

3RP-124

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Annual Groundwater
Remediation Reports
For Year 2008

April 2009



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April 13, 2009

Mr. Glenn von Gonten
Hydrologist-Groundwater Remediation
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: Annual Groundwater Remediation Reports

Dear Mr. von Gonten,

XTO Energy Inc. (XTO) herein submits the Annual Groundwater Remediation Reports for year 2008, in accordance with the New Mexico Oil Conservation Division (NMOCD) approved Groundwater Management Plan (GMP). Enclosed are summary reports with analytical data, summary tables, site maps, topographic maps, potentiometric surface diagrams and recommendations/proposed actions for:

- Bruington Gas Com #1- 3RP106
- EJ Johnson C #1E- 3RP385
- Federal Gas Com #H1- 3RP110
- Frost, Jack B #2- 3RP416
- McCoy GC D #1E- 3RP414
- OH Randel #7- 3RP386
- PO Pipken #3E- 3RP409
- Rowland Gas Com #1- 3RP124
- Valdez A #1E- 3RP134

We have also enclosed an Annual Groundwater Report for three sites that meet the closure requirements outlined in the GMP. XTO respectfully requests closure of:

- Carson Gas Com #1E- 3RP315
- Snyder Gas Com #1A- 3RP126
- Sullivan Gas Com D #1- 3RP131

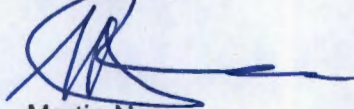
In previously submitted reports, fifteen sites met the closure requirements outlined in the GMP and XTO requested closure of those sites in 2006, 2007 and 2008. The reports for the below listed sites are being submitted again for your review.

Mr. Glen VonGonten
XTO Annual Groundwater Reports
2

- Abrams J #1- 3RP100
- Armenta Gas Com C #1E- 3RP394
- Baca Gas Com A #1A- 3RP104
- Bergin Gas Com #1E- 3RP105
- Garcia Gas Com B #1- 3RP111
- Haney Gas Com B #1E- 3RP113
- Hare Gas Com B #1- 3RP413
- Hare Gas Com B #1E- 3RP384
- Hare Gas Com I #1- 3RP412
- Masden Gas Com #1E- 3RP120
- McDaniel Gas Com B #1E- 3RP121
- Romero Gas Com A #1- 3RP123
- State Gas Com BS #1- 3RP127
- Stedje Gas Com #1- 3RP128
- Sullivan Frame A #1E- 3RP130

Thank you for your review of the reports. XTO looks forward to hearing from you regarding closure requests and proposed remedial actions. If you have any questions please do not hesitate to contact me at (505) 333-3100.

Respectfully,



Martin Nee
EH & S Manager
San Juan Division

cc: Mr. Brandon Powell, Environmental, NMOCD District III Office, Aztec, NM
Ms. Ashley Ager, Lodestar Services Inc.
File- San Juan Groundwater

Rowland Gas Com
#1- 3RP124

XTO ENERGY INC.

ANNUAL GROUNDWATER REPORT

2008

ROWLAND GAS COM #1

3RP-124

**(P) SECTION 25 – T30N – R12W, NMPM
SAN JUAN COUNTY, NEW MEXICO**

PREPARED FOR:

MR. GLENN VON GONTEN

NEW MEXICO OIL CONSERVATION DIVISION

April 2009

TABLE OF CONTENTS

Site Details	3
Introduction	3
History.....	3
Methodology.....	4
Results.....	5
Conclusions.....	5
Recommendations	5

Appendices

Table 1:	Summary Groundwater Laboratory Results
Table 2:	General Water Quality
Figure 1:	Site Map
Figure 2:	Topographic Map
Figures 3-9:	Bore/Test Hole Reports
Figures 10-13:	Potentiometric Surface Diagrams
Attachment 1:	Field Report Closure Verification (08/93)
Attachment 2:	2008 Laboratory Reports

2008 XTO GROUNDWATER REPORT

ROWLAND GAS COM #1 3RP-124

SITE DETAILS

LEGALS - TWN: 30N
OCD HAZARD RANKING: 20
LATITUDE: 36.77894

RNG: 12W

SEC: 25
LAND TYPE: FEE
LONGITUDE: 108.04329

INTRODUCTION

XTO Energy Inc. (XTO) acquired the Rowland Gas Com #1 well site from Amoco Production Company (Amoco) in January 1998. This is a gas producing well in the Basin Dakota formation and is currently active. There is a nearby irrigation ditch to the immediate west of this location. A site map and topographic map are presented as Figures 1 and 2.

HISTORY

XTO has learned that in August 1993 Amoco excavated and attempted to remediate an unlined production pit. During excavation groundwater was encountered at 13 feet below ground surface (Attachment 1). Monitoring wells MW-1, MW-2, MW-3, MW-4 and MW-5 were installed in May 1996. Bore/Test Hole reports are presented as Figures 3-7 representing drilling that occurred in 1996. Groundwater results from monitoring wells MW-1, MW-2 and MW-3 were below laboratory equipment detection limits (0.2 ug/L) or below the New Mexico Water Quality Control Commission (WQCC) standards for benzene, toluene, ethyl benzene and total xylenes (BTEX) and sampling was discontinued by Amoco in 1996 in accordance with the New Mexico Oil Conservation Division (OCD) approved Groundwater Management Plan. Monitoring wells MW-4 and MW-5 revealed BTEX levels in excess of WQCC standards. It was presumed that MW-5 was installed in a location within or immediately adjacent to an abandoned dehydrator unit with an associated pit. At that time possible downgradient migration had not been fully delineated. Installation of an additional monitoring well was recommended.

Monitoring well MW-6 was installed in June 1997 to further delineate possible down gradient migration of hydrocarbon impact. Figure 8 is presented for the monitoring well installed on site in 1997. Initial sampling of MW-6 revealed BTEX levels that were non-detect or below WQCC standards and sampling of MW-6 was discontinued by Amoco.

During a site visit in 1998 after the XTO acquisition it was discovered that MW-4 had been damaged during location equipment upgrades. Monitoring well MW-4 was replaced in June 1998 with MW-4R. Monitoring well MW-4R was positioned closer to the production pit excavation. Figure 9 is presented for the replacement monitoring well installed on site in 1998.

An annual groundwater report for years 1996-1998 was submitted to the OCD in February 1999. It was recommended that MW-4R and MW-5 be sampled on an annual basis until results indicate otherwise. It was also suggested that MW-3 be re-sampled annually to verify no further migration from the production pit.

2008 XTO GROUNDWATER REPORT

Monitoring wells MW-3 and MW-6 were sampled annually through 2000. Laboratory results were non-detect for BTEX constituents. Monitoring well MW-4R was sampled annually through 2002 with results consistently revealing non-detect levels of BTEX. Monitoring well MW-5 was sampled annually through 2005 and laboratory results reveal elevated levels of BTEX exceeding WQCC standards.

The 2005 annual groundwater report submitted to the OCD in January 2006 requested discontinued sampling for BTEX in all monitoring wells except MW-5. Annual sampling was proposed in MW-5 until results indicate otherwise.

The 2006 annual groundwater report submitted to the OCD in February 2007 proposed continued annual sampling of MW-5 until the BTEX levels in groundwater are below closure standards.

The 2007 annual groundwater report submitted to the OCD in February 2008 proposed quarterly sampling of MW-5 to monitor decreasing BTEX levels.

A summary of laboratory results from historical and current groundwater monitoring is presented as Table 1. A summary of general water quality data from 1999 is presented as Table 2. Copies of the laboratory data sheets and associated quality assurance/quality control data for 2008 are presented as Attachment 2.

METHODOLOGY

Quarterly groundwater samples were collected and submitted for laboratory analysis of BTEX in MW-5 in 2008.

Water Level Measurements

Static groundwater level monitoring includes recording depth to groundwater measurements with a Keck oil/water interface probe. The interface probe is decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement. These data are recorded as Depth to Water (DTW) and Total Depth (TD) in feet on Table 1.

Groundwater Sampling

Prior to sampling at monitoring wells, depth to groundwater and total depth of wells is measured with a Keck oil/water interface probe. Presence of any free-phase crude oil is also investigated using the interface probe. The interface probe is decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement. The volume of water in the wells is calculated, and a minimum of three casing volumes of water is purged from each well using a disposable bailer or a permanent decontaminated PVC bailer. As water is extracted, pH, electric conductivity and temperature are monitored. Wells are purged until these properties stabilize, indicating that the purge water is representative of aquifer conditions. Stabilization is defined as three consecutive stable readings for each water property (± 0.4 units for pH, ± 10 percent for electric conductivity and $\pm 2^\circ$ C for temperature). All purge water is disposed of into tanks on site.

Once each monitoring well is properly purged, groundwater samples are collected by filling at least two 40-milliliter (ml) glass vials. The pre-cleaned and pre-preserved (with hydrochloric acid or mercuric chloride) vials are filled and capped with no air inside to prevent degradation of the sample. Samples are labeled with the date and time of

2008 XTO GROUNDWATER REPORT

collection, well designation, project name, collector's name and parameters to be analyzed. They are immediately sealed and packed on ice. The samples are shipped to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico in a sealed cooler via bus before designated holding times expire. Proper chain-of-custody (COC) procedures are followed with logs documenting the date and time sampled, sample number, type of sample, sampler's name, preservative used, analyses required and sampler's signature.

Groundwater Contour Maps

Top of casing well elevations are surveyed using a surveyor's level; and groundwater elevations obtained from monitoring wells during site visits are used to draft groundwater contour maps. Contours are inferred based on groundwater elevations obtained and observation of physical characteristics at the site (topography, proximity to irrigation ditches, etc.).

RESULTS

Laboratory results from MW-5 indicate natural degradation of BTEX levels throughout the year. Benzene concentrations are still above WQCC standards while toluene, ethyl benzene and total xylenes are currently below standards. All laboratory analytical results are presented in Table 1. Laboratory reports are presented in Attachment 2.

Field data collected during site monitoring activities indicate a groundwater gradient that is likely influenced by a nearby irrigation ditch located immediately west of the location. In March and December 2008, when the irrigation ditch is dry, the groundwater gradient trends to the west. In June and September 2008, the groundwater direction is reversed due to the presence of water in the adjacent irrigation ditch. Figures 10-13 illustrate the estimated groundwater gradients during 2008.

CONCLUSIONS

Based on the laboratory results from 2008, degradation of BTEX is occurring and there is no further hydrocarbon impact either up gradient or down gradient of the source area.

RECOMMENDATIONS

Continued quarterly sampling of groundwater for BTEX concentrations in MW-5 until WQCC standards have been met for four consecutive quarters.

Following OCD approval for closure, all monitoring well locations will be abandoned in accordance with the monitoring well abandonment plan.

