ethyl benzene	1.0 $\mu\text{g/L}$	< 1.0 $\mu\text{g/L}$
Xylenes	3.0 $\mu\text{g/L}$	< 3.0 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 $\mu\text{g/L}$	110 %

Inchcape Testing Services


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 7-JAN-1994

REPORT NUMBER : H94-138-8

REPORT DATE : 12-JAN-1994

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

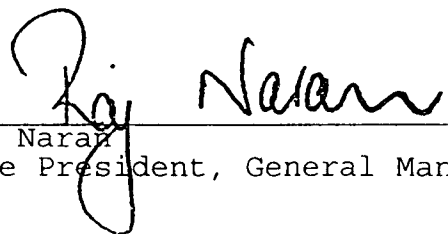
SAMPLE MATRIX : Groundwater
ID MARKS : 9401061500
: MW-2

PROJECT : 54030.02/GPM
DATE SAMPLED : 6-JAN-1994
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	< 1.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	3.0 µg/L	< 3.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	109 %

Inchcape Testing Services


Raj Narain
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED: 7-JAN-1994

REPORT NUMBER: H94-138:1-8

REPORT DATE: 12-JAN-1994

SAMPLE SUBMITTED BY: H + GCL

ATTENTION: Ms. Annette Montoya

LABORATORY ANALYSIS QUALITY CONTROL REPORT

ANALYSIS: Benzene
Technician: MHT
Sample Extracted: 10-JAN-1994
QC Extracted: 10-JAN-1994
Sample Analyzed: 10-JAN-1994
QC Analyzed: 10-JAN-1994
QC Sample Number: 138-7
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
MS/MSD RPD: 0%
Average Spike Recovery: 102%
Duplicate RPD: ---
Method Blank: < 1.0 µg/L
LCS Recovery: 92%
TCLP Spike Recovery: ---

ANALYSIS: Toluene
Technician: MHT
Sample Extracted: 10-JAN-1994
QC Extracted: 10-JAN-1994
Sample Analyzed: 10-JAN-1994
QC Analyzed: 10-JAN-1994
QC Sample Number: 138-7
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
MS/MSD RPD: 0%
Average Spike Recovery: 108%
Duplicate RPD: ---
Method Blank: < 1.0 µg/L
LCS Recovery: 98%
TCLP Spike Recovery: ---

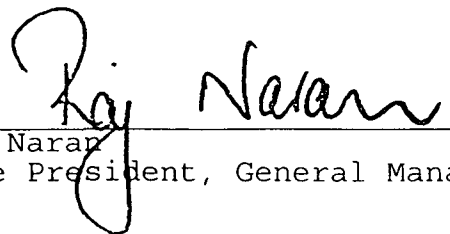
ANALYSIS: Ethyl benzene
Technician: MHT
Sample Extracted: 10-JAN-1994
QC Extracted: 10-JAN-1994
Sample Analyzed: 10-JAN-1994
QC Analyzed: 10-JAN-1994
QC Sample Number: 138-7
TCLP Leachate Date: ---

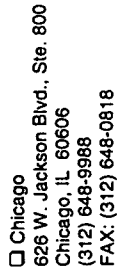
Analysis Method: EPA 602
Extraction Method: EPA 602
MS/MSD RPD: 2%
Average Spike Recovery: 115%
Duplicate RPD: ---
Method Blank: < 1.0 µg/L
LCS Recovery: 102%
TCLP Spike Recovery: ---

ANALYSIS: Xylenes
Technician: MHT
Sample Extracted: 10-JAN-1994
QC Extracted: 10-JAN-1994
Sample Analyzed: 10-JAN-1994
QC Analyzed: 10-JAN-1994
QC Sample Number: 138-7
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
MS/MSD RPD: 0%
Average Spike Recovery: 118%
Duplicate RPD: ---
Method Blank: < 3.0 µg/L
LCS Recovery: 107%
TCLP Spike Recovery: ---

Inchcape Testing Services


Raj Narayan
Vice President, General Manager



7006

Chain of Custody

Date 11/26/2014 Page 1 Of 1

☐ San Francisco
2200 Powell Street, Ste. 880
Emeryville, CA 94608
(510) 547-3886
FAX: (510) 547-3631

Analysis Request

[illegible]DISTRIBUTION: WHITE, CANARY - LABORATORY • PINK, H⁺GCL

11155 South Main • Houston, TX 77025 • (713) 661-8150 • Fax (713) 661-2661

Incoming Samples ☐

Temperature of Cooler(s): 4

Date/Time



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION



BRUCE KING
GOVERNOR

February 11, 1994

ANITA LOCKWOOD
CABINET SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-667-241-903

Mr. Ray Meaux
GPM Gas Corporation
West Star Route
Box 448
Lovington, New Mexico 88240

**RE: RECOVERY WELL RESTORATION
LEE GAS PROCESSING PLANT
BUCKEYE, NEW MEXICO**

Dear Mr. Meaux:

The New Mexico Oil Conservation Division has reviewed the February 9, 1994 correspondence submitted by H+GCL on behalf of GPM Gas Corporation requesting permission to conduct well restoration activities on recovery wells MW-7 and MW-8.

The above referenced request is approved.

Please be advised that OCD approval does not relieve GPM of liability should your activities result in contamination of surface waters, ground waters or the environment. In addition, OCD approval does not relieve GPM of responsibility for compliance with any other federal, state or local laws and/or regulations.

If you have any questions, please contact me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Wayne Price, OCD Hobbs District Office
Vince Bernard, GPM - Odessa
Maureen Gannon, H+GCL

505 Marquette NW, Ste. 1100 • Albuquerque, NM 87102
(505) 842-0001 • FAX: (505) 842-0595

OIL CONSERVATION DIVISION
RECEIVED



'94 FEB 10 AM 8 35

February 9, 1994

Mr. Bill Olson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Dear Bill:

On behalf of GPM Gas Corporation, H⁺GCL is requesting approval to perform well restoration on recovery wells, MW-7 and MW-8, at the Lee Gas Processing Plant in Buckeye, New Mexico. These wells have ceased water production during the last quarter of 1993. Pursuant to our phone conversation on Wednesday, February 9, 1994, I am enclosing a copy of the specifications for well restoration and the vendor sheets on the acid we propose for use.

We would like to perform the restoration as soon as possible. Please notify Mr. Ray Meaux of GPM Gas Corporation at the Lee Plant of your decision. His address is:

GPM Gas Corporation
West Star Route
Box 448
Lovington, New Mexico 88240
(505) 397-5703

We appreciate your time and consideration regarding this matter. Thank you.

Sincerely,
H⁺GCL

Maureen D. Gannon
Project Engineer

Enclosures

cc: Vince Bernard, GPM- Odessa
Ray Meaux, GPM- Lee Plant

\\54030\OLSON02.MEM

Well Redevelopment

A. SCOPE

This specification covers the labor, materials, and equipment necessary for redevelopment of monitoring wells, MW-7 and MW-8.

B. MATERIALS AND EQUIPMENT

The subcontractor shall provide all materials, labor, and equipment necessary for redevelopment of monitoring wells, MW-7 and MW-8. Redevelopment of these wells shall be accomplished by air surge and/or surge block and pump (unless otherwise approved by the on-site geologist).

The subcontractor shall provide all pumps, pipes, hoses, fittings, and accessories required to redevelop this well.

C. PROCEDURES

Air surging or a swab shall be used to remove fines near the well screen. Surging shall be performed immediately above and within the screened interval. Development shall be initiated gently. As flow is established through the screened interval, the degree of agitation shall be slowly increased. Surging shall be stopped periodically and the well bailed or sand pumped to remove debris and sediment.

The implementation of the following sequence of activities is recommended to remove turbidity and to expedite the well redevelopment efforts:

- Following acid treatment, the well shall be chemically treated with a sodium acid pyrophosphate solution. The well should be subjected to continuous surging for approximately 10 minutes following the introduction of this solution.
- Over a 6 to 18 hour contact time, the well should be periodically subjected to continuous surging every three hours (i.e., for 10 to 15 minute intervals). Following this contact period the waste solution in the well shall be pumped (until the pH stabilizes) and neutralized prior to discharge to the Lee Plant wastewater collection system.
- Pump, bail, or air-lift the loosened debris and particulates from the well.

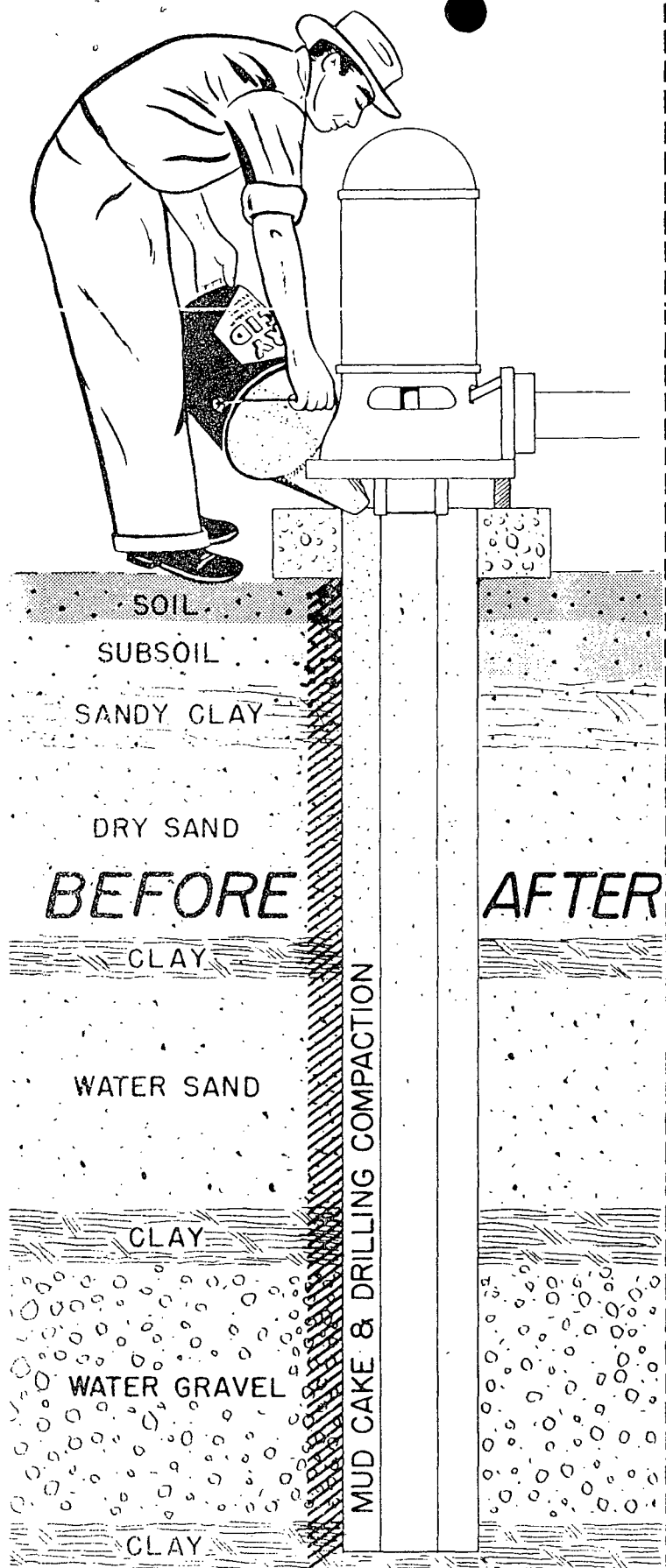
The subcontractor shall take all necessary precautions to prevent contaminated water, gasoline, or other deleterious substances from entering the well, either through the wellhead or by seepage through the ground surface. The subcontractor shall maintain necessary precautions prior, during, and after well restoration activities.

All wastes generated from mechanical cleaning and chemical treatment activities (fluids and other debris) shall be field screened by the on-site geologist to determine pH levels. Based on results from the field screening and as directed by GPM, the subcontractor shall contain and neutralize these wastes prior to discharge to the Lee Plant wastewater collection system.

GPM shall provide means for the disposal of well restoration wastes.

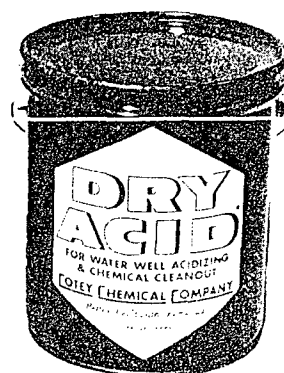
Well redevelopment shall be initiated following completion of well restoration activities and continue uninterrupted until, in the opinion of GPM and H⁺GCL, the well is:

- Producing water free of debris and sediment,
- Responsive to water level changes in the aquifer, and
- Temperature, conductivity, and pH have stabilized.



"Better Wells with Chemicals"

USE



TO:

REMOVE: Clays, shales, and commercial drilling muds from water wells producing in sand and gravel formations.

DEVELOP: New wells to their maximum specific capacity.

REDEVELOP: Old wells to their original flow or greater.

DRY ACID* is a dry granular mixture of chemicals. When dissolved in water, **DRY ACID*** produces a catalyzed acid solution that chemically dissolves, disintegrates, and disperses clay, shale and mud.

DRY ACID* is packaged in 50 pound steel pails.

DRY ACID* has a beneficial bactericidal effect.

Many wells do not produce as much water as desired or is indicated from the log of the sand and gravel formation. This may be due to low permeability and porosity of the formation, particularly where appreciable amounts of clays are present in the formation.

Clays and fine drill cuttings may be forced into the formation by the force of the bit in spudder or cable tool drilling. The force of the bit also has a tendency to compact the formation around the well bore reducing the permeability and restricting the flow of water.

A mud or filter cake, developed from the clays in the formation or the use of commercial drilling mud, is built up on the walls of the hole in direct or reverse circulation rotary drilling. In order for a well to produce at maximum capacity all of the mud or filter cake must be removed.

DRY ACID* was developed specifically for treating water wells to dissolve, disintegrate and disperse clays, shales, fine drill cuttings and commercial drilling mud and to open up tight sand and gravel formations so that the well will produce at maximum capacity.

***DRY ACID**, **WELGICIDE**, **DRY-DE**—TRADEMARKS, **COTLEY CHEMICAL COMPANY**, REG. U. S. PATENT OFFICE

COTLEY CHEMICAL COMPANY

P. O. BOX 1239

2301 AVENUE G

LUBBOCK, TEXAS 79408

TELEPHONE SHERWOOD 7-2025

Diameter inches of casing or hole	Gallons per foot of depth
1	0.041
1½	0.092
2	0.163
2½	0.255
3	0.367
3½	0.500
4	0.653
4½	0.737
5	1.020
5½	1.234
6	<u>1.469</u>
7	2.000
8	2.611
9	3.305
10	4.080
11	4.937
12	5.875
13	6.895
14	8.000
15	9.18
16	10.00
17	11.79
18	13.22
19	14.73
20	16.32
22	19.75
24	23.50
26	27.58
28	31.99
30	36.72
32	41.78
34	47.16
36	52.88

HOW TO USE DRY ACID¹ IN LARGE DIAMETER WELLS

1. Use ¾ to 1 pound of DRY ACID per gallon of water in the well.
2. If a deep well turbine pump is in the hole, add about ¼ the required amount of DRY ACID at a time, between the pump column and casing. Agitate by backwashing after each addition of acid. If a rig is over the hole add the acid to the casing and agitate with a bailer, surge block or other tool.
3. Acid should remain in the well 12 to 24 hours and should be agitated every few hours.
4. If well is gravel packed displace the acid back through the gravel wall by adding water equal to about ¾ the volume of water standing in the hole. In new wells the water should be added after all the acid has been added and thoroughly mixed by backwashing. In old wells allow the acid to stay in the casing for a few hours before adding the water. Water should be added slowly or in several batches at 30 minute intervals.
5. Pump or bail the hole clean, develop and test.

HOW TO USE DRY ACID¹ IN SMALL DIAMETER WELLS

1. Treat with a solution made by dissolving about 1 pound of DRY ACID per gallon of water.
2. Use about two to three times the volume of the casing.
3. Add solution and agitate with a bailer, surge block or other device.
4. As the fluid level drops continue to add the acid solution.
5. Agitate several times during a 12 to 24 hour soaking period.
6. Bail the hole and test.

IN MANY WELLS TWO OR MORE TREATMENTS MAY PROVE BENEFICIAL.

INITIAL WATER AFTER TREATMENT CONTAINS SPENT CHEMICALS AND SHOULD BE PUMPED OR BAILED TO WASTE.

DRY ACID IS PACKAGED IN 50 POUND STEEL PAILS.

**pumps inc.**

Effective March 30, 1992

WELL CHEMICALS

DRY CHLORINE

DISCOUNT SCHEDULE 30%
3 or more 30/10%

Quantity of hypochlorite needed to provide 100 PPM active chlorine in well water.

Feet of water x gallons per foot = Ounces needed
37

<u>Nominal size (inches)</u>	<u>Gallons per linear foot</u>	<u>Ounces needed per 100 ft.</u>
4	0.653	1.8
5	1.020	2.9
6	1.469	3.9
8	2.611	7.1
10	4.080	11.0
12	5.875	15.9
16	10.445	28.2

<u>TABLETS</u>	<u>PART NO.</u>	<u>LIST PRICE</u>
5 1/2 lb. jug	HTHT	\$20.24

<u>GRANULES</u>	<u>PART NO.</u>	<u>LIST PRICE</u>
5 1/2 lb. jug	HTHG 5	\$ 16.14
35 lb. pail	HTHG 35	102.84

Dry chlorine is available in granular or tablet form.

DPA

USE TO:

Dry Acid Special
Develop new wells producing from limestone or calcareous sand and gravel or to re-develop old wells plugged by hard-water scale, rust or corrosion.

DIRECTIONS: (1) Use 1/2 pound per gallon of water in the well.

(2) Agitate as often as possible by surging, swabbing or injecting compressed air for 48 hours.

(3) Pump or bail the hole clean. Treated water should be pumped to waste.

<u>Diameter inches of casing or hole</u>	<u>Gallons per foot of depth</u>
3	0.37
3 1/2	0.50
4	0.65
4 1/2	0.74
5	1.02
5 1/2	1.23
6	1.47
7	2.00
8	2.61
9	3.31
10	4.08
11	4.94
12	5.88
13	6.90
14	8.00
15	9.18
16	10.00
17	11.79
18	13.22
19	14.73
20	16.32
22	19.75
24	23.50
26	27.58
28	31.99
30	36.72
32	41.78

September 29, 1993

OIL CONSERVATION DIVISION
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GPM GAS SERVICES COMPANY
A DIVISION OF PHILLIPS PETROLEUM COMPANY

SEP 30 5 AM 8 52

4044 PENBROOK
ODESSA, TX 79762

Third Quarter 1993 Analytical Results
Lee Plant Discharge Plan GW-2

Mr. William Olson
Hydrogeologist
New Mexico Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

Dear Mr. Olson:

GPM Gas Corporation (GPM) herein submits the laboratory analytical reports for groundwater sampling at our Lee Plant for the third quarter of 1993. Sample collection was conducted during the period of July 19 through July 21, 1993 pursuant to the requirements of NMOCDD Discharge Plan GW-2. NDRC Laboratories, Inc., of Houston, Texas performed the sample analyses. Our consultant, H+GCL strictly adhered to chain-of-custody procedures to ensure integrity of the samples during transport to the laboratory.

Depth to ground water and product thickness measurements were taken at all monitor wells with the exception of MW-7. Downhole recovery equipment in MW-7 prevented access for measuring water levels and product thickness. The following wells were sampled and analyzed for dissolved aromatic hydrocarbons using EPA Method 602: MW-2, MW-5, MW-7, MW-9, MW-10, MW-11, MW-12, MW-13, MW-16, MW-18, MW-19, and MW-20.

Groundwater flows northeast to southwest beneath the site, following the historical hydraulic gradient. Product was found in MW-5 at an approximate thickness of 0.15 feet within the well casing. Product was also observed in MW-4 and MW-6 in thicknesses too small to measure.

An order of magnitude increase of benzene concentration from the last annual sampling of MW-16, the furthest up-gradient monitor well on the site, may have resulted from an off-site source(s). Hydrocarbons originating from oil field activities to the north and northeast, and up-gradient from the Lee Plant, may be migrating under the site. BTEX concentrations in down-gradient compliance monitor wells (MW-11, MW-12, MW-13, MW-19 and MW-20) remained relatively unchanged from the previous annual sampling event.

During the third quarter of 1993, recovery well RW-1 was retrofitted for vapor extraction. The vapor extraction system is currently operational. Daily organic vapor

William Olson

Third Quarter 1993 Analytical Results

Lee Plant Discharge Plan GW-2

Page

readings have been registering approximately 88 ppm of organic vapors for the past several weeks of system operation. Three monitor wells have also been installed near RW-1 in preparation for the installation of the air sparging scheduled for the fourth quarter of 1993.

If you have any questions regarding the contents of this letter or the analytical results, please call me at (915) 368-1085.

Sincerely,



Vincent B. Bernard
Safety & Environmental Supervisor
New Mexico Region

/sm

cc: Maureen Gannon - H + GCL Albuquerque
S.J. Seeby
M.S. Nault

✓ William Olson
* Third Quarter 1993 Analytical Results
Lee Plant Discharge Plan GW-2
Page

bcc: R.D. Dunham
D.A. Stell
R.G. Stubbs
(r) G.A. Jones
S.E. Godby
(r) D.J. Jelmini

December 29, 1993

94 JAN 5 AM 9 07
4044 PENBROOK
ODESSA, TX 79762

Fourth Quarter 1993 Analytical Results
Lee Plant Discharge Plan GW-2

Mr. William Olson, Hydrogeologist
New Mexico Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

Dear Mr. Olson:

GPM Gas Corporation (GPM) herein submits the laboratory analytical reports for groundwater sampling at our Lee Plant for the fourth quarter of 1993. Sample collection was conducted on October 26, 1993, pursuant to the requirements of NMOCD Discharge Plan GW-2. NDRC Laboratories Inc., of Houston performed the sample analyses. Our consultant, H+GCL, strictly adhered to chain-of-custody procedures to ensure integrity of the samples during transport to the laboratory.

Depth to ground water and product thickness measurements were taken at all monitor wells with the exception of MW-6, MW-7 and MW-8. Downhole recovery equipment in these wells prevented access to measure water levels and product thicknesses. No free-phase floating product was encountered in any of the wells. The following wells were sampled and analyzed for dissolved aromatic hydrocarbons using EPA Method 602: MW-11, MW-12, MW-13, MW-19, and MW-20.

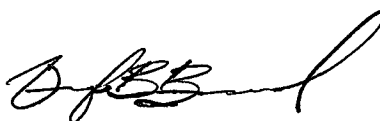
All monitor wells sampled showed a decrease in benzene, ethylbenzene, and xylenes. All wells except MW-13 demonstrated a decrease in toluene. The toluene concentration in MW-13 rose slightly since the previous sampling event in July of 1993. In monitor wells, MW-11 and MW-12, BTEX concentrations were below detection limits.

During the fourth quarter of 1993, an air/water injection system was successfully installed and activated at monitor well, MW-23. This system employs a venturi nozzle in which air and water are blended prior to injection into the formation. After installation and start-up, carbon dioxide, dissolved oxygen, and organic vapor readings were taken to monitor microbial activity and progress of the system. These readings were also taken prior to system start-up. We will continue to closely monitor the vapor extraction and air/water injection systems.

Mr. William Olson
Fourth Quarter 1993 Analytical Results
Lee Plant Discharge Plan GW-2
December 29, 1993
Page 2

If you have any questions regarding this information or the analytical results, please call me at (915) 368-1085.

Sincerely,

A handwritten signature in black ink, appearing to read "V. Bernard", with a long horizontal flourish extending to the right.

Vince Bernard
Safety & Environmental Supervisor
New Mexico Region

/sm

cc: Maureen Gannon - H+GCL Albuquerque
S.J. Seeby
M.S. Nault

RECEIVED NOV 10 1993



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

SUMMARY REPORT

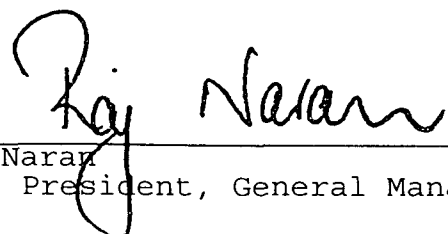
CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : 54030.01/GPM

JOB NUMBER : H93-7212
REPORT DATE : 2-NOV-1993

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
1	9310260915	Groundwater	26-OCT-1993
2	9310261030	Groundwater	26-OCT-1993
3	9310261120	Groundwater	26-OCT-1993
4	9310261300	Groundwater	26-OCT-1993

PURGEABLE AROMATICS, EPA 602		1	2	3	4
Benzene $\mu\text{g/L}$		18.3	11.2	28.6	< 2.0
Chlorobenzene $\mu\text{g/L}$		< 2.0	< 2.0	< 2.0	< 2.0
1,2-Dichlorobenzene $\mu\text{g/L}$		< 4.0	< 4.0	< 4.0	< 4.0
1,3-Dichlorobenzene $\mu\text{g/L}$		< 4.0	< 4.0	< 4.0	< 4.0
1,4-Dichlorobenzene $\mu\text{g/L}$		< 3.0	< 3.0	< 3.0	< 3.0
Ethyl benzene $\mu\text{g/L}$		< 2.0	< 2.0	< 2.0	< 2.0
Toluene $\mu\text{g/L}$		17.0	12.3	29.6	< 2.0
Xylenes $\mu\text{g/L}$		< 6.0	< 6.0	10.2	< 6.0

Inchcape Testing Services


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

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Houston, TX 77025
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Fax. 713-661-2661

SUMMARY REPORT

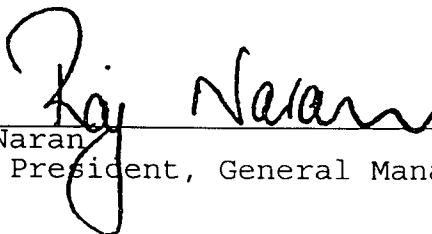
CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : 54030.01/GPM

JOB NUMBER : H93-7212
REPORT DATE : 2-NOV-1993

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
5	9310261430	Groundwater	26-OCT-1993
6	9310261440	Groundwater	26-OCT-1993

PURGEABLE AROMATICS, EPA 602		5	6		
Benzene $\mu\text{g/L}$	<	2.0	<	2.0	
Chlorobenzene $\mu\text{g/L}$	<	2.0	<	2.0	
1,2-Dichlorobenzene $\mu\text{g/L}$	<	4.0	<	4.0	
1,3-Dichlorobenzene $\mu\text{g/L}$	<	4.0	<	4.0	
1,4-Dichlorobenzene $\mu\text{g/L}$	<	3.0	<	3.0	
Ethyl benzene $\mu\text{g/L}$	<	2.0	<	2.0	
Toluene $\mu\text{g/L}$	<	2.0	<	2.0	
Xylenes $\mu\text{g/L}$	<	6.0	<	6.0	

Inchcape Testing Services


Raj Naran
Vice President, General Manager



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DATE RECEIVED : 28-OCT-1993

REPORT NUMBER : H93-7212-1

REPORT DATE : 2-NOV-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9310260915

PROJECT : 54030.01/GPM

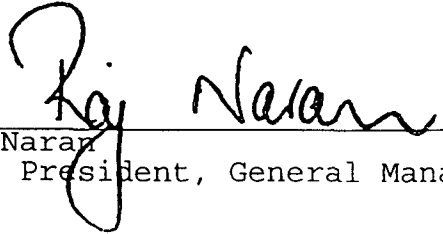
DATE SAMPLED : 26-OCT-1993

ANALYSIS METHOD : EPA 602

PURGEABLE AROMATICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	18.3 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
Ethyl benzene	2.0 µg/L	< 2.0 µg/L
Toluene	2.0 µg/L	17.0 µg/L
Xylenes	6.0 µg/L	< 6.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	50.0 µg/L	96.0 %

Inchcape Testing Services


Raj Narayan
Vice President, General Manager



Inchcape Testing Services

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DATE RECEIVED : 28-OCT-1993

REPORT NUMBER : H93-7212-2

REPORT DATE : 2-NOV-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9310261030

PROJECT : 54030.01/GPM

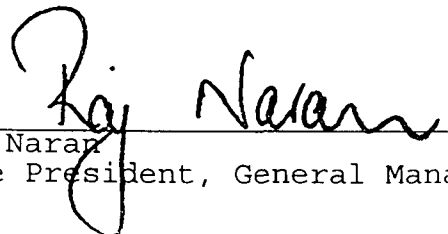
DATE SAMPLED : 26-OCT-1993

ANALYSIS METHOD : EPA 602

PURGEABLE AROMATICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	11.2 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
Ethyl benzene	2.0 µg/L	< 2.0 µg/L
Toluene	2.0 µg/L	12.3 µg/L
Xylenes	6.0 µg/L	< 6.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	50.0 µg/L	97.0 %

Inchcape Testing Services


Raj Narayan
Vice President, General Manager



Inchcape Testing Services

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DATE RECEIVED : 28-OCT-1993

REPORT NUMBER : H93-7212-3

REPORT DATE : 2-NOV-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9310261120

PROJECT : 54030.01/GPM

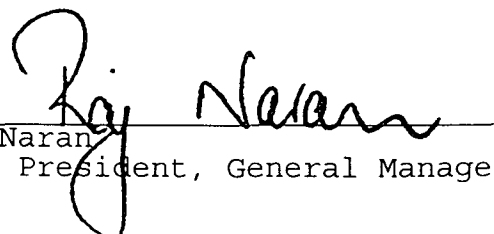
DATE SAMPLED : 26-OCT-1993

ANALYSIS METHOD : EPA 602

PURGEABLE AROMATICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	28.6 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
Ethyl benzene	2.0 µg/L	< 2.0 µg/L
Toluene	2.0 µg/L	29.6 µg/L
Xylenes	6.0 µg/L	10.2 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	50.0 µg/L	100 %

Inchcape Testing Services


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

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DATE RECEIVED : 28-OCT-1993

REPORT NUMBER : H93-7212-4

REPORT DATE : 2-NOV-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9310261300

PROJECT : 54030.01/GPM

DATE SAMPLED : 26-OCT-1993

ANALYSIS METHOD : EPA 602

PURGEABLE AROMATICS			
TEST REQUESTED	DETECTION LIMIT		RESULTS
Benzene	2.0	µg/L	< 2.0 µg/L
Chlorobenzene	2.0	µg/L	< 2.0 µg/L
1,2-Dichlorobenzene	4.0	µg/L	< 4.0 µg/L
1,3-Dichlorobenzene	4.0	µg/L	< 4.0 µg/L
1,4-Dichlorobenzene	3.0	µg/L	< 3.0 µg/L
Ethyl benzene	2.0	µg/L	< 2.0 µg/L
Toluene	2.0	µg/L	< 2.0 µg/L
Xylenes	6.0	µg/L	< 6.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	50.0 µg/L	100 %

Inchcape Testing Services

Raj Naran

Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

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DATE RECEIVED : 28-OCT-1993

REPORT NUMBER : H93-7212-5

REPORT DATE : 2-NOV-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9310261430

PROJECT : 54030.01/GPM

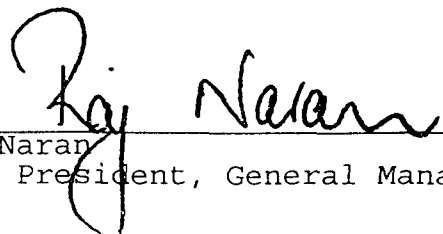
DATE SAMPLED : 26-OCT-1993

ANALYSIS METHOD : EPA 602

PURGEABLE AROMATICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	< 2.0 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
Ethyl benzene	2.0 µg/L	< 2.0 µg/L
Toluene	2.0 µg/L	< 2.0 µg/L
Xylenes	6.0 µg/L	< 6.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	50.0 µg/L	100 %

Inchcape Testing Services


Raj Naran

Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

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Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 28-OCT-1993

REPORT NUMBER : H93-7212-6

REPORT DATE : 2-NOV-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9310261440

PROJECT : 54030.01/GPM

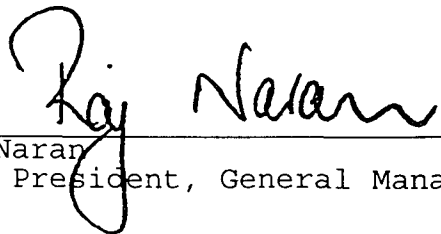
DATE SAMPLED : 26-OCT-1993

ANALYSIS METHOD : EPA 602

PURGEABLE AROMATICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	< 2.0 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
Ethyl benzene	2.0 µg/L	< 2.0 µg/L
Toluene	2.0 µg/L	< 2.0 µg/L
Xylenes	6.0 µg/L	< 6.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	50.0 µg/L	101 %

Inchcape Testing Services


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

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DATE RECEIVED: 28-OCT-1993

REPORT NUMBER: H93-7212:1-6
REPORT DATE: 2-NOV-1993

SAMPLE SUBMITTED BY: H + GCL

ATTENTION: Ms. Annette Montoya

LABORATORY ANALYSIS QUALITY CONTROL REPORT

ANALYSIS: Benzene
Technician: MHT
Sample Extracted: 29-OCT-1993
QC Extracted: 29-OCT-1993
Sample Analyzed: 29-OCT-1993
QC Analyzed: 29-OCT-1993
QC Sample Number: 7197-4
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
MS/MSD RPD: 4%
Average Spike Recovery: 112%
Duplicate RPD: ---
Method Blank: < 2.0 µg/L
LCS Recovery: 108%
TCLP Spike Recovery: ---

ANALYSIS: Toluene
Technician: MHT
Sample Extracted: 29-OCT-1993
QC Extracted: 29-OCT-1993
Sample Analyzed: 29-OCT-1993
QC Analyzed: 29-OCT-1993
QC Sample Number: 7197-4
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
MS/MSD RPD: 2%
Average Spike Recovery: 111%
Duplicate RPD: ---
Method Blank: < 2.0 µg/L
LCS Recovery: 106%
TCLP Spike Recovery: ---

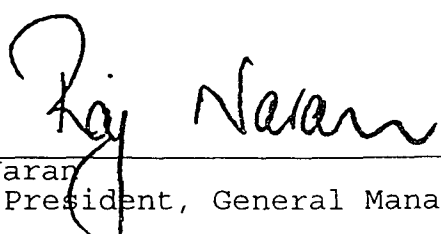
ANALYSIS: Ethyl benzene
Technician: MHT
Sample Extracted: 29-OCT-1993
QC Extracted: 29-OCT-1993
Sample Analyzed: 29-OCT-1993
QC Analyzed: 29-OCT-1993
QC Sample Number: 7197-4
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
MS/MSD RPD: 4%
Average Spike Recovery: 104%
Duplicate RPD: ---
Method Blank: < 2.0 µg/L
LCS Recovery: 100%
TCLP Spike Recovery: ---

ANALYSIS: Chlorobenzene
Technician: MHT
Sample Extracted: 29-OCT-1993
QC Extracted: 29-OCT-1993
Sample Analyzed: 29-OCT-1993
QC Analyzed: 29-OCT-1993
QC Sample Number: 7197-4
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
MS/MSD RPD: 2%
Average Spike Recovery: 103%
Duplicate RPD: ---
Method Blank: < 2.0 µg/L
LCS Recovery: 100%
TCLP Spike Recovery: ---

