3R - 276

REPORTS

DATE:

2003

3R276

ANNUAL MONITORING REPORT

MANANA GAS, INC.
NANCY HARTMAN NO. 1E

(A) SEC. 22 - T29N - R11W, NMPM
SAN JUAN COUNTY, NEW MEXICO

RECEIVED

DEC 26 2003

Oil Conservation Division
Environmental Bureau

PREPARED FOR:
NEW MEXICO OIL CONSERVATION DIVISION
1220 ST. FRANCIS DRIVE
SANTA FE, NEW MEXICO 87504

PREPARED BY:
BLAGG ENGINEERING, INC.
CONSULTING ENGINEERS
P.O. BOX 87
BLOOMFIELD, NM 87413
(505)632-1199

December 19, 2003

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ANNUAL MONITORING REPORT
MANANA GAS NANCY HARTMAN NO. 1E

Introduction and Executive Summary

This monitoring report presents the results of groundwater monitoring at the Manana Gas Nancy Hartman No. 1E site (Figure 1) since the last report submitted in October, 2001. Soil and groundwater contamination was discovered at the site in October, 2000. Groundwater monitor wells and an air sparge reclamation system were installed to address site monitoring and cleanup. Blagg Engineering, Inc. (BEI) has conducted groundwater monitoring to track variations in contaminate concentrations. The operator, Manana Gas, is responsible for maintenance of the reclamation system.

The remediation system was in operation from March 9, 2001 to April 10, 2002 and is presently off line. The air compressor unit failed on April 10, 2002 and the operator elected to revert to natural attenuation for final site remediation. Any free product and high levels of contaminate in the source area were removed by the reclamation system prior to shut-down. Although the source area has experienced substantial reductions in contaminate levels, several site wells continue to exhibit hydrocarbon impacts in excess of regulatory standards. Natural attenuation is expected to reduce these impacts over time.

Summary Water Quality Results

Groundwater monitoring test results are included in Table 1 on the following page. The primary contaminates of concern are hydrocarbon constituents benzene, toluene, ethylbenzene and total xylenes (BTEX). The test results indicate that substantial groundwater remediation has been achieved in the source area. Source area monitor well MW-2M has achieved four quarters of testing with values below closure standards. Other key wells that are indicating continued test results below closure standards include side-gradient wells MW-3 and MW-3M, and down-gradient wells MW-4R, MW-6M and MW-7M.

Wells in the monitoring system that continue to test BTEX constituents in excess of regulatory standards include wells MW-1A and MW-5A. However, both of these wells have experienced significant reductions in contaminate levels over time. Down-gradient monitor well MW-9M has exhibited a noticeable increase in BTEX levels since initiation of monitoring. This is likely due

MANANA GAS, INC. GROUNDWATER MONITOR WELL BTEX LAB RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

NANCY HARTMAN # 1E
UNIT A, SEC. 22, T29N, R11W

REVISED DATE: DECEMBER 16, 2003

FILENAME: (NH-4QR03.WK4) NJV

SAMPLE DATE	MONITOR WELL #	D.T.W. (ft)	T.D. (ft)	TDS mg/L	COND. (umhos/cm)	pH	PRODUCT (ft)	Benzene	Toluene	Ethyl Benzene	Total Xylene
06-Nov-00	MW #1	14.79	22.36		1,778	6.83		5,000	10,000	830	12,000
18-Sep-01	MW #1A	14.57	25.00		900	7.17		14,000	23,000	1,000	14,000
18-Nov-01		14.00			900	7.96		100	450	31	660
18-Feb-02		15.67			800	7.74		4.3	7.0	4.2	130
17-May-02		15.89			800	7.44		4.5	2.5	1.7	34
17-Aug-02		14.41			900	7.19		310	280	9.0	320
06-Dec-02		13.91			800	7.19		940	98	39	970
10-Dec-03		15.57			1,200	7.02		850	ND	35	710
11-Dec-00	MW #1M	16.00	24.00		1,200	7.37		ND	ND	ND	ND
06-Nov-00	MW #2	14.84	22.71		1,200	7.21		48	ND	ND	ND
19-Feb-01		16.75			1,200	7.21		220	ND	ND	0.56
21-May-01		17.10			600	8.10		ND	ND	ND	ND
21-Aug-01		15.26			500	8.44		ND	ND	ND	ND
18-Nov-01		14.69			800	7.76		ND	0.51	ND	0.70
17-Aug-02		14.90			1,000	7.25		86	ND	ND	ND
06-Dec-02		14.42			1,000	7.29		0.70	ND	ND	ND
11-Mar-03		16.51			1,100	7.31		ND	ND	ND	ND
13-Jun-03		17.31			1,000	7.26		ND	ND	ND	ND
10-Dec-03		16.05			1,400	6.94		ND	ND	ND	ND
11-Dec-00	MW #2M	16.49	23.50		1,300	7.34		11,000	34,000	910	14,000
19-Feb-01		17.91			1,300	7.24		3,900	30,000	1,200	13,000
21-May-01		18.21			1,000	8.04		ND	96	16	280
21-Aug-01		16.13			900	8.10		ND	64	11	330
18-Nov-01		13.40			900	7.95		ND	ND	4.3	160
18-Feb-02		16.25			800	7.78		ND	ND	ND	9.4
19-Feb-01	MW #3	17.09	23.14		1,400	7.66		ND	ND	ND	ND
21-May-01		18.21			1,000	7.48		ND	ND	ND	ND
18-Feb-02		16.49			1,400	7.48		ND	ND	ND	ND
06-Dec-00	MW #3M	14.24	23.50		901	7.10		ND	ND	ND	ND
19-Feb-01		16.13			1,000	7.41		ND	ND	ND	ND
21-May-01		16.39			700	7.87		ND	ND	ND	ND
06-Nov-00	MW #4M	13.67	25.00		1,512	6.92		680	ND	ND	ND
18-Sep-01	MW #4R	11.30	25.00		900	7.55		ND	ND	ND	ND
18-Nov-01		10.16	22.70		900	7.56		ND	ND	ND	0.76
18-Feb-02		11.54			700	7.62		ND	ND	ND	ND
17-Aug-02		10.36						ND	ND	ND	ND
06-Nov-00	MW #5M	15.34	25.00		1,010	7.02		1,800	4,500	330	4,400
18-Sep-01	MW #5A	14.25	25.00		1,000	7.38		640	6,500	310	3,900
18-Nov-01		12.30			1,000	6.74		54	1,100	32	490
18-Feb-02		15.25			1,000	7.35		5.1	56	13	190
17-May-02		15.57			1,100	7.02		3.7	1,000	120	1,300
17-Aug-02		14.07			1,000	7.05		ND	3,000	230	2,900
10-Dec-03		15.29			1,000	6.92		ND	390	200	2,600
					NMWQCC GROUNDWATER STANDARDS			10	750	750	620

MANANA GAS , INC. GROUNDWATER MONITOR WELL BTEX LAB RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

NANCY HARTMAN # 1E
UNIT A, SEC. 22, T29N, R11W

REVISED DATE: DECEMBER 16, 2003 FILENAME: (NH-4QR03.WK4) NJV

15-Nov-00	MW #6M	14.27	24.00		1,300	7.43		ND	ND	ND	ND
19-Feb-01		15.70			1,100	7.41		ND	ND	ND	ND
21-May-01		15.79			1,100	7.19		2.0	ND	ND	ND
21-Aug-01		14.37			1,300	7.27		1.5	ND	ND	ND
18-Nov-01		12.40	21.65		1,400	7.80		ND	ND	ND	ND
15-Nov-00	MW #7M	14.14	19.00		1,200	7.23		ND	ND	ND	ND
19-Feb-01		15.62			1,200	7.30		ND	ND	ND	ND
21-May-01		15.74			1,200	7.18		ND	ND	ND	ND
15-Nov-00	MW #8M	14.67	25.00		900	7.68		ND	ND	ND	ND
18-Nov-01	MW #9M	13.29	22.92		1,000	7.22		82	ND	ND	ND
07-Dec-01		13.49			1,000	7.26		120	ND	ND	ND
18-Feb-02		14.57			900	7.38		470	ND	ND	5.7
17-May-02		14.78			900	7.12		780	20	ND	16
17-Aug-02		13.49			1,000	6.98		490	ND	ND	ND
06-Dec-02		13.02			900	7.14		91	ND	ND	1.5
11-Mar-03		14.95			1,000	6.90		2,800	0.84	1.5	21
13-Jun-03		15.64			1,100	6.78		2,400	ND	62	130
10-Dec-03		14.58			1,200	6.68		ND	ND	ND	ND
					NMWQCC GROUNDWATER STANDARDS			10	750	750	620

NOTES :
1) MW # 8M top of casing damaged by construction crew - November , 2000 .
2) MW #'s 1 , 4M , & 5M plugged and abandoned on November 16 , 2000 .
3) MW # 8M plugged and abandoned on March 19 , 2002 .
4) MW # 1M - background monitor well .
5) MW # 2M - monitor well within 1 of 2 probable source areas.
6) MW #'s 7M & 8M - down gradient , but lateral on west perimeter of plume .
7) MW # 6M - furthest down gradient monitor well from source areas.
8) MW #'s highlighted are or possibly are effected by the air sparge system .
9) Original air sparge system (AS -1 through AS - 9) start up initiated on 3 / 9 / 01 .
10) Additional air sparge system (AS -10 through AS - 16) start up initiated on 10 / 19 / 01 .
11) Compressor shut down & removed on 04 / 10 / 02 .
12) Introduced in - situ microbial treatment within MW # 9M on 5 / 20 / 02 .

to migration from up-gradient impacts. However, the most recent groundwater test results indicate that prior remedial efforts are having a positive impact on this well, with non-detect results in all BTEX constituents.

Summary Groundwater Gradient Measurements

Groundwater elevations at the site vary with the seasons by several feet, but the gradient direction has remained constant in a primarily southern direction. Groundwater elevation maps for each sampling event are included in Figures 3a - 3h.

Recommendations for Further Action

Continued site well monitoring is recommended to track contamination migration and natural attenuation. Unless further indicated, BEI believes that the present monitoring system is adequate to track contaminate degradation in all impacted areas.

Although re-initiation of the reclamation system would likely accelerate cleanup of impacts, there is the possibility that system operation could result in detrimental impacts to areas downgradient from the system (area around monitor well MW-9M, for example). Therefore, BEI believes that continued natural attenuation is an acceptable method for final site cleanup. In the event that downgradient impacts are discovered in future monitoring, area specific treatments such as in-situ placement of an oxygenator could be considered. However, BEI believes it is premature to install any alternative reclamation systems at this time.

The Bloomfield School District is considering revisions to the parking lot and expension of the school towards the east. This work will require BEI to replace site above grade well protectors with flush grade manhole covers.

Limitations and Closure

The scope of BEI's services has been limited to site sampling and reporting. Work has been performed in accordance with generally accepted practices in environmental engineering and hydrogeology.

This report has been prepared for the exclusive use of Manana Gas, Inc. as it pertains to the Nancy Hartman No. 1E located in the NE/4 of the NE/4 of Section 22, Township 29N, Range 11W, NMPM, San Juan County, New Mexico.

I certify that I am personally familiar with the investigative work at the site, site conditions and information as reported in this document.

Respectively Submitted:
Blagg Engineering, Inc.

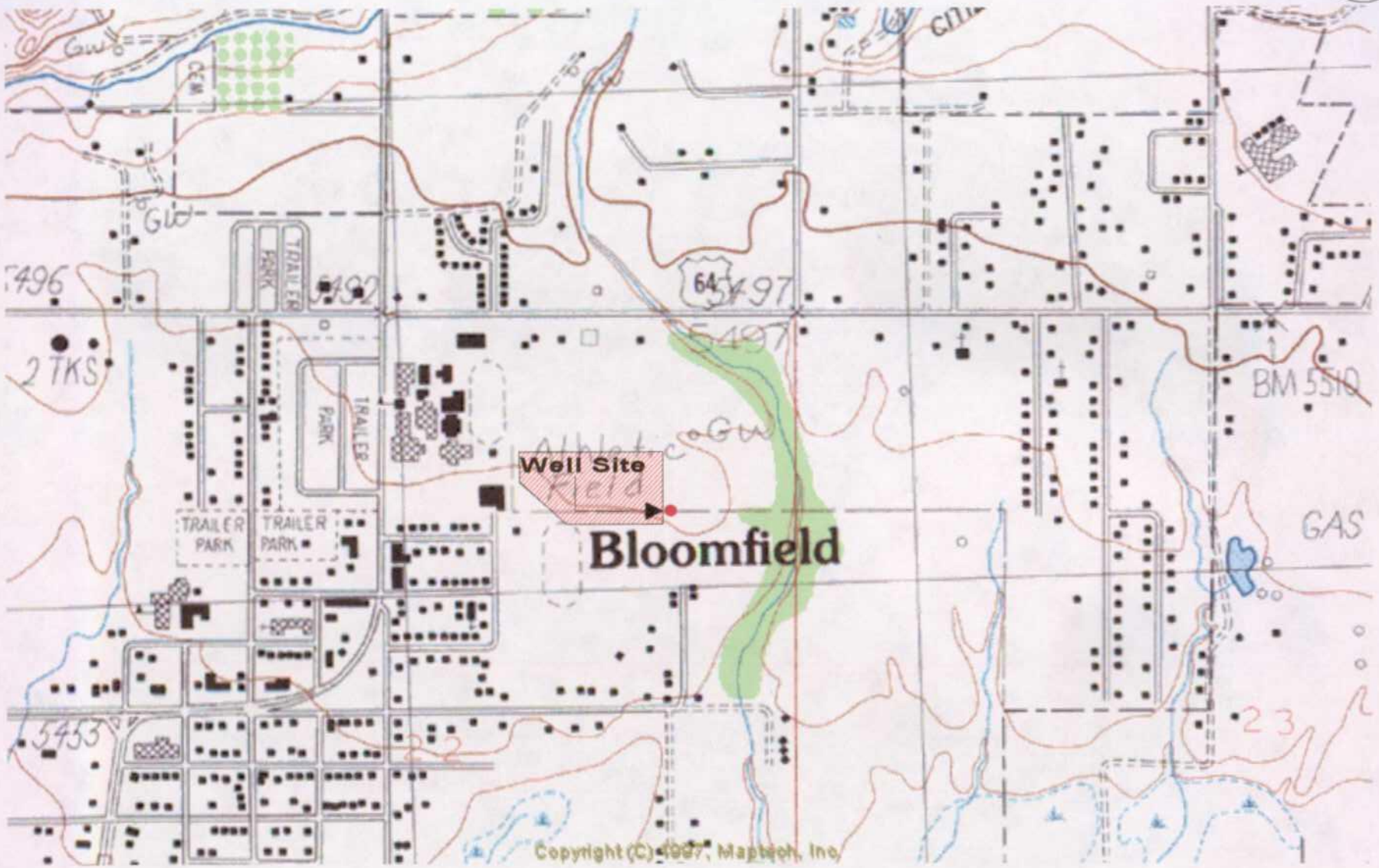
Jeffrey C. Blagg

Jeffrey C. Blagg, NMPE 11607
President

FIGURES

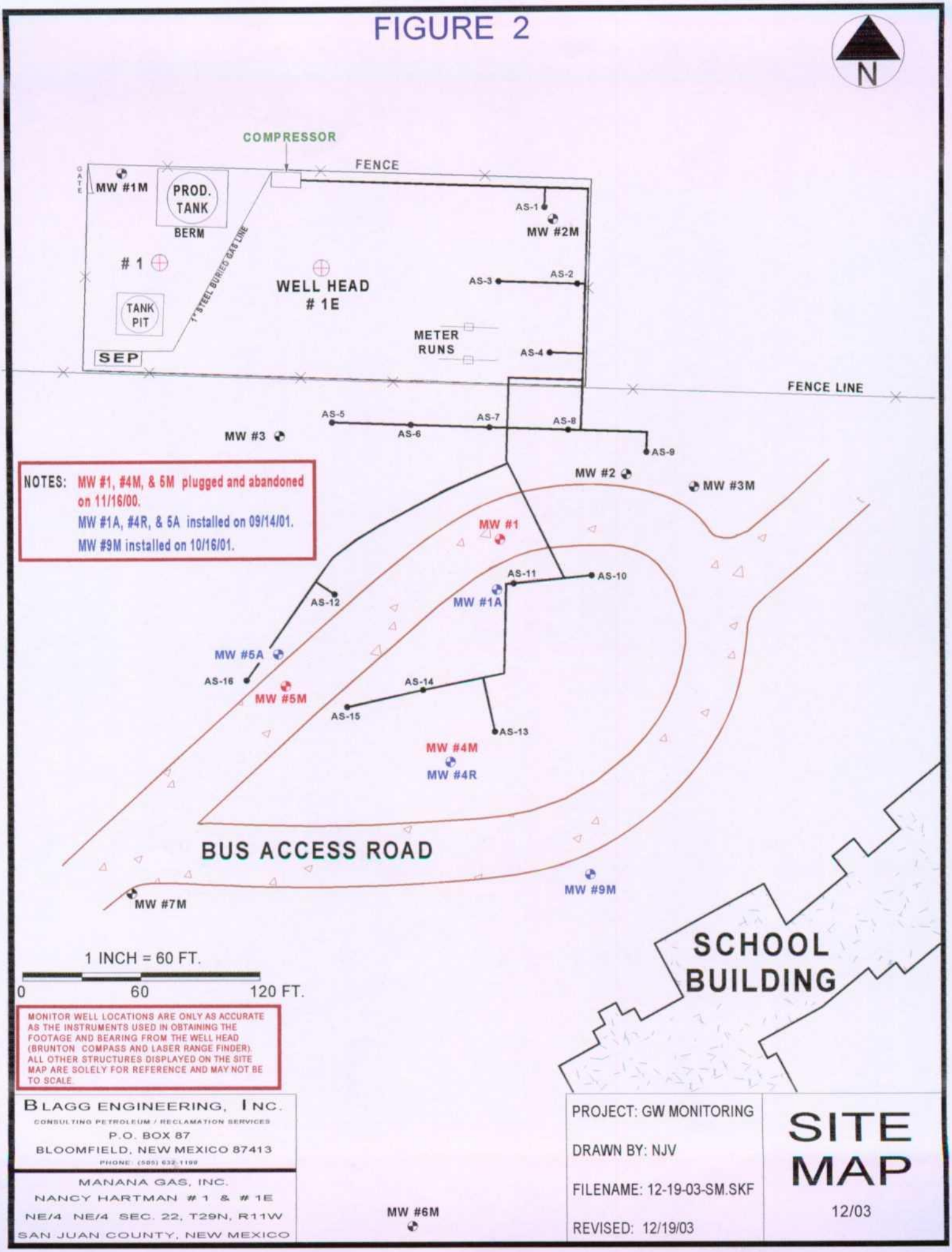
FIGURE 1

TOPOGRAPHIC MAP
BLOOMFIELD, NEW MEXICO
PROVISIONAL EDITION 1985



MANANA GAS, INC. NANCY HARTMAN #1 & #1E NE/4 NE/4 SEC. 22, T29N, R11W SAN JUAN COUNTY, NEW MEXICO	BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE: (505) 632-1199	GW MONITORING REVISED BY: NJV FILENAME: MANA-TP-12-03.SKF	REFERENCE MAP 12/03

FIGURE 2



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MANANA GAS, INC.
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NE/4 NE/4 SEC. 22, T29N, R11W
SAN JUAN COUNTY, NEW MEXICO