TABLE 1

XTO ENERGY INC. GROUNDWATER LAB RESULTS

ROWLAND GC #1- PROD. TANK & SEP. PITS
UNIT P, SEC. 25, T30N, R12W

Sample Date	Monitor Well No.	DTW (ft)	TD (ft)	Product (ft)	BTEX EPA Method 801 (PPB)			
					Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylene (ug/L)
14-Jun-96	MW #1	16.11	25.00		ND	ND	ND	ND
14-Jun-96	MW #2	15.44	20.00		ND	1.19	ND	3.41
26-May-99		15.30			NA	NA	NA	NA
14-Jun-96	MW #3	14.39	20.00		ND	ND	ND	ND
26-May-99		15.29			ND	NA	NA	NA
30-Jun-00		15.51			ND	ND	ND	ND
28-Jun-06		13.81			NO RECOVERY			
14-Jun-96	MW #4	13.72	19.00		94.3	2.71	ND	106.4
24-Jun-97		14.02	19.00		44.7	0.5	0.4	3
26-Jun-98	MW #4R	11.52	19.09		13.4	ND	ND	0.6
26-May-99		11.28			16.4	0.9	2.1	72.2
30-Jun-00		11.69			ND	ND	ND	ND
16-May-01		13.07			ND	ND	ND	ND
25-Sep-01		11.81			ND	ND	ND	ND
19-Dec-01		12.66			ND	ND	ND	ND
19-Feb-02		13.97			ND	ND	ND	ND
28-Jun-06		9.87	19.00		NO RECOVERY			
14-Jun-96	MW #5	10.40	16.90		25.4	732	953	9,070
24-Jun-97		10.27	15.00		58.8	2.5	2.8	6,290
26-Jun-98		10.34	15.00		1,270	89	41.4	3,200
26-May-99		10.03			174	129	252	990
30-Jun-00		10.78			38	6.4	750	6,390
16-May-01		12.52			49	34	700	4,480
26-Jun-02		10.87			84	ND	630	3,460
30-Jun-03		10.96			51	ND	420	2,600
21-Jun-04		9.85			39	19	490	1,200
27-Jun-05		9.32			18	44	420	1,900
28-Jun-06		9.35	15.23		60	ND	360	1,500
15-Jun-07		8.51	15.23		55	ND	240	620
26-Dec-07		10.17	15.23		ND	ND	ND	ND
12-Mar-08		11.26	15.23		28	3.6	88	290
02-Jun-08		8.38	15.23		61	4.6	300	890
22-Sep-08		7.65	15.23		10	ND	97	260
05-Dec-08		10.30	15.23		32	4.8	170	410
24-Jun-97	MW #6	15.55	25.00		ND	0.6	0.5	5.4
26-May-99		15.79			NA	NA	NA	NA
30-Jun-00		15.90			ND	ND	ND	ND
28-Jun-06		13.59			NO RECOVERY			
NMWQCC GROUNDWATER STANDARDS					10	750	750	620

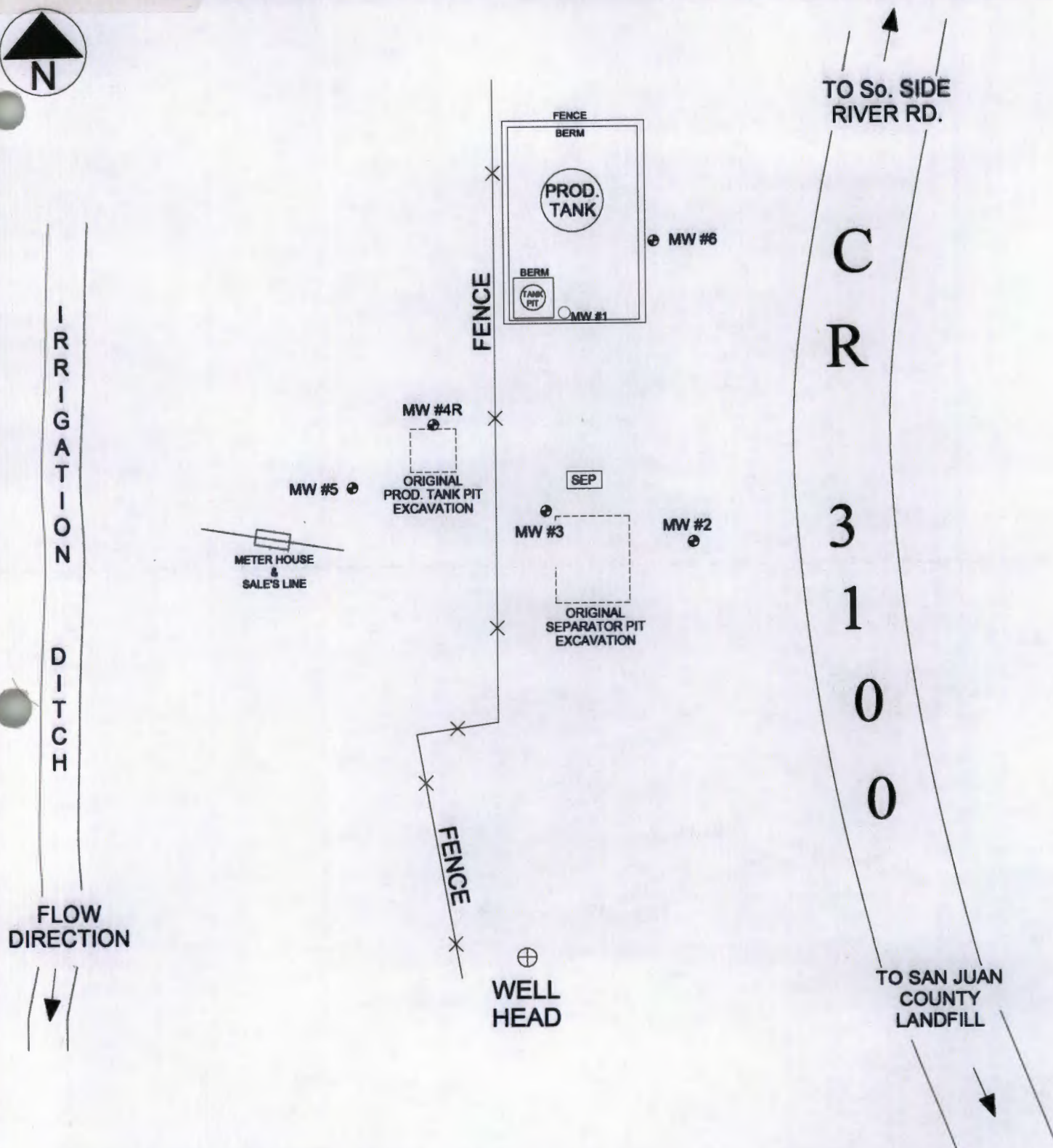
TABLE 2

XTO ENERGY INC. GROUNDWATER LAB RESULTS

ROWLAND GC #1- PROD. TANK & SEP. PITS
UNIT P, SEC. 25, T30N, R12W

Sample Date: May 26, 1999

PARAMETERS	MW #2	MW #3	MW #4R	MW #5	MW #6	UNITS
LAB Ph	7.35	7.11	7.06	7.52	7.67	s.u.
LAB CONDUCTIVITY @ 25 C	18,500	3,200	2,250	2,050	20,420	umhos/cm
TOTAL DISSOLVED SOLIDS @ 180 C	9,200	1,550	1,110	1,016	10,200	mg/L
TOTAL DISSOLVED SOLIDS (Calc)	9,111	1,480	1,076	1,010	10,026	mg/L
SODIUM ABSORPTION RATIO	34.8	5.3	2.7	0.2	30.6	ratio
TOTAL ALKALINITY AS CaCO3	536	496	576	880	352	mg/L
TOTAL HARDNESS AS CaCO3	1,048	560	584	872	1,456	mg/L
BICARBONATE AS HCO3	536	496	576	880	352	mg/L
CARBONATE AS CO3	< 1	< 1	< 1	< 1	< 1	mg/L
HYDROXIDE AS OH	< 1	< 1	< 1	< 1	< 1	mg/L
NITRATE NITROGEN	190	6.6	0.4	0.3	220	mg/L
NITRITE NITROGEN	0.214	0.083	0.027	0.016	0.94	mg/L
CHLORIDE	644	188	160	112	560	mg/L
FLUORIDE	1.43	0.48	0.67	0.36	1.54	mg/L
PHOSPHATE	0.5	0.7	0.1	2	0.4	mg/L
SULFATE	4,980	490	200	21	5,800	mg/L
IRON	0.001	0.017	0.003	0.519	0.012	mg/L
CALCIUM	298	160	179	285	477	mg/L
MAGNESIUM	74.2	9.1	33.2	39.1	64.5	mg/L
POTASSIUM	7.5	4.0	3.0	1.1	7.5	mg/L
SODIUM	2,590	290	150	15	2,680	mg/L
CATION/ANION DIFFERENCE	0.03	0.54	0.56	0.02	0.07	%



ONE INCH = 50 FEET

SITE MAP

05/99

FIGURE 2



FIGURE 3

BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME: ROWLAND GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N18E, 201 FEET FROM WELL HEAD.

BORING #..... BH - 1
MW #..... 1
PAGE #..... 1
DATE STARTED 5/30/96
DATE FINISHED 6/03/96
OPERATOR..... JCB
PREPARED BY NJV

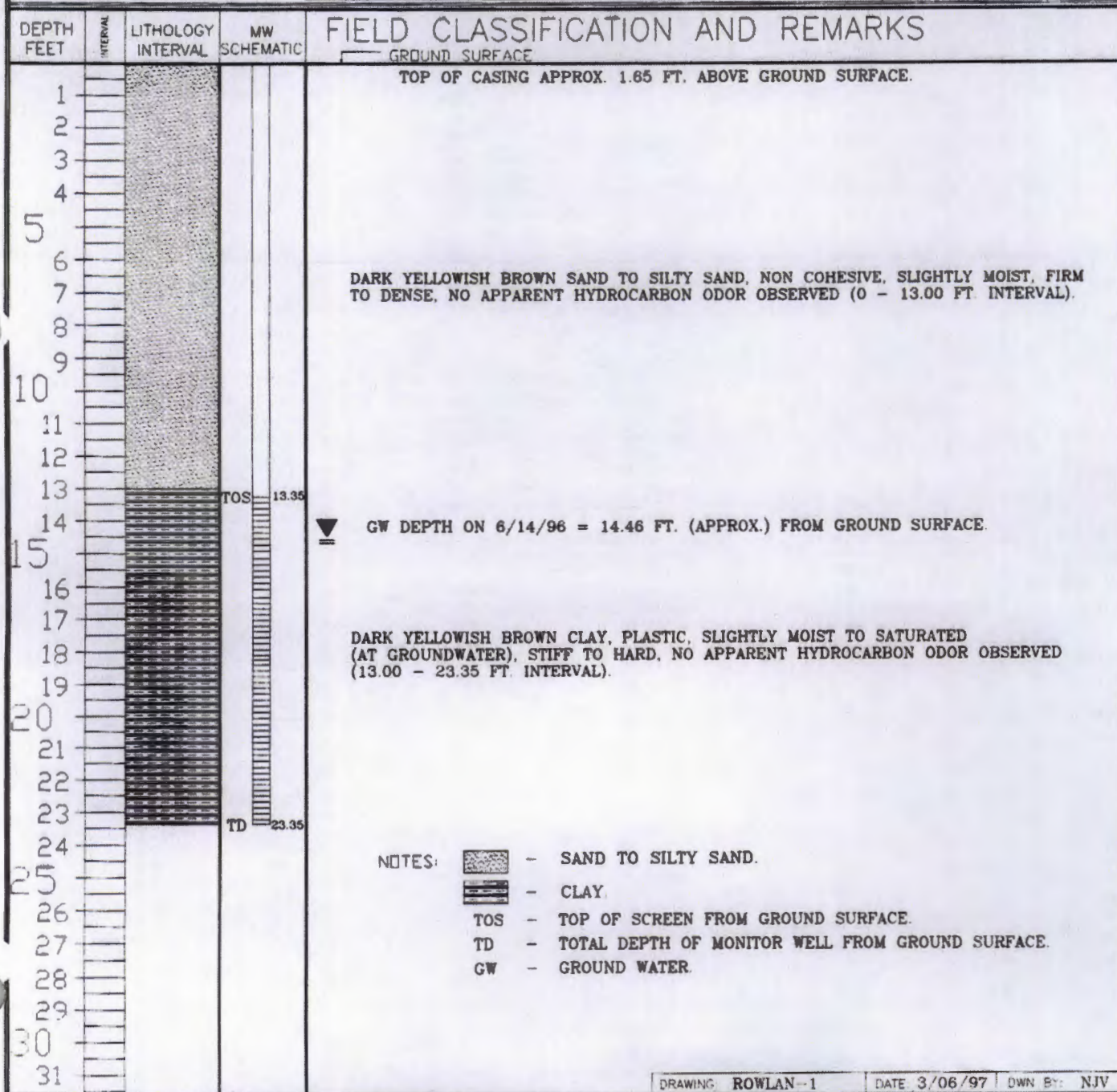


FIGURE 4

BLAGG ENGINEERING, Inc.

