GW-52

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May 26, 2004

RECEIVED

JUN 01 2004

Oil Conservation Division
Environmental Bureau

Mr. William C. Olson
Environmental Bureau
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: Report of Groundwater Remediation Activities
Roswell Station Remediation Site
Chavez County, New Mexico

Enclosed for your review is the Report of Groundwater Remediation Activities for the Roswell Station remediation site. This report includes the results of recent groundwater assessment and remediation work completed at the site.

If you have any questions or comments regarding this report, please contact me at (713) 646-7644 or George Robinson at (713) 345-1537.

Sincerely,

Bill Kendrick
Senior Director, Environmental Affairs
Transwestern Pipeline Company

xc w/enclosures:

Tim Gum	OCD Artesia District Office
Larry Campbell	Transwestern Pipeline Company
George Robinson	Cypress Engineering

Report of Groundwater Remediation Activities

Transwestern Pipeline Company
Roswell Station Remediation Site
Chaves County, New Mexico

Submitted to:
New Mexico Oil Conservation Division

May 14, 2004

Prepared For:
Transwestern Pipeline Company
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1 Soil Boring Logs

2 Laboratory Report for Soil Samples (on CD ROM)

3 Laboratory Reports for Groundwater Samples (on CD ROM)

DISCUSSION

1. Additional Assessment Activities

1.1 Installation of Additional Monitor Wells

Eight additional monitor wells were installed since the date of the last report. These wells were installed in order to delineate the lateral extent of affected groundwater within the uppermost aquifer. All eight of the additional wells were located off-site and toward the southern end of the contaminant plume. The locations of the new wells are indicated in Figure 1 as wells MW-31 through MW-38. A soil-boring log for each of the new wells is included in Attachment #1. A summary of well completion details is presented in Table 5.

One soil sample was collected from each boring at a depth just above the anticipated depth to groundwater. Soil samples were submitted to a laboratory for analysis for VOCs, SVOCs, TPH, and selected metals. Laboratory results indicate that all soil samples submitted were unaffected by hydrocarbons. A summary of laboratory results for the soil samples is presented in Table 7. A copy of the laboratory report is included in Attachment #2.

Groundwater samples were collected from the eight additional wells subsequent to installation. Laboratory results indicate that installation of the additional wells was successful in completing the lateral delineation of affected groundwater.

2. Groundwater Monitoring Activities

2.1 Semiannual Groundwater Sampling Events

Five semiannual sampling events have been completed since the last report of groundwater remediation activities. These events were completed on March 28, 2001, October 4, 2001, July 10, 2002, February 26, 2003 and August 1, 2003. Five additional sampling events of selected wells were completed on February 13, 2001, June 20, 2001, February 26, 2002, January 21, 2003 and November 11, 2003.

Prior to sampling, the depth to water, and the depth to hydrocarbon where phase separated hydrocarbon (PSH) was present, was determined for each monitor well and recovery well. The measured depths and the corresponding water table elevation for each monitor well and recovery well is presented in Table 1.

In the course of each sample event, groundwater samples were collected from selected monitor wells at the site. As a matter of standard operating procedure, samples were not collected from monitor wells with accumulated PSH in the well casing. A summary of field measured groundwater quality parameters obtained in the course of sampling is presented in Table 2. An updated summary of laboratory results for organic compounds is presented in Table 3. An updated summary of laboratory results for inorganic constituents is presented in Table 4.

A copy of the laboratory reports for the five semiannual groundwater sampling events and the additional sampling events are included in Attachment #2.

2.2 Results/Conclusions from Groundwater Sampling Events

2.2.1 Occurrence and Direction of Groundwater Flow

A water table elevation map based on measurements obtained on January 29, 2003 is included as Figure 2. The information presented in Figure 2 appears to define a complex groundwater system with some areas of low flow and other areas of preferential flow. The apparent direction of groundwater flow is consistent with water table elevation maps previously developed for this site and is also consistent with the distribution of contaminants in the uppermost aquifer.

2.2.2 Lateral Extent of Phase Separated Hydrocarbon

The lateral extent of PSH is currently defined by the occurrence of PSH at the water table in 19 wells and the absence of PSH in all other wells. The thickness of accumulated PSH in wells is presented in Tables 1 and 1a. A figure indicating the estimated area with PSH present at the water table is included as Figure 3.

On August 1, 2003, vapor samples were collected from each of the remediation system wells and delivered to a laboratory for analysis for total petroleum hydrocarbons (TPH) by method 8015mod (GRO). The results from laboratory analyses are presented in Table 9 and in Figures 7 and 8. The area defined by elevated concentrations of TPH in soil vapor corresponds well with the area defined by PSH measured in wells.

2.2.3 Condition of Affected Groundwater

The primary constituent of concern is benzene. Additional constituents of concern are 111-trichloroethane, 11-dichloroethane, and 11-dichloroethene. A diagram indicating the distribution of these constituents in groundwater is included as Figure 4. Only two organic constituents, benzene and 11-dichloroethene have been measured at concentrations above NMWQCC standards.

3. Remediation System Installation

3.1 Phase I Installation

A soil vapor extraction (SVE) system was installed as the initial phase of soil and groundwater remediation. The SVE system consists of nine SVE wells, thirty-seven Multi-Phase Extraction (MPE) wells, associated conveyance piping, and two Baker Furnace thermal oxidizer units. The remediation system layout is shown in Figure 5. The remediation system equipment, controls, and process details are shown in Figure 6.

The wells were installed in November-December 2002. The locations of the new wells are indicated in Figure 5 as wells SVE-22 through SVE-28, SVE-30A, SVE-31 and MPE-1 through MPE-37. Copies of the soil boring logs are included in Attachment #1. A summary of well completion details is presented in Table 5.

The SVE system was started-up on March 10, 2003 and has operated continuously since with the exception of brief shutdowns for repairs and maintenance.

3.2 Phase II Installation

Installation of the second phase of a soil and groundwater remediation system was completed in December 2003. This system included the installation of 15 pneumatic recovery pumps, water treatment equipment, and an irrigation system. Discharge Permit Modification (GW-052) was issued on June 16, 2003 for the discharge of treated groundwater. The remediation system treatment equipment, controls, and process details are shown in Figure 6.

Start-up of the recovery system was first attempted on December 16, 2003, but the irrigation system could not be operated because laboratory results for the initial water sample exceeded the NMWQCC standard for benzene. The problem was determined to be caused by the high flow rate of recovered groundwater during start-up. This problem was addressed by inserting a 210 bbl aboveground storage tank into the system to act as a surge tank. The surge tank was installed between the recovery wells and the oil/water separator. The surge tank provides two benefits. First, it provides for gravity separation of recovered liquids into two phases, a hydrocarbon phase and a water phase. Second, it allows more control of the flow rate into the oil/water separator, because during a start-up event, liquids can accumulate in the surge tank until the recovery rate drops below the capacity of the treatment system. In addition, two granulated activated carbon (GAC) units were installed in series between the air stripper and the irrigation water tank to provide additional treatment of recovered groundwater. The modified recovery, treatment, and irrigation system was finally started-up for continuous operation on April 15, 2004.

4. Status of Remediation Activities

4.1 Remediation Activities Completed through April 2004

The following remediation activities were completed between February 2001 and April 2004:

1) Delineation of the lateral extent of the contaminant plume was completed with the installation of eight additional monitor wells.

2) Five routine semiannual groundwater sampling events were completed.

3) Five non-routine groundwater sampling events were completed in addition to the routine events. Generally, these events were associated with the installation of additional monitor wells.

4) Removal of the former surface impoundments was completed. Soil removal activities were initiated on February 25, 2002 and were completed on March 11, 2002. There were no significant deviations from the approved work plan. In the course of the removal, a total of 3520 cubic yards of soil was transported to the Gandy Marley landfarm facility located near Tatum, New Mexico. An additional 576 cubic yards of debris removed from the area was transported to the Controlled Recovery Inc. landfill facility located West of Hobbs, New Mexico. More specific details of the removal activity are included in the "Soil Excavation and Removal Report" dated May 15, 2003.

5) The initial phase of a soil and groundwater remediation system was installed and started-up on March 10, 2003. This included the installation of 9 SVE wells and 37 MPE wells, associated piping, and two thermal oxidizer units.

6) Installation of the second phase of a soil and groundwater remediation system was completed in December 2003 and started-up in April 2004.

4.2 Current Status of Remediation Activities

The SVE component of the remediation system has been in operation since March 2003. The groundwater recovery and treatment component of the system has been in operation since April 15, 2004.

4.3 Remediation Activities Planned for 2004

The SVE and groundwater recovery systems are expected to operate through December 2004. No major new installations or modifications are planned for 2004. The groundwater sampling program will continue as outlined in Table 6.

5. Proposed Modifications

5.1 Proposed Modifications to the Routine Groundwater Sampling Plan

The laboratory analytical requirements have been modified since the last report of remediation activities. Groundwater samples are no longer collected for analysis for SVOCs, TDS, Cl, SO4, Fe or Mn. Historical groundwater sampling data from the site indicates that these constituents are either: 1) not present at detectable concentrations; 2) present at detectable concentrations but below NMWQCC standards; or 3) present at background water quality concentrations. The laboratory analytical requirements are now limited to BTEX constituents for most samples and VOCs for samples collected from monitoring wells where VOCs other than BTEX have previously been detected. Sampling locations, frequency, and the sample analysis plan are outlined in Table 6.

5.2 Proposed Modifications to the Remediation System

5.2.1 Physical Modifications to the System

There are no proposed physical modifications to the remediation system at this time.

5.2.2 Operational Modifications to the System

There are no proposed operational modifications to the remediation system at this time.

5.3 Proposed Reporting Frequency

Annual reporting will continue with the next scheduled report submitted to the NMOCD by March 31, 2005.

6. Progress Toward Project Completion

The remediation system has been installed and is in operation. The remediation system has not operated for a long enough period of time to comment on the effectiveness of the system, but sufficient information should be available by the end of this year and an evaluation of the system performance will be included in the next report of remediation activities.

FIGURES

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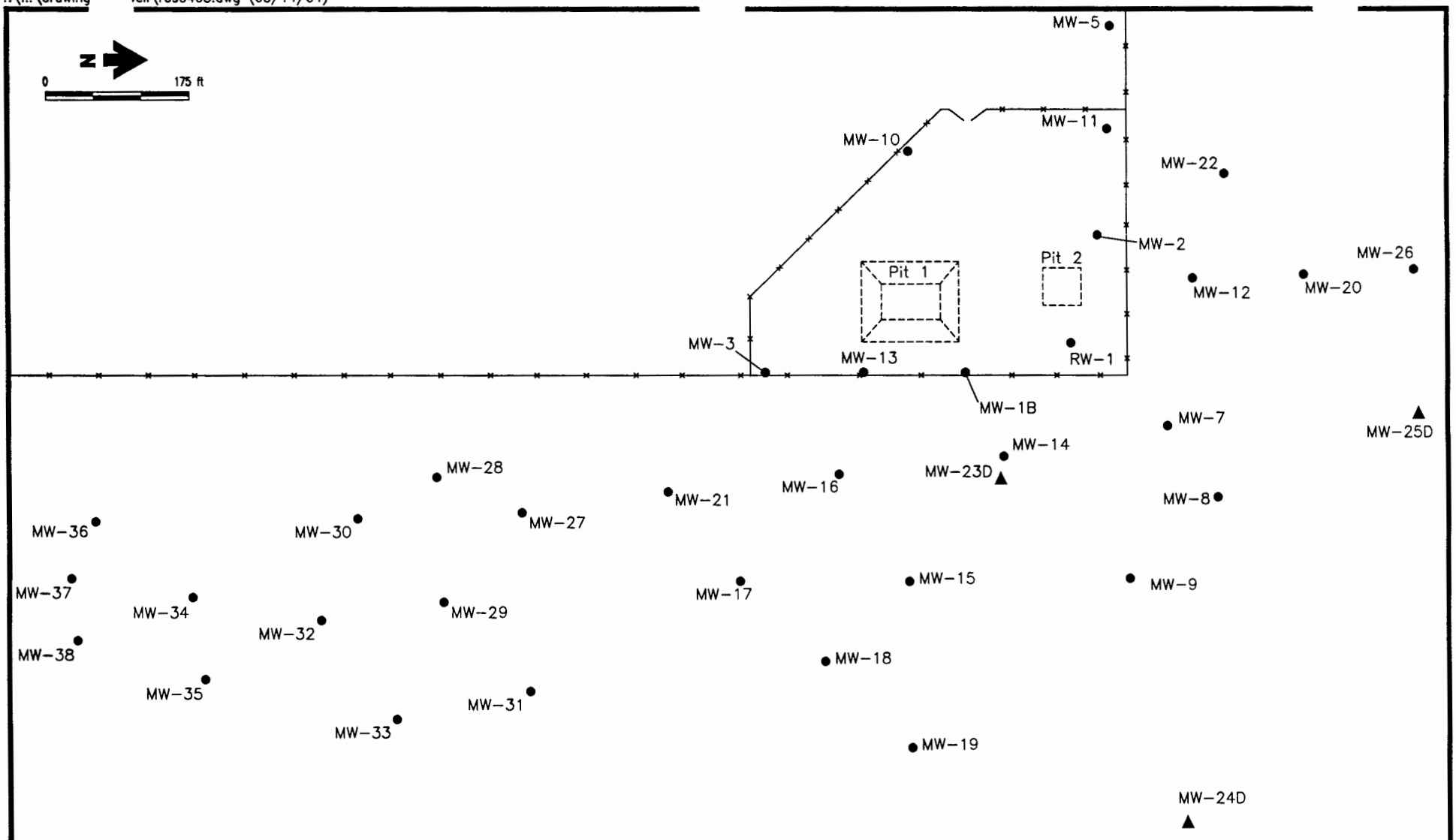

LEGEND

- ● Monitor well
- ▲ Deep monitor well
- ○ Multiphase Extraction Well
- ⊘ MPE & Soil Vaper Extraction Well Cluster

ROSWELL STATION REMEDIATION SITE

Monitor Well Locations

CYPRESS ENGINEERING SERVICES, INC.

Figure 1

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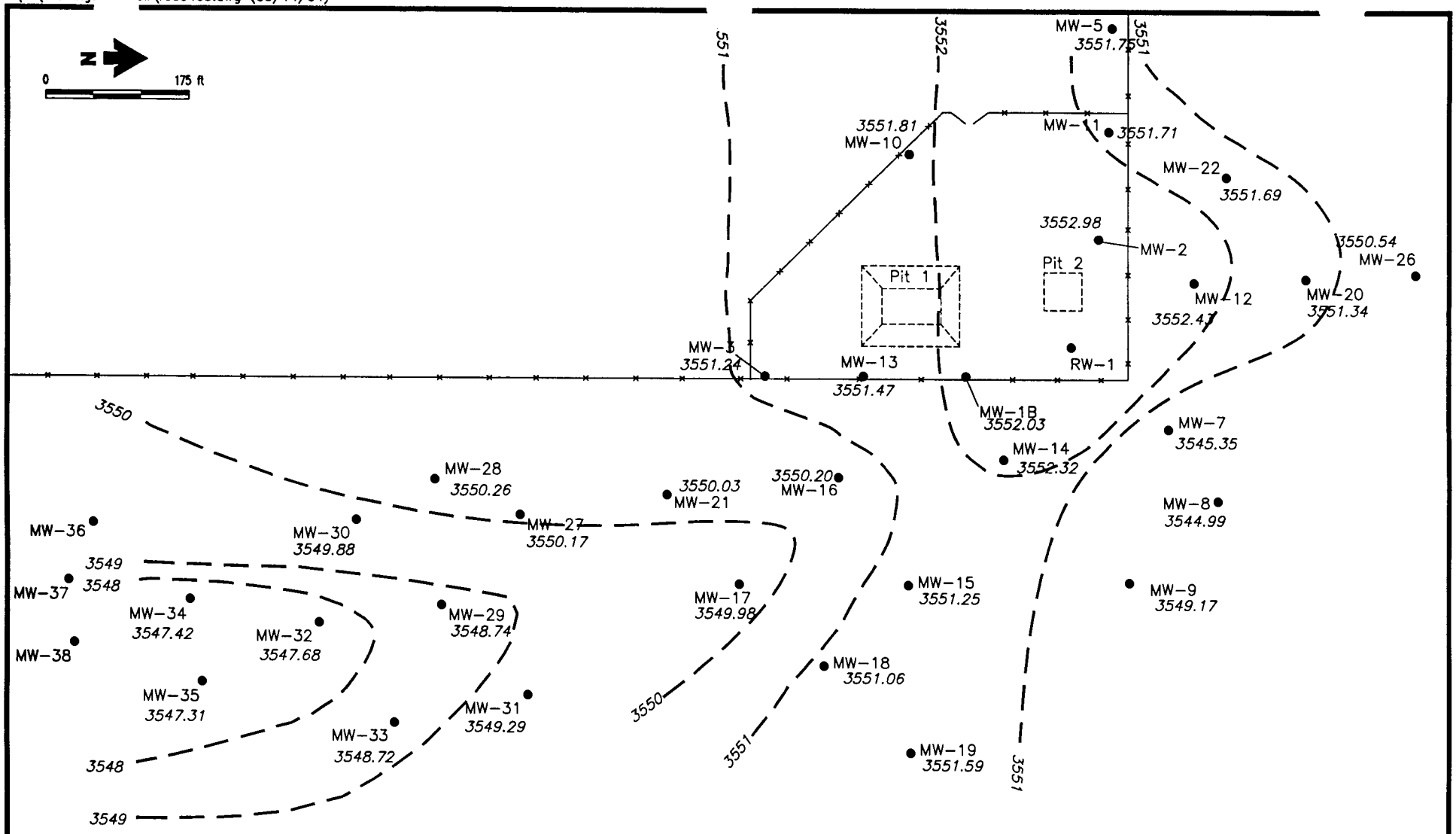

LEGEND

- Monitor well
- Deep monitor well
- Multiphase Extraction Well
- MPE & Soil Vaper Extraction Well Cluster
- 3551.97 — Water level elevation (ft msl) (Note: *NM* = Not Measured)
- 3549 — Elevation contour (ft msl)

ROSWELL STATION REMEDIATION SITE

Groundwater Surface Elevations in the Uppermost Aquifer

JANUARY 29, 2003

CYPRESS ENGINEERING SERVICES, INC.

Figure 2

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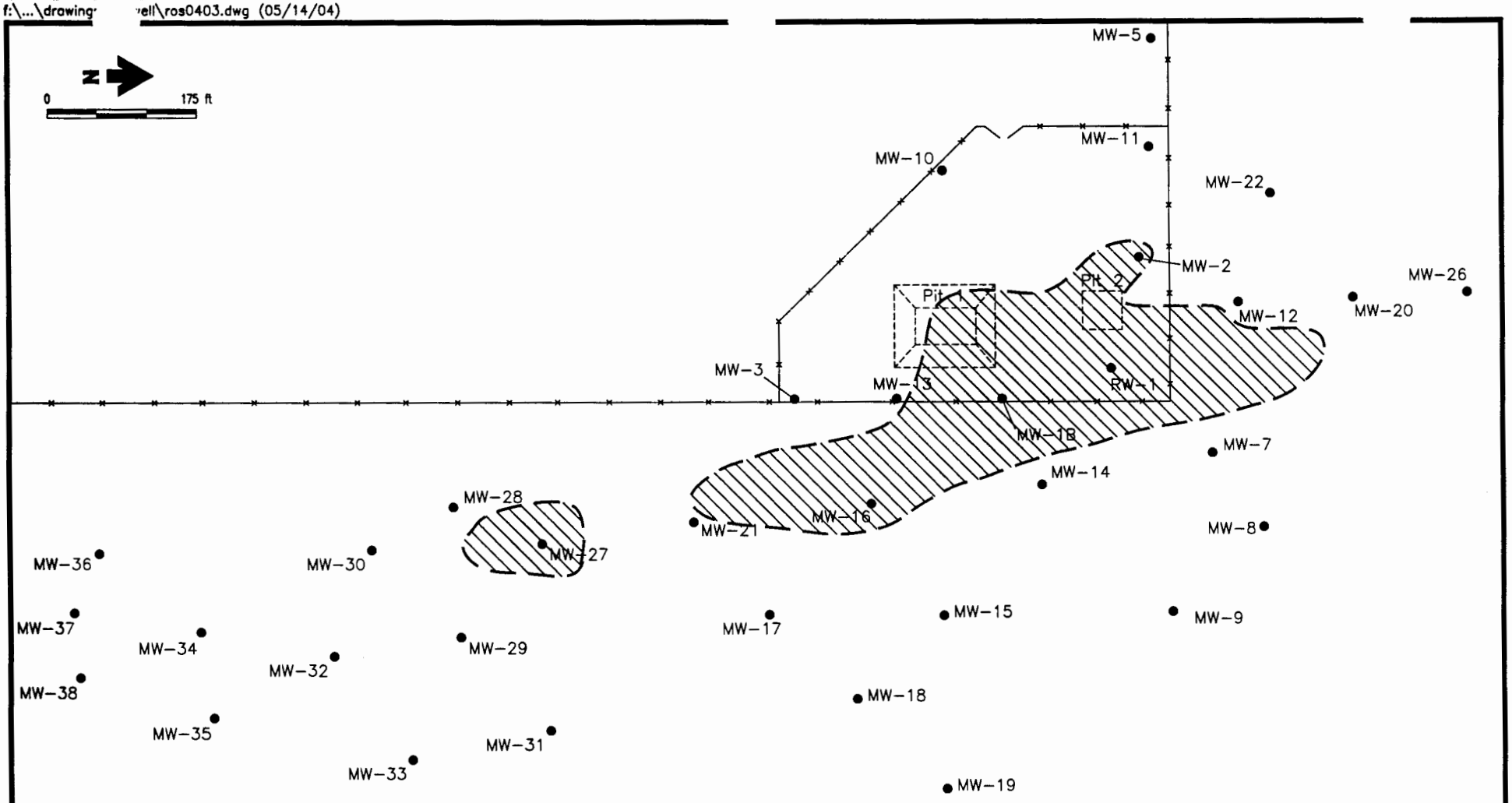

LEGEND

- Monitor well
- Deep monitor well
- Multiphase Extraction Well
- MPE & Soil Vaper Extraction Well Cluster

ROSWELL STATION REMEDIATION SITE

Distribution of PSH on Groundwater

August 1, 2003

CYPRESS ENGINEERING SERVICES, INC.

Figure 3

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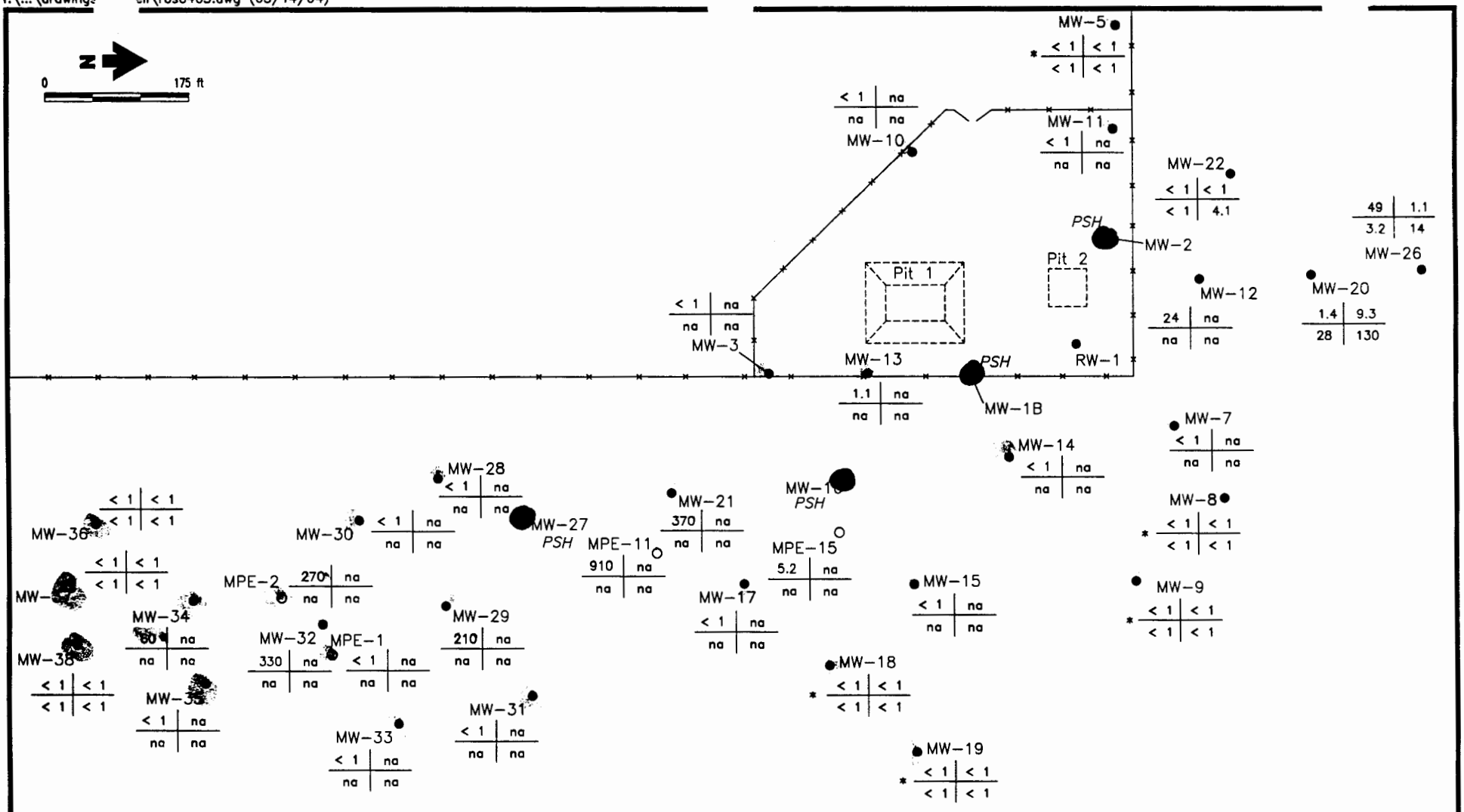

LEGEND

- Monitor well
- Deep monitor well
- Multiphase Extraction Well
- MPE & Soil Vaper Extraction Well Cluster

PSH — Phase Separated Hydrocarbon

Benzene | 111-TCA
11-DCA | 11-DCE
Concentration in Ground Water (ppb)
(* indicates results from the last sample event)
(na – not analyzed)

ROSWELL STATION REMEDIATION SITE

Distribution of Dissolved Phase Organics in the Uppermost Aquifer

AUGUST 1, 2003

CYPRESS ENGINEERING SERVICES, INC.

Figure 4

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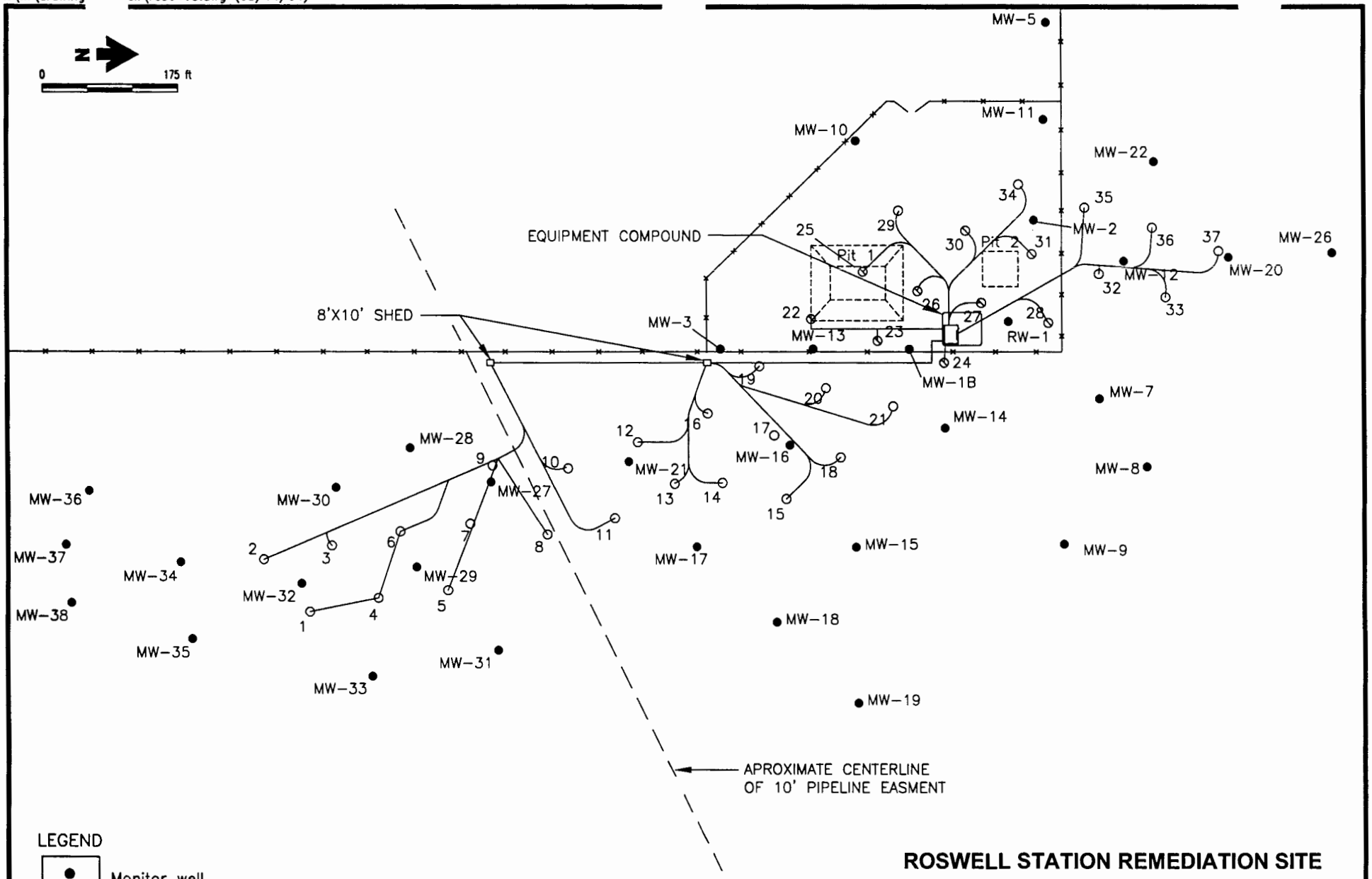

LEGEND

- Monitor well
- Deep monitor well
- Multiphase Extraction Well
- MPE & Soil Vaper Extraction Well Cluster

ROSWELL STATION REMEDIATION SITE

Remediation System Layout

CYPRESS ENGINEERING SERVICES, INC.

Figure 5

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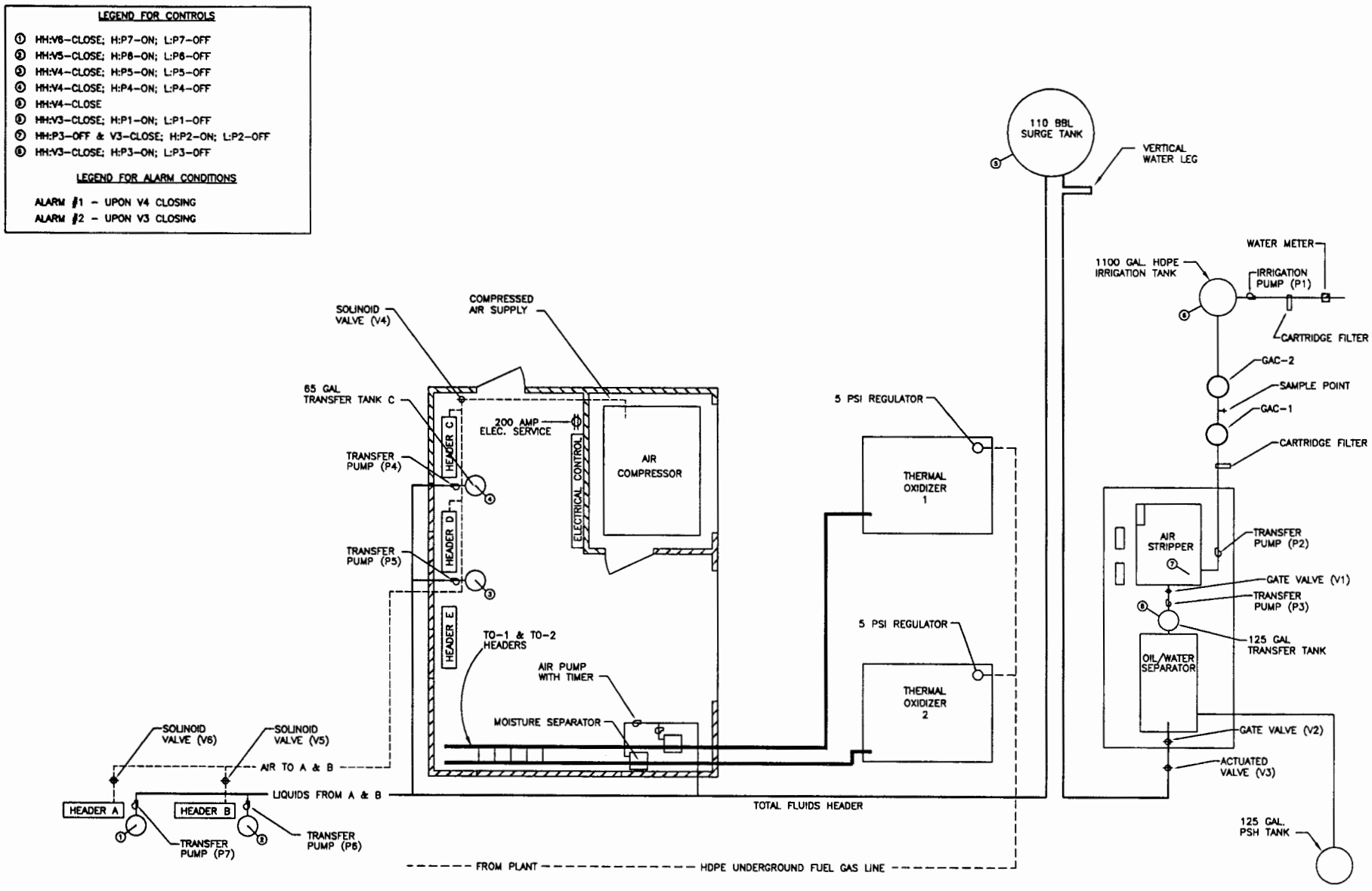

ROSWELL STATION REMEDIATION SITE

Water and Vapor Treatment Equipment, Controls, and Process Details

CYPRESS ENGINEERING SERVICES, INC.

Figure 6

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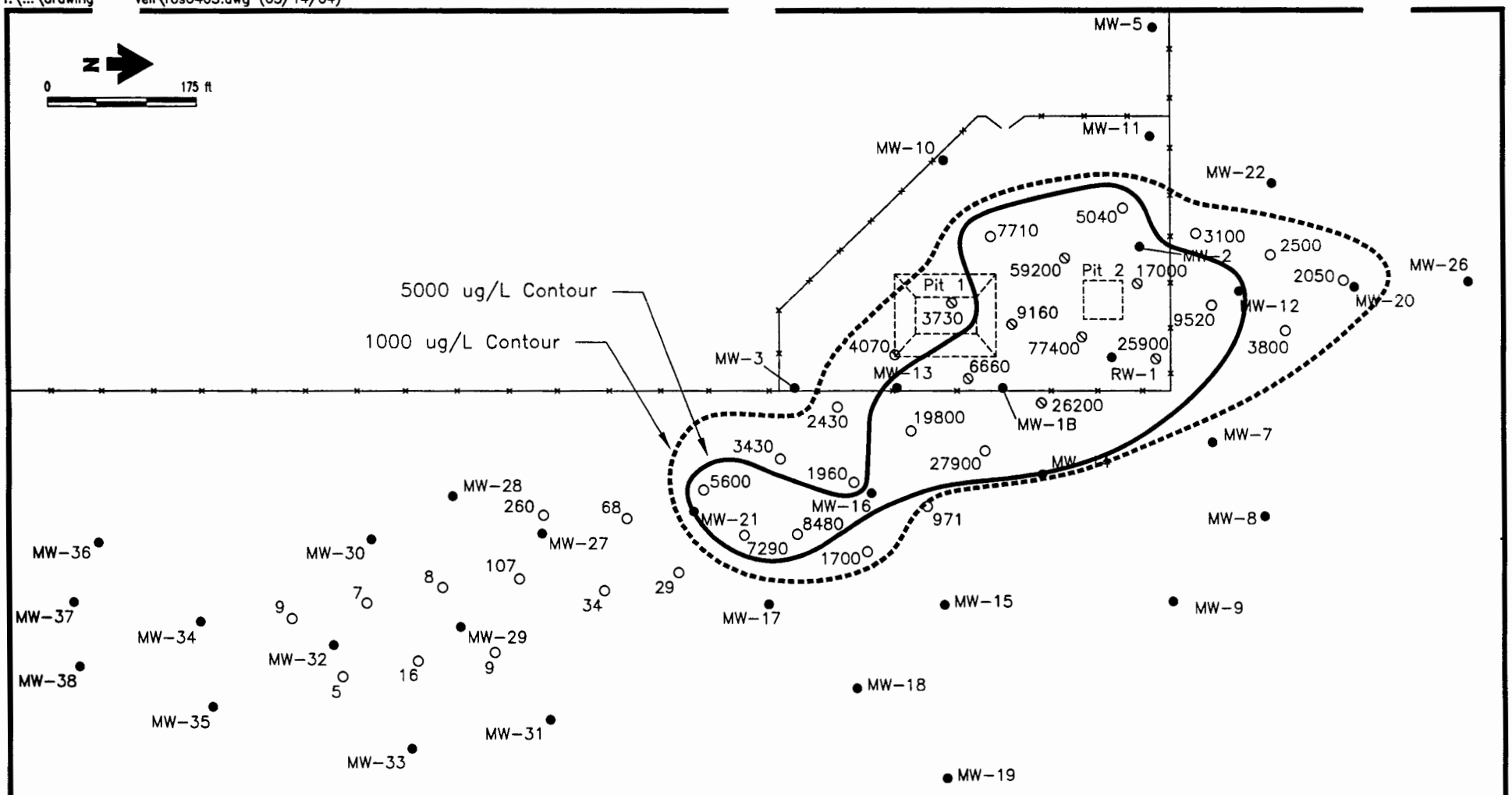

LEGEND

- ● Monitor well
- ▲ Deep monitor well
- ○ Multiphase Extraction Well
- ⊘ MPE & Soil Vaper Extraction Well Cluster

ROSWELL STATION REMEDIATION SITE

Distribution of VOCs Measured in Soil Vapor Samples from MPE Wells

AUGUST 1, 2003

CYPRESS ENGINEERING SERVICES, INC.

Figure 7

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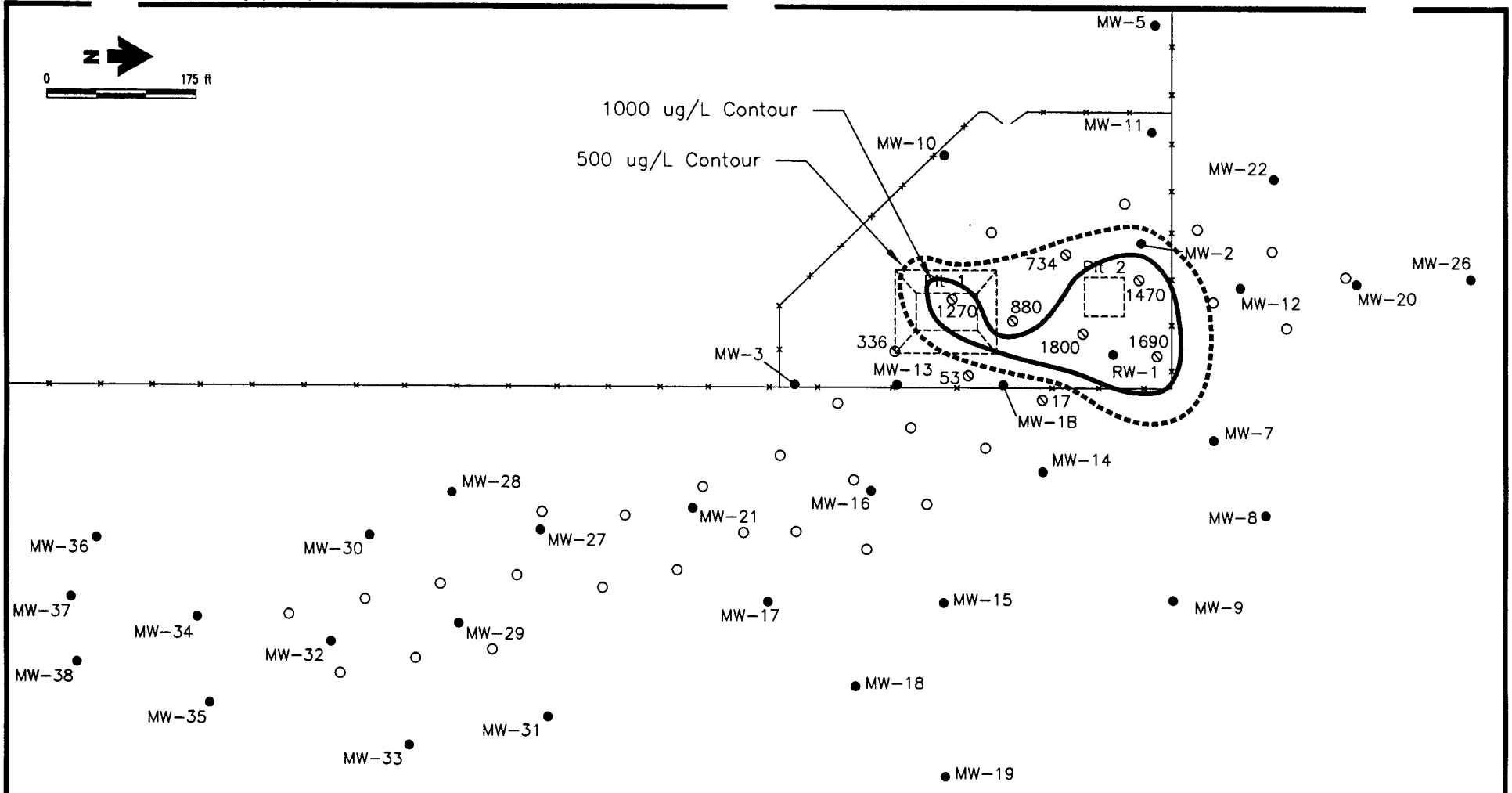

LEGEND

- Monitor well
- Deep monitor well
- Multiphase Extraction Well
- MPE & Soil Vaper Extraction Well Cluster

ROSWELL STATION REMEDIATION SITE

Distribution of VOCs Measured In Soil Vapor Samples from SVE Wells

AUGUST 1, 2003

CYPRESS ENGINEERING SERVICES, INC.