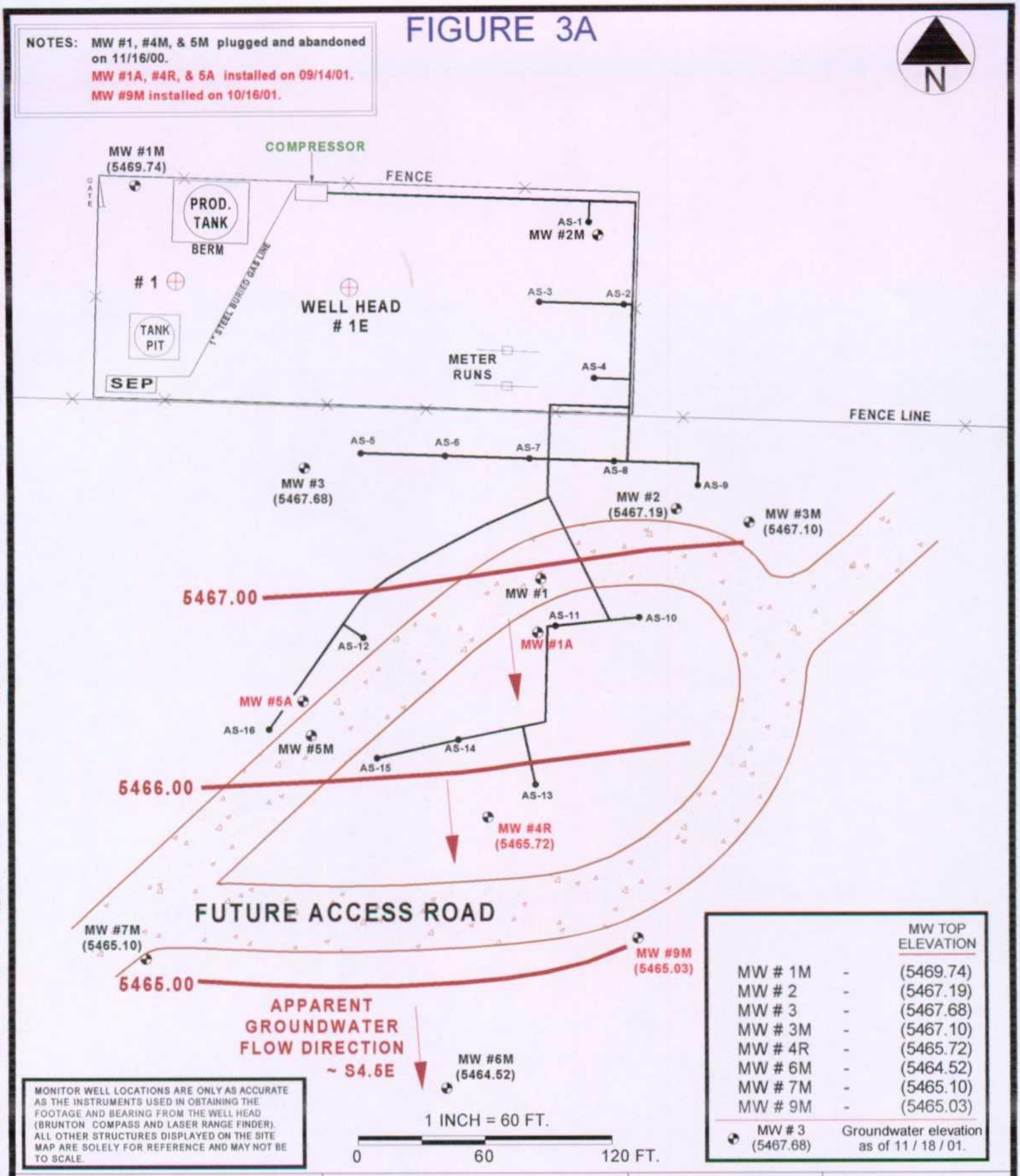
PROJECT: GW MONITORING
DRAWN BY: NJV
FILENAME: 12-19-03-SM.SKF
REVISED: 12/19/03

SITE MAP

12/03

FIGURE 3A

NOTES: MW #1, #4M, & 5M plugged and abandoned on 11/16/00.
MW #1A, #4R, & 5A installed on 09/14/01.
MW #9M installed on 10/16/01.



		MW TOP ELEVATION
MW # 1M	-	(5469.74)
MW # 2	-	(5467.19)
MW # 3	-	(5467.68)
MW # 3M	-	(5467.10)
MW # 4R	-	(5465.72)
MW # 6M	-	(5464.52)
MW # 7M	-	(5465.10)
MW # 9M	-	(5465.03)

MW # 3 (5467.68) — Groundwater elevation as of 11 / 18 / 01.

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND MAY NOT BE TO SCALE.

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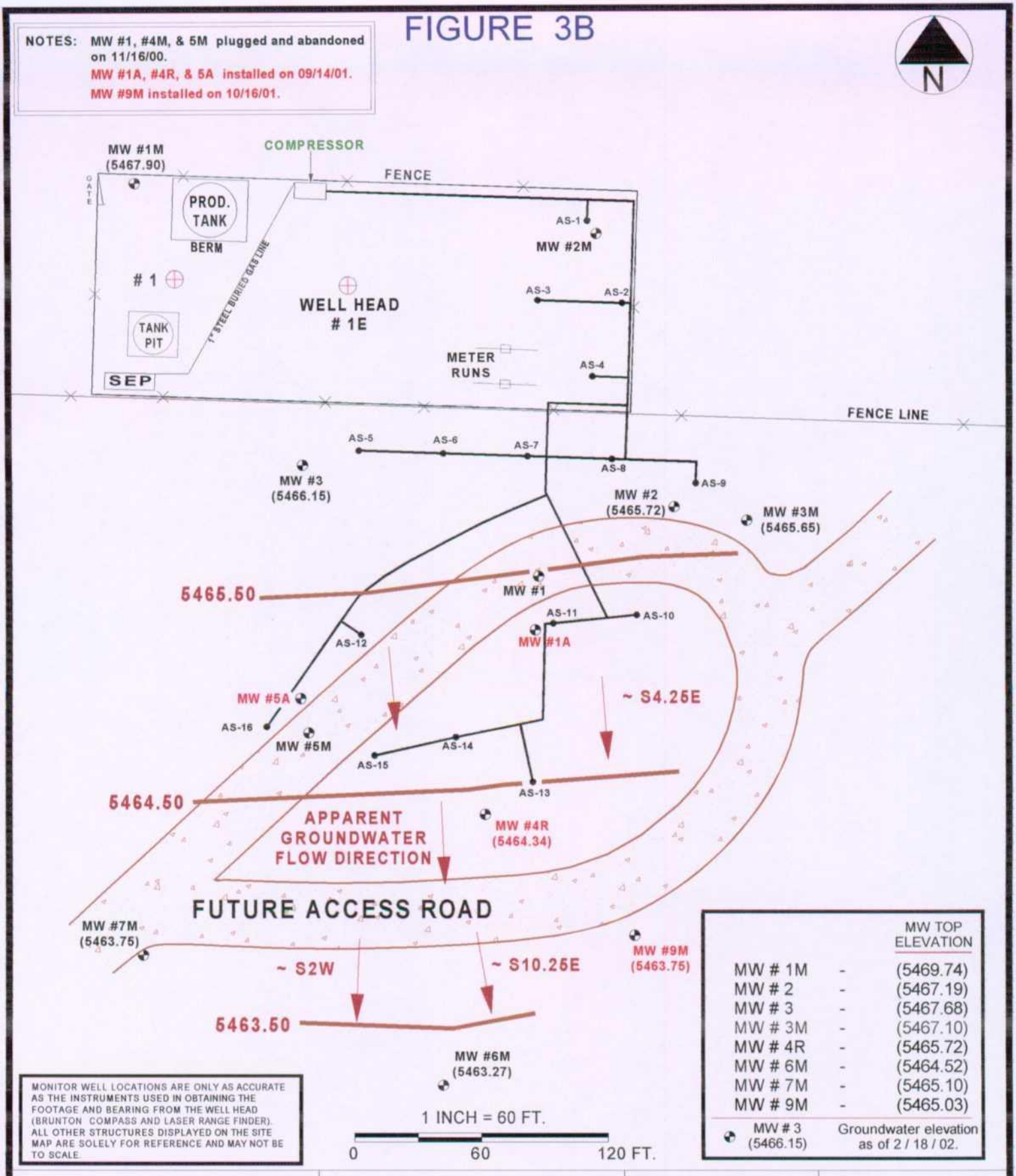
PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 11-18-GW.SKF
REVISED: 12/7/01

GROUNDWATER CONTOUR MAP
11/01

FIGURE 3B

NOTES: MW #1, #4M, & 5M plugged and abandoned on 11/16/00.
MW #1A, #4R, & 5A installed on 09/14/01.
MW #9M installed on 10/16/01.



		MW TOP ELEVATION
MW # 1M	-	(5469.74)
MW # 2	-	(5467.19)
MW # 3	-	(5467.68)
MW # 3M	-	(5467.10)
MW # 4R	-	(5465.72)
MW # 6M	-	(5464.52)
MW # 7M	-	(5465.10)
MW # 9M	-	(5465.03)

MW # 3 (5466.15) — Groundwater elevation as of 2 / 18 / 02.

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND MAY NOT BE TO SCALE.

1 INCH = 60 FT.

0 60 120 FT.

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NE/4 NE/4 SEC. 22, T29N, R11W
SAN JUAN COUNTY, NEW MEXICO

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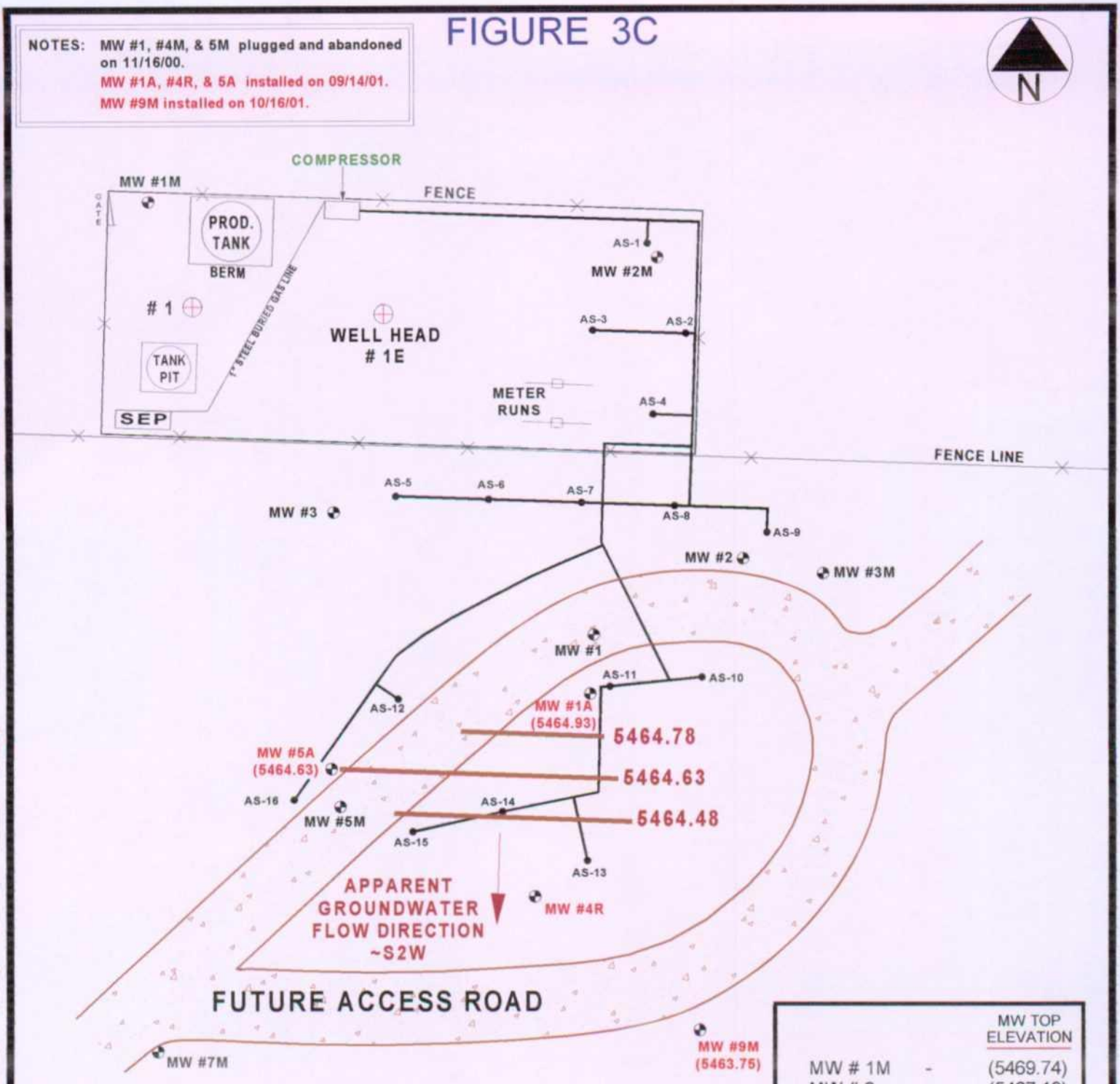
PHONE: (505) 632-1199

PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 02-18-GW.SKF
REVISED: 02/25/02

GROUNDWATER CONTOUR MAP
02/02

FIGURE 3C

NOTES: MW #1, #4M, & 5M plugged and abandoned on 11/16/00.
MW #1A, #4R, & 5A installed on 09/14/01.
MW #9M installed on 10/16/01.



		MW TOP ELEVATION
MW # 1M	-	(5469.74)
MW # 2	-	(5467.19)
MW # 3	-	(5467.68)
MW # 3M	-	(5467.10)
MW # 4R	-	(5465.72)
MW # 6M	-	(5464.52)
MW # 7M	-	(5465.10)
MW # 9M	-	(5465.03)

MW # 9M (5463.75) — Groundwater elevation as of 5 / 17 / 02.

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND MAY NOT BE TO SCALE.

1 INCH = 60 FT.

0 60 120 FT.

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NE/4 NE/4 SEC. 22, T29N, R11W
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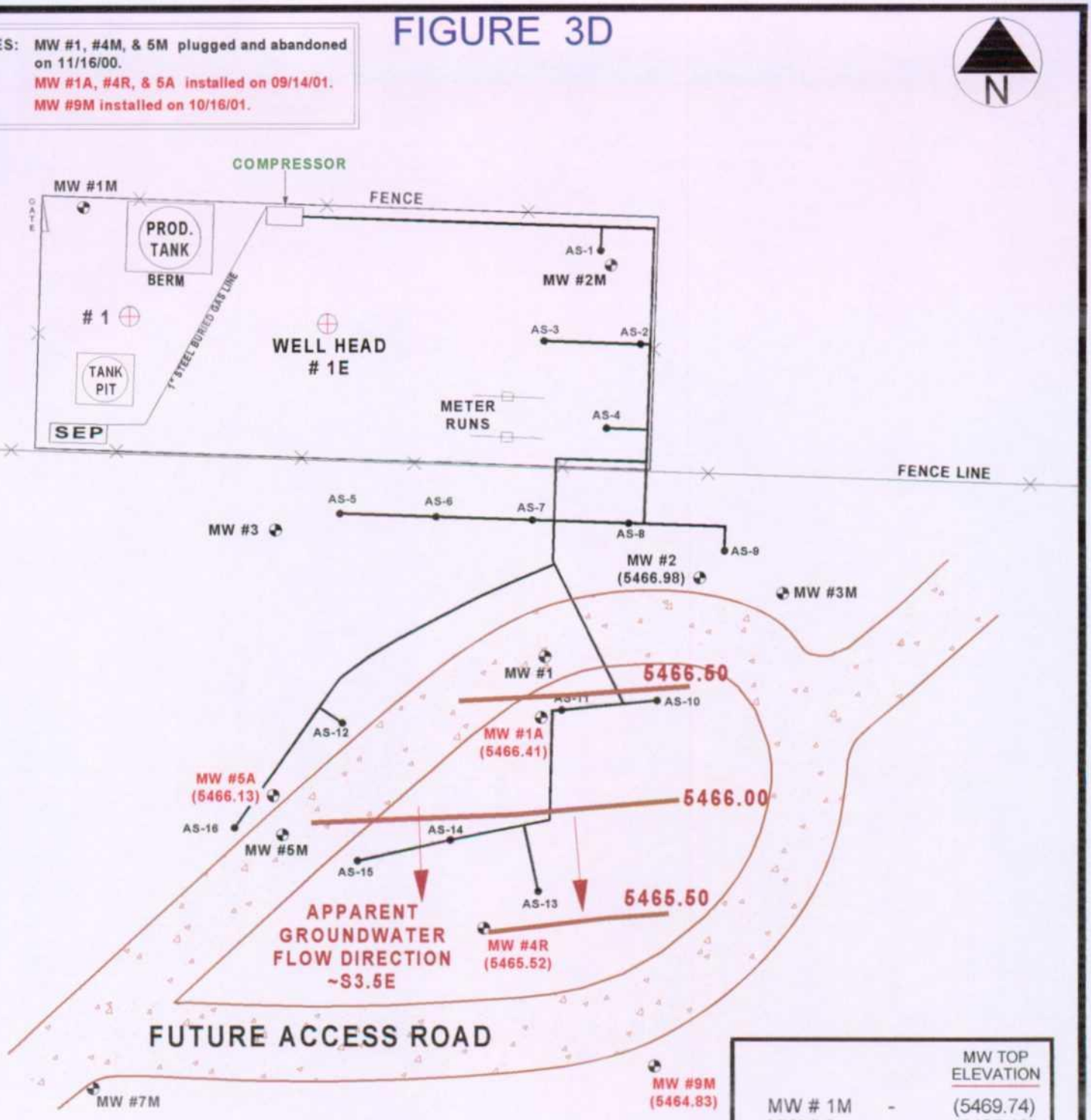
PHONE: (505) 632-1199

PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 05-17-GW.SKF
REVISED: 08/21/02

GROUNDWATER CONTOUR MAP
05/02

FIGURE 3D

NOTES: MW #1, #4M, & 5M plugged and abandoned on 11/16/00.
MW #1A, #4R, & 5A installed on 09/14/01.
MW #9M installed on 10/16/01.



		MW TOP ELEVATION
MW # 1M	-	(5469.74)
MW # 2	-	(5467.19)
MW # 3	-	(5467.68)
MW # 3M	-	(5467.10)
MW # 4R	-	(5465.72)
MW # 6M	-	(5464.52)
MW # 7M	-	(5465.10)
MW # 9M	-	(5465.03)

MW # 9M (5464.83) — Groundwater elevation as of 8 / 17 / 02.

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND MAY NOT BE TO SCALE.

1 INCH = 60 FT.

0 60 120 FT.

MANANA GAS, INC.
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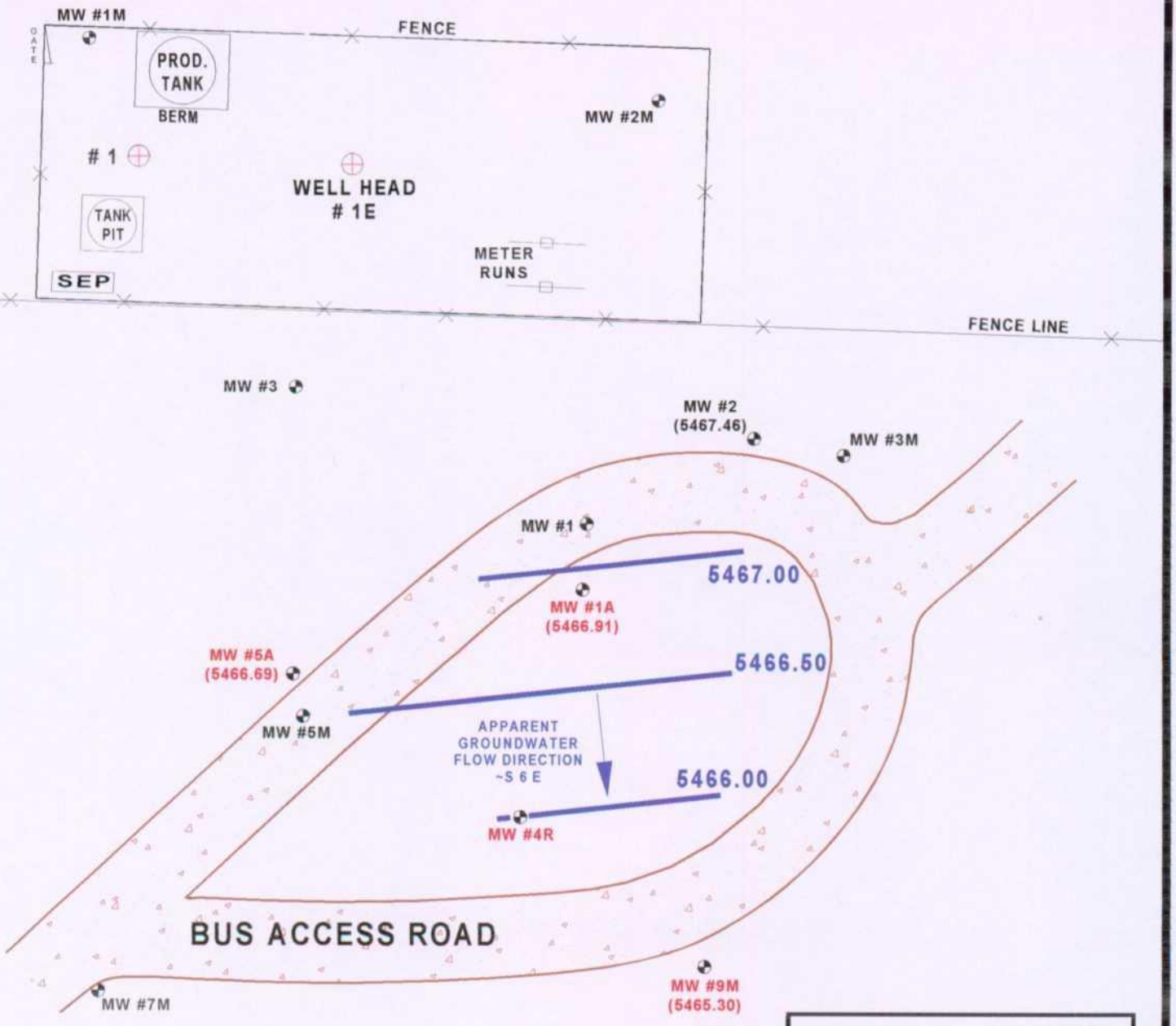
PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 05-17-GW.SKF
REVISED: 08/27/02

GROUNDWATER CONTOUR MAP
08/02

FIGURE 3E

NOTES: MW #1, #4M, & 5M plugged and abandoned on 11/16/00.
MW #1A, #4R, & 5A installed on 09/14/01.
MW #9M installed on 10/16/01.