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(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME: ROWLAND GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N23E, 156 FEET FROM WELL HEAD.

BORING #..... BH - 2
MW #..... 2
PAGE #..... 2
DATE STARTED 5/30/96
DATE FINISHED 6/03/96
OPERATOR..... JCB
PREPARED BY NJV

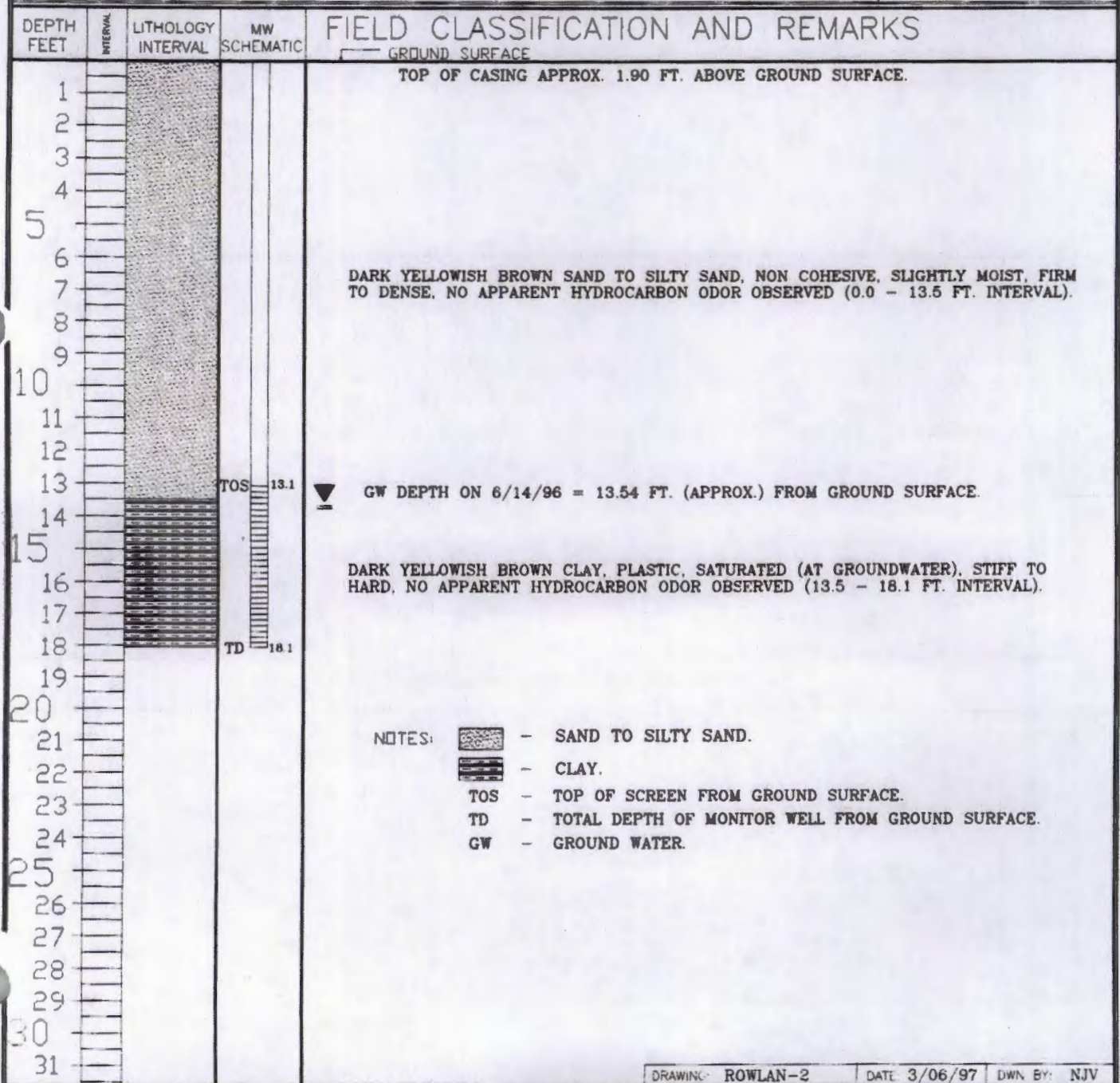


FIGURE 5

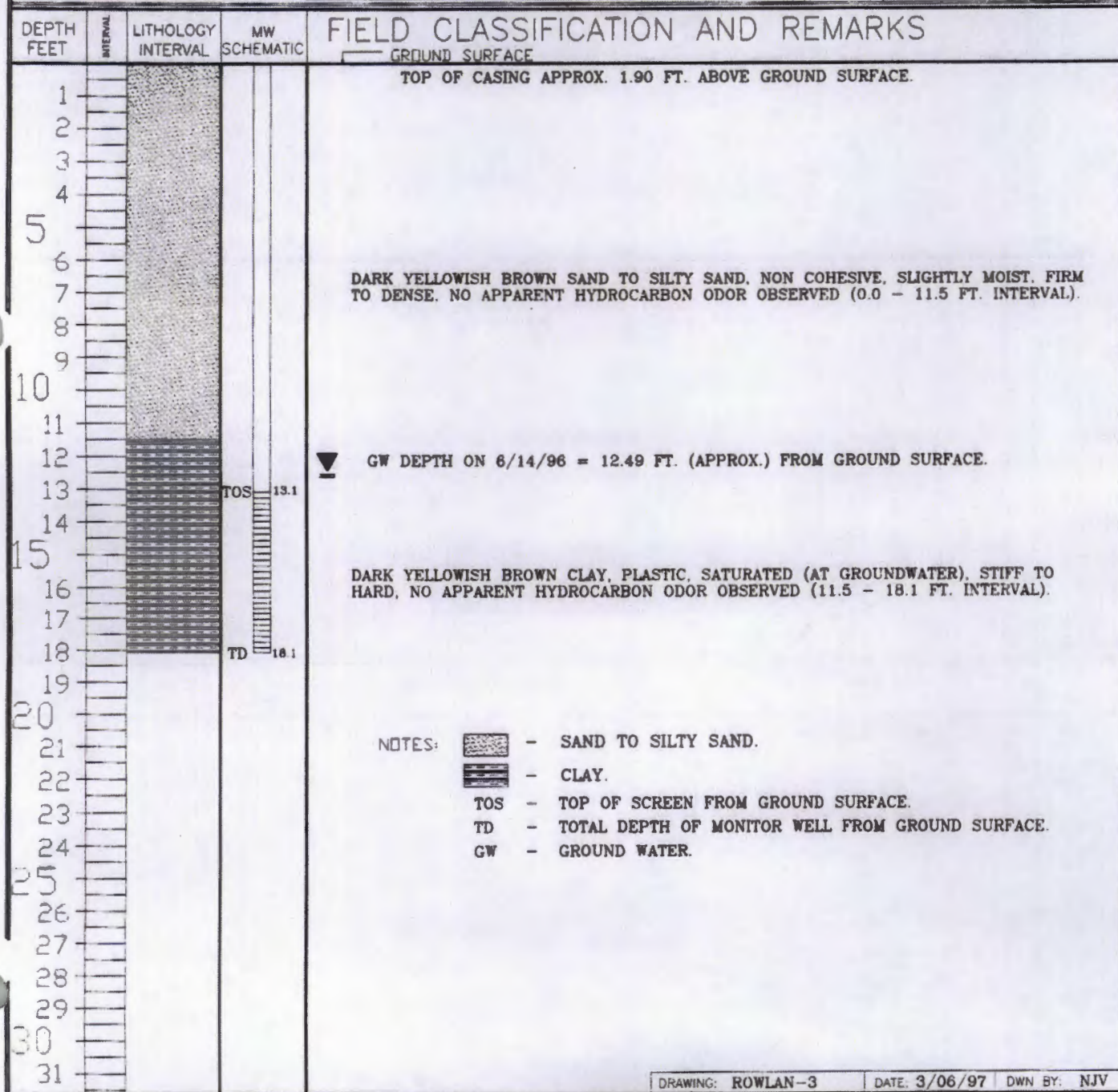
BLAGG ENGINEERING, Inc.

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BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME: ROWLAND GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N5E, 156 FEET FROM WELL HEAD.

BORING #..... BH - 3
MW #..... 3
PAGE #..... 3
DATE STARTED 5/30/96
DATE FINISHED 6/03/96
OPERATOR..... JCB
PREPARED BY NJV



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(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME: ROWLAND GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N5E, 156 FEET FROM WELL HEAD.

BORING #..... BH - 3
MW #..... 3
PAGE #..... 3A
DATE STARTED 5/30/96
DATE FINISHED 6/03/96
OPERATOR..... JCB
PREPARED BY NJV

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC	FIELD CLASSIFICATION AND REMARKS
1				GROUND SURFACE
2				TOP OF CASING APPROX. 3.04 FT. ABOVE GROUND SURFACE (PULLED CASING UP 1.14 FT. 5/7/97).
3				
4				
5				
6				
7				DARK YELLOWISH BROWN SAND TO SILTY SAND. NON COHESIVE. SLIGHTLY MOIST, FIRM TO DENSE. NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 11.5 FT. INTERVAL).
8				
9				
10				
11				
12			TOS 11.96	GW DEPTH ON 6/14/96 = 12.49 FT. (APPROX.) FROM GROUND SURFACE.
13				
14				
15				
16				DARK YELLOWISH BROWN CLAY, PLASTIC, SATURATED (AT GROUNDWATER), STIFF TO HARD. NO APPARENT HYDROCARBON ODOR OBSERVED (11.5 - 18.1 FT. INTERVAL).
17			TD 18.96	
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

NOTES:  - SAND TO SILTY SAND.
 - CLAY.
TOS - TOP OF SCREEN FROM GROUND SURFACE.
TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
GW - GROUND WATER.