Figure 8

TABLES

Table 1. Summary of Ground Water Surface Elevations
Compressor Station No. 9 - Roswell, NM

Well ID	Sampling Date	Top of Casing (ft)	Depth to PSH (ft)	Depth to Water (ft)	PSH (ft)	Surface Elevation (ft)
MW-1 B	09/27/96	3609.96	-	61.60	2.33	3550.13
	10/31/97		58.37	59.76	1.39	3551.26
	01/26/98		58.20	60.80	2.60	3551.14
	05/25/98		58.28	60.38	2.10	3551.18
	08/10/98		58.64	59.05	0.41	3551.22
	10/11/98		58.20	61.20	3.00	3551.04
	03/21/99		60.45	60.46	0.01	3549.51
	09/07/99		(a)	60.15	(a)	3549.81
	11/19/00		57.87	60.13	2.26	3551.55
	03/27/01		57.42	59.97	2.55	3551.93
	10/03/01*		57.12	60.25	3.13	3552.09
	06/11/02		57.00	60.42	3.42	3552.14
	01/29/03		57.05	60.72	3.67	3552.03
	07/31/03		57.35	60.72	3.37	3551.80
MW-2	09/27/96	3611.76	-	62.00	2.33	3551.53
	10/31/97		58.36	59.60	1.24	3553.10
	01/26/98		58.20	59.85	1.65	3553.16
	05/25/98		58.42	58.79	0.37	3553.25
	08/10/98		58.25	58.55	0.30	3553.44
	10/11/98		58.20	59.70	1.50	3553.20
	03/21/99		58.35	58.37	0.02	3553.41
	09/07/99		61.25	61.27	0.02	3550.51
	11/19/00		57.67	57.74	0.07	3554.07
	03/27/01		57.78	58.23	0.45	3553.87
	10/03/01*		58.04	58.35	0.31	3553.65
	06/11/02		58.07	59.20	1.13	3553.42
	01/29/03		58.20	60.61	2.41	3552.98
	07/31/03		58.60	59.30	0.70	3552.99
MW-3	09/27/96	3614.87	(a)	64.79	(a)	3550.08
	07/23/97		(a)	64.19	(a)	3550.68
	08/19/97		(a)	64.36	(a)	3550.51
	10/30/97		(a)	64.22	(a)	3550.65
	01/26/98		(a)	64.34	(a)	3550.53
	05/25/98		(a)	64.20	(a)	3550.67
	08/10/98		(a)	64.06	(a)	3550.81
	10/11/98		(a)	64.23	(a)	3550.64
	12/21/98		(a)	64.25	(a)	3550.62
	03/23/99		(a)	64.24	(a)	3550.63
	09/07/99		(a)	63.99	(a)	3550.88
	03/27/00		(a)	63.85	(a)	3551.02
	11/19/00		(a)	63.85	(a)	3551.02
	02/12/01		(a)	63.62	(a)	3551.25
	03/27/01		(a)	63.58	(a)	3551.29
	10/03/01		(a)	63.63	(a)	3551.24
	06/11/02		(a)	63.77	(a)	3551.10
	01/29/03		(a)	63.63	(a)	3551.24
	07/31/03		(a)	63.67	(a)	3551.20
MW-5	09/27/96	3612.77	(a)	62.32	(a)	3550.45
	07/23/97		(a)	61.95	(a)	3550.82
	08/19/97		(a)	62.05	(a)	3550.72

Table 1. Summary of Ground Water Surface Elevations
Compressor Station No. 9 - Roswell, NM

Well ID	Sampling Date	Top of Casing (ft)	Depth to PSH (ft)	Depth to Water (ft)	PSH (ft)	Surface Elevation (ft)
	10/30/97		(a)	61.98	(a)	3550.79
	01/26/98		(a)	61.90' Top of Pump	(a)	NA
	05/25/98		(a)	61.97	(a)	3550.80
	08/10/98		(a)	61.81	(a)	3550.96
	10/11/98		(a)	61.85	(a)	3550.92
	12/21/98		(a)	61.89	(a)	3550.88
	03/23/99		(a)	61.80	(a)	3550.97
	09/07/99		(a)	61.59	(a)	3551.18
	03/27/00		(a)	61.45	(a)	3551.32
	11/19/00		(a)	61.43	(a)	3551.34
	03/27/01		(a)	61.18	(a)	3551.59
	10/03/01		(a)	61.17	(a)	3551.60
	06/11/02		(a)	60.99	(a)	3551.78
	01/29/03		(a)	61.02	(a)	3551.75
	07/31/03		(a)	60.98	(a)	3551.79
MW-6	09/27/96	3618.62	(a)	61.85	(a)	3556.77
	07/23/97		(a)	61.81	(a)	3556.81
	08/19/97		(a)	61.73	(a)	3556.89
	10/30/97		(a)	61.62	(a)	3557.00
	01/26/98		(a)	61.64	(a)	3556.98
	05/25/98		(a)	61.63	(a)	3556.99
	08/10/98		(a)	61.70	(a)	3556.92
	10/11/98		(a)	61.72	(a)	3556.90
	12/21/98		(a)	61.74	(a)	3556.88
	03/23/99		(a)	61.78	(a)	3556.84
	09/07/99		(a)	61.65	(a)	3556.97
	03/27/00		(a)	61.13	(a)	3557.49
	11/19/00		(a)	61.11	(a)	3557.51
	03/27/01		(a)	60.93	(a)	3557.69
	10/03/01		(a)	60.85	(a)	3557.77
	06/11/02		(a)	60.81	(a)	3557.81
	01/29/03		(a)	60.87	(a)	3557.75
	07/31/03		(a)	60.99	(a)	3557.63
MW-7	09/27/96	3599.20	(a)	54.74	(a)	3544.46
	07/23/97		(a)	52.89	(a)	3546.31
	08/19/97		(a)	53.57	(a)	3545.63
	10/30/97		(a)	53.00	(a)	3546.20
	01/26/98		(a)	51.45	(a)	3547.75
	05/25/98		(a)	51.76	(a)	3547.44
	08/10/98		(a)	54.11	(a)	3545.09
	10/11/98		(a)	54.35	(a)	3544.85
	12/21/98		(a)	52.69	(a)	3546.51
	03/23/99		(a)	51.24	(a)	3547.96
	09/07/99		(a)	52.33	(a)	3546.87
	03/27/00		(a)	50.63	(a)	3548.57
	11/19/00		(a)	53.92	(a)	3545.28
	03/27/01		(a)	51.23	(a)	3547.97
	10/03/01		(a)	54.45	(a)	3544.75
	06/11/02		(a)	53.69	(a)	3545.51
	01/29/03		(a)	53.85	(a)	3545.35
	07/31/03		(a)	56.72	(a)	3542.48

Table 1. Summary of Ground Water Surface Elevations
Compressor Station No. 9 - Roswell, NM

Well ID	Sampling Date	Top of Casing (ft)	Depth to PSH (ft)	Depth to Water (ft)	PSH (ft)	Surface Elevation (ft)
MW-8	09/27/96	3595.80	(a)	51.98	(a)	3543.82
	07/23/97		(a)	50.14	(a)	3545.66
	08/19/97		(a)	50.92	(a)	3544.88
	10/30/97		(a)	50.18	(a)	3545.62
	01/26/98		(a)	48.52	(a)	3547.28
	05/25/98		(a)	49.02	(a)	3546.78
	08/10/98		(a)	51.40	(a)	3544.40
	10/11/98		(a)	51.60	(a)	3544.20
	12/21/98		(a)	49.84	(a)	3545.96
	03/23/99		(a)	48.30	(a)	3547.50
	09/07/99		(a)	49.42	(a)	3546.38
	03/27/00		(a)	47.63	(a)	3548.17
	11/19/00		(a)	50.97	(a)	3544.83
	02/12/01		(a)	48.85	(a)	3546.95
	03/27/01		(a)	48.21	(a)	3547.59
	10/03/01		(a)	51.45	(a)	3544.35
	06/11/02		(a)	50.90	(a)	3544.90
	01/29/03		(a)	50.81	(a)	3544.99
	07/31/03		(a)	54.00	(a)	3541.80
MW-9	09/27/96	3599.35	(a)	50.27	(a)	3549.08
	07/23/97		(a)	50.07	(a)	3549.28
	08/19/97		(a)	50.09	(a)	3549.26
	10/30/97		(a)	50.18	(a)	3549.17
	01/26/98		(a)	50.10	(a)	3549.25
	05/25/98		(a)	50.13	(a)	3549.22
	08/10/98		(a)	50.18	(a)	3549.17
	10/11/98		(a)	50.20	(a)	3549.15
	12/21/98		(a)	50.26	(a)	3549.09
	03/23/99		(a)	50.19	(a)	3549.16
	09/07/99		(a)	50.17	(a)	3549.18
	03/27/00		(a)	50.17	(a)	3549.18
	11/19/00		(a)	50.25	(a)	3549.10
	02/12/01		(a)	50.19	(a)	3549.16
	03/27/01		(a)	50.19	(a)	3549.16
	10/03/01		(a)	50.30	(a)	3549.05
	06/11/02		(a)	50.20	(a)	3549.15
	01/29/03		(a)	50.18	(a)	3549.17
	07/31/03		(a)	50.28	(a)	3549.07
MW-10	09/27/96	3617.85	(a)	67.21	(a)	3550.64
	07/23/97		(a)	66.83	(a)	3551.02
	08/19/97		(a)	66.93	(a)	3550.92
	10/30/97		(a)	66.83	(a)	3551.02
	01/26/98		(a)	66.58 Top of Pump	(a)	NA
	05/25/98		(a)	66.91	(a)	3550.94
	08/10/98		(a)	66.65	(a)	3551.20
	10/11/98		(a)	66.59 Top of Pump	(a)	NA
	12/21/98		(a)	66.79	(a)	3551.06
	03/23/99		(a)	66.72	(a)	3551.13
	09/07/99		(a)	66.49	(a)	3551.36
	03/27/00		(a)	66.34	(a)	3551.51

Table 1. Summary of Ground Water Surface Elevations
Compressor Station No. 9 - Roswell, NM

Well ID	Sampling Date	Top of Casing (ft)	Depth to PSH (ft)	Depth to Water (ft)	PSH (ft)	Surface Elevation (ft)
	11/19/00		(a)	66.30	(a)	3551.55
	03/27/01		(a)	66.10	(a)	3551.75
	10/03/01		(a)	66.08	(a)	3551.77
	06/11/02		(a)	65.95	(a)	3551.90
	01/29/03		(a)	66.04	(a)	3551.81
	07/31/03		(a)	66.04	(a)	3551.81
MW-11	09/27/96	3613.31	(a)	62.90	(a)	3550.41
	07/23/97		(a)	62.44	(a)	3550.87
	08/19/97		(a)	62.53	(a)	3550.78
	10/30/97		(a)	62.40	(a)	3550.91
	01/26/98		(a)	62.20 Top of Pump	(a)	NA
	05/25/98		(a)	62.22	(a)	3551.09
	08/10/98		(a)	62.18	(a)	3551.13
	10/11/98		(a)	62.21 Top of Pump	(a)	NA
	12/21/98		(a)	62.42	(a)	3550.89
	03/23/99		(a)	62.26	(a)	3551.05
	09/07/99		(a)	62.01	(a)	3551.30
	03/27/00		(a)	61.77	(a)	3551.54
	11/19/00		(a)	61.85	(a)	3551.46
	03/27/01		(a)	61.61	(a)	3551.70
	10/03/01		(a)	61.63	(a)	3551.68
	06/11/02		(a)	61.47	(a)	3551.84
	01/29/03		(a)	61.60	(a)	3551.71
	07/31/03		(a)	61.64	(a)	3551.67
MW-12	09/27/96	3606.38	(a)	55.58	(a)	3550.80
	07/23/97		(a)	53.99	(a)	3552.39
	08/19/97		(a)	53.96	(a)	3552.42
	10/30/97		(a)	53.61	(a)	3552.77
	01/26/98		(a)	53.55	(a)	3552.83
	05/25/98		(a)	53.36	(a)	3553.02
	08/10/98		(a)	53.30	(a)	3553.08
	10/11/98		(a)	53.55	(a)	3552.83
	12/21/98		(a)	53.65	(a)	3552.73
	03/23/99		(a)	53.50	(a)	3552.88
	09/07/99		(a)	52.79	(a)	3553.59
	03/27/00		(a)	52.46	(a)	3553.92
	11/19/00		(a)	53.18	(a)	3553.20
	03/27/01		(a)	52.91	(a)	3553.47
	10/03/01		(a)	52.91	(a)	3553.47
	06/11/02		(a)	53.30	(a)	3553.08
	01/29/03		(a)	53.95	(a)	3552.43
	07/31/03		(a)	54.02	(a)	3552.36
MW-13	09/27/96	3612.46	(a)	62.30	(a)	3550.16
	07/23/97		(a)	61.85	(a)	3550.61
	08/19/97		(a)	61.95	(a)	3550.51
	10/30/97		(a)	61.68	(a)	3550.78
	01/26/98		(a)	61.90	(a)	3550.56
	05/25/98		(a)	61.79	(a)	3550.67
	08/10/98		(a)	61.78	(a)	3550.68
	10/11/98		(a)	61.88	(a)	3550.58

Table 1. Summary of Ground Water Surface Elevations
Compressor Station No. 9 - Roswell, NM

Well ID	Sampling Date	Top of Casing (ft)	Depth to PSH (ft)	Depth to Water (ft)	PSH (ft)	Surface Elevation (ft)
	12/21/98		(a)	61.71	(a)	3550.75
	03/23/99		(a)	61.83	(a)	3550.63
	09/07/99		(a)	61.64	(a)	3550.82
	03/27/00		(a)	61.33	(a)	3551.13
	11/19/00		(a)	61.48	(a)	3550.98
	03/27/01		(a)	61.05	(a)	3551.41
	10/03/01		(a)	61.10	(a)	3551.36
	06/11/02		(a)	61.05	(a)	3551.41
	01/29/03		(a)	60.99	(a)	3551.47
	07/31/03		(a)	61.33	(a)	3551.13
MW-14	09/27/96	3604.83	(a)	53.38	(a)	3551.45
	07/23/97		(a)	53.33	(a)	3551.50
	08/19/97		(a)	53.06	(a)	3551.77
	10/30/97		(a)	53.20	(a)	3551.63
	01/26/98		(a)	53.41	(a)	3551.42
	05/25/98		(a)	53.40	(a)	3551.43
	08/10/98		(a)	53.43	(a)	3551.40
	10/11/98		(a)	53.56	(a)	3551.27
	12/21/98		(a)	53.53	(a)	3551.30
	03/23/99		(a)	53.55	(a)	3551.28
	09/07/99		(a)	53.41	(a)	3551.42
	03/27/00		(a)	53.05	(a)	3551.78
	11/19/00		(a)	52.95	(a)	3551.88
	03/27/01		(a)	52.67	(a)	3552.16
	10/03/01		(a)	52.61	(a)	3552.22
	06/11/02		(a)	52.42	(a)	3552.41
	01/29/03		(a)	52.51	(a)	3552.32
	07/31/03		(a)	52.80	(a)	3552.03
MW-15	09/27/96	3610.43	(a)	58.77	(a)	3551.66
	07/23/97		(a)	58.75	(a)	3551.68
	08/19/97		(a)	58.84	(a)	3551.59
	10/30/97		(a)	58.83	(a)	3551.60
	01/26/98		(a)	58.97	(a)	3551.46
	05/25/98		(a)	58.96	(a)	3551.47
	08/10/98		(a)	58.92	(a)	3551.51
	10/11/98		(a)	59.02	(a)	3551.41
	12/21/98		(a)	59.04	(a)	3551.39
	03/23/99		(a)	59.09	(a)	3551.34
	09/07/99		(a)	58.98	(a)	3551.45
	03/27/00		(a)	59.03	(a)	3551.40
	11/19/00		(a)	59.18	(a)	3551.25
	03/27/01		(a)	59.07	(a)	3551.36
	10/03/01		(a)	59.15	(a)	3551.28
	06/11/02		(a)	59.16	(a)	3551.27
	01/29/03		(a)	59.18	(a)	3551.25
	07/31/03		(a)	59.15	(a)	3551.28
MW-16	09/27/96	3612.41	-	67.16	4.01	3548.30
	07/23/97		-	66.46	4.87	3549.65
	08/19/97		-	66.54	4.89	3549.59
	10/31/97		61.58	66.32	4.74	3549.69

Table 1. Summary of Ground Water Surface Elevations
Compressor Station No. 9 - Roswell, NM

Well ID	Sampling Date	Top of Casing (ft)	Depth to PSH (ft)	Depth to Water (ft)	PSH (ft)	Surface Elevation (ft)
	01/26/98		61.55	66.12	4.57	3549.76
	05/25/98		61.56	66.09	4.53	3549.76
	08/10/98		61.49	66.31	4.82	3549.76
	10/11/98		61.59	66.38	4.79	3549.67
	12/21/98		61.59	66.17	4.58	3549.72
	03/23/99		61.42	65.97	4.55	3549.90
	09/07/99		61.40	66.14	4.74	3549.87
	03/27/00		61.14	65.71	4.57	3550.17
	11/19/00		61.30	65.79	4.49	3550.03
	02/12/01		61.21	65.65	4.44	3550.13
	03/27/01		61.13	65.57	4.44	3550.21
	10/03/01*		61.15	65.82	4.67	3550.14
	06/11/02		61.12	65.65	4.53	3550.20
	07/31/03		61.68	66.38	4.70	3549.60
MW-17	09/27/96	3608.48	(a)	59.30	(a)	3549.18
	07/23/97		(a)	58.79	(a)	3549.69
	08/19/97		(a)	58.94	(a)	3549.54
	10/30/97		(a)	58.85	(a)	3549.63
	01/26/98		(a)	58.90	(a)	3549.58
	05/25/98		(a)	58.83	(a)	3549.65
	08/10/98		(a)	58.78	(a)	3549.70
	10/11/98		(a)	58.93	(a)	3549.55
	12/21/98		(a)	58.97	(a)	3549.51
	03/23/99		(a)	58.87	(a)	3549.61
	09/07/99		(a)	58.72	(a)	3549.76
	03/27/00		(a)	58.56	(a)	3549.92
	11/19/00	3608.43 (d)	(a)	58.76	(a)	3549.67
	02/12/01		(a)	58.55	(a)	3549.88
	03/27/01		(a)	58.49	(a)	3549.94
	10/03/01		(a)	58.50	(a)	3549.93
	06/11/02		(a)	58.45	(a)	3549.98
	01/29/03		(a)	58.45	(a)	3549.98
	07/31/03		(a)	58.87	(a)	3549.56
MW-18	09/27/96	3609.73	(a)	dry	(a)	NA
	07/23/97		(a)	58.29	(a)	3551.44
	08/19/97		(a)	64.81	(a)	still recovering
	10/30/97		(a)	58.61	(a)	3551.12
	01/26/98		(a)	58.60	(a)	3551.13
	05/25/98		(a)	58.51	(a)	3551.22
	08/10/98		(a)	58.74	(a)	3550.99
	10/11/98		(a)	59.02	(a)	3550.71
	12/21/98		(a)	58.53	(a)	3551.20
	03/23/99		(a)	58.70	(a)	3551.03
	09/07/99		(a)	58.48	(a)	3551.25
	03/27/00		(a)	58.51	(a)	3551.22
	11/19/00		(a)	58.62	(a)	3551.11
	02/12/01		(a)	58.58	(a)	3551.15
	03/27/01		(a)	58.57	(a)	3551.16
	10/03/01		(a)	58.67	(a)	3551.06
	06/11/02		(a)	58.63	(a)	3551.10
	01/29/03		(a)	58.67	(a)	3551.06

Table 1. Summary of Ground Water Surface Elevations
Compressor Station No. 9 - Roswell, NM

Well ID	Sampling Date	Top of Casing (ft)	Depth to PSH (ft)	Depth to Water (ft)	PSH (ft)	Surface Elevation (ft)
	07/31/03		(a)	58.71	(a)	3551.02
MW-19	09/27/96	3608.17	(a)	57.95	(a)	3550.22
	07/23/97		(a)	56.03	(a)	3552.14
	08/19/97		(a)	56.20	(a)	3551.97
	10/30/97		(a)	56.17	(a)	3552.00
	01/26/98		(a)	56.28	(a)	3551.89
	05/25/98		(a)	56.29	(a)	3551.88
	08/10/98		(a)	56.38	(a)	3551.79
	10/11/98		(a)	56.39	(a)	3551.78
	12/21/98		(a)	56.41	(a)	3551.76
	03/23/99		(a)	56.41	(a)	3551.76
	09/07/99		(a)	56.35	(a)	3551.82
	03/27/00		(a)	56.37	(a)	3551.80
	11/19/00		(a)	56.52	(a)	3551.65
	03/27/01		(a)	56.43	(a)	3551.74
	10/03/01		(a)	56.50	(a)	3551.67
	06/11/02		(a)	56.54	(a)	3551.63
	01/29/03		(a)	56.58	(a)	3551.59
	07/31/03		(a)	56.59	(a)	3551.58
MW-20	08/19/97	3600.65	(a)	49.50	(a)	3551.15
	10/30/97		(a)	49.47	(a)	3551.18
	01/26/98		(a)	49.37	(a)	3551.28
	05/25/98		(a)	49.21	(a)	3551.44
	08/10/98		(a)	49.41	(a)	3551.24
	10/11/98		(a)	49.68	(a)	3550.97
	12/21/98		(a)	49.62	(a)	3551.03
	03/23/99		(a)	49.38	(a)	3551.27
	09/07/99		(a)	48.55	(a)	3552.10
	03/27/00		(a)	48.21	(a)	3552.44
	11/19/00		(a)	49.10	(a)	3551.55
	03/27/01		(a)	48.62	(a)	3552.03
	10/03/01		(a)	48.82	(a)	3551.83
	06/11/02		(a)	48.98	(a)	3551.67
	01/29/03		(a)	49.31	(a)	3551.34
	07/31/03		(a)	49.50	(a)	3551.15
MW-21	08/07/97	3612.01	(a)	63.64	(a)	3548.37
	10/30/97		(a)	62.58	(a)	3549.43
	01/26/98		(a)	62.76	(a)	3549.25
	05/25/98		(a)	62.57	(a)	3549.44
	08/10/98		(a)	62.47	(a)	3549.54
	10/11/98		(a)	62.60	(a)	3549.41
	12/21/98		(a)	62.59	(a)	3549.42
	03/23/99		(a)	62.50	(a)	3549.51
	09/07/99		(a)	62.27	(a)	3549.74
	03/27/00		(a)	62.10	(a)	3549.91
	11/19/00	3611.99 (d)	(a)	62.37	(a)	3549.62
	02/12/01		(a)	62.14	(a)	3549.85
	03/27/01		(a)	61.99	(a)	3550.00
	10/03/01		(a)	61.99	(a)	3550.00
	06/11/02		(a)	62.00	(a)	3549.99

Table 1. Summary of Ground Water Surface Elevations
Compressor Station No. 9 - Roswell, NM

Well ID	Sampling Date	Top of Casing (ft)	Depth to PSH (ft)	Depth to Water (ft)	PSH (ft)	Surface Elevation (ft)
	01/29/03		(a)	61.96	(a)	3550.03
	07/31/03		(a)	61.40	(a)	3550.59
MW-22	08/19/97	3606.04	(a)	55.36	(a)	3550.68
	10/30/97		(a)	55.24	(a)	3550.80
	01/26/98		(a)	55.19	(a)	3550.85
	05/25/98		(a)	54.99	(a)	3551.05
	08/10/98		(a)	54.93	(a)	3551.11
	10/11/98		(a)	55.09	(a)	3550.95
	12/21/98		(a)	55.18	(a)	3550.86
	03/23/99		(a)	55.04	(a)	3551.00
	09/07/99		(a)	54.72	(a)	3551.32
	03/27/00		(a)	54.41	(a)	3551.63
	11/19/00		(a)	54.65	(a)	3551.39
	03/27/01		(a)	54.36	(a)	3551.68
	10/03/01		(a)	54.34	(a)	3551.70
	06/11/02		(a)	54.31	(a)	3551.73
	01/29/03		(a)	54.35	(a)	3551.69
	07/31/03		(a)	54.52	(a)	3551.52
MW-26	10/11/98	3597.75 (c)	(a)	47.31	(a)	3550.44
	10/29/98		(a)	47.53	(a)	3550.22
	12/21/98		(a)	47.24	(a)	3550.51
	03/23/99		(a)	46.86	(a)	3550.89
	09/07/99		(a)	46.07	(a)	3551.68
	03/27/00		(a)	45.70	(a)	3552.05
	11/19/00		(a)	46.83	(a)	3550.92
	03/27/01		(a)	46.23	(a)	3551.52
	10/03/01		(a)	46.58	(a)	3551.17
	06/11/02		(a)	46.71	(a)	3551.04
	01/29/03		(a)	47.21	(a)	3550.54
	07/31/03		(a)	47.55	(a)	3550.20
MW-27	10/11/98	3615.11 (c)	64.85	68.00	3.15	3549.50
	12/21/98		64.83	68.03	3.20	3549.51
	03/23/99		64.78	67.91	3.13	3549.58
	09/07/99		64.53	67.67	3.14	3549.83
	03/27/00		64.40	67.53	3.13	3549.96
	11/19/00	3615.11 (d)	64.59	67.51	2.92	3549.82
	02/12/01		64.40	67.53	3.13	3549.96
	03/27/01		64.28	67.57	3.29	3550.04
	10/03/01*		64.17	67.39	3.22	3550.17
	06/11/02		64.18	67.23	3.05	3550.20
	01/29/03		64.20	67.30	3.10	3550.17
	07/31/03		64.58	67.43	2.85	3549.85
MW-28	11/19/00	3615.90 (d)	(a)	65.91	(a)	3549.99
	02/12/01		(a)	65.84	(a)	3550.06
	03/27/01		(a)	65.77	(a)	3550.13
	10/03/01		(a)	65.75	(a)	3550.15
	06/11/02		(a)	65.68	(a)	3550.22
	01/29/03		(a)	65.64	(a)	3550.26
	07/31/03		(a)	65.83	(a)	3550.07

Table 1. Summary of Ground Water Surface Elevations
Compressor Station No. 9 - Roswell, NM

Well ID	Sampling Date	Top of Casing (ft)	Depth to PSH (ft)	Depth to Water (ft)	PSH (ft)	Surface Elevation (ft)
MW-29	11/19/00	3613.54 (d)	(a)	64.85	(a)	3548.69
	02/12/01		(a)	64.61	(a)	3548.93
	03/27/01		(a)	64.47	(a)	3549.07
	10/03/01		(a)	64.51	(a)	3549.03
	06/11/02		(a)	64.67	(a)	3548.87
	01/29/03		(a)	64.80	(a)	3548.74
	07/31/03		(a)	65.05	(a)	3548.49
MW-30	11/19/00	3612.63 (d)	(a)	63.27	(a)	3549.36
	02/12/01		(a)	62.96	(a)	3549.67
	03/27/01		(a)	62.88	(a)	3549.75
	10/03/01		(a)	62.79	(a)	3549.84
	06/11/02		(a)	62.75	(a)	3549.88
	01/29/03		(a)	62.75	(a)	3549.88
	07/31/03		(a)	62.93	(a)	3549.70
MW-31	10/03/01	3611.59 (e)	(a)	62.37	(a)	3549.22
	06/11/02		(a)	62.41	(a)	3549.18
	01/29/03		(a)	62.30	(a)	3549.29
	07/31/03		(a)	62.38	(a)	3549.21
MW-32	10/03/01	3608.73 (e)	(a)	60.65	(a)	3548.08
	06/11/02		(a)	60.75	(a)	3547.98
	01/29/03		(a)	61.05	(a)	3547.68
	07/31/03		(a)	61.30	(a)	3547.43
MW-33	10/03/01	3610.55 (e)	(a)	61.87	(a)	3548.68
	06/11/02		(a)	61.85	(a)	3548.70
	01/29/03		(a)	61.83	(a)	3548.72
	07/31/03		(a)	61.95	(a)	3548.60
MW-34	01/29/03	3605.05 (f)	(a)	57.63	(a)	3547.42
	07/31/03		(a)	57.96	(a)	3547.09
MW-35	01/29/03	3601.87 (f)	(a)	54.56	(a)	3547.31
	07/31/03		(a)	54.93	(a)	3546.94
MW-23 D	08/19/97	3605.16	(a)	62.05	(a)	3543.11
	10/30/97		(a)	59.11	(a)	3546.05
	01/26/98		(a)	56.19	(a)	3548.97
	05/06/98	3605.23 (b)	(a)	59.01	(a)	3546.22
	05/07/98		(a)	59.08	(a)	3546.15
	05/25/98		(a)	60.35	(a)	3544.88
	08/10/98		(a)	63.46	(a)	3541.77
	10/11/98	3605.00 (c)	(a)	61.26	(a)	3543.74
	10/19/98		(a)	60.92	(a)	3544.08
	12/21/98		(a)	57.68	(a)	3547.32
	03/23/99		(a)	56.42	(a)	3548.58
	09/07/99		(a)	61.13	(a)	3543.87
	03/27/00		(a)	57.14	(a)	3547.86
	11/19/00		(a)	59.80	(a)	3545.20
	03/27/01		(a)	56.89	(a)	3548.11

Table 1. Summary of Ground Water Surface Elevations
Compressor Station No. 9 - Roswell, NM

Well ID	Sampling Date	Top of Casing (ft)	Depth to PSH (ft)	Depth to Water (ft)	PSH (ft)	Surface Elevation (ft)
	10/03/01		(a)	62.57	(a)	3542.43
	06/11/02		(a)	62.93	(a)	3542.07
	01/29/03		(a)	59.51	(a)	3545.49
	07/31/03		(a)	66.97	(a)	3538.03
MW-24 D	10/11/98	3595.95 (c)	(a)	52.70	(a)	3543.25
	10/19/98		(a)	52.39	(a)	3543.56
	10/29/98		(a)	51.51	(a)	3544.44
	12/21/98		(a)	49.24	(a)	3546.71
	03/23/99		(a)	47.80	(a)	3548.15
	09/07/99		(a)	52.21	(a)	3543.74
	03/27/00		(a)	48.19	(a)	3547.76
	11/19/00		(a)	51.19	(a)	3544.76
	03/27/01		(a)	48.07	(a)	3547.88
	10/03/01		(a)	53.99	(a)	3541.96
	06/11/02		(a)	53.81	(a)	3542.14
	01/29/03		(a)	50.73	(a)	3545.22
	07/31/03		(a)	57.65	(a)	3538.30
MW-25 D	10/11/98	3592.99 (c)	(a)	48.59	(a)	3544.40
	10/19/98		(a)	48.55	(a)	3544.44
	10/29/98		(a)	48.19	(a)	3544.80
	12/21/98		(a)	47.01	(a)	3545.98
	03/23/99		(a)	45.42	(a)	3547.57
	09/07/99		(a)	46.46	(a)	3546.53
	03/27/00		(a)	44.73	(a)	3548.26
	11/19/00		(a)	47.96	(a)	3545.03
	03/27/01		(a)	45.36	(a)	3547.63
	10/03/01		(a)	48.48	(a)	3544.51
	06/11/02		(a)	47.65	(a)	3545.34
	01/29/03		(a)	47.94	(a)	3545.05
	07/31/03		(a)	50.63	(a)	3542.36
Well #2	05/06/98	3615.28 (b)	(a)	65.48	(a)	3549.80
	05/07/98		(a)	65.51	(a)	3549.77
Well #5	05/06/98	3635.39 (b)	(a)	83.75	(a)	3551.64
	05/07/98		(a)	83.79	(a)	3551.60

NOTES:
PSH - Phase separated hydrocarbon
Corrections to ground water surface elevation for PSH is calculated assuming a specific gravity of 0.76
(NA) Information not available
(a) Not applicable since no measurable thickness of PSH is present
(b) Elevation based on survey by Wagener Engineering dated 5/6/98
(c) Elevation based on survey by Wagener Engineering dated 9/17/98
(d) Elevation based on survey by Wagener Engineering dated 11/29/00
(e) Elevation based on survey by Wagener Engineering dated 10/03/01
(f) Elevation based on survey by Cypress Engineering dated 03/14/03

Table 1a. Summary of Ground Water Surface Elevations (MPE/SVE)
Compressor Station No. 9 - Roswell, NM

Well ID	Sampling Date	Top of Casing (ft)	Depth to PSH (ft)	Depth to Water (ft)	PSH (ft)	Surface Elevation (ft)
MPE-1	01/29/03	NA	(a)	60.39	(a)	NA
	07/31/03		(a)	60.66	(a)	NA
MPE-2	01/29/03	NA	(a)	59.18	(a)	NA
	07/31/03		(a)	59.82	(a)	NA
MPE-3	01/29/03	NA	(a)	62.33	(a)	NA
	07/31/03		(a)	62.85	(a)	NA
MPE-4	01/29/03	NA	(a)	63.37	(a)	NA
	07/31/03		(a)	63.54	(a)	NA
MPE-5	01/29/03	NA	(a)	63.78	(a)	NA
	07/31/03		(a)	63.95	(a)	NA
MPE-6	01/29/03	NA	(a)	65.00	(a)	NA
	07/31/03		(a)	65.17	(a)	NA
MPE-7	01/29/03	NA	(a)	63.93	(a)	NA
	07/31/03		(a)	63.88	(a)	NA
MPE-8	01/29/03	NA	(a)	62.43	(a)	NA
	07/31/03		(a)	62.74	(a)	NA
MPE-9	01/29/03	NA	63.96	66.65	2.69	NA
	07/31/03		64.05	67.46	3.41	NA
MPE-10	01/29/03	NA	(a)	62.90	(a)	NA
	07/31/03		(a)	63.08	(a)	NA
MPE-11	01/29/03	NA	(a)	60.20	(a)	NA
	07/31/03		(a)	60.52	(a)	NA
MPE-12	01/29/03	NA	(a)	61.54	(a)	NA
	07/31/03		61.29	63.31	2.02	NA
MPE-13	01/29/03	NA	(a)	60.31	(a)	NA
	07/31/03		(a)	60.72	(a)	NA
MPE-14	01/29/03	NA	(a)	60.95	(a)	NA
	07/31/03		(a)	61.38	(a)	NA
MPE-15	01/29/03	NA	(a)	61.10	(a)	NA
	07/31/03		(a)	61.20	(a)	NA
MPE-16	01/29/03	NA	61.10	64.91	3.81	NA
	07/31/03		61.53	65.55	4.02	NA
MPE-17	01/29/03	NA	60.86	65.50	4.64	NA
	07/31/03		61.40	66.69	5.29	NA
MPE-18	01/29/03	NA	(a)	59.42	(a)	NA
	07/31/03		(a)	59.75	(a)	NA

Table 1a. Summary of Ground Water Surface Elevations (MPE/SVE)
Compressor Station No. 9 - Roswell, NM

Well ID	Sampling Date	Top of Casing (ft)	Depth to PSH (ft)	Depth to Water (ft)	PSH (ft)	Surface Elevation (ft)
MPE-19	01/29/03	NA	(a)	62.40	(a)	NA
	07/31/03		(a)	62.73	(a)	NA
MPE-20	01/29/03	NA	58.21	65.10	6.89	NA
	07/31/03		58.70	65.08	6.38	NA
MPE-21	01/29/03	NA	(a)	55.64	(a)	NA
	07/31/03		54.78	55.30	0.52	NA
MPE-22	01/29/03	NA	(a)	64.50	(a)	NA
	07/31/03		(a)	64.51	(a)	NA
MPE-23	01/29/03	NA	(a)	59.86	(a)	NA
	07/31/03		60.05	60.10	0.05	NA
MPE-24	01/29/03	NA	(a)	55.83	(a)	NA
	07/31/03		55.08	55.60	0.52	NA
MPE-25	01/29/03	NA	(a)	64.51	(a)	NA
	07/31/03		(a)	64.53	(a)	
MPE-26	01/29/03	NA	(a)	61.89	(a)	NA
	07/31/03		61.65	62.95	1.30	NA
MPE-27	01/29/03	NA	59.20	63.98	4.78	NA
	07/31/03		59.25	64.13	4.88	NA
MPE-28	01/29/03	NA	53.69	55.57	1.88	NA
	07/31/03		53.69	56.90	3.21	NA
MPE-29	01/29/03	NA	(a)	64.75	(a)	NA
	07/31/03		(a)	64.79	(a)	NA
MPE-30	01/29/03	NA	(a)	63.61	(a)	NA
	07/31/03		(a)	63.35	(a)	NA
MPE-31	01/29/03	NA	(a)	60.61	(a)	NA
	07/31/03		(a)	60.63	(a)	NA
MPE-32	01/29/03	NA	55.02	55.10	0.08	NA
	07/31/03		53.85	59.27	5.42	NA
MPE-33	01/29/03	NA	50.50	52.13	1.63	NA
	07/31/03		50.03	54.50	4.47	NA
MPE-34	01/29/03	NA	(a)	62.80	(a)	NA
	07/31/03		(a)	62.74	(a)	NA
MPE-35	01/29/03	NA	(a)	56.74	(a)	NA
	07/31/03		(a)	56.84	(a)	NA
MPE-36	01/29/03	NA	(a)	51.98	(a)	NA

Table 1a. Summary of Ground Water Surface Elevations (MPE/SVE)
Compressor Station No. 9 - Roswell, NM

Well ID	Sampling Date	Top of Casing (ft)	Depth to PSH (ft)	Depth to Water (ft)	PSH (ft)	Surface Elevation (ft)
	07/31/03		(a)	52.00	(a)	NA
MPE-37	01/29/03	NA	(a)	49.18	(a)	NA
	07/31/03		(a)	49.27	(a)	NA
SVE-1A	01/29/03	NA	(a)	dry	(a)	NA
	07/31/03		(a)	dry	(a)	NA
SVE-2A	01/29/03	NA	(a)	29.65	(a)	NA
	07/31/03		(a)	29.70	(a)	NA
SVE-3	04/01/01	NA	(a)	60.35	(a)	NA
	01/29/03	NA	(a)	60.57	(a)	NA
	07/31/03		(a)	61.42	(a)	NA
SVE-22	01/29/03	NA	(a)	dry	(a)	NA
	07/31/03		(a)	dry	(a)	NA
SVE-23	01/29/03	NA	32.70	33.85	1.15	NA
	07/31/03		34.00	36.75	2.75	NA
SVE-24	01/29/03	NA	(a)	dry	(a)	NA
	07/31/03		(a)	dry	(a)	NA
SVE-25	01/29/03	NA	(a)	dry	(a)	NA
	07/31/03		32.86	33.10	0.24	NA
SVE-26	01/29/03	NA	(a)	dry	(a)	NA
	07/31/03		(a)	dry	(a)	NA
SVE-27	01/29/03	NA	(a)	33.45	(a)	NA
	07/31/03		(a)	33.80	(a)	NA
SVE-28	01/29/03	NA	(a)	dry	(a)	NA
	07/31/03		(a)	35.70	(a)	NA
SVE-30	01/29/03	NA	(a)	43.67	(a)	NA
	07/31/03		(a)	43.61	(a)	NA
SVE-31	01/29/03	NA	(a)	dry	(a)	NA
	07/31/03		(a)	dry	(a)	NA
RW-1	01/29/03	NA	(a)	34.48	(a)	NA
	07/31/03		(a)	34.95	(a)	NA

NOTES:
PSH - Phase separated hydrocarbon
(NA) Information not available
(a) Not applicable since no measurable thickness of PSH is present

Table 2. Summary of Field Measured Parameters
Compressor Station No. 9 - Roswell, NM

Well ID	Date	Dissolved Oxygen (mg/L) Meter/Hach	pH	Temperature °C	Electrical Conductivity (µs/cm)	Turbidity (NTU/FTU)	Remarks
MW-3	11/03/97	4.5	7.21	19.2	3,620	1.31	Clear
	01/27/98	5.0	7.28	18.5	3,630	4.31	Clear
	05/26/98	5.6	7.18	21.4	3,980	8.04	Clear
	08/13/98	6.1	7.19	22.2	3,930	5.06	Clear
	12/24/98	4.9	7.26	16.5	3,940	5.34	Clear
	03/24/99	--/6.0	7.13	19.7	3,980	7.34	Clear
	09/07/99	9.0/7.0	7.17	20.6	3,800	--	Clear
	03/27/00	6.8	7.30	19.0	3,930	--	Clear
	03/27/01	5.9	7.21	19.3	3,930	--	Clear
	07/03/02	5.3	6.81	21.8	3,820	--	Clear
	08/01/03	6.9	7.20	23.8	3,940	--	Clear
MW-5	10/31/97	7.0	7.12	19.9	4,020	--	Clear
	01/27/98	7.8	7.38	17.7	1,980	7.82	Clear
	05/26/98	10.0	7.13	24.4	4,100	6.80	Clear
	08/11/98	8.3	7.18	20.7	4,210	5.99	Clear
	12/22/98	6.5/7.0	7.17	14.6	4,680	5.36	Clear
	03/23/99	8.4	7.10	19.4	4,360	3.37	Clear
MW-6	10/31/97	6.9	7.21	21.6	3,180	--	Clear
	01/26/98	6.4	7.23	17.3	3,200	6.08	Clear
	05/26/98	8.2	7.19	21.2	3,450	4.67	Clear
	08/11/98	9.0/8.0	7.24	22.4	3,430	8.03	Clear
	12/22/98	6.7	7.29	15.7	3,740	13.72	Clear
	03/23/99	8.0/7.0	7.20	19.9	3,460	4.93	Clear
MW-7	11/03/97	2.5	7.28	18.1	3,540	11.30	Clear
	01/29/98	1.8	7.25	18.4	3,540	5.68	Clear
	05/28/98	3.6	7.14	23.5	3,820	9.35	Clear
	08/14/98	3.6/2.6	7.23	21.7	3,770	6.89	Clear
	12/27/98	2.7	7.20	17.5	3,790	6.09	Clear
	03/25/99	3.0/3.4	7.14	17.6	3,780	4.40	Clear, Bailed down
	09/07/99	2.5	7.18	20.0	3,810	--	Clear
	03/28/00	2.6	7.21	19.1	3,780	13.63	Clear
	11/18/00	--/3.8	7.31	18.6	3,430	--	Clear
	03/28/01	3.9	7.21	19.5	3,810	4.88	Clear
	10/08/01	4.6	7.20	19.8	3,990	--	Clear
	07/01/02	6.9	6.67	21.2	3,690	--	Clear
	08/02/03	4.0	7.24	22.4	3,780	--	Clear
MW-8	11/02/97	4.4	7.16	18.5	3,730	6.91	Clear
	01/29/98	4.2	7.17	19.8	3,730	2.41	Clear
	05/28/98	4.7	7.11	19.8	4,000	4.66	Clear
	08/14/98	4.3	7.10	20.6	3,970	4.62	Clear
	12/27/98	4.7	7.14	19.1	4,010	5.54	Clear
	03/25/99	4.0/3.8	7.07	18.4	4,040	4.15	Clear
MW-9	11/02/97	5.5	7.32	18.6	4,110	180	Cloudy

Table 2. Summary of Field Measured Parameters
Compressor Station No. 9 - Roswell, NM

Well ID	Date	Dissolved Oxygen (mg/L) Meter/Hach	pH	Temperature °C	Electrical Conductivity (µs/cm)	Turbidity (NTU/FTU)	Remarks
	01/29/98	3.9	7.35	16.9	4,090	--	Slightly Turbid
	05/28/98	6.0	7.25	20.8	4,440	62	Cloudy
	08/14/98	5.3	7.23	21.4	4,400	91/80	Cloudy, (80 FTU dissolved metals reading)
	12/27/98	5.3	7.35	17.9	4,400	97	Cloudy
	03/24/99	--/7.0	7.31	18.9	4,430	84	Cloudy, Bailed down
MW-10	11/01/97	6.9	7.14	19.7	3,600	3.40	Clear
	01/27/98	5.9	7.20	19.6	3,570	0.31	Clear
	05/26/98	7.2	7.16	22.7	3,900	2.60	Clear
	08/13/98	6.1/6.0	7.12	20.1	3,840	0.92	Clear
	12/22/98	5.9	7.18	14.7	4,190	3.18	Clear
	03/23/99	6.1/6.0	7.09	18.9	3,900	2.38	Clear
	09/07/99	6.2/6.0	7.05	20.1	3,400	--	Clear
	03/27/00	5.8/5.5	7.17	19.4	3,860	--	Clear
	03/27/01	5.5/5.2	7.13	18.9	3,830	--	Clear
	07/03/02	4.7	6.88	20.4	3,760	--	Clear
	08/01/03	6.7	7.10	23.5	3,860	--	Clear
MW-11	11/01/97	7.1	7.21	19.5	3,640	4.40	Clear
	01/27/98	6.7	7.25	17.8	3,610	2.71	Clear
	05/26/98	7.9	7.24	21.6	3,950	30.01	Clear
	08/13/98	7.9	7.26	20.3	3,890	5.52	Clear
	12/22/98	5.4	7.25	15.6	3,610	10.19	Clear
	03/24/99	--/7.0	7.25	20.1	3,030	8.68	Clear
	09/07/99	6.7	7.27	19.5	3,200	--	Clear
	03/27/00	6.4	7.29	19.0	3,500	--	Clear
	03/27/01	5.8/5.4	7.22	19.1	3,780	--	Clear
	07/03/02	3.6	6.92	20.6	3,780	--	Clear
	08/01/03	7.4	7.21	22.4	3,870	--	Clear
MW-12	11/04/97	3.4	7.29	20.1	3,790	1.77	Clear, Odor
	01/30/98	1.2	7.16	18.7	3,540	--	Clear, Odor
	05/28/98	2.4	7.19	20.8	3,850	2.83	Clear
	08/15/98	2.5	7.19	20.6	3,900	3.87	Clear, Odor
	12/28/98	0.7	7.24	17.8	3,820	2.83	Clear
	03/26/99	1.7/1.2	7.11	18.2	3,930	1.55	Clear, Odor
	09/07/99	0.7	7.45	20.6	3,960	--	Clear
	03/29/00	2.2/1.8	7.18	19.5	3,920	2.34	Clear, Odor
	11/18/00	--	7.26	19.0	3,470	--	Clear
	03/29/01	1.7	7.18	20.1	3,920	2.62	Clear, Slight odor
	10/08/01	2.4	7.22	19.3	4,190	--	Clear
	07/01/02	2.1	6.98	20.4	3,770	--	Clear
	02/03/03	1.1	7.34	18.1	3,840	--	Clear
	08/02/03	0.8	7.22	22.5	3,890	--	Clear
MW-13	11/04/97	1.1	7.10	19.8	3,840	1.76	Clear, Odor
	01/30/98	0.2	6.99	18.7	3,780	--	Clear, Odor