Inchcape Testing Services


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED: 28-OCT-1993

REPORT NUMBER: H93-7212:1-6

REPORT DATE: - 2-NOV-1993

SAMPLE SUBMITTED BY: H + GCL

ATTENTION: Ms. Annette Montoya

LABORATORY ANALYSIS QUALITY CONTROL REPORT

ANALYSIS: 1,2-Dichlorobenzene	Analysis Method: EPA 602
Technician: MHT	Extraction Method: EPA 602
Sample Extracted: 29-OCT-1993	MS/MSD RPD: 6%
QC Extracted: 29-OCT-1993	Average Spike Recovery: 99%
Sample Analyzed: 29-OCT-1993	Duplicate RPD: ---
QC Analyzed: 29-OCT-1993	Method Blank: < 4.0 µg/L
QC Sample Number: 7197-4	LCS Recovery: 96%
TCLP Leachate Date: ---	TCLP Spike Recovery: ---

Raj Naran



☒ Albuquerque
505 Marquette NW, Ste. 1100
Albuquerque, NM 87102
(505) 842-0001
FAX: (505) 842-0595

☐ NASA-WSTF
PO Drawer MM
Las Cruces, NM 88004
(505) 524-5353
FAX: (505) 524-5315

☐ Boston
180 Canal Street
Boston, MA 02114
(617) 723-4664
FAX: (617) 367-1386

☐ Chicago
626 W. Jackson Blvd., Ste. 800
Chicago, IL 60606
(312) 648-9988
FAX: (312) 648-0818

7005

ORIGINAL

Chain of Custody

☐ Hartford
380 South Center Street
Windsor Locks, CT 06096
(203) 627-6528
FAX: (203) 627-7815

☐ Los Angeles
19600 Fairchild, Ste. 120
Irvine, CA 92715
(714) 955-0201
FAX: (714) 955-0965

☐ Mid Atlantic Region
4221 Forbes Blvd., Ste. 240
Lanham, MD 20706-4325
(301) 459-9677
FAX: (301) 459-3064

☐ New York
261 Madison Avenue
New York, NY 10016
(212) 983-8510
FAX: (212) 983-8795

☐ San Francisco
2200 Powell Street, Ste. 880
Emeryville, CA 94608
(510) 547-3886
FAX: (510) 547-3631

Date 10/26/93 Page 1 of 1

Lab Name NDRC/Inchcape Testing Service
Address 11155 South Main
Houston, TX 77025
Telephone (713) 661-8150

Samplers (SIGNATURES)

D. Lee

Sample Number	Matrix	Location
9310260915	H2O	MW20
9310261030	H2O	MW19
9310261120	H2O	MW13
9310261300	H2O	MW12
9310261430	H2O	MW11
9310261440	H2O	MW11A

Analysis Request

Halogenated Volatiles 601/8010	Aromatic Volatiles 602/8020	Phenols, Sub Phenols 604/8040	Pesticides/PCB 608/8080	Polynuclear Aromatic Hydrocarbons 610/8310	Volatile Compounds GC/MS 624/8240	Base/New/Acid Compounds GC/MS 625/8270	Total Organic Carbon (TOC) 415/9060	Total Organic Halides (TOX) 9020	Petroleum Hydrocarbons 418.1	TPH/BTEX Modified 8015	TCLP - Vol., Semi-Vol. Herbicides, Pesticides	TCLP - Metals	RCRA Metals(8)	Priority Pollutant Metals (13)	CAM Metals (18) TTL/C/STLC	Flash Point	Corrosivity	Reactivity	Oil & Grease	Cyanide Total/Amenable	Chemical Oxygen Demand (COD)	Number of Containers
	X																					
	X																					
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Due: 11-8-93

QC REPORT

18 and 1045-113

Project Information		Sample Receipt		Relinquished By		Relinquished By		Relinquished By	
Project <u>GPM</u>	Total No. of Containers	<u>D. Lee</u>	<u>1000</u>	(Signature)	(Time)	(Signature)	(Time)	(Signature)	(Time)
Project Director <u>GAMMA</u>	Chain of Custody Seals	<u>DAVID LEE</u>	<u>10/27/93</u>	(Printed Name)	(Date)	(Printed Name)	(Date)	(Printed Name)	(Date)
Charge Code No. <u>54030-01</u>	Rec'd Good Condition/Cold	<u>HGCL</u>		(Company)		(Company)		(Company)	
Shipping ID. No.	Conforms to Record	Received By <u>Lee Robins</u>	<u>10:30a</u>	(Signature)	(Time)	Received By		Received By (Laboratory)	
<u>7885359392</u>	Lab No.	<u>Lee Robins</u>	<u>10-28-93</u>	(Signature)	(Time)	(Signature)	(Time)	(Signature)	(Time)
Via: <u>Fed X</u>		<u>175/NDRC LABS</u>		(Printed Name)	(Date)	(Printed Name)	(Date)	(Printed Name)	(Date)
Special Instructions/Comments:									

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Incoming Samples ☐

No. of Cooler(s): 1 Temperature of Cooler(s): 42

Date/Time



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

RECEIVED AUG 20 1993

DATE RECEIVED : 4-AUG-1993

REPORT NUMBER : H93-5123-1

REPORT DATE : 11-AUG-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

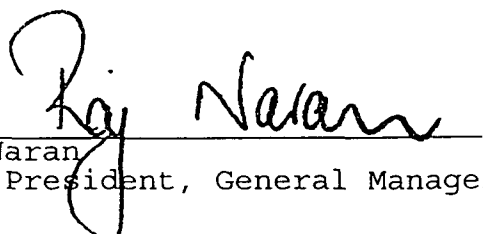
MW-23

SAMPLE MATRIX : Groundwater
ID MARKS : 9308031145
: MW-23
PROJECT : 54030.02/GPM
DATE SAMPLED : 3-AUG-1993
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	10 $\mu\text{g/L}$	190 $\mu\text{g/L}$
Toluene	10 $\mu\text{g/L}$	130 $\mu\text{g/L}$
Ethyl benzene	10 $\mu\text{g/L}$	19 $\mu\text{g/L}$
Xylenes	30 $\mu\text{g/L}$	46 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 $\mu\text{g/L}$	106 %

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 4-AUG-1993

REPORT NUMBER : H93-5123-1

REPORT DATE : 11-AUG-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : 9308031145

: MW-23

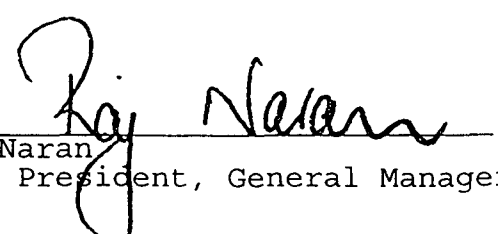
PROJECT : 54030.02/GPM

DATE SAMPLED : 3-AUG-1993

ANALYSIS METHOD : EPA 8015

TRPH BY MODIFIED EPA 8015		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbons as Diesel	0.25 mg/L	1.31 mg/L

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

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DATE RECEIVED : 4-AUG-1993

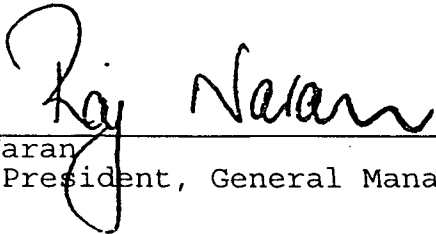
REPORT NUMBER : H93-5123-1
REPORT DATE : 11-AUG-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : 9308031145
: MW-23
PROJECT : 54030.02/GPM
DATE SAMPLED : 3-AUG-1993
ANALYSIS METHOD : EPA 8015

TRPH BY MODIFIED EPA 8015 (PURGE + TRAP)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbons	500 $\mu\text{g/L}$	2900 $\mu\text{g/L}$

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
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Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED: 4-AUG-1993

REPORT NUMBER: H93-5123:1
REPORT DATE: 11-AUG-1993

SAMPLE SUBMITTED BY: H + GCL

ATTENTION: Ms. Annette Montoya

LABORATORY ANALYSIS QUALITY CONTROL REPORT

ANALYSIS: Benzene
Technician: HYL
Sample Extracted: 10-AUG-1993
QC Extracted: 10-AUG-1993
Sample Analyzed: 10-AUG-1993
QC Analyzed: 10-AUG-1993
QC Sample Number: Blank Spike
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
BS/BSD RPD: 10%
Average Spike Recovery: 93%
Duplicate RPD: ---
Method Blank: < 1.0 µg/L
LCS Recovery: ---
TCLP Spike Recovery: ---

ANALYSIS: Toluene
Technician: HYL
Sample Extracted: 10-AUG-1993
QC Extracted: 10-AUG-1993
Sample Analyzed: 10-AUG-1993
QC Analyzed: 10-AUG-1993
QC Sample Number: Blank Spike
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
BS/BSD RPD: 12%
Average Spike Recovery: 94%
Duplicate RPD: ---
Method Blank: < 1.0 µg/L
LCS Recovery: ---
TCLP Spike Recovery: ---

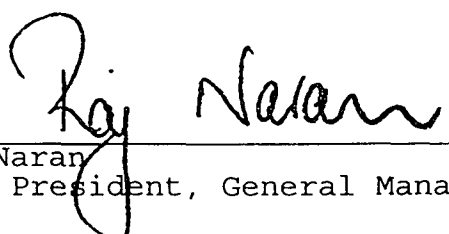
ANALYSIS: Ethyl benzene
Technician: HYL
Sample Extracted: 10-AUG-1993
QC Extracted: 10-AUG-1993
Sample Analyzed: 10-AUG-1993
QC Analyzed: 10-AUG-1993
QC Sample Number: Blank Spike
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
BS/BSD RPD: 12%
Average Spike Recovery: 96%
Duplicate RPD: ---
Method Blank: < 1.0 µg/L
LCS Recovery: ---
TCLP Spike Recovery: ---

ANALYSIS: Xylenes
Technician: HYL
Sample Extracted: 10-AUG-1993
QC Extracted: 10-AUG-1993
Sample Analyzed: 10-AUG-1993
QC Analyzed: 10-AUG-1993
QC Sample Number: Blank Spike
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
BS/BSD RPD: 11%
Average Spike Recovery: 101%
Duplicate RPD: ---
Method Blank: < 3.0 µg/L
LCS Recovery: ---
TCLP Spike Recovery: ---

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

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Fax. 713-661-2661

DATE RECEIVED: 4-AUG-1993

REPORT NUMBER: H93-5123:1
REPORT DATE: 11-AUG-1993

SAMPLE SUBMITTED BY: H + GCL

ATTENTION: Ms. Annette Montoya

LABORATORY ANALYSIS QUALITY CONTROL REPORT

ANALYSIS: Diesel
Technician: YH
Sample Extracted: 10-AUG-1993
QC Extracted: 10-AUG-1993
Sample Analyzed: 10-AUG-1993
QC Analyzed: 10-AUG-1993
QC Sample Number: Blank Spike
TCLP Leachate Date: ---

Analysis Method: EPA 8015
Extraction Method: EPA 3510
BS/BSD RPD: 2.2%
Average Spike Recovery: 90%
Duplicate RPD: ---
Method Blank: < 0.25 mg/L
LCS Recovery: ---
TCLP Spike Recovery: ---

ANALYSIS: TPH-Gas
Technician: HYL
Sample Extracted: 10-AUG-1993
QC Extracted: 10-AUG-1993
Sample Analyzed: 10-AUG-1993
QC Analyzed: 10-AUG-1993
QC Sample Number: Blank Spike
TCLP Leachate Date: ---

Analysis Method: EPA 8015
Extraction Method: EPA 5030
BS/BSD RPD: 6%
Average Spike Recovery: 93%
Duplicate RPD: ---
Method Blank: < 50 µg/L
LCS Recovery: 95%
TCLP Spike Recovery: ---

Raj Narain



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(505) 842-0001
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FAX: (617) 367-1386

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Chicago, IL 60606
(312) 648-9988
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ORIGINAL

7004

Chain of Custody

☐ Hartford 380 South Center Street Windsor Locks, CT 06096 (203) 627-6528 FAX: (203) 627-7815

☐ Los Angeles 19600 Fairchild, Ste. 120 Irvine, CA 92715 (714) 955-0201 FAX: (714) 955-0965

☐ Mid Atlantic Region 4221 Forbes Blvd., Ste. 240 Lanham, MD 20706-4325 (301) 459-9677 FAX: (301) 459-3064

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☐ San Francisco 2200 Powell Street, Ste. 880 Emeryville, CA 94608 (510) 547-3886 FAX: (510) 547-3631

Date 8/2/93 Page 1 Of 1

Lab Name NDRC/Inchcape Testing Service		
Address 11155 South Main		
Houston, TX 77025		
Telephone (713) 661-8150		
Samplers (SIGNATURES)		
Sample Number	Matrix	Location
7308031145	H ₂ O	MMW-23
Analysis Request		
Halogenated Volatiles 601/8010	✓	
Aromatic Volatiles 602/8020		
Phenols, Sub Phenols 604/8040		
Pesticides/PCB 608/8080		
Polynuclear Aromatic Hydrocarbons 610/8310		
Volatile Compounds GC/MS 624/8240		
Base/Neu/Acid Compounds GC/MS 625/8270		
Total Organic Carbon (TOC) 415/9060		
Total Organic Halides (TOX) 9020		
Petroleum Hydrocarbons 418.1		
TPH/BTEX 605/8050		
Modified 805/8050		
TCLP Vol., Semi-Vol. Hericides, Pesticides		
TCLP Metals		
RCRA Metals (8)		
Priority Pollutant Metals (13)		
CAM Metals (18) TML/CSTLC		
Flash Point		
Corrosivity		
Reactivity		
Oil & Grease		
Cyanide Total/Amenable		
Chemical Oxygen Demand (COD)		
Number of Containers		4

QC REPORT

Dur: 8-16-93

1st amb 2nd hand VOHS 3

Project Information		Sample Receipt	
Project	Total No. of Containers	Relinquished By	Relinquished By
Project Director	Chain of Custody Seals	(Signature)	(Signature)
Charge Code No. 54630.02	Rec'd Good Condition/Cold	(Printed Name)	(Printed Name)
Shipping ID. No.	Conforms to Record	(Company)	(Company)
7885359425	Lab No.	Received By	Received By (Laboratory)
Via: F.O.D. X		(Signature)	(Signature)
Special Instructions/Comments:		(Date)	(Date)
Normal Turnaround 60Z		(Date)	(Date)
BTEX only		(Date)	(Date)

DISTRIBUTION: WHITE, CANARY, LABORATORY, PINK, H+GCL

Incoming Samples ☐

Date/Time



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

RECEIVED AUG 23 1993

SUMMARY REPORT

CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : 54030.03/GPM

JOB NUMBER : H93-4983
REPORT DATE : 11-AUG-1993

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
1	MW 21 9307281150	Groundwater	28-JUL-1993
2	MW 22 9307281010	Groundwater	28-JUL-1993

PURGEABLE AROMATICS, EPA 602	1	2		
Benzene $\mu\text{g/L}$	37000	170		
Chlorobenzene $\mu\text{g/L}$	< 2000	< 2.0		
1,2-Dichlorobenzene $\mu\text{g/L}$	< 4000	< 4.0		
1,3-Dichlorobenzene $\mu\text{g/L}$	< 4000	< 4.0		
1,4-Dichlorobenzene $\mu\text{g/L}$	< 3000	< 3.0		
Ethyl benzene $\mu\text{g/L}$	< 2000	36.0		
Toluene $\mu\text{g/L}$	5000	65.0		
Xylenes $\mu\text{g/L}$	< 6000	48.0		

TRPH BY MODIFIED EPA 8015, EPA 8015	1	2		
Total Petroleum Hydrocarbons as Diesel mg/L	1.10	0.60		

TRPH BY MODIFIED EPA 8015 (PURGE + TRAP), EPA 8015	1	2		
Total Petroleum Hydrocarbons $\mu\text{g/L}$	400000	2800		

MW 21, 22

Raj Naran



Inchcape Testing Services

NDRC Laboratories

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Fax. 713-661-2661

DATE RECEIVED : 30-JUL-1993

REPORT NUMBER : H93-4983-1

REPORT DATE : 11-AUG-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : MW 21

: 9307281150

PROJECT : 54030.03/GPM

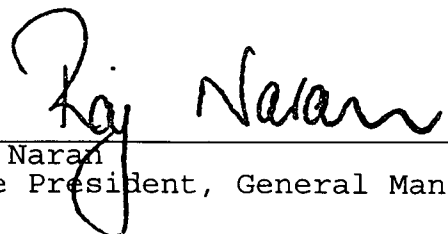
DATE SAMPLED : 28-JUL-1993

ANALYSIS METHOD : EPA 602

PURGEABLE AROMATICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2000 $\mu\text{g/L}$	37000 $\mu\text{g/L}$
Chlorobenzene	2000 $\mu\text{g/L}$	< 2000 $\mu\text{g/L}$
1,2-Dichlorobenzene	4000 $\mu\text{g/L}$	< 4000 $\mu\text{g/L}$
1,3-Dichlorobenzene	4000 $\mu\text{g/L}$	< 4000 $\mu\text{g/L}$
1,4-Dichlorobenzene	3000 $\mu\text{g/L}$	< 3000 $\mu\text{g/L}$
Ethyl benzene	2000 $\mu\text{g/L}$	< 2000 $\mu\text{g/L}$
Toluene	2000 $\mu\text{g/L}$	5000 $\mu\text{g/L}$
Xylenes	6000 $\mu\text{g/L}$	< 6000 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	50.0 $\mu\text{g/L}$	104 %

NDRC Laboratories, Inc.


Raj Narain
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
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DATE RECEIVED : 30-JUL-1993

REPORT NUMBER : H93-4983-1

REPORT DATE : 11-AUG-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : MW 21

: 9307281150

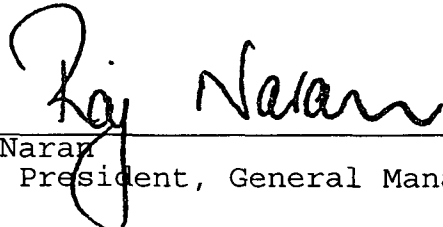
PROJECT : 54030.03/GPM

DATE SAMPLED : 28-JUL-1993

ANALYSIS METHOD : EPA 8015

TRPH BY MODIFIED EPA 8015		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbons as Diesel	0.25 mg/L	1.10 mg/L

NDRC Laboratories, Inc.


Raj Narayan
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
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DATE RECEIVED : 30-JUL-1993

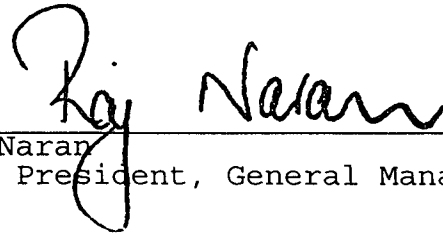
REPORT NUMBER : H93-4983-1
REPORT DATE : 11-AUG-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : MW 21
: 9307281150
PROJECT : 54030.03/GPM
DATE SAMPLED : 28-JUL-1993
ANALYSIS METHOD : EPA 8015

TRPH BY MODIFIED EPA 8015 (PURGE + TRAP)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbons	50000 $\mu\text{g/L}$	400000 $\mu\text{g/L}$

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

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DATE RECEIVED : 30-JUL-1993

REPORT NUMBER : H93-4983-2

REPORT DATE : 11-AUG-1993

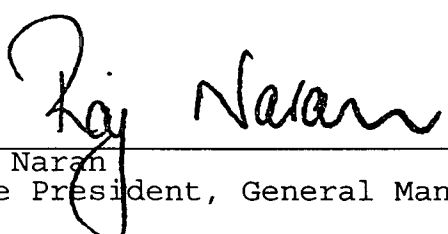
SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : MW 22
: 9307281010
PROJECT : 54030.03/GPM
DATE SAMPLED : 28-JUL-1993
ANALYSIS METHOD : EPA 602

PURGEABLE AROMATICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	170 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
Ethyl benzene	2.0 µg/L	36.0 µg/L
Toluene	2.0 µg/L	65.0 µg/L
Xylenes	6.0 µg/L	48.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	50.0 µg/L	103 %

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

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DATE RECEIVED : 30-JUL-1993

REPORT NUMBER : H93-4983-2

REPORT DATE : 11-AUG-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : MW 22

: 9307281010

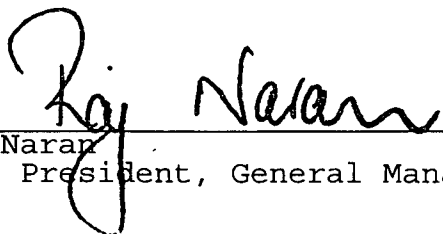
PROJECT : 54030.03/GPM

DATE SAMPLED : 28-JUL-1993

ANALYSIS METHOD : EPA 8015

TRPH BY MODIFIED EPA 8015		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbons as Diesel	0.25 mg/L	0.60 mg/L

NDRC Laboratories, Inc.


Raj Narayan
Vice President, General Manager



Inchcape Testing Services

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DATE RECEIVED : 30-JUL-1993

REPORT NUMBER : H93-4983-2

REPORT DATE : 11-AUG-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : MW 22

: 9307281010

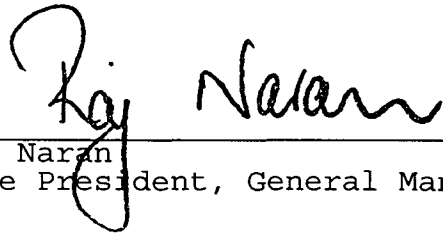
PROJECT : 54030.03/GPM

DATE SAMPLED : 28-JUL-1993

ANALYSIS METHOD : EPA 8015

TRPH BY MODIFIED EPA 8015 (PURGE + TRAP)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbons	500 $\mu\text{g/L}$	2800 $\mu\text{g/L}$

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

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DATE RECEIVED: 30-JUL-1993

REPORT NUMBER: H93-4983:1-2

REPORT DATE: 12-AUG-1993

SAMPLE SUBMITTED BY: H + GCL

ATTENTION: Ms. Annette Montoya

LABORATORY ANALYSIS QUALITY CONTROL REPORT

ANALYSIS: Benzene
Technician: HYL
Sample Extracted: 10-AUG-1993
QC Extracted: 10-AUG-1993
Sample Analyzed: 10-AUG-1993
QC Analyzed: 10-AUG-1993
QC Sample Number: Blank Spike
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
BS/BSD RPD: 10%
Average Spike Recovery: 93%
Duplicate RPD: ---
Method Blank: < 2.0 µg/L
LCS Recovery: ---
TCLP Spike Recovery: ---

ANALYSIS: Toluene
Technician: HYL
Sample Extracted: 10-AUG-1993
QC Extracted: 10-AUG-1993
Sample Analyzed: 10-AUG-1993
QC Analyzed: 10-AUG-1993
QC Sample Number: Blank Spike
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
BS/BSD RPD: 12%
Average Spike Recovery: 94%
Duplicate RPD: ---
Method Blank: < 2.0 µg/L
LCS Recovery: ---
TCLP Spike Recovery: ---

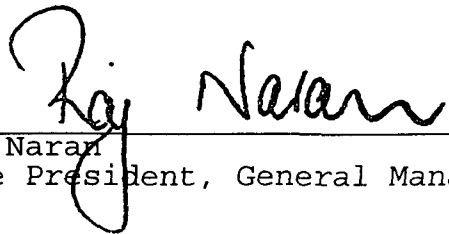
ANALYSIS: Ethyl benzene
Technician: HYL
Sample Extracted: 10-AUG-1993
QC Extracted: 10-AUG-1993
Sample Analyzed: 10-AUG-1993
QC Analyzed: 10-AUG-1993
QC Sample Number: Blank Spike
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
BS/BSD RPD: 12%
Average Spike Recovery: 96%
Duplicate RPD: ---
Method Blank: < 2.0 µg/L
LCS Recovery: ---
TCLP Spike Recovery: ---

ANALYSIS: Xylenes
Technician: HYL
Sample Extracted: 10-AUG-1993
QC Extracted: 10-AUG-1993
Sample Analyzed: 10-AUG-1993
QC Analyzed: 10-AUG-1993
QC Sample Number: Blank Spike
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 602
BS/BSD RPD: 11%
Average Spike Recovery: 102%
Duplicate RPD: ---
Method Blank: < 6.0 µg/L
LCS Recovery: ---
TCLP Spike Recovery: ---

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
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Fax. 713-661-2661

DATE RECEIVED: 30-JUL-1993

REPORT NUMBER: H93-4983:1-2

REPORT DATE: 12-AUG-1993

SAMPLE SUBMITTED BY: H + GCL

ATTENTION: Ms. Annette Montoya

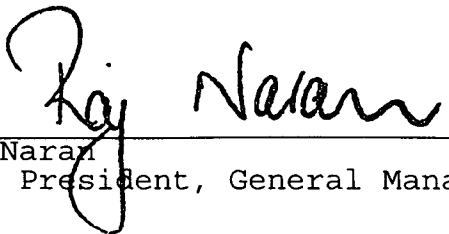
LABORATORY ANALYSIS QUALITY CONTROL REPORT

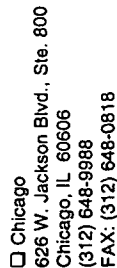
ANALYSIS: 1,2-Dichlorobenzene	Analysis Method: EPA 602
Technician: HYL	Extraction Method: EPA 602
Sample Extracted: 10-AUG-1993	BS/BSD RPD: 8%
QC Extracted: 10-AUG-1993	Average Spike Recovery: 98%
Sample Analyzed: 10-AUG-1993	Duplicate RPD: ---
QC Analyzed: 10-AUG-1993	Method Blank: < 4.0 µg/L
QC Sample Number: Blank Spike	LCS Recovery: ---
TCLP Leachate Date: ---	TCLP Spike Recovery: ---

ANALYSIS: Diesel	Analysis Method: EPA 8015
Technician: YH	Extraction Method: EPA 3510
Sample Extracted: 4-AUG-1993	BS/BSD RPD: 0%
QC Extracted: 4-AUG-1993	Average Spike Recovery: 87%
Sample Analyzed: 4-AUG-1993	Duplicate RPD: ---
QC Analyzed: 4-AUG-1993	Method Blank: < 0.25 mg/L
QC Sample Number: Blank Spike	LCS Recovery: ---
TCLP Leachate Date: ---	TCLP Spike Recovery: ---

ANALYSIS: TPH-Gas	Analysis Method: EPA 8015
Technician: HYL	Extraction Method: EPA 5030
Sample Extracted: 10-AUG-1993	BS/BSD RPD: 6%
QC Extracted: 10-AUG-1993	Average Spike Recovery: 93%
Sample Analyzed: 10-AUG-1993	Duplicate RPD: ---
QC Analyzed: 10-AUG-1993	Method Blank: < 50 µg/L
QC Sample Number: Blank Spike	LCS Recovery: 95%
TCLP Leachate Date: ---	TCLP Spike Recovery: ---

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Chain of Custody

Date 7/29/95 Page 1 Of 1

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Emeryville, CA 94608
(510) 547-3886
FAX: (510) 547-3631

laboratory)

DISTRIBUTION: WHITE. CANARY - LABORATORY • PINK. H⁺GCL

№ 12895

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Field Sampling ☐

Incoming Samples ☐

GENERAL

Company: H+GCL Job No: 4
No. of Cooler(s): 1 Temperature of Cooler(s): 24°C

PRESERVATION INFORMATION

[illegible]

PRESERVATION USED *

- | | |
|--|--|
| 1 - Cool to 4° C | 5 - NaOH to pH > 12 |
| 2 - H ₂ SO ₄ to pH < 2 | 6 - Na ₂ S ₂ O ₂ 0.008% |
| 3 - HNO ₃ to pH < 2 | 7 - 2 mL Zinc Acetate and NaOH to pH > 12 |
| 4 - HCL to pH < 2 | 8 - None required |

~~Preserved by~~

Date/Time



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

RECEIVED AUG 05 1993

SUMMARY REPORT

CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : GPM Buckeye/54030.02

JOB NUMBER : H93-4770
REPORT DATE : 30-JUL-1993

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
1	MW-11 9307200830	Groundwater	20-JUL-1993
2	MW-12 9307200945	Groundwater	20-JUL-1993
3	MW-13 9307201045	Groundwater	20-JUL-1993
4	MW-19 9307201200	Groundwater	20-JUL-1993

PURGEABLE AROMATIC ORGANICS, EPA 8020		1	2	3	4
Benzene $\mu\text{g/L}$		15.5	11.4	14.6	15.3
Chlorobenzene $\mu\text{g/L}$		< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dichlorobenzene $\mu\text{g/L}$		< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichlorobenzene $\mu\text{g/L}$		< 4.0	< 4.0	< 4.0	< 4.0
1,2-Dichlorobenzene $\mu\text{g/L}$		< 4.0	< 4.0	< 4.0	< 4.0
Ethyl benzene $\mu\text{g/L}$		< 2.0	< 2.0	< 2.0	< 2.0
Toluene $\mu\text{g/L}$		31.3	29.2	34.3	35.8
Xylenes $\mu\text{g/L}$		11.6	12.1	13.4	13.5

MW-2, 5, 7, 9, 10, 10A
11, 12, 13, 16, 18

Raj Narain



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SUMMARY REPORT

CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : GPM Buckeye/54030.02

JOB NUMBER : H93-4770
REPORT DATE : 30-JUL-1993

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
5	MW-18 9307201250	Groundwater	20-JUL-1993
6	MW-16 9307201400	Groundwater	20-JUL-1993
7	MW-5 9307210900	Groundwater	20-JUL-1993
8	MW-7 9307211000	Groundwater	20-JUL-1993

PURGEABLE AROMATIC ORGANICS, EPA 8020		5	6	7	8
Benzene	µg/L	10.7	1190	22000	40.4
Chlorobenzene	µg/L	< 2.0	< 10.0	< 200	< 10.0
1,4-Dichlorobenzene	µg/L	< 3.0	< 15.0	< 300	< 15.0
1,3-Dichlorobenzene	µg/L	< 4.0	< 20.0	< 400	< 20.0
1,2-Dichlorobenzene	µg/L	< 4.0	< 20.0	< 400	< 20.0
Ethyl benzene	µg/L	< 2.0	30.0	570	< 10.0
Toluene	µg/L	28.9	157	7870	< 10.0
Xylenes	µg/L	12.1	48.0	1270	< 30.0

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SUMMARY REPORT

CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : GPM Buckeye/54030.02

JOB NUMBER : H93-4770
REPORT DATE : 30-JUL-1993

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
9	MW-9 9307211045	Groundwater	20-JUL-1993
10	MW-2 9307211115	Groundwater	20-JUL-1993
11	MW-20 9307201455	Groundwater	20-JUL-1993
12	MW-10 9307211145	Groundwater	20-JUL-1993

PURGEABLE AROMATIC ORGANICS, EPA 8020		9	10	11	12
Benzene	µg/L	673	< 2.0	217	3.5
Chlorobenzene	µg/L	< 10.0	< 2.0	< 2.0	< 2.0
1,4-Dichlorobenzene	µg/L	< 15.0	< 3.0	< 3.0	< 3.0
1,3-Dichlorobenzene	µg/L	< 20.0	< 4.0	< 4.0	< 4.0
1,2-Dichlorobenzene	µg/L	< 20.0	< 4.0	< 4.0	< 4.0
Ethyl benzene	µg/L	28.8	< 2.0	10.6	< 2.0
Toluene	µg/L	314	< 2.0	102	< 2.0
Xylenes	µg/L	69.4	< 6.0	33.6	< 6.0

Raj Naran



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SUMMARY REPORT

CLIENT : H + GCL
CONTACT : Ms. Annette Montoya
PROJECT : GPM Buckeye/54030.02

JOB NUMBER : H93-4770
REPORT DATE : 30-JUL-1993

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
13	MW-10A 9307211200	Groundwater	20-JUL-1993

PURGEABLE AROMATIC ORGANICS, EPA 8020		13			
Benzene	µg/L	60.5			
Chlorobenzene	µg/L	< 2.0			
1,4-Dichlorobenzene	µg/L	< 3.0			
1,3-Dichlorobenzene	µg/L	< 4.0			
1,2-Dichlorobenzene	µg/L	< 4.0			
Ethyl benzene	µg/L	< 2.0			
Toluene	µg/L	< 2.0			
Xylenes	µg/L	< 6.0			

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DATE RECEIVED : 22-JUL-1993

REPORT NUMBER : H93-4770-1

REPORT DATE : 30-JUL-1993

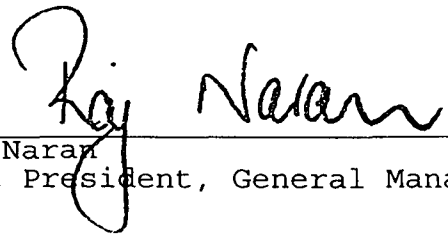
SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : MW-11
: 9307200830
PROJECT : GPM Buckeye/54030.02
DATE SAMPLED : 20-JUL-1993
ANALYSIS METHOD : EPA 8020

PURGEABLE AROMATIC ORGANICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	15.5 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
Ethyl benzene	2.0 µg/L	< 2.0 µg/L
Toluene	2.0 µg/L	31.3 µg/L
Xylenes	6.0 µg/L	11.6 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	105 %

NDRC Laboratories, Inc.


Raj Narayan
Vice President, General Manager



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DATE RECEIVED : 22-JUL-1993

REPORT NUMBER : H93-4770-2

REPORT DATE : 30-JUL-1993

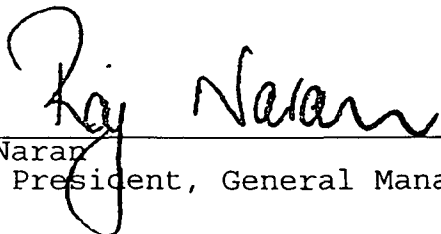
SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : MW-12
: 9307200945
PROJECT : GPM Buckeye/54030.02
DATE SAMPLED : 20-JUL-1993
ANALYSIS METHOD : EPA 8020

PURGEABLE AROMATIC ORGANICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	11.4 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
Ethyl benzene	2.0 µg/L	< 2.0 µg/L
Toluene	2.0 µg/L	29.2 µg/L
Xylenes	6.0 µg/L	12.1 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	106 %

NDRC Laboratories, Inc.


Raj Narayan
Vice President, General Manager



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DATE RECEIVED : 22-JUL-1993

REPORT NUMBER : H93-4770-3
REPORT DATE : 30-JUL-1993

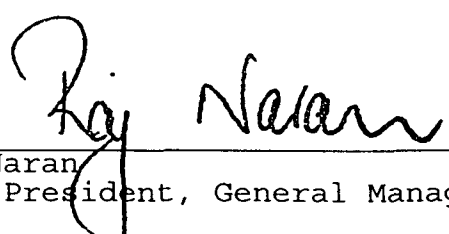
SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : MW-13
: 9307201045
PROJECT : GPM Buckeye/54030.02
DATE SAMPLED : 20-JUL-1993
ANALYSIS METHOD : EPA 8020

PURGEABLE AROMATIC ORGANICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	14.6 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
Ethyl benzene	2.0 µg/L	< 2.0 µg/L
Toluene	2.0 µg/L	34.3 µg/L
Xylenes	6.0 µg/L	13.4 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	104 %

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



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DATE RECEIVED : 22-JUL-1993

REPORT NUMBER : H93-4770-4
REPORT DATE : 30-JUL-1993

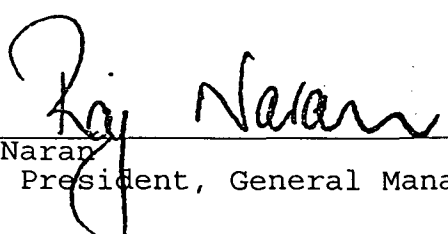
SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : MW-19
: 9307201200
PROJECT : GPM Buckeye/54030.02
DATE SAMPLED : 20-JUL-1993
ANALYSIS METHOD : EPA 8020

PURGEABLE AROMATIC ORGANICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	15.3 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
Ethyl benzene	2.0 µg/L	< 2.0 µg/L
Toluene	2.0 µg/L	35.8 µg/L
Xylenes	6.0 µg/L	13.5 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	105 %

NDRC Laboratories, Inc.