FIGURE 6

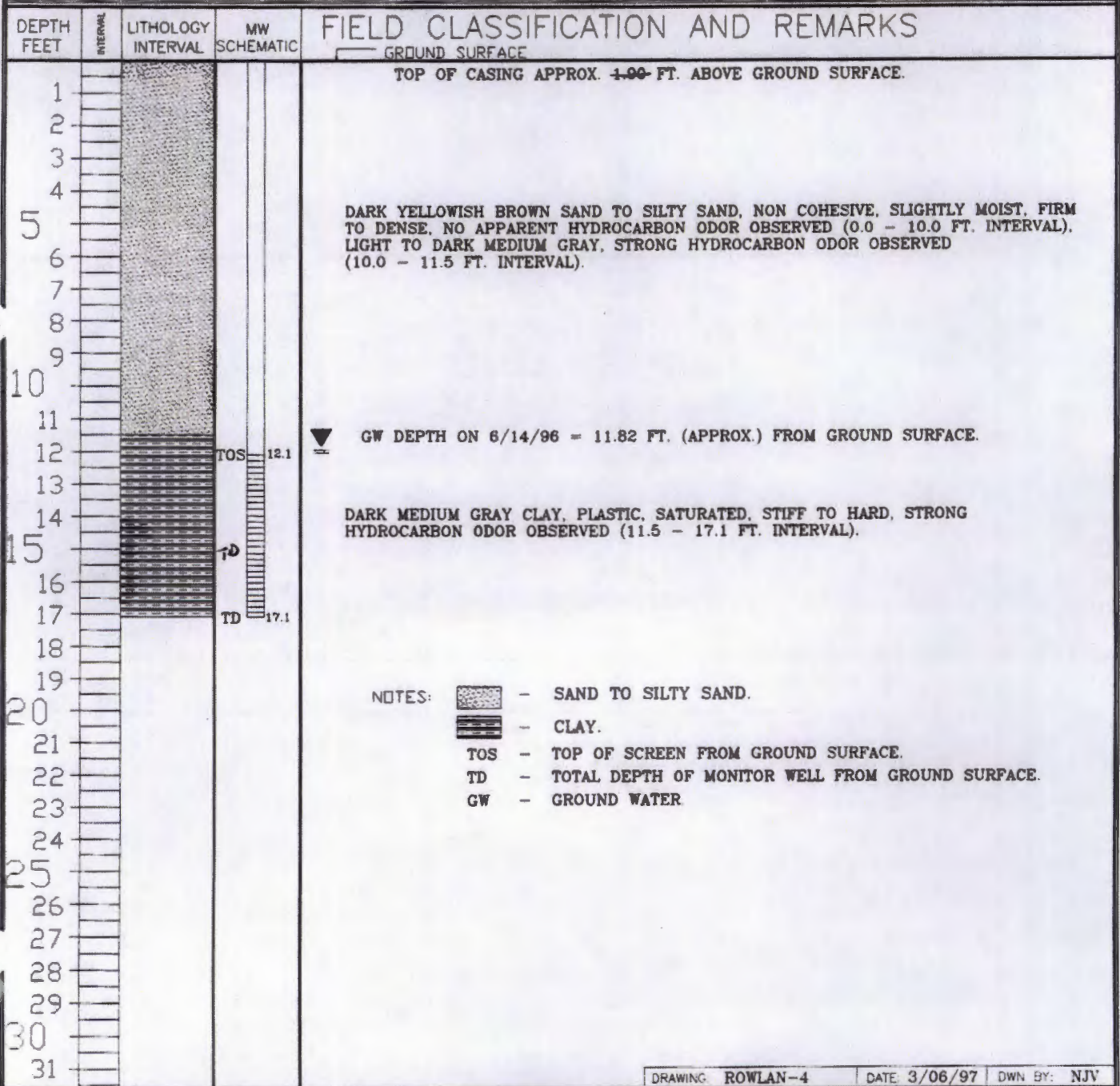
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(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME: ROWLAND GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N1E, 216 FEET FROM WELL HEAD.

BORING #..... BH - 4
MW #..... 4
PAGE #..... 4
DATE STARTED 5/30/96
DATE FINISHED 6/03/96
OPERATOR..... JCB
PREPARED BY NJV



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BORE / TEST HOLE REPORT

LOCATION NAME: ROWLAND GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N1E, 216 FEET FROM WELL HEAD.

BORING #..... BH - 4
MW #..... 4
PAGE #..... 4A
DATE STARTED 5/30/96
DATE FINISHED 6/03/96
OPERATOR..... JCB
PREPARED BY NJV

DEPTH FEET	INTERVAL	LITHOLOGY INTERVAL	MW SCHEMATIC	FIELD CLASSIFICATION AND REMARKS
1				TOP OF CASING APPROX. 3.03 FT. ABOVE GROUND SURFACE (PULLED CASING UP 1.13 FT. 5/7/97).
2				
3				
4				
5				DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM TO DENSE, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 10.0 FT. INTERVAL).
6				LIGHT TO DARK MEDIUM GRAY, STRONG HYDROCARBON ODOR OBSERVED (10.0 - 11.5 FT. INTERVAL).
7				
8				
9				
10				
11				GW DEPTH ON 6/24/97 = 10.99 FT. (APPROX.) FROM GROUND SURFACE.
12				
13				DARK MEDIUM GRAY CLAY, PLASTIC, SATURATED, STIFF TO HARD, STRONG HYDROCARBON ODOR OBSERVED (11.5 - 17.1 FT. INTERVAL).
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

NOTES:



- SAND TO SILTY SAND.



- CLAY.

TOS

- TOP OF SCREEN FROM GROUND SURFACE.

TD

- TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.

GW

- GROUND WATER.

FIGURE 7

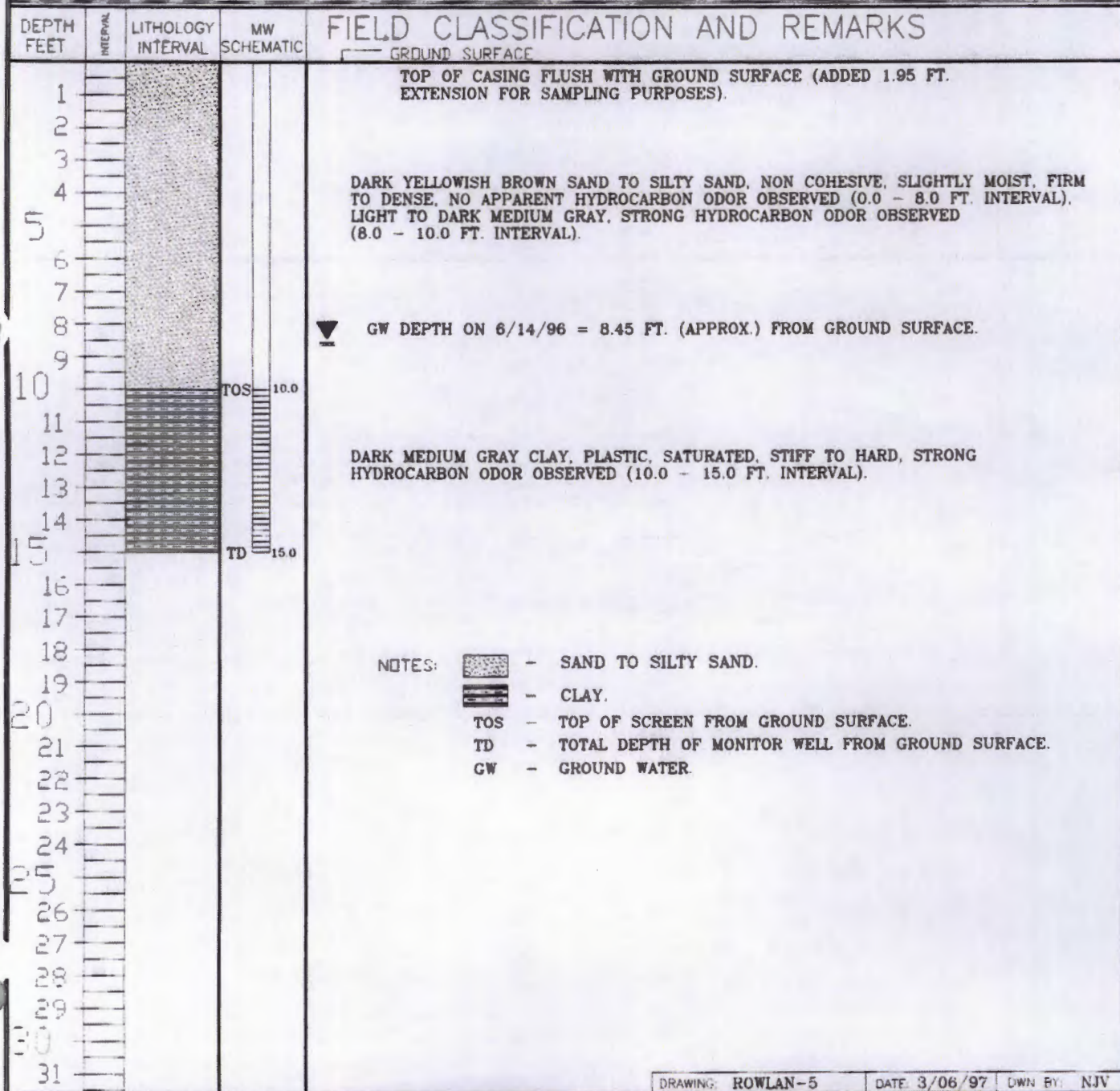
BLAGG ENGINEERING, Inc.

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BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME: ROWLAND GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N20W, 171 FEET FROM WELL HEAD.

BORING #..... BH - 5
MW #..... 5
PAGE #..... 5
DATE STARTED 5/30/96
DATE FINISHED 6/03/96
OPERATOR..... JCB
PREPARED BY NJV



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BORE / TEST HOLE REPORT

LOCATION NAME: ROWLAND GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N20W, 171 FEET FROM WELL HEAD.

BORING #..... BH - 5
MW #..... 5
PAGE #..... 5A
DATE STARTED 5/30/96
DATE FINISHED 6/03/96
OPERATOR..... JCB
PREPARED BY NJV

DEPTH
FEET

INTERVAL

LITHOLOGY
INTERVAL

MW
SCHEMATIC

FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.95 FT. ABOVE GROUND SURFACE
(PULLED CASING UP 1.95 FT. 5/7/97).

DARK YELLOWISH BROWN SAND TO SILTY SAND. NON COHESIVE. SLIGHTLY MOIST. FIRM TO DENSE, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 8.0 FT. INTERVAL), LIGHT TO DARK MEDIUM GRAY. STRONG HYDROCARBON ODOR OBSERVED (8.0 - 10.0 FT. INTERVAL).

TOS 8.05

GW DEPTH ON 6/24/97 = 8.32 FT. (APPROX.) FROM GROUND SURFACE.

DARK MEDIUM GRAY CLAY. PLASTIC. SATURATED. STIFF TO HARD. STRONG HYDROCARBON ODOR OBSERVED (10.0 - 15.0 FT. INTERVAL).

TD 13.05

NOTES:



- SAND TO SILTY SAND.



- CLAY.

TOS

- TOP OF SCREEN FROM GROUND SURFACE.

TD

- TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.

GW

- GROUND WATER.

FIGURE 8

BLAGG ENGINEERING, Inc.

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BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME: ROWLAND GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N10.5E, 258 FEET FROM WELL HEAD.