Table 2. Summary of Field Measured Parameters
Compressor Station No. 9 - Roswell, NM

Well ID	Date	Dissolved Oxygen (mg/L) Meter/Hach	pH	Temperature °C	Electrical Conductivity (µs/cm)	Turbidity (NTU/FTU)	Remarks
	05/28/98	2.4	6.98	21.8	4,070	10.24	Clear, Sewage Odor
	08/15/98	1.1/0	6.92	20.8	4,140	6.89	Clear, Sewage Odor
	12/27/98	0.9	6.98	19.2	3,940	10.47	Clear, Odor
	03/26/99	0.6/0.4	--	18.8	3,980	7.96	Clear, Odor, turns black in air
	09/08/99	1.5/2.0	6.90	20.1	4,020	--	Clear, Odor
	03/29/00	1.8/0	6.89	19.5	4,130	11.28	Clear, Odor
	11/18/00	--/0.6	6.81	18.9	3,730	--	Strong sulfur smell
	03/29/01	0.9	6.89	20.1	4,120	7.99	Clear, Odor
	10/09/01	1.6	6.81	20.4	4,390	--	Clear with odor
	07/01/02	2.0	6.72	21.4	3,540	--	Clear turns black, sulfer odor
	02/04/03	0.6	7.02	18.3	4,250	--	Clear with sulfur smell
	08/02/03	0.5	6.99	23.5	4,060	--	Clear
MW-14	11/02/97	2.1	7.16	18.5	3,620	1.09	Clear
	01/29/98	3.2	7.20	17.9	3,600	2.32	Clear
	05/27/98	5.0	7.18	24.8	3,890	2.11	Clear
	08/11/98	5.0	7.17	25.1	3,880	4.76	Clear
	12/23/98	2.4	7.15	18.4	3,890	2.10	Clear
	03/25/99	3.7	7.13	18.7	3,900	1.17	Clear
	09/07/99	5.8	7.09	21.0	3,930	--	Clear
	03/28/00	2.7	7.20	19.2	3,850	--	Clear
	03/28/01	2.1	7.17	19.6	3,850	--	Clear
	07/03/02	2.9	6.90	19.7	3,750	--	Clear
	08/01/03	1.8	7.19	22.5	3,860	--	Clear
MW-15	11/02/97	3.6	7.32	20.1	3,970	1.54	Clear
	01/28/98	3.6	7.41	17.7	3,930	2.36	Clear
	01/27/98	4.1	7.28	22.1	4,330	1.82	Clear
	08/13/98	4.4	7.24	20.7	4,270	1.57	Clear
	12/24/98	5.4	7.24	15.5	4,160	1.49	Clear
	03/24/99	--/6.0	7.16	19.9	4,310	1.71	Clear
	09/07/99	6.2	7.20	20.6	3,900	--	Clear
	03/28/00	5.0/4.6	7.25	19.2	4,240	--	Clear
	03/28/01	4.2	7.23	19.5	4,280	--	Clear
	07/03/02	6.4	7.00	19.7	4,170	--	Clear
	08/01/03	5.4	7.27	22.4	4,290	--	Clear
MW-17	11/02/97	5.8	7.26	18.5	3,910	1.20	Clear
	01/28/98	4.9	7.01	18.2	3,880	2.71	Clear
	05/27/98	6.3	7.25	21.9	4,250	1.95	Clear
	08/13/98	6.7	7.28	20.1	4,210	1.65	Clear
	12/24/98	4.5	7.25	17.7	4,220	3.30	Clear
	03/25/99	5.6	7.21	18.6	4,260	1.32	Clear w/ flec's, Sewage Odor
	09/07/99	7.5/7.0	7.26	20.4	4,000	--	Clear
	03/28/00	5.7/4.8	7.26	19.3	4,190	--	Clear
	03/27/01	5.4	7.28	19.3	4,210	--	Clear

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	07/03/02	5.9	7.03	19.6	4,110	--	Clear
	08/01/03	6.4	7.28	22.2	4,230	--	Clear
MW-18	11/01/97	7.6	7.41	18.6	3,850	0.73	Clear
	01/28/98	7.6	7.36	17.6	3,810	0.63	Clear
	05/27/98	8.2	7.55	21.1	4,170	2.81	Clear
	08/13/98	8.3/8.0	7.55	21.8	4,130	1.08	Clear
	12/24/98	6.0	7.44	14.5	4,030	0.72	Clear
	03/24/99	--/8.0	7.45	19.8	4,180	1.47	Clear, Bailed down
MW-19	11/01/97	8.0	7.33	19.1	4,080	0.85	Clear
	01/27/98	6.2	7.31	18.2	4,030	4.03	Clear
	05/27/98	7.2	7.20	19.4	4,400	3.06	Clear
	08/13/98	8.0	7.28	20.8	4,370	2.25	Clear
	12/23/98	6.8	7.41	16.2	4,390	6.97	Clear
	03/24/99	--/7.2	7.23	18.7	4,380	9.08	Clear
MW-20	11/03/97	1.4	6.90	18.6	3,750	12.6	Clear
	11/03/97	1.0	6.86	18.2	3,710	--	Clear
	05/29/98	3.9	6.81	20.8	4,000	4.11	Clear, Slightly cloudy at end
	08/15/98	2.6	6.86	20.5	4,060	13.57	Clear
	12/28/98	2.2/1.8	6.88	18.5	4,060	9.30	Clear
	03/26/99	1.5	6.78	18.1	4,130	3.23	Clear
	09/08/99	1.5	6.79	19.2	4,040	--	Clear
	03/29/00	1.8	6.82	19.0	4,070	1.89	Clear
	11/15/00	1.8	6.76	18.5	3,680	--	Clear
	03/29/01	1.9	6.82	19.6	4,070	1.99	Clear
	10/08/01	2.3	6.71	19.0	4,280	--	Clear
	07/01/02	3.0	6.66	19.8	3,880	--	Clear
	02/03/03	1.5	6.88	17.8	3,930	--	Clear
	08/03/03	1.4	6.87	21.9	3,980	--	Clear
MW-21	11/04/97	3.4	7.29	20.1	3,790	1.77	Clear, Odor
	01/30/98	1.4	7.20	17.6	3,690	2.78	Clear, Odor
	05/28/98	2.7	7.21	20.6	3,990	3.57	Clear, Odor
	08/15/98	2.7/2.2	7.16	20.8	4,000	2.32	Clear w/ dark flec's, Odor
	12/28/98	0.8	7.25	18.0	3,990	4.39	Clear, Odor, turns black in air
	03/26/99	0.6	7.17	18.4	0	3.81	Clear, Odor, turns black in air
	09/07/99	0.0	7.29	20.5	3,890	--	Clear, Odor, turns black in air
	03/29/00	0.8/0.6	7.30	19.3	3,970	4.38	Clear, Odor, turns black in air
	11/18/00	--/0.3	7.43	19.0	3,570	--	Clear, strong sulfur smell
	03/29/01	0.9/0.0	7.31	19.6	3,960	2.09	Clear, Odor, turns black in air
	10/08/01	1.4	7.31	19.6	4,230	--	Strong odor
	07/01/02	2.0	6.80	20.1	3,820	--	Gray/black, slight odor
	02/03/03	0.8	7.42	18.3	3,910	--	Clear, sulfur smell
	08/02/03	0.9	7.28	22.4	3,960	--	Clear
MW-22	11/03/97	7.0	7.22	18.5	3,700	260.0	Cloudy

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	01/29/98	6.5	7.22	18.2	3,660	10.35	Clear
	05/28/98	8.6	7.18	22.8	3,940	48.03	Clear
	08/14/98	8.6	7.20	20.5	3,970	168.0	Cloudy
	12/27/98	8.0	7.25	19.9	3,940	12.00	Clear
	03/25/99	7.0	7.19	17.4	3,980	1.19	Clear
	09/08/99	7.6	7.20	19.4	3,900	--	Clear
	03/28/00	8.4	7.26	18.9	3,930	5.36	Clear
	11/15/00	6.5	7.20	16.7	1,343	--	Clear
	03/29/01	7.6	7.21	19.8	3,930	4.55	Clear
	10/08/01	8.1	7.28	19.5	4,190	--	Clear
	07/01/02	7.2	6.91	20.2	3,740	--	Clear
	02/03/03	6.1	7.55	17.6	3,910	--	Clear
	08/02/03	7.9	7.27	22.1	3,880	--	Cloudy
MW-23D	11/05/97	2.8	7.55	18.1	2,550	87.5	Slightly to Mod. Milky, Sulfur Smell
	01/28/98	4.8	8.06	18.6	3,820	>200	Silty
	05/27/98	7.1	7.61	23.2	4,150	--	Turbid
	08/11/98	4.2	7.22	19.9	4,130	17.81	Clear
	12/23/98	4.6	7.50	16.6	4,210	43.94	Clear
	04/05/99	5.6	7.18	18.8	4,160	--	Clear
	05/02/00	4.3	7.41	19.5	3,920	--	Silty
	04/19/01	3.2	7.67	20.2	3,780	--	Slightly silty
	06/20/01	5.5	7.36	19.3	3,550	--	Slightly w/Sulfur Smell
	06/12/02	--	--	--	--	--	--
	08/02/03	4.2	7.71	21.4	3,140	--	Clear
MW-24D	10/29/98	5.44	7.43	18.5	2,930	--	Silty
	12/23/98	4.2	7.49	16.7	3,840	>1000	Turbid, Bailed down
	03/30/99	4.6	6.98	18.4	3,750	--	Turbid, Bailed down
	05/02/00	4.2	7.28	19.9	3,610	--	Very Silty
	04/19/01	5.8	7.29	19.6	3,610	--	Silty
	06/20/01	6.2	7.35	21.2	3,130	--	Silty
	06/12/02	--	--	--	--	--	--
	08/02/03	5.9	7.21	20.7	2,950	--	Slightly Silty
MW-25D	10/29/98	4.87	7.80	18.6	3,370	--	Silty
	12/23/98	4.6	7.67	16.9	3,820	77	Clear, Bailed down
	03/30/99	4.1	7.36	18.1	3,790	--	Turbid, Bailed down
	05/02/00	4.5	7.52	19.2	3,510	--	Turbid, Bailed down
	04/19/01	3.7	7.50	19.1	3,600	--	Silty
	06/20/01	6.3	7.59	21.4	3,280	--	Very Silty
	06/12/02	--	--	--	--	--	--
	08/02/03	3.7	7.48	20.8	2,900	--	Silty
MW-26	10/29/98	4.61	7.20	18.8	3,620	--	Clear
	12/27/98	4.9	7.13	19.4	4,130	83	Cloudy/Turbid
	03/25/99	4.8	7.09	18.4	4,170	35.38	Clear initial/cloudy last

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	07/25/99	3.3	7.17	20.3	4,220	--	Clear, no odor
	09/07/99	8.4/7.0	7.11	19.7	4,170	--	Clear
	03/28/00	6.1/6.2	7.13	18.7	4,090	46.91	Clear
	11/15/00	6.8/7.0	7.11	18.4	3,730	--	Clear
	03/28/01	5.1/5.0	7.09	19.0	4,110	16.43	Clear
	10/08/01	5.5	7.06	19.2	4,340	--	Clear
	07/01/02	5.0	6.79	19.3	3,910	--	Clear
	02/03/03	4.1	7.10	17.5	4,030	--	Clear
	08/03/03	3.4	7.08	21.4	3,950	--	Clear
MW-28	11/18/00	--	7.28	17.0	3,510	--	Silty
	02/13/01	4.7	7.30	17.4	3,480	--	Silty
	03/28/01	5.3	7.20	19.5	3,880	31.55	Clear
	06/20/01	4.8	7.11	20.0	3,300	--	Slightly silty to clear
	10/09/01	5.0	7.12	19.7	4,120	--	Clear
	07/03/02	3.7	6.92	20.6	3,750	--	Clear
	08/02/03	5.1	7.19	22.2	3,840	--	Clear
MW-29	11/19/00	--	7.60	17.9	2,320	--	Brown silty
	02/13/01	3.0	7.06	17.0	2,300	--	Silty
	03/28/01	2.7	7.17	19.5	2,610	8.51	Clear, bailing down
	06/20/01	1.8	7.03	21.4	2.25	--	Clear
	10/09/01	2.6	7.07	20.1	2,700	--	Clear
	07/03/02	2.2	6.66	23.8	2,390	--	Clear
	02/03/03	2.1	7.49	18.4	2,580	--	Clear, sulfur smell
	08/03/03	0.4	7.15	21.6	2,640	--	Turbid
MW-30	11/18/00	--	7.54	18.6	3,350	--	Silty
	02/13/01	4.8	7.27	17.3	3,480	--	Slightly silty
	03/28/01	4.8	7.18	19.6	3,880	36.52	Slightly cloudy
	06/20/01	4.7	7.06	20.4	3,300	--	Clear
	10/09/01	5.5	7.23	19.7	4,130	--	Clear
	07/04/02	3.5	7.04	19.2	3,800	--	Clear
	08/02/03	5.0	7.20	22.9	3,850	--	Clear
MW-31	10/04/01	7.5	7.49	18.5	4,260	--	Red/Silty
	02/26/02	6.3	7.31	19.6	4,340	--	Clear
	07/04/02	5.1	7.08	19.5	4,070	--	Clear
	08/02/03	6.3	7.34	22.7	4,150	--	Clear
MW-32	10/04/01	3.8	7.41	19.0	3,800	--	Silght odor
	02/26/02	1.2	7.21	20.5	3,770	--	Cloudy
	07/04/02	1.3	7.06	19.3	3,500	--	Cloudy
	02/03/03	0.8	7.56	18.3	3,590	--	Cloudy
	08/02/03	1.0	7.23	22.5	3,520	--	Cloudy
MW-33	10/04/01	7.6	7.56	19.0	4,360	--	Red/Silty
	02/26/02	5.4	7.31	19.2	4,280	--	Clear
	07/04/02	4.4	7.11	19.9	4,040	--	Clear

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	08/02/03	5.6	7.31	22.4	4,130	--	Clear
MW-34	01/21/03	2.3	7.42	19.5	3,380	--	Slightly silty
	02/04/03	2.2	7.54	17.9	3,910	--	Turbid
	08/03/03	1.5	7.26	21.7	3,980	--	Turbid
MW-35	01/21/03	3.5	7.33	19.8	3,480	--	Silty
	02/03/03	5.4	7.72	18.3	3,770	--	Turbid
	08/03/03	6.1	7.29	21.7	4,120	--	Turbid
MPE-1	08/02/03	3.8	7.33	21.4	3,100	--	Turbid
MPE-2	08/02/03	3.2	7.29	21.0	2,940	--	Turbid
MPE-11	08/02/03	1.5	7.39	20.8	2,040	--	Black w/ Sulfur odor
MPE-15	08/03/03	3.0	7.17	22.6	2,020	--	Black w/ Odor

Table 3. Summary of Groundwater Analyses - Organics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	BTEX (ug/L)				Other VOCs (ug/L)						SVOC's (ug/L)	
		Benzene	Toluene	Ethylbenzene	Xylenes (total)	Methyl ethyl ketone (2-butanone)	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	1,1,1-Trichloroethane	1,2,4-Trimethylbenzene	Total Naphthalene [b]	4-Methylphenol (p-Cresol)
	NMWQCC Standard:	10	750	750	620	none	25	10	5	60	none	30	none
MW-3	04/30/93	< 5	< 5	< 5	NA	NA	< 5	< 5	< 5	< 5	NA	NA	NA
	08/22/95	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	09/10/96	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	07/30/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	11/03/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/27/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/26/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/13/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/24/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/24/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	09/07/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/27/00	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/27/01	< 1	< 5	< 5	< 5	< 10	< 5	< 5	< 1	< 5	NA	NA	NA
	07/03/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA
	08/01/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-5	04/30/93	< 5	< 5	< 5	NA	NA	< 5	< 5	< 5	< 5	NA	NA	NA
	08/22/95	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	09/10/96	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	07/25/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	10/31/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/27/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/26/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/11/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/22/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/23/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
MW-6	12/02/94	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.2	< 5	< 5	< 0.2	NA	NA	NA
	08/22/95	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	09/10/96	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	07/25/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	10/31/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/26/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/26/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/11/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/22/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/23/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
MW-7	08/23/95	< 5	< 5	< 5	< 5	900	< 5	< 5	< 5	< 5	NA	< 10	< 10

Table 3. Summary of Groundwater Analyses - Organics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	BTEX (ug/L)				Other VOCs (ug/L)						SVOC's (ug/L)	
		Benzene	Toluene	Ethylbenzene	Xylenes (total)	Methyl ethyl ketone (2-butanone)	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	1,1,1-Trichloroethane	1,2,4-Trimethylbenzene	Total Naphthalene [b]	4-Methylphenol (p-Cresol)
	NMWQCC Standard:	10	750	750	620	none	25	10	5	60	none	30	none
	09/17/96	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	07/31/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	11/03/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/29/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/28/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/14/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/27/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/25/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	09/07/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/28/00	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	11/18/00	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	NA	NA
(Dup MW-31)	11/18/00	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	NA	NA
	03/28/01	< 1	< 5	< 5	< 5	< 10	< 5	< 5	< 1	< 5	NA	NA	NA
	10/08/01	< 1	< 1	< 1	< 3	< 10	< 1	< 1	< 1	< 1	< 1	NA	NA
	07/01/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA
	08/02/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-8	08/22/95	6	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	09/11/96	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	08/01/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	11/02/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/29/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/28/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/14/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/27/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/25/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
MW-9	08/23/95	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	09/11/96	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	07/31/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	11/02/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/29/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/28/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/14/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/27/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/24/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
MW-10	09/19/96	2	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	07/31/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10

Table 3. Summary of Groundwater Analyses - Organics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	BTEX (ug/L)				Other VOCs (ug/L)						SVOC's (ug/L)	
		Benzene	Toluene	Ethylbenzene	Xylenes (total)	Methyl ethyl ketone (2-butanone)	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	1,1,1-Trichloroethane	1,2,4-Trimethylbenzene	Total Naphthalene [b]	4-Methylphenol (p-Cresol)
	NMWQCC Standard:	10	750	750	620	none	25	10	5	60	none	30	none
	11/01/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/27/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/26/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/13/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/22/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/23/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	09/07/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/27/00	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/27/01	< 1	< 5	< 5	< 5	< 10	< 5	< 5	< 1	< 5	NA	NA	NA
	07/03/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA
	08/01/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-11	09/19/96	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	07/30/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	11/01/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/27/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/26/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/13/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/22/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/24/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	09/07/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/27/00	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/27/01	< 1	< 5	< 5	< 5	< 10	< 5	< 5	< 1	< 5	NA	NA	NA
	07/03/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	1.1	< 1.0	< 1.0	NA	NA
	08/01/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-12	09/17/96	760	< 5	< 5	52	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	08/06/97	280	< 5	< 5	< 5	< 10	< 5	9	< 5	< 5	NA	< 10	< 10
	11/04/97	340	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
(Dup MW-24)	11/04/97	260	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/30/98	310	< 5	< 5	26	< 20	< 5	< 5	< 5	< 5	10	< 5	NA
	05/28/98	310	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	9	< 5	NA
	08/15/98	190	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	8	< 5	NA
(Dup MW-28)	08/15/98	200	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	9	< 5	NA
	12/28/98	120	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	4	2.8	NA
	03/26/99	92	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	3	2.2	NA
(Dup MW-28)	03/26/99	95	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	2	2.2	NA
	09/07/99	38	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/29/00	92	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA

Table 3. Summary of Groundwater Analyses - Organics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	BTEX (ug/L)				Other VOCs (ug/L)						SVOC's (ug/L)	
		Benzene	Toluene	Ethylbenzene	Xylenes (total)	Methyl ethyl ketone (2-butanone)	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	1,1,1-Trichloroethane	1,2,4-Trimethylbenzene	Total Naphthalene [b]	4-Methylphenol (p-Cresol)
	NMWQCC Standard:	10	750	750	620	none	25	10	5	60	none	30	none
	11/18/00	80.2	< 1.00	< 1.00	< 1.00	< 10.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	NA	NA
	03/29/01	59.4	< 5	< 5	< 5	< 10	< 5	< 5	< 1	< 5	< 5	NA	NA
	10/08/01	112	< 1	< 1	1.68	< 10	< 1	< 1	< 1	< 1	< 1	NA	NA
	07/01/02	51	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA
	02/03/03	30	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
	08/02/03	24	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-13	09/19/96	4,600	9	< 5	170	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	08/09/97	2,400	< 5	100	< 5	< 100	< 5	41	< 5	< 5	NA	< 10	< 10
	11/04/97	590	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/29/98	61	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/28/98	140	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/15/98	30	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/27/98	58	1	< 1	4	< 20	< 1	< 1	< 1	< 1	< 1	1.3	NA
	03/26/99	44	< 1	< 1	6	< 20	< 1	< 1	< 1	< 1	< 1	0.8	NA
	09/08/99	160	2	< 1	4	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/29/00	84	4.0	< 1	4.0	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	11/18/00	139	< 1.00	< 1.00	2.34	< 10.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	NA	NA
	03/29/01	212	< 5	< 5	< 5	< 10	< 5	< 5	< 1	< 5	NA	NA	NA
	10/09/01	317	< 1	< 1	7.81	< 10	< 1	< 1	< 1	< 1	1.41	NA	NA
	07/01/02	590	< 10	< 10	31	NA	< 10	< 10	< 10	< 10	< 10	NA	NA
	02/04/03	560	< 10	< 10	19	NA	NA	NA	NA	NA	NA	NA	NA
	08/02/03	1.1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA
MW-14	09/24/96	2 [a]	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	08/01/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	11/02/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/29/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/27/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/11/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/23/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/25/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	09/07/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/28/00	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/28/01	< 1	< 5	< 5	< 5	< 10	< 5	< 5	< 1	< 5	NA	NA	NA
	07/03/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA
	08/01/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-15	09/25/96	4 [a]	6	< 5	6	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10

Table 3. Summary of Groundwater Analyses - Organics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	BTEX (ug/L)				Other VOCs (ug/L)						SVOC's (ug/L)	
		Benzene	Toluene	Ethylbenzene	Xylenes (total)	Methyl ethyl ketone (2-butanone)	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	1,1,1-Trichloroethane	1,2,4-Trimethylbenzene	Total Naphthalene [b]	4-Methylphenol (p-Cresol)
	NMWQCC Standard:	10	750	750	620	none	25	10	5	60	none	30	none
	08/08/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	11/02/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/28/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/27/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/13/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/24/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/24/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	09/07/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/28/00	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/28/01	< 1	< 5	< 5	< 5	< 10	< 5	< 5	< 1	< 5	NA	NA	NA
	07/03/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA
	08/01/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-17	09/24/96	2 [a]	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	07/31/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	11/02/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/28/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/27/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/13/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/24/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/25/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	09/07/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/28/00	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	NA	NA
	03/27/01	< 1	< 5	< 5	< 5	< 10	< 5	< 5	< 1	< 5	NA	NA	NA
	07/03/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA
	08/01/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-18	08/09/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	11/01/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/28/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/27/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/13/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/24/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/24/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
MW-19	09/27/96	2	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	08/08/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	11/01/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/27/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/27/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA

Table 3. Summary of Groundwater Analyses - Organics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	BTEX (ug/L)				Other VOCs (ug/L)						SVOC's (ug/L)	
		Benzene	Toluene	Ethylbenzene	Xylenes (total)	Methyl ethyl ketone (2-butanone)	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	1,1,1-Trichloroethane	1,2,4-Trimethylbenzene	Total Naphthalene [b]	4-Methylphenol (p-Cresol)
	NMWQCC Standard:	10	750	750	620	none	25	10	5	60	none	30	none
	08/13/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/23/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/24/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
MW-20	08/07/97	12	< 5	< 5	< 5	< 100	8	< 5	39	22	NA	< 10	< 10
	11/03/97	< 5	< 5	< 5	< 5	< 100	10	< 5	86	28	NA	< 10	NA
	01/29/98	< 5	< 5	< 5	< 5	< 20	12	< 5	72	< 5	< 5	< 5	NA
	05/29/98	< 5	< 5	< 5	< 5	< 20	15	< 5	120	< 5	< 5	< 5	NA
(Dup MW-24)	05/29/98	< 5	< 5	< 5	< 5	< 20	14	< 5	140	29	< 5	< 5	NA
	08/15/98	< 5	< 5	< 5	< 5	< 20	14	< 5	100	28	< 5	< 5	NA
	12/28/98	< 1	< 1	< 1	< 1	< 20	15	< 1	83	27	< 1	< 1	NA
(Dup MW-28)	12/28/98	< 1	< 1	< 1	< 1	< 20	15	< 1	83	27	< 1	< 1	NA
	03/26/99	< 1	< 1	< 1	< 1	< 20	15	< 1	84	27	< 1	< 1	NA
	09/08/99	< 1	< 1	< 1	< 1	< 20	16	< 1	100	26	< 1	NA	NA
(Dup MW-28)	09/08/99	< 1	< 1	< 1	< 1	< 20	17	< 1	110	26	< 1	NA	NA
	03/29/00	< 1	< 1	< 1	< 1	< 20	19	< 1	110	24	< 1	NA	NA
(Dup MW-31)	03/29/00	< 1	< 1	< 1	< 1	< 20	18	< 1	110	22	< 1	NA	NA
	11/15/00	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00	17.5	< 1.00	94.5	18.7	< 1.00	NA	NA
	03/29/01	< 1	< 5	< 5	< 5	< 10	26.6	< 5	128	19.1	NA	NA	NA
(Dup MW-31)	03/28/01	< 1	< 5	< 5	< 5	< 10	22.1	< 5	130	22	NA	NA	NA
	10/08/01	< 1	< 1	< 1	< 3	< 10	26.6	< 1	204	20.8	< 1	NA	NA
	07/01/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	25	< 1.0	110	12	< 1.0	NA	NA
	02/03/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	24	< 1.0	160	11	< 1.0	NA	NA
	08/03/03	1.4	< 1.0	< 1.0	< 1.0	< 10	26	< 1.0	120	8.8	< 1.0	NA	NA
(Dup MW-39)	08/03/03	1.3	< 1.0	< 1.0	< 1.0	< 10	28	< 1.0	130	9.3	< 1.0	NA	NA
MW-21	08/07/97	370	< 5	< 5	< 5	< 100	< 5	11	< 5	< 5	NA	< 10	< 10
	11/04/97	170	< 5	< 5	15	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/30/98	700	< 5	< 5	26	< 20	< 5	< 5	< 5	< 5	NA	< 5	NA
(Dup MW-24)	01/30/98	700	< 5	< 5	24	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/28/98	790	< 5	< 5	34	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/15/98	1,000	< 5	< 5	68	< 20	< 5	< 5	< 5	< 5	7	< 5	NA
	12/28/98	1,400	1	< 1	61	< 20	< 1	< 1	< 1	< 1	9	8.8	NA
	03/26/99	1,400	< 1	< 1	28	< 20	< 1	< 1	< 1	< 1	5	7.1	NA
	09/07/99	1,500	< 1	4	25	< 20	< 1	< 1	< 1	< 1	4	NA	NA
	03/29/00	1,700	< 1	8.0	12	< 20	< 1	< 1	< 1	< 1	4.0	NA	NA
	11/18/00	1,430	< 5.00	12.7	< 10.0	< 50.0	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	NA	NA
	03/29/01	2,600	< 10	16.9	< 10	< 20	< 10	< 10	< 2	< 10	< 10	NA	NA
	10/08/01	2,210	< 1	19	2.6	< 10	< 1	< 1	< 1	< 1	1.38	NA	NA

Table 3. Summary of Groundwater Analyses - Organics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	BTEX (ug/L)				Other VOCs (ug/L)						SVOC's (ug/L)	
		Benzene	Toluene	Ethylbenzene	Xylenes (total)	Methyl ethyl ketone (2-butanone)	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	1,1,1-Trichloroethane	1,2,4-Trimethylbenzene	Total Naphthalene [b]	4-Methylphenol (p-Cresol)
NMWQCC Standard:		10	750	750	620	none	25	10	5	60	none	30	none
(Dup MW-34)	10/08/01	2,060	< 1	18.6	2.64	< 10	< 1	< 1	< 1	< 1	1.38	NA	NA
	07/01/02	1,800	< 1.0	21	1.4	NA	< 1.0	< 1.0	< 1.0	< 1.0	1.6	NA	NA
	02/03/03	1,400	< 10	40	< 10	NA	NA	NA	NA	NA	NA	NA	NA
(Dup MW-36)	02/03/03	1,600	< 10	37	< 10	NA	NA	NA	NA	NA	NA	NA	NA
	08/02/03	370	< 1	< 1	2.2	NA	NA	NA	NA	NA	NA	NA	NA
MW-22	08/07/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	11/03/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/29/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/28/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/14/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/27/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	4	1	< 1	< 1	NA
	03/25/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	4	1	< 1	< 1	NA
	09/08/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	5	2	< 1	NA	NA
	03/28/00	< 1	< 1	< 1	< 1	< 20	< 1	< 1	6.0	2.0	< 1	NA	NA
	11/15/00	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00	< 1.00	< 1.00	4.29	1.08	< 1.00	NA	NA
	03/29/01	< 1	< 5	< 5	< 5	< 10	< 5	< 5	7.62	< 5	NA	NA	NA
	10/08/01	< 1	< 1	< 1	< 3	< 10	< 1	< 1	10.3	1.33	< 1	NA	NA
	07/01/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	6.8	1.5	< 1.0	NA	NA
	02/03/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	4.6	< 1.0	< 1.0	NA	NA
	08/02/03	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 1.0	< 1.0	4.1	< 1.0	< 1.0	NA	NA
MW-23D	08/06/97	< 1	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	< 10
	11/05/97	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 5	< 5	NA	< 10	NA
	01/28/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	05/27/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	08/11/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	NA
	12/23/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	04/05/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	05/02/00	< 1	< 1	< 1	< 1	< 10	< 1	< 1	< 1	< 1	< 1	NA	NA
	04/19/01	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA
	06/20/01	< 1	< 5	< 5	< 10	< 10	< 5	< 5	< 1	< 5	< 5	NA	NA
	06/12/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA
	08/02/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-24D	10/29/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	NA	< 5	NA
	12/23/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/30/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
(NMOCD)	03/30/99	< 1	< 1	< 1	< 1	< 10	< 1	< 1	< 1	< 1	< 1	< 1	NA

Table 3. Summary of Groundwater Analyses - Organics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	BTEX (ug/L)				Other VOCs (ug/L)						SVOC's (ug/L)	
		Benzene	Toluene	Ethylbenzene	Xylenes (total)	Methyl ethyl ketone (2-butanone)	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	1,1,1-Trichloroethane	1,2,4-Trimethylbenzene	Total Naphthalene [b]	4-Methylphenol (p-Cresol)
	NMWQCC Standard:	10	750	750	620	none	25	10	5	60	none	30	none
	05/02/00	< 1	< 1	< 1	< 1	< 10	< 1	< 1	< 1	< 1	< 1	NA	NA
	04/19/01	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA
	06/20/01	< 1	< 5	< 5	< 10	< 10	< 5	< 5	< 1	< 5	< 5	NA	NA
	06/12/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA
	08/02/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-25D	10/29/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	NA	< 5	NA
	12/23/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/30/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
(NMOCD)	03/30/99	< 1	< 1	< 1	< 1	< 10	< 1	< 1	< 1	< 1	< 1	< 1	NA
	05/02/00	< 1	< 1	< 1	< 1	< 10	< 1	< 1	< 1	< 1	< 1	NA	NA
	04/19/01	< 1	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA
	06/20/01	< 1	< 5	< 5	< 10	< 10	< 5	< 5	< 1	< 5	< 5	NA	NA
	06/12/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA
	08/02/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-26	10/29/98	< 5	< 5	< 5	< 5	< 20	< 5	< 5	< 5	< 5	NA	< 5	NA
	12/27/98	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
	03/25/99	< 1	< 1	< 1	< 1	< 20	< 1	< 1	< 1	< 1	< 1	< 1	NA
(NMOCD)	03/30/99	< 1	< 1	< 1	< 1	< 10	< 1	< 1	< 1	< 1	< 1	< 1	NA
	07/25/99	< 1	< 1	< 1	< 1	< 10	< 1	< 1	1	< 1	< 1	< 1	NA
	09/07/99	< 1	< 1	< 1	< 1	< 10	< 1	< 1	1	< 1	< 1	NA	NA
	03/28/00	< 1	< 1	< 1	< 1	< 10	< 1	< 1	3.0	< 1	< 1	NA	NA
	11/15/00	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00	< 1.00	< 1.00	3.14	< 1.00	< 1.00	NA	NA
	03/28/01	< 1	< 5	< 5	< 5	< 10	< 5	< 5	6.75	< 5	NA	NA	NA
	10/08/01	< 1	< 1	< 1	< 3	< 10	< 1	< 1	9.61	< 1	< 1	NA	NA
	07/01/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	1.7	< 1.0	9.1	1.6	< 1.0	NA	NA
	02/03/03	1.9	< 1.0	< 1.0	< 1.0	NA	1.1	< 1.0	11	1.2	< 1.0	NA	NA
	08/03/03	49	< 1.0	< 1.0	< 1.0	< 10	3.2	< 1.0	14	1.1	< 1.0	NA	NA
MW-28	11/18/00	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 5.00	NA
	02/13/01	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 0.100	NA
	03/28/01	< 1	< 5	< 5	< 5	< 10	< 5	< 5	< 1	< 5	NA	< 0.05	NA
	06/20/01	< 1	< 5	< 5	< 10	< 10	< 5	< 5	< 1	< 5	< 5	0.124	NA
	10/09/01	< 1	< 1	< 1	< 3	< 10	< 1	< 1	< 1	< 1	< 1	0.15	NA
	07/03/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10
	08/02/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-29	11/19/00	590	< 5.00	57.8	23.2	< 10.00	< 1.00	< 1.00	< 1.00	< 1.00	18.7	< 0.100	NA

Table 3. Summary of Groundwater Analyses - Organics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	BTEX (ug/L)				Other VOCs (ug/L)						SVOC's (ug/L)	
		Benzene	Toluene	Ethylbenzene	Xylenes (total)	Methyl ethyl ketone (2-butanone)	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	1,1,1-Trichloroethane	1,2,4-Trimethylbenzene	Total Naphthalene [b]	4-Methylphenol (p-Cresol)
	NMWQCC Standard:	10	750	750	620	none	25	10	5	60	none	30	none
	02/13/01	**734**	< 5.00	**77.9**	**32.0**	< 50.00	< 5.00	< 5.00	< 5.00	< 5.00	**25.0**	6.540	NA
	03/28/01	**1,130**	< 5	**73.5**	**28.2**	< 10	< 5	< 5	< 1	< 5	**24**	6.050	NA
	06/20/01	**556**	< 5	**69.6**	**9.21**	< 10	< 5	< 5	< 1	< 5	**9.69**	1.15	NA
	10/09/01	**413**	< 1	**78.2**	**5.03**	< 10	< 1	< 1	< 1	< 1	**8.03**	**5.3**	NA
	07/03/02	**200**	< 1	**83**	< 1	NA	< 1	< 1	< 1	< 1	**3.8**	< 10	< 10
(Dup MW-34)	07/03/02	**220**	< 1.0	**85**	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	**3.6**	< 10	< 10
	02/03/03	**190**	< 1.0	**38**	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
	08/03/03	**210**	< 1.0	**49**	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-30	11/18/00	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 0.200	NA
	02/13/01	< 1.00	< 1.00	< 1.00	< 1.00	< 10.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 0.100	NA
	03/28/01	< 1	< 5	< 5	< 5	< 10	< 5	< 5	< 1	< 5	NA	< 0.05	NA
	06/20/01	< 1	< 5	< 5	< 10	< 10	< 5	< 5	< 1	< 5	< 5	< 0.05	NA
	10/09/01	< 1	< 1	< 1	< 3	< 10	< 1	< 1	< 1	< 1	< 1	< 0.15	NA
	07/04/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10
	08/02/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-31	10/04/01	< 1	< 1	< 1	< 3	< 10	< 1	< 1	< 1	< 1	< 1	<0.15	NA
	02/26/02	< 1	< 1	< 1	< 2	< 5	< 1	< 1	< 1	< 1	< 1	< 5	< 5
	07/04/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10
	08/02/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-32	10/04/01	**897**	< 1	**44.3**	< 3	< 10	< 1	< 1	< 1	< 1	**8.27**	**2.101**	NA
	02/26/02	**805**	< 5	**59.6**	< 10	< 25	< 5	< 5	< 5	< 5	**31.5**	**28.5**	< 5
	07/04/02	**1,000**	< 1	**50**	< 1	NA	< 1	< 1	< 1	< 1	**24**	< 10	< 10
(Dup MW-35)	07/04/02	**980**	< 1.0	**50**	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	**24**	< 10	< 10
	02/03/03	**600**	< 1.0	**37**	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
	08/02/03	**330**	< 1.0	**19**	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-33	10/04/01	< 1	< 1	< 1	< 3	< 10	< 1	< 1	< 1	< 1	< 1	<0.15	NA
	02/26/02	< 1	< 1	< 1	< 2	< 5	< 1	< 1	< 1	< 1	< 1	< 5	< 5
	07/04/02	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 10
	08/02/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-34	01/21/03	**200**	< 5.0	< 5.0	< 5.0	NA	NA	NA	NA	NA	NA	NA	NA
	02/04/03	**250**	< 1.0	< 1.0	**1.8**	NA	NA	NA	NA	NA	NA	NA	NA
	08/03/03	**60**	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-35	01/21/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Summary of Groundwater Analyses - Organics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	BTEX (ug/L)				Other VOCs (ug/L)						SVOC's (ug/L)	
		Benzene	Toluene	Ethylbenzene	Xylenes (total)	Methyl ethyl ketone (2-butanone)	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	1,1,1-Trichloroethane	1,2,4-Trimethylbenzene	Total Naphthalene [b]	4-Methylphenol (p-Cresol)
	NMWQCC Standard:	10	750	750	620	none	25	10	5	60	none	30	none
	02/03/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
	08/03/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MW-36	11/11/03	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	NA
MW-37	11/11/03	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	NA
MW-38	11/11/03	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	NA
MPE-1	08/02/03	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MPE-2	08/02/03	**270**	< 1.0	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA	NA
MPE-11	08/02/03	**910**	**160**	**44**	**52**	NA	NA	NA	NA	NA	NA	NA	NA
MPE-15	08/03/03	**5.2**	< 1.0	**11**	**83**	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

Only constituents detected in one or more ground water samples are shown in this table

All results reported above the detection limit are shown in bold type

NA - A result for this constituent is not available

[a] Analyte present in method blank

[b] Total Naphthalene = Naphthalene + 1-Methylnapthalene + 2-Methylnapthalene

Table 4. Summary of Groundwater Analyses - Inorganics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	Major Ions (mg/L)									Metals (mg/L)												
		TDS	Chloride	Sulfate	NO_2/NO_3 - N, total	Calcium	Potassium	Magnesium	Sodium	Total alkalinity (as $CaCO_3$)	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Selenium	Silver	Zinc	Aluminum
NMWQCC Standard:		1,000	250	600	10	none	none	none	none	none	0.1	1.0	0.01	0.05	1.0	1.0	0.05	0.20	0.002	0.05	0.05	10	5
MW-3	03/23/94 [c]	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.03	0.02	< 0.01	< 0.01	NA	NA	< 0.03	NA	< 0.0002	< 0.05	< 0.01	NA	NA
	08/22/95 [b]	3,650	405	1,800	0.8	587	3.2	136	215	116	< 0.05	< 0.01	< 0.005	< 0.01	< 0.01	NA	< 0.05	NA	0.0002	< 0.1	< 0.01	0.03	0.24
	09/10/96 [b]	3,530	385	1,800	0.96	635	20	144	229	115	< 0.05	0.02	< 0.005	< 0.01	< 0.01	NA	< 0.003	NA	< 0.0002	< 0.01	< 0.01	< 0.01	NA
	07/30/97 [b]	3,560	409	1,680	1.1	804	< 5	135	410	114	< 0.01	< 0.01	< 0.005	< 0.01	< 0.01	< 0.3	< 0.003	NA	< 0.0002	< 0.01	< 0.01	< 0.01	NA
	11/03/97 [b]	3,450	370	1,840	1.1	790 [d]	3.0	180	290 [d]	110	< 0.03	0.04	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	< 0.01	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/27/98 [c]	2,790	398	1,700	1.1	643	3	138	212	102	< 0.1	0.014	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	< 0.005	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/26/98 [b]	2,700	430	2,100	1.2	NA	NA	NA	NA	108	< 0.005	0.008	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	< 0.005	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	08/13/98 [b]	3,600	443	95	1.1	594	3	121	205	111	0.007	0.010	< 0.005	< 0.01	< 0.01	0.07	< 0.005	< 0.005	< 0.0002	< 0.005	< 0.01	0.04	NA
	12/24/98 [b]	3,390	390	1,900	1.1	563	3.4	121	220	111	< 0.004	0.0133	< 0.002	< 0.005	< 0.002	0.030	< 0.025	< 0.001	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/24/99 [b]	3,430	370	1,800	1.3	566	3.5	127	211	113	< 0.004	0.0120	< 0.002	< 0.005	< 0.002	0.042	< 0.025	< 0.001	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/27/00	3,460	410	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/27/01	4,130	448	1,610	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/03/02	3,200	340	1,800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5	03/23/94 [c]	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.03	0.01	< 0.01	< 0.01	NA	NA	< 0.03	NA	< 0.0002	< 0.05	< 0.01	NA	NA
	08/22/95 [b]	3,440	574	1,800	3.1	623	3.8	145	204	122	< 0.05	< 0.01	< 0.005	< 0.01	< 0.01	NA	< 0.05	NA	< 0.0002	< 0.1	< 0.01	0.01	0.38
	09/10/96 [b]	3,550	578	1,690	2.97	631	19	158	218	114	< 0.05	0.01	< 0.005	< 0.01	< 0.01	NA	< 0.003	NA	< 0.0002	0.02	< 0.01	0.02	NA
	07/25/97 [b]	3,960	622	1,720	3.7	916	< 5	159	270	120	< 0.01	< 0.01	< 0.005	< 0.01	< 0.01	0.26	< 0.003	NA	< 0.0002	0.02	< 0.01	< 0.01	NA
	10/31/97 [b]	3,700	560	1,730	3.6	780 [d]	2.6	200	270 [d]	118	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	< 0.01	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/27/98 [c]	1,180	260	700	1.8	300	< 2	67.9	99.3	78	< 0.1	0.047	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	< 0.005	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/26/98 [b]	2,200	570	1,900	3.5	NA	NA	NA	NA	110	< 0.005	0.012	< 0.005	< 0.01	< 0.01	0.04	< 0.05	< 0.005	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	08/11/98 [b]	3,400	520	1,500	3.7	588	3	144	193	121	< 0.005	0.010	< 0.005	< 0.01	< 0.01	0.06	< 0.005	< 0.005	< 0.0002	0.016	< 0.01	< 0.02	NA
	12/22/98 [b]	3,440	620	1,700	3.8	628	3	147	203	116	< 0.004	0.0148	< 0.002	< 0.005	< 0.002	0.026	< 0.025	< 0.005	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/23/99 [b]	3,490	590	1,600	3.9	607	3.2	150	217	116	< 0.004	0.0142	< 0.002	< 0.005	< 0.002	0.023	< 0.025	< 0.001	< 0.0002	0.013	< 0.003	< 0.01	NA
MW-6	08/22/95 [b]	2,800	344	1,600	1	458	3.9	148	124	110	< 0.05	< 0.01	< 0.005	< 0.01	< 0.01	NA	< 0.05	NA	0.0005	< 0.1	< 0.01	0.03	0.69
	09/10/96 [b]	3,040	333	1,490	0.98	488	19	154	182	99	< 0.05	0.01	< 0.005	< 0.01	< 0.01	NA	0.004	NA	< 0.0002	< 0.01	< 0.01	< 0.01	NA
	07/25/97 [b]	3,420	344	1,650	1	778	5	217	236	112	< 0.01	< 0.01	< 0.005	< 0.01	< 0.01	0.32	< 0.003	NA	< 0.0002	< 0.01	< 0.01	0.01	NA
	10/31/97 [b]	3,090	300	1,620	1.2	550 [d]	3.1	170	170 [d]	106	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	< 0.01	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/26/98 [c]	2,650	335	1,500	1.0	517	4	151	152	96	< 0.1	0.007	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	< 0.005	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/26/98 [b]	2,600	340	1,900	1.1	NA	NA	NA	NA	102	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	0.04	< 0.05	< 0.005	< 0.0002	< 0.1	< 0.01	< 0.02	NA