		MW TOP ELEVATION
MW # 1A	-	(5480.82)
MW # 2	-	(5481.88)
MW # 5A	-	(5480.20)
MW # 9M	-	(5478.32)

MW # 9M (5465.30) — Groundwater elevation as of 12 / 6 / 02.

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND MAY NOT BE TO SCALE.

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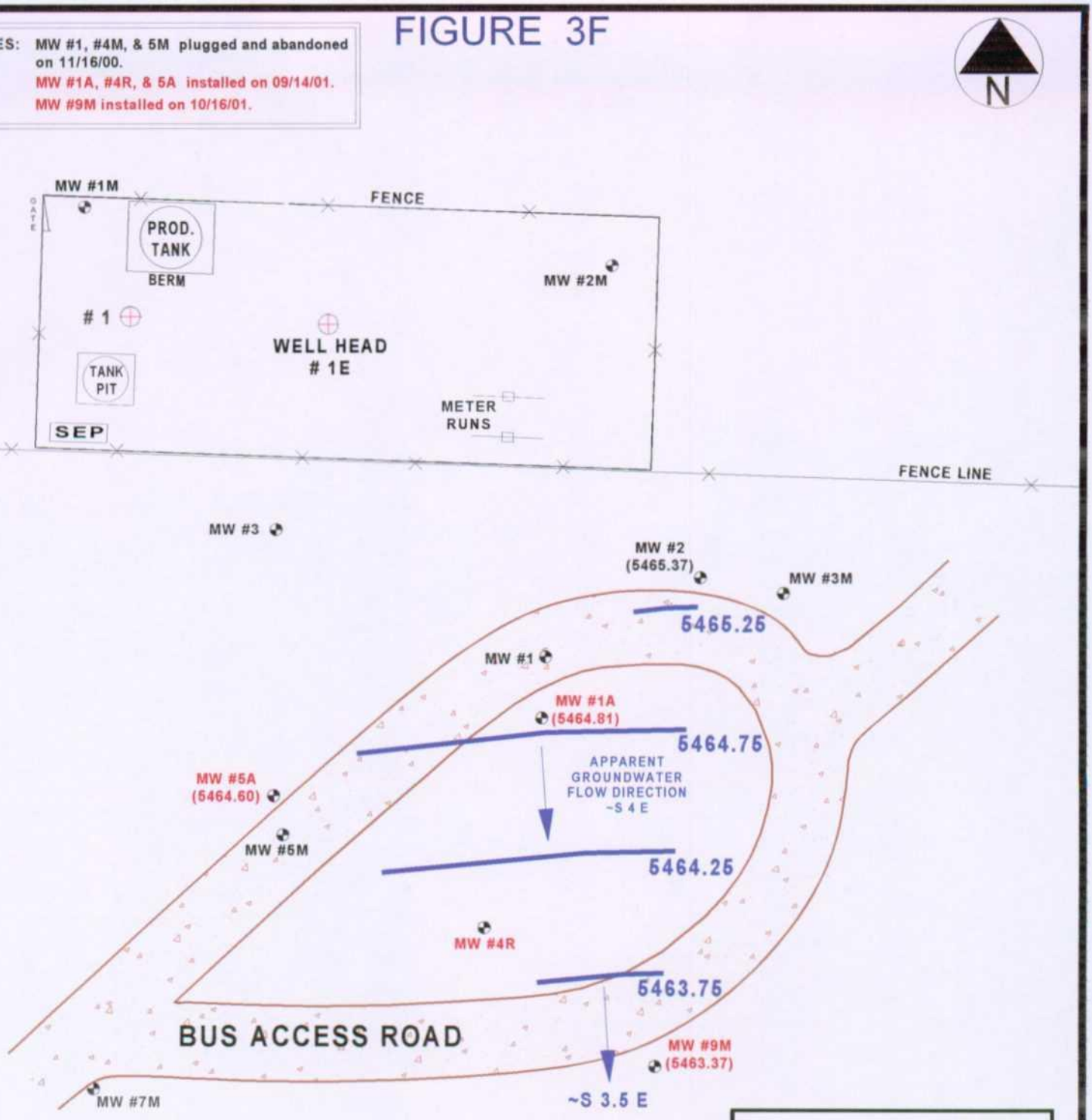
PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 12-06-02-GW.SKF
REVISED: 12/12/03

GROUNDWATER CONTOUR MAP
12/02

FIGURE 3F

NOTES: MW #1, #4M, & 5M plugged and abandoned on 11/16/00.
MW #1A, #4R, & 5A installed on 09/14/01.
MW #9M installed on 10/16/01.



		MW TOP ELEVATION
MW # 1A	-	(5480.82)
MW # 2	-	(5481.88)
MW # 5A	-	(5480.20)
MW # 9M	-	(5478.32)

MW # 9M (5463.37) — Groundwater elevation as of 3 / 11 / 03.

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND MAY NOT BE TO SCALE.

1 INCH = 60 FT.

0 60 120 FT.

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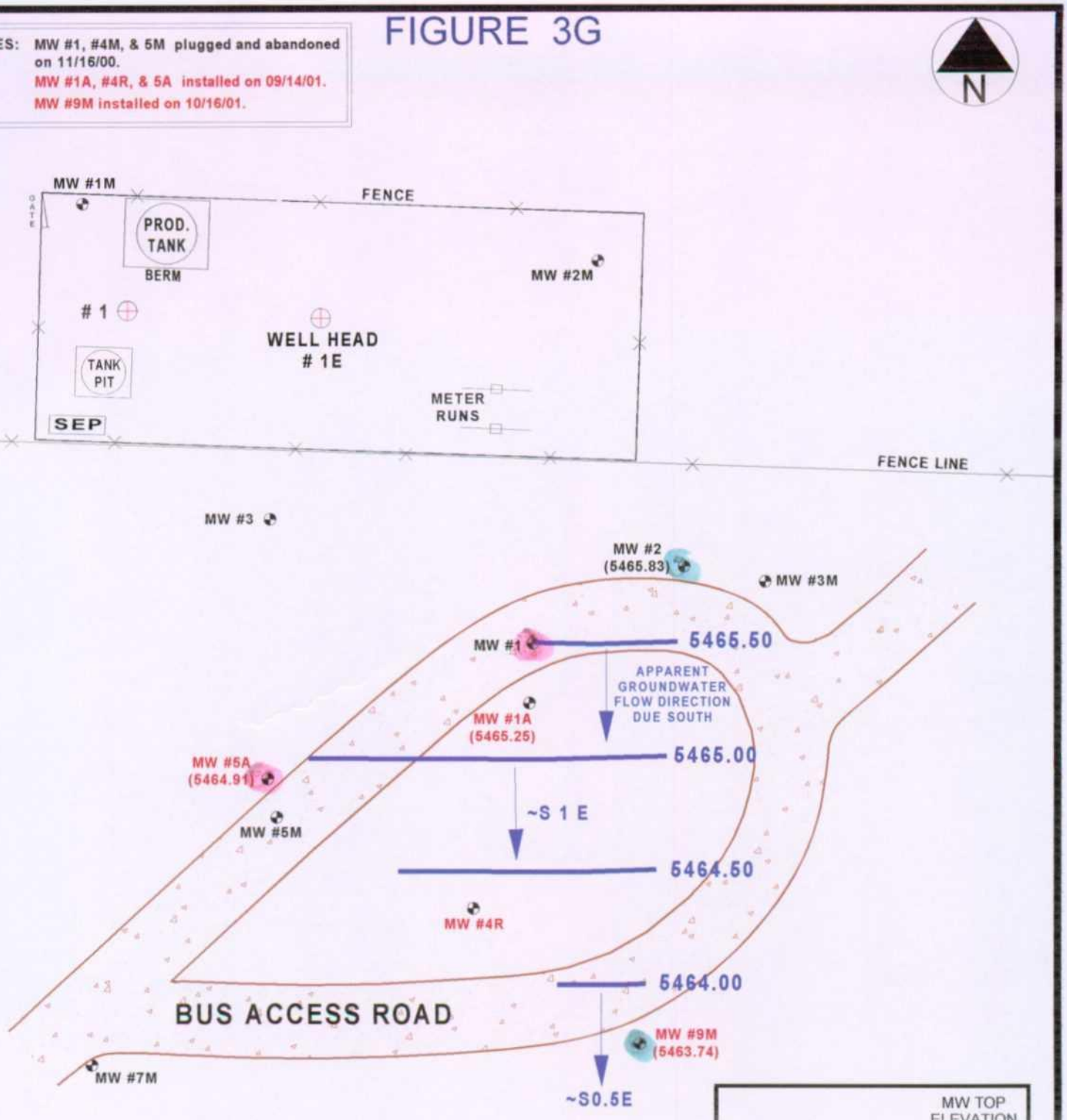
PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 03-11-03-GW.SKF
REVISED: 12/11/03

GROUNDWATER CONTOUR MAP
03/03

FIGURE 3G

NOTES: MW #1, #4M, & 5M plugged and abandoned on 11/16/00.
MW #1A, #4R, & 5A installed on 09/14/01.
MW #9M installed on 10/16/01.



MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND MAY NOT BE TO SCALE.

		MW TOP ELEVATION
MW # 1A	-	(5480.82)
MW # 2	-	(5481.88)
MW # 5A	-	(5480.20)
MW # 9M	-	(5478.32)

MW # 9M (5463.74) — Groundwater elevation as of 12 / 10 / 03.

MANANA GAS, INC.
NANCY HARTMAN # 1 & # 1E
NE/4 NE/4 SEC. 22, T29N, R11W
SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

PROJECT: MW SAMPLING
DRAWN BY: NJV
FILENAME: 12-10-03-GW.SKF
REVISED: 12/10/03

GROUNDWATER CONTOUR MAP
12/03

SAMPLING FIELD NOTES
&
LABORATORY TEST REPORTS

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT / SAMPLING DATA

CLIENT : MANANA GAS, INC.

CHAIN-OF-CUSTODY # : NA

NANCY HARTMAN # 1E
UNIT A, SEC. 22, T29N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : November 18, 2001

SAMPLER : N J V

Filename : 11-18-01.WK4

PROJECT MANAGER : J C B

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1A	5480.82	5466.82	14.00	25.00	1200	7.96	900	13.50	5.50
1M	5484.83	5469.74	15.09	24.00	-	-	-	-	-
2M	5484.28	5470.88	13.40	23.50	1300	7.95	900	13.61	5.00
2	5481.88	5467.19	14.69	22.71	0930	7.76	800	13.56	4.00
3	5482.64	5467.68	14.96	23.14	-	-	-	-	-
3M	5481.20	5467.10	14.10	23.50	-	-	-	-	-
4R	5475.88	5465.72	10.16	22.70	1000	7.56	900	14.11	6.25
5A	5480.20	5467.90	12.30	25.00	1130	6.74	1,000	12.89	6.25
6M	5476.92	5464.52	12.40	21.65	0900	7.80	1,400	13.44	4.50
7M	5476.35	5465.10	11.25	19.00	-	-	-	-	-
9M	5478.32	5465.03	13.29	22.92	0830	7.22	1,000	15.00	4.75

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).
(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)
Ideally a minimum of three (3) wellbore volumes:
2.00 " well diameter = 0.49 gallons per foot of water.

Comments or note well diameter if not standard 2".

Excellent recovery in all MW 's sampled . Developed MW 's 4R , 6M , & 9M on 11 / 17 / 01 . Collected US EPA method 8021B (BTEX) from MW 's 1A , 2 , 2M , 4R , 5A , 6M , & 9M . Collected US EPA method 8310 (PAH) from MW 's 1A , 4R , 5A , 6M , & 9M . Collected full metal suite from MW 's 1A & 5A (see COCR) , Collected barium , iron , & manganese metals from MW 's 4R , 6M , & 9M . Shipped samples via bus to Albuquerque , NM on 11 / 19 / 01 . Observed air movement in MW 's 1A , 2M , & 5A ; therefore no water elevations were recorded .

MW #	DTW
1A	14.00
2	14.69
2M	13.40
4R	10.16
5A	12.30
6M	12.40
9M	13.29

(prior to purging - In ft.)

MW #	DTW
1A	14.15
2	14.88
2M	15.60
4R	10.22
5A	12.30
6M	12.52
9M	13.32

(@ time of sampling - In ft.)

Hall Environmental Analysis Laboratory

Date: *07-Dec-01*

CLIENT: Blagg Engineering
Client Sample ID: MW #1A
Lab Order: 0111128
Collection Date: 11/18/2001 12:00:00 PM
Project: Nancy Hartman #1E
Lab ID: 0111128-01
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B		**SW8021**				Analyst: **NB**
Benzene	100	5.0		µg/L	10	11/20/2001 6:05:08 PM
Toluene	450	5.0		µg/L	10	11/20/2001 6:05:08 PM
Ethylbenzene	31	5.0		µg/L	10	11/20/2001 6:05:08 PM
Xylenes, Total	660	5.0		µg/L	10	11/20/2001 6:05:08 PM
Surr: 4-Bromofluorobenzene	95.7	74-118		%REC	10	11/20/2001 6:05:08 PM
PAHS BY 8310		**SW8310**				Analyst: **GT**
Naphthalene	ND	2.5		µg/L	1	12/6/2001 4:10:54 AM
1-Methylnaphthalene	ND	2.5		µg/L	1	12/6/2001 4:10:54 AM
2-Methylnaphthalene	ND	2.5		µg/L	1	12/6/2001 4:10:54 AM
Acenaphthylene	ND	2.5		µg/L	1	12/6/2001 4:10:54 AM
Acenaphthene	ND	2.5		µg/L	1	12/6/2001 4:10:54 AM
Fluorene	ND	0.80		µg/L	1	12/6/2001 4:10:54 AM
Phenanthrene	ND	0.60		µg/L	1	12/6/2001 4:10:54 AM
Anthracene	ND	0.60		µg/L	1	12/6/2001 4:10:54 AM
Fluoranthene	ND	0.30		µg/L	1	12/6/2001 4:10:54 AM
Pyrene	ND	0.30		µg/L	1	12/6/2001 4:10:54 AM
Benz(a)anthracene	ND	0.020		µg/L	1	12/6/2001 4:10:54 AM
Chrysene	ND	0.20		µg/L	1	12/6/2001 4:10:54 AM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	12/6/2001 4:10:54 AM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	12/6/2001 4:10:54 AM
Benzo(a)pyrene	ND	0.020		µg/L	1	12/6/2001 4:10:54 AM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	12/6/2001 4:10:54 AM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	12/6/2001 4:10:54 AM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	12/6/2001 4:10:54 AM
Surr: Benzo(e)pyrene	85.1	60-115		%REC	1	12/6/2001 4:10:54 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *07-Dec-01*

CLIENT: Blagg Engineering
Lab Order: 0111128
Project: Nancy Hartman #1E
Lab ID: 0111128-02

Client Sample ID: MW #5A
Collection Date: 11/18/2001 11:30:00 AM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B		**SW8021**				Analyst: **NB**
Benzene	54	0.50		µg/L	1	11/20/2001 5:34:24 PM
Toluene	1100	50		µg/L	100	11/20/2001 2:29:14 PM
Ethylbenzene	32	0.50		µg/L	1	11/20/2001 5:34:24 PM
Xylenes, Total	490	50		µg/L	100	11/20/2001 2:29:14 PM
Surr: 4-Bromofluorobenzene	102	74-118		%REC	1	11/20/2001 5:34:24 PM
PAHS BY 8310		**SW8310**				Analyst: **GT**
Naphthalene	ND	2.5		µg/L	1	12/6/2001 4:57:02 AM
1-Methylnaphthalene	ND	2.5		µg/L	1	12/6/2001 4:57:02 AM
2-Methylnaphthalene	ND	2.5		µg/L	1	12/6/2001 4:57:02 AM
Acenaphthylene	ND	2.5		µg/L	1	12/6/2001 4:57:02 AM
Acenaphthene	ND	2.5		µg/L	1	12/6/2001 4:57:02 AM
Fluorene	ND	0.80		µg/L	1	12/6/2001 4:57:02 AM
Phenanthrene	ND	0.60		µg/L	1	12/6/2001 4:57:02 AM
Anthracene	ND	0.60		µg/L	1	12/6/2001 4:57:02 AM
Fluoranthene	ND	0.30		µg/L	1	12/6/2001 4:57:02 AM
Pyrene	ND	0.30		µg/L	1	12/6/2001 4:57:02 AM
Benz(a)anthracene	ND	0.020		µg/L	1	12/6/2001 4:57:02 AM
Chrysene	ND	0.20		µg/L	1	12/6/2001 4:57:02 AM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	12/6/2001 4:57:02 AM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	12/6/2001 4:57:02 AM
Benzo(a)pyrene	ND	0.020		µg/L	1	12/6/2001 4:57:02 AM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	12/6/2001 4:57:02 AM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	12/6/2001 4:57:02 AM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	12/6/2001 4:57:02 AM
Surr: Benzo(e)pyrene	84.8	60-115		%REC	1	12/6/2001 4:57:02 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *07-Dec-01*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #4R
Lab Order:	0111128	**Collection Date:**	11/18/2001 10:00:00 AM
Project:	Nancy Hartman #1E		
Lab ID:	0111128-03	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B		**SW8021**				Analyst: **NB**
Benzene	ND	0.50		µg/L	1	11/20/2001 3:00:00 PM
Toluene	ND	0.50		µg/L	1	11/20/2001 3:00:00 PM
Ethylbenzene	ND	0.50		µg/L	1	11/20/2001 3:00:00 PM
Xylenes, Total	0.76	0.50		µg/L	1	11/20/2001 3:00:00 PM
Surr: 4-Bromofluorobenzene	94.1	74-118		%REC	1	11/20/2001 3:00:00 PM
PAHS BY 8310		**SW8310**				Analyst: **GT**
Naphthalene	ND	2.5		µg/L	1	12/6/2001 6:29:17 AM
1-Methylnaphthalene	ND	2.5		µg/L	1	12/6/2001 6:29:17 AM
2-Methylnaphthalene	ND	2.5		µg/L	1	12/6/2001 6:29:17 AM
Acenaphthylene	ND	2.5		µg/L	1	12/6/2001 6:29:17 AM
Acenaphthene	ND	2.5		µg/L	1	12/6/2001 6:29:17 AM
Fluorene	ND	0.80		µg/L	1	12/6/2001 6:29:17 AM
Phenanthrene	ND	0.60		µg/L	1	12/6/2001 6:29:17 AM
Anthracene	ND	0.60		µg/L	1	12/6/2001 6:29:17 AM
Fluoranthene	ND	0.30		µg/L	1	12/6/2001 6:29:17 AM
Pyrene	ND	0.30		µg/L	1	12/6/2001 6:29:17 AM
Benz(a)anthracene	ND	0.020		µg/L	1	12/6/2001 6:29:17 AM
Chrysene	ND	0.20		µg/L	1	12/6/2001 6:29:17 AM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	12/6/2001 6:29:17 AM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	12/6/2001 6:29:17 AM
Benzo(a)pyrene	ND	0.020		µg/L	1	12/6/2001 6:29:17 AM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	12/6/2001 6:29:17 AM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	12/6/2001 6:29:17 AM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	12/6/2001 6:29:17 AM
Surr: Benzo(e)pyrene	77.6	60-115		%REC	1	12/6/2001 6:29:17 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *07-Dec-01*