BORING #..... BH - 6
MW #..... 6
PAGE #..... 6
DATE STARTED 6/17/97
DATE FINISHED 6/17/97
OPERATOR..... JCB
PREPARED BY NJV

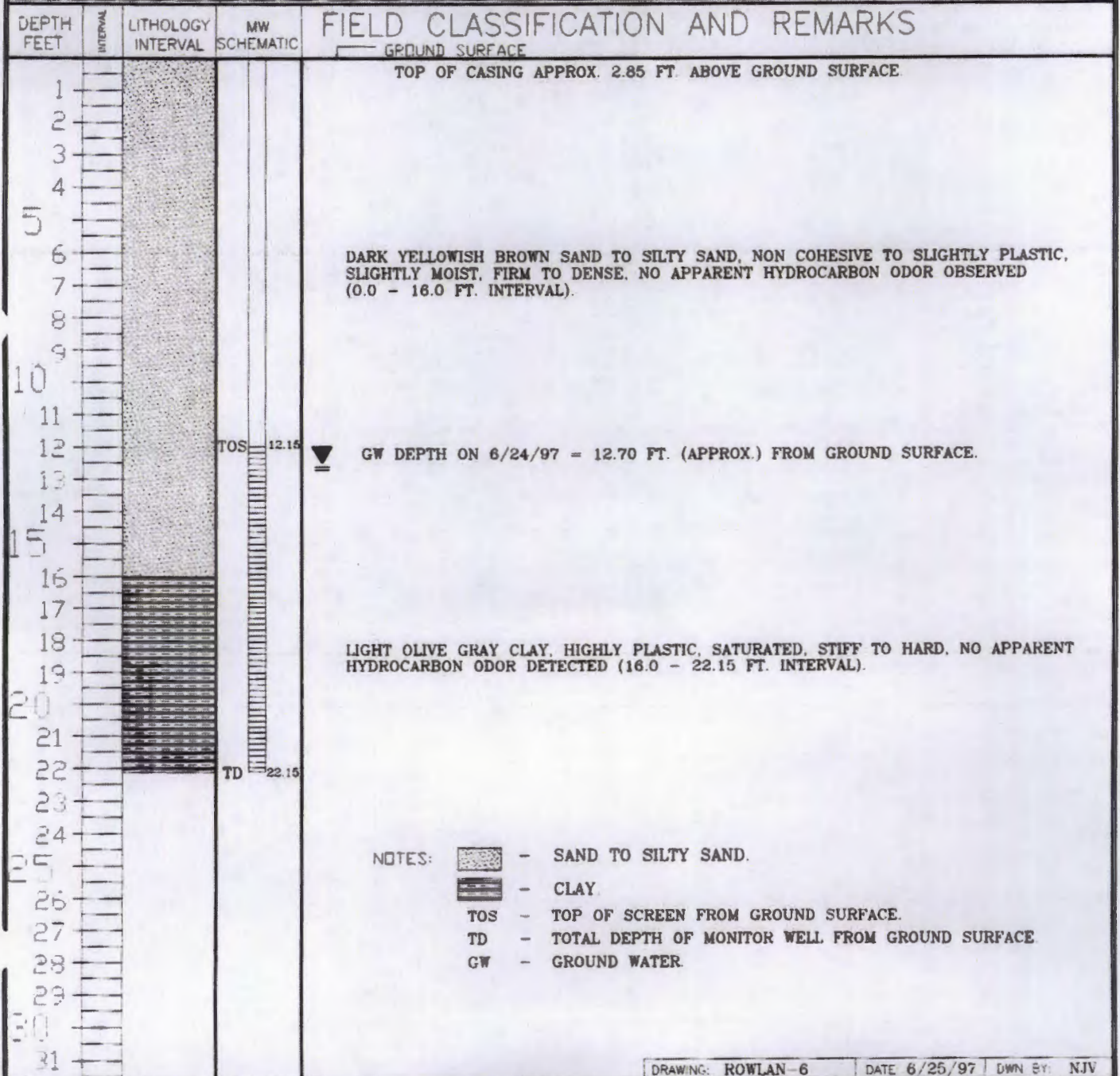


FIGURE 9

BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME: ROWLAND GC # 1
CLIENT: AMOCO PRODUCTION COMPANY
CONTRACTOR: BLAGG ENGINEERING, INC.
EQUIPMENT USED: MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION: N9.5W, 189 FEET FROM WELL HEAD.

BORING #..... BH - 4R
MW #..... 4R
PAGE #..... 4R
DATE STARTED 6/19/98
DATE FINISHED 6/19/98
OPERATOR..... JCB
PREPARED BY NJV

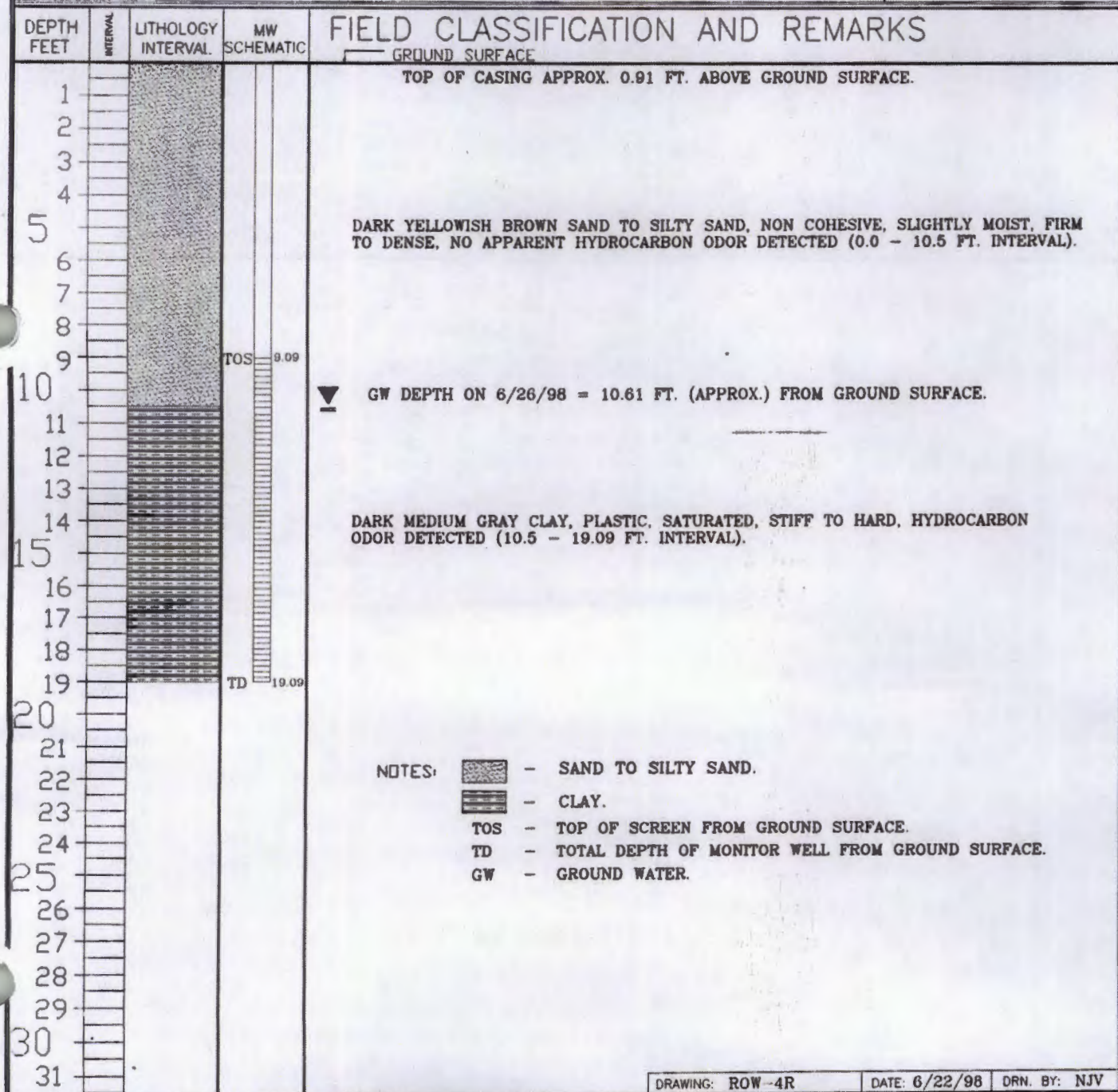
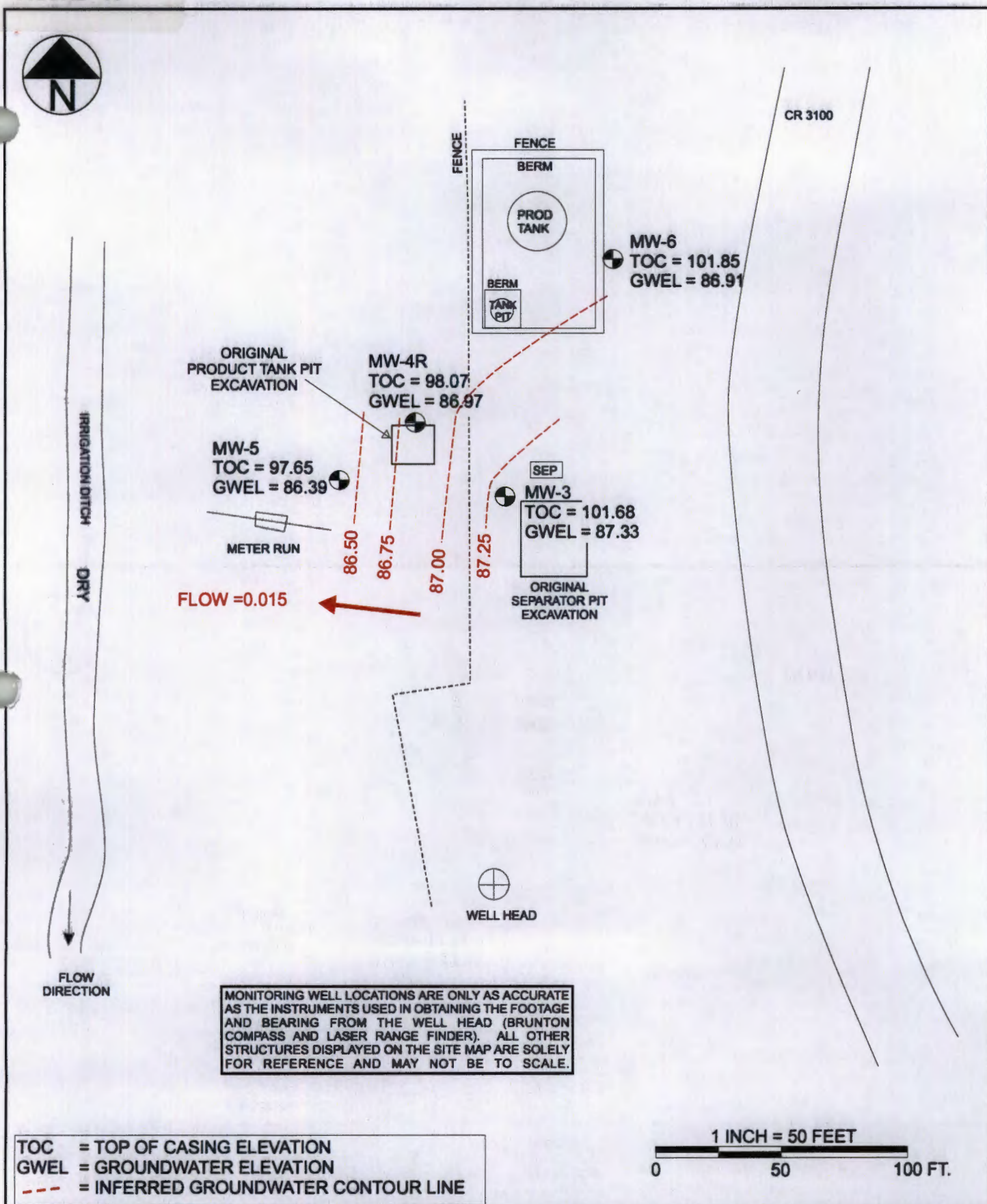