Table 4. Summary of Groundwater Analyses - Inorganics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	Major Ions (mg/L)									Metals (mg/L)												
		TDS	Chloride	Sulfate	NO_2/NO_3 - N, total	Calcium	Potassium	Magnesium	Sodium	Total alkalinity (as $CaCO_3$)	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Selenium	Silver	Zinc	Aluminum
NMWQCC Standard:		1,000	250	600	10	none	none	none	none	none	0.1	1.0	0.01	0.05	1.0	1.0	0.05	0.20	0.002	0.05	0.05	10	5
	08/11/98 [b]	2,900	305	1,500	1.0	425	3	124	126	98	< 0.005	0.006	< 0.005	< 0.01	< 0.01	0.18	< 0.005	< 0.005	< 0.0002	< 0.005	< 0.01	0.02	NA
	12/22/98 [b]	2,890	300	1,600	1.0	488	3.3	142	144	109	< 0.004	0.0099	< 0.002	< 0.005	< 0.002	0.064	< 0.025	0.0097	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/23/99 [b]	2,960	300	1,600	1.0	476	3.7	146	153	108	< 0.004	0.0106	< 0.002	< 0.005	< 0.002	0.073	< 0.025	< 0.001	< 0.0002	< 0.010	< 0.003	< 0.01	NA
MW-7	08/23/95 [b]	3,640	284	2,000	0.12	668	8.2	235	149	136	< 0.05	0.02	< 0.005	< 0.01	< 0.01	NA	< 0.05	NA	0.0004	< 0.1	< 0.01	0.02	1.39
	09/17/96 [b]	3,760	273	2,140	0.07	648	20	198	145	110	< 0.05	0.02	< 0.005	< 0.01	< 0.01	NA	< 0.003	NA	< 0.0002	< 0.01	< 0.01	0.02	NA
	07/31/97 [b]	3,700	313	1,930	< 0.05	191	< 20	84.3	95	112	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	0.3	< 0.02	NA	< 0.0002	< 0.05	< 0.05	< 0.05	NA
	11/03/97 [b]	3,580	250	1,810	< 0.05	790 [d]	6.4	260	180 [d]	112	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	1.2	< 0.03	1.2	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/29/98 [c]	2,730	288	1,800	< 0.1	630	7	206	140	86	< 0.1	0.014	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	0.120	< 0.0002	< 0.1	< 0.01	0.03	NA
	05/28/98 [b]	3,000	290	2,400	< 0.1	NA	NA	NA	NA	114	< 0.005	0.011	< 0.005	< 0.01	< 0.01	0.44	< 0.05	0.490	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	08/14/98 [b]	3,800	301	2,300	< 0.1	572	8	180	130	108	< 0.005	0.012	< 0.005	< 0.01	< 0.01	0.30	< 0.005	0.428	< 0.0002	< 0.005	< 0.01	0.09	NA
	12/27/98 [b]	3,440	260	2,000	0.01	556	6.65	0.176	141	120	< 0.004	0.0171	< 0.002	< 0.005	< 0.002	0.126	< 0.025	0.362	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/25/99 [b]	3,470	250	2,000	0.02	232	5.28	158	110	116	< 0.004	0.0130	< 0.002	< 0.005	< 0.002	< 0.01	< 0.025	0.0285	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/28/00 [b]	3,550	300	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.225	NA	0.0274	NA	NA	NA	NA	NA
	03/28/01 [b]	4,180	304	1,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.115	NA	0.0209	NA	NA	NA	NA	NA
	07/01/02 [b]	3,600	250	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18	NA	0.040	NA	NA	NA	NA	NA
MW-8	08/22/95 [b]	3,640	362	2,000	0.1	587	3.7	193	117	134	< 0.05	< 0.01	< 0.005	< 0.01	< 0.01	NA	< 0.05	NA	0.0003	< 0.1	< 0.01	0.01	0.33
	09/19/96 [b]	3,780	331	2,120	0.06	630	21	222	206	141	< 0.05	0.01	< 0.005	< 0.01	< 0.01	NA	< 0.003	NA	< 0.0002	< 0.01	< 0.01	< 0.01	NA
	08/01/97 [b]	3,890	339	1,980	0.16	86.5	< 20	51.5	80	140	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	<0.2	< 0.02	NA	< 0.0002	< 0.05	< 0.05	< 0.05	NA
	11/02/97 [b]	3,740	320	1,810	0.10	610 [d]	3.4	210	180 [d]	136	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	< 0.01	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/29/98 [c]	2,960	347	1,900	0.1	634	3	219	168	96	< 0.1	< 0.005	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	< 0.005	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/27/98 [b]	2,800	370	2,500	0.2	NA	NA	NA	NA	131	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	0.03	< 0.05	< 0.005	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	08/14/98 [b]	3,800	355	2,100	< 0.1	604	4	188	135	204	< 0.005	0.006	< 0.005	< 0.01	< 0.01	0.11	< 0.005	0.009	< 0.0002	< 0.005	< 0.01	0.39	NA
	12/27/98 [b]	3,650	350	2,100	0.21	554	3.7	191	184	137	< 0.004	0.0108	< 0.002	< 0.005	< 0.002	0.065	< 0.025	0.0028	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/25/99 [b]	3,670	350	2,000	0.21	541	3.6	200	169	136	< 0.004	0.0103	< 0.002	< 0.005	< 0.002	< 0.01	< 0.025	< 0.001	< 0.0002	< 0.010	< 0.003	< 0.01	NA
MW-9	08/23/95 [b]	4,060	391	2,200	0.38	896	17	232	230	124	< 0.05	0.04	< 0.005	< 0.01	0.01	NA	< 0.05	NA	0.0005	< 0.1	< 0.01	0.03	3.13
	09/19/96 [b]	3,810	439	1,990	0.56	673	24	210	287	114	< 0.05	0.05	< 0.005	0.01	< 0.01	NA	0.004	NA	< 0.0002	< 0.01	< 0.01	0.02	NA
	07/31/97 [b]	4,270	487	2,040	0.55	557	< 20	174	362	126	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	0.4	< 0.02	NA	< 0.0002	< 0.05	< 0.05	< 0.05	NA
	11/02/97 [b]	4,000	440	1,930	0.36	610 [d]	5.5	190	270 [d]	124	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	1.4	< 0.03	0.11	< 0.0002	< 0.04	< 0.01	< 0.03	NA

Table 4. Summary of Groundwater Analyses - Inorganics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	Major Ions (mg/L)									Metals (mg/L)												
		TDS	Chloride	Sulfate	NO_2/NO_3 - N, total	Calcium	Potassium	Magnesium	Sodium	Total alkalinity (as $CaCO_3$)	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Selenium	Silver	Zinc	Aluminum
NMWQCC Standard:		1,000	250	600	10	none	none	none	none	none	0.1	1.0	0.01	0.05	1.0	1.0	0.05	0.20	0.002	0.05	0.05	10	5
	01/29/98 [c]	3,730	459	1,800	0.6	639	5	193	248	80	< 0.1	0.008	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	0.030	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/28/98 [b]	3,200	470	2,500	0.9	NA	NA	NA	NA	112	< 0.005	0.013	< 0.005	< 0.01	< 0.01	0.86	< 0.05	0.070	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	08/14/98 [b]	4,200	479	2,000	1.1	554	6	174	240	105	0.007	0.015	< 0.005	< 0.01	< 0.01	0.91	< 0.005	0.046	< 0.0002	< 0.005	< 0.01	0.03	NA
	08/14/98 [c]	NA	NA	NA	NA	619	5	206	261	NA	< 0.005	0.007	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	0.031	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	12/27/98 [c]	3,800	470	2,100	0.93	532	4.51	163	226	121	< 0.004	0.0158	< 0.002	< 0.005	< 0.002	< 0.01	< 0.025	0.0088	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/24/99 [b]	3,910	450	2,100	0.79	532	5.13	181	245	119	< 0.004	0.0164	< 0.002	< 0.005	< 0.002	0.502	< 0.025	0.0326	< 0.0002	< 0.010	< 0.003	< 0.01	NA
MW-10	09/19/96 [b]	3,390	367	3,360	0.75	634	6	153	179	133	< 0.05	< 0.01	< 0.005	< 0.01	< 0.01	NA	< 0.003	NA	< 0.0002	< 0.01	< 0.01	0.02	NA
	07/31/97 [b]	3,550	364	1,590	0.71	211	< 20	62.3	146	138	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	< 0.02	< 0.02	NA	< 0.0002	< 0.05	< 0.05	< 0.05	NA
	11/01/97 [b]	3,520	340	1,890	0.74	600 [d]	3.5	146	225 [d]	128	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	< 0.01	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/27/98 [c]	2,910	350	1,700	0.7	607	4	138	197	120	< 0.1	0.005	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	< 0.005	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/26/98 [b]	3,000	370	2,200	0.8	NA	NA	NA	NA	122	< 0.005	0.006	< 0.005	< 0.01	< 0.01	0.03	< 0.05	< 0.005	< 0.0002	< 0.005	< 0.01	0.20	NA
	08/13/98 [b]	3,300	372	1,900	0.7	563	5	130	201	121	0.007	0.007	< 0.005	< 0.01	< 0.01	< 0.02	< 0.005	< 0.005	< 0.0002	< 0.005	< 0.01	0.04	NA
	12/22/98 [b]	3,390	350	1,900	0.68	584	3.3	133	203	127	< 0.004	0.0107	< 0.002	< 0.005	< 0.002	0.034	< 0.025	< 0.005	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/23/99 [b]	3,390	340	1,800	0.68	569	3.8	134	211	127	< 0.004	0.0104	< 0.002	< 0.005	< 0.002	0.011	< 0.025	< 0.001	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/27/00	3,440	390	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/29/01	4,000	379	1,560	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/03/02	3,400	310	1,800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-11	09/19/96 [b]	3,480	400	2,480	0.71	642	< 5	144	202	116	< 0.05	< 0.01	< 0.005	< 0.01	< 0.01	NA	0.004	NA	< 0.0002	< 0.01	< 0.01	0.04	NA
	07/30/97 [b]	3,550	405	1,680	0.7	748	8	132	545	106	< 0.01	< 0.01	< 0.005	< 0.01	< 0.01	0.07	< 0.003	NA	< 0.0002	< 0.01	< 0.01	0.01	NA
	11/01/97 [b]	3,530	370	1,900	0.67	630 [d]	2.6	140	360 [d]	96	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	< 0.01	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/27/98 [c]	2,940	374	1,600	0.7	612	3	133	231	100	< 0.1	< 0.005	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	< 0.005	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/26/98 [b]	3,000	400	2,100	0.7	NA	NA	NA	NA	103	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	0.17	< 0.05	< 0.005	< 0.0002	< 0.005	< 0.01	0.21	NA
	08/13/98 [b]	3,300	390	1,900	0.6	585	4	121	229	102	0.006	0.007	< 0.005	< 0.01	< 0.01	0.14	< 0.005	0.012	< 0.0002	< 0.005	< 0.01	0.06	NA
	12/22/98 [b]	3,780	300	1,500	1.1	468	3	98.3	183	110	< 0.004	0.0138	< 0.002	< 0.005	< 0.002	0.047	< 0.025	< 0.005	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/24/99 [b]	2,480	250	1,200	1.1	403	3.4	88.1	172	106	< 0.004	0.0160	< 0.002	< 0.005	< 0.002	0.137	< 0.025	0.0021	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/27/00	3,100	380	1,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/27/01	3,730	406	1,480	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/03/02	3,300	330	1,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Well	Sampling Date	Major Ions (mg/L)									Metals (mg/L)												
		TDS	Chloride	Sulfate	NO_2/NO_3 - N, total	Calcium	Potassium	Magnesium	Sodium	Total alkalinity (as $CaCO_3$)	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Selenium	Silver	Zinc	Aluminum
NMWQCC Standard:		1,000	250	600	10	none	none	none	none	none	0.1	1.0	0.01	0.05	1.0	1.0	0.05	0.20	0.002	0.05	0.05	10	5
MW-12	09/17/96 [b]	3,670	431	1,810	0.36	688	16	127	247	110	< 0.05	0.02	< 0.005	< 0.01	< 0.01	NA	< 0.003	NA	< 0.0002	< 0.01	< 0.01	0.01	NA
	08/06/97 [b]	3,670	435	1,640	0.41	605	< 5	123	236	106	< 0.01	0.01	< 0.005	< 0.01	< 0.01	0.52	< 0.003	NA	< 0.0002	< 0.01	< 0.01	< 0.01	NA
	11/04/97 [b]	3,340	390	1,630	0.40	880 [d]	2.6	180	330 [d]	102	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	**0.31**	< 0.0002	< 0.04	< 0.01	< 0.03	NA
(Dup MW-24)	11/04/97 [b]	3,400	400	1,760	0.40	710 [d]	2.4	150	320 [d]	102	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	**0.43**	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/30/98 [c]	2,680	421	1,600	0.3	625	2	120	209	74	< 0.1	< 0.005	< 0.005	< 0.01	< 0.01	0.05	< 0.05	**0.444**	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/28/98 [b]	3,100	440	2,100	0.3	NA	NA	NA	NA	99	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	0.12	< 0.05	**0.688**	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	08/15/98 [b]	3,200	408	2,000	0.4	616	3	118	194	111	0.005	0.005	< 0.005	< 0.01	< 0.01	0.13	< 0.005	**0.678**	< 0.0002	< 0.005	< 0.01	< 0.02	NA
(Dup MW-28)	08/15/98 [b]	3,300	417	1,700	0.4	616	< 2	115	193	108	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	0.09	< 0.005	**0.470**	< 0.0002	0.005	< 0.01	0.02	NA
	12/28/98 [b]	3,210	420	1,700	0.28	551	3.0	108	231	107	< 0.004	0.0083	< 0.002	< 0.005	< 0.002	0.114	< 0.025	**0.667**	< 0.0002	< 0.010	< 0.003	< 0.01	NA
(Dup MW-28)	03/26/99 [b]	3,360	400	1,700	0.41	533	3.4	112	209	104	< 0.004	0.0086	< 0.002	< 0.005	< 0.002	0.110	< 0.025	**0.790**	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/26/99 [b]	3,330	410	1,700	0.37	533	3.2	113	210	104	< 0.004	0.0084	< 0.002	< 0.005	< 0.002	0.103	< 0.025	**0.759**	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/29/00 [b]	3,460	460	1,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.158	NA	**1.18**	NA	NA	NA	NA	NA
	03/29/01 [b]	3,850	485	1,580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.158	NA	**1.38**	NA	NA	NA	NA	NA
	07/01/02 [b]	3,300	370	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.25	NA	**1.8**	NA	NA	NA	NA	NA
MW-13	09/19/96 [b]	2,810	438	2,910	0.13	496	5	123	136	136	< 0.05	< 0.01	< 0.005	< 0.01	< 0.01	NA	< 0.003	NA	< 0.0002	< 0.01	< 0.01	0.01	NA
	08/09/97 [b]	3,640	518	1,460	0.06	484	18	144	212	142	0.02	0.02	< 0.005	< 0.01	< 0.01	0.81	< 0.003	NA	< 0.0002	< 0.01	< 0.01	0.02	NA
	11/04/97 [b]	3,760	460	1,720	< 0.05	680 [d]	3.0	150	200 [d]	152	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	0.67	< 0.03	**2.4**	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/30/98 [c]	2,970	490	1,500	< 0.1	707	3	143	174	113	< 0.1	0.009	< 0.005	< 0.01	< 0.01	0.86	< 0.05	**1.50**	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/28/98 [b]	2,900	530	2,100	< 0.1	NA	NA	NA	NA	149	< 0.005	0.008	< 0.005	< 0.01	< 0.01	**1.41**	< 0.05	**1.37**	**0.0033**	< 0.005	< 0.01	< 0.02	NA
	08/15/98 [b]	3,700	461	1,700	< 0.1	664	5	134	155	163	0.007	0.009	< 0.005	< 0.01	< 0.01	**1.36**	< 0.005	**1.07**	< 0.0002	< 0.005	< 0.01	0.06	NA
	12/27/98 [b]	3,160	470	1,600	0.03	577	3.2	121	185	192	< 0.004	0.0150	< 0.002	< 0.005	< 0.002	**1.56**	< 0.025	**1.95**	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/26/99 [b]	3,110	430	1,500	< 0.01	550	3.4	128	170	193	< 0.004	0.0140	< 0.002	< 0.005	< 0.002	**1.46**	< 0.025	**1.84**	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/29/00 [b]	3,510	550	1,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.908	NA	**1.75**	NA	NA	NA	NA	NA
	03/29/01 [b]	4,090	593	1,330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.395	NA	**2.14**	NA	NA	NA	NA	NA
	07/01/02 [b]	3,400	390	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.21	NA	**1.6**	NA	NA	NA	NA	NA
MW-14	09/24/96 [b]	3,580	364	2,000	0.31	668	6	154	149	98	< 0.05	0.03	< 0.005	< 0.01	< 0.01	NA	< 0.003	NA	< 0.0002	< 0.01	< 0.01	< 0.01	NA
	08/01/97 [b]	3,710	360	1,630	0.32	672	< 20	155	180	110	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	< 0.02	< 0.02	NA	< 0.0002	< 0.05	< 0.05	< 0.05	NA
	11/02/97 [b]	3,500	360	1,600	0.13	780 [d]	4.1	190	220 [d]	112	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	0.06	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/29/98 [c]	2,890	368	1,700	0.2	664	5	157	169	82	< 0.1	0.012	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	0.013	< 0.0002	< 0.1	< 0.01	< 0.02	NA

Table 4. Summary of Groundwater Analyses - Inorganics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	Major Ions (mg/L)									Metals (mg/L)												
		TDS	Chloride	Sulfate	NO_2/NO_3 - N, total	Calcium	Potassium	Magnesium	Sodium	Total alkalinity (as $CaCO_3$)	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Selenium	Silver	Zinc	Aluminum
NMWQCC Standard:		1,000	250	600	10	none	none	none	none	none	0.1	1.0	0.01	0.05	1.0	1.0	0.05	0.20	0.002	0.05	0.05	10	5
	05/27/98 [b]	2,700	380	2,200	0.3	NA	NA	NA	NA	112	< 0.005	0.009	< 0.005	< 0.01	< 0.01	0.05	< 0.05	0.007	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	08/11/98 [b]	3,300	360	1,800	0.2	608	5	144	161	122	< 0.005	0.009	< 0.005	< 0.01	< 0.01	< 0.02	< 0.005	< 0.005	< 0.0002	< 0.005	< 0.01	0.03	NA
	12/23/98 [b]	3,380	360	1,900	0.26	609	4.00	144	165	114	< 0.004	0.0125	< 0.002	< 0.005	< 0.002	< 0.01	< 0.025	< 0.005	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/25/99 [b]	3,480	350	1,900	0.25	567	4.04	143	167	114	< 0.004	0.0126	< 0.002	< 0.005	< 0.002	0.011	< 0.025	< 0.001	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/28/00	3,450	380	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/28/01	4,050	391	1,610	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/03/02	3,300	320	1,800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-15	09/25/96 [b]	3,860	438	3,940	0.58	1,130	7	180	210	138	< 0.05	0.03	< 0.005	< 0.01	< 0.01	NA	< 0.003	NA	< 0.0002	< 0.01	< 0.01	0.08	NA
	08/08/97 [b]	3,820	467	1,920	0.35	625	< 5	171	269	118	0.02	0.02	< 0.005	< 0.01	< 0.01	0.32	< 0.003	NA	< 0.0002	< 0.01	< 0.01	0.01	NA
	11/02/97 [b]	3,820	450	1,900	0.43	750 [d]	3.8	210	330 [d]	114	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	0.01	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/28/98 [c]	2,970	453	1,800	0.4	638	4	174	259	82	< 0.1	0.010	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	0.015	< 0.0002	< 0.1	< 0.01	0.04	NA
	05/27/98 [b]	2,900	500	2,300	0.5	NA	NA	NA	NA	110	< 0.005	0.009	< 0.005	< 0.01	< 0.01	0.04	< 0.05	0.006	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	08/13/98 [b]	3,900	479	2,200	0.6	586	4	162	262	106	0.006	0.012	< 0.005	< 0.01	< 0.01	0.03	< 0.005	0.012	< 0.0002	< 0.005	< 0.01	0.20	NA
	12/24/98 [b]	3,630	440	2,000	0.48	592	4.00	150	281	111	< 0.004	0.0133	< 0.002	< 0.005	< 0.002	0.013	< 0.025	0.0191	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/24/99 [b]	3,720	440	1,900	0.50	578	4.57	162	262	111	< 0.004	0.0117	< 0.002	< 0.005	< 0.002	0.019	< 0.025	0.0130	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/28/00	3,720	480	2,100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/28/01	4,290	509	1,690	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/03/02	3,700	400	1,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-17	09/24/96 [b]	3,660	437	2,000	0.71	626	< 5	170	218	138	< 0.05	< 0.01	< 0.005	< 0.01	< 0.01	NA	< 0.003	NA	< 0.0002	< 0.01	< 0.01	0.01	NA
	07/31/97 [b]	1,570	445	1,820	0.71	221	< 20	71.1	175	96	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	<0.2	< 0.02	NA	< 0.0002	< 0.05	< 0.05	< 0.05	NA
	11/02/97 [b]	3,770	430	2,000	0.74	770 [d]	2.5	210	330 [d]	90	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	0.03	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/28/98 [c]	2,880	444	1,700	0.6	629	3	168	249	64	< 0.1	< 0.005	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	0.018	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/27/98 [b]	3,000	470	1,500	0.6	NA	NA	NA	NA	89	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	0.011	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	08/13/98 [b]	3,900	443	2,100	0.6	578	2	161	257	124	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	< 0.02	< 0.005	0.044	< 0.0002	< 0.005	< 0.01	0.09	NA
	12/24/98 [b]	3,600	440	2,000	0.64	558	2.6	148	254	93	< 0.004	0.0079	< 0.002	< 0.005	< 0.002	< 0.01	< 0.025	0.0042	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/25/99 [b]	3,590	440	1,900	0.66	535	3.0	152	240	91	< 0.004	0.0077	< 0.002	< 0.005	< 0.002	< 0.01	< 0.025	0.0259	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/28/00	3,690	470	2,100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/27/01	4,340	507	1,760	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/03/02	3,600	390	1,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4. Summary of Groundwater Analyses - Inorganics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	Major Ions (mg/L)									Metals (mg/L)												
		TDS	Chloride	Sulfate	NO_2/NO_3 - N, total	Calcium	Potassium	Magnesium	Sodium	Total alkalinity (as $CaCO_3$)	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Selenium	Silver	Zinc	Aluminum
NMWQCC Standard:		1,000	250	600	10	none	none	none	none	none	0.1	1.0	0.01	0.05	1.0	1.0	0.05	0.20	0.002	0.05	0.05	10	5
MW-18	08/09/97 [b]	4,240	NA	NA	NA	471	57	164	291	NA	0.02	0.02	< 0.005	0.02	< 0.01	1.09	< 0.003	NA	< 0.002	< 0.01	< 0.01	0.03	NA
	11/01/97 [b]	3,850	390	2,020	0.69	760 [d]	6.4	210	330 [d]	78	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	< 0.01	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/28/98 [c]	3,100	424	1,900	0.8	641	7	225	166	55	< 0.1	0.017	< 0.006	< 0.01	< 0.01	< 0.02	< 0.05	< 0.005	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/27/98 [b]	2,800	430	1,800	0.8	NA	NA	NA	NA	69	< 0.005	0.015	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	< 0.005	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	08/13/98 [b]	3,900	479	2,000	0.7	586	7	209	169	82	0.008	0.015	< 0.005	< 0.01	< 0.01	< 0.02	< 0.005	0.007	< 0.0002	< 0.005	< 0.01	0.08	NA
	12/24/98 [b]	3,610	400	2,100	0.72	559	5.51	192	174	80	< 0.004	0.0184	< 0.002	0.0052	< 0.002	0.030	< 0.025	< 0.001	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/24/99 [b]	3,700	400	2,000	0.66	544	5.77	203	163	84	< 0.004	0.0177	< 0.002	0.0094	< 0.002	< 0.01	< 0.025	< 0.001	< 0.0002	< 0.010	< 0.003	< 0.01	NA
MW-19	09/27/96 [b]	3,850	459	2,100	0.82	981	5	226	240	196	< 0.05	0.01	< 0.005	< 0.01	< 0.01	NA	0.004	NA	< 0.0002	< 0.01	< 0.01	0.04	NA
	08/08/97 [b]	3,990	536	2,030	0.88	622	11	170	252	122	0.01	0.01	< 0.005	< 0.01	< 0.01	0.08	< 0.003	NA	< 0.0002	< 0.01	< 0.01	< 0.01	NA
	11/01/97 [b]	3,920	430	1,880	0.82	710 [d]	3.4	210	320 [d]	100	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	< 0.01	< 0.0002	< 0.04	< 0.01	0.02	NA
	01/27/98 [c]	3,330	469	1,900	0.9	620	5	196	285	97	< 0.1	0.009	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	< 0.005	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/27/98 [b]	3,400	480	1,600	1.0	NA	NA	NA	NA	96	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	0.14	< 0.05	< 0.005	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	08/13/98 [b]	4,000	443	2,000	0.8	589	4	161	252	113	0.007	0.009	< 0.005	< 0.01	0.01	0.05	< 0.005	< 0.005	< 0.0002	< 0.005	< 0.01	0.08	NA
	12/23/98 [b]	3,740	460	2,100	0.84	582	3.3	169	261	104	< 0.004	0.0122	< 0.002	< 0.005	< 0.002	0.030	< 0.025	< 0.005	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/24/99 [b]	3,810	450	2,000	0.84	540	3.7	169	268	105	< 0.004	0.0122	< 0.002	< 0.005	< 0.002	0.036	< 0.025	< 0.001	< 0.0002	< 0.010	< 0.003	< 0.01	NA
MW-20	08/07/97 [b]	3,710	385	1,820	1.65	617	< 5	135	239	200	< 0.01	0.04	< 0.005	< 0.01	0.02	1.85	< 0.003	NA	< 0.0002	< 0.01	< 0.01	0.05	NA
	11/03/97 [b]	3,710	290	1,950	0.23	670 [d]	2.6	140	270 [d]	208	< 0.03	< 0.01	< 0.01	< 0.01	0.02	0.39	< 0.03	< 0.01	< 0.0002	< 0.04	< 0.01	0.22	NA
	01/30/98 [c]	3,090	306	1,700	2.8	680	3	137	238	155	< 0.1	< 0.005	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	< 0.005	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/29/98 [b]	3,000	310	2,400	3.0	NA	NA	NA	NA	208	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	0.03	< 0.05	< 0.005	< 0.0002	< 0.005	< 0.01	< 0.02	NA
(Dup MW-24)	05/29/98 [b]	3,200	320	2,400	3.0	NA	NA	NA	NA	198	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	0.09	< 0.05	< 0.005	0.0005	< 0.005	< 0.01	< 0.02	NA
	08/15/98 [b]	3,700	301	2,200	2.2	673	4	130	214	242	0.007	0.006	< 0.005	< 0.01	< 0.01	0.26	< 0.005	< 0.005	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	12/28/98 [b]	3,620	310	2,100	2.5	597	3.4	123	257	209	< 0.004	0.0107	< 0.002	< 0.005	< 0.002	0.238	< 0.025	0.0012	< 0.0002	< 0.010	< 0.003	< 0.01	NA
(Dup MW-28)	12/28/98 [b]	3,660	310	2,000	2.5	598	3.3	119	258	210	< 0.004	0.0107	< 0.002	< 0.005	< 0.002	0.265	< 0.025	0.0043	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/26/99 [b]	3,670	290	2,000	2.5	582	3.7	125	236	213	< 0.004	0.0090	< 0.002	< 0.005	< 0.002	0.044	< 0.025	< 0.001	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/29/00 [b]	3,780	310	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.01	NA	< 0.001	NA	NA	NA	NA	NA
(Dup MW-31)	03/29/00 [b]	3,790	300	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.01	NA	< 0.001	NA	NA	NA	NA	NA
	03/29/01 [b]	4,250	300	1,880	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.05	NA	< 0.01	NA	NA	NA	NA	NA
(Dup MW-31)	03/28/01 [b]	4,060	305	1,800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.05	NA	< 0.01	NA	NA	NA	NA	NA

Table 4. Summary of Groundwater Analyses - Inorganics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	Major Ions (mg/L)									Metals (mg/L)												
		TDS	Chloride	Sulfate	NO_2/NO_3 - N, total	Calcium	Potassium	Magnesium	Sodium	Total alkalinity (as $CaCO_3$)	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Selenium	Silver	Zinc	Aluminum
NMWQCC Standard:		1,000	250	600	10	none	none	none	none	none	0.1	1.0	0.01	0.05	1.0	1.0	0.05	0.20	0.002	0.05	0.05	10	5
	07/01/02 [b]	3,600	220	1,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.043	NA	< 0.0020	NA	NA	NA	NA	NA
MW-21	08/07/97 [b]	3,960	436	1,790	0.71	621	< 5	137	192	120	< 0.01	0.06	< 0.005	< 0.01	< 0.01	0.54	< 0.003	NA	< 0.0002	< 0.1	< 0.01	0.03	NA
	11/04/97 [b]	3,700	410	1,760	0.36	810 [d]	4.0	190	260 [d]	118	< 0.03	0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.03	0.40	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/30/98 [c]	3,020	440	1,700	< 0.1	654	4	153	199	88	< 0.1	0.029	< 0.005	< 0.01	< 0.01	0.21	< 0.05	0.835	< 0.0002	< 0.1	< 0.01	< 0.02	NA
(Dup MW-24)	01/30/98 [c]	2,600	437	1,700	< 0.1	647	4	151	201	87	< 0.1	0.025	< 0.005	< 0.01	< 0.01	0.24	< 0.05	0.798	< 0.0002	< 0.1	< 0.01	0.03	NA
	05/28/98 [b]	3,000	450	2,100	< 0.1	NA	NA	NA	NA	124	< 0.005	0.026	< 0.005	< 0.01	< 0.01	0.63	< 0.05	1.51	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	08/15/98 [b]	3,400	408	1,900	< 0.1	647	3	144	196	146	0.006	0.020	< 0.005	< 0.01	< 0.01	0.66	< 0.005	1.34	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	12/28/98 [b]	3,390	430	1,800	0.03	566	3.3	134	209	138	< 0.004	0.0245	< 0.002	< 0.005	0.0024	0.704	< 0.025	1.47	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/26/99 [b]	3,360	410	1,800	< 0.01	548	3.4	138	192	139	< 0.004	0.0225	< 0.002	< 0.005	< 0.002	0.933	< 0.025	1.32	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/29/00 [b]	3,440	470	1,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.98	NA	1.52	NA	NA	NA	NA	NA
	03/29/01 [b]	4,090	475	1,570	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.17	NA	1.62	NA	NA	NA	NA	NA
	07/01/02 [b]	3,400	390	1,400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.5	NA	1.8	NA	NA	NA	NA	NA
MW-22	08/07/97 [b]	3,630	377	1,780	0.76	727	6	143	233	302	< 0.01	0.21	< 0.005	< 0.01	0.05	16.5	0.008	NA	< 0.0002	< 0.01	< 0.01	0.08	NA
	11/03/97 [b]	3,570	380	1,840	0.85	780 [d]	3.6	160	290 [d]	132	< 0.03	0.04	< 0.01	< 0.01	< 0.01	3.3	< 0.03	0.07	< 0.0002	< 0.04	< 0.01	< 0.03	NA
	01/29/98 [c]	2,690	394	1,700	0.9	660	4	130	218	85	< 0.1	0.007	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	< 0.005	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/28/98 [b]	2,700	410	2,200	0.9	NA	NA	NA	NA	107	< 0.005	0.009	< 0.005	< 0.01	< 0.01	0.96	< 0.05	0.015	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	08/14/98 [b]	NA	NA	NA	NA	573	3	109	206	NA	0.006	0.036	< 0.005	< 0.01	< 0.01	0.41	< 0.005	0.025	0.0008	< 0.005	< 0.01	0.09	NA
	08/14/98 [c]	3,600	355	1,800	0.6	642	2	129	236	125	< 0.1	< 0.005	< 0.005	< 0.01	< 0.01	0.08	< 0.05	< 0.005	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	12/27/98 [b]	3,390	390	1,900	0.85	577	2.9	111	234	114	< 0.004	0.0118	< 0.002	< 0.005	< 0.002	0.305	< 0.025	0.0068	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/25/99 [b]	3,380	380	1,800	0.82	556	3.2	120	220	113	< 0.004	0.0087	< 0.002	< 0.005	< 0.002	0.043	< 0.025	< 0.001	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/28/00 [b]	3,500	420	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.028	NA	< 0.001	NA	NA	NA	NA	NA
	03/29/01 [b]	3,880	433	1,670	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.146	NA	< 0.01	NA	NA	NA	NA	NA
	07/01/02 [b]	3,500	330	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3	NA	0.023	NA	NA	NA	NA	NA
MW-23D	08/06/97 [b]	3,800	344	1,980	< 0.05	624	8	178	231	124	< 0.01	0.02	< 0.005	0.02	< 0.01	0.11	< 0.003	NA	< 0.0002	< 0.01	< 0.01	0.02	NA
	11/05/97 [b]	3,880	330	1,900	< 0.05	600 [d]	3.5	215	300 [d]	128	< 0.03	0.02	< 0.01	< 0.01	< 0.01	0.38	< 0.03	0.11	< 0.0002	< 0.04	< 0.01	0.07	NA
	01/28/98 [c]	3,180	354	1,800	< 0.1	612	7	183	246	88	< 0.1	0.020	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	0.141	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	05/27/98 [c]	3,000	350	1,800	< 0.1	NA	NA	NA	NA	90	0.005	0.013	< 0.005	< 0.01	< 0.01	< 0.02	< 0.05	0.094	< 0.0002	< 0.1	< 0.01	< 0.02	NA
	08/11/98 [b]	3,800	337	2,200	< 0.1	584	6	165	240	128	0.009	0.011	< 0.005	< 0.01	0.02	0.23	< 0.005	0.068	< 0.0002	< 0.005	< 0.01	< 0.02	NA

Table 4. Summary of Groundwater Analyses - Inorganics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	Major Ions (mg/L)									Metals (mg/L)												
		TDS	Chloride	Sulfate	NO_2/NO_3 - N, total	Calcium	Potassium	Magnesium	Sodium	Total alkalinity (as $CaCO_3$)	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Selenium	Silver	Zinc	Aluminum
NMWQCC Standard:		1,000	250	600	10	none	none	none	none	none	0.1	1.0	0.01	0.05	1.0	1.0	0.05	0.20	0.002	0.05	0.05	10	5
	12/23/98 [b]	3,650	330	2,100	0.03	581	3.6	177	240	127	< 0.004	0.0144	< 0.002	< 0.005	< 0.002	0.216	< 0.025	0.0783	< 0.0002	< 0.010	< 0.003	0.030	NA
	04/05/99 [b]	3,700	300	2,000	0.04	551	3.8	162	208	128	0.0049	0.0162	< 0.002	< 0.005	< 0.002	0.29	< 0.025	0.0641	< 0.0002	< 0.020	< 0.003	< 0.01	NA
MW-24D	10/29/98 [c]	3,300	350	1,880	< 0.1	NA	NA	NA	NA	157	0.009	0.015	< 0.005	< 0.01	NA	NA	< 0.005	NA	< 0.0002	< 0.005	< 0.01	NA	NA
	10/29/98 [b]	NA	NA	NA	NA	622	5	99.5	208	NA	< 0.005	0.026	< 0.005	< 0.01	0.01	**1.43**	< 0.005	**0.220**	< 0.0002	< 0.005	< 0.01	0.05	NA
	12/23/98 [c]	3,220	330	1,800	0.02	508	2.5	82.1	179	279	< 0.004	0.0172	< 0.002	< 0.005	0.0065	< 0.01	< 0.025	0.176	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/30/99 [b]	3,360	330	1,800	< 0.01	630	3.3	110	213	155	< 0.002	0.0183	< 0.002	< 0.005	< 0.002	0.698	< 0.025	**0.261**	< 0.0002	< 0.010	< 0.003	< 0.01	NA
MW-25D	10/29/98 [c]	3,000	340	2,470	< 0.1	NA	NA	NA	NA	121	0.006	0.007	< 0.005	< 0.01	NA	NA	< 0.005	NA	< 0.0002	< 0.005	< 0.01	NA	NA
	10/29/98 [b]	NA	NA	NA	NA	596	4	162	161	NA	< 0.005	0.011	< 0.005	< 0.01	< 0.01	0.58	< 0.005	0.109	< 0.0002	< 0.005	< 0.01	0.03	NA
	12/23/98 [b]	3,450	320	2,000	0.01	584	4.00	168	160	122	< 0.004	0.0133	< 0.002	< 0.005	< 0.002	0.327	< 0.025	0.108	< 0.0002	< 0.010	< 0.003	0.011	NA
	03/30/99 [b]	3,510	310	2,000	< 0.01	589	4.38	167	158	121	< 0.002	0.0131	< 0.002	< 0.005	< 0.002	0.510	< 0.025	0.104	< 0.0002	< 0.010	< 0.003	< 0.010	NA
MW-26	10/29/98 [c]	3,500	320	2,080	5.1	NA	NA	NA	NA	134	< 0.005	0.009	< 0.005	< 0.01	NA	NA	< 0.005	NA	< 0.0002	0.007	< 0.01	NA	NA
	10/29/98 [b]	NA	NA	NA	NA	650	5	132	215	NA	< 0.005	0.016	< 0.005	< 0.01	< 0.01	0.82	< 0.005	0.082	< 0.0002	< 0.005	< 0.01	< 0.02	NA
	12/27/98 [b]	3,780	300	2,200	4.4	607	4.06	128	237	159	< 0.004	0.0213	< 0.002	< 0.005	< 0.002	**1.13**	< 0.025	0.0347	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	03/25/99 [b]	3,770	290	2,100	4.6	578	4.22	135	213	130	< 0.004	0.0137	< 0.002	< 0.005	< 0.002	0.394	< 0.025	0.0165	< 0.0002	< 0.010	< 0.003	< 0.01	NA
	07/25/99 [b]	3,800	280	2,100	4.7	642	4.73	134	221	150	< 0.010	0.0322	< 0.002	< 0.005	< 0.002	**2.55**	< 0.025	0.0464	< 0.0002	< 0.010	< 0.003	0.013	NA
	03/28/00 [b]	3,810	330	2,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.558	NA	0.0104	NA	NA	NA	NA	NA
	03/28/01 [b]	4,180	344	1,840	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.342	NA	< 0.01	NA	NA	NA	NA	NA
	07/01/02 [b]	3,800	270	1,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2	NA	0.020	NA	NA	NA	NA	NA
MW-28	11/18/00 [b]	2,500	383	2,030	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**49.7**	NA	**1.40**	NA	NA	NA	NA	NA
	03/28/01 [b]	4,030	386	1,560	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.06**	NA	0.0469	NA	NA	NA	NA	NA
	07/03/02 [b]	3,400	310	1,800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.7**	NA	0.080	NA	NA	NA	NA	NA
MW-29	11/19/00 [b]	1,810	405	735	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**129**	NA	**3.63**	NA	NA	NA	NA	NA
	03/28/01 [b]	2,300	480	589	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.275	NA	**0.262**	NA	NA	NA	NA	NA
	07/03/02 [b]	1,600	350	480	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.3**	NA	**0.72**	NA	NA	NA	NA	NA
(Dup MW-34)	07/03/02 [b]	1,700	350	460	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.2**	NA	**0.75**	NA	NA	NA	NA	NA

Table 4. Summary of Groundwater Analyses - Inorganics
Compressor Station No. 9 - Roswell, NM

Well	Sampling Date	Major Ions (mg/L)									Metals (mg/L)												
		TDS	Chloride	Sulfate	NO_2/NO_3 - N, total	Calcium	Potassium	Magnesium	Sodium	Total alkalinity (as $CaCO_3$)	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Selenium	Silver	Zinc	Aluminum
NMWQCC Standard:		1,000	250	600	10	none	none	none	none	none	0.1	1.0	0.01	0.05	1.0	1.0	0.05	0.20	0.002	0.05	0.05	10	5
MW-30	11/18/00 [b]	**3,260**	**385**	**1,970**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**49.7**	NA	**1.38**	NA	NA	NA	NA	NA
	03/28/01 [b]	**3,920**	**401**	**1,610**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.05**	NA	0.0378	NA	NA	NA	NA	NA
	07/03/02 [b]	**3,400**	**320**	**1,800**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.21	NA	0.0091	NA	NA	NA	NA	NA
MW-31	10/04/01 [b]	**3,930**	**478**	**1,550**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.05	NA	**0.0217**	NA	NA	NA	NA	NA
MW-32	10/04/01 [b]	**3,490**	**510**	**1,180**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.05	NA	**0.173**	NA	NA	NA	NA	NA
MW-33	10/04/01 [b]	**3,890**	**483**	**1,610**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.05	NA	**0.0259**	NA	NA	NA	NA	NA
MW-36	11/11/03	**3,200**	**380**	**2,000**	0.27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.02	NA	**0.1100**	NA	NA	NA	NA	NA
MW-37	11/11/03	**3,200**	**420**	**1,800**	0.53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.02	NA	**1.40**	NA	NA	NA	NA	NA
MW-38	11/11/03	**3,500**	**480**	**2,000**	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.02	NA	0.0130	NA	NA	NA	NA	NA

NOTES:

All results reported above the NMWQCC Standards are shown in bold type.