CLIENT: Blagg Engineering
Lab Order: 0111128
Project: Nancy Hartman #1E
Lab ID: 0111128-04

Client Sample ID: MW #6M
Collection Date: 11/18/2001 9:00:00 AM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B		**SW8021**				Analyst: **NB**
Benzene	ND	0.50		µg/L	1	11/20/2001 7:06:39 PM
Toluene	ND	0.50		µg/L	1	11/20/2001 7:06:39 PM
Ethylbenzene	ND	0.50		µg/L	1	11/20/2001 7:06:39 PM
Xylenes, Total	ND	0.50		µg/L	1	11/20/2001 7:06:39 PM
Surr: 4-Bromofluorobenzene	93.1	74-118		%REC	1	11/20/2001 7:06:39 PM
PAHS BY 8310		**SW8310**				Analyst: **GT**
Naphthalene	ND	2.5		µg/L	1	12/6/2001 7:15:23 AM
1-Methylnaphthalene	ND	2.5		µg/L	1	12/6/2001 7:15:23 AM
2-Methylnaphthalene	ND	2.5		µg/L	1	12/6/2001 7:15:23 AM
Acenaphthylene	ND	2.5		µg/L	1	12/6/2001 7:15:23 AM
Acenaphthene	ND	2.5		µg/L	1	12/6/2001 7:15:23 AM
Fluorene	ND	0.80		µg/L	1	12/6/2001 7:15:23 AM
Phenanthrene	ND	0.60		µg/L	1	12/6/2001 7:15:23 AM
Anthracene	ND	0.60		µg/L	1	12/6/2001 7:15:23 AM
Fluoranthene	ND	0.30		µg/L	1	12/6/2001 7:15:23 AM
Pyrene	ND	0.30		µg/L	1	12/6/2001 7:15:23 AM
Benz(a)anthracene	ND	0.020		µg/L	1	12/6/2001 7:15:23 AM
Chrysene	ND	0.20		µg/L	1	12/6/2001 7:15:23 AM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	12/6/2001 7:15:23 AM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	12/6/2001 7:15:23 AM
Benzo(a)pyrene	ND	0.020		µg/L	1	12/6/2001 7:15:23 AM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	12/6/2001 7:15:23 AM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	12/6/2001 7:15:23 AM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	12/6/2001 7:15:23 AM
Surr: Benzo(e)pyrene	83.7	60-115		%REC	1	12/6/2001 7:15:23 AM

Qualifiers:

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J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *07-Dec-01*

CLIENT: Blagg Engineering
Client Sample ID: MW #9M
Lab Order: 0111128
Collection Date: 11/18/2001 8:30:00 AM
Project: Nancy Hartman #1E
Lab ID: 0111128-05
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B		**SW8021**				Analyst: **NB**
Benzene	82	2.5		µg/L	5	11/20/2001 7:37:05 PM
Toluene	ND	2.5		µg/L	5	11/20/2001 7:37:05 PM
Ethylbenzene	ND	2.5		µg/L	5	11/20/2001 7:37:05 PM
Xylenes, Total	ND	2.5		µg/L	5	11/20/2001 7:37:05 PM
Surr: 4-Bromofluorobenzene	94.0	74-118		%REC	5	11/20/2001 7:37:05 PM
PAHS BY 8310		**SW8310**				Analyst: **GT**
Naphthalene	ND	2.5		µg/L	1	12/6/2001 8:01:30 AM
1-Methylnaphthalene	ND	2.5		µg/L	1	12/6/2001 8:01:30 AM
2-Methylnaphthalene	ND	2.5		µg/L	1	12/6/2001 8:01:30 AM
Acenaphthylene	ND	2.5		µg/L	1	12/6/2001 8:01:30 AM
Acenaphthene	ND	2.5		µg/L	1	12/6/2001 8:01:30 AM
Fluorene	ND	0.80		µg/L	1	12/6/2001 8:01:30 AM
Phenanthrene	ND	0.60		µg/L	1	12/6/2001 8:01:30 AM
Anthracene	ND	0.60		µg/L	1	12/6/2001 8:01:30 AM
Fluoranthene	ND	0.30		µg/L	1	12/6/2001 8:01:30 AM
Pyrene	ND	0.30		µg/L	1	12/6/2001 8:01:30 AM
Benz(a)anthracene	ND	0.020		µg/L	1	12/6/2001 8:01:30 AM
Chrysene	ND	0.20		µg/L	1	12/6/2001 8:01:30 AM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	12/6/2001 8:01:30 AM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	12/6/2001 8:01:30 AM
Benzo(a)pyrene	ND	0.020		µg/L	1	12/6/2001 8:01:30 AM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	12/6/2001 8:01:30 AM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	12/6/2001 8:01:30 AM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	12/6/2001 8:01:30 AM
Surr: Benzo(e)pyrene	88.3	60-115		%REC	1	12/6/2001 8:01:30 AM

Qualifiers:

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J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *07-Dec-01*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #2
Lab Order:	0111128	**Collection Date:**	11/18/2001 9:30:00 AM
Project:	Nancy Hartman #1E		
Lab ID:	0111128-06	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B		**SW8021**				Analyst: **NB**
Benzene	ND	0.50		µg/L	1	11/20/2001 4:32:39 PM
Toluene	0.51	0.50		µg/L	1	11/20/2001 4:32:39 PM
Ethylbenzene	ND	0.50		µg/L	1	11/20/2001 4:32:39 PM
Xylenes, Total	0.70	0.50		µg/L	1	11/20/2001 4:32:39 PM
Surr: 4-Bromofluorobenzene	99.0	74-118		%REC	1	11/20/2001 4:32:39 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *07-Dec-01*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #2M
Lab Order:	0111128	**Collection Date:**	11/18/2001 1:00:00 PM
Project:	Nancy Hartman #1E		
Lab ID:	0111128-07	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B		**SW8021**				Analyst: **NB**
Benzene	ND	2.5		µg/L	5	11/20/2001 5:03:30 PM
Toluene	ND	2.5		µg/L	5	11/20/2001 5:03:30 PM
Ethylbenzene	4.3	2.5		µg/L	5	11/20/2001 5:03:30 PM
Xylenes, Total	160	2.5		µg/L	5	11/20/2001 5:03:30 PM
Surr: 4-Bromofluorobenzene	96.2	74-118		%REC	5	11/20/2001 5:03:30 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

SVL ANALYTICAL, INC.
One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

CLIENT : Hall Environmental
PROJECT: N.HARTMAN #1E
CLIENT SAMPLE ID: MW#1A
Sample Collected: 11/18/01 12:00
Sample Receipt : 11/21/01
Date of Report : 12/07/01

SVL JOB: 100094
SAMPLE: 284418
Matrix: WATER

Determination	Result	Units	Dilution	Method	Analyzed
Silver	<0.005	mg/L		200.7	12/03/01
Aluminum	41.7	mg/L		200.7	12/03/01
Arsenic	<0.01	mg/L		200.7	12/03/01
Boron	<0.04	mg/L		200.7	12/03/01
Barium	0.350	mg/L		200.7	12/03/01
Cadmium	<0.002	mg/L		200.7	12/03/01
Cobalt	0.008	mg/L		200.7	12/03/01
Chromium	0.022	mg/L		200.7	12/03/01
Copper	0.027	mg/L		200.7	12/03/01
Iron	28.7	mg/L		200.7	12/03/01
Mercury	0.0030	mg/L		245.1	12/07/01
Manganese	0.488	mg/L		200.7	12/03/01
Molybdenum	0.014	mg/L		200.7	12/03/01
Nickel	<0.01	mg/L		200.7	12/03/01
Lead	0.013	mg/L		200.7	12/03/01
Selenium	<0.01	mg/L		200.7	12/03/01
Zinc	0.055	mg/L		200.7	12/03/01

Reviewed By: Blake Johnson Date 12/7/01
12/07/01 12:23

SVL ANALYTICAL, INC.
ne Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

CLIENT : Hall Environmental
PROJECT: N.HARTMAN #1E
CLIENT SAMPLE ID: MW#5A
Sample Collected: 11/18/01 11:30
Sample Receipt : 11/21/01
Date of Report : 12/07/01

SVL JOB: 100094
SAMPLE: 284419
Matrix: WATER

Determination	Result	Units	Dilution	Method	Analyzed
Silver	<0.005	mg/L		200.7	12/03/01
Aluminum	1.17	mg/L		200.7	12/03/01
Arsenic	<0.01	mg/L		200.7	12/03/01
Boron	0.07	mg/L		200.7	12/03/01
Barium	0.134	mg/L		200.7	12/03/01
Cadmium	<0.002	mg/L		200.7	12/03/01
Cobalt	<0.006	mg/L		200.7	12/03/01
Chromium	<0.006	mg/L		200.7	12/03/01
Copper	0.004	mg/L		200.7	12/03/01
Iron	0.89	mg/L		200.7	12/03/01
Mercury	0.0013	mg/L		245.1	12/07/01
Manganese	3.97	mg/L		200.7	12/03/01
Molybdenum	0.015	mg/L		200.7	12/03/01
Nickel	<0.01	mg/L		200.7	12/03/01
Lead	<0.005	mg/L		200.7	12/03/01
Selenium	<0.01	mg/L		200.7	12/03/01
Zinc	<0.005	mg/L		200.7	12/03/01

Reviewed By: Blake Johnson Date 12/3/01
12/07/01 12:23

SVL ANALYTICAL, INC.
One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

CLIENT : Hall Environmental
PROJECT: N.HARTMAN #1E
CLIENT SAMPLE ID: MW#4R
Sample Collected: 11/18/01 10:00
Sample Receipt : 11/21/01
Date of Report : 12/07/01

SVL JOB: 100094
SAMPLE: 284420
Matrix: WATER

Determination	Result	Units	Dilution	Method	Analyzed
Barium	0.268	mg/L		200.7	12/03/01
Iron	20.0	mg/L		200.7	12/03/01
Manganese	0.665	mg/L		200.7	12/03/01

Reviewed By: Blake Johnson Date 12/7/01
12/07/01 12:23

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CLIENT : Hall Environmental
PROJECT: N.HARTMAN #1E
CLIENT SAMPLE ID: MW#6M
Sample Collected: 11/18/01 9:00
Sample Receipt : 11/21/01
Date of Report : 12/07/01

SVL JOB: 100094
SAMPLE: 284421
Matrix: WATER

Determination	Result	Units	Dilution	Method	Analyzed
Barium	0.146	mg/L		200.7	12/03/01
Iron	3.17	mg/L		200.7	12/03/01
Manganese	0.497	mg/L		200.7	12/03/01

Reviewed By: Blake Johnson Date 12/7/01
12/07/01 12:23

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One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

CLIENT : Hall Environmental
PROJECT: N.HARTMAN #1E
CLIENT SAMPLE ID: MW#6M
Sample Collected: 11/18/01 9:00
Sample Receipt : 11/21/01
Date of Report : 12/07/01

SVL JOB: 100094
SAMPLE: 284421
Matrix: WATER

Determination	Result	Units	Dilution	Method	Analyzed
Barium	0.146	mg/L		200.7	12/03/01
Iron	3.17	mg/L		200.7	12/03/01
Manganese	0.497	mg/L		200.7	12/03/01

Reviewed By: Blake Johnson Date 12/7/01
12/07/01 12:23

SVL ANALYTICAL, INC.
ne Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

CLIENT : Hall Environmental
PROJECT: N.HARTMAN #1E
CLIENT SAMPLE ID: MW#9M
Sample Collected: 11/18/01 8:30
Sample Receipt : 11/21/01
Date of Report : 12/07/01

SVL JOB: 100094
SAMPLE: 284422
Matrix: WATER

Determination	Result	Units	Dilution	Method	Analyzed
Barium	1.67	mg/L		200.7	12/03/01
Iron	108	mg/L		200.7	12/03/01
Manganese	2.69	mg/L		200.7	12/03/01

Reviewed By: Blake Johnson Date 12/7/01
12/07/01 12:23

Part I Prep Blank and Laboratory Control Sample

Client :Hall Environmental SVL JOB No: 100094

Analyte	Method	Matrix	Units	Prep Blank	True—LCS—Found		LCS %R	Analysis Date
Silver	200.7	WATER	mg/L	<0.005	1.00	1.07	107.0	12/03/01
Aluminum	200.7	WATER	mg/L	<0.02	1.00	1.04	104.0	12/03/01
Arsenic	200.7	WATER	mg/L	<0.01	1.00	1.07	107.0	12/03/01
Boron	200.7	WATER	mg/L	<0.04	1.00	1.05	105.0	12/03/01
Barium	200.7	WATER	mg/L	<0.002	1.00	1.06	106.0	12/03/01
Cadmium	200.7	WATER	mg/L	<0.002	1.00	1.03	103.0	12/03/01
Cobalt	200.7	WATER	mg/L	<0.006	1.00	1.03	103.0	12/03/01
Chromium	200.7	WATER	mg/L	<0.006	1.00	1.05	105.0	12/03/01
Copper	200.7	WATER	mg/L	<0.003	1.00	1.07	107.0	12/03/01
Iron	200.7	WATER	mg/L	<0.02	10.0	10.0	100.0	12/03/01
Manganese	200.7	WATER	mg/L	<0.002	1.00	1.04	104.0	12/03/01
Molybdenum	200.7	WATER	mg/L	<0.008	1.00	1.07	107.0	12/03/01
Nickel	200.7	WATER	mg/L	<0.01	1.00	0.96	96.0	12/03/01
Lead	200.7	WATER	mg/L	<0.005	1.00	1.04	104.0	12/03/01
Selenium	200.7	WATER	mg/L	<0.01	1.00	1.02	102.0	12/03/01
Zinc	200.7	WATER	mg/L	<0.005	1.00	1.02	102.0	12/03/01
Mercury	245.1	WATER	mg/L	<0.0002	0.0050	0.0050	100.0	12/07/01

LEGEND:

LCS = Laboratory Control Sample LCS %R = LCS Percent Recovery N/A = Not Applicable

Part II Duplicate and Spike Analysis

Client :Hall Environmental SVL JOB No: 100094

Test	Method	Matrix	QC SAMPLE ID Units	Result	Duplicate or MSD Found	RPD%	Matrix Spike Result	SPK ADD	%R	Analysis Date
Ag	200.7	WATER	1 mg/L	<0.005	<0.005	UDL	1.08	1.00	108.0	12/03/01
[redacted]	200.7	WATER	1 mg/L	41.7	41.0	1.7	60.0	1.00	R >4S	12/03/01
[redacted]	200.7	WATER	1 mg/L	<0.01	<0.01	UDL	1.10	1.00	110.0	12/03/01
B	200.7	WATER	1 mg/L	<0.04	<0.04	UDL	1.05	1.00	105.0	12/03/01
[redacted]	200.7	WATER	1 mg/L	0.350	0.347	0.9	1.43	1.00	108.0	12/03/01
[redacted]	200.7	WATER	1 mg/L	<0.002	<0.002	UDL	1.00	1.00	100.0	12/03/01
Co	200.7	WATER	1 mg/L	0.008	0.008	0.0	0.996	1.00	98.8	12/03/01
Cr	200.7	WATER	1 mg/L	0.022	0.022	0.0	1.04	1.00	101.8	12/03/01
[redacted]	200.7	WATER	1 mg/L	0.027	0.026	3.8	1.11	1.00	108.3	12/03/01
Fe	200.7	WATER	1 mg/L	28.7	28.2	1.8	40.4	10.0	117.0	12/03/01
Mn	200.7	WATER	1 mg/L	0.488	0.473	3.1	1.53	1.00	104.2	12/03/01
[redacted]	200.7	WATER	1 mg/L	0.014	0.014	0.0	1.05	1.00	103.6	12/03/01
[redacted]	200.7	WATER	1 mg/L	<0.01	<0.01	UDL	0.97	1.00	97.0	12/03/01
Pb	200.7	WATER	1 mg/L	0.013	0.013	0.0	1.02	1.00	100.7	12/03/01
Se	200.7	WATER	1 mg/L	<0.01	<0.01	UDL	0.86	1.00	86.0	12/03/01
[redacted]	200.7	WATER	1 mg/L	0.055	0.055	0.0	1.04	1.00	98.5	12/03/01
Hg	245.1	WATER	1 mg/L	0.0030	0.0030	0.0	0.0041	0.0010	110.0	12/07/01

LEGEND:

RPD% = (|SAM - DUP|/((SAM + DUP)/2) * 100) UDL = Both SAM & DUP not detected. *Result or *Found: Interference reqired dilution.

RPD% = (|SPK - MSD|/((SPK + MSD)/2) * 100) M in Duplicate/MSD column indicates MSD.

SPIKE ADD column, A = Post Digest Spike; %R = Percent Recovery N/A = Not Analyzed; R > 4S = Result more than 4X the Spike Added

QC Sample 1: SVL SAM No.: 284418 Client Sample ID: MW#1A

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: BLAGG ENGINEERING, INC. / MANANA GAS, INC.
Address: P.O. BOX 87, BLOOMFIELD, NM 87413
Phone #: (505) 632-1199
Fax #: (505) 632-3903

Project Name: NANCY HARTMAN #1E
Project #:
Project Manager: JEFF BLAGG
Sampler: NELSON VELEZ
Samples Cold?: ☑ Yes ☐ No

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HCl	Preservative HNO_3	HEAL No. 0111128	BTEX + MTBE + TMB's (8021B)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)	METALS (SEE ATTACHED LIST)	Ba, Fe, Mn METALS ONLY	Air Bubbles or Headspace (Y or N)
11/18/01	1200	WATER	MW #1A	4		✓	✓	1	✓							✓							✓		
11/18/01	1130	WATER	MW #5A	4		✓	✓	2	✓							✓							✓		
11/18/01	1000	WATER	MW #4R	4		✓	✓	3	✓							✓								✓	
11/18/01	0900	WATER	MW #6M	4		✓	✓	4	✓							✓								✓	
11/18/01	0830	WATER	MW #9M	4		✓	✓	5	✓							✓								✓	
11/18/01	0930	WATER	MW #2	2		✓		6	✓																
11/18/01	1300	WATER	MW #2M	2		✓		7	✓																

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
11/19/01	0930	Nelson Velez - NELSON VELEZ	11-19-01
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature) 1630

Remarks: PLEASE FAX BTEX (8021B) RESULTS ONLY UPON COMPLETION.