Raj Narayan
Vice President, General Manager



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DATE RECEIVED : 22-JUL-1993

REPORT NUMBER : H93-4770-5

REPORT DATE : 30-JUL-1993

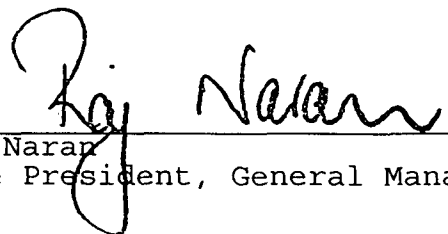
SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : MW-18
: 9307201250
PROJECT : GPM Buckeye/54030.02
DATE SAMPLED : 20-JUL-1993
ANALYSIS METHOD : EPA 8020

PURGEABLE AROMATIC ORGANICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	10.7 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
Ethyl benzene	2.0 µg/L	< 2.0 µg/L
Toluene	2.0 µg/L	28.9 µg/L
Xylenes	6.0 µg/L	12.1 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	106 %

NDRC Laboratories, Inc.


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Vice President, General Manager



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DATE RECEIVED : 22-JUL-1993

REPORT NUMBER : H93-4770-6

REPORT DATE : 30-JUL-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : MW-16

: 9307201400

PROJECT : GPM Buckeye/54030.02

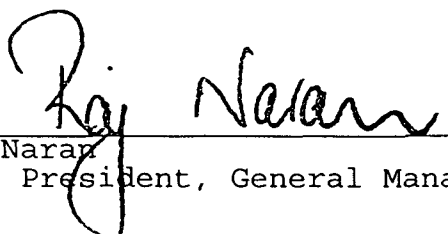
DATE SAMPLED : 20-JUL-1993

ANALYSIS METHOD : EPA 8020

PURGEABLE AROMATIC ORGANICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	10.0 µg/L	1190 µg/L
Chlorobenzene	10.0 µg/L	< 10.0 µg/L
1,4-Dichlorobenzene	15.0 µg/L	< 15.0 µg/L
1,3-Dichlorobenzene	20.0 µg/L	< 20.0 µg/L
1,2-Dichlorobenzene	20.0 µg/L	< 20.0 µg/L
Ethyl benzene	10.0 µg/L	30.0 µg/L
Toluene	10.0 µg/L	157 µg/L
Xylenes	30.0 µg/L	48.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	98.0 %

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Raj Narayan
Vice President, General Manager



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DATE RECEIVED : 22-JUL-1993

REPORT NUMBER : H93-4770-7

REPORT DATE : 30-JUL-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : MW-5

: 9307210900

PROJECT : GPM Buckeye/54030.02

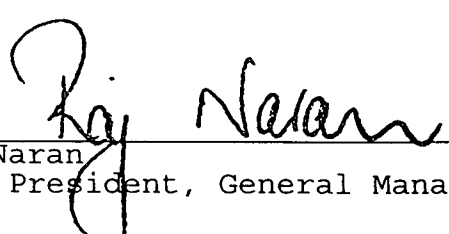
DATE SAMPLED : 20-JUL-1993

ANALYSIS METHOD : EPA 8020

PURGEABLE AROMATIC ORGANICS			
TEST REQUESTED	DETECTION LIMIT		RESULTS
Benzene	200	µg/L	22000 µg/L
Chlorobenzene	200	µg/L	< 200 µg/L
1,4-Dichlorobenzene	300	µg/L	< 300 µg/L
1,3-Dichlorobenzene	400	µg/L	< 400 µg/L
1,2-Dichlorobenzene	400	µg/L	< 400 µg/L
Ethyl benzene	200	µg/L	570 µg/L
Toluene	200	µg/L	7870 µg/L
Xylenes	600	µg/L	1270 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	98.0 %

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



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DATE RECEIVED : 22-JUL-1993

REPORT NUMBER : H93-4770-8

REPORT DATE : 30-JUL-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : MW-7

: 9307211000

PROJECT : GPM Buckeye/54030.02

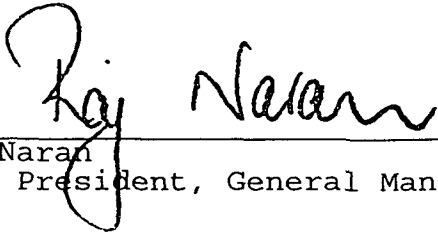
DATE SAMPLED : 20-JUL-1993

ANALYSIS METHOD : EPA 8020

PURGEABLE AROMATIC ORGANICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	10.0 µg/L	40.4 µg/L
Chlorobenzene	10.0 µg/L	< 10.0 µg/L
1,4-Dichlorobenzene	15.0 µg/L	< 15.0 µg/L
1,3-Dichlorobenzene	20.0 µg/L	< 20.0 µg/L
1,2-Dichlorobenzene	20.0 µg/L	< 20.0 µg/L
Ethyl benzene	10.0 µg/L	< 10.0 µg/L
Toluene	10.0 µg/L	< 10.0 µg/L
Xylenes	30.0 µg/L	< 30.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	112 %

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

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DATE RECEIVED : 22-JUL-1993

REPORT NUMBER : H93-4770-9

REPORT DATE : 30-JUL-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : MW-9

: 9307211045

PROJECT : GPM Buckeye/54030.02

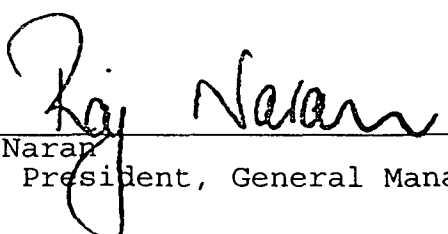
DATE SAMPLED : 20-JUL-1993

ANALYSIS METHOD : EPA 8020

PURGEABLE AROMATIC ORGANICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	10.0 µg/L	673 µg/L
Chlorobenzene	10.0 µg/L	< 10.0 µg/L
1,4-Dichlorobenzene	15.0 µg/L	< 15.0 µg/L
1,3-Dichlorobenzene	20.0 µg/L	< 20.0 µg/L
1,2-Dichlorobenzene	20.0 µg/L	< 20.0 µg/L
Ethyl benzene	10.0 µg/L	28.8 µg/L
Toluene	10.0 µg/L	314 µg/L
Xylenes	30.0 µg/L	69.4 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	103 %

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

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DATE RECEIVED : 22-JUL-1993

REPORT NUMBER : H93-4770-10

REPORT DATE : 30-JUL-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : MW-2

: 9307211115

PROJECT : GPM Buckeye/54030.02

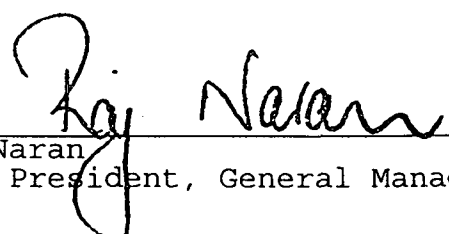
DATE SAMPLED : 20-JUL-1993

ANALYSIS METHOD : EPA 8020

PURGEABLE AROMATIC ORGANICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	< 2.0 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
Ethyl benzene	2.0 µg/L	< 2.0 µg/L
Toluene	2.0 µg/L	< 2.0 µg/L
Xylenes	6.0 µg/L	< 6.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	113 %

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

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DATE RECEIVED : 22-JUL-1993

REPORT NUMBER : H93-4770-11

REPORT DATE : 30-JUL-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : MW-20

: 9307201455

PROJECT : GPM Buckeye/54030.02

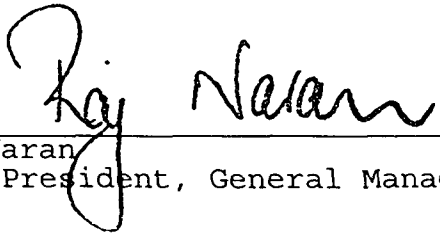
DATE SAMPLED : 20-JUL-1993

ANALYSIS METHOD : EPA 8020

PURGEABLE AROMATIC ORGANICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	217 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
Ethyl benzene	2.0 µg/L	10.6 µg/L
Toluene	2.0 µg/L	102 µg/L
Xylenes	6.0 µg/L	33.6 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	104 %

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 22-JUL-1993

REPORT NUMBER : H93-4770-12

REPORT DATE : 30-JUL-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater

ID MARKS : MW-10

: 9307211145

PROJECT : GPM Buckeye/54030.02

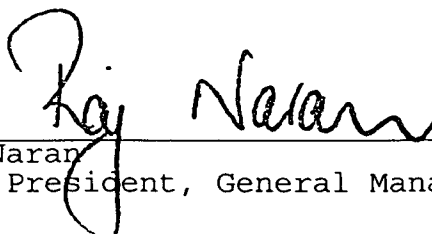
DATE SAMPLED : 20-JUL-1993

ANALYSIS METHOD : EPA 8020

PURGEABLE AROMATIC ORGANICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	3.5 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
Ethyl benzene	2.0 µg/L	< 2.0 µg/L
Toluene	2.0 µg/L	< 2.0 µg/L
Xylenes	6.0 µg/L	< 6.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	116 %

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED : 22-JUL-1993

REPORT NUMBER : H93-4770-13

REPORT DATE : 30-JUL-1993

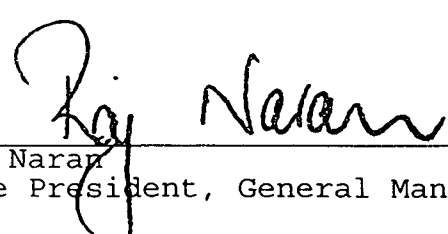
SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Groundwater
ID MARKS : MW-10A
: 9307211200
PROJECT : GPM Buckeye/54030.02
DATE SAMPLED : 20-JUL-1993
ANALYSIS METHOD : EPA 8020

PURGEABLE AROMATIC ORGANICS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	2.0 µg/L	60.5 µg/L
Chlorobenzene	2.0 µg/L	< 2.0 µg/L
1,4-Dichlorobenzene	3.0 µg/L	< 3.0 µg/L
1,3-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
1,2-Dichlorobenzene	4.0 µg/L	< 4.0 µg/L
Ethyl benzene	2.0 µg/L	< 2.0 µg/L
Toluene	2.0 µg/L	< 2.0 µg/L
Xylenes	6.0 µg/L	< 6.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	109 %

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED: 22-JUL-1993

REPORT NUMBER: H93-4770:1-13

REPORT DATE: 30-JUL-1993

SAMPLE SUBMITTED BY: H + GCL

ATTENTION: Ms. Annette Montoya

LABORATORY ANALYSIS QUALITY CONTROL REPORT

ANALYSIS: Benzene
Technician: MHT
Sample Extracted: 28-JUL-1993
QC Extracted: 28-JUL-1993
Sample Analyzed: 28-JUL-1993
QC Analyzed: 28-JUL-1993
QC Sample Number: 47778-10
TCLP Leachate Date: ---

Analysis Method: EPA 8020
Extraction Method: EPA 5030
MS/MSD RPD: 8%
Average Spike Recovery: 104%
Duplicate RPD: ---
Method Blank: < 2.0 µg/L
LCS Recovery: 104%
TCLP Spike Recovery: ---

ANALYSIS: Toluene
Technician: MHT
Sample Extracted: 28-JUL-1993
QC Extracted: 28-JUL-1993
Sample Analyzed: 28-JUL-1993
QC Analyzed: 28-JUL-1993
QC Sample Number: 4778-10
TCLP Leachate Date: ---

Analysis Method: EPA 8020
Extraction Method: EPA 5030
MS/MSD RPD: 8%
Average Spike Recovery: 102%
Duplicate RPD: ---
Method Blank: < 2.0 µg/L
LCS Recovery: 104%
TCLP Spike Recovery: ---

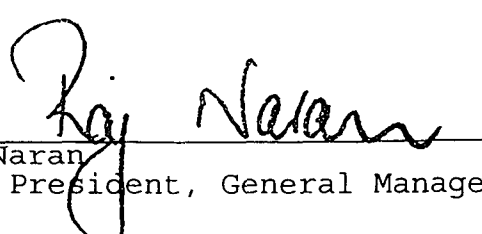
ANALYSIS: Ethyl benzene
Technician: MHT
Sample Extracted: 28-JUL-1993
QC Extracted: 28-JUL-1993
Sample Analyzed: 28-JUL-1993
QC Analyzed: 28-JUL-1993
QC Sample Number: 4778-10
TCLP Leachate Date: ---

Analysis Method: EPA 8020
Extraction Method: EPA 5030
MS/MSD RPD: 6%
Average Spike Recovery: 101%
Duplicate RPD: ---
Method Blank: < 2.0 µg/L
LCS Recovery: 101%
TCLP Spike Recovery: ---

ANALYSIS: Chlorobenzene
Technician: MHT
Sample Extracted: 28-JUL-1993
QC Extracted: 28-JUL-1993
Sample Analyzed: 28-JUL-1993
QC Analyzed: 28-JUL-1993
QC Sample Number: 4778-10
TCLP Leachate Date: ---

Analysis Method: EPA 8020
Extraction Method: EPA 5030
MS/MSD RPD: 10%
Average Spike Recovery: 97%
Duplicate RPD: ---
Method Blank: < 2.0 µg/L
LCS Recovery: 98%
TCLP Spike Recovery: ---

NDRC Laboratories, Inc.


Raj Naran
Vice President, General Manager



Inchcape Testing Services

NDRC Laboratories

11155 South Main
Houston, TX 77025
Tel. 713-661-8150
Fax. 713-661-2661

DATE RECEIVED: 22-JUL-1993

REPORT NUMBER: H93-4770:1-13

REPORT DATE: 30-JUL-1993

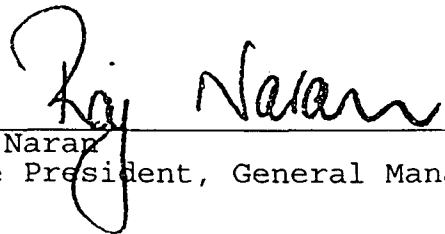
SAMPLE SUBMITTED BY: H + GCL

ATTENTION: Ms. Annette Montoya

LABORATORY ANALYSIS QUALITY CONTROL REPORT

ANALYSIS: 1,2-Dichlorobenzene	Analysis Method: EPA 8020
Technician: MHT	Extraction Method: EPA 5030
Sample Extracted: 28-JUL-1993	MS/MSD RPD: 8%
QC Extracted: 28-JUL-1993	Average Spike Recovery: 86%
Sample Analyzed: 28-JUL-1993	Duplicate RPD: ---
QC Analyzed: 28-JUL-1993	Method Blank: < 4.0 µg/L
QC Sample Number: 4778-10	LCS Recovery: 89%
TCLP Leachate Date: ---	TCLP Spike Recovery: ---

NDRC Laboratories, Inc.


Raj Narayan
Vice President, General Manager



Date 7/20/93 Page 1 Of 2

Date 7/20/93

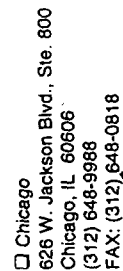
Due: 7-30-93

Relinquished By	Relinquished By	Relinquished By	Relinquished By
1.	2.	3.	4.
 1300 (Date) 7/14/85 (Time)	(Signature) (Printed Name) (Company)	(Signature) (Printed Name) (Company)	(Signature) (Printed Name) (Company)
Received By 1.	Received By 2.	Received By 3.	Received By 4.

Received By	1. Received By	2. Received By (Laboratory)	3.
(Signature)	(Time)	(Signature)	(Time)

(Date)	(Released Name)	(Date)	(Signed Name)
			[Signature]

DISTRIBUTION: WHITE, CANARY - LABORATORY • PINK, H⁺GCL



Chain of Custody

Date 7.1.13 Page 2 Of 2

☐ San Francisco
22200 Powell Street, Ste. 880
Emeryville, CA 94608
(510) 547-3886
FAX: (510) 547-3631

Analysis Request

	Relinquished By	1.	Relinquished By	2.	Relinquished By	3
t	(Signature)	(Time)	(Signature)	(Time)	(Signature)	(Time)
d	(Printed Name)	(Date)	(Printed Name)	(Date)	(Printed Name)	(Date)
	(Company)		(Company)		(Company)	
	Received By	1.	Received By	2.	Received By (Laboratory)	
	(Signature)	(Time)	(Signature)	(Time)	(Signature)	(Time)
	(Printed Name)	(Date)	(Printed Name)	(Date)	(Printed Name)	(Date)
	(Company)		(Company)		(Laboratory)	

DISTRIBUTION: WHITE. CANARY. LABORATORY • PINK. H+GCL

№ 12951

Houston - 11155 South Main • Houston, Texas 77025 • (713) 661-8150 • Fax (713) 661-2661

Field Sampling ☐

Incoming Samples ☐

GENERAL

Company: H. G. C.

Job No: 4770

No. of Cooler(s):

Temperature of Cooler(s): 24°C

RESERVATION INFORMATION[illegible]

RESERVATION USED

- | | |
|--|--|
| 1 - Cool to 4° C | 5 - NaOH to pH > 12 |
| 2 - H ₂ SO ₄ to pH < 2 | 6 - Na ₂ S ₂ O ₂ 0.008% |
| 3 - HNO ₃ to pH < 2 | 7 - 2 mL Zinc Acetate and NaOH to pH > 12 |
| 4 - HCL to pH < 2 | 8 - None required |

Presented

Preserved by

7-22-23

Date/Time



505 Marquette NW, Ste. 1100 • Albuquerque, NM 87102
(505) 842-0001 • FAX: (505) 842-0595

MEMO

Sent via fax

TO: Bill Olson, OCD

FROM: Maureen Gannon, H+GCL 

DATE: July 15, 1993

SUBJ: Well Restoration of RW-1

Pursuant to our phone conversation on Thursday, July 15, 1993, I am enclosing a copy of the specifications for well restoration of recovery well, RW-1, at GPM's Lee Plant, Buckeye, New Mexico. RW-1 ceased water production in January of 1993.

H+GCL will be overseeing restoration of RW-1 the week of July 19. On behalf of GPM, we request approval to perform redevelopment of RW-1 as outlined in item 020 attached.

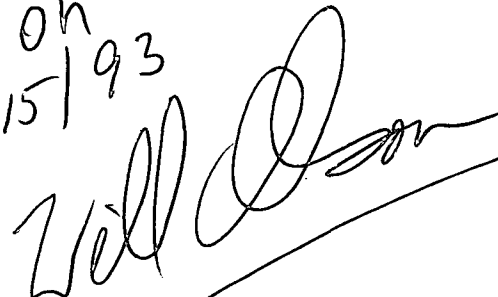
Please call me as soon as possible. We would like to begin work on Monday, July 19.
Thank you.

cc: V. Bernard, GPM

GA54030\OLSON01.MEM

Verbal OK to
Maureen Gannon

on
7/15/93



Item 020: Well Restoration**A. SCOPE**

This section covers the labor, materials, and equipment necessary for well restoration at monitoring well RW-1.

B. MATERIALS AND EQUIPMENT

The subcontractor shall provide all materials, labor, and equipment necessary for completion of the well restoration services specified herein. The well restoration methods to be used for monitoring well RW-1 shall consist of mechanical cleaning followed by chemical treatment.

All equipment shall be maintained in good operating condition prior to and during use in the work. All well restoration activities shall be coordinated with GPM's Site Coordinator or designee.

Only potable quality water (from a source approved by GPM prior to start of work) shall be permitted to be used during well restoration activities. It is the responsibility of the subcontractor to identify the source of the water and arrange for its transportation to the work site when needed, by use of a tank or tank trucks that can be easily moved about the site and can be refilled without contamination.

C. PROCEDURES

H+GCL recommends implementation of the following sequence of well restoration activities:

- Mechanically clean the screened interval of the well casing with a wire brush. Pump, bail, or air-lift the loosened debris and particulates from the well prior to acidizing.
- Acid treat wells with Cotey Chemical Company Dry Acid Special (or approved equal). A swab (i.e., a rubber-flanged mud scow) or surge block shall be used to increase the acid contact with the well screen materials and with the geologic formation surrounding the borehole. The well should be subjected to continuous surging for 15 to 20 minutes following introduction of the acid solution. Over a 12 to 24 hour contact time, the well should be periodically subjected to continuous surging every three hours (i.e., for 10 to 15 minute intervals).
- Upon completion of acid treatment, the waste acid solution in each well shall be pumped (until the pH stabilizes) and neutralized prior to discharge to the Lee Plant wastewater collection system.
- Pump, bail, or air-lift the loosened debris and particulates from the well prior to redevelopment.

The subcontractor shall take all necessary precautions to prevent contaminated water, gasoline, or other deleterious substances from entering the well, either through the wellhead or by seepage through the ground surface. The subcontractor shall maintain necessary precautions prior, during, and after well restoration activities.

All wastes generated from mechanical cleaning and chemical treatment activities (fluids and other debris) shall be field screened by the on-site geologist to determine pH levels. Based on results from the field screening and as directed by GPM, the subcontractor shall contain and neutralize these wastes prior to discharge to the Lee Plant wastewater collection system.

GPM shall provide means for the final disposal of well restoration wastes.

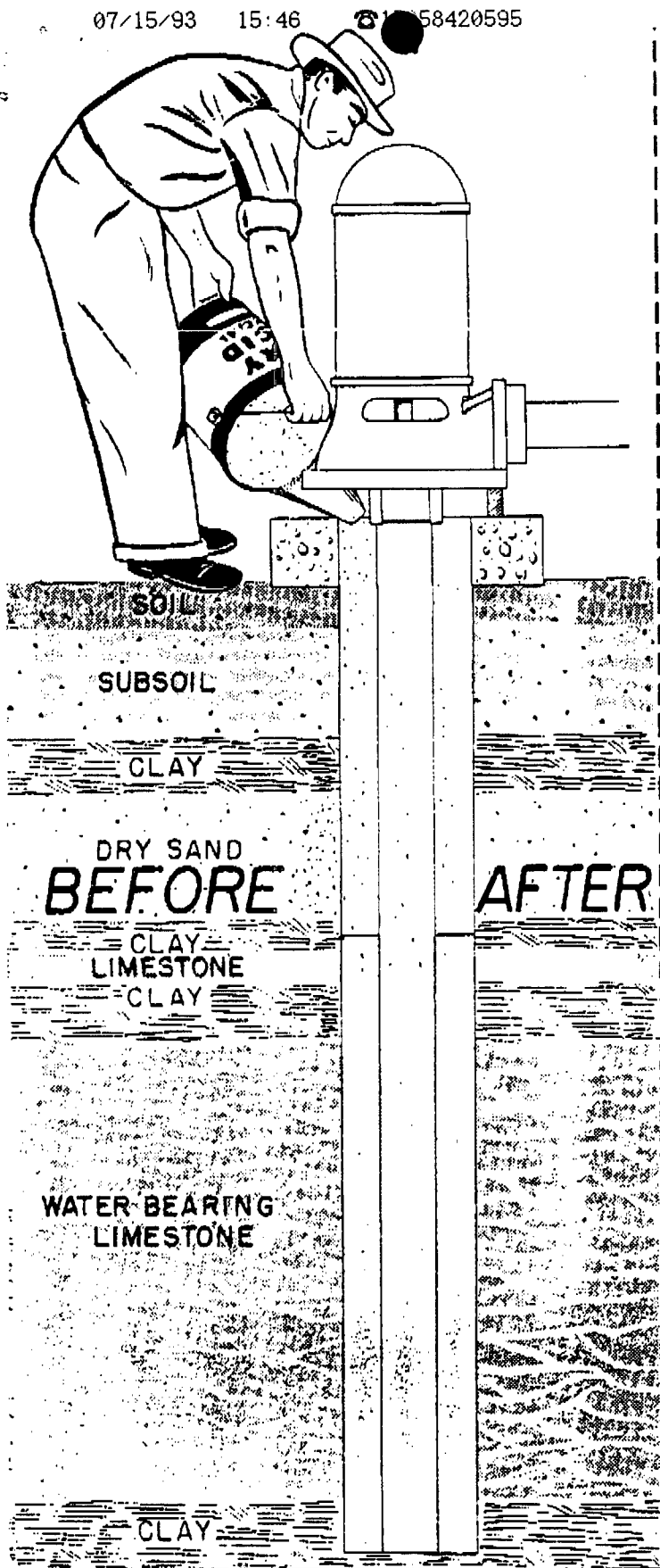
A Daily Field Activity Log shall be compiled and signed by the on-site geologist. The following information shall be recorded within the Field Activity Log:

- names of on-site personnel during well restoration activities;
- all field equipment used during well restoration activities;
- date and weather conditions;
- descriptions/observations of well restoration activities including start-up and completion times;
- any deviations from the well restoration criteria specified herein;
- references to any field generated paperwork; and
- control, management, and disposal of all wastes generated from mechanical cleaning and chemical treatment activities (fluids and other debris).

All field notebook entries shall include the recorder's signature and date.

D. PAYMENT

Payment for well restoration activities shall be based on the unit price quotation stated in the Subcontractor's Bid Schedule for Item 020: WELL RESTORATION.



"Better Wells with Chemicals"

USE



TO:

REMOVE: Limestone, water deposited scale, rust and corrosion.

DEVELOP: New wells producing from limestone or calcareous sand and gravel formations.

REDEVELOP: Old wells that have water deposited scale, rust or corrosion plugging the perforations, screen or formation.

DRY ACID* SPECIAL, when dissolved in water, produces an inhibited acid solution that chemically dissolves limestone, scale, rust and corrosion.

DRY ACID* SPECIAL is fully inhibited and is safe on plastics, rubber and metals commonly used in water wells.

DRY ACID* SPECIAL is packaged in 50 pound steel pails.

DRY ACID* SPECIAL has a beneficial bacteriostatic effect.

Wells producing from water bearing limestone or sand and gravel formations clogged with calcareous deposits may have only a limited initial flow rate.

Substantial increases in flow can be obtained by dissolving the limestone or calcareous deposits with **DRY ACID* SPECIAL** thus increasing the size of the openings permitting the water to enter the well bore at a higher rate.

The minerals dissolved in most ground waters have a tendency to precipitate out of solution at or near the well bore, where the temperature and pressure of the water changes. These deposits will accumulate on the strainer, screen or perforated pipe and on the face of the water bearing formation and gradually restrict the flow of water. To keep a well producing at a satisfactory rate these deposits must be removed periodically. The most effective way is with a properly designed chemical treatment. Most water deposited scales are readily soluble in **DRY ACID* SPECIAL**.

Other causes of decreased water flow from wells are: build-up of deposits due to corrosion of well equipment and accumulation of organic growths, such as algae, molds, fungi and bacteria. Both of these conditions can be corrected with periodic treatments using **DRY ACID* SPECIAL**.

*DRY ACID, WEIGICIDE, DRY-DE-TR-DEMARKS, COTLEY CHEMICAL COMPANY, REG. U. S. PATENT OFFICE

COTLEY CHEMICAL COMPANY

P. O. BOX 1239

2301 AVENUE G

LUBBOCK, TEXAS 79408

TELEPHONE SHERWOOD 7-2096

Diameter inches of casing or hole	Gallons per foot of depth
1	0.041
1½	0.092
2	0.163
2½	0.255
3	0.367
3½	0.500
4	0.653
4½	0.737
5	1.020
5½	1.234
6	1.469
7	2.000
8	2.611
9	3.305
10	4.080
11	4.937
12	5.875
13	6.895
14	8.000
15	9.18
16	10.00
17	11.79
18	13.22
19	14.73
20	16.32
22	19.75
24	23.50
26	27.58
28	31.99
30	36.72
32	41.78
34	47.16
36	52.88

HOW TO USE DRY ACID[®]SPECIAL IN LARGE DIAMETER WELLS

1. Use ¾ to 1 pound of DRY ACID[®]SPECIAL per gallon of water in the well.
2. If a deep well turbine pump is in the hole, add about ¼ the required amount of DRY ACID[®]SPECIAL at a time, between the pump column and casing. Agitate by backwashing after each addition of acid. If a rig is over the hole add the acid to the casing and agitate with a bailer, surge block or other tool.
3. Acid should remain in the well 12 to 24 hours and should be agitated every few hours.
4. If well is gravel packed displace the acid back through the gravel wall by adding water equal to about ¾ the volume of water standing in the hole. In new wells the water should be added after all the acid has been added and thoroughly mixed by backwashing. In old wells allow the acid to stay in the casing for a few hours before adding the water. Water should be added slowly or in several batches at 30 minute intervals.
5. Pump or bail the hole clean, develop and test.

HOW TO USE DRY ACID[®]SPECIAL IN SMALL DIAMETER WELLS

1. Treat with a solution made by dissolving about 1 pound of DRY ACID[®]SPECIAL per gallon of water.
2. Use about two to three times the volume of the casing.
3. Add solution and agitate with a bailer, surge block or other device.
4. As the fluid level drops continue to add the acid solution.
5. Agitate several times during a 12 to 24 hour soaking period.
6. Bail the hole and test.

IN MANY WELLS TWO OR MORE TREATMENTS MAY PROVE BENEFICIAL.

INITIAL WATER AFTER TREATMENT CONTAINS SPENT CHEMICALS AND SHOULD BE PUMPED OR BAILED TO WASTE.

DRY ACID SPECIAL IS PACKAGED IN 50 POUND STEEL PAILS.

**pumps inc.**

Effective May 4, 1990

Cotey Chemicals

DRY ACID

USE TO: Remove clays, shales, drilled cuttings and drilling muds. Develop new wells and re-develop old ones.

DIRECTIONS:

- (1) Use $\frac{1}{2}$ to $\frac{3}{4}$ pounds per gallon of water in large wells; $\frac{3}{4}$ to 1 pound in small wells.
- (2) If a deep well turbine is in the hole, add $\frac{1}{4}$ the required amount of Dry Acid at a time between pump and casing. Backwash after each treatment.
- (3) If the well is gravel packed, surge or add slowly water equal to $\frac{3}{4}$ of the volume of water in the hole.
- (4) Agitate well every few hours and allow Dry Acid to remain at least 24 hours.
- (5) Pump or bail the hole clean. Treated water should be pumped to waste.

Diameter inches of casing or hole	Gallons per foot of depth
3	0.37
3½	0.50
4	0.65
4½	0.74
5	1.02
5½	1.23
6	1.47
7	2.00
8	2.61
9	3.31
10	4.08
11	4.94
12	5.88
13	6.90
14	8.00
15	9.18
16	10.00
17	11.79
18	13.22
19	14.73
20	16.32
22	19.75
24	23.50
26	27.58
28	31.99
30	36.72
32	41.78

DRY ACID SPECIAL

USE TO: Develop new wells producing from limestone or calcareous sand and gravel or to re-develop old wells plugged by hard-water scale, rust or corrosion.

DIRECTIONS:

- (1) Use $\frac{3}{4}$ to 1 pound per gallon of water in the well.
- (2) Follow Steps 2 thru 5 under directions for "Dry Acid".

WELGICIDE CLEANER

USE TO: Remove slime-rust-oil causing plugging of wells using oil-lube turbines.

DIRECTIONS:

- (1) Use $\frac{1}{4}$ pound per gallon of water in casing.
- (2) Pour in dry between casing and column pipe. Backwash to mix and distribute. Add the chemical carefully since considerable heat is generated when Welgicide Cleaner is dissolved in water.
- (3) Agitate occasionally with the pump. Leave chemical in well for at least 24 hours, then pump to waste.

LIQUID ANTIBACTERIAL ACID

USE TO: Dissolves iron bacteria incrustations, organic deposits of iron bacteria, slime, hard water scale on perforations and screens, and in the strata, sulfides, and metallic oxides and holds them in suspension.

DIRECTIONS:

- (1) Use .061 gallon of LBA per gallon of water in well.
- (2) LBA can be pumped or drained by gravity flow directly into the well. The pump and piping may be left in place with no fear of corrosion. Periodic surging during the treatment period of 36 hours or continuous circulation with the pump is desirable. If the pump and bowls have been removed, bailing or swabbing intermittently during the treatment period of 36 hours would be considered ample agitation.
- (3) After 36 hours the LBA can then be pumped to waste.

DISCOUNT SCHEDULE 25%



GPM GAS SERVICES COMPANY

A DIVISION OF PHILLIPS PETROLEUM COMPANY

4044 PENBROOK
ODESSA, TX 79762

June 10, 1993

OIL CONSERVATION DIVISION
RECEIVED

'93 JUN 17 AM 9 06

Second quarter 1993

Analytical Results

Lee Plant Discharge Plan GW-2

Mr. William C. Olson
Hydrogeologist
Oil Conservation Division
Post Office Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

Dear Mr. Olson:

GPM Gas Corporation (GPM) herein submits the laboratory analytical reports for groundwater sampling at our Lee Plant for the second quarter of 1993. Sample collection was conducted on April 15 and 16, 1993 pursuant to the requirements of NMOCD Discharge Plant GW-2. NDRC Laboratories, Inc., Houston, Texas, performed the sample analyses. Our consultant, H + GCL strictly adhered to chain-of-custody procedures to ensure the integrity of the samples during transport to the laboratory.

Groundwater samples from monitor wells MW-9, MW-11, MW-12, MW-13, MW-14 and MW-20 were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 602. Semi-annual sampling of supply wells, WS-1 and WS-2 was also conducted during the sampling event.

Monitor wells MW-9, MW-11, MW-12, MW-13 and MW-14 showed decreasing levels of BTEX. Hydrocarbon levels in MW-20 were at or very near detection levels. Overall results continue to verify that the size of the plume is diminishing.

Analytical results from WS-1 indicated hydrocarbon levels ranging from 2 to 7 mg/L (well below standard). Results for WS-2 indicated a significant increase in benzene concentration since previous sampling. The April 1993 results showed benzene at 1600 ppm while July 1992 sampling at the same well provided a benzene concentration of 460 mg/L. WS-2 is an inactive supply well situated within the central portion of the plume and near MW-9 which had a benzene concentration of 2200 mg/L during the April event. It is evident that WS-2 has been impacted by the down-gradient transport of the plume.

Monitor well, MW-4, is no longer pumping free product. After inspection of the product recovery pump and confirmation of the pump's working condition, product level thickness measurement revealed no free product in the well. This may indicate that the product has been removed in the immediate area and it may take some time for the plume to equilibrate and product to once again appear in the vicinity. Another possibility is that free product has, in fact, been completely recovered from this area. Continued product thickness measurement of this well will provide additional data to determine what is actually occurring in the area.

Mr. William C. Olson
June 10, 1993
Page 2

GPM has now revised the sampling schedule to comply with the Discharge Plan GW-2 Modification approved on April 26, 1993. The new quarterly, semi-annual and annual sampling schedules are provided below.