[a] NA - A result for this constituent is not available

[b] Results represent total metals analysis

[c] Results represent dissolved metals analysis on samples filtered in the lab

[d] Analyte present in method blank

Table 5. Summary of Completion Details for Soil Borings Completed as Wells
Compressor Station No. 9 - Roswell, NM

Well	Source[a]	Date of Completion	Measuring Point Elevation (ft)[b]	Northing (ft)	Easting (ft)	Total Depth of Boring (ft bgs)	Measured Depth of Well (ft from TOC)	Surface Completion Type	Casing Diameter (in.)	Screen Interval (ft bgs)	Top of Sand Pack (ft bgs)
MW-1	SH&B/Halliburton NUS	07/21/92	na	2,001.40	217.60	68	na	Flush Mount	4	28-68	25.2
MW-1B	Layne/Halliburton NUS	04/21/93	3,609.96	1,854.00	265.50	65.5	64.65	Flush Mount	2	55-65	53
MW-2	Layne/Halliburton NUS	04/21/93	3,611.76	2,034.30	102.40	65	61.61	Flush Mount	2	55-65	53
MW-3	Layne/Halliburton NUS	04/26/93	3,614.87	1,629.77	265.23	72.5	na	Flush Mount	2	60-70	58
MW-5	Layne/Halliburton NUS	04/28/93	3,612.77	2,049.70	-150.96	70	69.35	Flush Mount	2	60-70	58
RW-1	NA/Halliburton NUS	06/13/93	na	na	na	42.5	49.65	Flush Mount	na	na	na
MW-6	Pool/DBS	12/01/94	3,618.62	1,607.40	-266.20	79	na	Flush Mount	2	59.9-74.9	57.1
MW-7	Harrison/DBS	08/22/95	3,599.20	2,118.00	328.40	70.5	na	Flush Mount	2	50-70	48.1
MW-8	Harrison/DBS	08/16/95	3,595.80	2,178.00	414.70	76.8	73.80	Flush Mount	2	59-74	57.2
MW-9	Harrison/DBS	08/18/95	3,599.35	2,071.40	512.90	70	69.75	Flush Mount	2	50-70	47.9
MW-10	Layne/DBS	09/10/96	3,617.85	1,804.76	0.14	74.5	72.15	Flush Mount	2	57-72	55.3
MW-11	Layne/DBS	09/16/96	3,613.31	2,046.04	-27.10	72	68.30	Flush Mount	2	54-69	51.5
MW-12	Layne/DBS	09/11/96	3,606.38	2,149.13	152.94	64	na	Flush Mount	2	44-64	42
MW-13	Layne/DBS	09/13/96	3,612.46	1,749.33	265.05	72	na	Flush Mount	2	57-72	55
MW-14	Layne/DBS	09/10/96	3,604.83	1,918.87	365.40	64.5	na	Flush Mount	2	49.5-64.5	48
MW-15	Layne/DBS	09/20/96	3,610.43	1,803.83	516.97	68.5	na	Flush Mount	2	38.5-68.5	37
MW-16	Layne/DBS	09/19/96	3,612.41	1,718.88	387.35	71.4	71.46	Flush Mount	2	46.4-71.4	45.5
MW-17	Layne/DBS	09/21/96	3,608.43	1,598.72	516.35	70	na	Flush Mount	2	53-68	50.9
MW-18	Layne/DBS	09/25/96	3,609.73	1,701.47	613.38	71	na	Flush Mount	2	54-69	51.6
MW-19	Layne/DBS	09/26/96	3,608.17	1,806.45	717.41	69.5	na	Flush Mount	2	54.5-69.5	51
MW-20	Layne/DBS	08/04/97	3,600.65	2,283.22	148.03	64	na	Flush Mount	2	46.8-61.8	43.9
MW-21	Layne/DBS	08/06/97	3,611.99	1,511.01	408.66	75	na	Flush Mount	2	54-74	51.7
MW-22	Layne/DBS	08/04/97	3,606.04	2,187.66	26.69	68	na	Flush Mount	2	50-65	49
MW-26	GPI/CES	09/01/98	3,597.75	2,416.94	142.26	65	na	Flush Mount	2	43-63	41
MW-27	GPI/CES	09/02/98	3,615.11	1,332.63	433.96	75	na	Flush Mount	2	55-75	53
MW-28	GPI/CES	11/14/00	3,615.90	1,228.94	390.72	75	74.81	Flush Mount	2	60-75	58
MW-29	GPI/CES	11/18/00	3,613.54	1,237.26	542.28	75	74.45	Flush Mount	2	60-75	58
MW-30	GPI/CES	11/16/00	3,612.63	1,133.59	440.96	75	74.70	Flush Mount	2	60-75	58
MW-31	GPI/CES	09/21/01	3,611.59	1,341.87	649.76	75	74.55	Flush Mount	2	60-75	58
MW-32	GPI/CES	09/23/01	3,608.73	1,088.91	563.93	75	74.20	Flush Mount	2	60-75	58

Table 5. Summary of Completion Details for Soil Borings Completed as Wells
Compressor Station No. 9 - Roswell, NM

Well	Source[a]	Date of Completion	Measuring Point Elevation (ft)[b]	Northing (ft)	Easting (ft)	Total Depth of Boring (ft bgs)	Measured Depth of Well (ft from TOC)	Surface Completion Type	Casing Diameter (in.)	Screen Interval (ft bgs)	Top of Sand Pack (ft bgs)
MW-33	GPI/CES	09/22/01	3,610.55	1,180.19	683.32	75	74.60	Flush Mount	2	60-75	58
MW-34	Atkins/CES	01/06/03	3605.05 (c)	933.24	536.25	79	75.75	Flush Mount	2	49-79	46
MW-35	Atkins/CES	01/07/03	3601.87 (c)	947.76	635.18	79	76.71	Flush Mount	2	49-79	46
MW-36	Atkins/CES	09/29/03	na	na	na	75	74.35	Flush Mount	2	55-75	53
MW-37	Atkins/CES	09/29/03	na	na	na	70	69.61	Flush Mount	2	50-70	48
MW-38	Atkins/CES	09/30/03	na	na	na	68	67.76	Flush Mount	2	48-68	46
MW-23D	GPI/CES	07/29/97	3,605.00	1,914.95	393.65	194	na	Flush Mount	4	167-187	164
MW-24D	GPI/CES	09/10/98	3,595.95	2,139.77	807.92	180	na	Flush Mount	4	146-176	143
MW-25D	GPI/CES	09/09/98	3,592.99	2,422.12	314.82	150	na	Flush Mount	4	119-149	117
SVE-1A	Layne/DBS	09/21/96	3,616.50	1,793.70	114.40	30	29.65	Flush Mount	2	20-30	19
SVE-2A	Layne/DBS	09/20/96	3,615.70	1,735.90	178.90	30	29.83	Flush Mount	2	20-30	17.5
SVE-3	Layne/DBS	09/16/96	3,614.51	1,881.00	176.60	62.3	61.90	Flush Mount	2	32.0-62.3	29.5
SVE-22	Atkins/CES	11/07/02	na	1746.89	226.73	35	33.20	Flush Mount	2	25-35	23
SVE-23	Atkins/CES	11/07/02	na	1832.49	254.54	39	36.70	Flush Mount	2	25-35	22
SVE-24	Atkins/CES	11/13/02	na	1918.08	282.35	30	28.85	Flush Mount	2	20-30	18
SVE-25	Atkins/CES	11/04/02	na	1813.77	166.51	34	53.30	Flush Mount	2	24-34	21.6
SVE-26	Atkins/CES	11/05/02	na	1884.06	191.23	35	32.45	Flush Mount	2	24-34	22
SVE-27	Atkins/CES	11/01/02	na	1965.96	206.14	35	33.90	Flush Mount	2	20-35	18
SVE-28	Atkins/CES	10/29/02	na	2052.33	231.44	35	36.00	Flush Mount	2	25-35	23
SVE-30	Atkins/CES	10/25/02	na	1946.05	114.40	45	44.00	Flush Mount	2	20-45	18
SVE-31	Atkins/CES	10/28/02	na	2031.05	143.99	35	33.95	Flush Mount	2	25-35	23
MPE-1	Atkins/CES	12/06/02	na	1099.58	600.30	79	75.60	Flush Mount	4	54-74	49
MPE-2	Atkins/CES	12/24/02	na	1039.89	532.94	79	71.75	Flush Mount	4	54-79	51
MPE-3	Atkins/CES	12/21/02	na	1128.06	514.93	79	75.95	Flush Mount	4	54-79	51
MPE-4	Atkins/CES	12/19/12	na	1187.75	582.28	79	78.30	Flush Mount	4	54-79	51
MPE-5	Atkins/CES	12/16/02	na	1277.20	572.35	79	77.70	Flush Mount	4	59-79	56
MPE-6	Atkins/CES	12/17/02	na	1216.24	496.91	79	75.00	Flush Mount	4	54-79	51
MPE-7	Atkins/CES	12/13/02	na	1305.69	486.98	79	78.41	Flush Mount	4	54-74	51
MPE-8	Atkins/CES	12/14/02	na	1405.38	500.61	79	77.55	Flush Mount	4	59-79	50
MPE-9	Atkins/CES	12/18/02	na	1334.63	413.06	79	73.60	Flush Mount	4	54-74	51

Table 5. Summary of Completion Details for Soil Borings Completed as Wells
Compressor Station No. 9 - Roswell, NM

Well	Source[a]	Date of Completion	Measuring Point Elevation (ft)[b]	Northing (ft)	Easting (ft)	Total Depth of Boring (ft bgs)	Measured Depth of Well (ft from TOC)	Surface Completion Type	Casing Diameter (in.)	Screen Interval (ft bgs)	Top of Sand Pack (ft bgs)
MPE-10	Atkins/CES	12/09/02	na	1432.19	416.74	79	75.30	Flush Mount	4	54-74	50
MPE-11	Atkins/CES	12/07/02	na	1492.97	479.94	79	79.05	Flush Mount	4	54-74	50
MPE-12	Atkins/CES	12/06/02	na	1522.61	383.57	79	75.40	Flush Mount	4	54-74	51
MPE-13	Atkins/CES	12/03/02	na	1570.20	436.35	79	77.60	Flush Mount	4	54-74	50.7
MPE-14	Atkins/CES	11/25/02	na	1631.84	435.21	79	76.80	Flush Mount	4	54-74	51
MPE-15	Atkins/CES	11/22/02	na	1714.06	455.52	79	79.25	Flush Mount	4	59-74	54
MPE-16	Atkins/CES	11/27/02	na	1613.13	347.18	79	78.20	Flush Mount	4	54-74	49
MPE-17	Atkins/CES	11/20/02	na	1698.72	374.99	75	76.10	Flush Mount	4	55-70	49
MPE-18	Atkins/CES	11/21/02	na	1784.32	402.80	79	78.68	Flush Mount	4	58-73	55
MPE-19	Atkins/CES	11/26/02	na	1680.01	286.96	79	74.12	Flush Mount	4	49-74	46
MPE-20	Atkins/CES	11/20/02	na	1765.60	314.77	78	77.60	Flush Mount	4	48-73	42
MPE-21	Atkins/CES	11/19/02	na	1852.27	337.91	69	68.90	Flush Mount	4	44-64	41.9
MPE-22	Atkins/CES	11/07/02	na	1746.89	226.73	80	77.52	Flush Mount	4	55-80	52
MPE-23	Atkins/CES	11/06/02	na	1832.49	254.54	80	78.41	Flush Mount	4	55-80	52
MPE-24	Atkins/CES	11/13/02	na	1918.08	282.35	74	73.77	Flush Mount	4	49-74	46
MPE-25	Atkins/CES	11/04/02	na	1813.77	166.51	80	77.45	Flush Mount	4	54-79	51
MPE-26	Atkins/CES	11/06/02	na	1884.06	191.23	84	77.35	Flush Mount	4	54-84	49
MPE-27	Atkins/CES	10/31/02	na	1965.96	206.14	79	79.40	Flush Mount	4	54-79	48
MPE-28	Atkins/CES	10/31/02	na	2052.33	231.44	82	77.67	Flush Mount	4	46-76	43
MPE-29	Atkins/CES	11/02/02	na	1859.68	89.10	79	78.35	Flush Mount	4	54-79	51
MPE-30	Atkins/CES	10/25/02	na	1946.05	114.40	80	77.96	Flush Mount	4	59-79	56
MPE-31	Atkins/CES	10/28/02	na	2031.05	143.99	80	78.80	Flush Mount	4	59-79	58
MPE-32	Atkins/CES	11/19/02	na	2117.42	169.29	79	78.30	Flush Mount	4	44-74	39.2
MPE-33	Atkins/CES	11/18/02	na	2202.42	198.88	79	78.00	Flush Mount	4	44-79	41.6
MPE-34	Atkins/CES	10/24/02	na	2014.18	55.59	80	77.52	Flush Mount	4	59-79	56
MPE-35	Atkins/CES	11/15/02	na	2099.18	85.18	79	79.21	Flush Mount	4	54-74	51
MPE-36	Atkins/CES	11/14/02	na	2185.55	110.48	74	71.31	Flush Mount	4	44-74	41
MPE-37	Atkins/CES	11/15/02	na	2270.54	140.07	74	73.60	Flush Mount	4	44-74	41

Table 5. Summary of Completion Details for Soil Borings Completed as Wells
Compressor Station No. 9 - Roswell, NM

Well	Source[a]	Date of Completion	Measuring Point Elevation (ft)[b]	Northing (ft)	Easting (ft)	Total Depth of Boring (ft bgs)	Measured Depth of Well (ft from TOC)	Surface Completion Type	Casing Diameter (in.)	Screen Interval (ft bgs)	Top of Sand Pack (ft bgs)

NOTES:
(a) Driller/Consultant
(b) Survey by Wagener Engineering dated 5/6/98, 9/17/98, 11/29/00 and 10/03/01
(c) Survey by Cypress Engineering dated 3/14/03

Table 6. Monitor Well Sampling Locations, Frequency, and Sample Analysis Plan
Compressor Station No. 9 - Roswell, NM

	Analytical Requirements			
Well ID	1st Semiannual Event	2nd Semiannual Event	Benzene (ppb) Most recent event	Comments
MW-1	none	none	na	well pugged and abandoned
MW-1B	none	none	na	PSH in well
MW-2	none	none	na	PSH in well
MW-3	none	BTEX	<1	clean perimeter well
MW-5	none	none	<1	clean; outside clean perimeter well
MW-6	none	none	<1	clean; outside clean perimeter well
MW-7	none	BTEX	<1	clean perimeter well
MW-8	none	none	<1	clean; outside clean perimeter well
MW-9	none	none	<1	clean; outside clean perimeter well
MW-10	none	BTEX	<1	clean; upgradient perimeter well
MW-11	none	BTEX	<1	clean perimeter well
MW-12	BTEX	BTEX	24	COCs: benzene; elevated Fe & Mn
MW-13	BTEX	BTEX	1.1	COCs: benzene; elevated Fe & Mn
MW-14	none	BTEX	<1	clean perimeter well
MW-15	none	BTEX	<1	clean perimeter well
MW-16	none	none	na	PSH in well
MW-17	none	BTEX	<1	clean perimeter well
MW-18	none	none	<1	clean; outside clean perimeter well
MW-19	none	none	<1	clean; outside clean perimeter well
MW-20	VOCs	VOCs	1.3	COCs: DCA, DCE, TCA; elevated Fe & Mn
MW-21	BTEX	BTEX	370	COCs: benzene; elevated Fe & Mn
MW-22	VOCs	VOCs	<1	COCs: DCE, TCA; elevated Fe & Mn
MW-23D	none	BTEX	<1	clean deep well
MW-24D	none	BTEX	<1	clean deep well
MW-25D	none	BTEX	<1	clean deep well
MW-26	VOCs	VOCs	49	COCs: DCE; elevated Fe & Mn
MW-27	none	none	na	PSH in well
MW-28	none	BTEX	<1	
MW-29	BTEX	BTEX	210	COCs: benzene; elevated Mn
MW-30	none	BTEX	<1	
MW-31	none	BTEX	<1	
MW-32	BTEX	BTEX	330	
MW-33	none	BTEX	<1	
MW-34	BTEX	BTEX	60	New well
MW-35	BTEX	BTEX	<1	New well
MW-36	BTEX	BTEX	<1	New well
MW-37	BTEX	BTEX	<1	New well
MW-38	BTEX	BTEX	<1	New well

Notes:
1) nd - non-detect
2) na - not available; sample not collected or analysis not requested
3) VOCs - Volatile Organic Compounds by EPA Method 8260
4) BTEX - by EPA Method 8260

Table 7. Summary of Analytical Results for Monitor Well Soil Samples
Compressor Station No. 9 - Roswell, NM

Sample ID	Sampling Date	TPH (mg/kg)	VOC's (ug/Kg)	SVOC's (ug/Kg)	Metals (mg/Kg)																		
					Silver	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Chromium, Hexavalent	Chromium, Total	Copper	Mercury	Nickel	Lead	Antimony	Selenium	Tin	Thallium	Vanadium	Zinc
MW-26 (10-12')	09/01/98	15	all ND	all ND	< 1	6160	3.5	81.4	0.4	0.5	2	< 0.10	2	4	< 0.03	5	4.9	< 0.5	< 0.5	18	< 0.5	21.0	19
MW-26 (48-50')	09/01/98	10	all ND	all ND	< 1	1120	2.1	43.9	< 0.3	< 0.5	2	< 0.10	5	3	< 0.03	4	4.0	< 0.5	< 0.5	< 5	< 0.5	7.3	15
MW-27 (38-40')	09/02/98	10	all ND	all ND	< 1	6200	2.7	28.0	0.5	< 0.5	3	< 0.10	8	6	< 0.03	7	4.9	0.7	< 0.5	< 5	< 0.5	22.1	22
MW-27 (60-62')	09/02/98	NA	all ND	NA	< 1	11600	4.8	156	0.9	< 0.5	6	< 0.10	13	12	< 0.03	11	9.0	0.7	< 0.5	< 5	< 0.5	25.0	42
MW-28 (60-62')	11/14/00	ND	all ND	all ND	< 1.00	11200	1.75	85.8	< 0.500	< 0.500	3.23	NA	9.19	6.27	< 0.250	8.46	< 10.0	< 0.500	< 0.500	< 10.0	< 0.500	24.2	29.9
MW-29 (65-67')	11/18/00	ND	all ND	all ND	< 1.00	18700	3.02	246	< 0.500	< 0.500	4.43	NA	14.8	9.37	< 0.250	11.4	11.3	< 0.500	< 0.500	< 10.0	< 0.500	29.3	40.4
MW-30 (65-67')	11/16/00	ND	all ND	all ND	< 1.00	8100	2.15	224	< 0.500	< 0.500	2.73	NA	6.01	5.46	< 0.250	7.71	< 10.0	< 0.500	< 0.500	< 10.0	< 0.500	18.0	24.2
MW-31 (60-62')	09/22/01	< 5	all ND	all ND	< 2	6730	2.04	38.5	0.491	< 0.5	3.09	< 0.025	6.09	4.26	< 0.040	7.3	4.52	0.615	1.05	2.1	< 1	15.9	19.3
MW-32 (60-62')	09/23/01	< 5	all ND	all ND	< 2	3850	< 2	56.1	<0.4	< 0.5	< 2	< 0.025	3.57	2.6	< 0.040	5.22	2.53	0.629	< 1	2.29	< 1	8.98	11.8
MW-33 (60-62')	09/22/01	< 5	all ND	all ND	< 2	3670	< 2	60.8	<0.4	< 0.5	< 2	< 0.025	3.84	2.32	< 0.040	3.78	3.18	0.72	< 1	1.82	< 1	14.1	12.3
MW-34 (55-56')	01/06/03	< 5	all ND	all ND	< 0.25	9200	1.8	190	0.46	< 0.10	3.2	NA	10	6.4	< 0.10	7.3	< 0.25	< 0.25	< 0.50	< 0.50	< 0.50	16	26
MW-35 (55')	01/07/03	< 5	all ND	ND*	< 0.25	14000	3.0	180	0.66	< 0.099	4.8	NA	12	10	< 0.099	10	< 0.25	< 0.25	< 0.50	< 0.50	< 0.50	21	38
MW-36 (55-56")	09/29/03	< 5	all ND	ND**	< 0.5	16100	2.3	204	0.6	< 0.5	4.4	NA	13.4	6.8	< 0.05	8.8	7.0	< 0.5	< 0.5	< 0.5	< 0.5	25.4	26.8
MW-37 (54'-55')	09/29/03	8.9	all ND	ND**	< 0.5	25800	3.4	173	1.0	< 0.5	6.7	NA	20.5	10.1	< 0.05	14.7	10.2	< 0.5	0.5	< 0.5	< 0.5	37.8	42.2
MW-38 (49'-50')	09/30/03	< 5	all ND	all ND	< 0.5	12400	2.9	27.8	< 0.5	< 0.5	3.5	NA	6.6	4.7	< 0.5	7.9	4	< 0.5	< 0.5	< 2	< 0.5	22	26

Notes:

all ND - Results were Non-Detect for all VOC's by Method 8260 and for all SVOC's by Method 8270

NA - An analytical result for this constituent was not reported by the laboratory

TPH for samples 11/00 were run by NW TPH-Gx and Dx methods

* SVOC's were non detect except for Di-n-butyl phthalate which was detected at 0.21 mg/Kg

** SVOC's were non detect except for Di-n-butyl phthalate which was detected at 0.37 mg/Kg for MW-36 and 0.29 for MW-37 (this analyte was detected in the associated Method Blank)

Table 8. Summary of Vapor Sample Analyses for the SVE System
Compressor Station No. 9 - Roswell, NM

Sample ID	Date	Gasoline Range VOCs		Estimated Process Flow	Potential Emissions	< C5	C5-C6	C6-C7	C7-C8	C8-C9	C9-C10	C10-C11	C11-C12	C12-C14	C14+
		(ug/L)	(ppmv) [a]	(scfm)	(lb/hr)	(%)									
West Baker Furnace	05/21/03	3,220	980	128	1.5	1.0	19.7	40.0	28.8	7.5	2.4	0.5	0.1	0.0	0.0
Duplicate (SVE-1)	05/21/03	3,680	1,120	128	1.8	0.0	20.6	39.8	29.3	7.6	2.2	0.4	0.1	0.0	0.0
East Baker Furnace	05/21/03	1,850	563	175	1.2	0.0	16.5	29.1	26.2	14.2	8.0	2.2	0.7	2.4	0.7
Duplicate (SVE-2)	05/21/03	2,070	630	175	1.4	0.0	16.6	29.8	27.2	15.1	8.6	1.8	0.6	0.1	0.2
West Baker Furnace	06/04/03	3,660	1,114	127	1.7	0.7	36.1	23.0	32.6	4.6	2.3	0.5	0.0	0.0	0.2
Duplicate (SVE-1)	06/04/03	3,180	968	127	1.5	0.4	37.4	34.7	20.8	4.5	2.0	0.2	0.0	0.0	0.0
East Baker Furnace	06/04/03	3,450	1,050	142	1.8	0.4	39.8	30.3	19.0	7.1	2.5	0.8	0.1	0.0	0.0
Duplicate (SVE-2)	06/04/03	3,370	1,025	142	1.8	0.3	40.2	29.9	19.0	7.2	2.6	0.7	0.1	0.0	0.0
A Circuit	07/22/03	2,540	773	132	1.3	0.0	17.2	38.5	31.1	7.6	3.1	0.5	0.5	1.5	0.0
Duplicate (A Circuit) (SVE-1)	07/22/03	2,140	651	132	1.1	0.0	17.8	39.0	30.1	9.8	2.8	0.4	0.0	0.1	0.0
A Circuit	03/02/04	1,050	320	24	0.1	0.1	36.2	44.4	17.5	1.5	0.3	0.0	0.0	0.0	0.0
B Circuit	07/27/03	7,640	2,325	110	3.1	0.2	34.6	20.4	33.3	8.0	2.5	0.7	0.3	0.0	0.0
B Circuit	03/02/04	9,420	2,867	80	2.8	0.1	40.2	40.4	18.1	1.2	0.0	0.0	0.0	0.0	0.0
C Circuit	08/18/03	1,250	380	130	0.6	0.0	37.5	35.6	22.5	3.9	0.5	0.0	0.0	0.0	0.0
C Circuit	03/02/04	7,890	2,401	64	1.9	0.1	25.4	39.2	30.1	4.7	0.5	0.0	0.0	0.0	0.0
D Circuit	08/25/03	2,380	724	119	1.1	0.0	49.6	35.7	13.4	1.0	0.1	0.0	0.0	0.1	0.1
D Circuit	03/02/04	52,600	16,006	64	12.6	0.0	32.1	47.8	18.8	1.2	0.1	0.0	0.0	0.0	0.0
Shallow Circuit	03/02/04	1,200	365	48	0.2	0.3	13.5	32.7	40.9	11.3	1.3	0.0	0.0	0.0	0.0

(a) Conversion Factor:

P = 1.00 atm, MW = 79 g/mole, R = 0.08205 L*atm/(K*mole), T = 293°K

C ppmv = C ug/L * ((R * T)/(MW*P))

C ppmv = C ug/L * 0.3043

Table 9. Summary of Vapor Sample Analyses for Invividual SVE Wells
Compressor Station No. 9 - Roswell, NM

Sample ID	Date	PID Readings	Gasoline Range VOCs		< C5	C5-C6	C6-C7	C7-C8	C8-C9	C9-C10	C10-C11	C11-C12	C12-C14	C14+
		(ppm)	(ug/L)	(ppmv) [a]	(%)									
MPE-1	08/03/03	3.3	5.30	1.6	0.0	0.0	0.9	5.4	23.4	36.1	26.5	6.4	1.3	0.0
MPE-2	08/03/03	3.1	8.80	2.7	0.0	0.0	0.7	5.1	20.1	29.0	19.6	4.9	17.8	2.8
MPE-3	08/03/03	3.4	6.84	2.1	0.0	1.7	9.1	16.4	23.9	32.4	15.9	0.6	0.0	0.0
MPE-4	08/03/03	3.2	15.9	4.8	0.0	2.6	17.7	21.3	26.7	21.3	9.9	0.3	0.2	0.0
MPE-5	08/03/03	3.6	9.44	2.9	0.0	0.6	5.8	17.9	33.1	30.5	11.9	0.2	0.0	0.0
MPE-6	08/03/03	3.9	8.34	2.5	0.0	0.0	2.1	12.8	29.7	35.3	19.8	0.3	0.0	0.0
MPE-7	08/03/03	7.2	107	32.6	0.0	47.4	22.0	17.8	5.6	2.8	1.7	0.7	2.0	0.0
MPE-8	08/03/03	5.1	33.6	10.2	0.0	9.5	17.4	34.1	19.5	9.4	4.8	1.6	3.7	0.0
MPE-9	08/03/03	23.9	260	79.1	0.0	55.0	26.1	14.5	2.8	1.1	0.5	0.0	0.0	0.0
MPE-10	08/03/03	8.6	68.2	20.8	0.0	28.4	29.8	24.3	10.0	5.3	2.2	0.0	0.0	0.0
MPE-11	08/03/03	5.3	29.30	8.9	0.0	15.4	26.5	27.1	14.8	10.7	5.1	0.1	0.3	0.0
MPE-12	08/03/03	130.6	5,600	1,704.1	0.0	35.0	38.7	22.4	3.5	0.4	0.0	0.0	0.0	0.0
MPE-13	08/03/03	156.9	7,290	2,218.3	0.0	16.6	61.3	18.9	2.9	0.3	0.0	0.0	0.0	0.0
MPE-14	08/03/03	162.7	8,480	2,580.5	0.0	48.6	29.0	19.2	2.7	0.3	0.1	0.0	0.1	0.0
MPE-15	08/03/03	106.3	1,700	517.3	0.0	21.6	32.9	34.0	9.7	1.8	0.0	0.0	0.0	0.0
MPE-16	08/03/03	134.2	3,430	1,043.7	0.0	32.6	35.2	25.9	5.4	0.8	0.1	0.0	0.0	0.0
MPE-17	08/03/03	95.7	1,960	596.4	0.0	15.0	30.1	37.8	14.2	2.8	0.1	0.0	0.0	0.0
MPE-18	08/03/03	65.7	971	295.5	0.0	10.2	25.6	37.7	20.5	5.6	0.4	0.0	0.0	0.0
MPE-19	08/03/03	88.2	2,430	739.4	0.0	35.0	28.7	24.3	8.9	2.8	0.3	0.0	0.0	0.0
MPE-20	08/03/03	132.8	19,800	6,025.1	0.0	55.2	27.5	14.6	2.2	0.3	0.2	0.0	0.0	0.0
MPE-21	08/03/03	131.7	27,900	8,490.0	0.0	27.0	53.2	17.3	2.2	0.2	0.1	0.0	0.0	0.0
MPE-22	08/03/03	123.3	4,070	1,238.5	0.0	47.2	28.4	19.5	3.5	0.6	0.3	0.2	0.3	0.0
MPE-23	08/03/03	136.0	6,660	2,026.6	0.0	30.4	51.3	15.4	2.5	0.4	0.0	0.0	0.0	0.0
MPE-24	08/03/03	139.9	26,200	7,972.7	0.0	31.9	53.5	12.8	1.7	0.1	0.0	0.0	0.0	0.0
MPE-25	08/03/03	136.4	3,730	1,135.0	0.0	26.6	39.8	26.3	6.3	1.0	0.0	0.0	0.0	0.0
MPE-26	08/03/03	144.6	9,160	2,787.4	0.0	32.6	37.4	24.9	4.4	0.5	0.2	0.0	0.0	0.0
MPE-27	08/03/03	142.5	77,400	23,552.8	0.0	31.7	55.3	11.5	1.3	0.1	0.1	0.0	0.0	0.0
MPE-28	08/03/03	162.1	25,900	7,881.4	0.0	27.4	52.3	17.2	2.9	0.2	0.0	0.0	0.0	0.0
MPE-29	08/03/03	160.4	7,710	2,346.2	0.0	13.7	53.7	24.7	6.8	1.1	0.0	0.0	0.0	0.0
MPE-30	08/03/03	154.6	59,200	18,014.6	0.0	29.0	54.8	14.6	1.5	0.1	0.0	0.0	0.0	0.0
MPE-31	08/03/03	256.2	17,000	5,173.1	0.0	11.4	33.1	48.3	6.5	0.7	0.0	0.0	0.0	0.0
MPE-32	08/03/03	190.0	9,520	2,896.9	0.0	14.3	52.1	25.6	7.0	1.0	0.0	0.0	0.0	0.0
MPE-33	08/03/03	169.9	3,800	1,156.3	0.0	23.2	36.1	28.6	10.0	2.1	0.0	0.0	0.0	0.0
MPE-34	08/03/03	143.3	5,040	1,533.7	0.0	10.0	28.2	46.0	14.0	1.8	0.0	0.0	0.0	0.0

Table 9. Summary of Vapor Sample Analyses for Invividual SVE Wells
Compressor Station No. 9 - Roswell, NM

Sample ID	Date	PID Readings	Gasoline Range VOCs		< C5	C5-C6	C6-C7	C7-C8	C8-C9	C9-C10	C10-C11	C11-C12	C12-C14	C14+
		(ppm)	(ug/L)	(ppmv) [a]	(%)									
MPE-35	08/03/03	105.8	3,100	943.3	0.0	9.9	27.7	47.5	11.7	2.9	0.3	0.0	0.0	0.0
MPE-36	08/03/03	113.1	2,500	760.8	0.0	22.3	33.5	29.3	11.7	2.9	0.3	0.0	0.0	0.0
MPE-37	08/03/03	90.7	2,050	623.8	0.0	16.9	32.1	30.7	9.7	3.7	3.3	1.9	1.5	0.2
SVE-22	08/03/03	8.7	336	102.2	0.0	3.3	21.2	48.2	22.3	3.8	1.2	0.0	0.0	0.0
SVE-23	08/03/03	8.4	53.3	16.2	0.0	4.2	25.2	41.5	19.0	7.3	2.5	0.1	0.2	0.0
SVE-24	08/03/03	4.7	16.9	5.1	0.0	1.0	8.8	32.6	30.1	20.0	7.5	0.0	0.0	0.0
SVE-25	08/03/03	62.1	1,270	386.5	0.0	12.7	31.2	36.7	15.0	4.0	0.4	0.0	0.0	0.0
SVE-26	08/03/03	51.5	880	267.8	0.0	12.6	31.1	36.9	15.0	4.0	0.4	0.0	0.0	0.0
SVE-27	08/03/03	73.0	1,800	547.7	0.0	13.5	29.2	37.5	13.3	3.3	0.9	0.8	1.4	0.1
SVE-28	08/03/03	78.8	1,690	514.3	0.0	17.3	34.7	34.0	10.9	2.7	0.4	0.0	0.0	0.0
SVE-30	08/03/03	75.9	734	223.4	0.0	13.9	26.2	35.4	18.2	5.7	0.6	0.0	0.0	0.0
SVE-31	08/03/03	78.8	1,470	447.3	0.0	18.0	32.6	33.3	12.1	3.5	0.5	0.0	0.0	0.0

(a) Conversion Factor:
P = 1.00 atm, MW = 79 g/mole, R = 0.08205 L*atm/(K*mole), T = 293°K
C ppmv = C ug/L * ((R * T)/(MW*P))
C ppmv = C ug/L * 0.3043

APPENDICES

Cypress Engineering Services, Inc.
10235 West Little York Road
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FIELD BOREHOLE LOG

BOREHOLE NO.: **MW-34**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-58**
LOGGED BY:	**C.M. Barnhill, PG**	METHOD OF DRILLING:	**HSA 81/4" Augers**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**01/06/03**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 2" SCH 40 PVC Monitor Well

⧖ Water level during drilling
⧗ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 0'-32':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry.					Cement Grout 3'-42'
-10		GM						
-25		GM						
-30		SC	SC: Clayey Sand, tan brown to light brown reddish saturated @55' BGS, No odor or staining, Water Level @ 57.74' BGS 01/07/03		42/24"	40-42'		
-35		SC			46/24"	44-46'		Bentonite 42'
-40		SC		@55' BGS Sampled 2 x 4/oz. Jars @11:10hr. 8260 VOC / TPH Mod. 8015 8270 SVOC Total Metals	51/24"	49-51'		Top Sand 46'
-45		SC			56/24"	54-56'		Top Screen 49'
-50		SW	SW: Med. to fine grained tan sand, well sorted,		61/24"	59-61'		
-55		SC	SC: Clayey Saturated		66/24"	64-66'		12/20 Sand
-60		CH	CH: Fat Brown Silty Clay,		71/24"	69-71'		0.010 Slot Screen
-65		SW	SW: Tan, Reddish, Brown Sand, Fine Gr., Well Sorted, Saturated, Flowing Sand, No Odor Or		76/24"	74-76'		
-70		SW			81/24"	79-81'		TD 79'
-75		SP/SW	SP: Tan, Reddish Brown Sand, Fn. Gr., Well Sorted, Saturated, mixed with angular to subrounded gravel to 1/2", No odor or staining.					
-80								
-85								

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MW-35**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
E LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-58**
GGED BY:	**C.M. Barnhill, PG**	METHOD OF DRILLING:	**HSA 81/4" Augers**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
TES DRILLED:	**01/07/03**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 2" SCH 40 PVC Monitor Well

Water level during drilling
Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
-10		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 0'-40':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry.					Cement Grout 3'-43'
		GM						
5								
-30		GM						
.5								
40		SC	SC: Clayey Sand, tan brown to light brown reddish saturated @56' BGS, No odor or staining, Water Level @ 54.45' TOC 01/08/03		42/24"	40-42'		Bentonite 43'
5		SC			46/24"	44-46'		Top Sand 46'
-50				@55' BGS	51/24"	49-51'		Top Screen 49'
		SW	SW: Med. to fine grained tan sand, well sorted, saturated @ 56' BGS, No odor or staining.	Sampled 2 x 4/oz. Jars	56/24"	54-56'		12/20 Sand
-60					61/24"	59-61'		
5		SC	SC: Clayey Saturated	@11:10hr	66/24"	64-66'		0.010 Slot Screen
-70		SW	SW: Tan, Reddish, Brown Sand, Fine Gr., Well Sorted, Saturated, Flowing Sand, No Odor Or	8260 VOC / TPH Mod. 8015	71/24"	69-71'		
75		SW			76/24"	74-76'		
-80		CH	CH: Fat Brown Silty Clay, Dry	8270 SVOC	81/24"	79-81'		TD 79'
85				Total Metals				

Cypress Engineering Services

Boring ID: MW-35

MW-35

Project:	Remediation Drilling	Sheet:	1 of 1
Location:	Twp Roswell Station #9		
Client:	CES/Twp	Job number:	P-202203
Driller:	Mort Bates, Atkins Drilling	Total depth:	
Drilling method:	HSA, Mobile Drill B-58	Boring diameter:	6 1/4" O.D. Augers
Boring date:	01/06-07/03	Logged by:	CMB
Water level:	54.45' (TOC) 77.10 TD (TOC)	Date measured:	01/08/03

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0'					0'-5: Gravel, caliche mixture. 5-40' - Gravel Sand Silt mixture, Dry. No odor or staining		GM
30'							GM
40'	44'-46'		24"		@ 40' Clayey Sand, Brown, SPT: 44'-46': Very clayey Brown, reddish brown, fine grained well sorted sand/clay mixture		SC
50'	49'-51'		24"		49'-51': Clayey Sand SC very clayey.		SC
	54'-56'		24"		54'-56': Capillary fringe Sand, fine gr. well sorted @ 55.5' - Tan brown - No odor or stain. SW		Sampled 2x 40x16/None for TPH MD 8015 / BTEX 8021 @ 9:10 hour. SW
56'							
70'	59'-61'		24"		Wet @ 56' 64'-66' - Spt Saturated tan brown Sand, med. gr. to fine gr. No odor or staining.		SW
	64'-66'		24"				
80'	69'-71'		24"		@ 69'-71: SPT Clayey Sand. Tan br. fine gr. well sorted Saturated. Very clayey.		SC 66'-70'
	74'-76'		24"		74'-76' - SPT: Tan brown med to fine gr. well sorted Sand.		SW Saturated
90'	79'-81'		24"		@ 80' Fat Clay CH Brown, soft + med. Plastic T.D. 79		CH - dry.

.010 slot screen - 79'-49'
Top 12/20 Sand. 46'
Top Bentonite 43'

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MW-36**
TOTAL DEPTH: **75'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-58**
LOGGED BY:	**C.M. Barnhill, PG**	METHOD OF DRILLING:	**HSA 81/4" Augers**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**09/29/03**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 2" SCH 40 PVC Monitor Well

⧖ Water level during drilling
⧗ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0 to -5		GM	GM: 0'-5': GM mixed with caliche, white pink, dry 5'-18':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry.		75/22"	9'-11'		Cement Grout 0'-50'
-5 to -20		CL	CL: Clayey Sand, tan brown to light brown reddish		25/21"	19'-21'		
-20 to -30		SP	SP: Med. to fine grained tan sand, well sorted, Clayey		38/19"	29'-31'		
-30 to -40		CL	SC: Clayey Sand, fine gr. well sorted, no odor or staining. Reddish Brown to yellowish color. Saturated at 57' feet below ground surface. DTW=54.78' BGS Total Depth 75' BGS.		32/24"	39'-41'		
-40 to -50		SP		@55' BGS Sampled 2 x 4/oz. Jars @09:38hr. 8260 VOC / TPH Mod. 8015 8270 SVOC Total Metals	51/18"	49'-51'		Top Bentonite 50' Top Sand 53' 12/20 Sand Top Screen 55' 0.010 Slot Screen
-50 to -55		SW						
-55 to -60		SC			48/24"	59'-61'		
-60 to -70		SC						
-70 to -75		SW						TD 75'
-75 to -90		SC						

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Boring ID: ~~[illegible]~~ MW-36

Project: Phase IV Continued Remediation Drilling
Sheet: 1 of 2
Location: Twp Roswell Station 9
Client: TWP / CES
Job number: P-202203
Driller: Mort Bates, Atkins Engineering
Total depth: 75'
Drilling method: HSA
Boring diameter: 8 1/4 HSA
Boring date: 09/29/03
Logged by: LR
Water level: 54.67'
Date measured: 11/11/03

TIME	depth (ft)	SAMPLE interval	SAMPLE number (SPT)	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0755	0					Mixture of: Cobble fragments + gravel to 2.5" with silty sand and white caliche ~~tan sand~~ reddish brown sand		0'-9': cuttings GM
		9-11	75	22"	75 (22")	9'-11': light brown; silty sand w/ 30% gravel to 1" diam, dry (white caliche present)		SP/GW
810	10					with irregular layers of sandy gravel (cobble-fragments to pebbles) to 3" diam		cuttings GM
0826	18 20	19-21	25	21"	25 (21.5")	@18': yellowish red to dark red clayey, silty sand to sandy, silty clay w/ white caliche bands; dense		CL / ~~SP~~ SC fat clay
						moist		CL
0840	29 30	29-31	38	19"	38 (19")	@29' trace of dark matter w/ very light odor (could be slough).		
						29'-29.5 gradual change from sandy clay to clayey sand to sand (very fine to fine), yellowish red (lighter color than clay)		SP
0858	37 40	39-41	32	24	32 (24")	37': back into clayey sand 39'-41': clayey sand / sandy clay very moist		CL
		40'-42'			/	@30'4" and 31' a 2" thick layer of dry ~~sandy~~ clayey silt @30'8": very fine to fine sand, 3" thick moist		CL ?
0918	50	49-51	51	18"	51 (24")	49'-50': very fine to fine sand, very moist; reddish yellow; appears to be more dense at 51' feet, w/ some clay; very moist		SP
0938	53 54	54-56	28		28 (24")	@53' ~~[illegible]~~ in reddish brown fine to medium sand w/ trace clay 54-55': dense, fat clay and clayey sand; very moist; yellowish red 55'-56': ~~[illegible]~~ very fine sand, wet, trace clay; yellowish red		~~[illegible]~~ SW / CL SP ~~[illegible]~~ SW 55'-56' capillary fringe sample
	60							

Cypress Engineering Services

Boring ID: MW-36

Project:	Phase IV Continued Remediation Drilling	Sheet:	2 of 2
Location:	TWP Roswell Station 9		
Client:	TWP/CES	Job number:	P-202203
Driller:	Mort Bates, ATKINS Engineering	Total depth:	75'
Drilling method:	HSA	Boring diameter:	8 1/4" HSA
Boring date:	9/29/03	Logged by:	LR
Water level:	9/30/03 07:00 : 54.78 BTOC	Date measured:	

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0956 60	59-61	48	24"	48(24")	59'-60': very fine to medium sand, trace clay, saturated 60-61': very fine silty sand, very moist separated by 1½" layer of cemented dry quartz sand.		SP/CL/SC
70. 1015 1040 75 TD					Drilled to 70', let water recover cuttings: from clayey, silty sand to sandy, silty clay		10:15 DTW = 69'/rising 10:23 DTW = 68.68 BGS 1030 DTW = 68.30 BGS ~~1030~~ 1037 Drill to 75' TD BGS (1040 set well)
							1128 well set
					completion: 50-0 ~~bentonite grout~~ bentonite seal : 53'-50' 12/20 silica sand: 75'-53' 0.010" slotted screen: 75'-55' TD = 75'		1308 DTW = 47.90 BGS before developing well (incl. added water)
							~~153~~ 14:30 after initial development WL @ DTW = 57' and still rising (BGS) continue to develop well
					9/30/03 0700 MW-36: DTW = 54.78' BTOC TD = 74.70' BTOC		

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FIELD BOREHOLE LOG

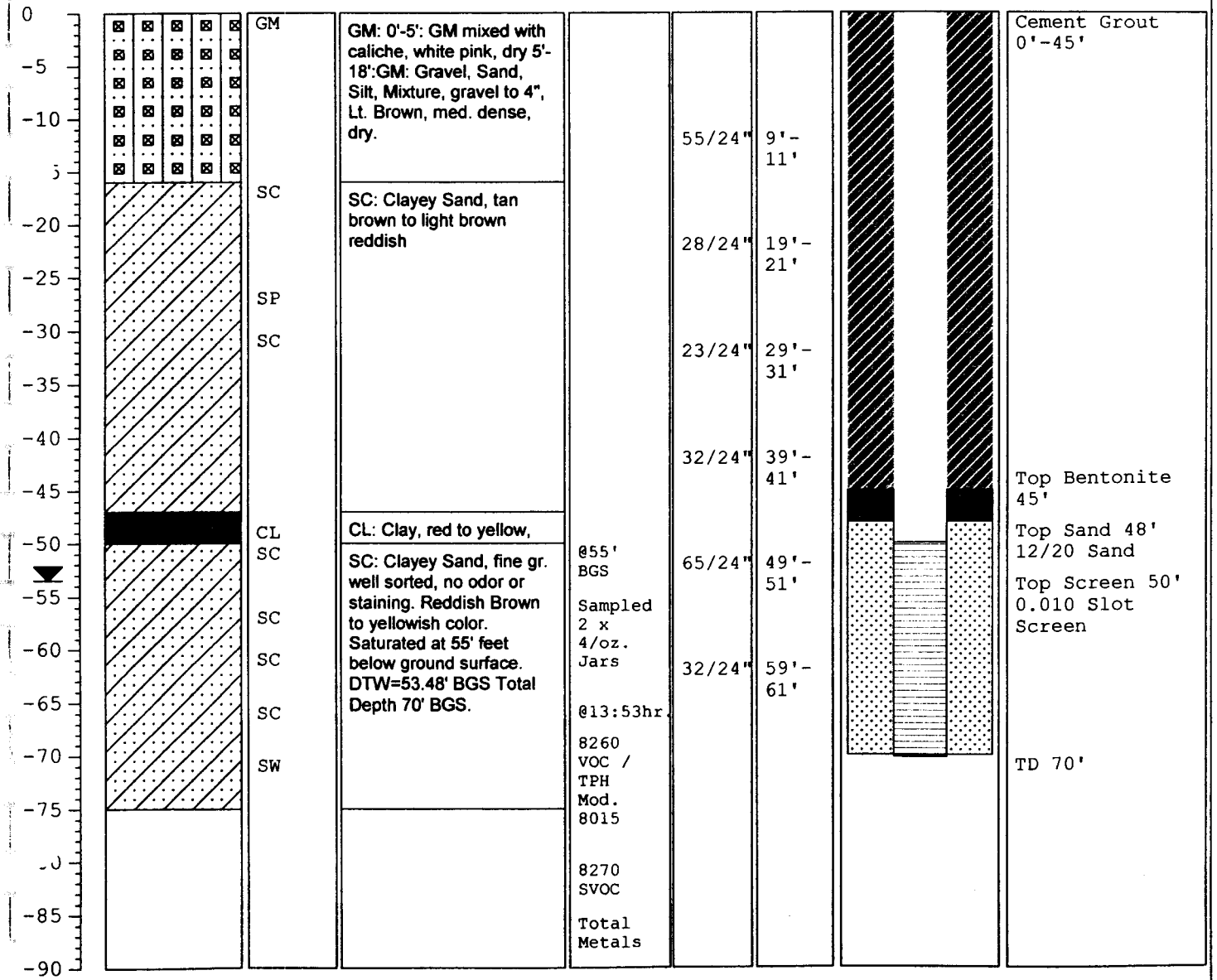
BOREHOLE NO.: **MW-37**
TOTAL DEPTH: **70'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-58**
LOGGED BY:	**C.M. Barnhill, PG**	METHOD OF DRILLING:	**HSA 81/4" Augers**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**09/29/03**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 2" SCH 40 PVC Monitor Well