FIGURE 10



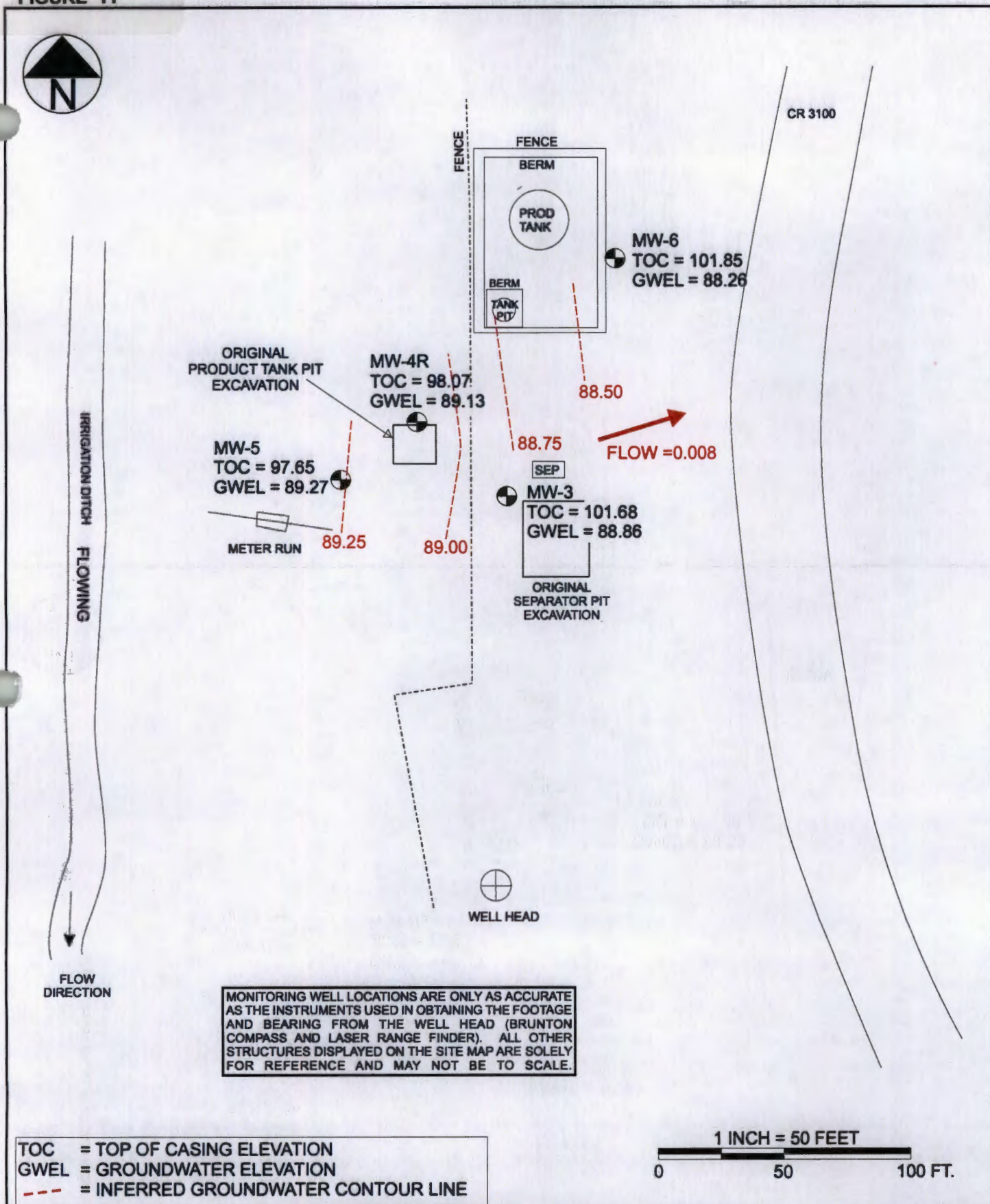
Lodestar Services, Inc
 PO Box 3861
 Farmington, NM 87499

ROWLAND GAS COM #1
 NE/4 NW/4 SEC. 30, T30N, R12W
 SAN JUAN COUNTY, NEW MEXICO

PROJECT: XTO GROUND WATER
 DRAWN BY: ALA
 REVISED: 03/17/08

GROUNDWATER GRADIENT
 MAP
 03/13/2008

FIGURE 11



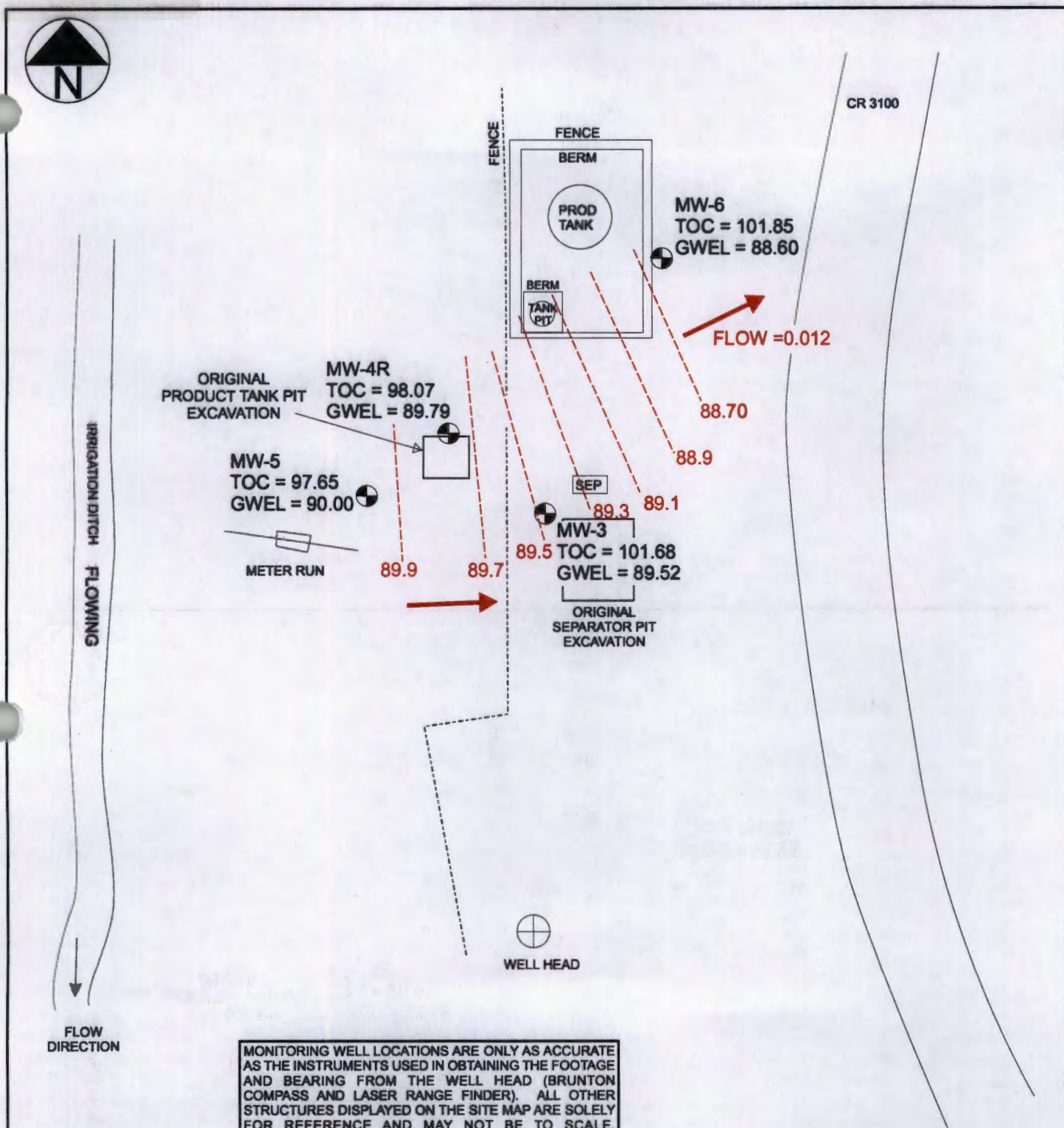
Lodestar Services, Inc
 PO Box 3861
 Farmington, NM 87499

ROWLAND GAS COM #1
 NE/4 NW/4 SEC. 30, T30N, R12W
 SAN JUAN COUNTY, NEW MEXICO

PROJECT: XTO GROUND WATER
 DRAWN BY: ALA
 REVISED: 06/30/08

GROUNDWATER GRADIENT
 MAP
 06/02/2008

FIGURE 12



TOC = TOP OF CASING ELEVATION
 GWEL = GROUNDWATER ELEVATION
 --- = INFERRED GROUNDWATER CONTOUR LINE

1 INCH = 50 FEET
 0 50 100 FT.

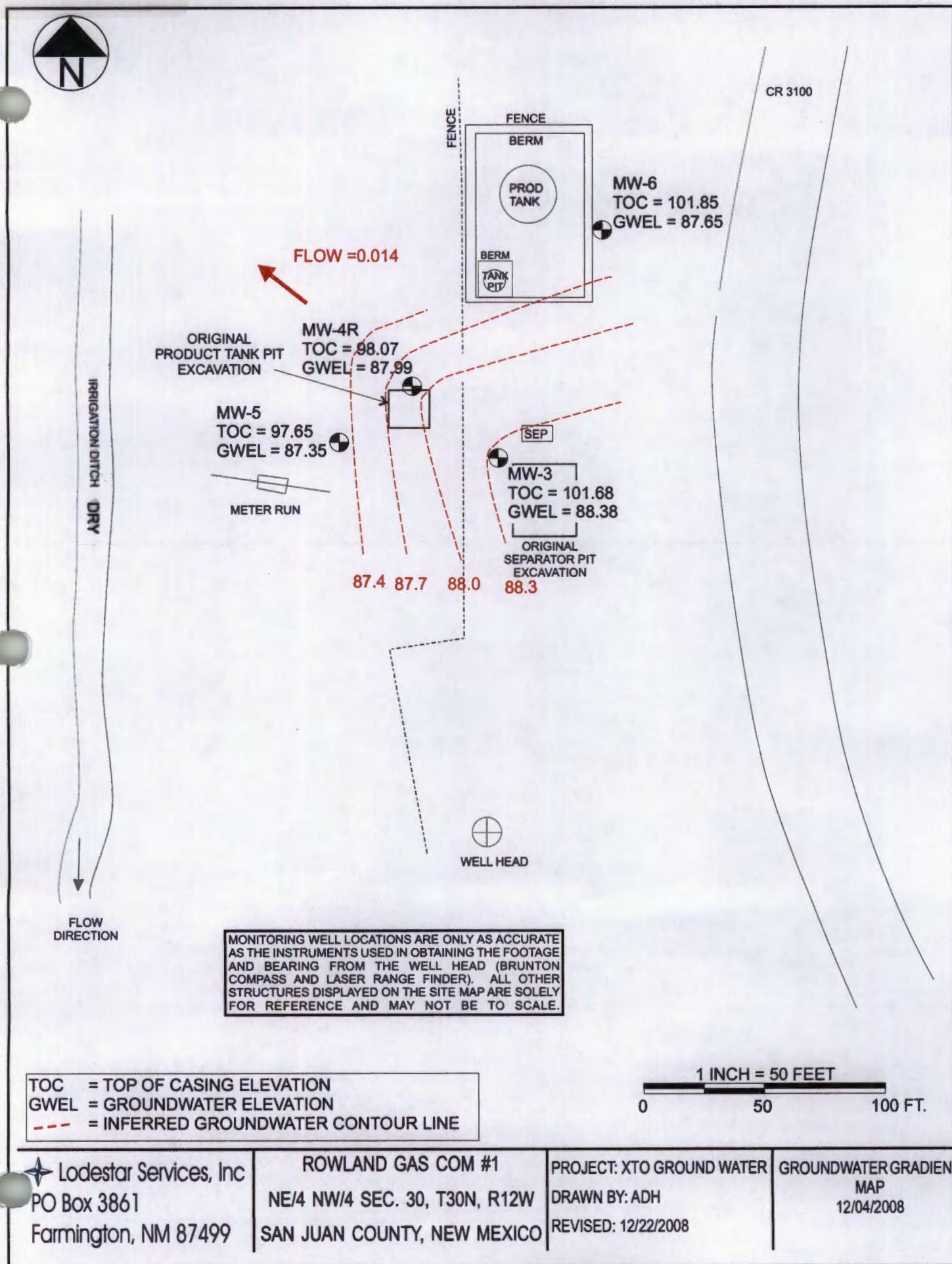
Lodestar Services, Inc
 PO Box 3861
 Farmington, NM 87499