Quarterly

- MW-11, MW-12, MW-13, MW-19 and MW-20 for dissolved aromatics (BTEX) using EPA method 602
- Depth to groundwater and product thickness measurements from all monitor wells

Semi-annually

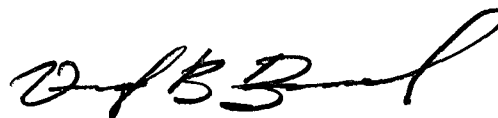
- MW-2 and MW-18 for dissolved aromatics (BTEX) using EPA method 602

Annually

- MW-5, MW-7, MW-9, MW-10 and MW-16 for dissolved aromatics (BTEX) using EPA method 602

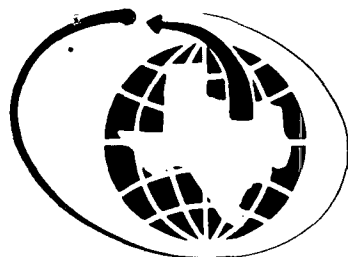
This new schedule will be adopted during our next quarterly sampling event set for July. We will conduct semi-annual and annual sampling during this time as well. If you have any questions or comments regarding the contents of this letter, please call me at (915) 368-1085.

Sincerely,

A handwritten signature in black ink, appearing to read "V. Bernard", with a stylized flourish at the end.

Vince Bernard
Safety & Environmental Supervisor
New Mexico Region

cc: Maureen Gannon - H + GCL Albuquerque
S.J. Seeby
M.S. Nault



NDRC LABORATORIES, INC.

A member of Inchcape Environmental

11155 South Main, Houston, Texas 77025 • (713) 661-8150 • FAX (713) 661-2661

BEAUMONT

DALLAS

HOUSTON

DATE RECEIVED : 20-APR-1993

REPORT NUMBER : H93-2510-1

REPORT DATE : 22-APR-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9304151200

: MW-20

PROJECT : 54030.02/GPM

DATE SAMPLED : 15-APR-1993

ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 $\mu\text{g/L}$	1.3 $\mu\text{g/L}$
Toluene	1.0 $\mu\text{g/L}$	< 1.0 $\mu\text{g/L}$
Ethyl benzene	1.0 $\mu\text{g/L}$	< 1.0 $\mu\text{g/L}$
Xylenes	1.0 $\mu\text{g/L}$	2.0 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 $\mu\text{g/L}$	98.0 %

NDRC Laboratories, Inc.

David R. Godwin Kgw
David R. Godwin, Ph.D.
Chief Executive Officer



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HOUSTON

DATE RECEIVED : 20-APR-1993

REPORT NUMBER : H93-2510-2

REPORT DATE : 22-APR-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9304151315

: MW-11

PROJECT : 54030.02/GPM

DATE SAMPLED : 15-APR-1993

ANALYSIS METHOD : EPA 602

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	1.1 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	1.0 µg/L	< 1.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	101 %

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Chief Executive Officer



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DATE RECEIVED : 20-APR-1993

REPORT NUMBER : H93-2510-3

REPORT DATE : 22-APR-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9304151400

: MW-9

PROJECT : 54030.02/GPM

DATE SAMPLED : 15-APR-1993

ANALYSIS METHOD : EPA 602

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	10 $\mu\text{g/L}$	2200 $\mu\text{g/L}$
Toluene	10 $\mu\text{g/L}$	11 $\mu\text{g/L}$
Ethyl benzene	10 $\mu\text{g/L}$	20 $\mu\text{g/L}$
Xylenes	10 $\mu\text{g/L}$	40 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 $\mu\text{g/L}$	91.0 %

NDRC Laboratories, Inc.

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Chief Executive Officer



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HOUSTON

DATE RECEIVED : 20-APR-1993

REPORT NUMBER : H93-2510-4

REPORT DATE : 22-APR-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9304151445

: MW-12

PROJECT : 54030.02/GPM

DATE SAMPLED : 15-APR-1993

ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	30.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	1.0 µg/L	< 1.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	92.0 %

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HOUSTON

DATE RECEIVED : 20-APR-1993

REPORT NUMBER : H93-2510-5

REPORT DATE : 22-APR-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9304151535

: MW-13

PROJECT : 54030.02/GPM

DATE SAMPLED : 15-APR-1993

ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	13.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	1.0 µg/L	< 1.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	95.0 %

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David R. Godwin, Ph.D.
Chief Executive Officer



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DATE RECEIVED : 20-APR-1993

REPORT NUMBER : H93-2510-6

REPORT DATE : 22-APR-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9304151615

: MW-14

PROJECT : 54030.02/GPM

DATE SAMPLED : 15-APR-1993

ANALYSIS METHOD : EPA 602

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	13.0 µg/L
Toluene	1.0 µg/L	3.0 µg/L
Ethyl benzene	1.0 µg/L	3.0 µg/L
Xylenes	1.0 µg/L	6.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	96.0 %

NDRC Laboratories, Inc.

David R. Godwin Kgw
David R. Godwin, Ph.D.
Chief Executive Officer



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DATE RECEIVED : 20-APR-1993

REPORT NUMBER : H93-2510-7

REPORT DATE : 22-APR-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9304151050

: WS-2

PROJECT : 54030.02/GPM

DATE SAMPLED : 15-APR-1993

ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	1600 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	19.0 µg/L
Xylenes	1.0 µg/L	14.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	100 %

NDRC Laboratories, Inc.

David R. Godwin Kgw
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Chief Executive Officer



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HOUSTON

DATE RECEIVED : 20-APR-1993

REPORT NUMBER : H93-2510-8

REPORT DATE : 22-APR-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9304161100

: WS-1

PROJECT : 54030.02/GPM

DATE SAMPLED : 16-APR-1993

ANALYSIS METHOD : EPA 602

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	7.0 µg/L
Toluene	1.0 µg/L	3.0 µg/L
Ethyl benzene	1.0 µg/L	2.0 µg/L
Xylenes	1.0 µg/L	2.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	103 %

NDRC Laboratories, Inc.

David R. Godwin
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HOUSTON

DATE RECEIVED : 20-APR-1993

REPORT NUMBER : H93-2510-9

REPORT DATE : 22-APR-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9304161115

: WS-1A

PROJECT : 54030.02/GPM

DATE SAMPLED : 16-APR-1993

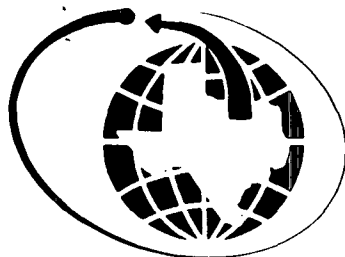
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	28.0 µg/L
Toluene	1.0 µg/L	12.0 µg/L
Ethyl benzene	1.0 µg/L	7.0 µg/L
Xylenes	1.0 µg/L	8.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	95.0 %

NDRC Laboratories, Inc.

David R. Godwin
David R. Godwin, Ph.D.
Chief Executive Officer



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DATE RECEIVED : 20-APR-1993

REPORT NUMBER : H93-2510-10

REPORT DATE : 22-APR-1993

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9304161130

: Field Blank

PROJECT : 54030.02/GPM

DATE SAMPLED : 16-APR-1993

ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	< 1.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	1.0 µg/L	< 1.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	95.0 %

NDRC Laboratories, Inc.

David R. Godwin
David R. Godwin, Ph.D.
Chief Executive Officer



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HOUSTON

SUMMARY REPORT

CLIENT : H + GCL
PROJECT : 54030.02/GPM

JOB NUMBER : H93-2510
REPORT DATE : 22-APR-1993

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
1	9304151200 MW-20	Water	15-APR-1993
2	9304151315 MW-11	Water	15-APR-1993
3	9304151400 MW-9	Water	15-APR-1993
4	9304151445 MW-12	Water	15-APR-1993

BTEX ANALYSIS, EPA 602		1	2	3	4
Benzene $\mu\text{g/L}$		1.3	1.1	2200	30.0
Toluene $\mu\text{g/L}$	<	1.0	< 1.0	11	< 1.0
Ethyl benzene $\mu\text{g/L}$	<	1.0	< 1.0	20	< 1.0
Xylenes $\mu\text{g/L}$		2.0	< 1.0	40	< 1.0

David R. Godwin Kgw



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HOUSTON

SUMMARY REPORT

CLIENT : H + GCL
PROJECT : 54030.02/GPM

JOB NUMBER : H93-2510
REPORT DATE : 22-APR-1993

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
5	9304151535 MW-13	Water	15-APR-1993
6	9304151615 MW-14	Water	15-APR-1993
7	9304151050 WS-2	Water	15-APR-1993
8	9304161100 WS-1	Water	16-APR-1993

BTEX ANALYSIS, EPA 602		5	6	7	8
Benzene	µg/L	13.0	13.0	1600	7.0
Toluene	µg/L	< 1.0	3.0	< 1.0	3.0
Ethyl benzene	µg/L	< 1.0	3.0	19.0	2.0
Xylenes	µg/L	< 1.0	6.0	14.0	2.0

David R. Godwin Rgw



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HOUSTON

SUMMARY REPORT

CLIENT : H + GCL
PROJECT : 54030.02/GPM

JOB NUMBER : H93-2510
REPORT DATE : 22-APR-1993

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
9	9304161115 WS-1A	Water	16-APR-1993
10	9304161130 Field Blank	Water	16-APR-1993

BTEX ANALYSIS, EPA 602		9	10		
Benzene	µg/L	28.0	< 1.0		
Toluene	µg/L	12.0	< 1.0		
Ethyl benzene	µg/L	7.0	< 1.0		
Xylenes	µg/L	8.0	< 1.0		

David R. Godwin Fgw



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HOUSTON

DATE RECEIVED: 20-APR-1993

REPORT NUMBER: H93-2510:1-10

REPORT DATE: 22-APR-1993

SAMPLE SUBMITTED BY: H + GCL

ATTENTION: Ms. Annette Montoya

LABORATORY ANALYSIS QUALITY CONTROL REPORT

ANALYSIS: Benzene
Technician: MHT
Sample Extracted: 21-APR-1993
QC Extracted: 21-APR-1993
Sample Analyzed: 21-APR-1993
QC Analyzed: 21-APR-1993
QC Sample Number: 2510-10
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 5030
MS/MSD RPD: 6%
Average Spike Recovery: 107%
Duplicate RPD: ---
Method Blank: < 1.0 µg/L
LCS Recovery: 98%
TCLP Spike Recovery: ---

ANALYSIS: Toluene
Technician: MHT
Sample Extracted: 21-APR-1993
QC Extracted: 21-APR-1993
Sample Analyzed: 21-APR-1993
QC Analyzed: 21-APR-1993
QC Sample Number: 2510-10
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 5030
MS/MSD RPD: 6%
Average Spike Recovery: 109%
Duplicate RPD: ---
Method Blank: < 1.0 µg/L
LCS Recovery: 100%
TCLP Spike Recovery: ---

ANALYSIS: Ethyl benzene
Technician: MHT
Sample Extracted: 21-APR-1993
QC Extracted: 21-APR-1993
Sample Analyzed: 21-APR-1993
QC Analyzed: 21-APR-1993
QC Sample Number: 2510-10
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 5030
MS/MSD RPD: 8%
Average Spike Recovery: 106%
Duplicate RPD: ---
Method Blank: < 1.0 µg/L
LCS Recovery: 100%
TCLP Spike Recovery: ---

ANALYSIS: Xylenes
Technician: MHT
Sample Extracted: 21-APR-1993
QC Extracted: 21-APR-1993
Sample Analyzed: 21-APR-1993
QC Analyzed: 21-APR-1993
QC Sample Number: 2510-10
TCLP Leachate Date: ---

Analysis Method: EPA 602
Extraction Method: EPA 5030
MS/MSD RPD: 14%
Average Spike Recovery: 93%
Duplicate RPD: ---
Method Blank: < 1.0 µg/L
LCS Recovery: 99%
TCLP Spike Recovery: ---

NDRC Laboratories, Inc.

David R. Godwin Kgw
David R. Godwin, Ph.D.
Chief Executive Officer

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☐ Chicago
626 W. Jackson Blvd., Ste. 800
Chicago, IL 60606
(312) 648-9988
FAX: (312) 648-0818

14-00000

6762

Chain of Custody

Date 4/6/93 Page 7 Of 7

Hartford

380 South Center Street
Windsor Locks, CT 06096
(203) 627-6528
FAX: (203) 627-7815

☐ Los Angeles

19600 Fairchild, Ste. 120
Irvine, CA 92715
(714) 955-0201
FAX: (714) 955-0965

☐ Mid Atlantic Region

4221 Forbes Blvd., Ste. 240
Lanham, MD 20706-4325
(301) 459-9677
FAX: (301) 459-3064

New York

261 Madison Avenue
New York, NY 10016
(212) 983-8510
FAX: (212) 983-8795

San Francisco

22200 Powell Street, Ste. 880
Emeryville, CA 94608
(510) 547-3886
FAX: (510) 547-3631

Analysis Request

Lab Name NDRC Laboratories, Inc.

Address 11155 South Main

Houston, TX 77025

Samplers (SIGNATURES)

Sample Number	Matrix	Location
9304151200	H ₂ O	MW-20
9304151315	H ₂ O	MW-11
9304151400	H ₂ O	MW-9
9304151445	H ₂ O	MW-12
9304151535	H ₂ O	MW-13
9304151615	H ₂ O	MW-14
9304151050	H ₂ O	WS- 14 2 ON
9304161100	H ₂ O	WS-1
9304161115	H ₂ O	WS-1A
9304161130	H ₂ O	Field Blank

[illegible]

QC REPORT

Project Information		Sample Receipt		Relinquished By		1.		Relinquished By		2.		3.	
Project	Project Director	Total No. of Containers	Chain of Custody Seals	(Signature)	(Time)	(Signature)	(Time)	(Signature)	(Time)	(Signature)	(Time)	(Signature)	(Time)
GPM	M. G. M. M. M.			DAVID NEE	4/16/93								
Charge Code No.	54030.02	Rec'd Good Condition/Cold		H. H. H. H.									
Shipping ID. No.	5394481385	Conforms to Record											
Via:	Fed X	Lab No.		Received By		Received By		Received By		Received By		Received By	
				(Signature)	(Time)	(Signature)	(Time)	(Signature)	(Time)	(Signature)	(Time)	(Signature)	(Time)
				(Printed Name)	(Date)	(Printed Name)	(Date)	(Printed Name)	(Date)	(Printed Name)	(Date)	(Printed Name)	(Date)
				(Company)		(Company)		(Company)		(Company)		(Company)	

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STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION



BRUCE KING
GOVERNOR

April 26, 1993

ANITA LOCKWOOD
CABINET SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-667-242-341

Vincent B. Bernard
GPM Gas Corporation
4044 Penbrook
Odessa, TX 79762

**RE: DISCHARGE PLAN GW-2 MODIFICATION
LEE GAS PROCESSING PLANT
BUCKEYE, NEW MEXICO**

Dear Mr. Bernard:

The New Mexico Oil Conservation Division (OCD) has completed a review of GPM's April 7, 1993 "DISCHARGE PLAN GW-2 MODIFICATION AND REMEDIAL STRATEGY, LEE PLANT, BUCKEYE, NEW MEXICO" and GPM's accompanying February 25, 1993 correspondence. These documents, which were submitted to OCD on April 16, 1993, propose modifications to the current ground water monitoring and remediation system at the GPM Lee Gas Plant.

The above requested modification of the previously approved ground water discharge plan, GW-2, for the Phillips Lee Gas Plant located in the SW/4 SE/4, Section 30, Township 17 South, Range 35 East (NMPM), Lea County, New Mexico is hereby approved under the conditions contained in the enclosed attachment. The discharge plan (GW-2) was previously approved on March 18, 1991.

The discharge plan modification was submitted pursuant to Section 3-106 of the Water Quality Control Commission (WQCC) Regulations. It is approved pursuant to section 3-109.A. Please note Section 3-109.F., which provides for possible future amendments of the plan. The modification does not significantly alter the discharge streams, therefore, public notice was not issued.

Please note that section 3-104 of the WQCC regulations requires that "When a plan has been approved, discharges must be consistent with the terms and conditions of the plan". Pursuant to Section 3-107.C. you are required to notify the Director of any facility expansion, production increase, or process modification that would result in any change in the discharge of water quality or volume.

Mr. Vincent B. Bernard
April 26, 1993
Page 2

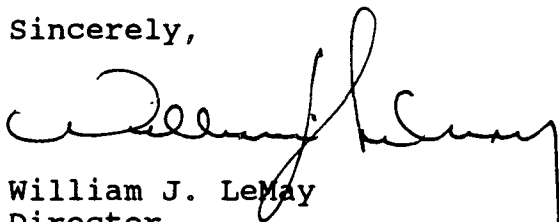
The discharge plan modification for the GPM Lee Gas Plant is subject to the WQCC Regulation 3-114 discharge plan fee. Every billable facility submitting a discharge plan modification will be assessed a filing fee of fifty (50) dollars plus a flat rate of one-thousand six-hundred and sixty-seven dollars and fifty cents (\$1667.50) for gas processing plants. Pursuant to Section 3-114.B.5. the OCD waives the flat fee assessed for this modification. However, GPM still must pay the \$50.00 filing fee.

Please be advised that approval of this plan does not relieve you of liability should your operation result in actual pollution of surface or ground waters or the environment which may be actionable under other laws and/or regulations. In addition, this approval does not relieve GPM of responsibility for compliance with other state, federal or local laws and/or regulations.

On behalf of the staff of the Oil Conservation Division, I wish to commend GPM for their initiative in exploring innovative techniques for timely and cost effective remediation of contaminated ground water.

If you have any questions please contact Bill Olson of my staff at (505) 827-5885.

Sincerely,



William J. LeMay
Director

WJL/WCO

xc: OCD Hobbs District Office

**ATTACHMENT TO DISCHARGE PLAN GW-2 MODIFICATION
GPM LEE GAS PROCESSING PLANT
DISCHARGE PLAN REQUIREMENTS
(April 26, 1993)**

A. DISCHARGE PLAN MODIFICATION FEE

1. The \$50 filing fee will be paid upon receipt of this approval. Please make the check payable to: **NMED-Water Quality Management** and addressed to the OCD Santa Fe Office.

B. REMEDIATION

1. The annular space above the water table in the three well cluster to be installed near recovery well RW-1 will be cemented to the surface with a bentonite grout.
2. Information on the type of surfactant and nutrients injected in the air sparging system will be supplied to OCD prior to use.
3. If underground piping is to be used to convey contaminated fluids from recovery well MW-6, the piping will be designed such that it can be pressure tested to 3 psi above operating pressure. The piping will also be pressure tested prior to operation with the testing results submitted to OCD.
4. A report containing an evaluation of the air sparging systems effectiveness will be submitted to OCD on April 1, 1994.

C. GROUND WATER MONITORING

Due to the lack of consistent trends in the analytic data obtained from the monitor wells to date, the OCD requires that the monitoring schedule proposed by GPM be modified as shown below.

1. Depth to ground water and product thickness measurements will be taken from all monitor wells on a quarterly basis.
2. Monitor wells MW-11, MW-12, MW-13, MW-19 and MW-20 will be sampled and analyzed for dissolved aromatic hydrocarbons using EPA method 602 on a quarterly basis.
3. Monitor wells MW-2 and MW-18 will be sampled and analyzed for dissolved aromatic hydrocarbons using EPA method 602 on a semi-annual basis.
4. Monitor wells MW-5, MW-7, MW-9, MW-10 and MW-16 will be sampled and analyzed for dissolved aromatic hydrocarbons using EPA method 602 on an annual basis.

D. REPORTING

Quarterly reports with the results of all monitoring during the quarter will be submitted to OCD on January 1, April 1, July 1 and October 1 of the respective year.

**Discharge Plan GW-2
Modification and Remedial Strategy
Lee Plant, Buckeye, New Mexico**

April 7, 1993

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Prepared for:

**GPM Gas Corporation
Lee Plant**

Prepared by:

H*GCL

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1.0 Executive Summary

GPM Gas Corporation (GPM), formerly Phillips 66 Natural Gas Company, of 4044 Penbrook, Odessa, Texas, proposes to modify their previously approved Discharge Plan, GW-2, for the Lee natural gas processing plant. The facility is located in the northeast quarter of Section 31 and the southeast quarter of section 30, Township 17S Range 35E; Lea County, New Mexico. This proposal describes the remedial strategy and associated discharge plan modifications to enhance the removal of free-phased hydrocarbons and dissolved hydrocarbon constituents in the groundwater. This plan also includes initiating the removal of hydrocarbon constituents from the unsaturated zone at the site. Under the current New Mexico Oil Conservation Division (NMOCD) discharge plan for the site, contaminated groundwater is pumped from the aquifer to the Lee plant wastewater treatment facility for removal of natural gas liquids. The proposed amendment to the discharge plan provides in situ remediation of the groundwater.

Groundwater at the site is unconfined at approximately 100 feet beneath the ground surface. The direction of groundwater flow is to approximately 30 degrees west of south. The hydraulic gradient at the site is approximately .0045 vertical drop per foot of horizontal distance.

This plan proposes the continued pumping of contaminated groundwater from the uppermost portion of the aquifer. This water will be discharged to the wastewater treatment and disposal system pursuant to the previously-approved discharge plan. One existing groundwater recovery well will be retrofitted for vapor extraction. Another well will be drilled to determine the vertical extent of contamination and to facilitate an air-sparging pilot test. Aerated, non-contaminated water from the on-site water supply well will be injected into the aquifer immediately below the zone of known hydrocarbon contamination. Air bubbles, and eventually added nutrients, combined with vapor extraction will enhance the removal and bioremediation of the dissolved hydrocarbons in the soil and those generated from the free-phase hydrocarbons and the contaminated groundwater in the aquifer.

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2.0 Introduction

2.1 Description of Existing Discharges

Pursuant to NMOCD discharge plan GW-2, GPM pumps approximately 8 gallons-per-minute of groundwater from an existing recovery well network. The groundwater is treated in the plant wastewater treatment facility for removal of natural gas liquids. Recovered separate-phase hydrocarbons are recycled.

2.2 Summary of Hydrogeological Conditions

Recharge in the region surrounding the Lee Plant occurs primarily as a result of infiltration of water from short drainages and temporary lakes that are the result of heavy rainfall events (Nicholson and Clebsch, 1961). Discharge takes place principally in the form of evapo-transpiration and pumping from wells; very small volumes of groundwater discharge at springs (GCL, 1988a).

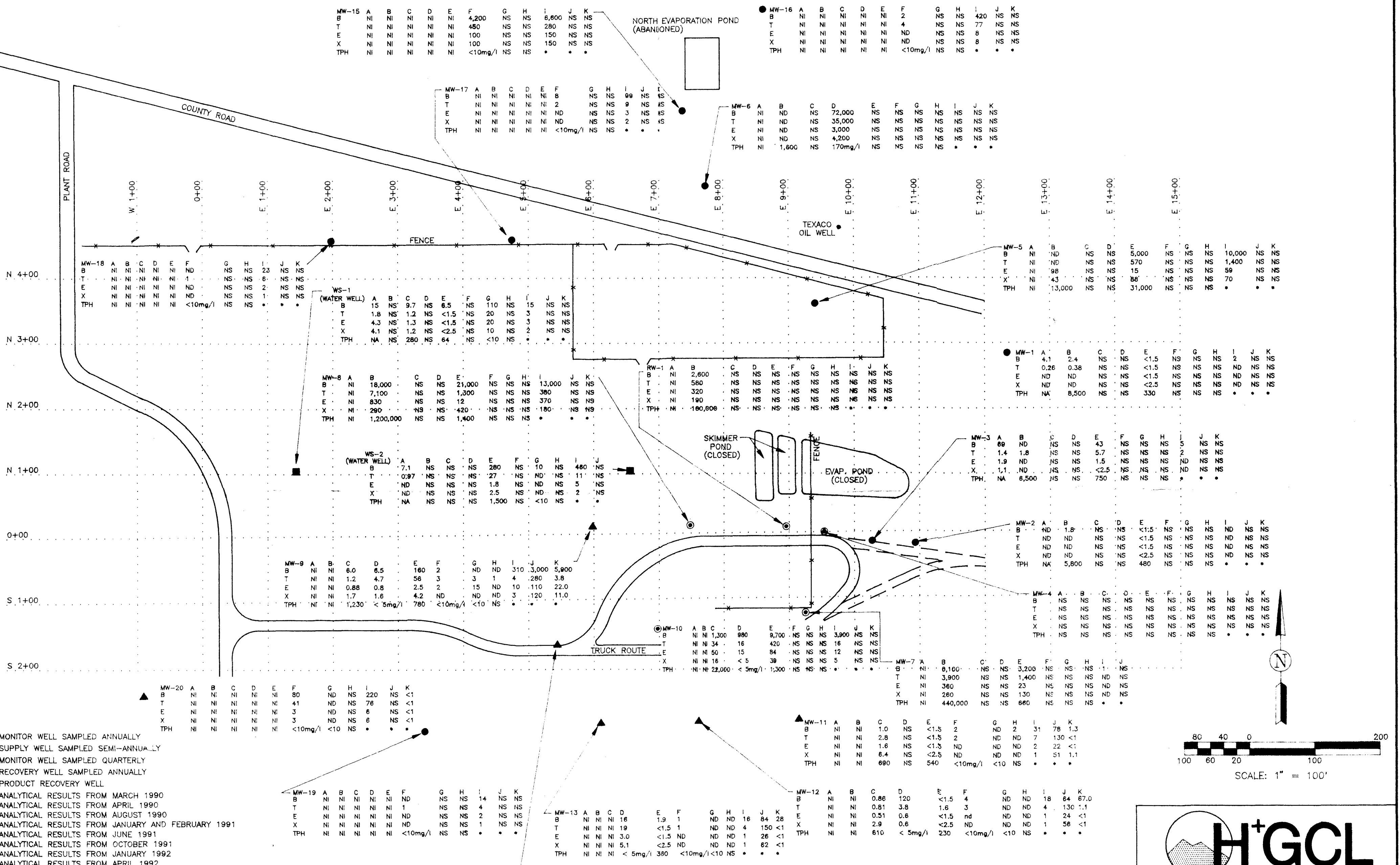
Potable water supplies in the region are derived primarily from aquifers hosted by Quaternary alluvium and the Tertiary Ogallala Formation. Groundwater occurring in Triassic sediments is potable, but has a poorer quality and is hosted on lithologic units that produce lower well yields than younger formations in the area. The Ogallala Formation mantles the High Plains in the Lee Gas Plant area and has a saturated thickness ranging from 25 to 175 feet (Nicholson and Clebsch, 1961). Groundwater in these shallow aquifers generally flows to the southeast at a low hydraulic gradient (GCL, 1988a).

Shallow groundwater at the Lee Gas Plant is unconfined. The groundwater beneath the site is found in unconsolidated, fine-grained sands and silts, which typically exhibits hydraulic conductivities of .001 to 100 gallons per day per square foot (GCL, 1988a). During recovery operations, low well yields are observed. Recovery wells yield a sustainable pumping rate of up to 3.0 gallons per minute. This pumping rate is consistent for the fine-grained sediments that occur beneath the site.

The potentiometric surface at the Lee Gas Plant is shown on figure 1. Groundwater flows to the southwest in a direction of approximately 30 degrees west of due south. The direction of groundwater flow based on calculations from October 1991 water level

LEGEND

- MONITOR WELL SAMPLED ANNUALLY
 - SUPPLY WELL SAMPLED SEMI-ANNUALLY
 - ▲ MONITOR WELL SAMPLED QUARTERLY
 - RECOVERY WELL SAMPLED ANNUALLY
 - PRODUCT RECOVERY WELL
 - A ANALYTICAL RESULTS FROM MARCH 1990
 - B ANALYTICAL RESULTS FROM APRIL 1990
 - C ANALYTICAL RESULTS FROM AUGUST 1990
 - D ANALYTICAL RESULTS FROM JANUARY AND FEBRUARY 1991
 - E ANALYTICAL RESULTS FROM JUNE 1991
 - F ANALYTICAL RESULTS FROM OCTOBER 1991
 - G ANALYTICAL RESULTS FROM JANUARY 1992
 - H ANALYTICAL RESULTS FROM APRIL 1992
 - I ANALYTICAL RESULTS FROM JULY 1992
 - J ANALYTICAL RESULTS FROM OCTOBER 1992
 - K ANALYTICAL RESULTS FROM JANUARY 1993
 - NA NOT AVAILABLE
 - ND NOT DETECTION
 - NS NOT SAMPLED
 - NI NOT INSTALLED AT THE DATE OF SAMPLING
 - B BENZENE
 - T TOLUENE
 - E ETHYLBENZENE
 - X TOTAL XYLENES
 - TPH TOTAL PETROLEUM HYDROCARBONS
 - mg/l MILLIGRAMS PER LITER
 - SAMPLING FOR TPH DISCONTINUED
- NOTE: CONCENTRATIONS IN MICROGRAMS PER LITER UNLESS OTHERWISE STATED.
WELLS CONTAINING SEPARATE-PHASE HYDROCARBONS ARE NOT SAMPLED.



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PLATE 1

MONITOR WELL LOCATION MAP WITH BTEX AND TPH CONCENTRATIONS FROM 1990 TO PRESENT

CLIENT: PHILLIPS PETROLEUM COMPANY

DATE: FEBRUARY 4, 1993

CHECKED BY: M. NEE

DRAWN BY: J.T.N.

DWG. NO. BTEXTV2

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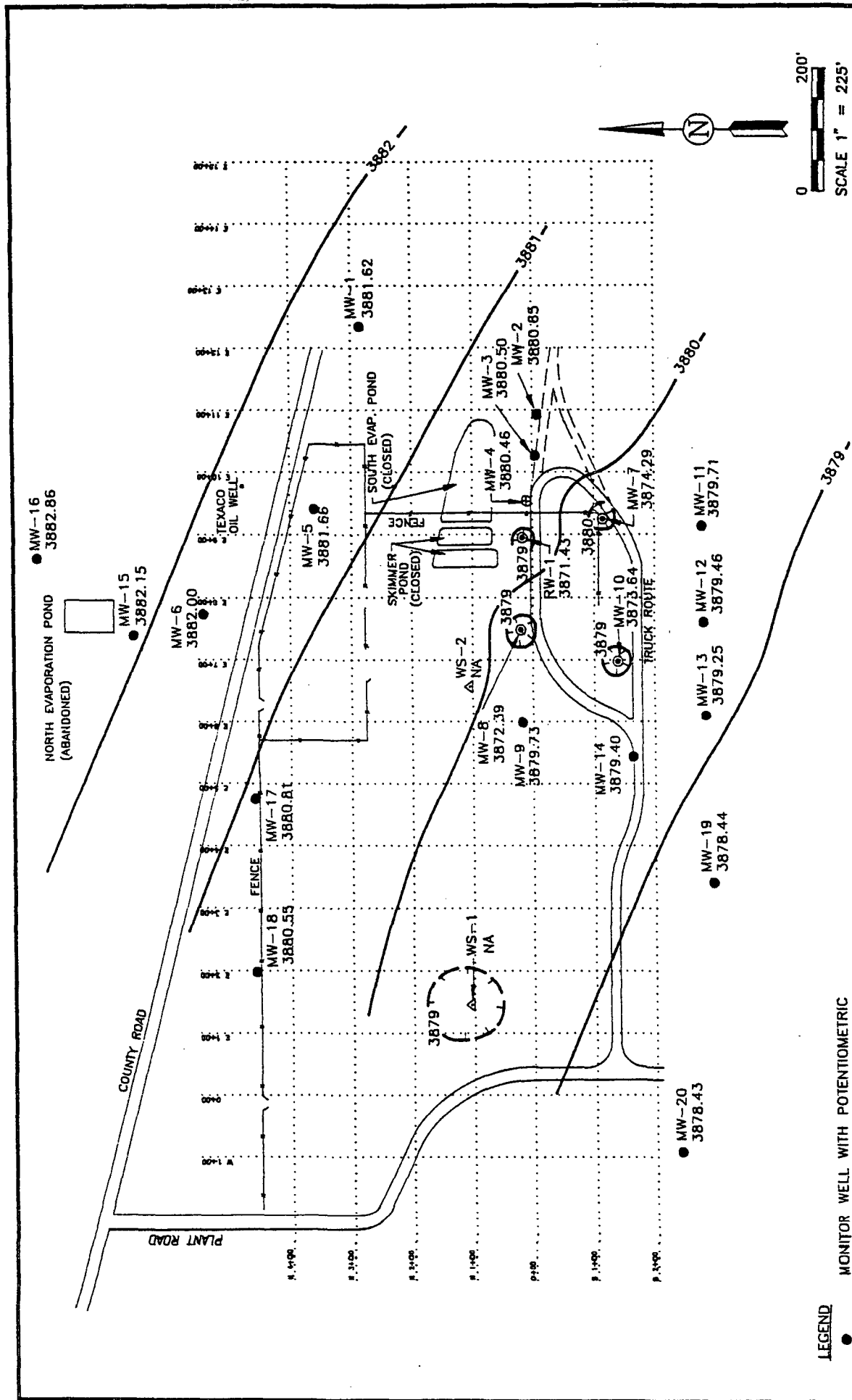


FIGURE 1
POTENTIOMETRIC SURFACE MAP
OCTOBER 30, 1991

CLIENT: GPM GAS CORP.

DATE: 2-17-93 REV. NO.: 1

AUTHOR: MN DRAWN BY: JTN

CK'D BY: MN FILE: PS08511



MONITOR WELL WITH POTENTIOMETRIC SURFACE ELEVATION
POTENTIOMETRIC SURFACE CONTOUR
RECOVERY WELL
PRODUCT RECOVERY WELL
WATER SUPPLY WELL

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elevations correlates very well with the flow direction presented in previous reports. The well casing elevations, depth to groundwater, and water surface elevations are shown in table 4-1 of *Final Phase Investigation Report Lee Gas Plant, Buckeye, New Mexico*.

2.3 Summary of the Observational Approach to Remedial Actions

The requirements of this remedial program will be met by utilizing the observational approach in our planning process. This approach has been accepted by DOE and other Federal agencies as a critical element of their environmental compliance programs. EPA has recognized the effectiveness of the observational approach in reducing the time and expense of site investigations and remedial actions. The observational approach has been written into compliance documents at many RCRA and CERCLA sites.

The success of the observational approach depends upon the ability of the project staff to manage uncertainty. First, available site data is evaluated and previous experience at similar sites is utilized. Then, a series of possible remedial action strategies are developed and are considered to be working hypotheses. As data is collected during the remediation, these strategies are continually tested. For the Lee Plant, a remedial strategy with several contingencies has been developed that will work with, not against, the uncertainties typical to subsurface remedial programs.

This document presents a conceptual design and implementation schedule. Detailed plans and specifications for the system will be submitted to NMOCD after comments or questions by NMOCD concerning the remedial strategy are received. It must be understood that the observational approach calls for a great deal of design development during initial phases of the remedial action operation.

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3.0 Proposed Modifications to the Discharge Plan

This section describes the conceptual design elements of an integrated remediation system proposed to remediate contaminated groundwater and the overlying soils. A combination of aeration and bioremediation systems are proposed for the Lee Plant site, with the contingency of adding other subsystems if deemed necessary. Pump and dispose operations will continue for plume control and separate-phase hydrocarbon removal. Vapor extraction from the unsaturated zone will remove hydrocarbons from the capillary fringe and overlying sediments, eliminating this threat of future re-contamination of groundwater.

The pump and dispose system at the Lee Plant is recovering dissolved- and separate-phase hydrocarbons and is providing a measure of control over the migration of the existing plume. When used alone, this system is (1) very time intensive and (2) not cost-efficient to operate. Nevertheless, the existing pump and dispose system is integral to implementing the proposed remedial system at the Lee Plant for the purpose of controlling contamination zones within the aquifer. Addition of groundwater and separate-phase hydrocarbon recovery at monitor well MW-6 is the only change to this system presently proposed.