⧖ Water level during drilling
⧗ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0 to -90		GM	GM: 0'-5': GM mixed with caliche, white pink, dry 5'-18':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry.		55/24"	9'-11'	Cement Grout 0'-45'	
		SC	SC: Clayey Sand, tan brown to light brown reddish		28/24"	19'-21'		
		SP			23/24"	29'-31'		
		SC			32/24"	39'-41'	Top Bentonite 45'	
		CL	CL: Clay, red to yellow,				Top Sand 48' 12/20 Sand	
		SC	SC: Clayey Sand, fine gr. well sorted, no odor or staining. Reddish Brown to yellowish color. Saturated at 55' feet below ground surface. DTW=53.48' BGS Total Depth 70' BGS.	@55' BGS Sampled 2 x 4/oz. Jars @13:53hr. 8260 VOC / TPH Mod. 8015 8270 SVOC Total Metals	65/24"	49'-51'	Top Screen 50' 0.010 Slot Screen	
		SC			32/24"	59'-61'		
		SC						
		SW						TD 70'



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Boring ID: MW-37

Project: Phase IV Continued Remediation Drilling
Location: TWP Roswell Station 9
Client: TWP/CES
Driller: Mort Bates, ATKINS Engineering
Drilling method: HSA
Boring date: 9/29/03
Water level: 9/30/03 0820 DTW = 53.48 BTOC
11/11/03 53.44

Sheet: 1 of 2
Job number: P-202203
Total depth: 70'
Boring diameter: 8 1/4" HSA
Logged by: LR
Date measured: 11/11/03
DTW = 53.44'

TIME	depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
1500	0					0-5: silty, fine sand, light brown, dry		SP 0'-9' cuttings
	5							
1158	10	9-11	55	24"	55(24")	9.0-10.5' fine to med sandy gravel to 3/4", dry, light brown, caliche		GM
	16					10.5-11.0 fine to medium silty sand, dry, light brown w/ 30% gravel +/- 16' sandy clay starts		
1214	20	19-21	28	24"	28(24")	19'-21': silty, clayey sand to silty sandy clay, moist, dark red to yellowish red, veins of fine grained quartz (mostly vertical), minor very small gravel, manganese oxide staining		CL/SP
2309	30	29-31	23/25	24"	23/25(24")	29.0-29.8': very fine to fine sand, trace clay, yellowish red, moist 29.8-31.0: sandy clay to clayey medium to fine sand w/ bands of white caliche, yellowish red, moist, very stiff		29.8 CL/SC
319	40	39-41	32	24"	32(24")	as above		
332	50	49-51	65	24"	65(24")	very stiff, black deposits look like manganese (bluish metallic sheen) 49-50: silty clay, very moist, dark red to yellowish red		CL only, NO SC
3	55	54-56	29	24"	29/(24")	50'-51': very fine, silty sand, trace clay, very moist to wet, strong brown. 54'-55': very fine to fine sand, clay varies from trace to 20%, very moist to wet.		capillary fringe sample @ 54'-55'
14	60	59-61	32	24"	32(24")	55-56': silty, sandy clay to clayey silty sand, strong brown		

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Boring ID: MW-37

Project: Phase IV continued Remediation Drilling
Location: TWP Roswell Station 9
Client: TWP / CES
Driller: Mark Bates ; ATKINS Engineering
Drilling method: HSA
Boring date: 9/29/03
Water level: 9/30/03 0820 DTW = 53.48 BTOC

Sheet: 2 of 2
Job number: P-202203
Total depth: 70'
Boring diameter: 8 1/4" HSA
Logged by: LR
Date measured:

depth (ft)	SAMPLE: interval	SAMPLE: number	SAMPLE: recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
60	see page 1 of 2				59'-61': very fine to fine sand, clay varies from trace to 20%. Interbedded ss / sandy clay, strong brown, wet to very moist		14:23 DTW=59.15 BGS and rising SP/SC/CL 1430 continue drilling to 70'
70							1440 TD = 70' set well MW-37
					MW-37 well completion: 0.010" slotted screen: 70'-50' 12/20 silica sand: 70'-48' Bentonite seal: 48'-45' bentonite grout 45'-0		1545 complete, except grout
							DTW = 53.88 (incl. added water)

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MW-38**
TOTAL DEPTH: **68'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-58**
LOGGED BY:	**C.M. Barnhill, PG**	METHOD OF DRILLING:	**HSA 81/4" Augers**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**09/30/03**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 2" SCH 40 PVC Monitor Well

⧖ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0 to -90		GM	GM: 0'-5': GM mixed with caliche, white pink, dry 5'-18':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry.		67/20"	9'-11'		Cement Grout 0'-41'
		SC	SC: Clayey Sand, tan brown to light brown reddish		52/24"	19'-21'		
		SC			15/24"	29'-31'		
		SC			20/24"	39'-41'		Top Bentonite 45'
		SP	SP: Fine gr. sand, reddish					Top Sand 46' 12/20 Sand Top Screen 48' 0.010 Slot Screen
		SC	SC: Clayey Sand, fine gr. well sorted, no odor or staining. Reddish Brown to yellowish color. Saturated at 55' feet below ground surface. DTW=43.27' BGS Total Depth 68' BGS.	@55' BGS Sampled 2 x 4/oz. Jars @08:32hr. 8260 VOC / TPH Mod. 8015 8270 SVOC Total Metals	19/24"	49'-51'		
		SC			36/24"	59'-61'		
		SC						TD 68'
		SC						

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Boring ID: MW-38

Project: Phase 4 Continued Remediation Drilling
Location: TWP Roswell Station 9
Client: TWP / CGS
Driller: Mort Bales; ATKINS Engineering
Drilling method: HSA
Boring date: 9/30/03
Water level: 43.27 From TOC

Sheet: 1 of 2
Job number: P-202203
Total depth:
Boring diameter: 8 1/4" HSA
Logged by: LR
Date measured: 11/4/03

TIME

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0							
0708					0-1': fine silty sand; light brown; dry		SP
					1'-9': mixture fine to med. Sand w/ gravel (cobble fragments and pebbles) to 2" diam dry; light brown.		cuttings
	9-11	67 52	20"	67 (24")	as before; gravel to 3/4" dia		GM
10					w/ caliche (white)		
13					13' less gravel		GM
15 20	19-21	19-21	52	24"	52 (24")	19-19.5: as above	
					19.5-21.0: very fine to fine sand; moist, yellowish red; ~~silty~~ 10-20% clay; trace very small gravel		SC
25 30	29-31	29-31	15	24"	15 (24")	29.0'-31.0' = sandy, silty clay; very moist; yellowish red	
							CL
30 40	39-41	39-41	20	24"	20 (24")	39.0'-41.0' = silty, sandy clay	
					mottled w/ silty sand (trace clay) inclusions ~~(trace)~~ to clayey, sandy silt; yellowish red; very moist		CL/SC
32 50		49-51	19	24"	19 (24")	49'-50': very fine to fine sand	2" SP
					Some clay (more than in MW-36 and MW-37); reddish brown; saturated - cap. fringe -		capillary fringe sample MW-38 (49-50')
					50'-51': silty, sandy clay; red; reddish brown		CL
55 60		59-61	36	24"	36 (24")	59'-61' = clayey sand, fine to medium	CL/SC

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Boring ID: MW-38

Project: Phase 4 Continued Remediation Drilling
Location: TWP Rostell Station 9
Client: TWP / CGS
Driller: Mort Bates, ATKINS Engineering
Drilling method: HSA
Boring date: 9/30/03
Water level:

Sheet: 2 of 2
Job number: R202203
Total depth:
Boring diameter: 8 1/4" HSA
Logged by: LE
Date measured:

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
60					grained, to sandy silty clay; moist, very stiff; yellowish red; mottled with mm-wide veins and small pockets of cemented sand (fine grained).		
68						68'	0915 TD = 68'
				41	MW-38 Well completion: 44' - 0' bentonite grout 46' - 44' bentonite seal 68' - 46': 12/20 Silica sand 68' - 48': 0.010" slotted screen		1025 set well, except for grouting

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FIELD BOREHOLE LOG

BOREHOLE NO.: **SVE-22**
TOTAL DEPTH: **35'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**Jim Chionis**	METHOD OF DRILLING:	**6 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**11/07/02**	HAMMER WT./DROP	**140 LB., 30 IN.**

NOTES: Water @ 20' (BGS)? Strong Odor

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
5		GM	COLLUVIUM: Backfill / Colluvium					Concrete seal: 13'-3'
15			GRAVEL AND SAND: GM: Gravel, Sand, Silt Mixture, 2" Gravel Perched Aquifer @ 20' BGS ??					Bentonite: 18'-13'
25		CH	CLAY: CH: Red Sandy Clay to Fat Clay Lense					Top Sand 23'
			GRAVEL AND SAND: Silty Gravel, gray with Hydrocarbon Odor	25'-27'	100			2" 0.010 Slot Screen 35' - 25'
35								TD 35'

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Boring ID: SVE 22

Project:	Remediation Drilling	Sheet:	1 of 1
Location:	Twp Roswell		
Client:	Twp/CES.	Job number:	P 202203
Driller:	Mort Bates - Atkins	Total depth:	35
Drilling method:	HSA MOBILE DRILL B-58	Boring diameter:	6 1/4
Boring date:	11-7-02	Logged by:	JLC
Water level:	N/A.	Date measured:	N/A

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					Fill - silty sand w/ some gravel (small size)		Located SE corner of pad
10					gravel, light gray (1-2")		
20					water at 22' (perched zone) ~~[illegible]~~ clay lense at 23'		clay stained - light gray
	25-27			100 blows	split spoon 25-27'. 100 blow; silty gravel; gray		HC odor
30					grave w/ some clay - ~~[illegible]~~ ~~[illegible]~~ 35 TD		clay is stained gray - HC odor
40							

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FIELD BOREHOLE LOG

BOREHOLE NO.: **SVE-23**
TOTAL DEPTH: **39'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
TE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
OGGED BY:	**Jim Chionis**	METHOD OF DRILLING:	**6 1/4" Hollow Stem Auger**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
ATES DRILLED:	**11/07/02**	HAMMER WT./DROP	**140 LB., 30 IN.**

NOTES: 2" SVE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt Mixture Gravel to 2"					Concrete seal: 17'-3'
5								
15								Bentonite: 22'-17'
20								Top Sand 22'
25		GM						2" 0.010 Slot Screen 35' - 25'
30								
35		GM						TD 39'
40								

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Boring ID: SVE 23

Project:		Sheet:	
Location:	TNP Roswell		
Client:		Job number:	
Driller:	Mw + Bates Atkins	Total depth:	39'
Drilling method:		Boring diameter:	
Boring date:	11-7-02	Logged by:	JLC
Water level:		Date measured:	N/A

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					Silty Sandy Gravel		
10					gravelly sand		
					gravel; small size		
20					gravel, largersize (1-2")		
30					silty sand w/some gravel		
					gravel		Bottom of well csg.
					TD 39'		
40					Note; Filled hole back to 35'		
							Bent Plug to 17'
							SAND (TOP) 22'
							Screen 35-25'
							TD 39'

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FIELD BOREHOLE LOG

BOREHOLE NO.: **SVE-24**
TOTAL DEPTH: **30'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**6 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**11/13/02**	HAMMER WT./DROP	**140 LB., 30 IN.**

NOTES:

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt Mixture Gravel to 2"					Concrete seal: 13'-3'
5								
10								Bentonite 18'-13'
15								Top Sand 18'
20								
25								2" 0.010 Slot Screen 30' - 20'
30		CH	CLAY: CH: Red Sandy Clay to Fat Clay					TD 30'
35								

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Boring ID: SVE-24

Project: Remediation Drilling
Location: Twp Station 9
Client: Twp/CES
Driller: MORT BATES, ATKINS DRILLING
Drilling method: HSA, MOBILE PRILL B-58
Boring date: 11/13/02
Water level:

Sheet: 1 OF 1
Job number: P-202203
Total depth: 30'
Boring diameter: 6 1/4" Auger
Logged by: CMB
Date measured:

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS Monitoring well installation, geotechnical properties, analytical tests, instrumentation
					GM: Gravel Sand Silt mixture. —		GM
10							GM
20					No Hard layer, All Gravel — No odor or		GM.
30					Staining — Clay — Red Fat Clay @ 30' BGS. Set well screen 30'-20' Top 12/20 Sand @ 18'	CL	CH@ 30'
					Top Bentonite @ 13'		

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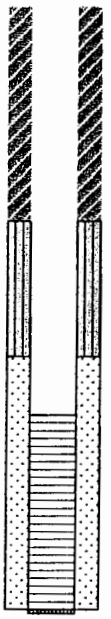
FIELD BOREHOLE LOG

BOREHOLE NO.: **SVE-25**
TOTAL DEPTH: **34'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
E LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
GGED BY:	**Jim Chionis**	METHOD OF DRILLING:	**6 1/4" Hollow Stem Auger**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
TES DRILLED:	**11/04/02**	HAMMER WT./DROP	**140 LB., 30 IN.**

OTES: 2" SVE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt Mixture Strong Hydrocarbon odor Pit liner @ 17'					Concrete seal: 14'-3'
5								
15								Bentonite: 21'-14'
20								Top Sand 21.6'
25								2" 0.010 Slot Screen 34' - 24'
30		CH						
35			CLAY: CH: Red Sandy Clay to Fat Clay					TD 34'
40								

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Boring ID: SVE-25

Project:	Remediation Drilling	Sheet:	1 of 1
Location:	TWP Roswell Sta 9		
Client:	TWP / CES	Job number:	P-202 203
Driller:	Mort Bates Atkins Drilling	Total depth:	35'
Drilling method:	HSA Mobile Drill B-58	Boring diameter:	6 1/4"
Boring date:	11-4-02	Logged by:	JLC
Water level:	N/A	Date measured:	

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					FILL - silty sand w/ some gravel		Strong HC odor
10					Pit Liner at 17'		
20					Silty sand; some gravel dark gray		
30					gravel; avg size, 1-2"		GM
							CL
					CLAY @ 33' TD @ 34		CL
40							Bent plug 14.0 Top of sand 21.6 Screen 34-24 TD 34

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FIELD BOREHOLE LOG

BOREHOLE NO.: **SVE-26**
TOTAL DEPTH: **35'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**Jim Chionis**	METHOD OF DRILLING:	**6 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**11/05/02**	HAMMER WT./DROP	**140 LB., 30 IN.**

NOTES: 2" SVE Well

Water level during drilling
Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt Mixture Gravel to 2"					Concrete seal: 17'-3'
-5								
-15								Bentonite: 22'-17'
-20								Top Sand 22'
-25		GM						2" 0.010 Slot Screen 34' - 24'
-30								
-35		CH	CLAY: CH: Red Sandy Clay to Fat Clay					TD 35'
-40								

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Boring ID: SVE-26

Project:	Remediation Drilling	Sheet:	1 of 1
Location:	TWP Roswell STA #9		
Client:	TWP/CES	Job number:	P-202303
Driller:	Mort Bates Atkins Drilling	Total depth:	34 ft
Drilling method:	HSA Mobile B-58	Boring diameter:	8 1/4
Boring date:	11-5-02	Logged by:	JLC
Water level:	N/A	Date measured:	

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					Sandy gravel		
10					Sand, silty gravel		
20					Sand w/some gravel		
					gravel (1-2")		9M
30							
					clay @ 34'		CL
					TD @ 35'		
40							Bent plug 17-22 Top of sand 22' screen 34-24' TD 35

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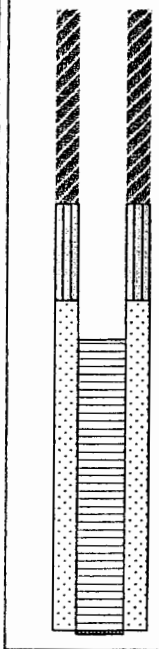
FIELD BOREHOLE LOG

BOREHOLE NO.: **SVE-27**
TOTAL DEPTH: **35'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**6 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**11/01/02**	HAMMER WT./DROP	**140 LB., 30 IN.**

NOTES: No Fat Clay Seen in Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt Mixture Gravel 2"-4" Contaminated at 10' BGS No Fat Clay Seen in well. Very Strong Contamination Srtong/ Odor/ Staining Black Color to sand/silt					Concrete seal: 13'-3'
5		GM						Bentonite: 18'-13'
20								Top Sand 18'
25		GM						2" 0.010 Slot Screen 35' - 20'
30								
35								

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Boring ID: SVE-27

Project: Remediation Drilling
Location: Twp Roswell Station 9
Client: CES/Twp
Driller: Mort Bates, ATKINS Engineering
Drilling method: HSA, MOBILE Drill B-58
Boring date: 11/01/02
Water level: N/A

Sheet: 1 OF 1
Job number: P-202203
Total depth: 35'
Boring diameter: 6 1/4 Auger 8" hole
Logged by: CMB
Date measured: N/A

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
					GM- Gravel to 4" (Cobbles) Highly Contaminated Gravel, Sand, Silt mixture starts @ 10'		GM
5'					GM: Gravels- 80% 10% Sand 10% Silt Mixture —		GM
5'					gravel 1"-2"- occassional zones of well rounded pea sized gravel. No Visible		GM
5'					Fat Clay. — TD 35'		GM
5'					2" OD 0 Screen 35'-20' Top 12/20 Sand 18' Top Bentonite Seal @ 13'		

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FIELD BOREHOLE LOG

BOREHOLE NO.: **SVE-28**
TOTAL DEPTH: **35'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**6 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**10/29/02**	HAMMER WT./DROP	**140 LB., 30 IN.**

NOTES: Water @ 35' (BGS)? Strong Odor

⧖ Water level during drilling
⧗ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
-5		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt Mixture					Concrete seal: 13'-3'
5								Bentonite: 18'-13'
0								Top Sand 23'
5								2" 0.010 Slot Screen 35' - 25'
0		CH	CLAY: CH: Red Sandy Clay to Fat Clay Wet with Strong Hydrocarbon Odor					
-35								TD 35'
-40								

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Boring ID: SVE-28

Project: Twp Roswell Station 9 Remediation - Drilling's
Location: Twp Roswell STATION 9
Client: CES/Twp
Driller: MORT BATES, ATKINS Engineering
Drilling method: HSA, MOBILE DRILL B-58
Boring date: 10/29/02
Water level: N/A

Sheet: 1 of 1
Job number: P 202203
Total depth: 35'
Boring diameter: 6 1/4 Auger
Logged by: CMB
Date measured: N/A

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0'					Colluvium – GM Sand, Silt, Gravel, mixture. Tan brown Sand. gravel to 1" – 2" mixed with pea size		GM.
20'	20-22'			750 Soil Vap	Poor Recovery. – No odor or staining. @25 increase in sand – still gravel Sotterdrilling @29'		GM.
30'					@33' Strong hydrocarbon odor. – Clay @ 34' damp. T.D-35' wet. –		CH @ 34'
					2" 0.010 Slot Screen 35-25' Top Sand 23' Top Bentonite 18'		

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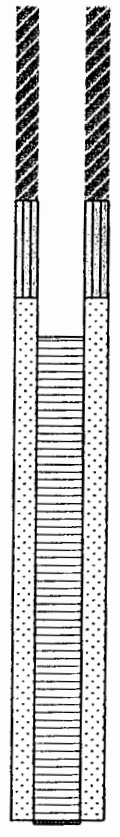
FIELD BOREHOLE LOG

BOREHOLE NO.: **SVE-30A**
TOTAL DEPTH: **45'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**6 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**10/25/02**	HAMMER WT./DROP	**140 LB., 30 IN.**

NOTES: 2" PVC SVE Well

Water level during drilling
Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt Mixture	50 Blows	+50			Concrete seal: 13'-3'
5								
15				22 Blows	22			Bentonite 13'
20								2" Slot Screen 45' - 20'
25								Top Sand 18'
30								
35				20 Blows	20			
40		CH	CLAY: CH: Red Clayey Sand, Strong Hydrocarbon Odor, Moist Fat Clay					
45								TD

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Boring ID: SVE 30A

Project: Remediation Drilling
Location: TWP Roswell Station 9
Client: CES/TWP
Driller: MORT BATES, ATKINS DRILLING
Drilling method: HSA, MOBIDRIL B-58
Boring date: 10/25/02
Water level: N/A

Sheet: 1 OF 1
Job number: P-202203
Total depth: 45'
Boring diameter: 8 1/4" O.D.
Logged by: CmB
Date measured: N/A.

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
					Backfill material. 0'-30' NOT LOGGED.		
				Pea Gravel 30'-32'-			SW/GM
				30'-32' 50 spt Blows.	30'-32': Rec. 0.5' Caliche, sand, silt & gravel mixture. Tan brown -		No staining nor odor @ 32' Pea sized gravel. -35'
				35'-37' 22 spt.	35'-37': @ 32' - Hydrocarbon odor, strong @ 35' Clayey Sand. - Brown/Red. Rec: 0.5		slight CL @ 35' strong odor.
				39'-41' 20 spt Blows.	39'-41': Clayey - fat clay Strong odor. - No staining - Rec. 2.0		CH - Strong odor.
				45-47' 22 spt Blows	45-47': moist - Rec. 2.0' Brown/Red Fat Clay - T.D. 45'		CH
				2"	Clayey Sand mixture. Decreasing odor - Slight Hydrocarbon odor. Screen 45'-20' 0.010 slot Topsand 45'-18' 12/20 Sand.		
					Top Bentonite @ 13'		

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FIELD BOREHOLE LOG

BOREHOLE NO.: **SVE-31**
TOTAL DEPTH: **35'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
TE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
GGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**6 1/4" Hollow Stem Auger**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
ATES DRILLED:	**10/28/02**	HAMMER WT./DROP	**140 LB., 30 IN.**

NOTES: Poor recovery in Split Spoon .

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt Mixture	SPT Sample 24'-26'	+50		Concrete seal: 13'-3'	
5								
15							Bentonite: 18'-13'	
20							Top Sand 23'	
25							2" 0.010 Slot Screen 35' - 25'	
30		CH	CLAY: CH: Red Sandy Clay to Fat Clay					
35								

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Boring ID: SVE 31

Project: Remediation Drilling
Location: Twp Roswell Station
Client: CES/Twp
Driller: MORT BATES, ATKINS Drilling
Drilling method: HSA MOBILE DRILL B-58
Boring date: 10/28/02
Water level: N/A

Sheet: 1 OF 1
Job number: P-202203
Total depth:
Boring diameter: 4 1/4 O.D. Auger/6' hole
Logged by: CMB.
Date measured: N/A.

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					Gravel, Sand & Silt mixture, No odor or staining Surface to 20'-GM		GM
10					Colluvium: GM, - Cobbles to 4" & gravel Gravel to 2" in size.		GM
20	24-26'	750501			Increase in gravel @ 22' - Continued gravel, Sand, Silt, mixture 24-26': Poor Recovery sand, silt, & gravel. Broke off Bit in	GM	
30					hole. - Retrieved Bit - No Gravel @ 32' Red Clay @ 32' T.D. @ 35'.		CH @ 32' TD @ 35'
					10' 0.010 Slot screen. 35'-25' Top 12/20 Sand. 23' Top Bentonite 18'		

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-1**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
E LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
GGED BY:	**M. Bates**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
TES DRILLED:	**12/06/02**	HAMMER WT./DROP	**140 lb., 30 in.**

OTES: 4" SCH 40 PVC MPE Well

⧖ Water level during drilling
⧗ Water level in completed well

EPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
10		GM	GRAVEL AND SAND: 0'-2': Silty clay w/ gravel, 2'-4' caliche, white pink, dry 5'-32':GM: Gravel, Sand, Silt, Mixture, gravel to 2", Lt. Brown, med. dense, dry. Gravel is cemented 5'-7',26'-29', hard drilling @32' Sand with clay, red to brown, soft, slightly plastic, moist					Cement Grout 3'-46'
35		SC/CL	CLAY AND SAND: SC: Red Clayey Sand: lean clay with sand, med. stiff, plastic, moist.					
45		SP/SC	CLAY AND SAND: SP/SC: 50'-75' Poorly Graded Sand with clay , Reddish / Tan No odor , Saturated @62' BGS TD 79' Riser 79'-74', 0.020 Slot Screen 74'-54', 12/20 Sand Pack 79'-49', Bentonite Seal 49'-46',					Bentonite 46' Top Sand 49' Top Screen 54'
70		SC	CLAYEY SAND: Reddish Tan, Soft, Moist, No Odor or Staining Depth to Water 61.03' BGS 12/07/02					Sump 74'-79' TD 79'
		SC						

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LOG OF BORING Monitor Well #1 MPE (1)

(Page 1 of 3)

Co. Name
Co. Address
Contact:
Job #

Date : 12/6/02
Drill Start : 11:00
Drill End : 5:45
Boring Location : DPSH @ DTW = 61.03' T.D. 76.40'

Site Location :
Auger Type : Hollow Stem
Logged By : Mort Bales

12/07/02 By: Chris B.

Depth in feet	GRAPHIC	USCS	Samples	DESCRIPTION	Lab	PID ppm-v	Blows/Ft
0				Silty Clay w/Gravel			
				Caliche			
5				Gravel w/Clay Sand 1½" to ¼"			
				Cemented Gravel			
10				Gravel 2" to ¼"			
				Sand w/Gravel 3/8"			
15				Gravel 1" to ¼"			
20							
25				Sand w/small Gravel			
				Cemented Gravel			
30				Sand w/Gravel ½" to ¼"			
35							
40				Sandy Clay Reddish Tan damp			

55'
4" casing

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LOG OF BORING _____

Co. Name_____
Co. Address_____
Contact:_____
Job #_____

Date :
Drill Start :
Drill End :
Boring Location :

Site Location :
Auger Type : Hollow Stem
Logged By : Mort Bates

Depth in feet	GRAPHIC	USCS	Samples	DESCRIPTION	Lab	PID ppm-v	Blows/Ft
40				Sandy Clay, Redish Tan, Damp			
45							
50				Clay Sand Red Damp			
55				Clay Sand, Redish Tan Damp			
60							
65							
70				Sandy Clay Redish Tan Soft Moist			
75				Clay Sand Redish Tan Damp			
80				Total Depth 79'			

55'X4" CASING
Top of Bentonite Plug 46'
Top of sand Pack 49'
54'
20'X4" .020 SLOT SCREEN
5'X4" CASING

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-2**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Ingersoll-Rand A-300**
LOGGED BY:	**C.M. Barnhill, PG**	METHOD OF DRILLING:	**HSA 81/4" Augers**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**12/21-24/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
-10		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-24':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry.					Cement Grout 3'-48'
0		GM						
-25								
-30		Cngl.	CONGLOMERATE: Hard					
-35		SC	SC: Clayey Sand, tan brown to light brown reddish saturated @60' BGS, No odor or staining, TD 79' Water Level @ 59.95' BGS 01/06/03					
-40		SC						
-45								
-50		SC						Bentonite 48'
-55								Top Sand 51'
-60								Top Screen 54'
-65		SW/SP	SW: Med. to fine grained tan sand, well sorted, saturated @ 60' BGS, No odor or staining. Damp @ TD, Flowing Sands.					12/20 Sand
-70								0.020 Slot Screen
-75		SW/SP						
-85								TD 79'
-90								

MPE-2

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Boring ID: MPE-2

Project: Remediation Drilling
Location: Twp Roswell Station 9
Client: CES/Twp
Driller: MORT BATES, ATKINS DRILLING
Drilling method: HSA, Ingersoll-Rand A-300
Boring date: 12/21/02 – 12/24/02
Water level: No pert H2O = 59.95 TO 72.34 (BGS) (BGS)

Sheet: 1 OF 1
Job number: P-2022-23
Total depth: 79'
Boring diameter: 8 1/4 Augers
Logged by: CMB
Date measured: 01/06/03

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					GM: Sands, Silt, gravel - 0'-28'		GM: 0'-28'
30'					28'-31': Cemented Conglomerate		Conglomerate - 28'-31'
					SC: Clayey Sands. Red, Brown, fine gr. well sorted Sand and Clay mixture		31'-61' Clayey Sands SC
40'					SC: Same as above		SC
50'					SC: Same as above		SC
70'	▽	H2O	60	(BGS)			
	▽ 68'	H2O			SW: 61'-81': med-gr. Sand, Tan color No odor or staining Saturated @ 63'		SW
80'					T.D. 80' 79'-54': 0.020 Slot screen 51'-54': Top Sand. 48'- Top Bentonite		SW
90'					Cement Bentonite 48'-3'		

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-3**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
TE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
B NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
GGED BY:	**C.M. Barnhill, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
ATES DRILLED:	**12/20-21/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-24':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry.					Cement Grout 3'-48'
10		GM						
20								
25		Cngl.	CONGLOMERATE: Hard					
30		SW	SW: Sand Layer, brown,					
35		SC	SC: Clayey Sand, tan brown to light brown reddish saturated @62' BGS, No odor or staining, @ 74' BGS TD 79' Water Level @ 63.82' BGS 12/21/02					
40								
45								
50		SC						Bentonite 48'
55								Top Sand 51'
60								Top Screen 54'
65		SW/SP	SW: Med. to fine grained tan sand, well sorted, saturated @ 62' BGS, No odor or staining. Damp @ TD					12/20 Sand
70								0.020 Slot Screen
75		SW/SP						
85								TD 79'
90								

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Boring ID: MPE-3

MPE-3

Project:	Remediation Drilling	Sheet:	1 OF 1
Location:	TWP Roswell Station 19		
Client:	CES/TWP	Job number:	P-202203
Driller:	MORT BATES, ATKINS DRILLING	Total depth:	79'
Drilling method:	HSA MOBILE DRILL B-58	Boring diameter:	8 1/4" ID Auger
Boring date:	12/20/02 - 12/21/02	Logged by:	CMB.
Water level:	No PSH 6333 H_2O TD 76.61 (BGS) (BGS)	Date measured:	01/06/03

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					0-26: GM Gravel, sand, silt mixture. 26'-28: Conglomerate 28'-31': Sandy-layer. Sand - med gr. well sorted.		GM: conge. SW
5'					@31: Clayey Sand. Redish brown - Some minor gravel fragments Very Clayey - soft - gravel < 5% < 1cm		SC/GC
10'					Redish Brown Clayey Sand - med gr. well sorted Sand		SC
15'							SC
20'	▽ Saturated @ 62				@62' Tan - medium grained well sorted Sand - No odor or stainy -		SW
30'					Saturated @ 62' Damp @ TD. 79'		SW

TD 79'

Screen 79'-54'
Top Sand. 51'
Top Bentonite 48'
Cement grout - 3'-48'

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-4**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
TE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
OGGED BY:	**C.M. Barnhill**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
ATES DRILLED:	**12/18-19/02**	HAMMER WT./DROP	**140 lb., 30 in.**

OTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-24':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry.					Cement Grout 3'-48'
-10		Cngl.	CONGLOMERATE: Hard					
-20		GM	GM: Gravel, pea sized, mixed with sand, silt					
-25		SC	SC: Clayey Sand, tan brown to light brown reddish saturated @64' BGS, No odor or staining, @ 74' BGS TD 79' Water Level @ 63.82' BGS 12/21/02					Bentonite 48' Top Sand 51' Top Screen 54'
-30								
-35								
-40								
-45								
-50								
-55								
-60								
-65 ▼		SW/SP	SW: Med. to fine grained tan sand, well sorted, saturated @ 64' BGS, No odor or staining.					
-70								
-75		SC/SW	SC: Sand ,fine gr., well sorted , Clayey, 60% Sand, No odor or Staining, Damp					TD 79'
-85								
-90								

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Boring ID: MPE-4

Project: Remediation Drilling
Location: Twp Roswell Station 9
Client: CES/Twp
Driller: Mort Bates, Atkins Drilling
Drilling method: HSA Mobile Drill B-58
Boring date: 12/18/02 - 12/19/02
Water level: DTW = 63.82 BGS TD = 78.62

Sheet: 1 of 1
Job number: P-202203
Total depth: 79'
Boring diameter: 8 1/4" ID Augers
Logged by: CMB
Date measured: 12/21/02

depth (ft)	SAMPLE: interval	SAMPLE: number	SAMPLE: recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					GM: Gravel, sand, silt mixture 80% gravel 10% Sand 10% silt, minor clay		GM
30'					Hard layer 32'-34' 35?		Conglomerate - 32'-34' GM - possible ground
49					Reddish Brown Clayey Sand - med gr. sand. - strong clay fraction - Sand clay mixture		SC: Clayey Sand. 40
50'					Red - Brown - Clayey Sand - med. gr. well sorted. Sand - soft clay fraction.		SC
60'					@ 62' - more Sand than clay Saturated @ 64' fine to med. gr. Sand. well Sorted.		SW
70'					No odor or staining		SW
80'					@ 74' - Clayey Sand. soft - damp - more		SC/SW

TO 79' Clay. but still sandy.

0.020-25 Screen - 79'-54'
Top Sand 51' Top Bentonite @ 48'

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-5**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**C.M. Barnhill**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**12/16/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
10		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-24':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry.					Cement Grout 3'-53'
20								
25								
30								
35		Cngl.	CONGLOMERATE: Hard					
40		SC	SC: Clayey Sand, tan brown to light brown reddish saturated @64' BGS, No odor or staining, TD 79' Water Level @ 63.75' BGS 12/17/02					
45								
50		SC						Bentonite 53'
55								Top Sand 56'
60								Top Screen 59'
65		SC						
70								
75		SC						TD 79'

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Boring ID: MPE-5

Project:	Remediation Drilling	Sheet:	1 of 1
Location:	TWP Roswell Station 9		
Client:	CES/TWP	Job number:	P-202203
Driller:	MORT BATES, ATKINS DRILLING	Total depth:	79'
Drilling method:	HSA, MOBILE DRILL B-58	Boring diameter:	8 1/4 I.D. Auger
Boring date:	12/16/02	Logged by:	CMB
Water level:	63.75' BGS TD. 78.20'	Date measured:	12/17/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0'					GM: 0'-32': 0'-5 Caliche. GM/Gravel Sand, silt mixture 32'-35 - Conglomerate		GM
0'							Conglomerate 32'-35' Clayey Sand @ 35'
0'					Red - to Brownish Red - Clayey Sand No odor or stain		SC
0'							SC
0'	~~[illegible]~~ ▽ @ 64' H_2O				Saturated @ 64'?		SC
0'							SC
30'							

Screen ~~80~~ 79'-59' TD 79.

Top Sand 56'

Top Bentonite 53'

FIELD BOREHOLE LOG

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BOREHOLE NO.: **MPE-6**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**C.M. Barnhill**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**12/16-17/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
10		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-24':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry.					Cement Grout 3'-48'
20 25		Cngl.	CONGLOMERATE: Hard Drilling, well cemented conglomerate or cemented sandstone layer.					
30 35			GM: Harder Drilling, gravel fragments, yellowish color					
40 45		SC	SC: Clayey Sand Lt. Red/ tan brown, to tand brown, fn. to med.grained sand, well sorted, strong clay fraction, soft, No odor /staining.					Bentonite 48'
50		CL	CL: Strong Clay					Top Sand 51'
55 60 65		SC	SC: Clayey Sand, tan brown to light brown reddish saturated @64' BGS, No odor or staining, @ 74' BGS Clay & Sand:,gravel & Clay lenses, TD 79' Water Level @ 65.55' BGS 12/18/02					Top Screen 54'
70 75		GC	GC: Gravel 10%, Clay30%, fine gr. sand 60%, No odor or Staining, Damp					TD 79'
80 85 90		GC						

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Boring ID: MPE-6

Project:	Remediation Drilling	Sheet:	1 of 1
Location:	Twp Roswell Station 9		
Client:	CES/TWP	Job number:	P-202203
Driller:	MORT BATES, ATKINS Drilling	Total depth:	79'
Drilling method:	HSA, MOBILE DRILL B-58	Boring diameter:	8 1/4 ID Auger
Boring date:	12/16-17/02	Logged by:	CMB
Water level:	DTW = 65.55 BGS TD = 75.85 BGS	Date measured:	12/18/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0'					GM: 0-20' sand, silt, gravel mixture		GM
					Conglomerate · 20'-27' Harder drilling —		GM 20-27' - Conglomerate - Harder drilling
0'					GM: yellowish color gravel fragments.		@ 37'
					SC: Reddish Brown Clayey Sand —	SC	Clayey Sand.
0'					Med-fine gr. well sorted Sand. Reddish brown - Clayey Sand - soft. Moist. No odor or staining		Clay & Sand layers 37'-55' SC.
0'					50'-55: Reddish Brown Clayey Sand - strong Clay fraction - soft. 55'-60': Clayey Sand.	CH	Clay zone. strong clay fraction - SC
0'	~~Saturated @ 62'~~ ▽ Saturated @ 64'				Reddish Brown - fine to med. gr. well sorted Sand Red - brownish red Clayey Sand. wet.		SC
0'					Clayey Sand		SC
0'					Clayey Sand with 10% pea size & gravel angular - Damp -		GC

TD. 79'

0.020 slot.
Screen 79 - 54
Top Sand - 51
T. Bentonite 48

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-7**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**C. Barnhill**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**12/10-13/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
5		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-24':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry.					Cement Grout 3'-47'
10								
20								
25								
30								
35			CONGLOMERATE: Hard Drilling, well cemented conglomerate or cemented sandstone layer.					
40		Cngl.						
45			SC: Clayey Sand Lt. Red/ tan brown, to tand brown, fn. to med.grained sand, well sorted, strong clay fraction, soft, No odor and staining.					Bentonite 47'
50		SC						Top Sand 50'
55								Top Screen 54'
60		SC/GC	GC: Gravel 10%, Clay30%, fine gr. sand					
65 ▼		SC	SC: Clayey Sand, tan brown to light brown reddish saturated @63' BGS, No odor or staining, @ 74' BGS Clay & Sand:& Fat Clay lenses, TD 79' Water Level @ 64.79' BGS 12/14/02					
70								
75		SC						Sump 74'-79'
80								TD 79'
85		SC						
90								

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Boring ID: MPE-7

Project: Remediation Drilling
Location: Twp Rixwell Station 9
Client: CES/Twp
Driller: MORT BATES, ATKINS DRILLING
Drilling method: HSA, MOBILE DRILL B-58
Boring date: 12/10/02 - 12/13/02
Water level: 64.79 BGS - NOPSH
TD. 83' BGS

Sheet: 1 OF 1
Job number: P-202203
Total depth: 79'
Boring diameter: 8 1/4" I.D. Augers
Logged by: CMB
Date measured: 12/14/02

depth (ft)	SAMPLE: Interval	SAMPLE: number	SAMPLE: recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0'					GM: Gravel Sand Silt Mixture 0'-32' Caliche - 0'-5'		GM
20'					Yellow - yellowish Tan Hard Conglomerate well cemented.		Calcareous Cemented Conglomerate 32'
40'					Red Clayey Sand - Brown -		SC
60'					med - fine gr well Sorted Sand. - Strong Clay fraction. - @59. - Clay - Sand.		@59 GC/SC
80'				Saturated @ 64' BGS	gravel mixture. Gravel 10% clay 30% Sand - med fine Gr. well sorted. 70%. - Angular Gravel fragments - Gravel may be from Augers		
100'					Tan brown - Light brown - red clayey Sand - TD 79' - Damp. No odor or Stain		SC

Top Sand 50
Top Bentonite 48' 47

Riser 79'-74'
0.020 Slot Screen 74'-54'

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-8**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
OJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
E LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
B NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
GED BY:	**C.M Barnhill**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
OJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
ES DRILLED:	**12/13-14/02**	HAMMER WT./DROP	**140 lb., 30 in.**

TES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

EPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-24':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry.					Cement Grout 3'-53'
5		Cngl.	CONGLOMERATE: Hard					
		SC	SC: Clayey Sand					
		SC/GC	GC: Clayey Gravel / Sand Lt. Red/ tan brown, to tan					
		SC	SC: Clayey Sand, tan brown to light brown reddish saturated @64' BGS, No odor or staining, @ 74' BGS Clay & Sand:& Fat Clay lenses, TD 79' Water Level @ 64.79' BGS 12/16/02 @ 77' Strong staining of sand, and odor. Odor more sewer-like than hydrocarbon odor.@79' BGS Strong Fat Clay					Bentonite 53' Top Sand 56' Top Screen 59'
		SP/SC	SP: SP/SW Med, gr. sand					
		CH	CH: Fat Clay, red brown, dry	79'-81'	41/24"			TD 79'

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Boring ID: MPE-8

Project: Remediation Drilling
Location: Twp Rescue Station 9
Client: CES/Twp
Driller: MORT BATES, ATKINS DRILLING
Drilling method: HSA, MOBILE DRILL B-58
Boring date: 12/13/02 - 12/14/02
Water level: ~~64.79 BGS NO PSH~~ NO PSH 62.7 BGS 79.34' TD.

Sheet: 1 OF 1
Job number: P-202203
Total depth: 79'
Boring diameter: 8 1/4 I.D. Auger
Logged by: CMB
Date measured: ~~12/14/02~~ 12/17/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0'					0'-32' GM: Sand, silt gravel mixture, gravel 80%, 20% sand/silt, DRY, Gravel to 4" - mixed with layers of sand/silt.		GM
30'							30' Conglomerate
					30'-32': hard drilling - Conglomerate.		32' 30'-32'
					Clayey Sand - Tan brown 32-35'		SC - 32-35
					35'-40' Clay, sand, coarse gravel sand-, pea sized gravel 40% gravel, 40% Sand, 20% clay		SC/GC
40'					Clayey Sand, med gr. well sorted, Brown to Reddish brown. - soft		SC
50'					Clayey Sand - dry - firm clay - Reddish brown to lt. brown. 50'-55': med. gr. Sand. - well sorted		SC
60'					Clayey Sand as above - Saturated @ 64' BGS. - Brown - Reddish brown med. gr. well sorted.		SC
70'	79'-81'			41/24"	@ 77' Strong Contamination Saturated Sand - gray black clayey sand - more sewer smell than hydrocarbon	SW / Clay	Top Bentonite 53 Top Sand - 56 Top Screen ~~60~~ 59 ~~TD 79'~~ TD 79'

Spl. t Spoon 79-81 : 2' Fat Clay Gray.

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-9**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**C. Barnhill**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**12/17-18/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

⧖ Water level during drilling
⧗ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
-10		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-24':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry.					Cement Grout 3'-48'
-25		SC	SC: Clayey Sand Lt. Red/ tan brown, to tand brown, fn. to med.grained sand, well sorted, strong clay fraction, soft, No odor and staining.					
-50		SW/SP	SW: Sand, med. gr. well	54'-56'	105/16			Bentonite 48'
		SC	SC: Clayey Sand, tan brown to light brown red	59'-61'	20/24"			Top Sand 51'
-60		SW/SP	SW: Tan to brown, med. to fine gr. well sorted sand, slight odor, saturated at 62' BGS, slight hydrocarbon odor, no staining	64'-66'	70/24"			Top Screen 54'
-70				69'-71'	30/24"			
-75		SC	SC: Brown Clayey Sand Dry @ 75'	74'-76'	30/24"			Sump 74'-79'
		CL	CL: Brown Fat Clay, Dry, No Odor or Staining	79'-81'	50/24"			TD 79'
-85								
-90								

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Boring ID: MPE-9

Project: Remediation Drilling
Location: TWP Roswell Station 9
Client: CES/Twp
Driller: MORT BATES, ATKINS DRILLING
Drilling method: HSA, MOBILE DRILL B-58
Boring date: 12/7/02 - 12/18/02.
Water level: Napsh 65.25 DTW(BGS)
TD = 74.30'

Sheet: 1 OF 1
Job number: P-202203
Total depth: 79'
Boring diameter: 8 1/4" I.D. Auger.
Logged by: CMB
Date measured: 12/19/02

depth (ft)	SAMPLE interval	number	recovery (inches)	standard penetration test results	SOIL DESCRIPTION Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					0'-4': Caliche, silt, gravel. 4'-30': GM Sand, Silt, gravel mixtures Gravel to 3". GM		GM
30					GM: Sand, Silt, gravel mixture.		GM.
10					Red, Reddish brown Clayey Sand - Strong Clay fraction - med gr. sand - well sorted.		Clayey Sand @ 42' SC
0	54-56'	105	16"	105/16"	Split Spoon: 54'-56' Tan brown yellowish Sand. well sorted med-fine Gr. No odor or ~~stain~~ Staining		SP/SW. SC
0	59'-60'	20	24"	20/24"	59'-60': 20 Blows - Clayey Sand. - Reddish Brown. Soft. No odor or staining.		sp/sw
▽	Saturated @ 62' BGS						
	64-66	70	24"	70/24"	Med. gr. Sand well sorted Saturated. - No odor or Staining Brown color		sp/sw.
0	69-71	30	24"	30/24"	SPT. 69'-71' - 30 Blows. Brown - Sand - Saturated med. gr. well sorted. slight hydrocarbon odor No staining.		sp/sw Saturated No odor to slight odor.
	74-76'	30	24"	30/24"	74-76': 30 Blows - Dry @ 75' - Clayey Sand Tan/Brown.		SC / Clayey Sand @ 75' Dry.
10	79-81'	50/4"	4"	50/24"	79-81: Red Brown Fat Clay Dry - Stiff.		CH

79'-74': 5' Riser
74'-54': Screen-
51' T/Sand.