ROWLAND GAS COM #1
 NE/4 NW/4 SEC. 30, T30N, R12W
 SAN JUAN COUNTY, NEW MEXICO

PROJECT: XTO GROUND WATER
 DRAWN BY: ADH
 REVISED: 09/30/08

GROUNDWATER GRADIENT
 MAP
 09/18/08

FIGURE 13



ENVIROTECH Inc.

5798 US HWY. 64, FARMINGTON, NM 87401
(505) 632-0615

C4923
94923

FIELD REPORT: CLOSURE VERIFICATION

JOB No: 92140
PAGE No: 1 of 1

LOCATION: LEASE: ROLAND WELL: GC 1 QD: .
SEC: 25 TWP: 30P RNG: 12W BM: Nm CNTY: SAN JUAN ST: NM PIT: PROD
CONTRACTOR: BILL MUSS
EQUIPMENT USED: TRACKHOE

DATE STARTED: 8/2/43
DATE FINISHED: 8/2/93

ENVIRONMENTAL SPECIALIST: NJ

SOIL REMEDIATION: QUANTITY: 16 X 15 X 13
DISPOSAL FACILITY: CROWN MESA COMPOST
LAND USE: RANGE & RESIDENTIAL
SURFACE CONDITIONS: UNKNOWN

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 60 YARDS N10W FROM WELLHEAD.

DEPTH TO GROUNDWATER: 13'
NEAREST WATER SOURCE: < 750 FT.
NEAREST SURFACE WATER: < 100 FT.

OK. YELLOWISH BROWN TO MEDIUM OK. GRAY SAND, NON-COHESIVE, SLIGHTLY MOIST, LOOSE TO STIFF, AND STRONG COOR ON ALL BUT @ 9'. GROUNDWATER CONTAINED A SLIGHT SHEEN ON ITS SURFACE.

FIELD 418.1 CALCULATIONS

SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm

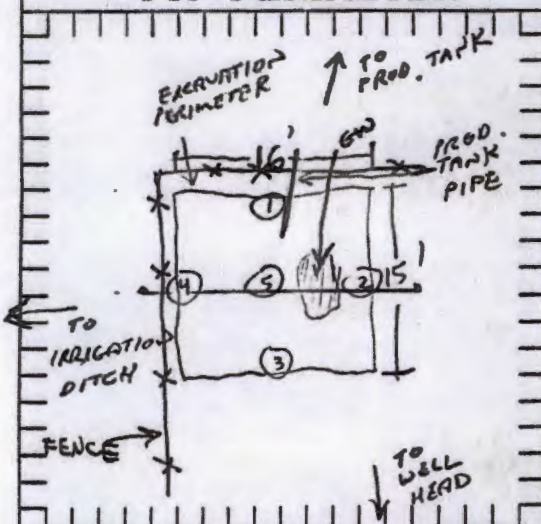
SCALE



0

FEET

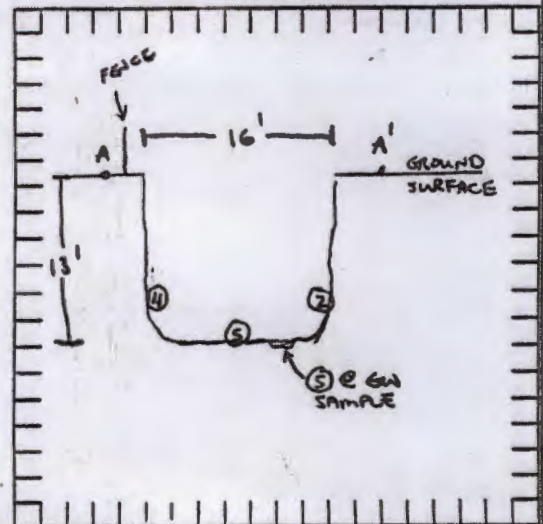
PIT PERIMETER



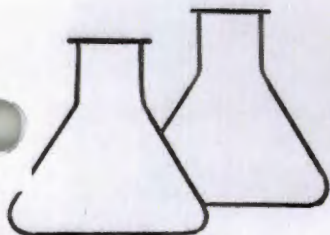
OVM RESULTS

[illegible]

PIT PROFILE



TRAVEL NOTES: CALLOUT: 7/30/93 ONSITE: 8/2/93



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	5 @ GW (13')	Date Reported:	08-04-93
Laboratory Number:	5816	Date Sampled:	08-02-93
Sample Matrix:	Water	Date Received:	08-02-93
Preservative:	HgCl & Cool	Date Analyzed:	08-03-93
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	183	0.2
Toluene	1.1	0.4
Ethylbenzene	0.3	0.2
p,m-Xylene	2.1	0.4
o-Xylene	32.3	0.3

SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	93 %
	Bromofluorobenzene	87 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Roland GC #1 Production Pit C4923

Kevin L. Cramer
Analyst

Marvin D. Young
Review

Hall Environmental Analysis Laboratory, Inc.

Date: 24-Mar-08

CLIENT: XTO Energy
Project: Ground Water

Lab Order: 0803131

Lab ID: 0803131-09

Collection Date: 3/12/2008 12:45:00 PM

Client Sample ID: ~~Bruington GC1 MW-7~~

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: BDH
Benzene	14000	500		µg/L	500	3/21/2008 2:34:00 PM
Toluene	9200	500		µg/L	500	3/21/2008 2:34:00 PM
Ethylbenzene	830	50		µg/L	50	3/21/2008 3:29:36 AM
Xylenes, Total	4800	100		µg/L	50	3/21/2008 3:29:36 AM
Surr: 4-Bromofluorobenzene	116	68.9-122		%REC	50	3/21/2008 3:29:36 AM

Lab ID: 0803131-10

Collection Date: 3/12/2008 1:25:00 PM

Client Sample ID: ~~Bruington GC1 MW-8~~

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: BDH
Benzene	730	10		µg/L	10	3/21/2008 3:06:40 PM
Toluene	64	10		µg/L	10	3/21/2008 3:06:40 PM
Ethylbenzene	ND	10		µg/L	10	3/21/2008 3:06:40 PM
Xylenes, Total	2000	20		µg/L	10	3/21/2008 3:06:40 PM
Surr: 4-Bromofluorobenzene	90.8	68.9-122		%REC	10	3/21/2008 3:06:40 PM

Lab ID: 0803131-11

Collection Date:

Client Sample ID: TRIP BLANK

Matrix: TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: BDH
Benzene	ND	1.0		µg/L	1	3/21/2008 4:07:04 PM
Toluene	ND	1.0		µg/L	1	3/21/2008 4:07:04 PM
Ethylbenzene	ND	1.0		µg/L	1	3/21/2008 4:07:04 PM
Xylenes, Total	ND	2.0		µg/L	1	3/21/2008 4:07:04 PM
Surr: 4-Bromofluorobenzene	83.1	68.9-122		%REC	1	3/21/2008 4:07:04 PM

Lab ID: 0803131-12

Collection Date: 3/13/2008 10:22:00 AM

Client Sample ID: Rowland GC1 MW-5

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	28	1.0		µg/L	1	3/21/2008 5:29:56 AM
Toluene	3.6	1.0		µg/L	1	3/21/2008 5:29:56 AM
Ethylbenzene	88	1.0		µg/L	1	3/21/2008 5:29:56 AM
Xylenes, Total	290	20		µg/L	10	3/21/2008 4:39:54 PM
Surr: 4-Bromofluorobenzene	86.4	68.9-122		%REC	10	3/21/2008 4:39:54 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

QA/QC SUMMARY REPORT

Client: XTO Energy
Project: Ground Water

Work Order: 0803131

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles									
Sample ID: 0803131-01A MSD		MSD							
Batch ID: R27804							Analysis Date: 3/21/2008 12:28:54 AM		
Benzene	21.54	µg/L	1.0	104	85.9	113	0.409	27	
Toluene	20.86	µg/L	1.0	103	86.4	113	1.83	19	
Ethylbenzene	20.70	µg/L	1.0	103	83.5	118	0.523	10	
Xylenes, Total	61.20	µg/L	2.0	101	83.4	122	0.357	13	
Sample ID: 5ML RB		MBLK							
Batch ID: R27804							Analysis Date: 3/20/2008 8:53:24 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML RB		MBLK							
Batch ID: R27825							Analysis Date: 3/21/2008 10:56:55 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		LCS							
Batch ID: R27804							Analysis Date: 3/21/2008 12:59:07 AM		
Benzene	21.41	µg/L	1.0	107	85.9	113			
Toluene	21.41	µg/L	1.0	107	86.4	113			
Ethylbenzene	21.55	µg/L	1.0	108	83.5	118			
Xylenes, Total	63.70	µg/L	2.0	106	83.4	122			
Sample ID: 100NG BTEX CCV		LCS							
Batch ID: R27825							Analysis Date: 3/21/2008 11:27:08 AM		
Benzene	20.48	µg/L	1.0	101	85.9	113			
Toluene	21.13	µg/L	1.0	102	86.4	113			
Ethylbenzene	20.46	µg/L	1.0	101	83.5	118			
Xylenes, Total	62.14	µg/L	2.0	102	83.4	122			
Sample ID: 0803131-01A MS		MS							
Batch ID: R27804							Analysis Date: 3/20/2008 11:58:40 PM		
Benzene	21.48	µg/L	1.0	103	85.9	113			
Toluene	20.49	µg/L	1.0	101	86.4	113			
Ethylbenzene	20.80	µg/L	1.0	102	83.5	118			
Xylenes, Total	60.98	µg/L	2.0	101	83.4	122			

Qualifiers:

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name XTO ENERGY

Date Received:

3/14/2008

Work Order Number 0803131

Received by: TLS

Checklist completed by:

Janey Shomin 3/14/08
Signature Date

Sample ID labels checked by:

AT
Initials

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 - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☒
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☒

Container/Temp Blank temperature?

4°

<5° C Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding:

Comments:

Corrective Action

Hall Environmental Analysis Laboratory, Inc.