Previous work has demonstrated that aeration is very effective in the remediation of contaminated soil and groundwater. Two emerging in situ techniques have shown dramatic results in removing volatile organic compounds (VOCs) from below ground, especially in multi-phase cleanup programs. These techniques are soil-vapor extraction (SVE) and air sparging (AS), which form an effective and economical remediation program when used together. Also, addition of water, nutrients, and surfactant to the system enhances natural biodegradation and further increases the system's effectiveness.

3.1 Initiation of Recovery Operations at Monitor Well MW-6

Immediately following approval of this plan, GPM will initiate recovery of groundwater and separate-phase hydrocarbons from monitor well MW-6.

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3.2 Addition of Soil-Vapor Extraction System

Vapor extraction is a simple, proven technology for removing volatile contaminants from soil. Induced air flow through contaminated areas volatilizes and removes VOCs and supplies oxygen to support biodegradation. The system is effective as long as air contacts the contaminated soils. Proper air flow is maintained by careful spacing of vapor extraction points and by locating the horizon of contamination and screening the vapor extraction wells accordingly.

As plate 1 shows, vertical extraction wells placed in the contaminated zones are individually connected to transfer pipes that are manifolded to a high capacity vacuum blower. The withdrawn soil vapor is often discharged to the air untreated, but this option is not allowed in many areas. GPM will use the vapor exhaust as intake air at their sulfur plant to thermally treat the hydrocarbon-rich exhaust. Any BTU values of the extraction system vapor will replace fuel consumption, eliminating a net increase of emissions at the plant.

Dual purpose vapor/water extraction wells are screened in the vadose zone, as well as in the aquifer, and are used for removing vapors from the soil and contaminated groundwater from the aquifer. These vapor/water extraction wells are part of the existing pump and dispose component, which maintains a certain level of hydraulic control in the zone of contamination. This withdrawal of groundwater is important in controlling possible movement of the plume during the proposed air-sparging. Also, any separate-phase product that may exist is removed through these wells.

3.3 Addition of Air Sparging

Air sparging removes VOCs from the groundwater and volatilizes portions of the free-phase hydrocarbons. The approach effectively creates a crude air stripper in the subsurface, with aquifer materials acting as the packing. As plate 2 shows, air is injected and allowed to flow up through the water column and the soil "packing". Air bubbles that contact dissolved- and adsorbed-phase contaminants in the aquifer cause the VOCs to volatilize. The gas-phase hydrocarbons are then carried by the air bubbles to the vadose zone where they are captured by a vapor-extraction system.

There are two potential concerns with air sparging that must be understood. They are (1) the possibility of spreading dissolved hydrocarbon constituents in the aquifer and (2) the chance that vapors can migrate in the subsurface. Air sparging induces movement of

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groundwater within the aquifer and increases the concentration of vapors in the soil. Therefore, precautions must be taken to prevent any possible adverse effects. When properly designed, the combined techniques of soil-vapor extraction, the withdrawal of water, and air sparging can provide very effective remediation in a relatively short time and at a reasonable cost.

The implementation of the proposed system presupposes accurate knowledge of the maximum vertical extent of groundwater contamination. Although dissolved-phase hydrocarbons are probably restricted to the upper few feet of the aquifer, such information does not exist at present for the site. To remedy this situation, the installation of a multi-port injection/monitor well at a position adjacent to the recovery well, RW-1, is proposed.

A three casing, 2-inch diameter well cluster will be installed near the recovery well, RW-1, to determine the depth of contamination and to complete the air-sparging remediation system. The three casing 2-inch diameter wells will be completed as follows:

- One will be screened across the water table. This well will be used to monitor separate-phase thickness as well as to measure the effects of the vapor extraction system during subsequent operation.
- The second 2-inch well will be screened just beneath the bottom of the existing groundwater recovery well, RW-1, approximately 15 to 20 feet beneath the water table. The purpose of this well is to assess the vertical extent of dissolved-phase contamination and to determine if any vertical gradients are present at the site.
- The third 2-inch well will be completed approximately 20 feet beneath the second 2-inch well. Completing a well at this depth allows injection of air, air/water, and air/water/nutrients beneath the contaminated interval.

Boreholes will be pressure grouted between screened intervals using a tremie pipe to ensure effective isolation of individual screens. The wells will be sampled individually to determine the maximum depth of groundwater contamination.

Water derived from the on-site water supply well will be reinjected into the aquifer immediately below the hydrocarbon plume using the newly installed multi-port well. Prior to reinjection, however, the water will be subjected to two additional treatment steps:

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- Microbubbles or colloidal gas aphrons (CGAs) will be manufactured within the water using a Mazzei injector (venturi). Creation of the CGA-rich solution may require the addition of a mild food-grade surfactant (approved by NMOCD) to the treated water; such additions will be specified in the monitoring program and schedule. Using this technology, it is possible to create an air/water mixture that contains as much as 50 percent air by volume. Dilution of a food-grade surfactant will ensure that concentrations of phosphorous in excess of WQCC standards will not occur in the injected water.
- Nutrients may be added, as needed and specified in the monitoring program and schedule, to the input stream to enhance natural microbiologic activity.

Upon injection, buoyancy effects will cause the CGAs to rise to the water table. Contrasts between the aquifer's horizontal and vertical hydraulic conductivities will promote radial migration of the air-rich water. The microbubbles will migrate through the contaminated groundwater, introducing oxygen to the system and stripping volatile organic compounds in situ along their path to the water table. Initially, a total flow rate of 2 gpm of water and an equal volume of entrained air will be injected into the aquifer.

Injection of a buoyant, air-rich solution beneath the hydrocarbon plume creates a certain risk - the risk that the added water and air will displace portions of the dissolved-phase hydrocarbons and, consequently, may promote lateral migration of the dissolved-phase hydrocarbons. For this reason, it is essential that the dissolved-phase hydrocarbons be hydraulically controlled to prevent additional migration. The hydraulic control will be provided by continued pumping of recovery well RW-1. Initially, pumpage from this unit will be set at a minimum of 4 gpm, twice the rate of water injection but equal to the volume of water plus air injection. After air begins to transverse into the vadose zone from the aquifer, the volume of fluid removed from the paired pumping and injection wells will be greater than the volume of injected fluid (air plus water). This net withdrawal should effectively prevent the spread of dissolved-phase hydrocarbons. The response of this treatment system will be observed and the flow rates adjusted in accordance with the monitoring program and schedule. Engineering analysis of aquifer response will be utilized to help us predict the response of injection and pumping.

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The air within the introduced microbubbles will escape across the water table into unsaturated zone. This air can be expected to contain VOCs; it will be exhausted to the surface via a vacuum blower on monitor well RW-1. RW-1 has a screened interval above the water table within the vadose zone to permit use as a vapor-extraction well.

3.4 Addition of In Situ Bioremediation

Bioremediation uses natural microorganisms to degrade contaminants in both soil and water. It can be used in situ along with aeration and other methods to provide efficient and economical treatment. Microorganisms are typically present in contaminated soil and groundwater and have adapted themselves to the use of hydrocarbons as a food source. They often only need encouragement by the provision of oxygen and/or other nutrients to thrive and quickly digest the contaminants.

Various mechanisms can be used for the care and feeding of bioremediation cells. For groundwater remediation, the use of water as a carrier for both oxygen and nutrients is recommended. In this air sparging technique, water containing nutrients and air (in the form of micro-bubbles) is injected under pressure into the aquifer beneath any contamination. Water, at the same flow rate or greater, is removed from the upper portion of the aquifer to minimize potential movement of the contamination plume. This action induces horizontal as well as vertical flow paths for the distribution of the enriched water through the contaminated zone. Plate 3 presents this conceptual design.

The oxygen transferred from the bubbles into groundwater will stimulate the native population of microorganisms in the aquifer. These microorganisms have already adapted themselves to an environment that is rich in the site-specific hydrocarbons and, in fact, use these hydrocarbons as a "carbon source" for their metabolism. The introduced air will add oxygen to the groundwater, thereby promoting microbiologic degradation of the hydrocarbons.

3.5 Combined Technology System

To keep the system as simple and effective as possible, the above subsystems of pump and dispose, soil-vapor extraction, air sparging, and bioremediation are combined as required to create a combined technology system (CTS) for both soil and groundwater restoration (plate 4). Two separate wells are used for vacuum extraction and air sparging. This

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eliminates the possibility of "short circuiting" of air within a single bore hole, and normal well construction methods can be used. Future well pairs can be distributed across the contaminated portions of the site when their effectiveness is demonstrated under the monitoring program. The addition and spacing of these future remediation wells can be determined after we observe the impact of the system proposed at RW-1.

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4.0 Implementation Schedule

Groundwater and product recovery will begin at monitor well MW-6. A 1/2-horsepower submersible pump will be installed, and the groundwater and separate-phase hydrocarbons will be pumped to the plant's oil-water separator for processing and disposal. Installation and recovery will be complete within 30 days following NMOCD approval of this plan.

The existing recovery well RW-1 will be retrofitted with a system that employs vapor extraction from the unsaturated zone. Construction specifications for the SVE system will be determined during final design. Vapor extraction will be initiated within 90 days following NMOCD approval of this plan.

The vapor extraction rates will be determined in the field by observing the operational response of the system. During the initial start up, the SVE system exhaust will be closely monitored for VOCs. Because of the relatively high vapor pressure of the separate-phase constituents, these compounds are extremely susceptible to volatilization. Once the SVE is started, high volumes of VOCs will be recovered from the unsaturated zone until one pore space volume of air is removed from the area of influence. Following the peak, a predictable decline in concentration is expected. The system will be operated for a period of not less than three (3) months. Startup of the SVE system will coincide with scheduled groundwater sampling at the site.

The three casing, 2-inch diameter well cluster will be installed prior to SVE operation, allowing observation of the response in the unsaturated zone.

During the second quarter of system operation, air sparging will be initiated to treat contaminated groundwater. Air and microbubbles will be injected through the 2-inch PVC well that is screened immediately below the zone of contamination.

During the third quarter of system operation, nutrient injection may be initiated. Air and nutrient enriched water will be injected through the 2-inch PVC well that is screened immediately below the zone of contamination to enhance air sparging.

During the fourth quarter of operation, review and evaluation of the data from the first nine months of operation will be conducted. Subsequently, recommendations for enhanced operation, expansion, and monitoring of the system will be presented to the NMOCD.

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After evaluation of sufficient operational data, additional remediation well clusters may be installed at existing wells with the option of installing additional monitor wells if required. The spacing of these additional monitor wells will permit their use in any required expansion of the remedial system.

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5.0 Monitoring and Reporting

Monitoring and reporting criteria will be finalized following completion of construction design documents.

5.1 Proposed Monitoring Protocol

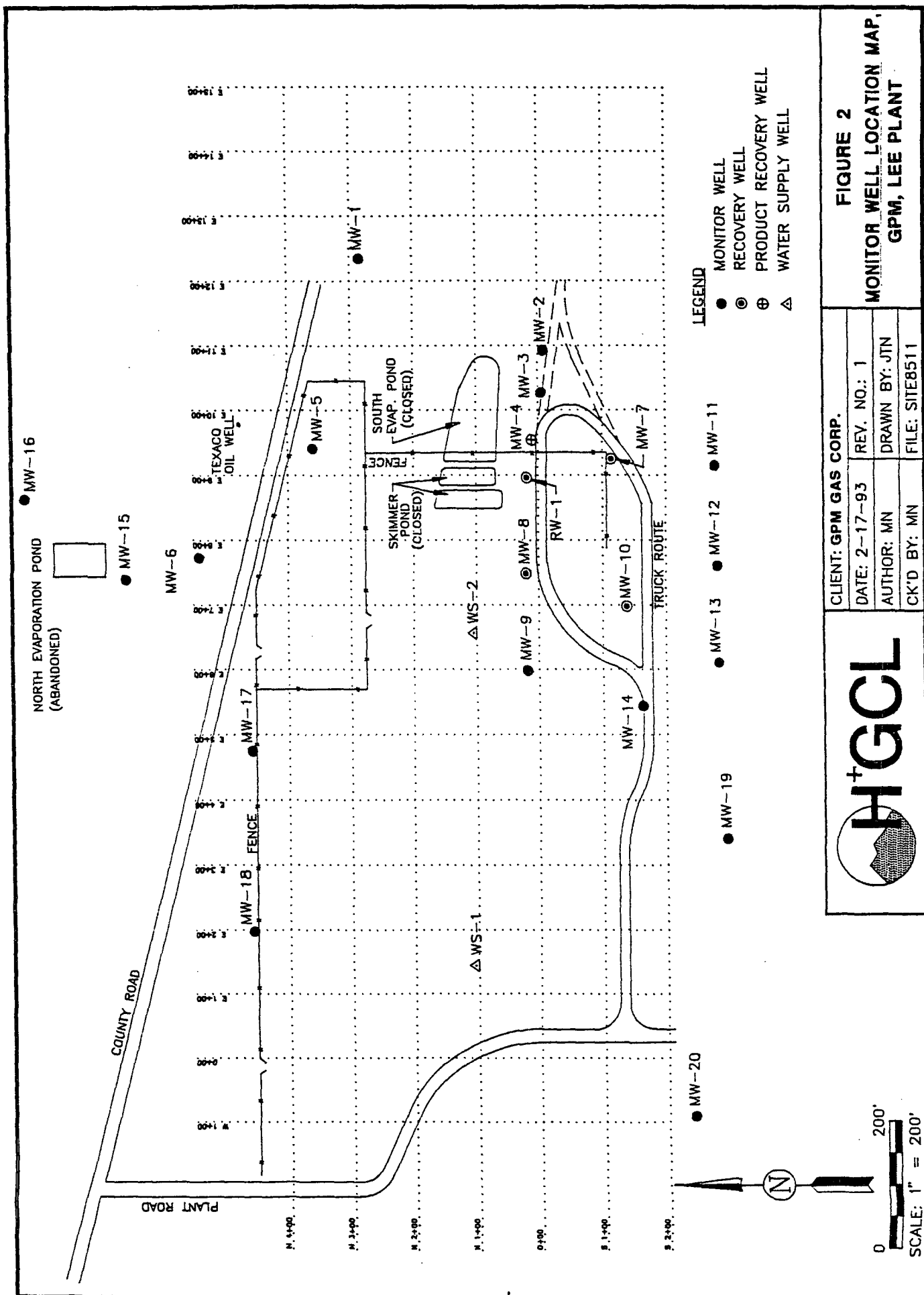
The in situ remediation strategy proposed in this document involves movement of subsurface vapors and groundwater and the delivery of bubbles, oxygen, and possibly nutrients to the contaminated groundwater. This movement of fluids will create a series of hydraulic and chemical responses.

5.1.1 Soil Vapor Extraction Monitoring

During the first few days of SVE operation, it is very important that a sufficient amount of accurate data is collected. Prior to initiation of SVE operation, all recovery wells will stop pumping for a period of time to be specified in the final design plans. Water levels will be recorded for all monitor wells at the site before re-starting operation. Pumping from RW-1 will then be initiated and depth to groundwater/separate-phase hydrocarbon measurements will be recorded at wells MW-2, MW-3, MW-4, MW-7, MW-8, MW-10, and in the newly-installed 2-inch multi-port well adjacent to RW-1 (figure 5-1). Depth to groundwater and separate-phase measurements will be recorded pursuant to standard test-pumping procedures. After a predetermined period of pumping RW-1, the vapor extraction system will commence operation.

Vacuum measurements will be recorded frequently during the initial period of operation, followed by expanded periods of monitoring for the first week, month, quarter and year etc. Vacuum will be recorded at wells MW-2, MW-3, MW-4, MW-7, MW-8, MW-10, and the 2-inch cluster (3 casing, 2-inch PVC well).

The SVE exhaust gas will also be monitored frequently during the initial period of operation using a VOC meter with data logging capabilities. This instrument will be programmed to record VOC concentrations (linear scale) versus time (logarithmic scale)



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during the initial portion of the test, followed by longer frequency monitoring as the operation continues. Our proposed schedules for pressure and vapor monitoring are presented in tables 1 and 2.

Following routine operation of the system, a permanent monitoring schedule will be submitted for NMOCD approval. The groundwater sampling program will continue as previously approved.

5.1.2 Air/Water Injection Monitoring

Air/water injection will start following quarterly groundwater sampling. Following initiation of the air/water injection, depth to groundwater/separate-phase hydrocarbon measurements will be recorded at wells MW-2, MW-3, MW-4, MW-7, MW-8, MW-10, as well as in each three casing, 2-inch PVC well. Depth to groundwater/separate-phase measurements will be recorded pursuant to a protocol similar to a pump test. It is anticipated that four pressure transducers attached to a four channel data logger will record hydraulic head measurements during the initial three days of the air/water injection. Hydraulic head will be recorded in each of the cluster wells, as well as in RW-1, the pumping well. It is anticipated that demonstration of hydraulic control will be established during the first three months of operation by comparing the observed results with results predicted by an engineering analysis.

Before the injection starts, the concentration of dissolved oxygen in groundwater will be measured and recorded at wells MW-2, MW-3, MW-4, MW-7, MW-8, MW-10, and at the cluster (three casing, 2-inch PVC well). The frequency of dissolved oxygen measurements will be determined and specified in the final design documents.

Additionally, final design will determine the frequency for measuring VOC concentrations in the adjacent shallowest well of the multi-port cluster.

For the first three days of water injection, SVE exhaust gas will be monitored frequently using a VOC meter with data logging capabilities. This instrument will be programmed to record VOC concentrations (linear scale) versus time (logarithmic scale) during the initial portion of the test, followed by longer frequency measurements as the operation continues. A final monitoring schedule will be proposed in the final design submission.

Table 1

Pressure Monitoring Schedule For Vapor Extraction System

Monitor Location	Frequency First Day	First Week	Year
MW-2	2 hours	Daily	Weekly
MW-3	2 hours	Daily	Weekly
MW-4	2 hours	Daily	Weekly
MW-7	2 hours	Daily	Weekly
MW-8	2 hours	Daily	Weekly
MW-10	2 hours	Daily	Weekly
New Well	2 hours	Daily	Weekly

Table 2

Vapor Monitoring Schedule For Vapor Extraction System

Monitor Location	First Day (1,440 minutes) Log Cycle	Elapsed Time	Sample Interval
RW-1	1	0-5 seconds	0.5 seconds
	2	5-20 seconds	1.0 seconds
	3	20-120 seconds	5.0 seconds
	4	2-10 minutes	0.5 minutes
	5	10-100 minutes	2.0 minutes
	6	100-1,000 minutes	10 minutes
	6	1,000-1,440 minutes	100 minutes
	Day 2-3 Linear	2-3 days	4 hours
	Day 3-7 Linear	3-7 days	12 hours
	Weeks 2-52 Linear	7-365 days	1 Week

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5.2 Reporting

Quarterly reports are proposed for the first year of operation. In addition to the groundwater sampling analytical results, each quarterly report will contain operational data from the previous quarter.

Subsequent reports will contain operational data and recommendations for system improvement.

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6.0 Contingency Plans

Using the observational approach, the CTS allows for proper expansion of the proposed technology or implementation of alternative technologies at the site to enhance remediation efforts. The following are some of the options available:

- Changes in the volume of injection air
- Changes in the volume of air-water injection
- Changes in the vapor extraction flow rate from the VES
- Changes in the amount of nutrients supplied to microorganisms
- Elimination of any of the above techniques without compromising enhanced remediation

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7.0 Demonstration of System Effectiveness

This proposed system uses project-proven technologies to restore groundwater quality and to eliminate soil contamination, which currently presents a threat to groundwater quality. The system employs vapor venting of the deep unsaturated zone, in situ air sparging of the aquifer, and in situ bioremediation. Numerous contingencies are built-in to address the expected uncertainty associated with groundwater remediations.

Information on in situ air sparging, colloidal gas aprons and bioremediation is included in appendix A. A phased approach to pumping and injection will ensure that actual site conditions govern the operation of the system rather than theoretical models based upon short-term pumping data or published information.

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*H*GCL*

8.0 References

Fenneman, N.M., 1931, Physiography of Western United States, New York, McGraw-Hill Book Company, 534 p.

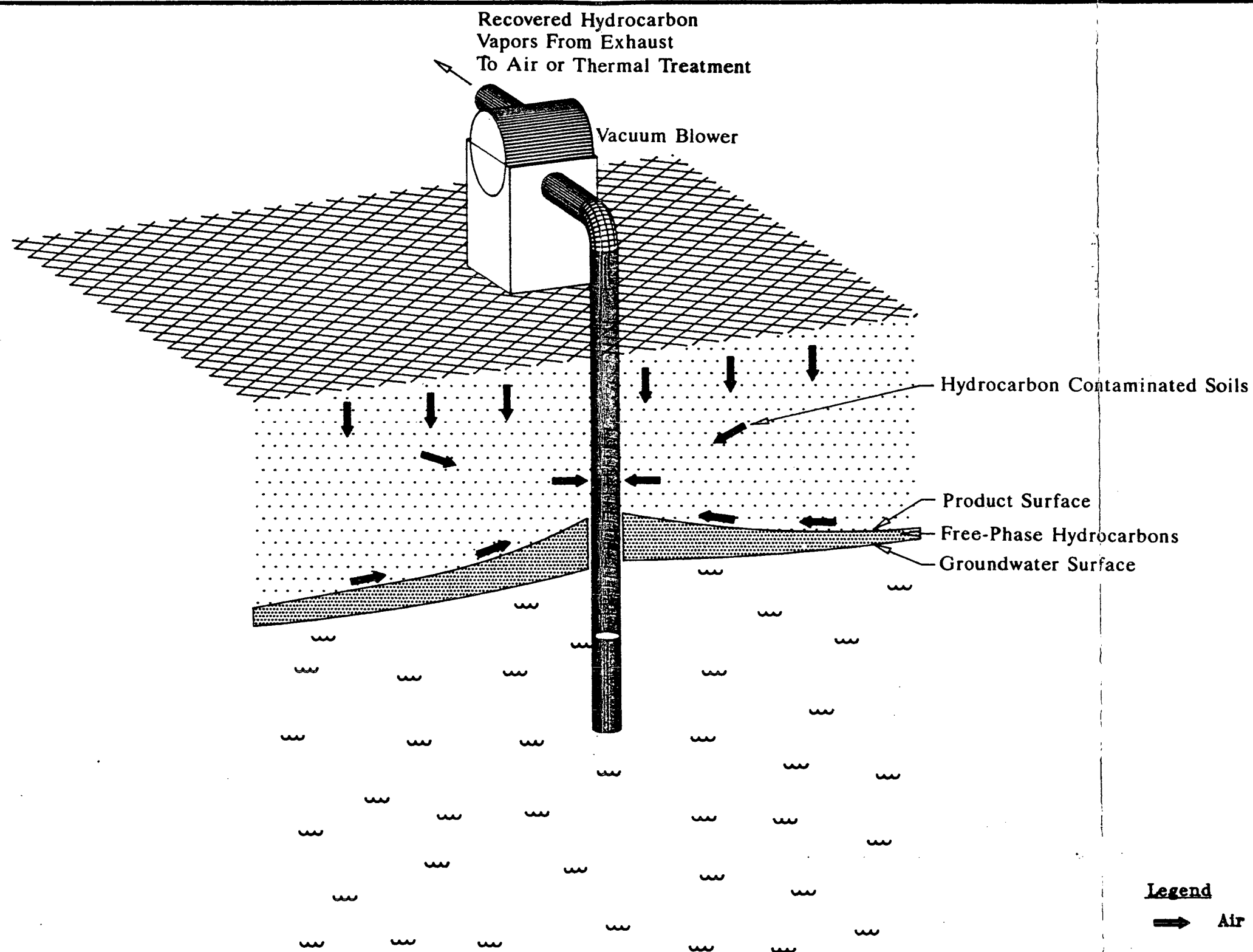
Geoscience Consultants Limited, For Phillips Petroleum Company, 1988a, Report On The Installation Of A Ground Water Monitoring System at Phillips 66 Natural Gas Company.

Hunt, C.B., 1977, Surficial Geology of Southeast New Mexico, Geologic map 41, N.M. Bureau of Mines and Mineral Resources.

Nicholson, A., and Clebsch, A., 1961, Geology and Ground Water Conditions in Southern Lea County, New Mexico, Ground Water Report 6, New Mexico Institute of Mining & Technology, State Bureau of Mines and Mineral Resources, Socorro, New Mexico.

54030/DISCHA01.PLN

Plate 1
Soil-Vapor Extraction System



Legend
→ Air Flow

Plate 2
Air Sparging System

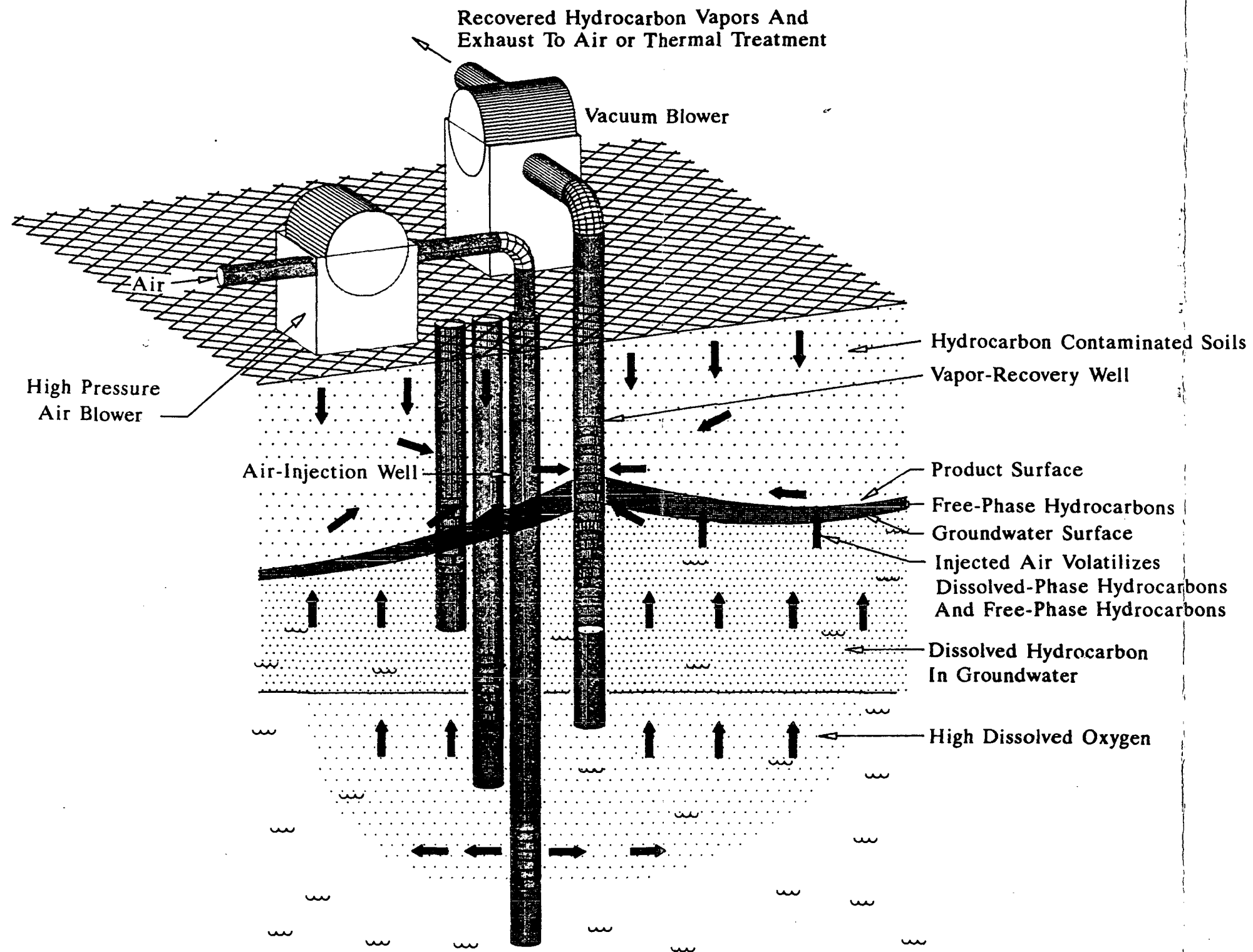


Plate 3
Groundwater Bioremediation System

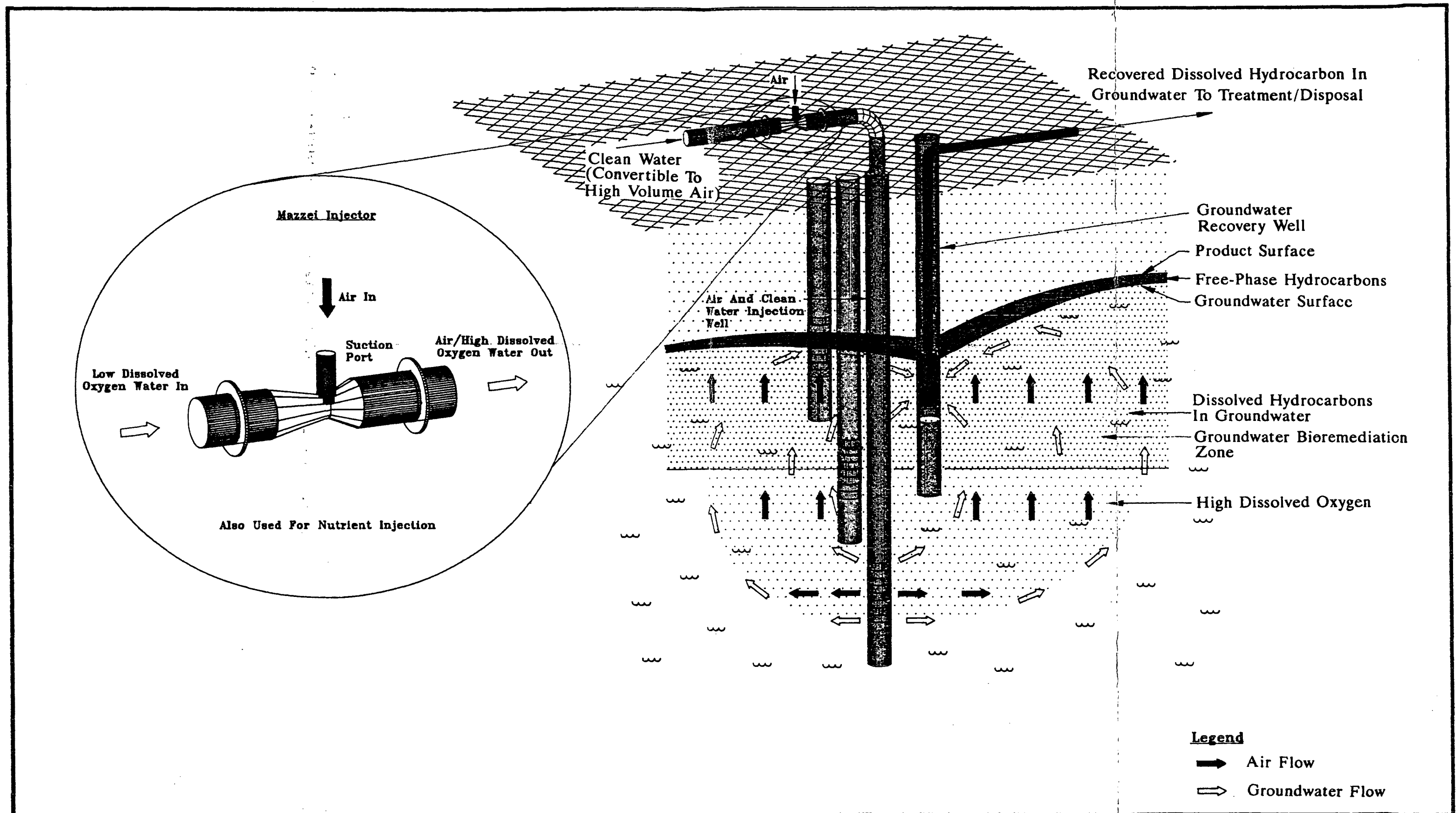
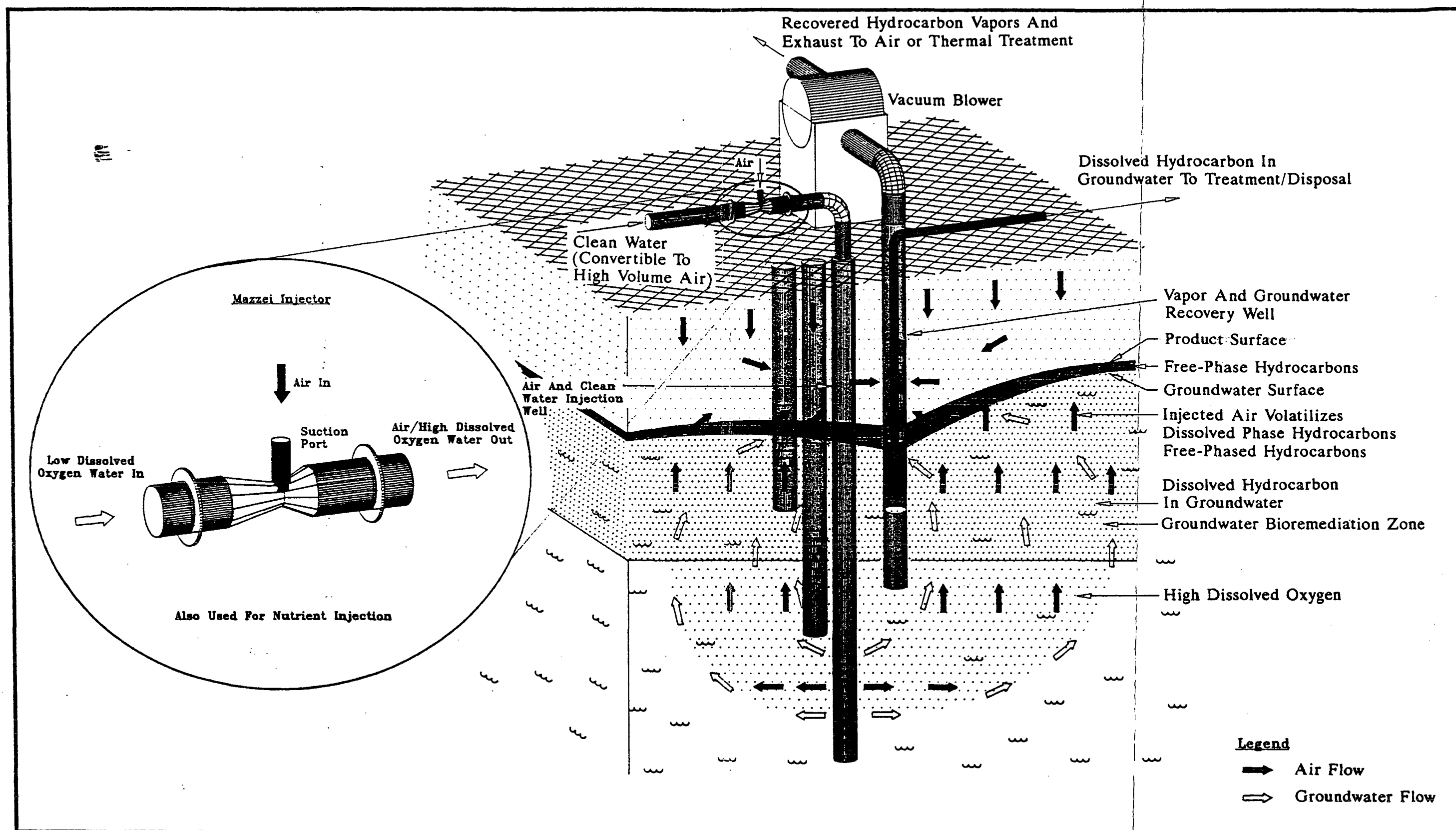


Plate 4
Combined Technology System





GPM GAS SERVICES COMPANY
A DIVISION OF PHILLIPS PETROLEUM COMPANY

4044 PENBROOK
ODESSA, TX 79762

February 25, 1993

**Lee Plant 1st Quarter 1993 Analytical Results
and Discharge Plan GW-2**

Mr. William C. Olson
Hydrogeologist
Oil Conservation Division
Post Office Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

RECEIVED

APR 16 1993

OIL CONSERVATION DIV.
SANTA FE

Dear Mr. Olson:

GPM Gas Corporation (GPM) herein submits the laboratory reports for groundwater sampling at our Lee Plant for the first quarter of 1993. In addition, a site map is enclosed that summarizes past groundwater analytical results at the Lee Plant.