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-10**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**C. Barnhill**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**12/09/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-27':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry. 27'-30' Hard cemented Conglomerate 30-50' SM/SP/SC: Poorly graded sand with clay, red to brown, soft, slightly plastic, moist.					Cement Grout 3'-47'
-10		Conglor	CONGLOMERATE					
-20								
-25								
-30			CLAY AND SAND: CH: Red Clayey Sand: lean clay with sand, med. stiff, plastic, moist.					
-35								
-40		SC/CL						
-45								
-50		SW	SAND: SW: 50'-59' Fine gr. Sand, tan brown, well sorted, No odor or staining.	49'-51'	18"/50			Bentonite 47' Top Sand 50' Top Screen 54'
-55				54'-56'	12"/50			
-60		SC	CLAYEY SAND: SC: Clayey Sand Lt. Red/ tan	59'-61'	24"/40			
-65		SW	SAND: Tan brown, reddish tan sand, med. to fine gr., well sorted, No Odor. Saturated @ 62' BGS	64'-66'	12"/46			
-70				69'-71'	18"/50			
-75		SC	CLAYEY SAND: Tan Brown / Red tan, Clayey	74'-76'	24"/30			Sump 74'-79' TD 79'
-80		SC/CL	CLAY: Clay & Sand:& Fat Clay lenses, Dry@ 74' BGS	79'-81'	24"/50			
-85								
-90								

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Boring ID: MPE-10

Project: Remediation Drilling
Location: Twp Roswell Station 9
Client: CES/Twp.
Driller: MORT BATES, ATKINS DRILLING
Drilling method: HSA, MOBILE DRILL B-58
Boring date: 12/09/02
Water level: DTW = 63.40' BGS - TD = 77.0 BGS

Sheet: 1 of 1
Job number: P-202203
Total depth: 79'
Boring diameter: 8"4" I.D. Augers
Logged by: CMB
Date measured: 12/10/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS Monitoring well installation, geotechnical properties, analytical tests, instrumentation
							GM
							Hard @ 27'-30' - Conglomerate
							Clay
3'					Red clayey Sand. med-fine grained well sorted - strong Clay fraction - Soft.		SC
9							SC
	49/51	50	18"	50/18"	49-51 - Split Spoon		
	54/56	50	12"	50/12"	@ 50' Tan brown Sand. fine to med gr. well sorted little or no fines. 54-56' - 50 Blows - Damp		SW
							SW
0	59/61	40	24"	40/24"	59-61' - Clayey Sand		
					Tan Brown - Light brown No odor or stain - Damp		SC
	64/66	46	12"	/12"	64-66 - Saturated Tan Brown - Reddish tan Sand - med gr. well sorted		SW
0	69-71	50	18"	18"	64-71 - Saturated Tan brown med gr. well sorted Sand. DRY		SW
	74-76	50	24"	24"	Clayey Sand. - Damp @ 76' No odor or hydrocarbon		SC /CH
80	79-81	50	24"	24"			CH.

Staining - Very clayey 79-81'
more Clay than sand
T.D. 79'

Riser 74-79.
Screen 0.020 - 74-54'
Top Sand 50'-79'

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-11**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**C. Barnhill**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**12/07/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
10		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-24':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry. 24'-32': Hard cemented Conglomerate / Hard drilling					Cement Grout 3'-47'
0								
25		Cngl.	CONGLOMERATE: Hard Drilling, well cemented					
0		SC/CL	CLAYEY SAND: SC: Clayey Sand Lt. Red/ tan brown, to tand brown, fine to medium grained sand, well sorted, strong clay fraction, soft, Saturated @ 60' BGS Slight odor and staining, strong contamination in capillary fringe 55'-60' BGS, gray black stain to sandy clay with strong hydrocarbon odor. No PsH in well Water @ 60.90' BGS 12/09/02					Bentonite 47'
5								
50		SC						Top Sand 50'
5								Top Screen 54'
5		SC						
5		CH	CLAY: Clay & Sand:& Fat Clay lenses, Dry					Sump 74'-79'
5		CH						TD 79'
0								

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Boring ID: MPE-11

Project: Remediation Drilling
Location: Twp Rescue Station 9
Client: CES/Twp
Driller: Mort Bates, Atkins Drilling
Drilling method: HSA, Mobile Drill B-58
Boring date: 12/07/02
Water level: DTW = 60.90 BGS NOPSH
TD =

Sheet: 1 of 1
Job number: P-2022-03
Total depth: 79'
Boring diameter: 8 1/4 I.D. Auger
Logged by: CMM
Date measured: 12/09/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					GM: Gravel-Sand Silt-mixture 0'-24'-gravel to 3" @24'- Hard Cemented ~~Sandstone~~ Conglomerate layer - Cemented - hard drilling		GM Conglomerate. 24'-32'
10'					Red Clayey Sand Strong clay fraction Fine gr. Sand - well ~~sorted~~ Sand.		Sandy Clay SC
20'					Red clayey Sand - fine to med gr. well sorted Sand - Clay Sand mixture. Soft Clay.		
30'	▽				↓ Saturated @ 60'		Strong Contamination Capillary Fringe
					Red Clayey Sand - fine gr - to med gr. Sand well sorted - Clay fraction strong - Soft -		Gray black stain to Sand Strong hydrocarbon odor.
40'				Slight	~~No~~ odor or Staining		white adding Sand hydrocarbon odor IN HSA.
					Fat Clay - more clay than Sand. Dry: TD. 79'		

79'-74' 5" risers
0.020 Slot Screen - 74-54'
Top Sand @ 56'

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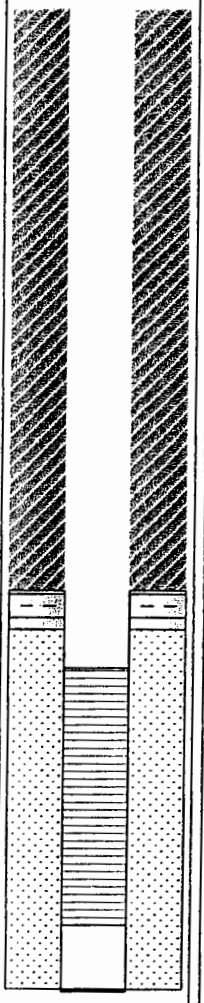
FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-12**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**C. Barnhill, / M. Bates**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**12/03-06/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
10		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-37':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry. 5'-15' SM/SP/SC: Poorly graded sand & Silt @37' Sand with clay, red to brown, soft, slightly plastic, moist.					Cement Grout 3'-48'
20								
25								
30								
35								
40		SC/CL	CLAY: CH: Red Clayey Sand: lean clay with sand, med. stiff, plastic, moist.					
45								
50								Bentonite 48'
55								Top Sand 51'
60 ▼		SP/SC	CLAYEY SAND: SP/SC: 50'-75' Poorly Graded Sand with clay ,No odor Saturated @62' BGS TD 79' Riser 79'-74', 0.020 Slot Screen 74'-54', 12/20 Sand Pack 79'-51',					Top Screen 54'
65		SP/SC						
70								
75		SS	CALCAREOUS SANDSTONE: Hard					Sump 74'-79'
		CL	CLAY: CL: Sandy Lean Clay, Lt. Reddish brown, stiff, low plasticity, moist, blocky @79' SP/SC Poorly Graded sand with clay					TD 79'
85								
90								

Cypress Engineering Services

Boring ID: MPE -12

Project: Remediation Drilling
Location: Twp Research Station 9
Client: TWP/CES
Driller: MORT BATES, ATKINS DRILLING
Drilling method: HSA MORT BATES, ATKINS DRILLING
Boring date: 12/03/02 – 12/04/02
Water level: Depth of 61.85 = DTW TD = 77.15

Sheet: 1 OF 1
Job number: P-202203
Total depth:
Boring diameter: 8 1/4" I.D. Augers
Logged by: CMB/MORT BATES
Date measured: 12/07/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					GM: 0-5' – Caliche white, Tan Pink. Dry, 5-35': Gravel 80% – 30'-35' – pea sized gravel mixed w/ Sand, Silt,		0 to 3" GM
30'					@ 32' SC – Clayey Sand. Red Clayey Sand		SC CL
40'					Med to fine gr. well sorted - Sand w/ Strong clay fraction.		CL
50'					Red Clayey Sand. Saturated @ 62' BGS –		CL ~~SC~~ CC
60'					No odor or stain		SC
70'							Calcareous Sand. CL TD 79'
80'							

Riser 79'-74'
Screen 74'-54'
Top Sand 51'
Top Bentonite 48'

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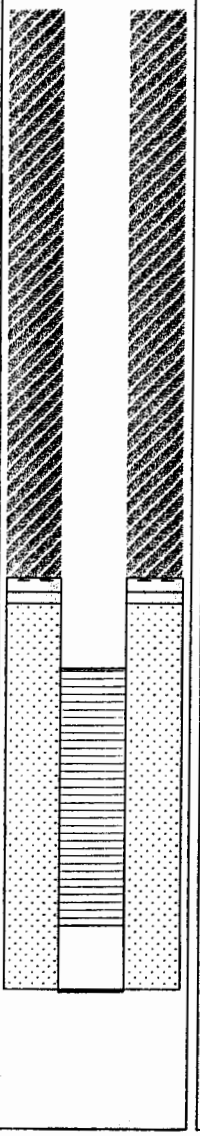
FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-13**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
TE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
)GGED BY:	**C. Barnhill, / R. Marshall**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
ATES DRILLED:	**12/02-03/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
5		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-33':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry. 5'-15' SM/SP/SC: Poorly graded sand & Silt @33' Sand with clay, red to brown, soft, slightly plastic, moist. 40'-49': CL/SC: Lean clay with sand, red, medium stiff, plastic moist.					Cement Grout 3'-46'
-10								
-20								
-25								
30								
-35		SC/CL	CLAYEY SAND: SC/CL Clayey Sand , Red med-fine gr. well sorted sand					
40			CLAY: CH: Red Clayey Sand: lean clay with sand, med. stiff, plastic, moist.					
-45								Bentonite 46'
50		SP/SC	CLAYEY SAND: SP/SC: 50'-75' Poorly Graded Sand with clay ,no odor Saturated @60' BGS TD 79' Riser 79'-74', 0.020 Slot Screen 74'-54', 12/20 Sand Pack 79'-49', Bentonite Seal 49'-47', Cement Grout 47'-3'					Top Sand 50.7'
55								Top Screen 54'
65		SP/SC						
70								
75		CL	CALCAREOUS SANDSTONE: Hard					Sump 74'-79'
		CL	CLAY: CL: Sandy Lean Clay, Lt. Reddish brown, stiff, low plasticity, moist, blocky @79' SP/SC Poorly Graded sand with clay					TD 79'
-85								
90								

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Boring ID: MPE-13

Remediation Drilling

Project:	Twp Roswell Station 9	Sheet:	1 of 1
Location:	Twp Roswell Station 9		
Client:	Twp/CES	Job number:	P-202203
Driller:	MORT BATES, ATKINS DRILLING	Total depth:	79'
Drilling method:	HSA, MOBILE DRILL B-58	Boring diameter:	8 1/4 I.D. Auger
Boring date:	12/02/02 - 12/03/02	Logged by:	CMB
Water level:	DPSH = 0 DTW = 60.45 TD = 78.86 (DBG)	Date measured:	12/07/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					0-5': Tan brown Silt. 5-14': Tan brown Silt/sand mixture. @14' Gravel to 3" - Rounded. heterogeneous.	GM	
	SS @ 24'-26'						24'-26': Sandstone - layer. Calcareous Sandstone layer.
30'					@33' SC - Clayey Sand		SC @ 33'
					Red Clayey Sand med to fine gr. well sorted Sand w/ strong Clay fraction		SC/CL
40'					More Clayey than Sandy		CL
50'					Red Clayey Sand Less Clay than Sand		SC
60'	water?				Red Clayey Sand SC. Saturated @ 60' BGS. No odor or staining		SC
70'					Hard drilling @ 72'-76' Sandstone layer		Calcareous Sand
					Clay @ 76'-80'		CL
80'							

T.D. 79'

Screen 0.020 74-54.
5' Riser 79-74
Top Sand =

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-14**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
E LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
GGED BY:	**Clayton M Barnhill, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
TES DRILLED:	**11/25/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
10		GM	GRAVEL AND SAND: 0'-3': GM mixed with caliche, white pink, dry 3'-40':GM: Gravel, Sand, Silt, Mixture, gravel to 4"					Cement Grout 3'-48'
20								
25								
30								
35		GM						
40		CH	CLAY: CH: 40'-43': Fat					
45		SS	CALCAREOUS					
50		CL/CH SC	CLAYEY SAND: SC/CL/CH: 45'-79' Sandy clay, Clayey sand, red/ brown, med. stiff, moist, moderate odor, no staining. Saturated @ 62 TD 79' Grout 48'-3' Bentonite 48'-51' Sand 51'-79' 0.020 Screen 74'-54' Riser 74'-79' Water Level @ 61.70' BGS 11/26/02					Bentonite 48' Top Sand 51' Top Screen 54' Sump 74'-79' TD 79'
55								
60								
65								
70								
75								

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Boring ID: MPE-14

Project:	Remediation Drilling	Sheet:	1 of 1
Location:	Twp Roswell Station 9		
Client:	CES/Twp	Job number:	P-202203
Driller:	Mort Bates, Atkins Engineering	Total depth:	79'
Drilling method:	HSA, Mobile Drill B-58	Boring diameter:	8 1/4 Auger I.D.
Boring date:	11/25/02	Logged by:	CMB
Water level:	H_2O = 61.70' TD. 78.30' (BGS)	Date measured:	11/26/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS Monitoring well installation, geotechnical properties, analytical tests, instrumentation
					GM: Sand Silt Gravel mixture. Gravel 80% 10% med gr. Sand 10% Silt. Silt Sand Tan brown. Gravel to 4"		GM
30'					No odor or staining @ 34' - pea sized gravel - mixed with Sand/Silt - gravel 80%		GM
40'					Red Clayey Sand - @40' - Harder drilling @ 43'-4 gravel zone - angular. Sandstone fragments - Sandstone layer. Clayey Sand - Red well sorted Sand - Damp @45		CL/CH - Sandstone layer minor gravel. SC
50'					Red - clayey Sand - fine gr. well sorted Sand with clayey - plastic Damp @ 60'		SC
60	▽ water @ 62'				water - saturated @ 62? Strong Contamination odor on top of H_2O		SC/CL/CH
					Red Clayey Sand. med - fine gr. well sorted sand mixed 50%/50% with clay. T.D. 79'.		SC/CL/CH

5' Riser 79-74
0.020 Slot Screen 74-54
[illegible] 5[illegible]' (79'-51')

Top Bentonite 48'
Grout 3'-48'

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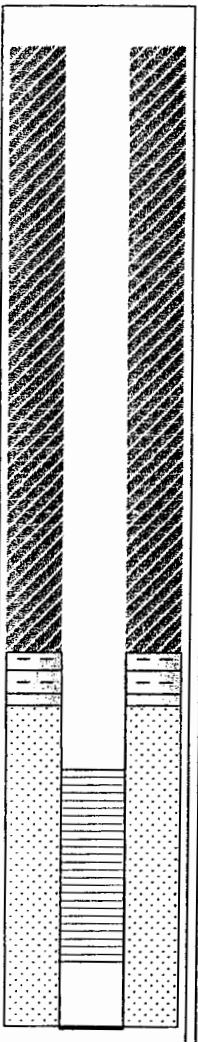
FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-15**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
TE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
OGGED BY:	**Rick Smith, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
ATES DRILLED:	**11/22/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
5		GM	GRAVEL AND SAND: 0'-4': GM mixed with caliche, white pink, dry 4'-42':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry becoming moist @ 40' BGS					Cement Grout 3'-49'
10								
20								
25								
30								
35								
40		CL	CLAY: CH: Red Clayey Sand: lean clay with sand, med. stiff, plastic, moist. Water Level 61.13' BGS 11/25/02	49'-51'	24"/33			Bentonite 49.9'
45								
50								
55		SP/SC	CLAYEY SAND: SP/SC: 54'-79' Poorly Graded Sand with clay & gravel, red dense, moist, fragements of sandstone as gravel, hard drilling 65'-71', No odor or staining. TD 79' Saturated @ 60' BGS Cement / Bentonite Grout 49'-3' Bentonite 49'-54' 12/20 Sand Pack ' 54'-74' 0.020 Slot Screen 74'-59' Riser 74'-79' No Odor or Staining at TD	54'-56'	12"/51			Top Sand 54'
▼				59'-61'	24"/41			Top Screen 59'
65				64'-66'	14"/50			
70				69'-71'	24"/50			
75		SP/SC		74'-76'	20"/70			Sump 74'-79' TD 79'
85				79'-81'	24"/74			
90								

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Boring ID: MPE-15

Project: Remediation Drilling
Location: TWP / Roswell Station 19
Client: CES / TWP
Driller: Mark Bates, Atkins Engineering
Drilling method: HSA Mobil Drill B-58
Boring date: 11-22-02
Water level: 64.13' H2O 79.70' T.D. (BGS)

Sheet: 1 of 2
Job number: P-202203
Total depth: 79'
Boring diameter: 8 1/4"
Logged by: RDS
Date measured: 11/25/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0'					0-4' GM mixed with Caliche, white-pink, dry 4'-42' GM Sand, Silt, Gravel, Lt. Brown, med. dense, dry, becoming moist at 40' BGS.		no odor
10'	42				42-54 CL Lean Clay with Sand, reddish-brown, med. stiff, plastic, moist	CL	
15'	49	49-51		33	CL Lean Clay with Sand, reddish brown, med. stiff, slightly plastic, dry	CL	

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Boring ID: MPE-15

Project: Remediation Drilling
Location: TWP / Roswell Station 9
Client: CES / TWP
Driller: Mact Bates, Atkins Engineering
Drilling method: HSA, Mobil Drill B-58
Boring date: 11-22-02
Water level:

Sheet: 2 of 2
Job number: P-102203
Total depth: 79'
Boring diameter: 8 1/4"
Logged by: RDS
Date measured:

depth (ft)	SAMPLE interval	number	recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
				Continued			
50'	49-51		24	33	CL Lean Clay with sand	CL	
					54'-59.5'		
55'	54-56		12	51	SP-SC Poorly Graded Sand with Clay, Lt. Reddish-Brown, med. stiff, moist	SP-SC	
	59-61		24	41	SP-SC Poorly Graded Sand with Clay, Lt. Brown, med. stiff, moist – 59.5'-60.5' SP Poorly Graded Sand, Lt. Brown, loose, wet, Fine grained quartz, trace coarse limestone gravel	SP	Possible Odor - No Staining
					60.5'-79'	SP-SC	
65'	64-66		14	142	SP-SC Poorly Graded Sand with Clay and Gravel, red, dense, moist, subrounded to subangular sparite limestone, trace quartz, gravel coarse, sand fine		no odor Hard drilling 65-66'
	69-71		24	125	"SAME AS ABOVE" SP-SC Poorly Graded Sand with Clay and Gravel, moist		no odor Hard Drilling 66-71'
							2 Bags Bentonite Chips 49.9'-54' 20 Bags #1 17/20 Sand 54'-79'
75'	74-76		20	70	"SAME AS ABOVE" SP-SC Poorly Graded Sand with Clay and Gravel, moist		no odor
							15' Screen 59'-74' 4" PVC 5' Sump 74'-79' 020 slot
							TD 79' BGS
80'	79-81			74	CL Sandy Lean Clay, red, moist, med. stiff, trace gravel	CL	no odor

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-16**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**C. Barnhill, / R. Marshall**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**11/26-27/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: Strong PsH in Soil Boring

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
-10		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-40':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry. 15'-40' SM/SP/SC: Poorly graded sand with clay, red to brown, soft, slightly plastic, moist. 40'-49': CL/SC: Lean clay with sand, red, medium stiff, plastic moist. Minor gravel.					Cement Grout 3'-47'
-40		SC/CL	CLAY: CH: Red Clayey Sand: lean clay with sand, med. stiff, plastic, moist.					
-50		SP/SC	CLAYEY SAND: SP/SC: 50'-75' Poorly Graded Sand with clay ,slight odor Saturated @60' BGS Strong hydrocarbon staining, odor, and PsH at 64'-74' TD 79' Riser 79'-74', 0.020 Slot Screen 74'-54', 12/20 Sand Pack 79'-49', Bentonite Seal 49'-47', Cement Grout 47'-3'	49'-51' 54'-56' 59'-61' 64'-66' 69'-71'	41"/18 22"/24 12"/34 12"/34 24"/18			Bentonite 47' Top Sand 49' Top Screen 54' Sump 74'-79' TD 79'
-70		CL Redbed	CLAY: CL: Sandy Lean Clay, Lt. Reddish brown,	74'-76'	24"/32			
-80			MUDSTONE: Marroon Mudstone, with Gypsum and anhydrite lenses, hard drilling, dry, no odor.	79'-81'	6"/51			

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Boring ID: MPE-16

505-626-1618

Project: Remediation Drilling
Location: Twp Roswell Station 9
Client: Twp / CES
Driller: MOET BATES, ATKINS Drilling
Drilling method: HSA, MOBILE DRILL B-57B
Boring date: 11/26-27/02
Water level:

Sheet: 1 of 2
Job number: P-202203
Total depth: 79'
Boring diameter: 8 1/4 I.D. Augers
Logged by: RM
Date measured: 11-27-02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					GM DRY CALICHE GRAVEL ROUNDED WHITE TO LIGHT TAN POORLY SORTED 0-15'		
15					GM-GP MUCH LESS SAND & SILT BUT STILL PRESENT ROUNDED CLASTS, WELL SORTED LIGHT TAN-BROWN 15'-23'		
23					GM DRY SAND LIGHT BROWN TO REDDISH BROWN GRAVEL ROUNDED POORLY SORTED 23'-25'		
25					GM-GP WELL SORTED GRAVEL FEW FINES 25'-27'		
27					27-29 GM WELL SORTED GRAVEL W/ REDDISH BROWN SAND		
					29'-30' GM CALICHE LAYER SANDY/SILTY LOWER LIGHT TAN DRY 30'-36' SM SILTY LIGHT TAN LAYER LITTLE CALICHE & GRAVEL DRY & HARD SM/SC ORANGE TO REDDISH-BROWN SLIGHTLY MOIST WELL SORTED LITTLE GRAVEL 36'-41'		
					CL SANDY CLAYS STIFF MOIST REDISH-BROWN BECOMES HARD ABOUT 46 FEET		
49	49/51	41	18"	41 Blows	49'-51': 41 Blows		
50					49-50: Red Sand - Well - Sorted Fine Gr. - Little or No Fines to Tan brown. SW/CL/SC		
54	54/56	22	24"	22 Blows	50'-51': Red Clayey Sand - Damp @52' - Soft Drilling - 54-56 - 22 Blows		
59	59-61	34	12"	34 Blows	Red-Brown Clayey Sand mixed with Sand - Well Sorted NO Fines SW/SC Clayey Sand: 59-61' - 34 Blows Red. - Red Clayey Sand Damp.		
60					Saturated @ 62' - Gray Black - Strong Contamination - 64-86'		

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Boring ID: MPE-16

Project:	Remediation Drilling	Sheet:	2 of 2
ation:	Twp Roswell Station 9		
Client:	Twp/CES	Job number:	P-202203
Driller:	MORT BATES, ATKINS DRILLING	Total depth:	
Drilling method:	HSA, MOBILE DRILL B-58	Boring diameter:	8 1/4 I.D. Auger
Boring date:	11/26-27/02	Logged by:	RM
Water level:		Date measured:	

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS Monitoring well installation, geotechnical properties, analytical tests, instrumentation
	64-66'	~~18~~ 12	12"	34 ~~18~~ 34/12"	64-66' ~~59-61'~~ - Gray Black Saturated, Contaminated. gray black staining Red - Clayey Sand Saturated w/ Pipeline Condensate - free product in split spoon.		SC - Clayey Sand - 64-16 PSH 69-71'
	~~69~~-71'	18	24"	18/24"			
	74-76	32	24"	32/24"	74'-76': Dry Red Clayey Sand - mixed with Fat Clay - Minor odor - Faint odor.		SC/CL
	79-81'	51	6"	51/6"	79-81' - Dry Marroon Red Bed with Gypsum & Anhydrite		Anhydrite/Gypsum Red Bed, @ 79' BGS.
					5' Riser 74'-79' 0.020 Slot Screen - 74'-54' Top Sand - 49' Top Bentonite 47'		

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FIELD BOREHOLE LOG

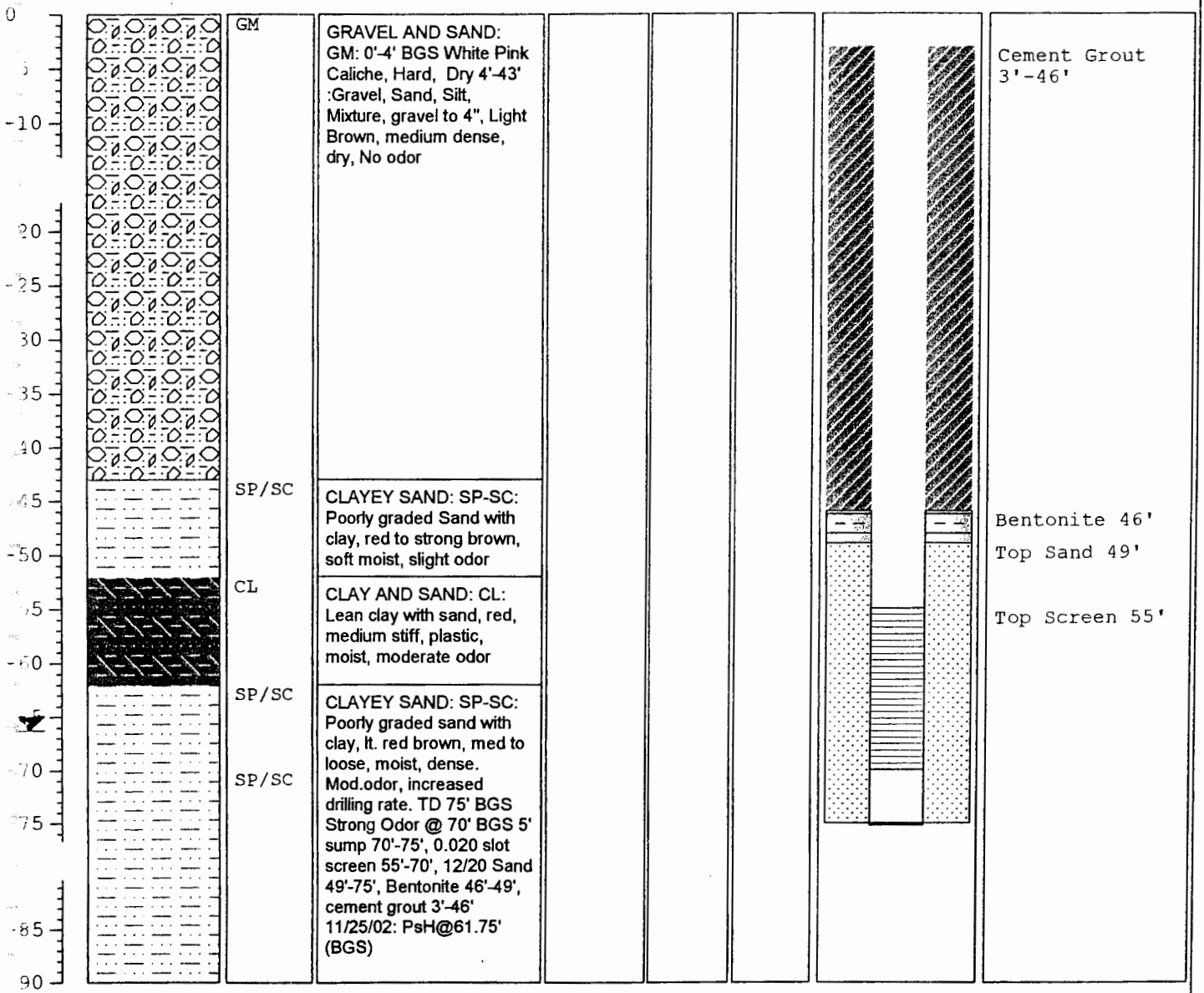
BOREHOLE NO.: **MPE-17**
TOTAL DEPTH: **75'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
TE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
GGED BY:	**Rick Smith, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
TES DRILLED:	**11/20/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: PsH@ 61.75'H2O@66.25'(BGS)11/25/02

Water level during drilling
Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: 0'-4' BGS White Pink Caliche, Hard, Dry 4'-43' :Gravel, Sand, Silt, Mixture, gravel to 4", Light Brown, medium dense, dry, No odor					Cement Grout 3'-46'
-10								
-20								
-25								
-30								
-35								
-40								
-45		SP/SC	CLAYEY SAND: SP-SC: Poorly graded Sand with clay, red to strong brown, soft moist, slight odor					Bentonite 46'
-50								Top Sand 49'
-55		CL	CLAY AND SAND: CL: Lean clay with sand, red, medium stiff, plastic, moist, moderate odor					Top Screen 55'
-60								
-65		SP/SC	CLAYEY SAND: SP-SC: Poorly graded sand with clay, lt. red brown, med to loose, moist, dense. Mod.odor, increased drilling rate. TD 75' BGS Strong Odor @ 70' BGS 5' sump 70'-75', 0.020 slot screen 55'-70', 12/20 Sand 49'-75', Bentonite 46'-49', cement grout 3'-46' 11/25/02: PsH@61.75' (BGS)					
-70		SP/SC						
-75								
-85								
-90								



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Boring ID: MPE-17

Project: Remediation Drilling
Location: TWP / Roswell Station 9
Client: CES / TWP
Driller: Mort Bates, Atkins Engineering
Drilling method: HSA Mobile Drill B-58
Boring date: 11-20-02 Begin 11-21-02
Water level: PSA 61.75', H_2O - 66.25, TD = 75.90' (BGS)

Sheet: 1 of 1
Job number: P-202203
Total depth: 75'
Boring diameter: 8 1/4"
Logged by: RDS
Date measured: 11/25/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
					0-4' GM mixed with Caliche, white-pink, dry 4'-43' GM Sand, Silt, Gravel, Light brown, medium dense, dry		
30'						GM	No odor
40'							
43					43'-52' SP-SC Poorly Graded Sand with Clay, red to strong brown, soft, moist	SP-SC	slight odor
50'							
52					52'-62' CL Lean Clay with Sand, red, medium stiff, plastic, moist	CL	moderate odor 2 Bags bentonite chips 46'-49' 20 Bags #1 12/20 Sand 49'-75'
60'							
62					62'-72' SP-SC Poorly Graded Sand with Clay, Lt. Reddish Brown, med. ~~stiff~~ to loose, moist dense	SP-SC	moderate odor Increased drilling rate 15' Screen 55'-70' 4" PVC 5' Sump 70'-75' 020 slot
70'							
72					72'-74' CL Sandy Lean Clay, Lt. Reddish-Brown, moist, med stiff	CL	Strong odor
74					74'-75' SP-SC Poorly Graded Sand with Clay + Gravel, red, med dense, moist	SP-SC	TD 75.0' BGS
80'							

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-18**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
TE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
OGGED BY:	**Rick Smith, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
ATES DRILLED:	**11/21/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: 0'-4': GM mixed with caliche, white pink, dry 4'-58':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry becoming moist @ 50' BGS Slight Odor to No Odor 58'-72' SP/SC Poorly Graded Sand With Clay, Lt. Reddish-brown, med. dense, moist					Cement Grout 3'-52'
5								
-10								
-20								
-25								
30								
-35								
40								
-45								
50								
55								Bentonite 52'
▽								Top Sand 55'
-60 ▼		GM SP/SC	CLAY AND SAND: SP/SC:Poorly graded sand with clay, Lt. reddish -brown, med. dense, moist Water Level 59.87' BGS 11/25/02 Saturated @58' BGS					Top Screen 58'
65								
70								
75		SP/SC	CLAYEY SAND: CL: 72'-79' Sandy lean clay red/ brown, med. stiff, moist, moderate odor, no staining. TD 79' Grout 52'-3' Bentonite 52'-55' Sand 55'-79' 0.020 Screen 73'-58' Riser 73'-78'					Sump 73'-78' TD 79'
-85								
-90								

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Boring ID: MPE-18

Project: Remediation Drilling
Location: TWP / Roswell Station 9
Client: CES / TWP
Driller: Mort Bates, Atkins Engineering
Drilling method: HSA Mobile Drill B-58
Boring date: 11-21-02
Water level: 59.87 H2O (BGS) T.D. 79.44' (BGS)

Sheet: 1 of 1
Job number: P-202203
Total depth: 79'
Boring diameter: 8 1/4"
Logged by: RDS
Date measured: 11/25/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
					0-4' GM mixed with Caliche, white-pink, dry		
30'					4'-58' GM Sand, Silt, Gravel, Lt. brown, med. dense, dry,		no odor
					becoming moist at 50' BGS.	GM	
40'							
50'							
							Slight Odor
	58			58'-72'	SP-SC Poorly Graded Sand with	SP-SC	Moderate odor
60'					Clay, Lt. reddish-brown, med. dense, moist		no staining
							2 bags Bentonite Chips 52'-55'
							21 bags #1 12/20 Sand 55'-78'
70'							no odor - Possible Odor
	72			72'-78'	CL Sandy Lean Clay, reddish-brown, moist, med stiff	CL	no staining
							15' Screen 58'-73' 4" PVC 020 slot
							5' Sump 73'-78'
	78			78'-TD	CL Lean Clay with Sand, red, moist, med stiff	CL	TD 79' BGS
80							

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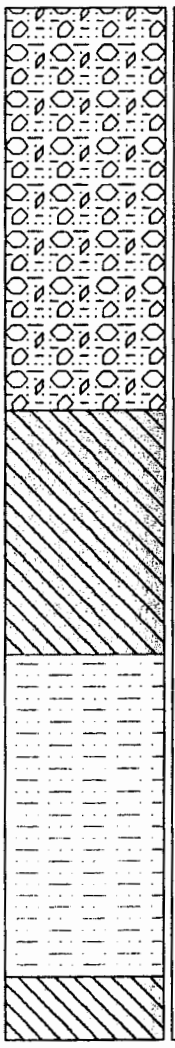
FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-19**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**C. Barnhill, / R. Marshall**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**11/26/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

⧖ Water level during drilling
⧗ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-31':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry. 31'-42' SM/SP/SC: Poorly graded sand with clay, red to brown, soft, slightly plastic, moist. 40'-49': CL/SC: Lean clay with sand, red, medium stiff, plastic moist. Minor gravel. Slight odor @ 36' and SW moist.					Cement Grout 3'-43'
5								
-10								
20								
-25								
30								
-35		SM/SC	CLAY: CH: Red Clayey Sand: lean clay with sand, med. stiff, plastic, moist.					
-40		SC/CL						Bentonite 43'
-45								Top Sand 46'
-50		SP/SC	CLAYEY SAND: SP/SC: 50'-75' Poorly Graded Sand with clay ,slight odor . TD 79' Saturated @ 54' BGS No staining or odor at 75'-TD	49'-51'	24"/19			Top Screen 49'
▽ 55				54'-56'	18"/41			
-60				59'-61'	24"/25			
▼ -65		SP/SC		64'-66'	24"/46			
-70				69'-71'	24"/42			
-75		CL	CLAY: CL: Sandy Lean Clay, Lt. Reddish brown,	74'-76'	24"/16			Sump 74'-79'
		CL /						TD 79'

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Boring ID: ~~MW~~ MPE 19

Project:	Remediation Drilling	Sheet:	1 of 2
Location:	Twp Risney Station 9		
Client:	Twp/CES	Job number:	P-202203
Driller:	Mort Bates, Atkins Drilling	Total depth:	
Drilling method:	HSA, Mobile Drill B-58	Boring diameter:	8 1/4 I.D.
Boring date:	11/26/02	Logged by:	RM
Water level:	H2O 62.82' BGS TD- 75.22'	Date measured:	12/2/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					GM CALICHE MIXED WHITE W/ GRAVEL WELL ROUNDED		
5					— 5' DRY LIGHT TAN		
10					GM VERY LITTLE CALICHE DRY POORLY SORTED WELL ROUNDED GRAVEL - PEBBLE CLASTS REDISH BROWN		
20					20' FINER GRAINED GRAVEL MOIST GM		
28					GC MOIST BROWN		
30					MINOR ODOR		
31					CLAY IS SOFT MOIST SM-SC @ 34'		
34							
36					36' SW SLIGHTLY MOIST REDDISH BROWN WITH SM ALSO SC IS MOIST SLIGHT ODOR		
40					SC-CL W/ LITTLE GRAVEL RED/BROWN VERY STIFF		
44							
50	49-51		24	19	CL LITTLE SAND REDISH BROWN MEDIUM STIFF		
54'					SPLIT SPOON 49-51 : 19 BLOWS SOFT SANDY CLAY REDISH BROWN		
	54-56		18	41	SPLIT SPOON 54-56 : 41 BLOWS ~~TOP 60mm SC, 150mm SC, 250mm SC~~ SC FINE SAND SUBANGULAR 6" ORANGE/RED SAND 12" CL MEDIUM STIFF		
60							

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Boring ID: ~~MW~~ MPE-19

Project:	Remediation Drilling	Sheet:	2 of 2
Location:	TWP Riswell Station 9		
Client:	TWP/CES	Job number:	P-202203
Driller:	MORT BATES, ATKINS DRILLING	Total depth:	
Drilling method:	HSA, MOBILE DRILL B-58	Boring diameter:	8 1/4 I.D.
Boring date:	11/26/02	Logged by:	RM
Water level:		Date measured:	

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
	~~59-61~~ 59-61		24"	25	SPLIT SPOON 59-61': 25 BLOWS CL WITH INTERBEDDED SAND IN 1" SEGMENT AT 14" FROM TOP CL MOIST, PLASTIC SOFT		
	64-66		24"	46	SPLIT SPOON 64'-66': 46 BLOWS CL MEDIUM STIFF @ 17" LIGHT TAN TO WHITE SC TO 19" THEN CL AGAIN		
	69-71		24"	42	SPLIT SPOON 69'-71': 42 BLOWS WET SP LARGE AMOUNTS OF QUARTZ ROUNDED GRAINS MINOR AMOUNTS OF CLAY 3" CL IN UPPER SECTION		
	74-76		24	16	SPLIT SPOON 74'-76': 16 BLOWS SP - TOP 14 inches 10 inches CL SP SATURATED CL WET BUT NOT SATURATED		
	79-81		24"	51	SPIT SPOON 79'-81': 51 BLOWS CL ~~TOP~~ 24" ~~SATURATED~~ ~~CL WITH~~ GRAVEL IN IT DRY T.D 79'		
					Riser 79'-74' 0.020 slot screen 74'-49' Top 10/20 Sand 46' (79'-46') Top Bentonite 43'-		

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-20**
TOTAL DEPTH: **78'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**Rick Smith, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**11/19-20/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: PsH@ 60.02' H2O@ 61.50' BGS

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: 0'-8': GM mixed with caliche, white pink, dry 8'-39':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry. 39'-42' SP/SC: Poorly graded sand with clay, red to brown,k soft, slightly plastic, moist. 42'-49': CL: Lean clay with sand, red, medium stiff, plastic moist.					Cement Grout 3'-39'
-10								
-20								
-25								
-30								
-35								
-40		SP/SC	CLAY AND SAND:					Bentonite 39'
-45		CL	CLAY: CH: Red Clayey Sand: lean clay with sand, med. stiff, plastic, moist. Psh : 60.02', H2O 61.50'					Top Sand 42'
-50		SP/SC	CLAY AND SAND: Clay & Poorly graded sand, yellow	49'-51'	24"/51			Top Screen 48'
-55			CLAYEY SAND: SP/SC: 54'-75' Poorly Graded Sand with clay , strong odor & staining @ 65'-75'. TD 78' Saturated @ 60' BGS Wet with PsH @65' BGS PsH @ 60.02' H2O @ 61.50 BGS No staining or odor at 75'-TD	54'-56'	24"/51			
-60				59'-61'	24"/33			
-65		SP/SC		64'-66'	24"/51			
-70				69'-71'	24"/44			
-75		CL	CLAY: CL: Sandy Lean Clay, Lt. Reddish brown, stiff, low plasticity, moist, blocky @78' SP/SC Poorly Graded sand with clay & gravel, red. med. dense.	74'-76'	24"/20			Sump 73'-78' TD 78'
-80		SP/SC		79'-81'	6"/51			
-85								
-90								

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-20**
TOTAL DEPTH: **78'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**Rick Smith, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**11/19-20/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: PsH@ 60.02' H2O@ 61.50' BGS

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0 to -90		GM	GRAVEL AND SAND: 0'-8': GM mixed with caliche, white pink, dry 8'-39':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, dry. 39'-42' SP/SC: Poorly graded sand with clay, red to brown,k soft, slightly plastic, moist. 42'-49': CL: Lean clay with sand, red, medium stiff, plastic moist.					Cement Grout 3'-39'
-40		SP/SC	CLAY AND SAND:					Bentonite 39'
-45		CL	CLAY: CH: Red Clayey Sand: lean clay with sand, med. stiff, plastic, moist. Psh : 60.02', H2O 61.50'					Top Sand 42'
-50		SP/SC	CLAY AND SAND: Clay & Poorly graded sand, yellow	49'-51'	24"/51			Top Screen 48'
-55			CLAYEY SAND: SP/SC: 54'-75' Poorly Graded Sand with clay , strong odor & staining @ 65'-75'. TD 78' Saturated @ 60' BGS Wet with PsH @65' BGS PsH @ 60.02' H2O @ 61.50 BGS No staining or odor at 75'-TD	54'-56'	24"/51			
-60				59'-61'	24"/33			
-65		SP/SC		64'-66'	24"/51			
-70				69'-71'	24"/44			
-75		CL	CLAY: CL: Sandy Lean Clay, Lt. Reddish brown, stiff, low plasticity, moist, blocky @78' SP/SC Poorly Graded sand with clay & gravel, red. med. dense.	74'-76'	24"/20			Sump 73'-78' TD 78'
-80		SP/SC		79'-81'	6"/51			
-85								
-90								

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Boring ID: MPE-20

Project:	Remediation Drilling	Sheet:	1 of 2
Location:	TWP / Roswell Station 9		
Client:	CES / TWP	Job number:	P-202203
Driller:	Mort Bates, Atkins Engineering	Total depth:	78'
Drilling method:	HSA, Mobile Drill B-58	Boring diameter:	8 1/4"
Boring date:	11-19-02 Begin 11-20-02	Logged by:	RDS
Water level:	Pstt 60.02', 61.50 H_2O, TD. 78.10 All measured BGS.	Date measured:	11/25/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
					0-8' GM mixed with Caliche, white-pink, dry		
8							
					8'-39' GM Sand, silt, Gravel, light brown, medium dense, dry	GM	
39							Slight odor - no Staining
					39'-42' SP-SC Poorly graded Sand with Clay, red to brown, soft, slightly plastic, moist	SP-SC	
42					42'-49' CL Lean Clay with Sand, red, medium stiff, plastic, moist	CL	
49	49-51		24	51	49-50' CL Sandy Lean Clay, Lt. Brown, med. stiff, low plasticity, moist, blocky →	CL	Slight odor, no Staining

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Boring ID: MPE-20

Project:	Remediation Drilling	Sheet:	2 of 2
Location:	TWP / Roswell Station 9		
Client:	CES / TWP	Job number:	P-202203
Driller:	Mort Bates, Atkins Engineering	Total depth:	78'
Drilling method:	HSA, Mobile Drill B-58	Boring diameter:	8 1/4"
Boring date:	11-19-02 Begin 11-20-02	Logged by:	RDS
Water level:		Date measured:	