Hall Environmental Analysis Laboratory

Date: *07-Dec-01*

CLIENT: Blagg Engineering
Work Order: 0111128
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Method Blank

Sample ID: **5ml Reagent Blan** Batch ID: **R2717** Test Code: **SW8021** Units: **µg/L** Analysis Date: **11/20/01 8:47:43 AM** Prep Date:

Client ID: Run ID: **PIDHALL_011120A** SeqNo: **57633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
Xylenes, Total	ND	0.50									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0111128
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Method Blank

Sample ID: **MB-1191** Batch ID: **1191** Test Code: **SW8310** Units: **µg/L** Analysis Date: **12/6/01 1:52:32 AM** Prep Date: **11/20/01**
Client ID: Run ID: **HPLC_011205A** SeqNo: **60345**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	2.5									
1-Methylnaphthalene	ND	2.5									
2-Methylnaphthalene	ND	2.5									
Acenaphthylene	ND	2.5									
Acenaphthene	ND	2.5									
Fluorene	ND	0.80									
Phenanthrene	ND	0.60									
Anthracene	ND	0.60									
Fluoranthene	ND	0.30									
Pyrene	ND	0.30									
Benz(a)anthracene	ND	0.020									
Chrysene	ND	0.20									
Benzo(b)fluoranthene	ND	0.050									
Benzo(k)fluoranthene	ND	0.020									
Benzo(a)pyrene	ND	0.020									
Dibenz(a,h)anthracene	ND	0.040									
Benzo(g,h,i)perylene	ND	0.030									
Indeno(1,2,3-cd)pyrene	ND	0.080									
Surr: Benzo(e)pyrene	799.7	0	1000	0	80.0	60	115	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *07-Dec-01*

CLIENT: Blagg Engineering
Work Order: 0111128
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Sample Duplicate

Sample ID: **0111128-05a** Batch ID: **R2717** Test Code: **SW8021** Units: **µg/L** Analysis Date: **11/20/01 8:07:23 PM** Prep Date:

Client ID: **MW #9M** Run ID: **PIDHALL_011120A** SeqNo: **57646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	82.29	2.5	0	0	0	0	0	81.83	0.553	20	
Toluene	ND	2.5	0	0	0	0	0	0	0	20	
Ethylbenzene	ND	2.5	0	0	0	0	0	0	0	20	
Xylenes, Total	ND	2.5	0	0	0	0	0	0.68	0	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *07-Dec-01*

CLIENT: Blagg Engineering
Work Order: 0111128
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID: **0111128-03aMS** Batch ID: **R2717** Test Code: **SW8021** Units: **µg/L** Analysis Date: **11/20/01 9:07:45 PM** Prep Date:

Client ID: **MW #4R** Run ID: **PIDHALL_011120A** SeqNo: **57647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.87	0.50	20	0	109	77	122	0			
Toluene	21.06	0.50	20	0.1236	105	81	115	0			
Ethylbenzene	20.15	0.50	20	0	101	84	117	0			
Xylenes, Total	63.79	0.50	60	0.7594	105	84	116	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *07-Dec-01*

CLIENT: Blagg Engineering
Work Order: 0111128
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: **BTEX Std 100ng** Batch ID: **R2717** Test Code: **SW8021** Units: **µg/L** Analysis Date: **11/20/01 9:37:51 PM** Prep Date:
Client ID: Run ID: **PIDHALL_011120A** SeqNo: **57648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.66	0.50	20	0	103	81.3	121	0			
Toluene	20.13	0.50	20	0	101	84.9	118	0			
Ethylbenzene	19.54	0.50	20	0	97.7	53.8	149	0			
Xylenes, Total	60.04	0.50	60	0	100	83.1	122	0			

Sample ID: **LCS-1191** Batch ID: **1191** Test Code: **SW8310** Units: **µg/L** Analysis Date: **12/6/01 2:38:39 AM** Prep Date: **11/20/01**
Client ID: Run ID: **HPLC_011205A** SeqNo: **60346**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	28.42	2.5	40.4	0	70.3	40.5	82.2	0			
1-Methylnaphthalene	28.04	2.5	40.4	0	69.4	46	80	0			
2-Methylnaphthalene	28.04	2.5	40	0	70.1	45	80	0			
Acenaphthylene	30.39	2.5	40.4	0	75.2	42.5	91.1	0			
Acenaphthene	28.8	2.5	40.4	0	71.3	48	84.9	0			
Fluorene	2.94	0.80	4.1	0	71.7	47.7	88.6	0			
Phenanthrene	2.53	0.60	3.07	0	82.4	60.4	88.2	0			
Anthracene	2.2	0.60	2.57	0	85.6	65	95	0			
Fluoranthene	1.76	0.30	1.92	0	91.7	72.2	96.2	0			
Pyrene	3.43	0.30	3.85	0	89.1	72.8	95.9	0			
Benz(a)anthracene	0.38	0.020	0.427	0	89.0	74	111	0			
Chrysene	3.66	0.20	4.03	0	90.8	80	103	0			
Benzo(b)fluoranthene	0.5	0.050	0.495	0	101	72	102	0			
Benzo(k)fluoranthene	0.21	0.020	0.226	0	92.9	79	103	0			
Benzo(a)pyrene	0.22	0.020	0.253	0	87.0	65.9	118	0			
Dibenz(a,h)anthracene	0.46	0.040	0.506	0	90.9	80	111	0			
Benzo(g,h,i)perylene	0.49	0.030	0.553	0	88.6	78.5	112	0			
Indeno(1,2,3-cd)pyrene	1	0.080	0.994	0	101	76	116	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0111128
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID: **LCSD-1191** Batch ID: **1191** Test Code: **SW8310** Units: **µg/L** Analysis Date: **12/6/01 3:24:45 AM** Prep Date: **11/20/01**
Client ID: Run ID: **HPLC_011205A** SeqNo: **60347**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	26.23	2.5	40.4	0	64.9	40.5	82.2	28.42	8.01	21.1	
1-Methylnaphthalene	25.87	2.5	40.4	0	64.0	46	80	28.04	8.05	46.5	
2-Methylnaphthalene	25.55	2.5	40	0	63.9	45	80	28.04	9.29	47.7	
Acenaphthylene	28.38	2.5	40.4	0	70.2	42.5	91.1	30.39	6.84	21.6	
Acenaphthene	27.01	2.5	40.4	0	66.9	48	84.9	28.8	6.41	21.4	
Fluorene	2.77	0.80	4.1	0	67.6	47.7	88.6	2.94	5.95	18.9	
Phenanthrene	2.3	0.60	3.07	0	74.9	60.4	88.2	2.53	9.52	14.8	
Anthracene	2.03	0.60	2.57	0	79.0	65	95	2.2	8.04	25.5	
Fluoranthene	1.61	0.30	1.92	0	83.9	72.2	96.2	1.76	8.90	12.9	
Pyrene	3.12	0.30	3.85	0	81.0	72.8	95.9	3.43	9.47	11.9	
Benz(a)anthracene	0.35	0.020	0.427	0	82.0	74	111	0.38	8.22	13.2	
Chrysene	3.34	0.20	4.03	0	82.9	80	103	3.66	9.14	14.6	
Benzo(b)fluoranthene	0.45	0.050	0.495	0	90.9	72	102	0.5	10.5	16.4	
Benzo(k)fluoranthene	0.19	0.020	0.226	0	84.1	79	103	0.21	10.0	16.2	
Benzo(a)pyrene	0.21	0.020	0.253	0	83.0	65.9	118	0.22	4.65	15.3	
Dibenz(a,h)anthracene	0.43	0.040	0.506	0	85.0	80	111	0.46	6.74	17.1	
Benzo(g,h,i)perylene	0.46	0.030	0.553	0	83.2	70.5	113	0.49	6.32	13.9	
Indeno(1,2,3-cd)pyrene	0.908	0.080	0.994	0	91.3	76	116	1	9.64	15.9	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

ON SITE
TECHNOLOGIES, LTD.

DATE 12/7/01
BY NJV

SUBJECT MANANA - NANCY HARTMAN #1E
MW #9M RESAMPLE NO CHARGE

DTW PRIOR TO SAMPLING	DTW AFTER PURGING	DTW AFTER 5 MIN.	TD
13.54	13.62	13.58	22.92

	pH	COND	VOLUME PURGED	SAMPLE TIME	COC#
	7.15	900	4.50 (18 BBLS)	1230	11160
PREVIOUS (11/18/01)	7.22	1,000	4.75		

DTW	RECOVERY
13.29	13.32

ON-SITE 325-5667

BENZENE	120
TOLUENE	ND
ETHYLBENZENE	ND
TOT. XYLENES	2.2 mp 1.4 o - 0.8

OFF: (505) 325-5667
FAX: (505) 327-1496

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-1556
FAX: (505) 327-1496

ANALYTICAL REPORT

Date: *17-Dec-01*

Client:	Blagg Engineering	**Client Sample Info:**	Unknown
Work Order:	0112010	**Client Sample ID:**	MW #?
Lab ID:	0112010-01A **Matrix:** AQUEOUS	**Collection Date:**	12/7/2001 12:30:00 PM
Project:	Unknown	**COC Record:**	11160

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **HNR**
Benzene	120	0.5		µg/L	1	12/15/2001
Toluene	ND	0.5		µg/L	1	12/15/2001
Ethylbenzene	ND	0.5		µg/L	1	12/15/2001
m,p-Xylene	1.4	1		µg/L	1	12/15/2001
o-Xylene	0.8	0.5		µg/L	1	12/15/2001

Qualifiers:

- PQL - Practical Quantitation Limit
- ND - Not Detected at Practical Quantitation Limit
- J - Analyte detected below Practical Quantitation Limit
- B - Analyte detected in the associated Method Blank
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range
- Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499
EMAIL: ONSITE@ONSITELTD.COM

On Site Technologies, LTD.

Date: *17-Dec-01*

CLIENT: Blagg Engineering
Work Order: 0112010
Project: Unknown

QC SUMMARY REPORT
Method Blank

Sample ID: **MB_011215** Batch ID: **GC-1_011215** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/15/2001** Prep Date: **12/15/01**

Client ID: **0112010** Run ID: **GC-1_011215A** SeqNo: **45894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.5									
Ethylbenzene	ND	0.5									
m,p-Xylene	ND	1									
Methyl tert-Butyl Ether	ND	1									
o-Xylene	ND	0.5									
Toluene	ND	0.5									
1,4-Difluorobenzene	102.1	0									
4-Bromochlorobenzene	112.6	0									
Fluorobenzene	102	0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *17-Dec-01*

CLIENT: Blagg Engineering
Work Order: 0112010
Project: Unknown

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **0112009-09AMS** Batch ID: **GC-1_011215** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/15/2001** Prep Date: **12/15/01**
Client ID: **0112010** Run ID: **GC-1_011215A** SeqNo: **45895**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1866	25	2000	20	92.3%	70	130				
Ethylbenzene	1793	25	2000	10	89.2%	70	130				
m,p-Xylene	2279	50	4000	10	56.7%	70	130				S
Methyl tert-Butyl Ether	2575	50	2000	560	100.7%	70	130				
o-Xylene	1829	25	2000	0	91.5%	70	130				
Toluene	1833	25	2000	30	90.1%	70	130				
1,4-Difluorobenzene	5131	0	5500	0	93.3%	77	112				
4-Bromochlorobenzene	5752	0	5500	0	104.6%	88	116				
Fluorobenzene	5209	0	5500	0	94.7%	87	102				

Sample ID: **0112009-09AMSD** Batch ID: **GC-1_011215** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/15/2001** Prep Date: **12/15/01**
Client ID: **0112010** Run ID: **GC-1_011215A** SeqNo: **45896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1812	25	2000	20	89.6%	70	130	1866	2.9%	6	
Ethylbenzene	1753	25	2000	10	87.1%	70	130	1793	2.3%	7	
m,p-Xylene	2226	50	4000	10	55.4%	70	130	2279	2.4%	6	S
Methyl tert-Butyl Ether	2549	50	2000	560	99.4%	70	130	2575	1.0%	5	
o-Xylene	1783	25	2000	0	89.1%	70	130	1829	2.6%	5	
Toluene	1771	25	2000	30	87.0%	70	130	1833	3.4%	6	
1,4-Difluorobenzene	5130	0	5500	0	93.3%	77	112	0	0.0%	0	
4-Bromochlorobenzene	5702	0	5500	0	103.7%	88	116	0	0.0%	0	
Fluorobenzene	5171	0	5500	0	94.0%	87	102	0	0.0%	0	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *17-Dec-01*

CLIENT: Blagg Engineering
Work Order: 0112010
Project: Unknown

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS_011215** Batch ID: **GC-1_011215** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/15/2001** Prep Date: **12/15/01**

Client ID: **0112010** Run ID: **GC-1_011215A** SeqNo: **45893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	36.56	0.5	40	0	91.4%	80	120				
Ethylbenzene	36.68	0.5	40	0	91.7%	80	120				
m,p-Xylene	76.03	1	80	0	95.0%	80	120				
Methyl tert-Butyl Ether	39.98	1	40	0	100.0%	80	120				
o-Xylene	38.68	0.5	40	0	96.7%	80	120				
Toluene	36.89	0.5	40	0	92.2%	80	120				
1,4-Difluorobenzene	101	0	110	0	91.8%	77	112				
4-Bromochlorobenzene	112.6	0	110	0	102.4%	88	116				
Fluorobenzene	103.1	0	110	0	93.7%	87	102				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *17-Dec-01*

CLIENT: Blagg Engineering
Work Order: 0112010
Project: Unknown

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1_011215** Batch ID: **GC-1_011215** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/15/2001** Prep Date: **12/15/01**
Client ID: **0112010** Run ID: **GC-1_011215A** SeqNo: **45888**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.58	0.5	20	0	92.9%	85	115				
Ethylbenzene	18.92	0.5	20	0	94.6%	85	115				
m,p-Xylene	38.68	1	40	0	96.7%	85	115				
Methyl tert-Butyl Ether	20.89	1	20	0	104.5%	85	115				
o-Xylene	19.9	0.5	20	0	99.5%	85	115				
Toluene	18.67	0.5	20	0	93.3%	85	115				
1,4-Difluorobenzene	101.8	0	110	0	92.6%	77	112				
4-Bromochlorobenzene	112.5	0	110	0	102.3%	88	116				
Fluorobenzene	103.6	0	110	0	94.2%	87	102				

Sample ID: **CCV2_011215** Batch ID: **GC-1_011215** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/15/2001** Prep Date: **12/15/01**
Client ID: **0112010** Run ID: **GC-1_011215A** SeqNo: **45889**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.08	0.5	20	0	90.4%	85	115				
Ethylbenzene	17.94	0.5	20	0	89.7%	85	115				
m,p-Xylene	36.74	1	40	0	91.8%	85	115				
Methyl tert-Butyl Ether	20.46	1	20	0	102.3%	85	115				
o-Xylene	18.83	0.5	20	0	94.1%	85	115				
Toluene	18.12	0.5	20	0	90.6%	85	115				
1,4-Difluorobenzene	103.1	0	110	0	93.7%	77	112				
4-Bromochlorobenzene	114.4	0	110	0	104.1%	88	116				
Fluorobenzene	104.5	0	110	0	95.0%	87	102				

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: Blagg Engineering
Work Order: 0112010
Project: Unknown

QC SUMMARY REPORT
Continuing Calibration Verification Standard

Sample ID: **CCV3_011215** Batch ID: **GC-1_011215** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/15/2001** Prep Date: **12/15/01**
Client ID: **0112010** Run ID: **GC-1_011215A** SeqNo: **45890**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	36.84	0.5	40	0	92.1%	85	115				
Ethylbenzene	36.2	0.5	40	0	90.5%	85	115				
m,p-Xylene	75.27	1	80	0	94.1%	85	115				
Methyl tert-Butyl Ether	39.04	1	40	0	97.6%	85	115				
o-Xylene	38.14	0.5	40	0	95.4%	85	115				
Toluene	36.72	0.5	40	0	91.8%	85	115				
1,4-Difluorobenzene	101.6	0	110	0	92.4%	77	112				
4-Bromochlorobenzene	110.6	0	110	0	100.5%	88	116				
Fluorobenzene	103.1	0	110	0	93.8%	87	102				

Sample ID: **CCV4_011215** Batch ID: **GC-1_011215** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/15/2001** Prep Date: **12/15/01**
Client ID: **0112010** Run ID: **GC-1_011215A** SeqNo: **45891**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.11	0.5	20	0	95.5%	85	115				
Ethylbenzene	19.15	0.5	20	0	95.8%	85	115				
m,p-Xylene	39.66	1	40	0	99.2%	85	115				
Methyl tert-Butyl Ether	21.18	1	20	0	105.9%	85	115				
o-Xylene	20.19	0.5	20	0	100.9%	85	115				
Toluene	18.72	0.5	20	0	93.6%	85	115				
1,4-Difluorobenzene	103.2	0	110	0	93.9%	77	112				
4-Bromochlorobenzene	111.2	0	110	0	101.1%	88	116				
Fluorobenzene	104.9	0	110	0	95.3%	87	102				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0112010
Project: Unknown

QC SUMMARY REPORT
Continuing Calibration Verification Standard

Sample ID: **CCV5_011215** Batch ID: **GC-1_011215** Test Code: **SW8021B** Units: **µg/L** Analysis Date **12/15/2001** Prep Date: **12/15/01**

Client ID: **0112010** Run ID: **GC-1_011215A** SeqNo: **45892**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.42	0.5	20	0	92.1%	85	115				
Ethylbenzene	18.4	0.5	20	0	92.0%	85	115				
m,p-Xylene	37.78	1	40	0	94.5%	85	115				
Methyl tert-Butyl Ether	20.74	1	20	0	103.7%	85	115				
o-Xylene	19.17	0.5	20	0	95.8%	85	115				
Toluene	18.36	0.5	20	0	91.8%	85	115				
1,4-Difluorobenzene	102	0	110	0	92.7%	77	112				
4-Bromochlorobenzene	111.8	0	110	0	101.7%	88	116				
Fluorobenzene	103.4	0	110	0	94.0%	87	102				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: 17-Dec-01

CLIENT: Blagg Engineering
Work Order: 0112010
Project: Unknown
Test No: SW8021B

QC SUMMARY REPORT
SURROGATE RECOVERIES

Aromatic Volatiles by GC/PID

Sample ID	14FBZ	4BCBZ	FLBZ
0112009-01A	93.2	98.8	94.3
0112009-02A	93.4	104	94.4
0112009-03A	93.8	102	94.9
0112009-04A	94.2	105	95.1
0112009-05A	93.9	102	94.7
0112009-06A	93	103	95.1
0112009-07A	94.3	103	95.5
0112009-08A	92.6	103	94.4
0112009-09A	95.4	105	95.5
0112009-09AMS	93.3	104	94.7
0112009-09AMSD	93.3	104	94
0112010-01A	94.3	101	94.3
0112012-01A	92.5	103	93.9
0112013-01A	94.4	104	95.4
0112014-01A	84.3	98.2	94.5
0112015-01A	92.2	98.9	93.8
0112015-02A	86.6	97.5	93.6
0112015-03A	94.8	105	95.3
0112016-01A	95.2	101	95.5
CCV1_011215	92.6	102	94.2
CCV2_011215	93.7	104	95
CCV3_011215	92.4	100	93.8
CCV4_011215	93.8	101	95.3
CCV5_011215	92.7	102	94
LCS_011215	91.8	102	93.7
MB_011215	92.8	102	92.7

Acronym		Surrogate	QC Limits
14FBZ	=	1,4-Difluorobenzene	77-112
4BCBZ	=	4-Bromochlorobenzene	88-116
FLBZ	=	Fluorobenzene	87-102

*** Surrogate recovery outside acceptance limits**

1150

CHAIN OF CUSTODY RECORD

ON SITE TECHNOLOGIES, LTD.

612 E. Murray Dr. • P.O. Box 2606 • Farmington, NM 87499
LAB: (505) 325-5667 • FAX: (505) 327-1496

Date: 12/7/01

Page: 1 of 1

Purchase Order No.:	Project No.		
SEND INVOICE TO: Name	JEFF BLAGG	REPORT RESULTS TO: Name	NELSON VELEZ
Company	BLAGG ENGINEERING, INC.	Company	SAME
Dept.		Mailing Address	
Address		City, State, Zip	
City, State, Zip		Telephone No.	632-1199
		Telefax No.	632-7903

PROJECT LOCATION: UNKNOWN

SAMPLER'S SIGNATURE: Nelson Vel

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	SAMPLE PRES.	Number of Containers	BTEX (8021B)	LAB ID
MW # 1	12/7/01	1230	WATER	HCl & COOL	2	✓	011201P-01A

Relinquished by: Nelson Vel	Date/Time	Received by: David Ingram	Date/Time 12/10/01 1550
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Method of Shipment:

Rush | 24-48 Hours | 10 Working Days | By Date

Authorized by: _____ Date _____
(Client Signature Must Accompany Request)

Special Instructions / Remarks:

Distribution: White - On Site Yellow - LAB Pink - Sampler Goldenrod - Client

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT / SAMPLING DATA

CLIENT : MANANA GAS, INC.

CHAIN-OF-CUSTODY # : NA

NANCY HARTMAN # 1E
UNIT A, SEC. 22, T29N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : February 18, 2002

SAMPLER : N J V

Filename : 02-18-02.WK4

PROJECT MANAGER : J C B

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1A	5480.82		15.67	25.00	1545	7.74	800	-	4.50
1M	5484.83	5467.90	16.93	24.00	-	-	-	-	-
2M	5484.28		16.25	23.50	1400	7.78	800	-	3.50
2	5481.88	5465.72	16.16	22.71	-	-	-	-	-
3	5482.64	5466.15	16.49	23.14	1315	7.48	1,400	-	1.37
3M	5481.20	5465.65	15.55	23.50	-	-	-	-	-
4R	5475.88	5464.34	11.54	22.70	1245	7.62	700	-	5.50
5A	5480.20		15.25	25.00	1515	7.35	1,000	-	4.75
6M	5476.92	5463.27	13.65	21.65	-	-	-	-	-
7M	5476.35	5463.75	12.60	19.00	-	-	-	-	-
9M	5478.32	5463.75	14.57	22.92	1445	7.38	900	-	4.25

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).
(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)
Ideally a minimum of three (3) wellbore volumes:

2.00 " well diameter = 0.49 gallons per foot of water.

Comments or note well diameter if not standard 2 ".