Sample collection was conducted on January 20, 1993, pursuant to discharge plan GW-2. NDRC Laboratories Inc. of Houston, Texas, performed the sampling analyses. Our consultant, H+GCL, followed standard operating procedures for collecting the samples. These procedures are consistent with the requirements for sample collection in EPA publication SW-846. In addition, H+GCL followed strict chain-of-custody procedures to ensure the integrity of the samples during transport to the laboratory.

Groundwater samples from monitor wells MW-9, MW-11, MW-12, MW-13 and MW-14 were analyzed for benzene, toluene, ethylbenzene, and xylene (BTEX) using EPA Method 602.

In my November 1992 letter to you, we presented the hypothesis that increased rainfall during the summer months of 1992 resulted in perturbation of the groundwater plume beneath the facility. We concluded that several months of dry weather should result in decreased concentrations of hydrocarbons in monitor wells. The enclosed analytical results demonstrate that the plume has diminished in size, as expected.

Based upon these recent results and more than two years of consistent groundwater monitoring data, we conclude that the hydrocarbon plume beneath the Lee Plant facility is in dynamic equilibrium - the plume is not enlarging. The addition of BTEX components to the groundwater system in the area of the floating hydrocarbons is offset by natural volatilization and biodegradation during down-gradient transport. Wells MW-1, MW-2, MW-3, MW-11, MW-12, MW-13, MW-14, MW-19, and MW-20 show hydrocarbon concentrations between non-detection and 100ppm; these wells define the down-gradient edge of the plume. Wells MW-5, MW-7, MW-8, MW-9, and MW-10 consistently show concentrations well above

Mr. William C. Olson
February 25, 1993
page 2

standards; these wells define the central portion of the plume. Considering these facts, dynamic equilibrium of the plume is a logical conclusion.

If the plume was not in equilibrium, its size would be significantly larger than presently observed. We base this conclusion on the assumption that the plume originated from the evaporation ponds in the 1970's and 1980's when the ponds were active. Because of this conclusion, we recommend that current groundwater monitoring be revised to the following schedule:

Annually

- Sample the groundwater at recovery wells MW-7 and MW- 10 for benzene, toluene, ethylbenzene, and xylene

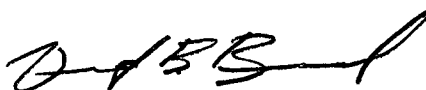
Semi-annually

- Sample the groundwater from monitor wells MW-11, MW- 12, MW-13, MW-19, and MW-20 for benzene, toluene, ethylbenzene, and xylene
- Collect depth to groundwater and product thickness measurements at all monitor well locations.

In addition, and as follow-up to my letter of August 19, 1992 to you, we have enclosed our proposed remedial strategy plan for the Lee Plant. This plan includes (1) recovering product at monitor well MW-6 (downgradient of the closed north evaporation pond), (2) retrofitting select existing groundwater recovery wells for vapor extraction, and (3) installing air sparging wells to enhance vapor extraction. Our remedial strategy plan also allows for the initiating of in situ bioremediation and enhanced vapor extraction through nutrient and oxygenated water injection.

If you have any questions or comments regarding our proposed monitoring schedule or remedial action plan, please feel free to call me at (915) 368-1085.

Sincerely,



Vincent B. Bernard

VBB:mdp
Enclosure

cc: Martin Nee - H + GCL Albuquerque
S.J. Seeby - Odessa
M.S. Nault - Lee Plant



NDRC LABORATORIES, INC.

A member of Inchcape Environmental

11155 South Main, Houston, Texas 77025 • (713) 661-8150 • FAX (713) 661-2661

BEAUMONT

DALLAS

HOUSTON

DATE RECEIVED : 22-JAN-1993

REPORT NUMBER : H93-427-1

REPORT DATE : 29-JAN-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water
ID MARKS : 9301201030
: MW-20
PROJECT : 54030.02/GPM
DATE SAMPLED : 20-JAN-1993
ANALYSIS METHOD : EPA 602

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	< 1.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	1.0 µg/L	< 1.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	108 %

NDRC Laboratories, Inc.

David R. Godwin
David R. Godwin, Ph.D.
Chief Executive Officer



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HOUSTON

DATE RECEIVED : 22-JAN-1993

REPORT NUMBER : H93-427-2

REPORT DATE : 29-JAN-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water
ID MARKS : 9301201135
: MW-11
PROJECT : 54030.02/GPM
DATE SAMPLED : 20-JAN-1993
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	1.3 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	1.0 µg/L	1.1 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	101 %

NDRC Laboratories, Inc.

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HOUSTON

DATE RECEIVED : 22-JAN-1993

REPORT NUMBER : H93-427-3

REPORT DATE : 29-JAN-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water
ID MARKS : 9301201210
: MW-9
PROJECT : 54030.02/GPM
DATE SAMPLED : 20-JAN-1993
ANALYSIS METHOD : EPA 602

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 $\mu\text{g/L}$	5900 $\mu\text{g/L}$
Toluene	1.0 $\mu\text{g/L}$	3.8 $\mu\text{g/L}$
Ethyl benzene	1.0 $\mu\text{g/L}$	22.0 $\mu\text{g/L}$
Xylenes	1.0 $\mu\text{g/L}$	11.0 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 $\mu\text{g/L}$	100 %

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DATE RECEIVED : 22-JAN-1993

REPORT NUMBER : H93-427-4

REPORT DATE : 29-JAN-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water
ID MARKS : 9301201245
: MW-12
PROJECT : 54030.02/GPM
DATE SAMPLED : 20-JAN-1993
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	67.0 µg/L
Toluene	1.0 µg/L	1.1 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	1.0 µg/L	< 1.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	99.0 %

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DATE RECEIVED : 22-JAN-1993

REPORT NUMBER : H93-427-5

REPORT DATE : 29-JAN-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water
ID MARKS : 9301201300
: MW-12A
PROJECT : 54030.02/GPM
DATE SAMPLED : 20-JAN-1993
ANALYSIS METHOD : EPA 602

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	72.0 µg/L
Toluene	1.0 µg/L	1.2 µg/L
Ethyl benzene	1.0 µg/L	1.7 µg/L
Xylenes	1.0 µg/L	2.3 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	102 %

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HOUSTON

DATE RECEIVED : 22-JAN-1993

REPORT NUMBER : H93-427-6

REPORT DATE : 29-JAN-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water
ID MARKS : 9301201305
: Field Blank
PROJECT : 54030.02/GPM
DATE SAMPLED : 20-JAN-1993
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	< 1.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	1.0 µg/L	< 1.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	107 %

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HOUSTON

DATE RECEIVED : 22-JAN-1993

REPORT NUMBER : H93-427-7

REPORT DATE : 29-JAN-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water
ID MARKS : 9301201310
: Pump Rinsate
PROJECT : 54030.02/GPM
DATE SAMPLED : 20-JAN-1993
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	4.7 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	1.0 µg/L	< 1.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	103 %

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DATE RECEIVED : 22-JAN-1993

REPORT NUMBER : H93-427-8

REPORT DATE : 29-JAN-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water
ID MARKS : 9301201315
: Trip Blank
PROJECT : 54030.02/GPM
DATE SAMPLED : 20-JAN-1993
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	< 1.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	1.0 µg/L	< 1.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	108 %

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DATE RECEIVED : 22-JAN-1993

REPORT NUMBER : H93-427-9

REPORT DATE : 29-JAN-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
 : Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water
ID MARKS : 9301201355
 : MW-13
PROJECT : 54030.02/GPM
DATE SAMPLED : 20-JAN-1993
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	28.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	1.0 µg/L	< 1.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	102 %

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DATE RECEIVED : 22-JAN-1993

REPORT NUMBER : H93-427-10

REPORT DATE : 29-JAN-1993

SAMPLE SUBMITTED BY : H + GCL
ADDRESS : 505 Marquette NW, Ste. 1100
: Albuquerque, NM 87102
ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water
ID MARKS : 9301201430
: MW-14
PROJECT : 54030.02/GPM
DATE SAMPLED : 20-JAN-1993
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	19.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	1.0 µg/L	1.2 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	102 %

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DALLAS

HOUSTON

SUMMARY REPORT

CLIENT : H + GCL
PROJECT : 54030.02/GPM

JOB NUMBER : H93-427
REPORT DATE : 29-JAN-1993

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
1	9301201030 MW-20	Water	20-JAN-1993
2	9301201135 MW-11	Water	20-JAN-1993
3	9301201210 MW-9	Water	20-JAN-1993
4	9301201245 MW-12	Water	20-JAN-1993

BTEX ANALYSIS, EPA 602		1	2	3	4
Benzene	µg/L	< 1.0	1.3	5900	67.0
Toluene	µg/L	< 1.0	< 1.0	3.8	1.1
Ethyl benzene	µg/L	< 1.0	< 1.0	22.0	< 1.0
Xylenes	µg/L	< 1.0	1.1	11.0	< 1.0

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HOUSTON

SUMMARY REPORT

CLIENT : H + GCL
PROJECT : 54030.02/GPM

JOB NUMBER : H93-427
REPORT DATE : 29-JAN-1993

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
5	9301201300 MW-12A	Water	20-JAN-1993
6	9301201305 Field Blank	Water	20-JAN-1993
7	9301201310 Pump Rinsate	Water	20-JAN-1993
8	9301201315 Trip Blank	Water	20-JAN-1993

BTEX ANALYSIS, EPA 602	5	6	7	8
Benzene $\mu\text{g/L}$	72.0	< 1.0	4.7	< 1.0
Toluene $\mu\text{g/L}$	1.2	< 1.0	< 1.0	< 1.0
Ethyl benzene $\mu\text{g/L}$	1.7	< 1.0	< 1.0	< 1.0
Xylenes $\mu\text{g/L}$	2.3	< 1.0	< 1.0	< 1.0

David R. Godwin



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HOUSTON

SUMMARY REPORT

CLIENT : H + GCL
PROJECT : 54030.02/GPM

JOB NUMBER : H93-427
REPORT DATE : 29-JAN-1993

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
9	9301201355 MW-13	Water	20-JAN-1993
10	9301201430 MW-14	Water	20-JAN-1993

BTEX ANALYSIS, EPA 602		9	10		
Benzene	µg/L	28.0	19.0		
Toluene	µg/L	< 1.0	< 1.0		
Ethyl benzene	µg/L	< 1.0	< 1.0		
Xylenes	µg/L	< 1.0	1.2		

David R. Godwin



Albuquerque
380 South Center Street
Windsor Locks, CT 06096
(203) 627-6528
FAX: (203) 627-7815

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Las Cruces, NM 88004
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180 Canal Street
Boston, MA 02114
(617) 723-4664
FAX: (617) 387-1386

Chicago
626 W. Jackson Blvd., Ste. 800
Chicago, IL 60606
(312) 648-9988
FAX: (312) 648-0818

Chicago
626 W. Jackson Blvd., Ste. 800
Chicago, IL 60606
(312) 648-9988
FAX: (312) 648-0818

Chain of Custody

☐ Hartford
380 South Center Street
Windsor Locks, CT 06096
(203) 627-6528
FAX: (203) 627-7815

☐ Los Angeles
19600 Fairchild, Ste. 120
Irvine, CA 92715
(714) 955-0201
FAX: (714) 955-0965

☐ Mid Atlantic Region
4221 Forbes Blvd., Ste. 240
Lanham, MD 20706-4325
(301) 459-9677
FAX: (301) 459-3064

☐ New York
261 Madison Avenue
New York, NY 10016
(212) 983-8510
FAX: (212) 983-8795

☐ San Francisco
2200 Powell Street, Ste. 880
Emeryville, CA 94608
(510) 547-3886
FAX: (510) 547-3631

Date 1/20/93 Page 1 of 1

Lab Name NDRC Laboratories, Inc.			Analysis Request														Project Information			Sample Receipt			Chain of Custody		
Address 11155 South Main Houston, TX 77025																	Project GPM			Total No. of Containers			Chain of Custody Seals		
Telephone (713) 661-8150																	Charge Code No. 54030.02			Rec'd Good Condition/Cold			Conforms to Record		
Samplers (SIGNATURES)																	Shipping ID. No.			Lab No.			Via: Fed X		
Sample Number	Matrix	Location	Halogenated Volatiles 601/8010	Aromatic Volatiles 602/8020 BTEX ONLY	Phenols, Sub Phenols 604/8040	Pesticides/PCB 608/8080	Polynuclear Aromatic Hydrocarbons 610/8310	Volatile Compounds GC/MS 624/8240	Base/New/Acid Compounds GC/MS 625/8270	Total Organic Carbon (TOC) 415/9060	Total Organic Halides (TOX) 9020	Petroleum Hydrocarbons 418.1 TP/HT/EX Modified B015	TCP - Vol., Semi-Vol. Herbicides, Pesticides TC/P - Metals	RCRA Metals (8) Priority Pollutants	CAM Metals (18) T/C/S/T/C	Flash Point	Corrosivity	Reactivity	Oil & Grease	Cyanide Total/Amenable	Chemical Oxygen Demand (COD)	Number of Containers			
9301201030	H2O	MW-20	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3		
9301201135	H2O	MW-11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3		
9301201210	H2O	MW-9	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3		
9301201245	H2O	MW-12	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3		
9301201300	H2O	MW-12A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3		
9301201305	H2O	Field Blank	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3		
9301201310	H2O	Pump Instate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3		
9301201315	H2O	Trig Blank	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	1		
9301201355	H2O	Tap Water	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3		
9301201430	H2O	MW-14	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3		

Relinquished By
DAVID NEE
(Signature)
DAVID NEE
(Printed Name)
HGL
(Company)

Relinquished By
1300
(Time)
1/21/93
(Date)

Relinquished By
1300
(Time)
1/21/93
(Date)

Received By
12. Koe
(Signature)
12. Koe
(Printed Name)
(Company)

Received By
1300
(Time)
1/21/93
(Date)

Received By
1300
(Time)
1/21/93
(Date)

Received By (Laboratory)
Robert Rankin
(Signature)
ROBERT RANKIN
(Printed Name)
(Company)

Received By (Laboratory)
10:30
(Time)
1/21/93
(Date)

Received By (Laboratory)
Robert Rankin
(Signature)
ROBERT RANKIN
(Printed Name)
(Company)

№ 9359

Houston - 11155 South Main • Houston, Texas 77025 • (713) 661-8150 • Fax (713) 661-2661

Field Sampling ☐

Incoming Samples ☐

GENERAL

Company: H+GCL Job No: 427
No. of Cooler(s): 1 Temperature of Cooler(s): 4

PRESERVATION INFORMATION

[illegible]

PRESERVATION USED *

- 1 - Cool to 4° C
- 2 - H_2SO_4 to pH < 2
- 3 - HNO_3 to pH < 2
- 4 - HCL to pH < 2

- 5 - NaOH to pH > 12
6 - Na₂S₂O₂ 0.008%
7 - 2 mL Zinc Acetate and NaOH to pH > 12
8 - None required

RR

Preserved by

1-22-93

Date/Time



GPM GAS CORPORATION

4044 PENBROOK
ODESSA, TEXAS 79762

OIL CONSERVATION DIVISION
RECEIVED

'92 DEC 10 PM 9 12

December 7, 1992

4th Quarter 1992 Analytical Results
Lee Plant-Discharge Plan GW-2

Mr. William C. Olson
Hydrogeologist
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

Dear Mr. Olson:

GPM Gas Corporation herein submits the laboratory results for groundwater sampling at Lee Plant for the fourth quarter of 1992. Sample collection was conducted on October 21, 1992, pursuant to discharge plan GW-2. NDRC Laboratories Inc. of Houston, Texas performed the sample analyses.

Our consultant, H+GCL, followed standard operating procedures for collecting the groundwater samples. These procedures are consistent with the requirements for sample collection in the EPA publication SW-846. In addition, H+GCL followed strict chain-of-custody procedures to ensure the integrity of the samples during transport to the laboratory.

Groundwater samples from monitor wells MW-9, MW-11, MW-12, MW-13 and MW-14 were analyzed for benzene, toluene, ethylbenzene, and xylene (BTEX) using EPA Method 602.

You will note in the laboratory analytical reports, concentrations of BTEX constituents generally increase over the last two sampling events, July and October 1992. We believe that this increase is due to above-average precipitation infiltrating contaminated soil and causing hydrocarbons to migrate to the water table. The average annual precipitation for Hobbs, New Mexico is 14.77 inches. The precipitation through the July 1992 sampling event was 21.58 inches, and the total precipitation through November 15 has been 25.79 inches. Much of this overage occurred as a single event in late May.

We have also considered other possible causes for these site-wide increases, such as recovery system shutdown and changes in withdrawal rate from plant supply wells. However, nothing has changed in the recovery system or the plant water supply system that would effect these increases.

The concentrations of BTEX constituents should equilibrate and return to pre-July conditions following a period of normal precipitation. Additionally, we are in the process of finalizing a more aggressive approach to site reclamation that will initiate the recovery of free product at monitor well MW-6.

If you should have any questions regarding these results, please call me at (915) 368-1085.

Sincerely,

A handwritten signature in black ink, appearing to read "V. Bernard", written in a cursive style.

Vincent B. Bernard
Safety & Environmental Supervisor
New Mexico Region

cc: S.J. Seeby w/attach
M.S. Nault
R.D. Dunham
J.L. Bowles
R.G. Stubbs
(r) G.A. Jones



NDRC LABORATORIES, INC.

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BEAUMONT

DALLAS

HOUSTON

DATE RECEIVED : 23-OCT-1992

REPORT NUMBER : H92-4577-1

REPORT DATE : 31-OCT-1992

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9210210950

PROJECT : 54030.02/GPM

DATE SAMPLED : 21-OCT-1992

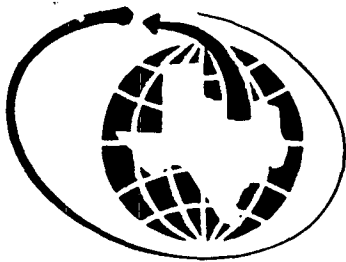
ANALYSIS METHOD : EPA 602

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	10 μ g/L	3000 μ g/L
Toluene	10 μ g/L	280 μ g/L
Ethyl benzene	10 μ g/L	110 μ g/L
Xylenes	10 μ g/L	120 μ g/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 μ g/L	97.0 %

NDRC Laboratories, Inc.

David R. Godwin Kgw
David R. Godwin, Ph.D.
Chief Executive Officer



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BEAUMONT

DALLAS

HOUSTON

DATE RECEIVED : 23-OCT-1992

REPORT NUMBER : H92-4577-2

REPORT DATE : 31-OCT-1992

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9210211025

PROJECT : 54030.02/GPM

DATE SAMPLED : 21-OCT-1992

ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	78.0 µg/L
Toluene	1.0 µg/L	130 µg/L
Ethyl benzene	1.0 µg/L	22.0 µg/L
Xylenes	1.0 µg/L	51.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	99.0 %

NDRC Laboratories, Inc.

David R. Godwin Kgw
David R. Godwin, Ph.D.
Chief Executive Officer



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BEAUMONT

DALLAS

HOUSTON

DATE RECEIVED : 23-OCT-1992

REPORT NUMBER : H92-4577-3

REPORT DATE : 31-OCT-1992

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9210211030

PROJECT : 54030.02/GPM

DATE SAMPLED : 21-OCT-1992

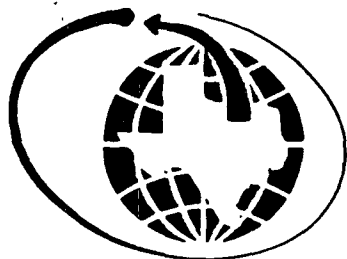
ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	87.0 µg/L
Toluene	1.0 µg/L	150 µg/L
Ethyl benzene	1.0 µg/L	24.0 µg/L
Xylenes	1.0 µg/L	56.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	102 %

NDRC Laboratories, Inc.

David R. Godwin Kgw
David R. Godwin, Ph.D.
Chief Executive Officer



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BEAUMONT

DALLAS

HOUSTON

DATE RECEIVED : 23-OCT-1992

REPORT NUMBER : H92-4577-4

REPORT DATE : 31-OCT-1992

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9210211115

PROJECT : 54030.02/GPM

DATE SAMPLED : 21-OCT-1992

ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	64.0 µg/L
Toluene	1.0 µg/L	130 µg/L
Ethyl benzene	1.0 µg/L	24.0 µg/L
Xylenes	1.0 µg/L	56.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	101 %

NDRC Laboratories, Inc.

David R. Godwin Kgw
David R. Godwin, Ph.D.
Chief Executive Officer



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DALLAS

HOUSTON

DATE RECEIVED : 23-OCT-1992

REPORT NUMBER : H92-4577-5

REPORT DATE : 31-OCT-1992

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9210211200

PROJECT : 54030.02/GPM

DATE SAMPLED : 21-OCT-1992

ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	84.0 µg/L
Toluene	1.0 µg/L	150 µg/L
Ethyl benzene	1.0 µg/L	26.0 µg/L
Xylenes	1.0 µg/L	62.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	102 %

NDRC Laboratories, Inc.

David R. Godwin Kgw
David R. Godwin, Ph.D.
Chief Executive Officer



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DALLAS

HOUSTON

DATE RECEIVED : 23-OCT-1992

REPORT NUMBER : H92-4577-6

REPORT DATE : 31-OCT-1992

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9210211240

PROJECT : 54030.02/GPM

DATE SAMPLED : 21-OCT-1992

ANALYSIS METHOD : EPA 602

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	43.0 µg/L
Toluene	1.0 µg/L	99.0 µg/L
Ethyl benzene	1.0 µg/L	19.0 µg/L
Xylenes	1.0 µg/L	45.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	102 %

NDRC Laboratories, Inc.

David R. Godwin Rgw
David R. Godwin, Ph.D.
Chief Executive Officer



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BEAUMONT

DALLAS

HOUSTON

DATE RECEIVED : 23-OCT-1992

REPORT NUMBER : H92-4577-7

REPORT DATE : 31-OCT-1992

SAMPLE SUBMITTED BY : H + GCL

ADDRESS : 505 Marquette NW, Ste. 1100

: Albuquerque, NM 87102

ATTENTION : Ms. Annette Montoya

SAMPLE MATRIX : Water

ID MARKS : 9210211250

PROJECT : 54030.02/GPM

DATE SAMPLED : 21-OCT-1992

ANALYSIS METHOD : EPA 602

BTX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.0 µg/L	< 1.0 µg/L
Toluene	1.0 µg/L	< 1.0 µg/L
Ethyl benzene	1.0 µg/L	< 1.0 µg/L
Xylenes	1.0 µg/L	< 1.0 µg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene(SS)	100 µg/L	108 %

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David R. Godwin, Ph.D.
Chief Executive Officer



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BEAUMONT

DALLAS

HOUSTON

DATE RECEIVED: 10/23/92

REPORT NUMBER: H92-4577-1-7

REPORT DATE: 10/31/92

SAMPLE SUBMITTED BY: H + GCL

ATTENTION: Ms. Annette Montoya

LABORATORY ANALYSIS QUALITY CONTROL REPORT

ANALYSIS: Benzene
Technician: MHT
Date Sampled: 10/21/92
Extraction Date: 10/29/92
Date Analyzed: 10/29/92
QC Date: 10/29/92
QC Sample Number: 4577-7

Analysis Method: EPA 8020
Extraction Method: EPA 5030
MS/MSD RPD: 8%
Average Spike Recovery: 110%
Duplicate RPD: ---
Method Blank: < 1 µg/L
LCS Recovery: 108%

ANALYSIS: Toluene
Technician: MHT
Date Sampled: 10/21/92
Extraction Date: 10/29/92
Date Analyzed: 10/29/92
QC Date: 10/29/92
QC Sample Number: 4577-7

Analysis Method: EPA 8020
Extraction Method: EPA 5030
MS/MSD RPD: 6%
Average Spike Recovery: 113%
Duplicate RPD: ---
Method Blank: < 1 µg/L
LCS Recovery: 114%

ANALYSIS: Ethylbenzene
Technician: MHT
Date Sampled: 10/21/92
Extraction Date: 10/29/92
Date Analyzed: 10/29/92
QC Date: 10/29/92
QC Sample Number: 4577-7

Analysis Method: EPA 8020
Extraction Method: EPA 5030
MS/MSD RPD: 6%
Average Spike Recovery: 107%
Duplicate RPD: ---
Method Blank: < 1 µg/L
LCS Recovery: 108%

ANALYSIS: Xylenes
Technician: MHT
Date Sampled: 10/21/92
Extraction Date: 10/29/92
Date Analyzed: 10/29/92
QC Date: 10/29/92
QC Sample Number: 4577-7

Analysis Method: EPA 8020
Extraction Method: EPA 5030
MS/MSD RPD: 2%
Average Spike Recovery: 110%
Duplicate RPD: ---
Method Blank: < 1 µg/L
LCS Recovery: 112%

№ 4206

SAMPLE PRESERVATION INFORMATION SHEET

Incoming Samples ☐

Company: H+GCL Job No: 4577
No. of Cooler(s): 1 Temperature of Cooler(s): 6°C

[illegible]

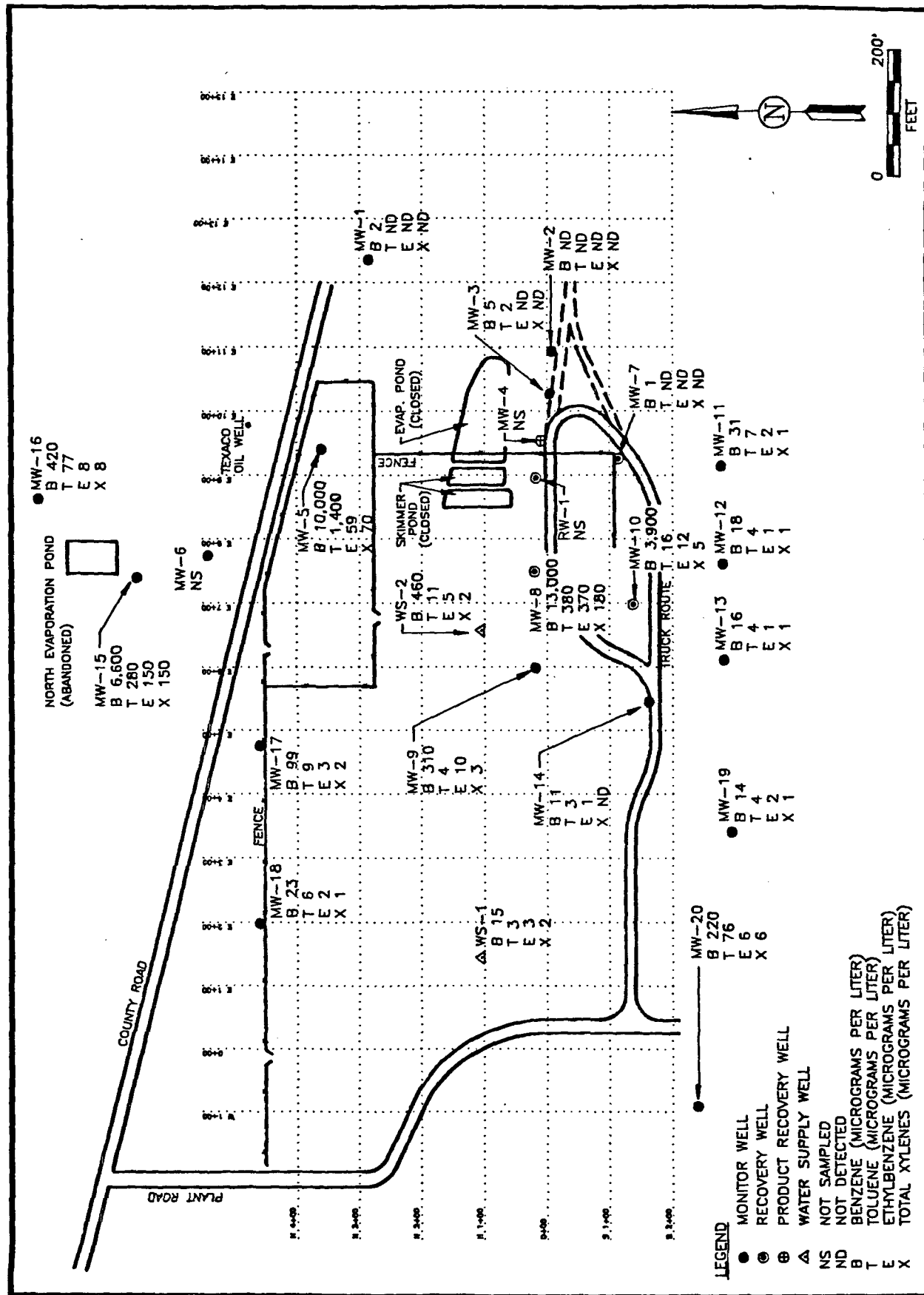
1 - Cool to 4° C	5 - NaOH to pH > 12
2 - H ₂ SO ₄ to pH < 2	6 - Na ₂ S ₂ O ₂ 0.008%
3 - HNO ₃ to pH < 2	7 - 2 mL Zinc Acetate and NaOH to pH > 12
4 - HCL to pH < 2	8 - None required

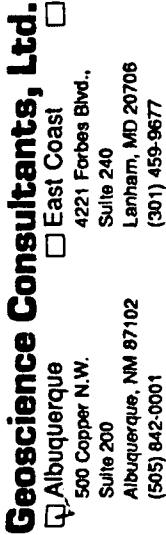
LR

10-23-92 / 10:42a

Date/Time

Monitor Well Location Map With BTEX Concentrations From July, 1992





Geoscience Consultants, Ltd.

☒ Albuquerque	☐ East Coast
500 Copper N.W.	4221 Forbes Blvd.,
Suite 200	Suite 240
Albuquerque, NM 87102	Lanham, MD 20706
(505) 842-0001	(301) 459-9677

d. ☐ Rocky Mountain
13111 E. Blarwood Ave.,
Suite 250
Englewood, CO 80112
(303) 649-9001

☐ Las Cruces
P.O. Drawer MM
Las Cruces, NM 88004
(505) 524-5364

No 4526
Chain of Custody
 PAGE 1 OF 1

DATE 11/21/92 PAGE 1 OF 1

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DAVID NEE

(505) 42-0001

SAMPLE CONTROL

(713) 661-8150

Company

Department/Floor No.

Company

Department/Floor No.

H + CCL

NDPC LABORATORY

Street Address

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.)

405 MARQUETTE NW STE 1100

11155 S MAIN

City

State

ZIP Required

City

State

ZIP Required

ALBUQUERQUE

87102

HOUSTON

TX

77025

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GPM 54030.02

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City State ZIP Required

SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning)
11 ☒ FEDEX PAK
16 ☐ FEDEX LETTER
12 ☐ FEDEX PAK
13 ☐ FEDEX BOX
14 ☐ FEDEX TUBE

Standard Overnight (Delivery by next business afternoon (No Saturday delivery))
51 ☐ OTHER PACKAGING
56 ☐ FEDEX LETTER
52 ☐ FEDEX PAK
53 ☐ FEDEX BOX
54 ☐ FEDEX TUBE

Economy Two-Day (Delivery by second business day)
30 ☐ ECONOMY

Government Overnight (Restricted for authorized users only)
46 ☐ GOVT LETTER
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70 ☐ OVERNIGHT FREIGHT
80 ☐ TWO-DAY FREIGHT

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31 ☐ SATURDAY
DELIVER
2 ☐ WEEKDAY
3 ☐ SATURDAY (Extra charge) (Not available to all locations)

4 ☐ DANGEROUS GOODS (Extra charge)

5 ☐ DRY ICE (Dangerous Goods Shipper's Declaration not required)

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125

125

125

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Geoscience Consultants, Ltd.

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Albuquerque, NM 87102
(505) 842-0001

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Suite 240
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(301) 459-9677

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Las Cruces, NM 88004
(505) 524-5364

No 4526
Chain of Custody
DATE 11/21/92 PAGE 4 OF 1

LAB NAME: <u>NRAC Laboratories, Inc.</u>			ANALYSIS REQUEST																										
ADDRESS: <u>11155 South Main</u>																													
TELEPHONE: <u>(713) 661-8150</u>																													
SAMPLERS (SIGNATURE)																													
SAMPLE NUMBER	MATRIX	LOCATION	GC/MS/ 625/8270	VOLATILE CMPS.	GC/MS/ 624/8240	PESTICIDES/PCB	POLYNUCLEAR	AROMATIC 610/8310	PHENOLS, SUB PHENOLS	HALOGENATED	VOLATILES 601/8010	AROMATIC VOLATILES	TOTAL ORGANIC	CARBON 415/9060	TOTAL ORGANIC	HALIDES 9020	PETROLEUM	HYDROCARBONS 418.1	TPH	MODIFIED 8015	PRIORITY POLLUTANT	CAM METALS (18)	TLC/STLC	EP TOX	SDWA-INORGANICS	HAZARDOUS WASTE	PROFILE	NUMBER OF CONTAINERS	
9210210950	H ₂ O	mw 9																										2	
9210211025	H ₂ O	mw 11																										2	
9210211030	H ₂ O	mw 11A																										2	
9210211115	H ₂ O	mw 12																										2	
9210211200	H ₂ O	mw 13																										2	
9210211240	H ₂ O	mw 14																										2	
9210211250	H ₂ O	Field Blank																										2	
PROJECT INFORMATION			SAMPLE RECEIPT			RELINQUISHED BY		RELINQUISHED BY		RELINQUISHED BY		RELINQUISHED BY		RELINQUISHED BY		RELINQUISHED BY		RELINQUISHED BY		RELINQUISHED BY		RELINQUISHED BY		RELINQUISHED BY		RELINQUISHED BY		RELINQUISHED BY	
PROJECT: <u>GPM</u>			TOTAL NO. OF CONTAINERS			(Signature)		(Signature)		(Signature)		(Signature)		(Signature)		(Signature)		(Signature)		(Signature)		(Signature)		(Signature)		(Signature)		(Signature)	
PROJECT DIRECTOR <u>M-NEE</u>			CHAIN OF CUSTODY SEALS			(Date)		(Date)		(Date)		(Date)		(Date)		(Date)		(Date)		(Date)		(Date)		(Date)		(Date)		(Date)	
CHARGE CODE NO. <u>54030-02</u>			REC'D GOOD CONDITION/COLD			(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)	
SHIPPING ID NO. <u>5394481573</u>			CONFORMS TO RECORD			(Company)		(Company)		(Company)		(Company)		(Company)		(Company)		(Company)		(Company)		(Company)		(Company)		(Company)		(Company)	
VIA: <u>fed x</u>			LAB NO.			RECEIVED BY		RECEIVED BY		RECEIVED BY		RECEIVED BY		RECEIVED BY		RECEIVED BY		RECEIVED BY		RECEIVED BY		RECEIVED BY		RECEIVED BY		RECEIVED BY		RECEIVED BY	
SPECIAL INSTRUCTIONS/COMMENTS:						(Signature)		(Signature)		(Signature)		(Signature)		(Signature)		(Signature)		(Signature)		(Signature)		(Signature)		(Signature)		(Signature)		(Signature)	
						(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)		(Printed Name)	
						(Company)		(Company)		(Company)		(Company)		(Company)		(Company)		(Company)		(Company)		(Company)		(Company)		(Company)		(Company)	
						ANALYT		ANALYT		ANALYT		ANALYT		ANALYT		ANALYT		ANALYT		ANALYT		ANALYT		ANALYT		ANALYT		ANALYT	



State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF
NEW MEXICO
OIL
CONSERVATION
DIVISION

MEMORANDUM OF MEETING OR CONVERSATION



Telephone



Personal

Time

1500

Date

10/21/92

Originating Party

Other Parties

Vince Bernard - GPA Gas Corp.