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
50	49-51		24	51 Continued	Interbedded - 50-51' SP Poorly Graded Sand, yellowish orange, very loose, dry, homogeneous - with - SP-SC Poorly Graded Sand with Clay, Lt. Brown, med. dense, moist, homogeneous, Fine Quartz, subrounded		≈ 6" lenses of CL, SP, and SP-SC
					"SAME AS ABOVE" CL, SP, and SP-SC		≈ 6" lenses of CL, SP, and SP-SC
55	54-56		24	51	Sandy Lean Clay, Poorly Graded Sand, and Poorly Graded Sand with Clay		2" Staining 55.6'-55.8' strong odor
					"SAME AS ABOVE" CL and SP-SC, SP Absent		SP-Absent
60'	59-61		24	33	Sandy Lean Clay and Poorly Graded Sand with Clay		4" Staining and PSH 60.5'-60.9' strong odor
	64-66		24	51	SP-SC Poorly Graded Sand with Clay, Lt. reddish-brown, loose, wet with PSH, homogeneous, Fine grained quartz		24" Staining, wet with PSH strong odor
65'					"SAME AS ABOVE"		
	69-71		24	44	SP-SC Poorly Graded Sand with Clay		No Staining, Wet with PSH Strong Odor
70'							2 Bags Bentonite Chips 39.6'-42.40' 31 Bags #1 12/20 Sand 42.40'-78.0'
	74-76		24	20	CL Sandy Lean Clay, Lt. Reddish-brown, stiff, low plasticity, moist, blocky		Moderate Odor, No Staining Less moisture at 76'
75'							25' Screen 48'-73' 4" PVC 020 slot; 5' Sump 73'-78'
	78-80		6	51	SP-SC Poorly Graded Sand with Clay and Gravel, red, med. dense, moist, subrounded to subangular limestone and quartz gravel		TD 78' BGS; Split Spoon Refusal in Gravel
80'							

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-21**
TOTAL DEPTH: **69'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
TE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
GGED BY:	**Rick Smith, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
TES DRILLED:	**11/19/02**	HAMMER WT./DROP	**140 lb., 30 in.**

JOTES: 4" SCH 40 MPE Well

Water level during drilling
Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
-10		GM	GRAVEL AND SAND: GM: 0'-5' BGS White Pink Caliche, Hard, Dry 5'-32 GM' :Gravel, Sand, Silt, Mixture, gravel to 4", Light Brown, medium dense, dry, No odor					Cement Grout 3'-37.4'
-20								
-25								
-30		CH	CLAY: Fat Clay, red, medium stiff, plastic, moist					
-35								
-40		CL/CH	CLAYEY SAND: CL: Fat Lean clay with sand, red, medium stiff, low plasticity, moist, no odor, some interbedded with lenses (<1') of SP/SC, starting @ 50' BGS, Poorly graded sand with clay, red to strong brown, soft, slightly plastic, very moist Water @ 55.45' BGS 11/25/02					Bentonite 37.4' Top Sand 41.9' Top Screen 44'
-45								
-50								
-55								
-60								
-65								
-70								TD 69'
-75								

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Boring ID: MPE-21

Project: Remediation Drilling
Location: TWP / Roswell Station 9
Client: CES / TWP
Driller: Mort Bates, Atkins Engineering
Drilling method: HSA, Mobile Drill B-58
Boring date: 11-19-02
Water level: 55.45 BGS, T.D. = 69.55'

Sheet: 1 of 1
Job number: P-202203
Total depth: 69'
Boring diameter: 8 44"
Logged by: ADS
Date measured: 11/25/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
					0-5' GM mixed with caliche, white-pink, dry	GM	
					5'-32' GM Sand, silt, gravel, light brown, medium dense, dry		GM
30'							
32					32-38' CH Fat clay, red, medium stiff, plastic, moist	CH	CH
38							
40'					38-68' CL/CH Fat/Lean Clay with sand, red to strong brown, stiff, low plasticity, moist	CL CH	moderate odor
					Section interbedded with lenses (<1') of SP-SC, Poorly Graded		CL/CH
50'					Sand with clay, red to strong brown, soft, slightly plastic, very moist		SP-SC lenses
							2 Bags Bentonite Chips 37.40-41.90 Grout 37.40-3'
							27 Bags #1 12/20 Sand 41.90'-69'
60'							44'-64' 4" PVC 020 Screen 69'-64' Sump
					68'-69' SC Clayey Sand, reddish yellow, Fine grained, med dense, slt. plasticity, slightly moist to dry	SC	Sample off bit when pulled.
68							TO 69' BGS SC
69							
70'							
80'							

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-22**
TOTAL DEPTH: **80'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
TE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
OGGED BY:	**Jim Chionis**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
ATES DRILLED:	**11/07/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

Water level during drilling
Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt, Mixture, gravel to 2"					Cement Grout 3'-49'
5								
-10								
20								
-25								
30								
-35								
40		GM						
-45		CH	CLAY: CH: Red Clayey Sand mixed with Fat Red Clay Lenses					
50								Bentonite 49'
55								Top Sand 52'
-56		CL / CH	CLAYEY SAND: TD 80' Saturated @ 65' BGS Cement / Bentonite Grout 49'-3' Bentonite 49'-52' 12/20 Sand Pack ' 52'-80' 0.010 Slot Screen 80'-55'					Top Screen 55'
-65								
70								
-75		CH	CLAY: Red Fat Clay, Water Level @ 65.0' from BGS 11/08/02 No Odor or hydrocarbon staining.					
-85								T.D. @80'

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Boring ID: MPE-22

Project: Remediation Drilling
Location: TWP Roswell #9
Client: TWP / CES
Driller: Mott Bates - Atkins Drlg
Drilling method: HSA Mobile Drill B-58
Boring date: 11-7-02
Water level: ~~Abt~~ 65.0'

Sheet: ~~MPE-22~~ 1 of 1
Job number: P-202203.
Total depth: ~~80~~ 80
Boring diameter: 6 1/4"
Logged by: JLC
Date measured: ~~11-8-02~~ 11-8-02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					SILTY SAND & small sized gravel		
					gravel, Light gray size (1-2")		Ha odor (DID NOT ENCOUNTER perched water @ 22')
30					Silty gravel w/ some fn/gr SAND		
					Silty sand, fn/gr, tan brown w/ some clay and gravel		
40					CLAY @ 39' FAT, Red		
50							
					SANDY CLAY Red brown fn gr sand.		water meas. @ 65.0'
70							
80					CLAY, FAT		plug top SAND top Screen 80-55

TD @ 80'

TD 80

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-23**
TOTAL DEPTH: **80'**

PROJECT INFORMATION		DRILLING INFORMATION	
ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
TE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
GGED BY:	**Jim Chionis**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
TES DRILLED:	**11/06/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

⧖ Water level during drilling
⧗ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt, Mixture, gravel to 2"					Cement Grout 3'-49'
-10								
-20								
-25								
-30								
-35			SAND AND SILT: Silty, Sand, Tan Brown Fine					
-40		CL	CLAYEY SAND: Red Clayey Sand					
-45		CH	CLAY: CH: Red Clayey Sand mixed with Fat Red Clay Lenses					
-50								Bentonite 49'
-55		CL / CH	CLAYEY SAND: Dark Stained, Hydrocarbon					Top Sand 52' Top Screen 55'
-60			CLAYEY SAND: TD 80' Saturated @ 65' BGS Cement / Bentonite Grout 49'-3' Bentonite 49'-52' 12/20 Sand Pack ' 52'-80' 0.010 Slot Screen 80'-55'					
-65								
-70								
-75		CH	CLAY: Red Fat Clay, Water Level @ 60.0' from BGS 11/07/02 No Odor or hydrocarbon staining.					T.D. @80'
-85								

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Boring ID: MPE - 23

Project:	REMEDIATION DRILLING	Sheet:	1 of 1
Location:	TWP ROSWELL STA #9		
Client:	TWP / CES	Job number:	P-202203
Driller:	MONT BATES / ATKINS DRILLING	Total depth:	80'
Drilling method:	HSA MOBILE DRILL B-58	Boring diameter:	8 1/4 "
Boring date:	11-6-02	Logged by:	JLC
Water level:	60.0'	Date measured:	11-7-02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					Gravel, Lg size (1-2") @ 25'		
30							
					SILTY SAND tan brown @ 34 ft. , fine grained		
					SANDY clay, FAT, Red @ 38 ft		
40							
					CLAY, FAT, Red @ 44 ft		
50					@ 55-60', clay dk stained, HC odor		
					WATER measured @ 60'.0		
60							
7					SANDY CLAY, Red, brown Saturated. Water @ 63'		
70							TOP Plug — 49 TOP SAND P 52
					FAT CLAY, Red		SCREEN 80-55
80					80' TD		TD 80
88							

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-24**
TOTAL DEPTH: **74'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**11/11-13/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
-10		GM	COLLUVIUM: Hard White Caliche 0'-4'					Cement Grout 3'-43'
			CLAYEY SAND: Clayey					
		CL	GRAVEL AND SAND: GM: Gravel, Sand, Silt, Mixture, gravel to 4"					
-25			CONGLOMERATE: Hard					
		CH	CLAY: CH: Red Clayey Sand mixed with Fat Red Clay Lenses Damp @40', Perched Aquifer? Strong Contamination & Odor, Black Streaks in Clayey Sand					
-50				49'-51'	33/24"			
		CL / CH	CLAYEY SAND: TD 79' Saturated @ 58' BGS Cement / Bentonite Grout 43'-3' Bentonite 43'-46' 12/20 Sand Pack ' 46'-74' 0.010 Slot Screen 74'-49' Strong Contamination & Odor, Black Gray Color Water Level 58.27' TOC	54'-56'	39/24"			Bentonite 43' Top Sand 46' Top Screen 49'
-60				59'-61'	No SPT			
-70				70'-72'	80/16"			TD 74'
-85			CALCAREOUS SANDSTONE: Calcareous Cement, White, fine gr., Hard Drilling, Dry, No Odor or Staining	74'-76'	50/24"			

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Boring ID: MPE-24

Project:	Remediation Drilling	Sheet:	1 of 1
Location:	TWP Roswell Station 9		
Client:	TWP/CES	Job number:	P-202203
Driller:	MORT BATES, ATKINS DRILLING	Total depth:	74'
Drilling method:	HSA, MOBILE DRILL B-58	Boring diameter:	8 1/4" Auger.
Boring date:	11/01/02 – 11/13/02	Logged by:	CMB.
Water level:	58.27 TOC. TD. 75.45	Date measured:	11/14/02.

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
					0'-4' Hard white Caliche 4'-7' Clayey Sand. 7'-35': GM - Gravel Sand, silt mixture		GM Sandstone layer or Large Cobble. Hard drilling.
30'					27'-30' Hard - Calcareous fine gr. Sandstone layer 30' - Clay - Fat Clay (Red) mixed with Red Clayey Sand.		or Large Cobble. CH
40'					Damp Cuttings ↓ Perched Aquifer?		
50'	50'-52'	33	2.0	~~33~~/2'	Split Spoon - 50'-52' 33 Blows. — Red Fat Clay - Strong Contamination — Black streaks - Strong odor mixed with Red/Gray/Black Clayey Sand. @ 54	CL	50-52: SPT. CH 54-56: SPT. Drill Bit Dry - wet clay above bit - Perched Aquifer above?
▽	54-56'	39	2.0	39/2'			
▼							
60'	59-61 ~~60-62'~~			No SPT	Strong Hydrocarbon - PSH visible - Wet. Gray Black - Strong contamination & odor. Clayey - Sand. Saturated.		60'-62': ~~SPT~~ (NO) CL
70'	70'-72	16"	16"	100/16"	69'-71' ~~70'-72'~~ Saturated. Red Clayey Gravel. Saturated to 71' @ 71' Dryer. Gravel 10%. Less odor & staining - still contaminated.		69'-71': ~~SPT~~.
	74-76	~~20~~ 50	24"	50/24"	74'-76' - Red Clayey Sand / Gravel to 1'. No odor or staining NOT Saturated. TD. 74'		@ 76' - Hard white fine gr. Sandstone layer.
80'							

Bentonite 4: Sand 46' Screen 74'-49 TD 74'

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-25**
TOTAL DEPTH: **80'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**Jim Chionis**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**11/04/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

⧖ Water level during drilling
⧗ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
10		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt, Mixture, gravel to 4" Contaminated Pit Soil begins @ 7' BGS Pit Liner @ 17' BGS					Cement Grout 3'-48'
40		CH	CLAY: CH: Red Clayey Sand mixed with Fat Red Clay Lenses Moist @ 38'					
50		CL / CH	CLAYEY SAND: TD 79' Saturated @ 65' BGS Cement / Bentonite Grout 48'-3' Bentonite 48'-51' 12/20 Sand Pack ' 51'-79' 0.010 Slot Screen 79'-54'					Bentonite 48' Top Sand 51' Top Screen 54'
75		CL	CLAYEY SAND: Water Level @ 60.20' from BGS 11/05/02 No Odor or hydrocarbon staining.					

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Boring ID: MPE-25

Project: Remediation Drilling
Location: Twp Roewer Station 9
Client: TWP/CES
Driller: Mort Bates, Atkins Drilling
Drilling method: HSA, Mobile Drill B-58
Boring date: 11/04/02
Water level: 65.2' above grade

Sheet: 1 of 1
Job number: P-202203
Total depth: 79ft
Boring diameter: 8 1/4 Auger
Logged by: JC
Date measured: ~~11-4-02~~ 11-5-02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0'					Contaminated Soil @ 7'. Pit Liner @ 17'		
					Gravel mixed w/ Sand		6M
30'					[redacted]		
					Clay @ 38' Red - FAT - Moist		CL
40'							
50'							
					Sandy Clay @ 55'		
60'					No odor or staining in capillary zone		
					Water @ 65'		Water measured @ 65.2' Above grade
70'					Steady Clay - Saturated		Bentonite grout 3-48 Top Bent Plug 48' Top of Sand - 51' screen 79'-54'
					TD @ 79'		
80'							

FIELD BOREHOLE LOG

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BOREHOLE NO.: **MPE-26**
TOTAL DEPTH: **84'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**Jim Chionis**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**11/05-06/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
10		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt, Mixture, gravel to 2" @ 25'					Cement Grout 3'-47'
35		CH	CLAY: CH: Red Clayey Sand mixed with Fat Red Clay Lenses Moist Light Hydrocarbon Odor 35'-40' BGS	49'-51' Rec. 2'				Bentonite 47' Top Sand 49'
50		CL / CH	CLAYEY SAND: TD 84' Saturated @ 65' BGS Cement / Bentonite Grout 47'-3' Bentonite 47'-49' 12/20 Sand Pack 49'-85' 0.010 Slot Screen 84'-54'	54'-56' Rec. 2' 59'-61' Rec. 2' 64'-66' Rec.1.5'				Top Screen 54'
75		CL	CLAYEY SAND: Water Level @ 61.20' from BGS 11/08/02 No Odor or hydrocarbon staining.	69'-71' Rec. 2' 74'-76' Rec. 2'	15			
85		CH	CLAY: Red Brown Fat Clay @79' BGS	79'-81' Rec. 2' 84'-86' Rec. 2'	28 >50			T.D.@84'

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Boring ID: MPE-26 ~~MW-24~~

Project: Remediation Drilling
Location: TWP Roswell Sta #9
Client: TWP COS
Driller: MOST BATES ATKINS Drilling
Drilling method: HSA Mobile Drill B-58
Boring date: 11-5-02 / 11-6-02
Water level: ~~MW-24~~ 56.0' 61.2'

Sheet: 1 of 1
Job number: P-202-205
Total depth: 84'
Boring diameter: 6 1/4"
Logged by: JLC-
Date measured: 11-7-02 11-8-02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					sandy gravel, (pea gravel) gravel		C 20'
					gravel (1-2") @ 25		
30							
					CLAY, FAT, Red brown, moist		slight HC odor @ 35-40'
40					Sandy clay, red brown		
	49-51				49-51' SPLIT SPOON		
50					Rec 2.0' sandy clay, red brown,		
	54-54				54-56 SPLIT SPOON		
					Rec 2.0 ft		Water meas. @ 56.0'
	59-61				CLAY, FAT, Red, PLASTIC		
60					59-61		
					rec 2.0 ft		
	64-66				CLAY & W/some fine gr. sand		
					64-66		
					rec 1.5'		
	69-71				Sandy clay, fine gr., w/ trace of gravel		
70					69-71		
					rec 2.0'		
	74-76	15	Blows		Clay w/ clay/Sand stringers		
					saturated		
					74-76'		
	79-81	28	blows				@ 80-81' took more blow.
80					FAT CLAY Red brown		
					@ 80'		
	84-86				Split spoon - 84-86' rec 2.0' FAT CLAY		
85					TD @ 84		

TOP of PLUG - 47
TOP of Sand - 49
Screen 84-54
TD 84

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-27**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
ITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
OGGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
ATES DRILLED:	**10/31/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

Water level during drilling
Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt, Mixture, gravel to 2.5" Srong Contamination Begins @ 12' BGS					Cement Grout 3'-40'
5								
-10								
-20								
-25								
30								
-35		CL	CLAYEY SAND: CL: Red Clayey Sand Strong Hydrrocarbon Odor & Staining Gray / Black Saturated , very wet /stinky					
40								Bentonite 40'
-45		SM	SAND AND SILT: 2' Sand					Top Sand 48'
-50			CLAYEY SAND: Saturated from 40'-TD Strong Contamination	SPT	46 Blows			Top Screen 54'
-55								
60								
65		CL						
-70								
-75		CL						

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Boring ID: MPE-27

Project:	REMEDIATION DRILLING	Sheet:	1 of 1
Location:	TWP ROSWELL STATION 9		
Client:	CES/TWP	Job number:	P-202203
Driller:	MORT BATES, ATKINS DRILLING	Total depth:	79'
Drilling method:	HSA, MOBILE DRILL B-68	Boring diameter:	8 1/4" AUGER
Boring date:	10/31/02	Logged by:	CMB.
Water level:	60.10 (BGS), 62.43 (TOC)	Date measured:	11/02/02 @ 7:30
	T.D. 83.10 (TOC) 80.60 (BGS)		

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0'					@12' Highly Contaminated gray black sand - strong odor.		GM
30'					Gravel mixed w/ fine Sand - gray black - strong odor & Contamination		CL ~~CH~~? ▽ 38'? NO CH IN well-
40'					Black/Gray/Contaminated Damp - Sand - 2'-44'-46' - wet @ 46' Clayey Sand - strong Contamination - Gray Black		CL/CH (MPE 30 is 2.3' Higher (AGS) Than MPE-27) (Using Site Glass) ▽? ~~CH~~ CL
50'	50-52			46 Blows	50'-52': Split spoon. - Rec. 2.0.: Red/Clayey Sand. - Saturated.		* 12' Water Mark visible on inner Rods when pulled from Auger. — CL
				H_2O @ 60.10 ▽			CL
60'					Water estimated @ 60.7. Saturated to 79' added 250 Gallons to Complete well &		CL
70'					Get Casing/Sand pack. TD 79'		Screen 79'-54 0.010 Slot 4" Top Sand 48' Top Bentonite 40'
80'							

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-28**
TOTAL DEPTH: **82' (Casing 76')**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**10/30-31/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
-10		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt, Mixture, gravel to 4"					Cement Grout 3'-40'
-25		CH	CLAY: CH: Red Clayey Sand mixed with Fat Red Clay Lenses					Bentonite 40'
			GRAVEL AND SAND: 10% Gravel / 90% Sand	SPT	32 Blows			Top Sand 43'
		CL / CH	CLAYEY SAND: Hydrocarbon Odor & Stain @ 56'	SPT	25 Blows			Top Screen 46'
				SPT	50 Blows			
		GYPSUM	GYPSUM: At 71' -76' White Gypsum	SPT	50 Blows			
		CL	CLAYEY SAND: Saturated		50 Blows			

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Boring ID: MPE-28

Project:	Twp Roswell Station Remediation Drilling	Sheet:	1 of 1
Location:	Twp Roswell Station 9		
Client:	CES/Twp.	Job number:	P-202203
Driller:	MORT BATES, ATKINS	Total depth:	T.D. 76'
Drilling method:	HSA, MOBILE DRILL B-58	Boring diameter:	8 1/4" Augers
Boring date:	10/30/02	Logged by:	CMB.
Water level:	55.60' FROM BGS No PSH	Date measured:	10/31/02.

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					Clay @ 33'		GM
30'							CH
40'					moist @ 45'-35' Strong hydrocarbon odor.		CH
50							
52'	54-56'			32 Blows	54'-56' - Split Spoon. Rec. 2.0' Red Clayey Sand with 10% gravel angular fragments		CL/CH
60.	60'-62'			25 Blows.	Strong Hydrocarbon-odor. Visible PSH @ 56' on Sample. @ 59' gravel - Rounded. 70-1"		CL/CH/~~GM~~ Clayey Gravels.
(20)	64'-66'			50 Blows 0.5'	60'-62': Red Clayey Sat - wet - Strong PSH 71'-72'		Saturated @ 65'
70'	70'-72'			50 Blows 0.3'	@ 72' White Gypsum layer 0.3' thick mixed w/ clay.		Gypsums - white
10	74'-76'			50	end of hard drilling @ 74 Saturated - end of Gypsum @ 76' Rec. 2.0' Clayey Sand.		Screen: 76'-46' Top Sand: 43' Top Bentonite: 40'
80'							
82'							

Could not get back to TD on 10/31/02
12/20 Sand pack to 76' BGS - Set well
2-1 [illegible] Screen to 46' -

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-29**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
ITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
OGGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
ATES DRILLED:	**11/01-02/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt, Mixture, gravel to 2.5" No Contamination Split Spoon at interface between gravel and clay 30'-32' Sampled for Geotechnical Data and also for Heterotropic Bacteria					Cement Grout 3'-48'
30		CH	CLAY: CH : Fat Clay Mixes with Red Clayey Sand No Contamination	SPT / Lab	42 Blows 6": 3 Blows 12" 8 Blows 18" 14 Blows 24" 17 Blows			
55		CL / CH	CLAYEY SAND: Saturated from 60'-TD No Contamination Split Spoon Sample 58'--60' at Capillary Fringe for Geotechnical and Heterotropic Bacteria					Bentonite 48'
60		CL		SPT / Lab	26 Blows 6": 3 Blows 12" 8 Blows 18" 7 Blows 24" 8 Blows			Top Sand 51' Top Screen 54'

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Boring ID: MPE-29

Project: Remediation Drilling
Location: Twp Roswell Station 9
Client: CES/Twp.
Driller: MORT BATES, ATKINS Drilling
Drilling method: HSA, MOBILE DRILL B-58
Boring date: 11/01-02/02
Water level: (TOC) - 66.05' 64.90(BGS)
TD. 80.0 79.0

Sheet: 1 of 1
Job number: P-202203
Total depth:
Boring diameter: 8 1/4 Auger 11" hole.
Logged by: CMP.
Date measured: 11/05/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					6m. Gravels to 4" 80% Gravel, 10% Sand. 10% Silt Mixture. No odor or staining		6M
30'	30-32	42		Spt 42 30'-32'	30'-32': Rec 2.0' Clayey Sand - GM 30'-31' Clay fat Red Clay 31'-32' CH. No odor/No Staining		Sample For Microbes / Bacteria & Brass-Tubes For Geo-Tech Samples CH
	6"	3					
	12"	8					
	18"	14					
40'	24"	17 Blows					
					Fat Clay - Red mixed with Red Clayey Sand Sand. Med gr to fine gr. well Sorted		
50'					No odor/No Staining		CL
					GM: Red Clayey Sand		CL Red Clayey Sand.
	58-60			Spt 58'-61'	Split Spoon capillary fringe 58'-60': 26 Spt Blows.		Sampled For Microbes / Bacteria & Brass Tubes For Geo/Tech Samples.
60'	6"			3 Blows	Rec. 2.0' - wet @ 60' Clayey Sand. Saturated to TD. No Contamination		Cement Grout 3' - 48'
	12"			8 Blows			
	18"			7 Blows			
70'	24"			8 Blows			Top Bentonite - 48' Top 12/20 Sand - 51' Screen - 79'-54
					CL - T.D. 79'		
80'							

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-30**
TOTAL DEPTH: **80'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**10/25/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt, Mixture, gravel to 4"					Cement Grout 3'-53'
-10								
-20								
-25								
-30								
-35		CH	CLAY: CH: Red Clayey Sand mixed with Fat Red Clay Lenses					
-40			CLAY: Hydrocarbon Odor 42'-46', Gone @56'					
-45			CLAY: Decreasing Hydrocarbon Odor					
-50								
-55			CLAY: Water Level @ 63.82' from TOC 10/29/02					Bentonite -53'
-60								Sand 79'-56'
-65		CL / CH	CLAYEY SAND: TD 79' Saturated @ 65' BGS Cement / Bentonite Grout 53'-3' Bentonite 56'-53' 12/20 Sand Pack ' 56'-79' 0.010 Slot Screen 79'-59'					Screen 79'- 59'
-70								
-85								

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Boring ID: APE 30

Project: Remediation Drilling
Location: Twp Roswell Station 9
Client: CES/Twp
Driller: MORT BATES, ATKINS Drilling
Drilling method: HSA, MOBILE DRILL B-58
Boring date: 10/25/02
Water level: TOC-63.82', BGS-63.0
TOC T.D. 80' BGS T.D. — 79.1

Sheet: 1 OF 1
Job number: P-202203
Total depth: 79'
Boring diameter: 8 1/4 O.D.
Logged by: CMB.
Date measured: ~~10/25/02~~ 10/25/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					Sandy – Gravel – gravel / sand / silt mixture	GM	
0					@ 35' ~~Red~~ Fat clay mixed with clayey sand lenses – 35' – T.D.	CH	
0					@ 42'-46': Strong hydrocarbon odor.	CH	
0					Damp @ 55' – Hydrocarbon odor dissappears.	CH	Top Bentonite 53' Top sand @ 56' — Top CASING 59'-~~79~~'
0					Damp @ 65' 65' – T.D. – Saturated water bearing clayey sand.	CH	
0					TD. 79'	CH	4" Screen 79'-59' 0.010 Top Sand. 56' 12/20 Top Bentonite @ 53'

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-31**
TOTAL DEPTH: **80'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**10/28/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt, Mixture, gravel to 4"					Cement Grout 3'-55'
-10								
-20			GRAVEL AND SAND: Hydrocarbon Odor 23'-33'					
-30								
-35		CH	CLAY: CH: Red Clayey Sand mixed with Fat Red Clay Lenses					
-40								
-45								
-50								
55								Top Bentonite 55'
▼			CLAY: Water Level @ 60.59' from TOC 10/29/02					Top Sand 58'
-65		CL / CH	CLAYEY SAND: TD 79' Saturated @ 65' BGS Cement / Bentonite Grout 55'-3' Bentonite 55'-58' 12/20 Sand Pack ' 58'-79' 0.010 Slot Screen 79'-59'					Top Screen 59'
-70								
▽								
-75								

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Boring ID: **MPE-31**

Project: Remediation Drilling
Location: Twp Roswell Station
Client: CES/Twp
Driller: MOLT BATES ATKINS ENGINEERING
Drilling method: HSA MOBILE DRILL B-68
Boring date: 10/28/02
Water level: Toc 60.59 T.D. - 79.40' (Toc ± .65 - Same.)

Sheet: 1 of 1
Job number: P-202203
Total depth: 79'
Boring diameter: 8¼ Auger 11" hole.
Logged by: CMB
Date measured: 10/29/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
1'					Gravel, sands, silt mixture Hydrocarbon odor @ 23'		GM
20'					@ 33' clay		CH
30'					Clayey red sand.		CH
40'							CH
50'					Saturated @ 67'		CH
					Top of Sand 58' Top of Bentonite 55'		CH. T.D. 79'

Ø = 58.08
RWL = 59.70'

0.010 Screen 79'-59'
10/20 Sand.

Ø None
RVDTW = 34.60'

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-32**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**Rick Smith, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**11/18-19/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
10		GM	GRAVEL AND SAND: 0'-3': GM mixed with caliche, white pink, dry 3'-42':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, No Odor					Cement Grout 3'-36.60'
25		GM						
35		CH	CLAY: CH: 42'-54': Fat Clay with Sand, red, medium stiff, plastic, very moist at contact, No odor. Water Level @ 55.20' BGS 11/25/02					Bent. 36.60'
50		CL/CH	CLAYEY SAND: CL: 54'-79' Sandy lean clay red/ brown, med. stiff, moist, moderate odor, no staining. Trace gravel @ 57', slow drilling, TD 79' Grout 36'-3' Bentonite 36'-39' Sand 39'-79' 0.020 Screen 74'-44' Riser 74'-79'					Top Sand 39.20' Top Screen 44' Sump 74'-79' TD 79'
60								
75								
85								
90								

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Boring ID: MPE-32

1330 begin 11-18-02
1040 End 11-19-02

Project:	Remediation Drilling	Sheet:	1 of 1
Location:	TWP / Roswell Station 9		
Client:	CES / TWP	Job number:	P-202203
Driller:	Mort Bates, Atkins Engineering	Total depth:	79
Drilling method:	HSA, Mobile Drill B-58	Boring diameter:	8 1/4"
Boring date:	11-18-02 Set well 11-19-02	Logged by:	RDS
Water level:	~~55.20 BGS~~ 79.11'	Date measured:	11/25/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
					0-3' GM mixed with caliche, white, hard, dry 3-42' GM Sand, Silt, Gravel, light brown, medium dense, dry		
30'						GM	GM
40'							
42					42-54' CH Fat Clay with Sand, red, medium stiff, plastic, very moist at contact	CH	CH
50'							Moderate Odor at 53', NO Staining. Slight Sheen on Augers during well completion. Slow Drilling
54					54-79 CL/CH Lean Clay (Trace Gravel + Sand at 57'.)(<1') with Sand (Silty clay), stiff, plastic, moist, slow drilling		
60'					(Tight Soils) ↓	CL/CH	2 Bags Bentonite Chips 36.60-39.20 Grout 3'-39.20' 33 Bags #1 12/20 Sand 39.20'-79'
70'					Note: Fat Clay Not observed at TD. Very hard drilling to TD, High % of clay 54-79'.		4" PVC Screen 020 Slot Sump 74'-79' Screen 44'-74'
79							TD = 79' BGS
80'							

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-33**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
?ROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
TE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
OB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
)GGED BY:	**Rick Smith, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
?ROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
ATES DRILLED:	**11/18/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
5 -10 20 -25 30 35 40 45 -50 55 -60 65 70 -75 -85 90		GM	GRAVEL AND SAND: 0'-5': GM mixed with caliche, white pink, dry 5'-42':GM: Gravel, Sand, Silt, Mixture, gravel to 4", Lt. Brown, med. dense, No Odor					Cement Grout 3'-36.40'
		GM CH	CLAY: CH: 42'-54': Fat Clay with Sand, red, medium stiff, plastic, very moist at contact, No odor. Water Level @ 51.75'					Bent. 36.40' Top Sand 41.6' Top Screen 44'
		CL/CH	CLAYEY SAND: CL:53'-79' Sandy lean clay red/ brown, med. stiff, moist, wet @ 53', moderate odor, no staining. TD 79' Grout 36'-3' Bentonite 36'-41' Sand 41'-79' 0.020 Screen 79'-44'					TD 79'

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Boring ID: MPE-33

Project:	Remediation Drilling	Sheet:	1 of 1
Location:	TWP / Roswell Station 9		
Client:	CES / TWP	Job number:	P-202203
Driller:	Mort Bates, Atkins Engineering	Total depth:	79'
Drilling method:	HSA, Mobile Drill B-58	Boring diameter:	8 1/4"
Boring date:	11-18-02 (0700-1320 hrs)	Logged by:	RDS
Water level:	51.75' BGS T.D. 79.35 Strong odor	Date measured:	11/25/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
					0-5' GM mixed with caliche, white, hard, dry 5-42' GM Sand, silt, gravel, white and light brown, ~~hard~~, medium dense, dry	GM	GM
42					42-53' CH Fat Clay with sand, red, medium stiff, plastic, some moisture	CH	CH
53				▽	53-78' CL/CH Clayey Sand, red, medium-low stiff, low plasticity, very moist	CL/CH	very moist at 53'. slight odor. no staining.
							Grout 3'-36.4' 2 Bags Bentonite chips 36.4'-41.6' (+Slough) 33 Bags #1 12/20 Sand 41.6'-79'
							4" PVC 020 Screen RDS ~~44'-79'~~ 44-79' RDS ~~74-79' Sump~~ NO sump TD 79' BGS
78 79					⊙ 78 CH Fat clay with silt, red, med-stiff, very little moisture	CH	

30' 40' 50' 60' 70' 80'

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-34**
TOTAL DEPTH: **80'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
TE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
OGGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
ATES DRILLED:	**10/24/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt, Mixture, gravel to 4"					Cement Grout 3'-53'
5								
-10								
20								
-25								
30								
-35		CH	CLAY: CH: Red Clayey Sand mixed with Fat Red Clay Lenses					
40								
-45								
-50			CLAY: Decreasing Hydrocarbon Odor	50'-52'	30 Blows			Bentonite -53'
55				55'-57'	37 Blows			Sand 79'-56'
-60			CLAY: Water Level @ 63.49' from TOC 10/29/02	60'-62'	36 Blows			Screen 79'- 59'
65		CL / CH	CLAYEY SAND: TD 79' Saturated @ 65' BGS Cement / Bentonite Grout 53'-3' Bentonite 56'-53' 12/20 Sand Pack ' 56'-79' 0.010 Slot Screen 79'-59'	65'-67'	56 Blows			
70				70'-72'	36 Blows			
-75				75'-77'	46			

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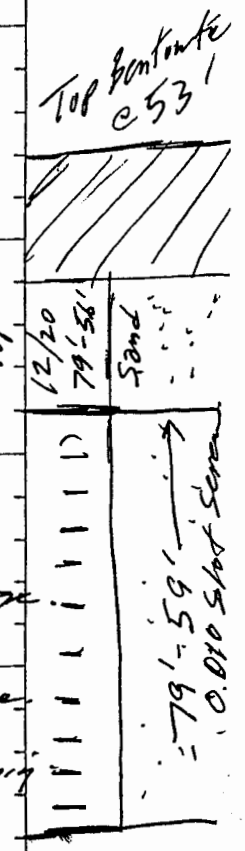
Boring ID: MPE-34

Project:	Remediation Drilling	Sheet:	1 of 1
Location:	Twp Roswell Station 9		
Client:	CES/Twp	Job number:	P-202203
Driller:	MORT BATES, ATKINS DRILLING	Total depth:	79'
Drilling method:	HSA MOBI-DRIL B58	Boring diameter:	8 1/4 O.D.
Boring date:	10/24/02	Logged by:	CMB / J.C
Water level:	63.4 From TOC 61.8 BGS	Date measured:	10/25/02

* 200 Gallons of potable H_2O added during drilling *

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
0					0'-6' = Backfill 6-11' = Gravel, Sand, Silt mixture. 11'-34': Sand Silt gravel mixture.		GM: Sandy gravels gravel-Sand-Silt-mixture
30'					@ 34' Red Fat Clay.		CH: Inorganic Silts Fat Clay.
40'					Red. Organic Clay Sandy Clay - Fat Clay		CH.
50'				50'-52' 30 SPT Blows.	50'-52': Rec. 2.0' - Red fat Clay.		CH
				55'-57' 37 SPT Blows.	55'-57': Rec. 2.0' Red fat Clay		CH
60'				60'-62' 36 SPT Blows.	60'-62': Rec. 2.0' Red - fat clay No moisture		CH CH
				65'-67' 56 SPT	65-67': Wet / Saturated @66' Rec. 2.0' - CL No Odor or Staining	CL	Red Sand. fine gr. Clayey @65'-77
70'				70'-72' 36 SPT.	70'-72': Clayey Sand - CL Rec. 2.0' Red. No odor or staining.		CL. Saturated Zone 65'-77' No odor or staining
				75'-77' 46 SPT Blows	75'-77': Rec. 2.0' @ 76'-77' Fat Clay. Dryer. - Not Saturated		CL CH
80'				79'-81' 56 SPT Blows.	79'-81': Rec. 2.0. Dry - Clayey Sand - Increasing Clay		CH

Water Level measured may reflect added H_2O during drilling.



20' 0.010 slot screen 4" MW. 79'-59'

12/20 Sand Pack. 79'-56'

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-35**
TOTAL DEPTH: **79'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
TE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
)GGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
ATES DRILLED:	**11/15/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
5		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt, Mixture, gravel to 4"					Cement Grout 3'-48'
-10								
-20								
-25								
30								
-35			CLAY: CH: Red Clayey Sand mixed with Fat Red Clay Lenses Water Level 56.75' BGS 11/16/02					
40		CH						
-45								
-50								Bentonite 48'
			GRAVEL AND SAND:					Top Sand 51'
55 ▼		CL / CH	CLAYEY SAND: TD 79' Saturated @ 58' BGS Cement / Bentonite Grout 38'-3' Bentonite 48'-51' 12/20 Sand Pack ' 51'-74' 0.020 Slot Screen 74'-54' Riser 74'-79' No Odor or Staining Fat Clay lenses layered 50'-74' Dry at 74'					Top Screen 54'
-60								
65								
-70								
75		CH	CLAY: Red Fat Clay, Dry, No Odor or Staining					Sump 74'-79' TD 79'

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Boring ID: MPE-~~34~~35

Project: Remediation Drilling
Location: Twp/ Roswell Station 9
Client: CES/Twp
Driller: MORT BATES, ATKINS Engineering
Drilling method: HSA, MOBE + MOBILE DRILL B-61
Boring date: 11/15/02
Water level: 56.25 BGS TD-81.25-

Sheet: 1 OF 1
Job number: P-202203
Total depth: 81.25
Boring diameter: 8 1/4 Auger
Logged by: CMB
Date measured: 11/16/02

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
					GM: Sand, Silt, Grave — 0'-32' Gravel 90% Cobbles to 6"		GM
30'					CH- Red Clayey Sand. Mixed with Fat Clay		CH ▽ 38? perched zone? softer drilling-
40'					Lenses. @ 38' perched Aquifer - Soft drilling. Damp Clay / Clayey sand @ 38' No odor or staining		
50'					53'-55: gravel/clayey Gravel zone C55 - Red Clayey Sand. Harder drilling 58' - H2O - Saturated.		CL/CH
▽ C58'							
60'					Saturated zone - No odor or staining. Clayey Sand: Red Saturated Zone -		CL/CH
70'					Fat Red Clay @ 74' TD 79'		CH-
80							

51'-48' = 3 Bentonite
54'-51' = 3 Sandpac
74'-54' = 20' Screen
79'-74' = 5' Riser

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-36**
TOTAL DEPTH: **74'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**11/14/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: Gravel, Sand, Silt, Mixture, gravel to 4"					Cement Grout 3'-38'
40		CH	CLAY: CH: Red Clayey Sand mixed with Fat Red Clay Lenses					Bentonite 38'
50 ▼			CLAYEY SAND: TD 74' Saturated @ 51' BGS Cement / Bentonite Grout 38'-3' Bentonite 38'-41' 12/20 Sand Pack ' 41'-74' 0.020 Slot Screen 74'-44' No Odor or Staining Fat Clay & Sandy Clay lenses layered 50'-70' Dry at 70' BGS	49'-51' 54'-56' 59'-61'	50/24" 50/24" 25/24"			Top Sand 41' Top Screen 44'
65		CL / CH						
75		CH	CLAY: Red Fat Clay, Dry, No Odor or Staining	74'-76'	23/24"			

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Boring ID: MPE-36

Project:	Remediation Drilling	Sheet:	1 of 1
Location:	Twp Station 9		
Client:	Twp/CES	Job number:	P-202203
Driller:	MORT BATES, ATKINS DRILLING	Total depth:	74'
Drilling method:	HSA, MOBILE DRILL 8-58	Boring diameter:	8"4" Auger
Boring date:	11/14/02.	Logged by:	CMB.
Water level:	~~58.21 TOC. TD. 75.45~~	Date measured:	~~11/14/02~~
	52.0 BGS — TD. 73.9 BGS —		11/15/02.

depth (ft)	SAMPLE interval	SAMPLE number	SAMPLE recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
					0'-10': Sand, Silt, Caliche minor Gravel 10% < 1/2". Gravel TO 2" @ 12'		Sand/silt.
					12'-30' - GM - gravel 80%, sand/silt 20% - gravel to 2"		GM
30'					GM		
					— 35'-40' — Gravel Sand/Silt, mixture Gravel is pea sized		GM
40'							CL/CH
					@ 40' - Red clayey Sand.		GM
					Red Clayey Sand @ 40' @ 43' - Fat Clay - Red. CL mixed w/clayey Sand.		Red Clayey Sand CL/CH
50'	49-51	50	24"	50/24"	49-51' - Split Spoon.		CH/CL 49-51: SPT.
					No odor or staining. — 50 Blows — Damp —		CL Red Clayey Sand
62'	54-56	50	24"	50/24"	wet @ 51' - Capillary Fringe —		SPT: 54'-56'
					Red Clayey Sand - Saturated		CL/CH
0'	59-61	25	24"	25/24"	No odor or staining.		SPT: ~~60'-62'~~ 59-61'
					Clay & Sand/clayey Sand Lenses		
					2.0' Red Clayey Sand Lenses - Saturated. mixed with 6" Fat Clay zones - Dry —		CL/CH
70'					NO ODOR or Staining Hard drilling @ 74' & 78'		—
	74-76	24	23/24"		Fat Clay @ 75'		
		23 Blows			Dry — TD. 74'		CH
80'							

Top Bot. 38'
Top Sand 41
Screen 3c
74-44'

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FIELD BOREHOLE LOG

BOREHOLE NO.: **MPE-37**
TOTAL DEPTH: **74'**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**Remediation Drilling**	DRILLING CO.:	**Atkins Engineering**
SITE LOCATION:	**TWP Roswell Station 9**	DRILLER:	**Mort Bates**
JOB NO.:	**P-202203**	RIG TYPE:	**Mobile Drill B-68**
LOGGED BY:	**CM Barnhill, PG**	METHOD OF DRILLING:	**8 1/4" Hollow Stem Auger**
PROJECT MANAGER:	**George Robinson, PE**	SAMPLING METHODS:	**Split Spoon**
DATES DRILLED:	**11/15/02**	HAMMER WT./DROP	**140 lb., 30 in.**

NOTES: 4" SCH 40 PVC MPE Well

▽ Water level during drilling
▼ Water level in completed well

DEPTH	SOIL SYMBOLS	USCS	SOIL DESCRIPTION	SAMP. #	Blows / ft.	PID ppm	BORING COMPLETION	WELL DESCRIPTION
0		GM	GRAVEL AND SAND: GM: 0'-4' BGS White Tan Brown Caliche, Hard, 4'-34' :Gravel, Sand, Silt, Mixture, gravel to 4",					Cement Grout 3'-38'
-35		CH	CLAY: CH: Red Clayey Sand mixed with Fat Red Clay Lenses					Bentonite 38'
-50		CL / CH	CLAYEY SAND: TD 74' Saturated @ 50' BGS Cement / Bentonite Grout 38'-3' Bentonite 38'-41' 12/20 Sand Pack ' 41'-74' 0.020 Slot Screen 74'-44' No Odor or Staining Fat Clay & Sandy Clay lenses layered 50'-70' Dry at 70' BGS Water Level 49.4' BGS 11/16/02					Top Sand 41' Top Screen 44'
-75		CH	CLAY: Red Fat Clay, Dry, No Odor or Staining					

Cypress Engineering Services

Boring ID: MPE-37

Project: Remediation Drilling
Location: Twp Roswell Station 3
Client: CES/Twp
Driller: MORT BATES, ATKINS Engineering
Drilling method: HSA MOBILE DRILL B-58
Boring date: 11/15/02
Water level: 49.4 BGS TD- 74.6

Sheet: 1 OF 1
, 123'
Job number: P-202203
Total depth: 74'
Boring diameter: 8'/4 Auger
Logged by: CMB
Date measured: 11/16/02

depth (ft)	SAMPLE: interval	SAMPLE: number	SAMPLE: recovery (inches)	standard penetration test results	SOIL DESCRIPTION: Color, soil type, relative density or consistency, mineralogy, USGS classification moisture content	graphic log	COMMENTS: Monitoring well installation, geotechnical properties, analytical tests, instrumentation
					0'-4': 6m mixed with white caliche. Gravel mixed with Tan brown Sand/Silt		
30'					Fat Red Clay mixed with lenses of Red Clayey Sand	CH	
40'					Damp - No Visible Hydrocarbon, No odor or Staining Red Clayey Sand @ 50'	CH	
50' ▽					Wet @ 50' No odor or staining - easy drilling in Saturated Zone. Saturated	CL/CH	
60'					Red Clayey Sand. No Hydrocarbon Staining or odor. Dry - @ 70' Red Clayey Sand.	CL/CH	
70'					Dry - Red fat clay @ 74' TD. 74' 30' Screen 74'-44'	CH	
80'							

Top Sand 41'
Top Bentonite 38'