Excellent recovery in MW # 1A , # 4R , # 5A , & 9M . Fair / good recovery in MW # 2M . Poor recovery in MW # 3 . Collected US EPA method 8021B (BTEX) from MW 's 1A , 2M , 3 , 4R , 5A , & 9M . Collected US EPA method 8310 (PAH) from MW # 2M . Collected manganese metal from MW # 2M . Shipped samples via bus to Albuquerque , NM on 2 / 19 / 02 . Observed air movement in MW # 1A , 2M , & 5A ; therefore no water elevations were recorded in those wells . Shut in AS -1 (near MW # 2M) .

MW #	DTW
1A	15.67
2M	16.25
3	16.49
4R	11.54
5A	15.25
9M	14.57

(prior to purging - in ft.)

MW #	DTW
1A	15.80
2M	16.44
3	20.44
4R	11.61
5A	15.27
9M	14.60

(@ time of sampling - in ft.)

Hall Environmental Analysis Laboratory

COVER LETTER

March 22, 2002

Jeff Blagg
Blagg Engineering
110 North 4th St.
Bloomfield, NM 87413
TEL: (505) 632-1199
FAX (505) 632-3903

RE: Nancy Hartman #1E

Order No.: 0202087

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 6 samples on 2/19/2002 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

Hall Environmental Analysis Laboratory

Date: *22-Mar-02*

CLIENT: Blagg Engineering
Project: Nancy Hartman #1E
Lab Order: 0202087

CASE NARRATIVE

The Laboratory Control Spike (LCS) for EPA Method 8310 has several compounds that are "S" flagged due to the high recovery of these compouds. The compounds are high due to sample concentration. The LCS was analyzed multiple times before the instrument and curve were within proper specifications.

Hall Environmental Analysis Laboratory

Date: *22-Mar-02*

CLIENT: Blagg Engineering
Client Sample ID: MW #1A
Lab Order: 0202087
Collection Date: 2/18/2002 3:45:00 PM
Project: Nancy Hartman #1E
Lab ID: 0202087-01
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B		**SW8021**				Analyst: **JMP**
Benzene	4.3	1.0		µg/L	2	2/25/2002 9:37:38 AM
Toluene	7.0	5.0		µg/L	10	2/21/2002 6:15:27 PM
Ethylbenzene	4.2	1.0		µg/L	2	2/25/2002 9:37:38 AM
Xylenes, Total	130	5.0		µg/L	10	2/21/2002 6:15:27 PM
Surr: 4-Bromofluorobenzene	104	74-118		%REC	10	2/21/2002 6:15:27 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *22-Mar-02*

CLIENT: Blagg Engineering
Client Sample ID: MW #2M
Lab Order: 0202087
Collection Date: 2/18/2002 2:00:00 PM
Project: Nancy Hartman #1E
Lab ID: 0202087-02
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B		**SW8021**				Analyst: **JMP**
Benzene	ND	0.50		µg/L	1	2/25/2002 10:40:14 AM
Toluene	ND	0.50		µg/L	1	2/25/2002 10:40:14 AM
Ethylbenzene	ND	0.50		µg/L	1	2/25/2002 10:40:14 AM
Xylenes, Total	9.4	0.50		µg/L	1	2/25/2002 10:40:14 AM
Surr: 4-Bromofluorobenzene	103	74-118		%REC	1	2/25/2002 10:40:14 AM
PAHS BY 8310		**SW8310**				Analyst: **IC**
Naphthalene	ND	2.5		µg/L	1	3/20/2002 8:58:50 PM
1-Methylnaphthalene	ND	2.5		µg/L	1	3/20/2002 8:58:50 PM
2-Methylnaphthalene	ND	2.5		µg/L	1	3/20/2002 8:58:50 PM
Acenaphthylene	ND	2.5		µg/L	1	3/20/2002 8:58:50 PM
Acenaphthene	ND	2.5		µg/L	1	3/20/2002 8:58:50 PM
Fluorene	ND	0.80		µg/L	1	3/20/2002 8:58:50 PM
Phenanthrene	ND	0.60		µg/L	1	3/20/2002 8:58:50 PM
Anthracene	ND	0.60		µg/L	1	3/20/2002 8:58:50 PM
Fluoranthene	ND	0.30		µg/L	1	3/20/2002 8:58:50 PM
Pyrene	ND	0.30		µg/L	1	3/20/2002 8:58:50 PM
Benz(a)anthracene	ND	0.020		µg/L	1	3/20/2002 8:58:50 PM
Chrysene	ND	0.20		µg/L	1	3/20/2002 8:58:50 PM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	3/20/2002 8:58:50 PM
Benzo(k)fluoranthene	ND	0.040		µg/L	1	3/20/2002 8:58:50 PM
Benzo(a)pyrene	ND	0.020		µg/L	1	3/20/2002 8:58:50 PM
Dibenz(a,h)anthracene	ND	0.070		µg/L	1	3/20/2002 8:58:50 PM
Benzo(g,h,i)perylene	ND	0.050		µg/L	1	3/20/2002 8:58:50 PM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	3/20/2002 8:58:50 PM
Surr: Benzo(e)pyrene	102	60-115		%REC	1	3/20/2002 8:58:50 PM
METALS BY 6010C		**SW6010A**				Analyst: **NMO**
Manganese	0.044	0.0020		mg/L	1	3/5/2002 11:50:35 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *22-Mar-02*

CLIENT: Blagg Engineering
Client Sample ID: MW #3
Lab Order: 0202087
Collection Date: 2/18/2002 1:15:00 PM
Project: Nancy Hartman #1E
Lab ID: 0202087-03
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B		**SW8021**				Analyst: **JMP**
Benzene	ND	0.50		µg/L	1	2/21/2002 7:18:56 PM
Toluene	ND	0.50		µg/L	1	2/21/2002 7:18:56 PM
Ethylbenzene	ND	0.50		µg/L	1	2/21/2002 7:18:56 PM
Xylenes, Total	ND	0.50		µg/L	1	2/21/2002 7:18:56 PM
Surr: 4-Bromofluorobenzene	101	74-118		%REC	1	2/21/2002 7:18:56 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *22-Mar-02*

CLIENT: Blagg Engineering
Client Sample ID: MW #4R
Lab Order: 0202087
Collection Date: 2/18/2002 12:45:00 PM
Project: Nancy Hartman #1E
Lab ID: 0202087-04
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B		**SW8021**				Analyst: **JMP**
Benzene	ND	0.50		µg/L	1	2/21/2002 7:50:29 PM
Toluene	ND	0.50		µg/L	1	2/21/2002 7:50:29 PM
Ethylbenzene	ND	0.50		µg/L	1	2/21/2002 7:50:29 PM
Xylenes, Total	ND	0.50		µg/L	1	2/21/2002 7:50:29 PM
Surr: 4-Bromofluorobenzene	105	74-118		%REC	1	2/21/2002 7:50:29 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *22-Mar-02*

CLIENT: Blagg Engineering
Client Sample ID: MW #5A
Lab Order: 0202087
Collection Date: 2/18/2002 3:15:00 PM
Project: Nancy Hartman #1E
Lab ID: 0202087-05
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B		**SW8021**				Analyst: **JMP**
Benzene	5.1	0.50		µg/L	1	2/21/2002 8:21:52 PM
Toluene	56	0.50		µg/L	1	2/21/2002 8:21:52 PM
Ethylbenzene	13	0.50		µg/L	1	2/21/2002 8:21:52 PM
Xylenes, Total	190	2.5		µg/L	5	2/22/2002 4:27:23 PM
Surr: 4-Bromofluorobenzene	103	74-118		%REC	1	2/21/2002 8:21:52 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *22-Mar-02*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #9M
Lab Order:	0202087	**Collection Date:**	2/18/2002 2:45:00 PM
Project:	Nancy Hartman #1E		
Lab ID:	0202087-06	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B		**SW8021**				Analyst: **JMP**
Benzene	470	5.0		µg/L	10	2/22/2002 4:59:17 PM
Toluene	ND	2.5		µg/L	5	2/21/2002 8:53:11 PM
Ethylbenzene	ND	2.5		µg/L	5	2/21/2002 8:53:11 PM
Xylenes, Total	5.7	2.5		µg/L	5	2/21/2002 8:53:11 PM
Surr: 4-Bromofluorobenzene	99.8	74-118		%REC	5	2/21/2002 8:53:11 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *22-Mar-02*

CLIENT: Blagg Engineering
Work Order: 0202087
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Method Blank

Sample ID **Reagent Blank 5m** Batch ID: **R3558** Test Code: **SW8021** Units: **µg/L** Analysis Date **2/21/2002 8:34:00 AM** Prep Date
Client ID: Run ID: **PIDHALL_020221A** SeqNo: **76246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
Xylenes, Total	ND	0.50									

Sample ID **Reagent Blank 5m** Batch ID: **R3568** Test Code: **SW8021** Units: **µg/L** Analysis Date **2/22/2002 8:19:42 AM** Prep Date
Client ID: Run ID: **PIDHALL_020222A** SeqNo: **76776**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
Xylenes, Total	ND	0.50									

Sample ID **Reagent Blank 5m** Batch ID: **R3596** Test Code: **SW8021** Units: **µg/L** Analysis Date **2/25/2002 7:31:18 AM** Prep Date
Client ID: Run ID: **PIDHALL_020225A** SeqNo: **77430**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
Xylenes, Total	ND	0.50									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0202087
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Method Blank

Sample ID **MB-1537** Batch ID: **1537** Test Code: **SW8310** Units: **µg/L** Analysis Date **3/13/2002 12:04:08 PM** Prep Date **2/15/2002**
Client ID: Run ID: **HPLC_020312A** SeqNo: **82531**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	2.5									
1-Methylnaphthalene	ND	2.5									
2-Methylnaphthalene	ND	2.5									
Acenaphthylene	ND	2.5									
Acenaphthene	ND	2.5									
Fluorene	ND	0.80									
Phenanthrene	ND	0.60									
Anthracene	ND	0.60									
Fluoranthene	ND	0.30									
Pyrene	ND	0.30									
Benz(a)anthracene	ND	0.020									
Chrysene	ND	0.20									
Benzo(b)fluoranthene	ND	0.050									
Benzo(k)fluoranthene	ND	0.020									
Benzo(a)pyrene	ND	0.020									
Dibenz(a,h)anthracene	ND	0.040									
Benzo(g,h,i)perylene	ND	0.030									
Indeno(1,2,3-cd)pyrene	ND	0.080									
Surr: Benzo(e)pyrene	888.1	0	1000	0	88.8	60	115	0			

Sample ID **MB-1606** Batch ID: **1606** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/5/2002 11:37:40 AM** Prep Date **3/4/2002**
Client ID: Run ID: **ICP_020305B** SeqNo: **79759**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.0020									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *22-Mar-02*

CLIENT: Blagg Engineering
Work Order: 0202087
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **LCS-1549** Batch ID: **1549** Test Code: **SW8310** Units: **µg/L** Analysis Date **3/20/2002 8:10:38 PM** Prep Date **2/20/2002**

Client ID: Run ID: **HPLC_020320C** SeqNo: **85262**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	29.72	2.5	40.3	0	73.7	40.5	82.2	0			
1-Methylnaphthalene	30.17	2.5	40.4	0	74.7	46	80	0			
2-Methylnaphthalene	29.59	2.5	40	0	74.0	45	80	0			
Acenaphthylene	31.87	2.5	40.2	0	79.3	42.5	91.1	0			
Acenaphthene	37.78	2.5	40.4	0	93.5	48	84.9	0			S
Fluorene	3.25	0.80	4.1	0	79.3	47.7	88.6	0			
Phenanthrene	2.79	0.60	3.07	0	90.9	60.4	88.2	0			S
Anthracene	2.49	0.60	2.57	0	96.9	65	95	0			S
Fluoranthene	2.11	0.30	1.92	0	110	72.2	96.2	0			S
Pyrene	3.96	0.30	3.85	0	103	72.8	95.9	0			S
Benz(a)anthracene	0.44	0.020	0.427	0	103	74	111	0			
Chrysene	4.44	0.20	4.03	0	110	80	103	0			S
Benzo(b)fluoranthene	0.57	0.050	0.495	0	115	72	102	0			S
Benzo(k)fluoranthene	0.26	0.040	0.226	0.03	102	79	103	0			
Benzo(a)pyrene	0.26	0.020	0.253	0	103	65.9	118	0			
Dibenz(a,h)anthracene	0.57	0.070	0.506	0.06	101	80	111	0			
Benzo(g,h,i)perylene	0.62	0.050	0.553	0.04	105	78.5	112	0			
Indeno(1,2,3-cd)pyrene	1.109	0.080	0.994	0	112	76	116	0			
Surr: Benzo(e)pyrene	948.9	0	1000	0	94.9	60	115	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *22-Mar-02*

CLIENT: Blagg Engineering
Work Order: 0202087
Project: Nancy Hartman #1E

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID **LCS-1606** Batch ID: **1606** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/5/2002 11:40:14 AM** Prep Date **3/4/2002**
Client ID: Run ID: **ICP_020305B** SeqNo: **79760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.92	0.0020	20	0	94.6	70	130	0			

Sample ID **LCSD-1606** Batch ID: **1606** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/5/2002 11:41:58 AM** Prep Date **3/4/2002**
Client ID: Run ID: **ICP_020305B** SeqNo: **79761**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.58	0.0020	20	0	97.9	70	130	18.92	3.41	30	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *22-Mar-02*

CLIENT: Blagg Engineering
Work Order: 0202087
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **BTEX Std 100ng** Batch ID: **R3558** Test Code: **SW8021** Units: **µg/L** Analysis Date **2/21/2002 10:26:59 PM** Prep Date
Client ID: Run ID: **PIDHALL_020221A** SeqNo: **76404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.81	0.50	20	0	94.0	81.3	121	0			
Toluene	18.63	0.50	20	0	93.1	84.9	118	0			
Ethylbenzene	18.32	0.50	20	0	91.6	53.8	149	0			
Xylenes, Total	57.33	0.50	60	0	95.5	83.1	122	0			

Sample ID **BTEX Std 100ng** Batch ID: **R3558** Test Code: **SW8021** Units: **µg/L** Analysis Date **2/21/2002 10:58:10 PM** Prep Date
Client ID: Run ID: **PIDHALL_020221A** SeqNo: **76405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.22	0.50	20	0	96.1	81.3	121	18.81	2.14	27	
Toluene	18.83	0.50	20	0	94.1	84.9	118	18.63	1.05	19	
Ethylbenzene	19.36	0.50	20	0	96.8	53.8	149	18.32	5.52	10	
Xylenes, Total	58.66	0.50	60	0	97.8	83.1	122	57.33	2.30	13	

Sample ID **BTEX Std 100ng** Batch ID: **R3568** Test Code: **SW8021** Units: **µg/L** Analysis Date **2/22/2002 8:40:27 PM** Prep Date
Client ID: Run ID: **PIDHALL_020222A** SeqNo: **76788**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.06	0.50	20	0	95.3	81.3	121	0			
Toluene	18.86	0.50	20	0	94.3	84.9	118	0			
Ethylbenzene	18.72	0.50	20	0	93.6	53.8	149	0			
Xylenes, Total	58.37	0.50	60	0	97.3	83.1	122	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: BLAGG ENGINEERING, INC. / MANANA GAS, INC.

Address: P.O. BOX 87
BLOOMFIELD, NM 87413

Phone #: (505) 632-1199

Fax #: (505) 632-3903

Project Name: NANCY HARTMAN #1E

Project #:

Project Manager: JEFF BLAGG

Sampler: NELSON VELEZ

Samples Cold?: ☒ Yes ☐ No

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HCl	Preservative HNO_3	HEAL No.	BTEX + ~~MTBE~~ + ~~TMB's~~ (8021B)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or (PAH))	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)	~~Barium (Ba) only~~	Mn Per Nelson analyze	Air Bubbles or Headspace (Y or N)
2/18/02	1545	WATER	MW #1A	2		✓		0202087-1	✓																
2/18/02	1400	WATER	MW #2M	4		✓	✓	-2	✓							✓							✓		
2/18/02	1315	WATER	MW #3	2		✓		-3	✓																
2/18/02	1245	WATER	MW #4R	2		✓		-4	✓																
2/18/02	1515	WATER	MW #5A	2		✓		-5	✓																
2/18/02	1445	WATER	MW #9M	2		✓		-6	✓																

MV AT 1/12/02

Date: 2/19/02 Time: 0730 Relinquished By: (Signature) Nelson Velez - NELSON VELEZ

Received By: (Signature) Anne Thorne 2/19/02 1705

Date: Time: Relinquished By: (Signature)

Received By: (Signature)

Remarks: PLEASE FAX BTEX RESULTS UPON COMPLETION.

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT / SAMPLING DATA

CLIENT : MANANA GAS, INC. **CHAIN-OF-CUSTODY # :** NA

NANCY HARTMAN # 1E
UNIT A, SEC. 22, T29N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : May 17, 2002 **SAMPLER :** N J V

Filename : 05-17-02.WK4 **PROJECT MANAGER :** J C B

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1A	5480.82	5464.93	15.89	25.00	1050	7.44	800	20.9	4.50
5A	5480.20	5464.63	15.57	25.00	1125	7.02	1,100	20.1	4.75
9M	5478.32	5463.54	14.78	22.92	1000	7.12	900	15.7	4.00

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).
(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)
Ideally a minimum of three (3) wellbore volumes:
2.00 " well diameter = 0.49 gallons per foot of water.

Comments or note well diameter if not standard 2 ".

Excellent recovery in MW # 1A , # 5A , & 9M . Collected US EPA method 8021B (BTEX) from MW 's listed above . Shipped samples via bus to Albuquerque , NM on 5 / 20 / 02 . Compressor down for repairs on 4 / 9 / 02 , no active remediation since then . Introduced in - situ microbes & nutrients within MW # 9M after sampling .

OVM reading from MW # 1A prior to purging = 0.0 after purging = 3.2
OVM reading from MW # 1A prior to purging = 0.0 after purging = 41.2

MW #	DTW
1A	15.89
5A	15.57
9M	14.78

(prior to purging - in ft.)

MW #	DTW
1A	15.95
5A	15.59
9M	14.81

(@ time of sampling -

Hall Environmental Analysis Laboratory

COVER LETTER

May 23, 2002

Jeff Blagg
Blagg Engineering
110 North 4th St.
Bloomfield, NM 87413
TEL: (505) 632-1199
FAX (505) 632-3903

RE: Nancy Hartman #1E Order No.: 0205129

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 3 samples on 5/20/02 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

Hall Environmental Analysis Laboratory

Date: *23-May-02*

CLIENT: Blagg Engineering
Client Sample ID: MW #1A
Lab Order: 0205129
Collection Date: 5/17/02 10:50:00 AM
Project: Nancy Hartman #1E
Lab ID: 0205129-01
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B						Analyst: **JMP**
Benzene	4.5	0.50		µg/L	1	5/22/02 11:43:13 AM
Toluene	2.5	0.50		µg/L	1	5/22/02 11:43:13 AM
Ethylbenzene	1.7	0.50		µg/L	1	5/22/02 11:43:13 AM
Xylenes, Total	34	0.50		µg/L	1	5/22/02 11:43:13 AM
Surr: 4-Bromofluorobenzene	101	74-118		%REC	1	5/22/02 11:43:13 AM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *23-May-02*

CLIENT: Blagg Engineering
Lab Order: 0205129
Project: Nancy Hartman #1E
Lab ID: 0205129-02

Client Sample ID: MW #5A
Collection Date: 5/17/02 11:25:00 AM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B						Analyst: **JMP**
Benzene	3.7	2.5		µg/L	5	5/22/02 12:44:59 PM
Toluene	1000	2.5		µg/L	5	5/22/02 12:44:59 PM
Ethylbenzene	120	2.5		µg/L	5	5/22/02 12:44:59 PM
Xylenes, Total	1300	2.5		µg/L	5	5/22/02 12:44:59 PM
Surr: 4-Bromofluorobenzene	96.8	74-118		%REC	5	5/22/02 12:44:59 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *23-May-02*

CLIENT: Blagg Engineering
Client Sample ID: MW #9M
Lab Order: 0205129
Collection Date: 5/17/02 10:00:00 AM
Project: Nancy Hartman #1E
Lab ID: 0205129-03
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
BTEX BY EPA 8021B						Analyst: **JMP**
Benzene	780	2.5		µg/L	5	5/21/02 3:57:18 PM
Toluene	20	2.5		µg/L	5	5/21/02 3:57:18 PM
Ethylbenzene	ND	2.5		µg/L	5	5/21/02 3:57:18 PM
Xylenes, Total	16	2.5		µg/L	5	5/21/02 3:57:18 PM
Surr: 4-Bromofluorobenzene	91.7	74-118		%REC	5	5/21/02 3:57:18 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *23-May-02*

CLIENT: Blagg Engineering
Work Order: *0205129*
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Method Blank

Sample ID: **Reagent Blank 5m** Batch ID: **R4564** Test Code: **SW8021** Units: **µg/L** Analysis Date: **5/21/02 10:31:51 AM** Prep Date:
Client ID: Run ID: **PIDHALL_020521A** SeqNo: **101311**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
Xylenes, Total	ND	0.50									

Sample ID: **Reagent Blank 5m** Batch ID: **R4584** Test Code: **SW8021** Units: **µg/L** Analysis Date: **5/22/02 9:54:11 AM** Prep Date:
Client ID: Run ID: **PIDHALL_020522A** SeqNo: **101796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
Xylenes, Total	ND	0.50									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *23-May-02*

CLIENT: Blagg Engineering
Work Order: 0205129
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: **BTEX Std 100ng** Batch ID: **R4564** Test Code: **SW8021** Units: **µg/L** Analysis Date: **5/21/02 5:00:12 PM** Prep Date:
Client ID: Run ID: **PIDHALL_020521A** SeqNo: **101318**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.62	0.50	20	0	93.1	81.3	121	0			
Toluene	18.61	0.50	20	0	93.1	84.9	118	0			
Ethylbenzene	18.2	0.50	20	0	91.0	53.8	149	0			
Xylenes, Total	55.74	0.50	60	0	92.9	83.1	122	0			

Sample ID: **BTEX Std 100ng** Batch ID: **R4564** Test Code: **SW8021** Units: **µg/L** Analysis Date: **5/21/02 5:31:33 PM** Prep Date:
Client ID: Run ID: **PIDHALL_020521A** SeqNo: **101319**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.7	0.50	20	0	98.5	81.3	121	18.62	5.63	27	
Toluene	20.03	0.50	20	0	100	84.9	118	18.61	7.32	19	
Ethylbenzene	19.59	0.50	20	0	98.0	53.8	149	18.2	7.40	10	
Xylenes, Total	58.78	0.50	60	0	98.0	83.1	122	55.74	5.31	13	

Sample ID: **BTEX Std 100ng** Batch ID: **R4584** Test Code: **SW8021** Units: **µg/L** Analysis Date: **5/22/02 1:46:55 PM** Prep Date:
Client ID: Run ID: **PIDHALL_020522A** SeqNo: **101799**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.13	0.50	20	0	95.6	81.3	121	0			
Toluene	19.74	0.50	20	0	98.7	84.9	118	0			
Ethylbenzene	18.75	0.50	20	0	93.7	53.8	149	0			
Xylenes, Total	57.91	0.50	60	0	96.5	83.1	122	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: BLAGG ENGINEERING INC. / MANANA GAS, INC.