Bill Olson - OCN Santa Fe

Subject

Lee Gas Processing Plant Remediation

Discussion

They are having trouble dealing with air quality issues in remediation plan

Will be proposing soil venting & air sparging for remediation along with product removal

Conclusions or Agreements

Report on remedial alternatives will be to OCN in approx 1 month

Distribution

file

Signed

Bill Olson



GPM GAS CORPORATION

4044 PENBROOK
ODESSA, TEXAS 79762

OIL CONSERVATION DIVISION
RECEIVED

1992 OCT 1 PM 8 58

September 28, 1992

Mr. William C. Olson
Hydrogeologist
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

Dear Mr. Olson:

GPM Gas Corporation herein submits the laboratory reports for our 1992 annual groundwater sampling at Lee Plant. This annual report includes quarterly sampling for the third quarter of 1992. Samples were collected on July 27, 28 and 29, 1992, pursuant to the Lee Plant discharge plan GW-2. Core Laboratories of Aurora, Colorado performed the sample analyses.

Our consultant, H+GCL, followed standard operating procedures for collecting the groundwater samples. These procedures are consistent with the requirements for sample collection in the EPA's publication, SW-846. In addition, H+GCL followed strict chain-of-custody procedures to ensure the integrity of the samples during transport to the laboratory.

Groundwater samples from monitor wells were analyzed for benzene, toluene, ethylbenzene, and xylene (BTEX) using EPA Method 602 (purgeable aromatics). Pursuant to your letter of May 14, 1992, we have discontinued analysis for total petroleum hydrocarbons and major cations and anions.

All of the monitor and recovery wells and the water supply wells WS-1 and WS-2 were sampled, except those that contained free-phase hydrocarbons. Those exceptions, RW-1, MW-6 and MW-4 contained free-phase hydrocarbons with the following thicknesses, respectively: 0.6 feet, 0.52 feet and 1.2 feet.

If you have any questions or comments regarding this information, please call me at (915) 368-1085.

Sincerely,

Vincent B. Bernard
Safety & Environmental Supervisor
New Mexico Region

VBB/smm

cc: S.E. Seeby w/attachment
M.S. Nault
R.D. Dunham
R.G. Stubbs
(r) G.A. Jones

vbb45



RECEIVED AUG 21 1992

CORE LABORATORIES

CORE LABORATORIES ANALYTICAL REPORT

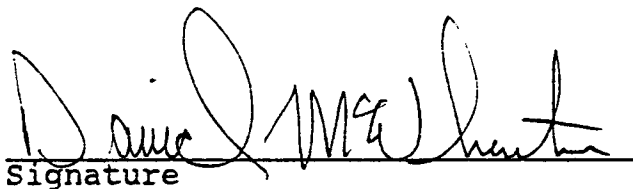
Job Number: 921371

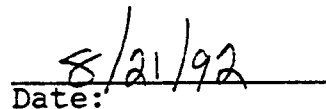
Prepared For:

HYGIENETICS/GCL

505 MARQUETTE AVE. N.W.-SUITE 1100
ALBUQUERQUE, NM 87102

Date: 08/21/92


Signature


Date:

Name: David A. McWharter

Core Laboratories
1300 South Potomac, Suite 130
Aurora, CO 80012

Title: LABORATORY MANAGER



CORE LABORATORIES

LABORATORY TESTS RESULTS 08/21/92

JOB NUMBER: 921371

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1085
DATE SAMPLED: 07/29/92
TIME SAMPLED: 09:50
WORK DESCRIPTION: 9207290950

WS-2

LABORATORY I.D.: 921371-0001
DATE RECEIVED: 07/30/92
TIME RECEIVED: 10:20
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/07/92	MAD
Benzene	460	10	ug/L			
Toluene	11	1	ug/L			
Ethyl Benzene	5	1	ug/L			
Xylenes	2	1	ug/L			

1300 South Potomac, Suite 130
Aurora, CO 80012
(303) 751-1780



CORE LABORATORIES

LABORATORY TESTS RESULTS 08/21/92

JOB NUMBER: 921371

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1085
DATE SAMPLED: 07/29/92
TIME SAMPLED: 12:25
WORK DESCRIPTION: 9207291225

WS-1

LABORATORY I.D.: 921371-0002
DATE RECEIVED: 07/30/92
TIME RECEIVED: 10:20
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/07/92	MAD
Benzene	15	1	ug/L			
Toluene	3	1	ug/L			
Ethyl Benzene	3	1	ug/L			
Xylenes	2	1	ug/L			

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Aurora, CO 80012
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CORE LABORATORIES

LABORATORY TESTS RESULTS 08/21/92

JOB NUMBER: 921371

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1085

DATE SAMPLED: 07/29/92

TIME SAMPLED: 11:30

WORK DESCRIPTION: 9207291130

MW-8 Dup

LABORATORY I.D.: 921371-0003

DATE RECEIVED: 07/30/92

TIME RECEIVED: 10:20

REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*10		8020 (2)	08/07/92	MAD
Benzene	11000	200	ug/L			
Toluene	370	200	ug/L			
Ethyl Benzene	350	200	ug/L			
Xylenes	190	10	ug/L			

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CORE LABORATORIES

LABORATORY TESTS RESULTS 08/21/92

JOB NUMBER: 921371

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1085

DATE SAMPLED: 07/29/92

TIME SAMPLED: 13:00

WORK DESCRIPTION: 9207291300

Field Blank

LABORATORY I.D.: 921371-0004

DATE RECEIVED: 07/30/92

TIME RECEIVED: 10:20

REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/07/92	MAD
Benzene	2	1	ug/L			
Toluene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Xylenes	ND	1	ug/L			

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Aurora, CO 80012
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CORE LABORATORIES

LABORATORY TESTS RESULTS

08/21/92

JOB NUMBER: 921371

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1085

DATE SAMPLED: 07/21/92

TIME SAMPLED: :

WORK DESCRIPTION: TRIP BLANK

LABORATORY I.D.: 921371-0005

DATE RECEIVED: 07/30/92

TIME RECEIVED: 10:20

REMARKS: BUBBLE IN VOA

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/07/92	MAD
Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Xylenes	ND	1	ug/L			

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(303) 751-1780



Geoscience Consultants, Ltd.

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Suite 706
Silver Spring, MD 20910
(301) 587-2088

☐ Newport Beach
500 Birch Street
West Tower, Suite 3000
Newport Beach, CA 92660
(714) 476-3650

☐ Las Cruces
P.O. Drawer MM
Las Cruces, NM 89004
(505) 524-5364

No 1085

Chain of Custody

DATE 7/29/92 PAGE 2 OF 3

LAB NAME CORE LABORATORIES			ANALYSIS REQUEST															
ADDRESS																		
TELEPHONE																		
SAMPLERS (SIGNATURE)																		
SAMPLE NUMBER	MATRIX	LOCATION	BASE/NEU/ACID CMPDS. GC/MS/ 625/8270	VOLATILE CMPDS. GC/MS/ 624/8240	PESTICIDES/PCB 608/8080	POLYNUCLEAR AROMATIC 610/8310	PHENOLS, SUB PHENOLS 604/8040	HALOGENATED VOLATILES 601/8010	AROMATIC VOLATILES 602/8020 STEEX	TOTAL ORGANIC CARBON 415/9060	TOTAL ORGANIC HALIDES 9020	PETROLEUM HYDROCARBONS 418	PRIORITY POLLUTANT METALS (13)	CAM METALS (18) TTLC/STLC	EP TOX METALS (8)	SWDA-INORGANICS PRIMARY/SECONDARY	HAZARDOUS WASTE PROFILE	NUMBER OF CONTAINERS
9207290950	water	US-#2																4
9207291225	water	US-1																3
9207291130	water	mu-210																3
9207291300	water	Field blank																3
Trip Blank	water	core																1
PROJECT INFORMATION			SAMPLE RECEIPT															
PROJECT: GPM			TOTAL NO. OF CONTAINERS 13															
PROJECT MANAGER NEE			CHAIN OF CUSTODY SEALS Yes															
CHARGE CODE NO. 5403002			REC'D GOOD CONDITION/COLD Yes															
SHIPPING ID NO. 2454068492			CONFORMS TO RECORD Yes															
VIA: Fed Ex			LAB NO. 921371															
SPECIAL INSTRUCTIONS/COMMENTS: ANALYSIS for Benzene, toluene ethyl benzene, xylenes																		
RECEIVED BY			RELINQUISHED BY															
(Signature)			(Signature)															
(Printed Name)			(Printed Name)															
(Company)			(Company)															
RECEIVED BY			RELINQUISHED BY															
(Signature)			(Signature)															
(Printed Name)			(Printed Name)															
(Company)			(Company)															
RECEIVED BY (LABORATORY)			RELINQUISHED BY															
(Signature)			(Signature)															
(Printed Name)			(Printed Name)															
(Company)			(Company)															
DATE			DATE															

CORE LABORATORIES
ANALYTICAL REPORT

Job Number: 921370

Prepared For:

HYGIENETICS/GCL

505 MARQUETTE AVE. N.W.-SUITE 1100
ALBUQUERQUE, NM 87102

Date: 08/12/92


Signature

8/12/92
Date:

Name: David A. McWharter

Core Laboratories
1300 South Potomac, Suite 130
Aurora, CO 80012

Title: Laboratory Manager

LABORATORY TESTS RESULTS
08/12/92

JOB NUMBER: 921370

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1084

DATE SAMPLED: 07/28/92

TIME SAMPLED: 08:40

WORK DESCRIPTION: 9207280840

MW-12

LABORATORY I.D.: 921370-0001

DATE RECEIVED: 07/30/92

TIME RECEIVED: 10:20

REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/31/92	MAD
Benzene	18	1	ug/L			
Toluene	4	1	ug/L			
Ethyl Benzene	1	1	ug/L			
Xylenes	1	1	ug/L			

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Aurora, CO 80012
(303) 751-1780

LABORATORY TESTS RESULTS
08/12/92

JOB NUMBER: 921370

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1084
DATE SAMPLED: 07/28/92
TIME SAMPLED: 09:15
WORK DESCRIPTION: 9207280915

MLW-13

LABORATORY I.D.: 921370-0002
DATE RECEIVED: 07/30/92
TIME RECEIVED: 10:20
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/31/92	MAD
Benzene	16	1	ug/L			
Toluene	4	1	ug/L			
Ethyl Benzene	1	1	ug/L			
Xylenes	1	1	ug/L			

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LABORATORY TESTS RESULTS
08/12/92

JOB NUMBER: 921370

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1084
DATE SAMPLED: 07/28/92
TIME SAMPLED: 10:37
WORK DESCRIPTION: 9207281037

MW-14

LABORATORY I.D.: 921370-0003
DATE RECEIVED: 07/30/92
TIME RECEIVED: 10:20
REMARKS: BUBBLE IN 1 VOA

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/31/92	MAD
Benzene	11	1	ug/L			
Toluene	3	1	ug/L			
Ethyl Benzene	1	1	ug/L			
Xylenes	ND	1	ug/L			

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Aurora, CO 80012
(303) 751-1780

LABORATORY TESTS RESULTS
08/12/92

JOB NUMBER: 921370

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1084
DATE SAMPLED: 07/27/92
TIME SAMPLED: 16:45
WORK DESCRIPTION: 9207271645

MW-15

LABORATORY I.D.: 921370-0004
DATE RECEIVED: 07/30/92
TIME RECEIVED: 10:20
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*2		8020 (2)	08/01/92	MAD
Benzene	6600	100	ug/L			
Toluene	280	100	ug/L			
Ethyl Benzene	150	100	ug/L			
Xylenes	150	100	ug/L			

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Aurora, CO 80012
(303) 751-1780

LABORATORY TESTS RESULTS
08/12/92

JOB NUMBER: 921370

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1084
DATE SAMPLED: 07/27/92
TIME SAMPLED: 15:45
WORK DESCRIPTION: 9207271545

MW-16

LABORATORY I.D.: 921370-0005
DATE RECEIVED: 07/30/92
TIME RECEIVED: 10:20
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/31/92	MAD
Benzene	420	25	ug/L			
Toluene	77	25	ug/L			
Ethyl Benzene	8	1	ug/L			
Xylenes	8	1	ug/L			

1300 South Potomac, Suite 130
Aurora, CO 80012
(303) 751-1780

LABORATORY TESTS RESULTS
08/12/92

JOB NUMBER: 921370

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1084
DATE SAMPLED: 07/28/92
TIME SAMPLED: 06:25
WORK DESCRIPTION: 9207280625

MLW-17

LABORATORY I.D.: 921370-0006
DATE RECEIVED: 07/30/92
TIME RECEIVED: 10:20
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/31/92	MAD
Benzene	99	5	ug/L			
Toluene	9	1	ug/L			
Ethyl Benzene	3	1	ug/L			
Xylenes	2	1	ug/L			

1300 South Potomac, Suite 130
Aurora, CO 80012
(303) 751-1780

LABORATORY TESTS RESULTS
08/12/92

JOB NUMBER: 921370

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1084
DATE SAMPLED: 07/28/92
TIME SAMPLED: 07:30
WORK DESCRIPTION: 9207280730

MW-18

LABORATORY I.D.: 921370-0007
DATE RECEIVED: 07/30/92
TIME RECEIVED: 10:20
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/31/92	MAD
Benzene	23	1	ug/L			
Toluene	6	1	ug/L			
Ethyl Benzene	2	1	ug/L			
Xylenes	1	1	ug/L			

1300 South Potomac, Suite 130
Aurora, CO 80012
(303) 751-1780

LABORATORY TESTS RESULTS
08/12/92

JOB NUMBER: 921370

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1084
DATE SAMPLED: 07/28/92
TIME SAMPLED: 09:50
WORK DESCRIPTION: 9207280950

ML-19

LABORATORY I.D.: 921370-0008
DATE RECEIVED: 07/30/92
TIME RECEIVED: 10:20
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/31/92	MAD
Benzene	14	1	ug/L			
Toluene	4	1	ug/L			
Ethyl Benzene	2	1	ug/L			
Xylenes	1	1	ug/L			

1300 South Potomac, Suite 130
Aurora, CO 80012
(303) 751-1780

LABORATORY TESTS RESULTS
08/12/92

JOB NUMBER: 921370

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1084
DATE SAMPLED: 07/28/92
TIME SAMPLED: 13:35
WORK DESCRIPTION: 9207281335

MW-20

LABORATORY I.D.: 921370-0009
DATE RECEIVED: 07/30/92
TIME RECEIVED: 10:20
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/31/92	MAD
Benzene	220	10	ug/L			
Toluene	76	10	ug/L			
Ethyl Benzene	6	1	ug/L			
Xylenes	6	1	ug/L			

1300 South Potomac, Suite 130
Aurora, CO 80012
(303) 751-1780



Geoscience Consultants, Ltd.

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(301) 587-2088

☐ Newport Beach
5000 Birch Street
West Tower, Suite 3000
Newport Beach, CA 92660
(714) 476-3650

☐ Las Cruces
P.O. Drawer MM
Las Cruces, NM 88004
(505) 524-5364

DATE

No 1084
Chain of Custody
7/27/92 PAGE 2 OF 3

LAB NAME CORE LABORATORIES

ADDRESS 1300 S. Potomac St. Ste 130
Aurora, CO 80012
TELEPHONE 303/751-1780

SAMPLERS SIGNATURE

SAMPLE NUMBER

MATRIX

LOCATION

BASE/NEU/ACID CMPDS.
GC/MS/ 625/8270

VOLATILE CMPDS.
GC/MS/ 624/8240

PESTICIDES/PCB
608/8080

POLYNUCLEAR
AROMATIC 610/8310

PHENOLS, SUB PHENOLS
604/8040

HALOGENATED
VOLATILES 601/8010

AROMATIC VOLATILES
602/8020 **BTEX**

TOTAL ORGANIC
CARBON 415/9060

TOTAL ORGANIC
HALIDES 9020

PETROLEUM
HYDROCARBONS 418

PRIORITY POLLUTANT
METALS (13)

CAM METALS (18)
TTLC/STLC

EP TOX
METALS (8)

SWDA-INORGANICS
PRIMARY/SECONDARY

HAZARDOUS WASTE
PROFILE

NUMBER OF CONTAINERS

ANALYSIS REQUEST

PROJECT INFORMATION

PROJECT: GPM1

PROJECT MANAGER NEE

CHARGE CODE NO. 5403002

SHIPPING ID NO. 245400 8442

VIA: Fed Ex

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS

CHAIN OF CUSTODY SEALS

REC'D GOOD CONDITION/COLD

CONFORMS TO RECORD

LAB NO.

27

Yes

Yes

Yes

RELINQUISHED BY

(Signature)

(Time)

(Date)

(Company)

1700

1/24/92

1/24/92

1/24/92

RELINQUISHED BY

(Signature)

(Time)

(Date)

(Company)

RELINQUISHED BY

(Signature)

(Time)

(Date)

(Company)

RECEIVED BY (LABORATORY) 3.

(Signature)

(Time)

(Date)

(Signature)

(Time)

(Date)

(Signature)

(Time)

(Date)

(Signature)

(Time)

(Date)

RECEIVED BY (LABORATORY) 3.

(Signature)

(Time)

DATE

7/27/92

LABORATORY

SPECIAL INSTRUCTIONS/COMMENTS:

Analysis for Benzene
Toluene, Ethylbenzene & Xylene

DISTRIBUTION: WHITE, CANARY — GEOSCIENCE CONSULTANTS, LTD. • PINK — LABORATORY



RECEIVED AUG 24 1992

CORE LABORATORIES

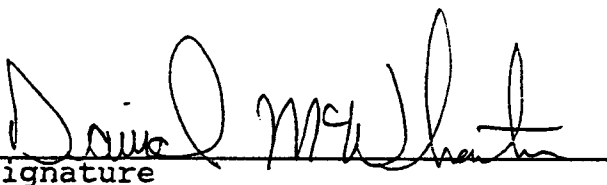
CORE LABORATORIES ANALYTICAL REPORT

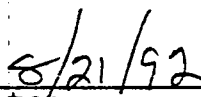
Job Number: 921369
Prepared For:

HYGIENETICS/GCL

505 MARQUETTE AVE. N.W.-SUITE 1100
ALBUQUERQUE, NM 87102

Date: 08/21/92


Signature


Date:

Name: David A. McWharter

Core Laboratories
1300 South Potomac, Suite 130
Aurora, CO 80012

Title: LABORATORY MANAGER



CORE LABORATORIES

LABORATORY TESTS RESULTS 08/21/92

JOB NUMBER: 921369

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1083

DATE SAMPLED: 07/29/92

TIME SAMPLED: 08:20

WORK DESCRIPTION: 9207290820

LABORATORY I.D.: 921369-0001

DATE RECEIVED: 07/30/92

TIME RECEIVED: 10:20

REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/03/92	MAD
Benzene	2	1	ug/L			
Toluene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Xylenes	ND	1	ug/L			

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(303) 751-1780



CORE LABORATORIES

LABORATORY TESTS RESULTS

08/21/92

JOB NUMBER: 921369

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1083

DATE SAMPLED: 07/29/92

TIME SAMPLED: 06:45

WORK DESCRIPTION: 9207290645

LABORATORY I.D.: 921369-0002

DATE RECEIVED: 07/30/92

TIME RECEIVED: 10:20

REMARKS: 2 VOA HAVE BUBBLES

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/03/92	MAD
Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Xylenes	ND	1	ug/L			

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CORE LABORATORIES

LABORATORY TESTS RESULTS 08/21/92

JOB NUMBER: 921369

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM CDC #1083

DATE SAMPLED: 07/29/92

TIME SAMPLED: 07:15

WORK DESCRIPTION: 9207290715

LABORATORY I.D.: 921369-0003

DATE RECEIVED: 07/30/92

TIME RECEIVED: 10:20

REMARKS: 2 VOA HAVE BUBBLES

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/03/92	MAD
Benzene	5	1	ug/L			
Toluene	2	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Xylenes	ND	1	ug/L			

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CORE LABORATORIES

LABORATORY TESTS RESULTS 08/21/92

JOB NUMBER: 921369

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1083

DATE SAMPLED: 07/28/92

TIME SAMPLED: 12:40

WORK DESCRIPTION: 9207281240

LABORATORY I.D.: 921369-0004

DATE RECEIVED: 07/30/92

TIME RECEIVED: 10:20

REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*2		8020 (2)	08/04/92	MAD
Benzene	10000	200	ug/L			
Toluene	1400	100	ug/L			
Ethyl Benzene	59	2	ug/L			
Xylenes	70	2	ug/L			

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LABORATORY TESTS RESULTS
08/21/92

JOB NUMBER: 921369

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1083

DATE SAMPLED: 07/29/92

TIME SAMPLED: 10:55

WORK DESCRIPTION: 9207291055

LABORATORY I.D.: 921369-0005

DATE RECEIVED: 07/30/92

TIME RECEIVED: 10:20

REMARKS: 1 VOA HAS A BUBBLE

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/05/92	MAD
Benzene	1	1	ug/L			
Toluene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Xylenes	ND	1	ug/L			

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CORE LABORATORIES

LABORATORY TESTS RESULTS 08/21/92

JOB NUMBER: 921369

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1083

DATE SAMPLED: 07/29/92

TIME SAMPLED: 11:10

WORK DESCRIPTION: 9207291110

LABORATORY I.D.: 921369-0006

DATE RECEIVED: 07/30/92

TIME RECEIVED: 10:20

REMARKS: BUBBLE IN ALL VOA

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*2		8020 (2)	08/04/92	MAD
Benzene	13000	200	ug/L			
Toluene	380	100	ug/L			
Ethyl Benzene	370	100	ug/L			
Xylenes	180	2	ug/L			

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CORE LABORATORIES

LABORATORY TESTS RESULTS 08/21/92

JOB NUMBER: 921369

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1083

DATE SAMPLED: 07/28/92

TIME SAMPLED: 11:10

WORK DESCRIPTION: 9207281110

LABORATORY I.D.: 921369-0007

DATE RECEIVED: 07/30/92

TIME RECEIVED: 10:20

REMARKS: BUBBLE IN 1 VOA

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/03/92	MAD
Benzene	310	10	ug/L			
Toluene	4	1	ug/L			
Ethyl Benzene	10	1	ug/L			
Xylenes	3	1	ug/L			

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LABORATORY TESTS RESULTS
08/21/92

JOB NUMBER: 921369

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1083

DATE SAMPLED: 07/29/92

TIME SAMPLED: 12:10

WORK DESCRIPTION: 9207291210

LABORATORY I.D.: 921369-0008

DATE RECEIVED: 07/30/92

TIME RECEIVED: 10:20

REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/03/92	MAD
Benzene	3900	100	ug/L			
Toluene	16	1	ug/L			
Ethyl Benzene	12	1	ug/L			
Xylenes	5	1	ug/L			

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CORE LABORATORIES

LABORATORY TESTS RESULTS 08/21/92

JOB NUMBER: 921369

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GPM COC #1083

DATE SAMPLED: 07/28/92

TIME SAMPLED: 07:50

WORK DESCRIPTION: 9207280750

LABORATORY I.D.: 921369-0009

DATE RECEIVED: 07/30/92

TIME RECEIVED: 10:20

REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/04/92	MAD
Benzene	31	1	ug/L			
Toluene	7	1	ug/L			
Ethyl Benzene	2	1	ug/L			
Xylenes	1	1	ug/L			

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Geoscience Consultants, Ltd.

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500 Copper N.W.
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Albuquerque, NM 87102
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Silver Spring
1109 Spring St.
Suite 706
Silver Spring, MD 20910
(301) 587-2088

Newport Beach
5000 Birch Street
West Tower, Suite 3000
Newport Beach, CA 92660
(714) 476-3650

Las Cruces
P.O. Drawer MM
Las Cruces, NM 88004
(505) 524-5364

No 1083
Chain of Custody

DATE 7/24/92 PAGE 1 OF 3

LAB NAME			CORE LABORATORIES			ANALYSIS REQUEST															
ADDRESS			1300 S. Potomac St. Ste 130 Aurora, CO 80012																		
TELEPHONE			303/751-1780																		
SAMPLES (SIGNATURE)																					
SAMPLE NUMBER	MATRIX	LOCATION	BASE/NEU/ACID CMPDS. GC/MS/ 625/8270	VOLATILE CMPDS. GC/MS/ 624/8240	PESTICIDES/PCB 608/8080	POLYNUCLEAR AROMATIC 610/8310	PHENOLS, SUB PHENOLS 604/8040	HALOGENATED VOLATILES 601/8010	AROMATIC VOLATILES 602/8020 BTEX	TOTAL ORGANIC CARBON 415/9060	TOTAL ORGANIC HALIDES 9020	PETROLEUM HYDROCARBONS 418	PRIORITY POLLUTANT METALS (13)	CAM METALS (18) TTLT/STLC	EP TOX METALS (8)	SWDA-INORGANICS PRIMARY/SECONDARY	HAZARDOUS WASTE PROFILE	NUMBER OF CONTAINERS			
9207290820	Water	MU-1																3			
9207290645	Water	MU-2																3			
9207290715	Water	MU-3																3			
9207281240	Water	MU-5																3			
9207291055	Water	MU-7																3			
9207291110	Water	MU-8																3			
9207281110	Water	MU-9																3			
9207281120	Water	MU-10																3			
9207280750	Water	MU-11																3			
PROJECT INFORMATION			SAMPLE RECEIPT																		
PROJECT: GPM1	TOTAL NO. OF CONTAINERS		27																		
PROJECT MANAGER NEE	CHAIN OF CUSTODY SEALS		Yes																		
CHARGE CODE NO. 5403062	REC'D GOOD CONDITION/COLD		Yes																		
SHIPPING ID. NO. 2454068492	CONFORMS TO RECORD		Yes																		
VIA: Fed Ex	LAB NO. 921369																				
SPECIAL INSTRUCTIONS/REMARKS: Analysis for Benzene, Toluene, Xylene & Ethylbenzene																					
RELINQUISHED BY			1. RELINQUISHED BY													2. RELINQUISHED BY			3. RELINQUISHED BY		
(Signature)			(Signature)													(Signature)			(Signature)		
(Printed Name)			(Printed Name)													(Printed Name)			(Printed Name)		
(Date)			(Date)													(Date)			(Date)		
RECEIVED BY			2. RECEIVED BY													3. RECEIVED BY (LABORATORY)					
(Signature)			(Signature)													(Signature)					
(Printed Name)			(Printed Name)													(Printed Name)					
(Date)			(Date)													(Date)					
DISTRIBUTION: WHITE, CANARY — GEOSCIENCE CONSULTANTS, LTD. • PINK — LABORATORY																					



GPM GAS CORPORATION

4044 PENBROOK
ODESSA, TEXAS 79762

OIL CONSERVATION DIVISION
RECEIVED

'92 AUG 26 PM 9 03

August 19, 1992

Letter Response to Groundwater
Issues Meeting - Lee Gas Plant

Mr. William C. Olson
Hydrogeologist
State of New Mexico
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

Dear Mr. Olson:

Based on our August 5, 1992 discussions between Roger Anderson and yourself, Scott Seeby and myself of GPM Gas Corporation (GPM), and Dennis Newman of Phillips Petroleum Company (PPCo), this letter responds to the Oil Conservation Division (OCD) letter dated April 22, 1992 concerning the Lee Gas Processing Plant located in Buckeye, New Mexico.

The following activities were agreed upon regarding items No. 1 and 2 in your April 22nd letter:

- No. 1 GPM will provide a work plan in approximately one month describing the remediation system design to recover the product identified downgradient of the closed North Evaporation Pond.
- No. 2 Based on the first quarter 1992 groundwater monitoring data submitted to the OCD on May 19, 1992, analytical results for BTEX and TPH were non-detect on MW-20. Consequently, it appears that the previous quarter (4th quarter 1991) groundwater monitor data is an anomaly, therefore, GPM will not be submitting a proposal to investigate the area around MW-20.

In addition, it was agreed that GPM has completed the assessment phase of the ponds. Consequently, the extent of long term remediation and groundwater monitoring will need to be determined by GPM. As discussed, the site groundwater monitor plan may be modified (reduced) if sufficient groundwater data is collected to show constituent trends, and if the proposed monitoring program adequately evaluates the impact of the ongoing remediation of the groundwater and free product. OCD also indicated that the current remediation system is adequate, however, GPM may want to consider a more active remediation system, since the required long term monitoring will be very costly.

GPM appreciates the OCD's willingness to work with us to resolve this issue. If you have any further questions or need additional information, please call me at (915) 368-1085 or Scott Seeby at (915) 368-1142. Thank you.

A handwritten signature in black ink, appearing to read 'VBB', with a stylized flourish at the end.

Vincent B. Bernard
Safety & Environmental Supervisor
New Mexico Region

VBB:mmm

cc: S.J. Seeby - Odessa Office
M.S. Nault - Lee Plant
Martin Nee - H+GCL Albuquerque



GPM GAS CORPORATION

4044 PENBROOK
ODESSA, TEXAS 79762

OIL CONSERVATION DIVISION
RECEIVED

'92 AUG 21 PM 9 10

August 18, 1992

2nd Quarter 1992 Analytical Results
Lee Plant Discharge Plant GW-2

Mr. William C. Olson
Hydrogeologist
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

Dear Mr. Olson:

GPM Gas Corporation (GPM) herein submits the laboratory analytical reports for our groundwater sampling for the second quarter of 1992. Sample collection was conducted pursuant to discharge plan GW-2 for the Lee Plant. Core Laboratories of Aurora, Colorado performed the sample analyses.

Our consultant, H+GCL, followed standard operating procedures for collecting the groundwater samples. These procedures are consistent with the requirements for sample collection of the EPA's publication SW-846.

Groundwater samples from monitor wells MW-9, MW-11, MW-12, MW-13 and MW-14 were analyzed for BTEX using EPA Method 602 (Purgeable Aromatics), for chloride using Method 325.2, and for total dissolved solids (TDS) by using Method 160.1.

Please call me at (915) 368-1085 should you have any questions regarding these results. Thank you.

Sincerely,

Vincent B. Bernard
Safety & Environmental Supervisor
New Mexico Region

cc: S.J. Seeby w/att.
M.S. Nault - Lee Plant w/o att.
R.D. Dunham - Hobbs Office w/o att.



CORE LABORATORIES

RECEIVED JUN 10 1992

CORE LABORATORIES ANALYTICAL REPORT

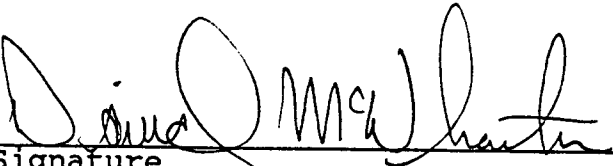
Job Number: 920777

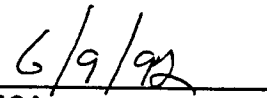
Prepared For:

HYGIENETICS/GCL

505 MARQUETTE AVE. N.W.
ALBUQUERQUE, NM 87102

Date: 06/09/92


Signature


Date:

Name: David A. McWharter

Core Laboratories
1300 South Potomac, Suite 130
Aurora, CO 80012

Title: LABORATORY MANAGER



CORE LABORATORIES

Sample Delivery Group Narrative

June 9, 1992

Customer: Hygienetics/GCL

Project: GDM COC #5190

Core Laboratories Project Number: 920777

On May 1, 1992 Core Laboratories received 6 liquid samples for TDS, EPA method 602 volatile organics and chloride analysis. Sampling was performed on April 28 and April 29, 1992 by representatives of Hygienetics/GCL. The following information is pertinent to the interpretation of this data package.

Holding times were exceeded for all of the chloride analyses. This particular batch of samples was accidentally missed on the holding time backlog report used in that laboratory section. The supervisor of this laboratory section is aware of the holding time violation and has taken appropriate action to eliminate the problem.

I apologize for any inconvenience this has caused Hygienetics/GCL.