Date: 12-Jun-08

CLIENT: XTO Energy
Project: Ground Water**Lab Order:** 0806025**Lab ID:** 0806025-09**Collection Date:** 6/2/2008 4:52:00 PM**Client Sample ID:** Rowland GC #1 MW-5**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	------	-------	----	---------------

EPA METHOD 8021B: VOLATILES

Analyst: NSB

Benzene	61	1.0		µg/L	1	6/10/2008 2:46:13 AM
Toluene	4.6	1.0		µg/L	1	6/10/2008 2:46:13 AM
Ethylbenzene	300	10		µg/L	10	6/10/2008 5:50:21 PM
Xylenes, Total	890	20		µg/L	10	6/10/2008 5:50:21 PM
Surr: 4-Bromofluorobenzene	99.3	68.9-122		%REC	1	6/10/2008 2:46:13 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

QA/QC SUMMARY REPORT

Client: XTO Energy
 Project: Ground Water

Work Order: 0806025

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles									
Sample ID: 5ML RB		MBLK			Batch ID: R28852	Analysis Date: 6/9/2008 12:34:58 PM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML RB		MBLK			Batch ID: R28877	Analysis Date: 6/10/2008 9:38:14 AM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML RB		MBLK			Batch ID: R28897	Analysis Date: 6/11/2008 9:05:26 AM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R28852	Analysis Date: 6/9/2008 9:39:56 PM			
Benzene	18.32	µg/L	1.0	91.6	85.9	113			
Toluene	18.15	µg/L	1.0	90.7	86.4	113			
Ethylbenzene	18.24	µg/L	1.0	91.2	83.5	118			
Xylenes, Total	54.80	µg/L	2.0	91.0	83.4	122			
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R28877	Analysis Date: 6/10/2008 8:50:34 PM			
Benzene	18.63	µg/L	1.0	93.2	85.9	113			
Toluene	18.61	µg/L	1.0	93.0	86.4	113			
Ethylbenzene	18.57	µg/L	1.0	92.8	83.5	118			
Xylenes, Total	55.89	µg/L	2.0	93.1	83.4	122			
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R28897	Analysis Date: 6/12/2008 8:23:00 AM			
Benzene	21.45	µg/L	1.0	107	85.9	113			
Toluene	21.73	µg/L	1.0	109	86.4	113			
Ethylbenzene	22.21	µg/L	1.0	111	83.5	118			
Xylenes, Total	65.49	µg/L	2.0	111	83.4	122			

Qualifiers:

E Value above quantitation range
 J Analyte detected below quantitation limits
 R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name XTO ENERGY

Date Received:

6/3/2008

Work Order Number 0808025

Received by: TLS

Checklist completed by:

Amya Shomin

Signature

6/3/08

Date

Sample ID labels checked by:

TLS

Initials

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 - Preservation labels on bottle and cap match?

Yes ☐

No ☐

N/A ☒

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☒

Container/Temp Blank temperature?

5°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding:

Comments:

Corrective Action

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Kim Champlin

Aztec, Nm 87410

email or Fax#:

☒ Standard ☐ Level 4 (Full Validation)☐ EDD (Type)

Sample Request ID

[illegible]

• • •

	(	e	-
--	---	---	---

Date:

Relinquished by: 12/1

Received by:

17

ALA @ lodestar-services.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Hall Environmental Analysis Laboratory, Inc.

Date: 06-Oct-08

CLIENT: XTO Energy
Lab Order: 0809507
Project: Groundwater
Lab ID: 0809507-09

Client Sample ID: Rowland MW-#5
Collection Date: 9/22/2008 2:15:00 PM
Date Received: 9/23/2008
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	10/1/2008 11:25:43 AM
Benzene	10	1.0		µg/L	1	10/1/2008 11:25:43 AM
Toluene	ND	1.0		µg/L	1	10/1/2008 11:25:43 AM
Ethylbenzene	97	5.0		µg/L	5	10/2/2008 5:12:55 AM
Xylenes, Total	280	10		µg/L	5	10/2/2008 5:12:55 AM
1,2,4-Trimethylbenzene	290	5.0		µg/L	5	10/2/2008 5:12:55 AM
1,3,5-Trimethylbenzene	1.1	1.0		µg/L	1	10/1/2008 11:25:43 AM
Surr: 4-Bromofluorobenzene	114	85.9-130		%REC	5	10/2/2008 5:12:55 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 06-Oct-08

CLIENT: XTO Energy
Lab Order: 0809507
Project: Groundwater
Lab ID: 0809507-12

Client Sample ID: Trip Blank
Collection Date:
Date Received: 9/23/2008
Matrix: TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	10/1/2008 3:59:29 AM
Benzene	ND	1.0		µg/L	1	10/1/2008 3:59:29 AM
Toluene	ND	1.0		µg/L	1	10/1/2008 3:59:29 AM
Ethylbenzene	ND	1.0		µg/L	1	10/1/2008 3:59:29 AM
Xylenes, Total	ND	2.0		µg/L	1	10/1/2008 3:59:29 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/1/2008 3:59:29 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/1/2008 3:59:29 AM
Surr: 4-Bromofluorobenzene	85.2	65.9-130		%REC	1	10/1/2008 3:59:29 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

QA/QC SUMMARY REPORT

Client: XTO Energy
Project: Groundwater

Work Order: 0809507

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles									
Sample ID: 0809507-10A MSD		MSD			Batch ID: R30439		Analysis Date: 9/30/2008 4:07:13 AM		
Methyl tert-butyl ether (MTBE)	16.33	µg/L	2.5	81.6	51.2	138	10.1	28	
Benzene	20.33	µg/L	1.0	101	85.9	113	0.393	27	
Toluene	20.11	µg/L	1.0	101	86.4	113	0.0697	19	
Ethylbenzene	20.50	µg/L	1.0	102	83.5	118	1.51	10	
Xylenes, Total	62.27	µg/L	2.0	104	83.4	122	1.06	13	
1,2,4-Trimethylbenzene	20.61	µg/L	1.0	103	83.5	115	1.64	21	
1,3,5-Trimethylbenzene	20.49	µg/L	1.0	102	85.2	113	0.865	10	
Sample ID: b 5		MBLK			Batch ID: R30439		Analysis Date: 9/29/2008 11:11:28 AM		
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 5ML RB		MBLK			Batch ID: R30439		Analysis Date: 9/30/2008 9:14:37 AM		
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R30439		Analysis Date: 9/30/2008 4:37:39 AM		
Methyl tert-butyl ether (MTBE)	15.54	µg/L	2.5	77.7	51.2	138			
Benzene	19.76	µg/L	1.0	98.8	85.9	113			
Toluene	19.47	µg/L	1.0	97.4	86.4	113			
Ethylbenzene	20.41	µg/L	1.0	102	83.5	118			
Xylenes, Total	61.43	µg/L	2.0	102	83.4	122			
1,2,4-Trimethylbenzene	21.16	µg/L	1.0	106	83.5	115			
1,3,5-Trimethylbenzene	20.95	µg/L	1.0	105	85.2	113			
Sample ID: 0809507-10A MS		MS			Batch ID: R30439		Analysis Date: 9/30/2008 3:36:51 AM		
Methyl tert-butyl ether (MTBE)	14.75	µg/L	2.5	73.8	51.2	138			
Benzene	20.41	µg/L	1.0	101	85.9	113			
Toluene	20.09	µg/L	1.0	100	86.4	113			
Ethylbenzene	20.81	µg/L	1.0	104	83.5	118			
Xylenes, Total	62.94	µg/L	2.0	105	83.4	122			
1,2,4-Trimethylbenzene	20.95	µg/L	1.0	105	83.5	115			
1,3,5-Trimethylbenzene	20.67	µg/L	1.0	103	85.2	113			

Qualifiers:

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: XTO Energy
Project: Groundwater

Work Order: 0809507

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SM 2540C Total Dissolved Solids

Sample ID: MB-17178

MBLK

Batch ID: 17178 Analysis Date: 9/26/2008

Total Dissolved Solids

ND

mg/L

20

Sample ID: LCS-17178

LCS

Batch ID: 17178 Analysis Date: 9/26/2008

Total Dissolved Solids

1005

mg/L

20

101

80

120

Qualifiers:

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name XTO ENERGY

Date Received:

9/23/2008

Work Order Number 0809507

Received by: ARS

Checklist completed by:

Signature

Date

Sample ID labels checked by:

Initials

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 - Preservation labels on bottle and cap match?

Yes ☐

No ☐

N/A ☒

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☒

Container/Temp Blank temperature?

13°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding:

Comments:

Corrective Action

Hall Environmental Analysis Laboratory, Inc.

Date: 12-Dec-08

CLIENT: XTO Energy
Lab Order: 0812172
Project: XTO Ground Water
Lab ID: 0812172-09

Client Sample ID: Rowland Gas Com1: MW-5
Collection Date: 12/5/2008 2:05:00 PM
Date Received: 12/8/2008
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: DAM
Benzene	32	2.0		µg/L	2	12/11/2008 2:58:52 PM
Toluene	4.8	2.0		µg/L	2	12/11/2008 2:58:52 PM
Ethylbenzene	170	2.0		µg/L	2	12/11/2008 2:58:52 PM
Xylenes, Total	410	4.0		µg/L	2	12/11/2008 2:58:52 PM
Surr: 4-Bromofluorobenzene	105	65.9-130		%REC	2	12/11/2008 2:58:52 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

QA/QC SUMMARY REPORT

Client: XTO Energy
Project: XTO Ground Water

Work Order: 0812172

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles									
Sample ID: 0812172-03A MSD		MSD			Batch ID: R31560	Analysis Date: 12/11/2008 4:25:08 AM			
Benzene	21.23	µg/L	1.0	106	85.9	113	1.52	27	
Toluene	20.90	µg/L	1.0	106	86.4	113	2.54	19	
Ethylbenzene	20.49	µg/L	1.0	102	83.5	118	2.67	10	
Xylenes, Total	61.58	µg/L	2.0	103	83.4	122	1.89	13	
Sample ID: 5ML RB		MBLK			Batch ID: R31560	Analysis Date: 12/10/2008 9:21:44 AM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R31560	Analysis Date: 12/11/2008 4:55:30 AM			
Benzene	21.55	µg/L	1.0	108	85.9	113			
Toluene	21.23	µg/L	1.0	106	86.4	113			
Ethylbenzene	20.91	µg/L	1.0	106	83.5	118			
Xylenes, Total	62.24	µg/L	2.0	104	83.4	122			
Sample ID: 0812172-03A MS		MS			Batch ID: R31560	Analysis Date: 12/11/2008 3:54:37 AM			
Benzene	21.58	µg/L	1.0	108	85.9	113			
Toluene	21.44	µg/L	1.0	107	86.4	113			
Ethylbenzene	21.05	µg/L	1.0	105	83.5	118			
Xylenes, Total	62.76	µg/L	2.0	105	83.4	122			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name XTO ENERGY

Date Received:

12/8/2008

Work Order Number 0812172

Received by: AT

Checklist completed by:

Signature

Sample ID labels checked by:

Initials

10/12/08
Date

Matrix:

Carrier name Grayhound

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 - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☒
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☒

Container/Temp Blank temperature?

1°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: XTO Energy
Kim Champion

Mailing Address: 382 CR 3100

Artec, NM

Phone #: 505-333-3207

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

☐ Other

☐ EDD (Type) _____

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

XTO Groundwater

Project #:

Project Manager:

Ashley Ayer

Sampler:

Alice Doyle Hutt

Sample Location

Sample ID

Container Type and #

Preservative Type

1

2

3

4

5

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11

12

13

14

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