Address: P.O. BOX 87, BLOOMFIELD, NM 87413

Phone #: (505) 632-1199

Fax #: (505) 632-~~0547~~ 3903

Project Name: NANCY HARTMAN #1E

Project #:

Project Manager: JEFF BLAGG

Sampler: NELSON VELEZ

Samples Cold?: ☒ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative HgCl2	Preservative HCl	Preservative	HEAL No.	BTEX + ~~MTBE + TMB's~~ (8021B) ONLY	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)			Air Bubbles or Headspace (Y or N)
5/17/02	1050	WATER	MW #1A	2		✓		0205129-1	✓																
5/17/02	1125	WATER	MW #5A	2		✓		-2	✓																
5/17/02	1000	WATER	MW #9M	2		✓		-3	✓																

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
5/20/02	0700	Nelson Velez - NELSON VELEZ	[signature] 5/20/02 1145

Remarks: PLEASE FAX BTEX RESULTS UPON COMPLETION. THANKS, NJV

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT / SAMPLING DATA

CLIENT : MANANA GAS, INC.

CHAIN-OF-CUSTODY # : NA

NANCY HARTMAN # 1E
UNIT A, SEC. 22, T29N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : August 17, 2002

SAMPLER : N J V

Filename : 08-17-02.WK4

PROJECT MANAGER : J C B

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1A	5480.82	5466.41	14.41	25.00	1045	7.19	900	22.80	5.25
2	5481.88	5466.98	14.90	22.71	0930	7.25	1,000	21.50	3.75
4R	5475.88	5465.52	10.36	22.70	1010	7.35	800	21.70	6.00
5A	5480.20	5466.13	14.07	25.00	1120	7.05	1,000	22.70	5.25
9M	5478.32	5464.83	13.49	22.92	1150	6.98	1,000	21.50	4.75

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).
(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)
Ideally a minimum of three (3) wellbore volumes:
2.00 " well diameter = 0.49 gallons per foot of water.

Comments or note well diameter if not standard 2 ".

Excellent recovery in all MW 's listed above . Collected BTEX from all samples listed above. Shipped samples via bus to Albuquerque , NM on 8 / 19 / 02 . Active bioremediation within MW # 9m only .

MW #	DTW
1A	14.41
2	14.90
4R	10.36
5A	14.07
9M	13.49

(prior to purging - in ft.)

MW #	DTW
1A	14.41
2	14.90
4R	10.36
5A	14.07
9M	13.49

(@ time of sampling - in ft.)

Hall Environmental Analysis Laboratory

COVER LETTER

August 22, 2002

Jeff Blagg
Blagg Engineering
110 North 4th St.
Bloomfield, NM 87413
TEL: (505) 632-1199
FAX (505) 632-3903

RE: Nancy Hartman #1E Order No.: 0208112

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 5 samples on 8/19/02 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, *Laboratory Manager*

Hall Environmental Analysis Laboratory

Date: *22-Aug-02*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #1A
Lab Order:	0208112	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	8/17/02 10:45:00 AM
Lab ID:	0208112-01A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NB**
Benzene	310	5.0		µg/L	10	8/22/02 10:50:48 AM
Toluene	280	5.0		µg/L	10	8/22/02 10:50:48 AM
Ethylbenzene	9.0	0.50		µg/L	1	8/21/02 10:46:46 PM
Xylenes, Total	320	5.0		µg/L	10	8/22/02 10:50:48 AM
Surr: 4-Bromofluorobenzene	91.9	74-118		%REC	10	8/22/02 10:50:48 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *22-Aug-02*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #2
Lab Order:	0208112	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	8/17/02 9:30:00 AM
Lab ID:	0208112-02A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NB**
Benzene	86	0.50		µg/L	1	8/21/02 11:18:02 PM
Toluene	ND	0.50		µg/L	1	8/21/02 11:18:02 PM
Ethylbenzene	ND	0.50		µg/L	1	8/21/02 11:18:02 PM
Xylenes, Total	ND	0.50		µg/L	1	8/21/02 11:18:02 PM
Surr: 4-Bromofluorobenzene	93.1	74-118		%REC	1	8/21/02 11:18:02 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *22-Aug-02*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #4R
Lab Order:	0208112	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	8/17/02 10:10:00 AM
Lab ID:	0208112-03A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NB**
Benzene	ND	0.50		µg/L	1	8/21/02 11:49:12 PM
Toluene	ND	0.50		µg/L	1	8/21/02 11:49:12 PM
Ethylbenzene	ND	0.50		µg/L	1	8/21/02 11:49:12 PM
Xylenes, Total	ND	0.50		µg/L	1	8/21/02 11:49:12 PM
Surr: 4-Bromofluorobenzene	93.8	74-118		%REC	1	8/21/02 11:49:12 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *22-Aug-02*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #5A
Lab Order:	0208112	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	8/17/02 11:20:00 AM
Lab ID:	0208112-04A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NB**
Benzene	ND	5.0		µg/L	10	8/22/02 12:20:17 AM
Toluene	3000	50		µg/L	100	8/22/02 11:22:00 AM
Ethylbenzene	230	50		µg/L	100	8/22/02 11:22:00 AM
Xylenes, Total	2900	50		µg/L	100	8/22/02 11:22:00 AM
Surr: 4-Bromofluorobenzene	98.1	74-118		%REC	100	8/22/02 11:22:00 AM

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *22-Aug-02*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #9M
Lab Order:	0208112	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	8/17/02 11:50:00 AM
Lab ID:	0208112-05A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NB**
Benzene	490	5.0		µg/L	10	8/22/02 12:51:18 AM
Toluene	ND	5.0		µg/L	10	8/22/02 12:51:18 AM
Ethylbenzene	ND	5.0		µg/L	10	8/22/02 12:51:18 AM
Xylenes, Total	ND	5.0		µg/L	10	8/22/02 12:51:18 AM
Surr: 4-Bromofluorobenzene	87.7	74-118		%REC	10	8/22/02 12:51:18 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *22-Aug-02*

CLIENT: Blagg Engineering
Work Order: 0208112
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Method Blank

Sample ID: **Reagent Blank 5m** Batch ID: **R5622** Test Code: **SW8021** Units: **µg/L** Analysis Date: **8/21/02 9:14:22 AM** Prep Date:
Client ID: Run ID: **PIDFID_020821A** SeqNo: **126408**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
Xylenes, Total	ND	0.50									

Sample ID: **Reagent Blank 5m** Batch ID: **R5631** Test Code: **SW8021** Units: **µg/L** Analysis Date: **8/22/02 8:40:37 AM** Prep Date:
Client ID: Run ID: **PIDFID_020822A** SeqNo: **126602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
Xylenes, Total	ND	0.50									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *22-Aug-02*

CLIENT: Blagg Engineering
Work Order: 0208112
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: **BTEX Std 100ng** Batch ID: **R5622** Test Code: **SW8021** Units: **µg/L** Analysis Date: **8/21/02 9:43:58 PM** Prep Date:
Client ID: Run ID: **PIDFID_020821A** SeqNo: **126449**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.73	0.50	20	0	109	81.3	121	0			
Toluene	22	0.50	20	0	110	84.9	118	0			
Ethylbenzene	21.2	0.50	20	0	106	53.8	149	0			
Xylenes, Total	63.06	0.50	60	0	105	83.1	122	0			

Sample ID: **BTEX Std 100ng** Batch ID: **R5622** Test Code: **SW8021** Units: **µg/L** Analysis Date: **8/21/02 10:15:26 PM** Prep Date:
Client ID: Run ID: **PIDFID_020821A** SeqNo: **126450**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	22.06	0.50	20	0	110	81.3	121	21.73	1.49	27	
Toluene	21.95	0.50	20	0	110	84.9	118	22	0.200	19	
Ethylbenzene	21.5	0.50	20	0	108	53.8	149	21.2	1.44	10	
Xylenes, Total	64.29	0.50	60	0	107	83.1	122	63.06	1.94	13	

Sample ID: **BTEX Std 100ng** Batch ID: **R5631** Test Code: **SW8021** Units: **µg/L** Analysis Date: **8/22/02 11:53:14 AM** Prep Date:
Client ID: Run ID: **PIDFID_020822A** SeqNo: **126628**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.82	0.50	20	0	109	81.3	121	0			
Toluene	21.72	0.50	20	0	109	84.9	118	0			
Ethylbenzene	21.55	0.50	20	0	108	53.8	149	0			
Xylenes, Total	63.87	0.50	60	0	106	83.1	122	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: BLAGG ENGINEERING, INC. / MANANA GAS, INC.

Address: P.O. BOX 87, BLOOMFIELD, NM 87413

Phone #: (505) 632-1199

Fax #: (505) 632-3903

Project Name: NANCY HARTMAN #1E

Project #: 4NT

Project Manager: JEFF BLAGG

Sampler: NELSON VELEZ

Samples Cold?: ☒ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HCl	HEAL No. 415 0208112
8/17/02	1045	WATER	MW #1A	2		✓	1
8/17/02	0930	WATER	MW #2	2		✓	2
8/17/02	1010	WATER	MW #4R	2		✓	3
8/17/02	1120	WATER	MW #5A	2		✓	4
8/17/02	1150	WATER	MW #9M	2		✓	5

ANALYSIS REQUEST

(BTEX + ~~MTBE~~ + ~~TMB's~~ (8021B) only)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)			Air Bubbles or Headspace (Y or N)
✓																
✓																
✓																
✓																
✓																

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
8/19/02	0715		
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
			8/19/02 1639

Remarks: PLEASE FAX OR EMAIL RESULTS UPON COMPLETION. THANKS NELSON V.
EMAIL ADDR. BLAGG_NJV@YAHOO.COM

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT / SAMPLING DATA

CLIENT : MANANA GAS, INC.

CHAIN-OF-CUSTODY # : NA

NANCY HARTMAN # 1E
UNIT A, SEC. 22, T29N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : December 6, 2002

SAMPLER : N J V

Filename : 12-06-02.WK4

PROJECT MANAGER : J C B

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1A	5480.82	5466.91	13.91	25.00	1345	7.19	800	15.2	5.50
2	5481.88	5467.46	14.42	22.71	1230	7.29	1,000	15.4	4.00
5A	5480.20	5466.69	13.51	25.00	-	-	-	-	-
9M	5478.32	5465.30	13.02	22.92	1300	7.14	900	14.9	5.00

NOTES : Volume of water purged from well prior to sampling; V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).
(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)
Ideally a minimum of three (3) wellbore volumes:
2.00 " well diameter = 0.49 gallons per foot of water.

Comments or note well diameter if not standard 2 ".

Excellent recovery in all MW 's listed above . Collected BTEX from all samples listed above , except MW # 5A . Shipped samples via bus to Albuquerque , NM on 12 / 9 / 02 . Active bioremediation within MW # 9m only .

MW #	DTW
1A	13.91
2	14.42
9M	13.02

(prior to purging - in ft.)

MW #	DTW
1A	14.15
2	14.85
9M	13.05

(@ time of sampling - in ft.)

Hall Environmental Analysis Laboratory

Date: *13-Dec-02*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW#1A
Lab Order:	0212050	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	12/6/2002 1:45:00 PM
Lab ID:	0212050-01A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NB**
Benzene	940	5.0		µg/L	10	12/10/2002 1:38:28 PM
Toluene	98	5.0		µg/L	10	12/10/2002 1:38:28 PM
Ethylbenzene	39	5.0		µg/L	10	12/10/2002 1:38:28 PM
Xylenes, Total	970	5.0		µg/L	10	12/10/2002 1:38:28 PM
Surr: 4-Bromofluorobenzene	104	74-118		%REC	10	12/10/2002 1:38:28 PM

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *13-Dec-02*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW#2
Lab Order:	0212050	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	12/6/2002 12:30:00 PM
Lab ID:	0212050-02A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NB**
Benzene	0.70	0.50		µg/L	1	12/10/2002 3:39:16 PM
Toluene	ND	0.50		µg/L	1	12/10/2002 3:39:16 PM
Ethylbenzene	ND	0.50		µg/L	1	12/10/2002 3:39:16 PM
Xylenes, Total	ND	0.50		µg/L	1	12/10/2002 3:39:16 PM
Surr: 4-Bromofluorobenzene	103	74-118		%REC	1	12/10/2002 3:39:16 PM

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *13-Dec-02*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW#9M
Lab Order:	0212050	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	12/6/2002 1:00:00 PM
Lab ID:	0212050-03A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NB**
Benzene	81	0.50		µg/L	1	12/11/2002 2:04:38 PM
Toluene	ND	0.50		µg/L	1	12/11/2002 2:04:38 PM
Ethylbenzene	ND	0.50		µg/L	1	12/11/2002 2:04:38 PM
Xylenes, Total	1.5	0.50		µg/L	1	12/11/2002 2:04:38 PM
Surr: 4-Bromofluorobenzene	99.3	74-118		%REC	1	12/11/2002 2:04:38 PM

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: BLAGG ENGINEERING, INC. / MANANA GAS, INC.

Address: P.O. BOX 87, BLOOMFIELD, NM 87413

Phone #: 505-632-1199

Fax #: 505-632-3903

Project Name: NANCY HARTMAN #1E

Project #:

Project Manager: JEFF BLAGG

Sampler: NELSON VELEZ

Samples Cold?: ☒ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HCl	Preservative	HEAL No.
								021250
12/6/02	1345	WATER	MW #1A	2		✓		1
12/6/02	1230	WATER	MW #2	2		✓		2
12/6/02	1300	WATER	MW #9M	2		✓		3

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021B)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)			Air Bubbles or Headspace (Y or N)
✓																
✓																
✓																

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
12/9/02		Nelson Velez	
			12/10/02
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
			$34

Remarks: Per Nelson, Reports mailed to Blagg Eng. 12/10/02

Hall Environmental Analysis Laboratory

Date: *13-Dec-02*

CLIENT: Blagg Engineering
Work Order: 0212050
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Method Blank

Sample ID **Reagent Blank 5m** Batch ID: **R6673** Test Code: **SW8021** Units: **µg/L** Analysis Date **12/10/2002 11:05:38 A** Prep Date
Client ID: Run ID: **PIDHALL_021210A** SeqNo: **152464**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
Xylenes, Total	ND	0.50									
Surr: 4-Bromofluorobenzene	19.99	0	20	0	100	74	118	0			

Sample ID **Reagent Blank 5m** Batch ID: **R6692** Test Code: **SW8021** Units: **µg/L** Analysis Date **12/11/2002 11:04:16 A** Prep Date
Client ID: Run ID: **PIDHALL_021211A** SeqNo: **152758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
Xylenes, Total	ND	0.50									
Surr: 4-Bromofluorobenzene	20.74	0	20	0	104	74	118	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *13-Dec-02*

CLIENT: Blagg Engineering
Work Order: 0212050
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID **0212050-02aMS** Batch ID: **R6673** Test Code: **SW8021** Units: **µg/L** Analysis Date **12/10/2002 4:09:30 PM** Prep Date
Client ID: **MW#2** Run ID: **PIDHALL_021210A** SeqNo: **152469**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.66	0.50	20	0.6954	94.8	77	122	0			
Toluene	19.53	0.50	20	0	97.6	81	115	0			
Ethylbenzene	19.69	0.50	20	0	98.4	84	117	0			
Xylenes, Total	59.68	0.50	60	0	99.5	84	116	0			

Sample ID **0212050-02aMSD** Batch ID: **R6673** Test Code: **SW8021** Units: **µg/L** Analysis Date **12/10/2002 4:39:43 PM** Prep Date
Client ID: **MW#2** Run ID: **PIDHALL_021210A** SeqNo: **152470**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.18	0.50	20	0.6954	97.4	77	122	19.66	2.58	27	
Toluene	20.2	0.50	20	0	101	81	115	19.53	3.37	19	
Ethylbenzene	20.05	0.50	20	0	100	84	117	19.69	1.83	10	
Xylenes, Total	61.32	0.50	60	0	102	84	116	59.68	2.71	13	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *13-Dec-02*

CLIENT: Blagg Engineering
Work Order: 0212050
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **BTEX Std 100ng** Batch ID: **R6692** Test Code: **SW8021** Units: **µg/L** Analysis Date **12/11/2002 3:06:03 PM** Prep Date

Client ID: Run ID: **PIDHALL_021211A** SeqNo: **152760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.12	0.50	20	0	95.6	81.3	121	0			
Toluene	19.27	0.50	20	0	96.4	84.9	118	0			
Ethylbenzene	19.19	0.50	20	0	96.0	53.8	149	0			
Xylenes, Total	58.25	0.50	60	0	97.1	83.1	122	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT / SAMPLING DATA

CLIENT: MANANA GAS, INC.

CHAIN-OF-CUSTODY #: NA

NANCY HARTMAN # 1E
UNIT A, SEC. 22, T29N, R11W

LABORATORY (S) USED: HALL ENVIRONMENTAL

Date : March 11, 2003

SAMPLER: N J V

Filename : 03-11-03.WK4

PROJECT MANAGER: J C B

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1A	5480.82	5464.81	16.01	25.00	-	-	-	-	-
2	5481.88	5465.37	16.51	22.71	1450	7.31	1,100	21.4	3.00
5A	5480.20	5464.60	15.60	25.00	-	-	-	-	-
9M	5478.32	5463.37	14.95	22.92	1530	6.90	1,000	20.1	4.00

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).
(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)
Ideally a minimum of three (3) wellbore volumes:
2.00 " well diameter = 0.49 gallons per foot of water.

Comments or note well diameter if not standard 2 ".

Excellent recovery in all MW # 2 & # 9M. Collected BTEX from these two MW 's only.
Shipped samples via bus to Albuquerque, NM on 03 / 12 / 03. Active bioremediation within
MW # 9m only.

MW #	DTW
1A	-
2	16.51
9M	14.95

(prior to purging - in ft.)

MW #	DTW
1A	-
2	16.55
9M	14.96

(@ time of sampling - in ft.)