Linda L. Benkers
Supervising Chemist



ADDITIONAL DATA

CORE LABORATORIES

LABORATORY TESTS RESULTS 06/10/92

JOB NUMBER: 920777

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GDM COC #5190
DATE SAMPLED: 04/28/92
TIME SAMPLED: 15:10
WORK DESCRIPTION: 9204281510

LABORATORY I.D.: 920777-0001
DATE RECEIVED: 05/01/92
TIME RECEIVED: 09:55
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Chloride (Unfilt.)	510	6	mg/L	325.2 (1)	06/05/92	PJM
Solids, Total Dissolved (TDS)	1420	10	mg/L	160.1 (1)	05/05/92	RMN
602 - VOLATILE AROMATIC ORGANICS		*1		602 (1)	05/11/92	KRB
Benzene	2	1	ug/L			
Chlorobenzene	ND	1	ug/L			
1,2-Dichlorobenzene	ND	1	ug/L			
1,3-Dichlorobenzene	ND	1	ug/L			
1,4-Dichlorobenzene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Xylenes-total	ND	1	ug/L			

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ADDITIONAL DATA



CORE LABORATORIES

LABORATORY TESTS RESULTS 06/10/92

JOB NUMBER: 920777

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GDM COC #5190 12
DATE SAMPLED: 04/28/92
TIME SAMPLED: 16:20
WORK DESCRIPTION: 9204281620

LABORATORY I.D.: 920777-0002
DATE RECEIVED: 05/01/92
TIME RECEIVED: 09:55
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Chloride (Unfilt.)	127	1	mg/L	325.2 (1)	06/05/92	PJM
Solids, Total Dissolved (TDS)	698	10	mg/L	160.1 (1)	05/05/92	RMN
602 - VOLATILE AROMATIC ORGANICS		*1		602 (1)	05/11/92	KRB
Benzene	ND	1	ug/L			
Chlorobenzene	ND	1	ug/L			
1,2-Dichlorobenzene	ND	1	ug/L			
1,3-Dichlorobenzene	ND	1	ug/L			
1,4-Dichlorobenzene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Xylenes-total	ND	1	ug/L			

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ADDITIONAL DATA



CORE LABORATORIES

LABORATORY TESTS RESULTS 06/10/92

JOB NUMBER: 920777

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GDM COC #5190
DATE SAMPLED: 04/28/92
TIME SAMPLED: 17:25
WORK DESCRIPTION: 9204281725

LABORATORY I.D.: 920777-0003
DATE RECEIVED: 05/01/92
TIME RECEIVED: 09:55
REMARKS: SMALL BUBBLE IN 1 VOA

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Chloride (Unfilt.)	293	3	mg/L	325.2 (1)	06/05/92	PJM
Solids, Total Dissolved (TDS)	1060	10	mg/L	160.1 (1)	05/05/92	RMN
602 - VOLATILE AROMATIC ORGANICS		*1		602 (1)	05/11/92	KRB
Benzene	ND	1	ug/L			
Chlorobenzene	ND	1	ug/L			
1,2-Dichlorobenzene	ND	1	ug/L			
1,3-Dichlorobenzene	ND	1	ug/L			
1,4-Dichlorobenzene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Xylenes-total	ND	1	ug/L			

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ADDITIONAL DATA

CORE LABORATORIES

LABORATORY TESTS RESULTS

06/10/92

JOB NUMBER: 920777

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GDM COC #5190
 DATE SAMPLED: 04/28/92
 TIME SAMPLED: 18:55
 WORK DESCRIPTION: 9204281855

LABORATORY I.D.: 920777-0004
 DATE RECEIVED: 05/01/92
 TIME RECEIVED: 09:55
 REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Chloride (Unfilt.)	147	1	mg/L	325.2 (1)	06/05/92	PJM
Solids, Total Dissolved (TDS)	892	10	mg/L	160.1 (1)	05/05/92	RMN
602 - VOLATILE AROMATIC ORGANICS		*1		602 (1)	05/11/92	KRB
Benzene	ND	1	ug/L			
Chlorobenzene	ND	1	ug/L			
1,2-Dichlorobenzene	ND	1	ug/L			
1,3-Dichlorobenzene	ND	1	ug/L			
1,4-Dichlorobenzene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Xylenes-total	ND	1	ug/L			

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ADDITIONAL DATA

CORE LABORATORIES

LABORATORY TESTS RESULTS 06/10/92

JOB NUMBER: 920777

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GDM COC #5190 *file*
DATE SAMPLED: 04/29/92
TIME SAMPLED: 08:35
WORK DESCRIPTION: 9204290835

LABORATORY I.D.: 920777-0005
DATE RECEIVED: 05/01/92
TIME RECEIVED: 09:55
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
602 - VOLATILE AROMATIC ORGANICS		*1		602 (1)	05/11/92	KRB
Benzene	ND	1	ug/L			
Chlorobenzene	ND	1	ug/L			
1,2-Dichlorobenzene	ND	1	ug/L			
1,3-Dichlorobenzene	ND	1	ug/L			
1,4-Dichlorobenzene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Xylenes-total	ND	1	ug/L			

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Aurora, CO 80012
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ADDITIONAL DATA

CORE LABORATORIES

LABORATORY TESTS RESULTS 06/10/92

JOB NUMBER: 920777

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: GDM COC #5190
DATE SAMPLED: 04/29/92
TIME SAMPLED: 08:50
WORK DESCRIPTION: 9204290850

LABORATORY I.D.: 920777-0006
DATE RECEIVED: 05/01/92
TIME RECEIVED: 09:55
REMARKS: SMALL BUBBLE IN 1 VOA

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Chloride (Unfilt.)	293	3	mg/L	325.2 (1)	06/05/92	PJM
Solids, Total Dissolved (TDS)	1210	10	mg/L	160.1 (1)	05/05/92	RMN
602 - VOLATILE AROMATIC ORGANICS		*1		602 (1)	05/11/92	KRB
Benzene	ND	1	ug/L			
Chlorobenzene	ND	1	ug/L			
1,2-Dichlorobenzene	ND	1	ug/L			
1,3-Dichlorobenzene	ND	1	ug/L			
1,4-Dichlorobenzene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Toluene	1	1	ug/L			
Xylenes-total	ND	1	ug/L			

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☐ Albuquerque ☐ East Coast
500 Cooper St. NW *CO 5110*
Suite 200 *500 Cooper St. NW*
Albuquerque, NM 87102
(505) 842-0001

☐ Albuquerque ☐ East Coast
500 Cooper St. NW *CO 5110*
Suite 200 *500 Cooper St. NW*
Albuquerque, NM 87102
(505) 842-0001

Rocky Mountain
13111 E. Briarwood Ave.,
Suite 250⁴⁵
Englewood, CO 80112
(303) 649-9001

☐ Las Cruces
P.O. Drawer MM
Las Cruces, NM 88004
(505) 524-5384

Custody

Chain of Custody

DATE 1/30/91 PAGE 1 OF 1

LAB NAME CORE LABORATORIES				ADDRESS 1300 S. Potomac St. Ste 130				Aurora, CO 80012				TELEPHONE 303/751-1780							
SAMPLERS IS SIGNATURE																			
SAMPLE NUMBER		MATRIX		LOCATION															
9204281510		Liguid		MW-11															
9204281620		"		MW-12															
9204281735		"		MW-13															
9204281855		"		MW-14															
9204290835		"		Field Block															
9204290850		"		MW-9															
PROJECT: GPM				TOTAL NO. OF CONTAINERS 17				CHAIN OF CUSTODY SEALS Y6				REC'D GOOD CONDITION/COLD Y6				CONFORMS TO RECORD Yes			
PROJECT DIRECTOR NEE																			
CHARGE CODE NO. 5403002																			
SHIPPING ID. NO. Fed Ex																			
VIA: 2454068595																			
SPECIAL INSTRUCTIONS/COMMENTS: 920777																			
Bottles formed in vials initially had no headspace. Can you offer an explanation re high CO2?																			

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GPM GAS CORPORATION

4044 PENBROOK
ODESSA, TEXAS 79762

OIL CONSERVATION DIVISION
RECEIVED

'92 MAY 26 AM 9 29

May 19, 1992

Analytical Results
First Quarter - 1992
Lee Gas Processing Plant
Groundwater Sampling Event

CERTIFIED MAIL NO. P-512-092-851

RETURN RECEIPT REQUESTED

Roger C. Anderson, Acting Director
Environmental Bureau, Oil Conservation Division
Land Office Building
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Dear Mr. Anderson:

GPM Gas Corporation submits to the Environmental Bureau of the New Mexico Oil Conservation Division the analytical results for the first quarter of 1992 for the Lee Plant Groundwater Investigation project. In addition to the results for the New Mexico Oil Conservation Division required sampling, the results for sampling monitor well MW-20 and the domestic supply well south of the plant are also enclosed.

Core Laboratories of Aurora, Colorado performed the sample analyses for benzene, toluene, ethylbenzene, xylenes, (BTEX) and total petroleum hydrocarbon (TPH) constituents. Inter-Mountain Laboratories of Farmington, New Mexico performed the sample analyses for major ions and nitrates. Our consultant, H⁺GCL, followed standard operating procedures for collecting the groundwater samples. These procedures, outlined in the site specific sampling plan, are consistent with the requirements for sample collection as outlined in the EPA's publication, SW-846. H⁺GCL followed strict chain-of-custody procedures to ensure the integrity of the samples during transport to the laboratories.

At special request, the groundwater from the domestic supply well was also sampled for BTEX and TPH. Sample analysis indicated that no BTEX or TPH constituents were detected in these samples.

Please contact me at (915) 368-1085 should any questions arise concerning this information. Thank you.

Sincerely,

Vincent B. Bernard
Safety & Environmental Supervisor
New Mexico Region

VBB:mmm

Attachment

cc: w/o attachment
M.S. Nault, Lee Plant
R.D. Dunham, Hobbs Office

c:vbb25



CORE LABORATORIES

RECEIVED FEB 10 1992

CORE LABORATORIES ANALYTICAL REPORT

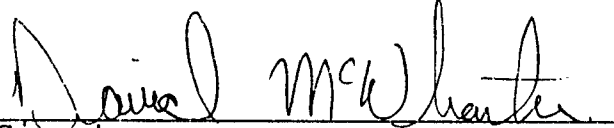
Job Number: 920139

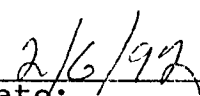
Prepared For:

HYGIENETICS/GCL

505 MARQUETTE AVE N.W.
ALBUQUERQUE, NM 87102

Date: 02/06/92


Signature


Date:

Name: David A. McWharter

Core Laboratories
1300 South Potomac, Suite 130
Aurora, CO 80012

Title: LABORATORY MANAGER

CORE LABORATORIES

CORE LABORATORIES



CORE LABORATORIES

LABORATORY TESTS RESULTS 02/06/92

JOB NUMBER: 920139

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: PHILLIPS COC #5257
DATE SAMPLED: 01/25/92
TIME SAMPLED: 12:20
WORK DESCRIPTION: 9201251220

LABORATORY I.D.: 920139-0003
DATE RECEIVED: 01/28/92
TIME RECEIVED: 09:54
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	01/31/92	MRC
Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Xylenes	ND	1	ug/L			
8015(Mod) - Hydrocarbon ID - TPH	<10	10	mg/L Diesel	8015 (Modified) (2)	01/30/92	MRC

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Aurora, CO 80012
(303) 751-1780



CORE LABORATORIES

LABORATORY TESTS RESULTS 02/06/92

JOB NUMBER: 920139

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: PHILLIPS COC #5257

DATE SAMPLED: 01/25/92

TIME SAMPLED: 13:02

WORK DESCRIPTION: 9201251302

LABORATORY I.D.: 920139-0004

DATE RECEIVED: 01/28/92

TIME RECEIVED: 09:54

REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*5		8020 (2)	02/03/92	MRC
Benzene	110	5	ug/L			
Toluene	20	5	ug/L			
Ethyl Benzene	20	5	ug/L			
Xylenes	10	5	ug/L			
8015(Mod) - Hydrocarbon ID - TPH	<10	10	mg/L Diesel	8015 (Modified) (2)	01/30/92	MRC

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Geoscience Consultants, Ltd.

- ☐ Albuquerque
500 Copper N.W.
Suite 200
Albuquerque, NM 87102
(505) 842-0501
- ☐ East Coast
4221 Forbes Blvd.,
Suite 240
Lanham, MD 20756
(301) 459-9677

- ☐ East Coast 4221 Forbes Blvd.,
Suite 240
Lanham, MD 20766
(301) 459-5677
- ☐ Rocky Mountain 13111 E. Briarwood Ave.,
Suite 250
Englewood, CO 80112
(303) 649-9001

☐ Las Cruces
P.O. Drawer MM
Las Cruces, NM 88004
(505) 524-5364

5257
Z. 101

Chain of Custody

DATE 1-25-92 PAGE 1 OF 1

LAB NAME CORE LABORATORIES

ADDRESS 1300 S. Potomac St. Ste 130
Aurora, CO 80012
303/751-1780

TELEPHONE

SAMPLERS (SIGNATURE)

Yin-Yang Wu

SAMPLE NUMBER	MATRIX	LOCATION
9201250910		MW-14
9201251117		WS-3 Saville mud
9201251320		WS-5
9201251302		WS-1

ANALYSIS REQUEST

NUMBER OF CONTAINERS	U	V	V	V	V
BASE/NEU/ACID CMPDS.					
GC/MS/ 625/8270					
VOLATILE CMPDS.					
GC/MS/ 624/8240					
PESTICIDES/PCB					
608/8080					
POLYNUCLEAR					
AROMATIC 610/8310					
PHENOLS, SUB PHENOLS					
604/8040					
HALOGENATED					
VOLATILES 601/8010					
AROMATIC VOLATILES					
502/8020					
TOTAL ORGANIC					
CARBON 415/9060					
TOTAL ORGANIC					
HALIDES 9020					
PETROLEUM					
HYDROCARBONS 418.1					
TPH	2	2	2	2	2
MODIFIED 8015					
PRIORITY POLLUTANT					
METALS (13)					
CAM METALS (18)					
TTC/STLC					
EP TOX					
METALS (8)					
SDWA-INORGANICS					
PRIMARY/SECONDARY					
HAZARDOUS WASTE					
PROFILE					
BTEX	3	3	3	3	3

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT: Phillips		TOTAL NO. OF CONTAINERS	20
PROJECT DIRECTOR M. Nee		CHAIN OF CUSTODY SEALS	YES
CHARGE CODE NO. 54030.01		REC'D GOOD CONDITION/COLD	YES
SHIPPING ID. NO. 0254422991		CONFORMS TO RECORD	NO
VIA: Fed Express		LAB NO. 920139	

SPECIAL INSTRUCTIONS/COMMENTS:

SPECIAL INSTRUCTIONS/COMMENTS: 1 JPH vial of sample #2 has an incorrect ID on its label. 92012117, It should be 9201251117. PPN 92-2892

RELINQUISHED BY M. M. Horvich M. M. Horvich H-GCL	1. (Signature) (Date) 1-27-92	RELINQUISHED BY (Signature) (Date)	2. (Time) (Date)	3. (Time) (Date)
(Printed Name) H-GCL	(Date)	(Printed Name)	(Date)	(Date)
(Company)	(Company)	(Company)	(Company)	(Company)
RECEIVED BY	1.	RECEIVED BY	2.	RECEIVED BY (LABORATORY)
(Signature)	(Time)	(Signature)	(Time)	(Signature) Daniel N. Neri 9:54
(Printed Name)	(Date)	(Printed Name)	(Date)	(Printed Name) DARREL NG-A-0411 1-28-92
(Company)	(Company)	(Company)	(Company)	(Company) CORE LABORATORIES
				ANALYTICAL

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CORE LABORATORIES

RECEIVED FEB 10 1992

CORE LABORATORIES
ANALYTICAL REPORT

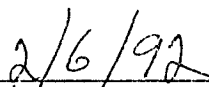
Job Number: 920128
Prepared For:

HYGIENETICS/GCL

505 MARQUETTE AVE. N.W.
ALBUQUERQUE, NM 87102

Date: 02/06/92


Signature


Date:

Name: David A. McWharter

Core Laboratories
1300 South Potomac, Suite 130
Aurora, CO 80012

Title: LABORATORY MANAGER



CORE LABORATORIES

LABORATORY TESTS RESULTS 02/06/92

JOB NUMBER: 920128

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: PHILLIPS LEE COC #4800

DATE SAMPLED: 01/24/92

TIME SAMPLED: 11:58

WORK DESCRIPTION: 9201241158

LABORATORY I.D.: 920128-0003

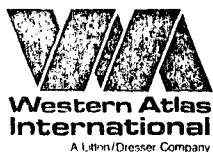
DATE RECEIVED: 01/25/92

TIME RECEIVED: 11:00

REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	01/27/92	MRC
Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Xylenes	ND	1	ug/L			
8015(Mod) - Hydrocarbon ID - TPH	<10	10	mg/L Diesel	8015 (Modified) (2)	01/29/92	MRC

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Aurora, CO 80012
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CORE LABORATORIES

LABORATORY TESTS RESULTS 02/06/92

JOB NUMBER: 920128

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: PHILLIPS LEE COC #4800

DATE SAMPLED: 01/24/92

TIME SAMPLED: 13:20

WORK DESCRIPTION: 9201241320

LABORATORY I.D.: 920128-0004

DATE RECEIVED: 01/25/92

TIME RECEIVED: 11:00

REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	01/27/92	MRC
Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Xylenes	ND	1	ug/L			
8015(Mod) - Hydrocarbon ID - TPH	<10	10	mg/L Diesel	8015 (Modified) (2)	01/29/92	MRC

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(303) 751-1780



CORE LABORATORIES

LABORATORY TESTS RESULTS 02/06/92

JOB NUMBER: 920128

CUSTOMER: HYGIENETICS/GCL

ATTN:

CLIENT I.D.: PHILLIPS LEE COC #4800
DATE SAMPLED: 01/24/92
TIME SAMPLED: 15:00
WORK DESCRIPTION: 9201241500

LABORATORY I.D.: 920128-0005
DATE RECEIVED: 01/25/92
TIME RECEIVED: 11:00
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	01/27/92	MRC
Benzene	ND	1	ug/L			
Toluene	3	1	ug/L			
Ethyl Benzene	15	1	ug/L			
Xylenes	ND	1	ug/L			
8015(Mod) - Hydrocarbon ID - TPH	<10	10	mg/L Diesel	8015 (Modified) (2)	01/30/92	MRC

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P.O. Drawer MM
Las Cruces, NM 88004
(505) 524-5364

No 4800
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DATE 1-23-92 PAGE 1 OF 1

LAB NAME CORE LABORATORIES

ADDRESS 1300 S. Polomac St. Ste 120

Aurora, CO 80012

TELEPHONE 303/751-1780

SAMPLERS (SIGNATURE)

M. M. Mohrlich

ANALYSIS REQUEST

SAMPLE NUMBER	MATRIX	LOCATION	GC/MS/ 625/8270 VOLATILE CMPS.	GC/MS/ 624/8240 PESTICIDES/PCB	AROMATIC 610/8310 POLYNUCLEAR	PHENOLS, SUB PHENOLS 604/8040	HALOGENATED VOLATILES 601/8010	AROMATIC VOLATILES 602/8020	TOTAL ORGANIC CARBON 415/9060	TOTAL ORGANIC HALIDES 5020	PETROLEUM HYDROCARBONS 418.1	TPH MODIFIED 8015	PRIORITY POLLUTANT METALS (13)	CAM METALS (18) TLC/STLC	EP TOX METALS (8)	SDWA-INORGANICS PRIMARY/SECONDARY	HAZARDOUS WASTE PROFILE	BTEX	NUMBER OF CONTAINERS
9201231700	H ₂ O	MW-11										2						3	5
9201231855	H ₂ O	MW-20										2						3	5
9201241158	H ₂ O	MW-13										2						3	5
9201241320	H ₂ O	MW-12										2						3	5
9201241500	H ₂ O	MW-9										2						3	5
9201241538	H ₂ O	MW-0 Blank										1						1	1

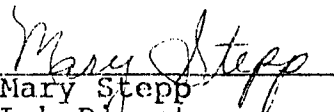
PROJECT INFORMATION		SAMPLE RECEIPT		RELINQUISHED BY		RELINQUISHED BY		RELINQUISHED BY	
PROJECT: Phillips Lee		TOTAL NO. OF CONTAINERS 26		M. Mohrlich 1730		M. Mohrlich 1730		M. Mohrlich 1730	
PROJECT DIRECTOR M. NEE		CHAIN OF CUSTODY SEALS Yes		(Signature)		(Signature)		(Signature)	
CHARGE CODE NO. 54030.01		REC'D GOOD CONDITION/COLD Yes		(Printed Name)		(Printed Name)		(Printed Name)	
SHIPPING ID. NO. 6560151485		CONFORMS TO RECORD Yes		(Company)		(Company)		(Company)	
VIA: Fed Express		LAB NO. 920128		RECEIVED BY		RECEIVED BY		RECEIVED BY (LABORATORY)	
SPECIAL INSTRUCTIONS/COMMENTS:				(Signature)		(Signature)		(Signature)	
				(Printed Name)		(Printed Name)		(Printed Name)	
				(Company)		(Company)		(Company)	
				ANALYTICAL		ANALYTICAL		ANALYTICAL	

CLIENT: H+GCL, Inc.
ID: 0910
SITE: MW-14
LAB NO: F8044

DATE REPORTED: 02/06/92
DATE RECEIVED: 01/28/92
DATE COLLECTED: 01/25/92

Lab pH (s.u.).....	7.49
Lab Conductivity, umhos/cm @ 25C....	1340
Lab Resistivity, ohm-m.....	7.45
Total Dissolved Solids (180C), mg/L.	848
Total Dissolved Solids (calc), mg/L.	795
Total Alkalinity as CaCO ₃ , mg/L.....	552
Total Hardness as CaCO ₃ , mg/L.....	679
Sodium Adsorption Ratio.....	0.75
Total Nitrate and Nitrite, mg/L.....	0.17

	mg/L	meq/L
Bicarbonate as HCO ₃	671	11
Carbonate as CO ₃	0	0
Chloride.....	131	3.69
Sulfate.....	16.1	0.33
Calcium.....	260	13.0
Magnesium.....	7.30	0.60
Potassium.....	4.92	0.13
Sodium.....	44.8	1.95
Major Cations.....		15.7
Major Anions.....		15.1
Cation/Anion Difference.....		1.85 %


Mary Stepp
Lab Director

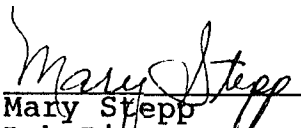

Wanda Orso
Water Lab Supervisor

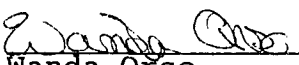
CLIENT: H+GCL, Inc.
ID: 1302
SITE: WS-1
LAB NO: F8045

DATE REPORTED: 02/06/92
DATE RECEIVED: 01/28/92
DATE COLLECTED: 01/25/92

Lab pH (s.u.).....	7.31
Lab Conductivity, umhos/cm @ 25C....	685
Lab Resistivity, ohm-m.....	14.6
Total Dissolved Solids (180C), mg/L.	428
Total Dissolved Solids (calc), mg/L.	378
Total Alkalinity as CaCO ₃ , mg/L.....	201
Total Hardness as CaCO ₃ , mg/L.....	280
Sodium Adsorption Ratio.....	0.87
Total Nitrate and Nitrite, mg/L.....	2.62

	mg/L	meq/L
Bicarbonate as HCO ₃	245	4.01
Carbonate as CO ₃	0	0
Chloride.....	69.1	1.95
Sulfate.....	43.4	0.90
Calcium.....	102	5.10
Magnesium.....	6.02	0.50
Potassium.....	2.98	0.08
Sodium.....	33.4	1.45
Major Cations.....		7.13
Major Anions.....		7.06
Cation/Anion Difference.....		0.49 ±


Mary Stepp
Lab Director

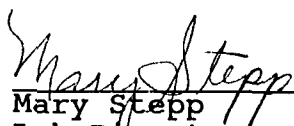

Wanda Orso
Water Lab Supervisor

CLIENT: H+GCL, Inc.
ID: 1117
SITE: WS-2
LAB NO: F8046

DATE REPORTED: 02/06/92
DATE RECEIVED: 01/28/92
DATE COLLECTED: 01/25/92

Lab pH (s.u.).....	7.22
Lab Conductivity, umhos/cm @ 25C....	1280
Lab Resistivity, ohm-m.....	7.84
Total Dissolved Solids (180C), mg/L.	740
Total Dissolved Solids (calc), mg/L.	634
Total Alkalinity as CaCO ₃ , mg/L.....	141
Total Hardness as CaCO ₃ , mg/L.....	521
Sodium Adsorption Ratio.....	0.76
Total Nitrate and Nitrite, mg/L.....	<0.02

	mg/L	meq/L
Bicarbonate as HCO ₃	172	2.82
Carbonate as CO ₃	0	0
Chloride.....	317	8.95
Sulfate.....	1.23	0.03
Calcium.....	152	7.60
Magnesium.....	34.2	2.61
Potassium.....	4.22	0.11
Sodium.....	39.9	1.74
Major Cations.....		12.3
Major Anions.....		11.8
Cation/Anion Difference.....		1.93 %


Mary Stepp
Lab Director


Wanda Orso
Water Lab Supervisor

Science Consultants, Ltd.

Albuquerque
500 Copper N.W.
Suite 200
Albuquerque, NM
(505) 842-0001

Silver Spring
1103 Spring St.
Suite 706
Silver Spring, MD
(301) 587-2088

Newport Beach
1400 Quail Street
Suite 140
Newport Beach, CA
(714) 724-0536

Las Cruces
P.O. Drawer MN
Las Cruces, NM
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7524
Chain of Custody

DATE 1-25-92 PAGE 1 OF 1

[illegible]

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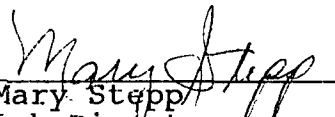
RECEIVED FEB 6 7 1992

CLIENT: H+GCL, Inc.
ID: 1700
SITE: MW-11
LAB NO: F8036DATE REPORTED: 02/05/92
DATE RECEIVED: 01/25/92
DATE COLLECTED: 01/23/92

Lab pH (s.u.).....	7.59
Lab Conductivity, umhos/cm @ 25C....	1630
Lab Resistivity, ohm-m.....	6.12
Total Dissolved Solids (180C), mg/L.	930 *
Total Dissolved Solids (calc), mg/L.	991
Total Alkalinity as CaCO ₃ , mg/L.....	472
Total Hardness as CaCO ₃ , mg/L.....	568
Sodium Adsorption Ratio.....	3.01
Total Nitrate and Nitrite, mg/L.....	<0.02

	mg/L	meq/L
Bicarbonate as HCO ₃	576	9.44
Carbonate as CO ₃	0	0
Chloride.....	287	8.09
Sulfate.....	28	0.58
Calcium.....	210	10.5
Magnesium.....	10.8	0.88
Potassium.....	7.64	0.20
Sodium.....	165	7.18
Major Cations.....		18.7
Major Anions.....		18.1
Cation/Anion Difference.....		1.68 %

* Sample reanalyzed, no significant change.

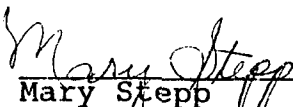

Mary Stepp
Lab Director
Wanda Orso
Water Lab Supervisor

CLIENT: H+GCL, Inc.
ID: 1855
SITE: MW-20
LAB NO: F8037

DATE REPORTED: 02/05/92
DATE RECEIVED: 01/25/92
DATE COLLECTED: 01/23/92

Lab pH (s.u.).....	7.79
Lab Conductivity, umhos/cm @ 25C....	508
Lab Resistivity, ohm-m.....	19.7
Total Dissolved Solids (180C), mg/L.	290
Total Dissolved Solids (calc), mg/L.	256
Total Alkalinity as CaCO ₃ , mg/L.....	172
Total Hardness as CaCO ₃ , mg/L.....	196
Sodium Adsorption Ratio.....	0.76
Total Nitrate and Nitrite, mg/L.....	3.19

	mg/L	meq/L
Bicarbonate as HCO ₃	210	3.44
Carbonate as CO ₃	0	0
Chloride.....	25.2	0.71
Sulfate.....	23.0	0.48
Calcium.....	76.8	3.83
Magnesium.....	1.12	0.09
Potassium.....	2.68	0.07
Sodium.....	24.4	1.06
Major Cations.....		5.05
Major Anions.....		4.85
Cation/Anion Difference.....		2.00 %


Mary Stepp
Lab Director

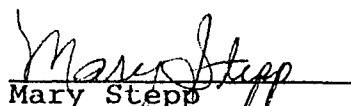

Wanda Orso
Water Lab Supervisor

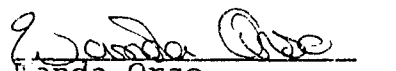
CLIENT: H+GCL, Inc.
ID: 1158
SITE: MW-13
LAB NO: F8038

DATE REPORTED: 02/05/92
DATE RECEIVED: 01/25/92
DATE COLLECTED: 01/24/92

Lab pH (s.u.).....	7.48
Lab Conductivity, umhos/cm @ 25C....	1690
Lab Resistivity, ohm-m.....	5.93
Total Dissolved Solids (180°), mg/L.	980
Total Dissolved Solids (calc), mg/L.	971
Total Alkalinity as CaCO ₃ , mg/L.....	499
Total Hardness as CaCO ₃ , mg/L.....	599
Sodium Adsorption Ratio.....	2.55
Total Nitrate and Nitrite, mg/L.....	1.12

	mg/L	meq/L
Bicarbonate as HCO ₃	609	9.98
Carbonate as CO ₃	0	0
Chloride.....	247	6.96
Sulfate.....	35.4	0.74
Calcium.....	236	11.8
Magnesium.....	2.29	0.19
Potassium.....	7.45	0.19
Sodium.....	143	6.23
Major Cations.....		18.4
Major Anions.....		17.8
Cation/Anion Difference.....		1.73 %


Mary Stepp
Lab Director


Randa Orso
Water Lab Supervisor

CLIENT: H+GCL, Inc.
ID: 1320
SITE: MW-12
LAB NO: F8039

DATE REPORTED: 02/05/92
DATE RECEIVED: 01/25/92
DATE COLLECTED: 01/24/92

Lab pH (s.u.).....	7.53
Lab Conductivity, umhos/cm @ 25C....	1100
Lab Resistivity, ohm-m.....	9.11
Total Dissolved Solids (180C), mg/L.	680
Total Dissolved Solids (calc), mg/L.	660
Total Alkalinity as CaCO ₃ , mg/L.....	427
Total Hardness as CaCO ₃ , mg/L.....	330
Sodium Adsorption Ratio.....	3.04
Total Nitrate and Nitrite, mg/L.....	<0.02

	mg/L	meq/L
Bicarbonate as HCO ₃	520	8.53
Carbonate as CO ₃	0	0
Chloride.....	105	2.97
Sulfate.....	35.4	0.74
Calcium.....	130	6.51
Magnesium.....	1.02	0.08
Potassium.....	5.50	0.14
Sodium.....	127	5.52
Major Cations.....		12.2
Major Anions.....		12.2
Cation/Anion Difference.....		0.05 %


Mary Stepp
Lab Director


Wanda Orso
Water Lab Supervisor

CLIENT: H+GCL, Inc.
ID: 1500
SITE: MW-9
LAB NO: F8040

DATE REPORTED: 02/05/92
DATE RECEIVED: 01/25/92
DATE COLLECTED: 01/24/92

Lab pH (s.u.).....	7.23
Lab Conductivity, umhos/cm @ 25C....	1620
Lab Resistivity, ohm-m.....	6.18
Total Dissolved Solids (180C), mg/L.	900
Total Dissolved Solids (calc), mg/L.	849
Total Alkalinity as CaCO ₃ , mg/L.....	511
Total Hardness as CaCO ₃ , mg/L.....	680
Sodium Adsorption Ratio.....	0.84
Total Nitrate and Nitrite, mg/L.....	<0.02

	mg/L	meq/L
Bicarbonate as HCO ₃	622	10.2
Carbonate as CO ₃	0	0
Chloride.....	218	6.15
Sulfate.....	6.59	0.14
Calcium.....	240	12.0
Magnesium.....	19.4	1.59
Potassium.....	7.62	0.19
Sodium.....	50.4	2.19
Major Cations.....		16.0
Major Anions.....		16.5
Cation/Anion Difference.....		1.64 %


Mary Stepp
Lab Director


Wanda Orso
Water Lab Supervisor

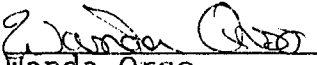
CLIENT: H+GCL, Inc.
ID: Lab Split
SITE: MW-13
LAB NO: F8041

DATE REPORTED: 02/05/92
DATE RECEIVED: 01/25/92
DATE COLLECTED: 01/24/92

Lab pH (s.u.).....	7.52
Lab Conductivity, umhos/cm @ 25C....	1670
Lab Resistivity, ohm-m.....	5.97
Total Dissolved Solids (180C), mg/L.	990
Total Dissolved Solids (calc), mg/L.	964
Total Alkalinity as CaCO ₃ , mg/L.....	498
Total Hardness as CaCO ₃ , mg/L.....	592
Sodium Adsorption Ratio.....	2.58
Total Nitrate and Nitrite, mg/L.....	1.37

	mg/L	meq/L
Bicarbonate as HCO ₃	608	9.96
Carbonate as CO ₃	0	0
Chloride.....	243	6.85
Sulfate.....	37.9	0.79
Calcium.....	225	11.2
Magnesium.....	7.15	0.59
Potassium.....	7.49	0.19
Sodium.....	144	6.27
Major Cations.....		18.3
Major Anions.....		17.7
Cation/Anion Difference.....		1.66 %


Mary Stepp
Lab Director


Wanda Orso
Water Lab Supervisor



Geoscience Consultants, Ltd.

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Albuquerque, NM 87102
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(301) 587-2088

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1400 Quail Street
Suite 140
Newport Beach, CA 92660
(714) 724-0536

☐ Las Cruces
P.O. Drawer MM
Las Cruces, NM 88004
(505) 524-5364

2623

Chain of Custody

DATE 1-23-92 PAGE 1 OF 1

LAB NAME InterMountain Laboratories

ADDRESS 2506 West Main Street

Farmington, NM 87401

TELEPHONE 505/326-4727

SAMPLERS (SIGNATURE)
M. Moharich

SAMPLE NUMBER	MATRIX	LOCATION
9201231700	H ₂ O	MW-11
9201231855	H ₂ O	MW-20
9201241153	H ₂ O	MW-13
9201241300	H ₂ O	MW-12
9201241500	H ₂ O	MW-9

ANALYSIS REQUEST

GC/MS/ 625/8270	BASE/NEU/ACID CMPDS.	GC/MS/ 624/8240	VOLATILE CMPDS.	PESTICIDES/PCB	608/8080	POLYNUCLEAR	AROMATIC 810/8310	PHENOLS, SUB PHENOLS	604/8040	HALOGENATED	VOLATILES 601/8010	AROMATIC VOLATILES	602/8020	TOTAL ORGANIC	CARBON 415/9060	TOTAL ORGANIC	HALIDES 9020	PETROLEUM	HYDROCARBONS 418.1	TPH	MODIFIED 8015	PRIORITY POLLUTANT	CAM METALS (18)	TITLE/STLC	EP TOX	METALS (8)	SDWA-INORGANICS	PRIMARY/SECONDARY	HAZARDOUS WASTE	PROFILE	General Chemistry	Nitrates

PROJECT INFORMATION

PROJECT Phillips Lee
PROJECT DIRECTOR M. Lee
CHARGE CODE NO. 54030.01
SHIPPING ID NO. 9223341083
VIA: Fed. Express

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS 1
CHAIN OF CUSTODY SEALS 1
REC'D GOOD CONDITION/COLD 1
CONFORMS TO RECORD 1
LAB NO. 1730

RELINQUISHED BY

M. Moharich
(Signature)
M. Moharich
(Printed Name)
HIGGL
(Company)

RELINQUISHED BY

1. (Signature) (Time)
2. (Signature) (Time)
3. (Signature) (Time)

SPECIAL INSTRUCTIONS/COMMENTS:

RECEIVED BY (Signature) (Time)
RECEIVED BY (Signature) (Time)
RECEIVED BY (Signature) (Time)

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GPM GAS CORPORATION

4044 PENBROOK
ODESSA, TEXAS 79762

OIL CONSERVATION DIVISION
RECEIVED

'92 MAY 5 AM 9 01

April 29, 1992

Lee Plant
Sample Analyses Requirements,
Discharge Plan GW-2

Mr. William C. Olson, Hydrogeologist
Environmental Bureau, Oil Conservation Division
Energy, Minerals & Natural Resources Department
State Land Office Building
P. O. Box 2088
Santa Fe, New Mexico 87504-2088

Dear Mr. Olson:

GPM Gas Corporation (formerly Phillips 66 Natural Gas Company) requests that quarterly groundwater monitoring analytical requirements pursuant to discharge plan GW-2 be revised. As we discussed during our April 23, 1992, telephone conversation, GPM requests that analyses conducted on groundwater samples include benzene, toluene, ethylbenzene, xylene (BTEX), and chloride. We further request that analyses for total petroleum hydrocarbons and other major ions be discontinued, and that depth to groundwater measurements be collected on a quarterly basis as opposed to monthly.

If you should have any questions regarding this proposed amendment, please call me at (915) 368-1085.

Sincerely,

V. B. Bernard
Safety & Environmental Supervisor

VBB:mdp
VB2016.NMR

cc: Martin J. Nee
H + GCL
Albuquerque, NM

R. C. Anderson
Oil & Conservation Division
Santa Fe, NM