Hall Environmental Analysis Laboratory

Date: *17-Mar-03*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #2
Lab Order:	0303078	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	3/11/2003 2:50:00 PM
Lab ID:	0303078-01A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NB**
Benzene	ND	0.50		µg/L	1	3/13/2003 1:58:45 PM
Toluene	ND	0.50		µg/L	1	3/13/2003 1:58:45 PM
Ethylbenzene	ND	0.50		µg/L	1	3/13/2003 1:58:45 PM
Xylenes, Total	ND	0.50		µg/L	1	3/13/2003 1:58:45 PM
Surr: 4-Bromofluorobenzene	109	74-118		%REC	1	3/13/2003 1:58:45 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *17-Mar-03*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #9M
Lab Order:	0303078	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	3/11/2003 3:30:00 PM
Lab ID:	0303078-02A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NB**
Benzene	2800	25		µg/L	50	3/14/2003 11:14:13 AM
Toluene	0.84	0.50		µg/L	1	3/13/2003 2:29:37 PM
Ethylbenzene	1.5	0.50		µg/L	1	3/13/2003 2:29:37 PM
Xylenes, Total	21	0.50		µg/L	1	3/13/2003 2:29:37 PM
Surr: 4-Bromofluorobenzene	101	74-118		%REC	1	3/13/2003 2:29:37 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: BLAGG ENGINEERING INC. / MANANA GAS INC.

Address: P.O. BOX 87 BLOOMFIELD, NM 87413

Phone #: 505-632-1199

Fax #: 505-632-3903

Project Name: NANCY HARTMAN #1E

Project #:

Project Manager: JEFF BLAGG

Sampler: NELSON VELEZ

Samples Cold?: ☒ Yes ☐ No 10.8

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HCl		HEAL No.
3/11/03	1450	WATER	MW # 2	2		✓		0303018-1
3/11/03	1530	WATER	MW #9M	2		✓		-2

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021B) 8015	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)			Air Bubbles or Headspace (Y or N)
✓																
✓																

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
3/12/03	0730	Nelson Velez	Anne Thompson 3/12/03 1623
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

Hall Environmental Analysis Laboratory

Date: *17-Mar-03*

CLIENT: Blagg Engineering
Work Order: 0303078
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Method Blank

Sample ID **Reagent Blank 5m** Batch ID: **R7646** Test Code: **SW8021** Units: **µg/L** Analysis Date **3/13/2003 8:51:08 AM** Prep Date

Client ID: Run ID: **PIDHALL_030313A** SeqNo: **173432**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
Xylenes, Total	ND	0.50									
Surr: 4-Bromofluorobenzene	20.24	0	20	0	101	74	118	0			

Sample ID **Reagent Blank 5m** Batch ID: **R7666** Test Code: **SW8021** Units: **µg/L** Analysis Date **3/14/2003 8:29:18 AM** Prep Date

Client ID: Run ID: **PIDHALL_030314A** SeqNo: **173960**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
Xylenes, Total	ND	0.50									
Surr: 4-Bromofluorobenzene	20.53	0	20	0	103	74	118	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *17-Mar-03*

CLIENT: Blagg Engineering
Work Order: 0303078
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **BTEX Std 100ng** Batch ID: **R7646** Test Code: **SW8021** Units: **µg/L** Analysis Date **3/13/2003 4:33:03 PM** Prep Date

Client ID: Run ID: **PIDHALL_030313A** SeqNo: **173951**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.17	0.50	20	0	101	81.3	121	0			
Toluene	19.77	0.50	20	0	98.9	84.9	118	0			
Ethylbenzene	20.25	0.50	20	0	101	53.8	149	0			
Xylenes, Total	61.63	0.50	60	0	103	83.1	122	0			

Sample ID **BTEX Std 100ng** Batch ID: **R7666** Test Code: **SW8021** Units: **µg/L** Analysis Date **3/14/2003 9:59:59 AM** Prep Date

Client ID: Run ID: **PIDHALL_030314A** SeqNo: **173964**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.69	0.50	20	0	93.5	81.3	121	0			
Toluene	19.64	0.50	20	0	98.2	84.9	118	0			
Ethylbenzene	19.04	0.50	20	0	95.2	53.8	149	0			
Xylenes, Total	55.18	0.50	60	0	92.0	83.1	122	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name **BLAGG** Date and Time Receive **3/12/03**

Work Order Number **0303078** Received by **AT**

Checklist completed by Signature 3/12/03 Date

Matrix: Carrier name: Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑

Container/Temp Blank temperature? **10°** *4° C ± 2 Acceptable*

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : MANANA GAS, INC. **CHAIN-OF-CUSTODY # :** N / A

NANCY HARTMAN # 1E
UNIT A, SEC. 22, T29N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : **June 13, 2003** **SAMPLER :** N J V

Filename : **06-13-03.WK4** **PROJECT MANAGER :** J C B

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1A	5480.82	-	-	25.00	-	-	-	-	-
2	5481.88	5464.57	17.31	22.71	0825	7.26	1,000	17.0	2.75
5A	5480.20	-	-	25.00	-	-	-	-	-
9M	5478.32	5462.68	15.64	22.92	1040	6.78	1,100	16.8	3.50
					INSTRUMENT CALIBRATIONS =	7.00	2,800		
					DATE & TIME =	06/09/03	07:40		

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).
(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

Ideally a minimum of three (3) wellbore volumes:

2.00 " well diameter = 0.49 gallons per foot of water.

Comments or note well diameter if not standard 2 ".

Excellent recovery in both MW # 2 & # 9M. Collected BTEX from these two MW 's only. Shipped samples via bus to Albuquerque, NM same day. Active bioremediation within MW # 9m only.

MW #	DTW
1A	-
2	17.31
9M	15.64

(prior to purging - in ft.)

MW #	DTW
1A	-
2	17.36
9M	15.64

(@ time of sampling - in ft.)

Hall Environmental Analysis Laboratory

Date: *20-Jun-03*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW#2
Lab Order:	0306103	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	6/13/2003 8:25:00 AM
Lab ID:	0306103-01A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.50		µg/L	1	6/17/2003 11:49:52 AM
Toluene	ND	0.50		µg/L	1	6/17/2003 11:49:52 AM
Ethylbenzene	ND	0.50		µg/L	1	6/17/2003 11:49:52 AM
Xylenes, Total	ND	0.50		µg/L	1	6/17/2003 11:49:52 AM
Surr: 4-Bromofluorobenzene	93.0	74-118		%REC	1	6/17/2003 11:49:52 AM

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *20-Jun-03*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW#9M
Lab Order:	0306103	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	6/13/2003 9:00:00 AM
Lab ID:	0306103-02A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	2400	5.0		µg/L	10	6/17/2003 12:21:33 PM
Toluene	ND	5.0		µg/L	10	6/17/2003 12:21:33 PM
Ethylbenzene	62	5.0		µg/L	10	6/17/2003 12:21:33 PM
Xylenes, Total	130	5.0		µg/L	10	6/17/2003 12:21:33 PM
Surr: 4-Bromofluorobenzene	105	74-118		%REC	10	6/17/2003 12:21:33 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
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Tel. 505.345-3975 Fax 505.345.4107
www.hallenvironmental.com

Client: BLAGG ENGR. / MANANA GAS, INC.

Address: P.O. BOX 87
BLOOMFIELD, NM 87413

Phone #: 505-632-1199

Fax #: 505-632-3903

Project Name: NANCY HARTMAN # 1E

Project #:

Project Manager: JEFF BLAGG

Sampler: NELSON VELEZ

Samples Cold?: ~~8~~ ☐ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HCl	Preservative	HEAL No.
								030603
6/13/03	0825	WATER	MW # 2		✓			1
6/13/03	0900	WATER	MW # 9M		✓			2

ANALYSIS REQUEST

BTEX + ~~MTBE~~ + TMB's (8021B)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)			Air Bubbles or Headspace (Y or N)
✓																
✓																

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	Date	Time
6/13/03	0915	Nelson Velez			
				6/13/03	1615
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)		

Remarks:

Hall Environmental Analysis Laboratory

Date: *20-Jun-03*

CLIENT: Blagg Engineering
Work Order: 0306103
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Method Blank

Sample ID **Reagent Blank 5m** Batch ID: **R8592** Test Code: **SW8021** Units: **µg/L** Analysis Date **6/17/2003 10:12:47 AM** Prep Date

Client ID: Run ID: **PIDFID_030617A** SeqNo: **194244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.50									
Toluene	ND	0.50									
Ethylbenzene	ND	0.50									
Xylenes, Total	ND	0.50									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *20-Jun-03*

CLIENT: Blagg Engineering
Work Order: 0306103
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID **0306103-01aMS** Batch ID: **R8592** Test Code: **SW8021** Units: **µg/L** Analysis Date **6/17/2003 1:25:18 PM** Prep Date

Client ID: **MW#2** Run ID: **PIDFID_030617A** SeqNo: **194296**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.69	0.50	20	0	108	77	122	0			
Toluene	20.86	0.50	20	0	104	81	115	0			
Ethylbenzene	21	0.50	20	0	105	84	117	0			
Xylenes, Total	63.26	0.50	60	0	105	84	116	0			

Sample ID **0306103-01aMSD** Batch ID: **R8592** Test Code: **SW8021** Units: **µg/L** Analysis Date **6/17/2003 1:57:13 PM** Prep Date

Client ID: **MW#2** Run ID: **PIDFID_030617A** SeqNo: **194297**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	22.64	0.50	20	0	113	77	122	21.69	4.28	27	
Toluene	21.98	0.50	20	0	110	81	115	20.86	5.20	19	
Ethylbenzene	22.24	0.50	20	0	111	84	117	21	5.76	10	
Xylenes, Total	66.82	0.50	60	0	111	84	116	63.26	5.49	13	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

1

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name **BLAGG** Date and Time Receive

Work Order Number **0306103** Received by AT

Checklist completed by A Gonzales 6/13/03
Signature Date

Matrix: Carrier name: Greyhound

Shipping container/cooler in good condition?	Yes	☑	No	☐	Not Present	☐
Custody seals intact on shippping container/cooler?	Yes	☐	No	☐	Not Present	☑
Custody seals intact on sample bottles?	Yes	☐	No	☐	Not Present	☑
Chain of custody present?	Yes	☑	No	☐		
Chain of custody signed when relinquished and received?	Yes	☑	No	☐		
Chain of custody agrees with sample labels?	Yes	☑	No	☐		
Samples in proper container/bottle?	Yes	☑	No	☐		
Sample containers intact?	Yes	☑	No	☐		
Sufficient sample volume for indicated test?	Yes	☑	No	☐		
All samples received within holding time?	Yes	☑	No	☐		
Water - VOA vials have zero headspace?	No VOA vials submitted	☐	Yes	☑	No	☐
Water - pH acceptable upon receipt?	Yes	☐	No	☐	N/A	☑

Container/Temp Blank temperature? **8°** *4° C ± 2 Acceptable*

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

BLAGG ENGINEERING, INC.

MONITOR WELL DEVELOPMENT & / OR SAMPLING DATA

CLIENT : MANANA GAS, INC.

CHAIN-OF-CUSTODY # : N / A

NANCY HARTMAN # 1E
UNIT A, SEC. 22, T29N, R11W

LABORATORY (S) USED : HALL ENVIRONMENTAL

Date : December 10, 2003

SAMPLER : N J V

Filename : 12-10-03.WK4

PROJECT MANAGER : J C B

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	TEMP. (celcius)	VOLUME PURGED (gal.)
1A	5480.82	5465.25	15.57	25.00	1350	7.02	1,200	13.7	4.75
2	5481.88	5465.83	16.05	22.71	1305	6.94	1,400	12.3	3.25
5A	5480.20	5464.91	15.29	25.00	1430	6.92	1,000	16.5	4.75
9M	5478.32	5463.74	14.58	22.92	1520	6.68	1,200	15.6	4.00
					INSTRUMENT CALIBRATIONS =	7.00	2,800		
					DATE & TIME =	12/10/03	1040		

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).
(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)
Ideally a minimum of three (3) wellbore volumes:
2.00 " well diameter = 0.49 gallons per foot of water.

Comments or note well diameter if not standard 2".

Excellent recovery in all MW's listed above. Collected BTEX from all MW's as well.
Active bioremediation within MW # 9M only.

MW #	DTW
1A	15.57
2	16.05
5A	15.29
9M	14.58

(prior to purging - in ft.)

MW #	DTW
1A	15.63
2	16.09
5A	15.31
9M	14.60

(@ time of sampling - in ft.)

Hall Environmental Analysis Laboratory

COVER LETTER

December 16, 2003

Jeff Blagg
Blagg Engineering
110 North 4th St.
Bloomfield, NM 87413
TEL: (505) 632-1199
FAX (505) 632-3903

RE: Nancy Hartman #1E Order No.: 0312113

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 4 samples on 12/11/2003 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

Hall Environmental Analysis Laboratory

Date: *16-Dec-03*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #2
Lab Order:	0312113	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	12/10/2003 1:05:00 PM
Lab ID:	0312113-01A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	ND	1.0		µg/L	1	12/12/2003
Toluene	ND	1.0		µg/L	1	12/12/2003
Ethylbenzene	ND	1.0		µg/L	1	12/12/2003
Xylenes, Total	ND	1.0		µg/L	1	12/12/2003
Surr: 4-Bromofluorobenzene	101	76.2-122		%REC	1	12/12/2003

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Dec-03*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #1A
Lab Order:	0312113	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	12/10/2003 1:50:00 PM
Lab ID:	0312113-02A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	850	20		µg/L	20	12/12/2003
Toluene	ND	20		µg/L	20	12/12/2003
Ethylbenzene	35	20		µg/L	20	12/12/2003
Xylenes, Total	710	20		µg/L	20	12/12/2003
Surr: 4-Bromofluorobenzene	99.1	76.2-122		%REC	20	12/12/2003

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Dec-03*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #5A
Lab Order:	0312113	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	12/10/2003 2:30:00 PM
Lab ID:	0312113-03A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	ND	1.0		µg/L	1	12/12/2003
Toluene	390	50		µg/L	50	12/15/2003
Ethylbenzene	200	50		µg/L	50	12/15/2003
Xylenes, Total	2600	50		µg/L	50	12/15/2003
Surr: 4-Bromofluorobenzene	104	76.2-122		%REC	1	12/12/2003

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Dec-03*

CLIENT:	Blagg Engineering	**Client Sample ID:**	MW #9M
Lab Order:	0312113	**Tag Number:**	
Project:	Nancy Hartman #1E	**Collection Date:**	12/10/2003 3:20:00 PM
Lab ID:	0312113-04A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **BDH**
Benzene	ND	10		µg/L	10	12/15/2003
Toluene	ND	10		µg/L	10	12/15/2003
Ethylbenzene	ND	10		µg/L	10	12/15/2003
Xylenes, Total	ND	10		µg/L	10	12/15/2003
Surr: 4-Bromofluorobenzene	100	76.2-122		%REC	10	12/15/2003

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Dec-03*

CLIENT: Blagg Engineering
Work Order: 0312113
Project: Nancy Hartman #1E

QC SUMMARY REPORT

Method Blank

Sample ID **5ml rb** Batch ID: **R10355** Test Code: **SW8260B** Units: **µg/L** Analysis Date **12/12/2003** Prep Date

Client ID: Run ID: **THOR_031212A** SeqNo: **233768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	1.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									
1,2-Dichloroethane (EDC)	ND	1.0									
1,2-Dibromoethane (EDB)	ND	1.0									
Naphthalene	0.73	2.0									J
1-Methylnaphthalene	ND	4.0									
2-Methylnaphthalene	0.824	4.0									J
Acetone	ND	10									
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0									
Bromomethane	ND	2.0									
2-Butanone	ND	10									
Carbon disulfide	ND	10									
Carbon Tetrachloride	ND	1.0									
Chlorobenzene	ND	1.0									
Chloroethane	ND	2.0									
Chloroform	ND	1.0									
Chloromethane	ND	1.0									
2-Chlorotoluene	ND	1.0									
4-Chlorotoluene	ND	1.0									
cis-1,2-DCE	ND	1.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

/

CLIENT: Blagg Engineering
Work Order: 0312113
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Method Blank

cis-1,3-Dichloropropene	ND	1.0
1,2-Dibromo-3-chloropropane	ND	2.0
Dibromochloromethane	ND	1.0
Dibromomethane	ND	2.0
1,2-Dichlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
Dichlorodifluoromethane	ND	1.0
1,1-Dichloroethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,2-Dichloropropane	ND	1.0
1,3-Dichloropropane	ND	1.0
2,2-Dichloropropane	ND	1.0
1,1-Dichloropropene	ND	1.0
Hexachlorobutadiene	ND	1.0
2-Hexanone	ND	10
Isopropylbenzene	ND	1.0
4-Isopropyltoluene	ND	1.0
4-Methyl-2-pentanone	ND	10
Methylene Chloride	ND	3.0
n-Butylbenzene	ND	1.0
n-Propylbenzene	ND	1.0
sec-Butylbenzene	ND	1.0
Styrene	ND	1.0
tert-Butylbenzene	ND	1.0
1,1,1,2-Tetrachloroethane	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
Tetrachloroethene (PCE)	ND	1.0
trans-1,2-DCE	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
1,2,3-Trichlorobenzene	ND	1.0
1,2,4-Trichlorobenzene	ND	1.0
1,1,1-Trichloroethane	ND	1.0

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Blagg Engineering
Work Order: 0312113
Project: Nancy Hartman #1E

QC SUMMARY REPORT
Method Blank

1,1,2-Trichloroethane	ND	1.0						
Trichloroethene (TCE)	ND	1.0						
Trichlorofluoromethane	ND	1.0						
1,2,3-Trichloropropane	ND	2.0						
Vinyl chloride	ND	2.0						
Xylenes, Total	ND	1.0						
Surr: 1,2-Dichloroethane-d4	9.332	0	10	0	93.3	68.4	127	0
Surr: 4-Bromofluorobenzene	10.23	0	10	0	102	70.4	126	0
Surr: Dibromofluoromethane	9.704	0	10	0	97.0	70.2	126	0
Surr: Toluene-d8	10.35	0	10	0	104	73.5	129	0

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *16-Dec-03*

CLIENT: Blagg Engineering
Work Order: 0312113
Project: Nancy Hartman #1E

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID **100ng lcs** Batch ID: **R10355** Test Code: **SW8260B** Units: **µg/L** Analysis Date **12/12/2003** Prep Date

Client ID: Run ID: **THOR_031212A** SeqNo: **233773**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.07	1.0	20	0	95.4	71.2	122	0			
Toluene	19.47	1.0	20	0	97.4	87.7	122	0			
Chlorobenzene	22.76	1.0	20	0	114	85.6	136	0			
1,1-Dichloroethene	16.41	1.0	20	0	82.0	70.7	117	0			
Trichloroethene (TCE)	18.86	1.0	20	0	94.3	76.9	130	0			

Sample ID **100ng lcs** Batch ID: **R10364** Test Code: **SW8260B** Units: **µg/L** Analysis Date **12/15/2003** Prep Date

Client ID: Run ID: **THOR_031215A** SeqNo: **234124**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.63	1.0	20	0	98.1	71.2	122	0			
Toluene	19.65	1.0	20	0	98.2	87.7	122	0			
Chlorobenzene	22.57	1.0	20	0	113	85.6	136	0			
1,1-Dichloroethene	17.3	1.0	20	0	86.5	70.7	117	0			
Trichloroethene (TCE)	20.6	1.0	20	0	103	76.9	130	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name BLAGG | Date and Time Received: 12/11/2003

Work Order Number 0312113 | Received by AT

Checklist completed by _____ 12/11/03
Signature Date

Matrix | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	

Container/Temp Blank temperature? **5°** *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

Accreditation Applied:
NELAC ☐ USACE ☐
Other: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: BLAGG ENGR. / MALLANA GAS

Project Name: NANCY HARTMAN #1E

Address: P.O. BOX 87
BLOOMFIELD, NM 87413

Project #:

Project Manager: JCB

Phone #: (505) 632-1199

Sampler: NJV

Fax #: (505) 632-3903

Sample Temperature: 5

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.	BTEX + ~~MTBE + TMB's~~ (8021B)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
12/10/03	1305	WATER	MW # 2	2-40ml	✓			0312113-1	✓																
12/10/03	1350	WATER	MW #1A	2-40ml	✓			-2	✓																
12/10/03	1430	WATER	MW #5A	2-40ml	✓			-3	✓																
12/10/03	1520	WATER	MW #9M	2-40ml	✓			-4	✓																

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
12/11/03	0800			12/11/03 1711
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks: