

GW - 80

MONITORING REPORTS

DATE:

1997 - 1998

Report of Groundwater Remediation Activities

**Transwestern Pipeline Company
Thoreau Compressor Station
McKinley County, New Mexico**

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**ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION**

**Submitted to:
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and
Navajo Nation Environmental Protection Administration**

December 17, 1999

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Report of Groundwater Remediation Activities

Transwestern Pipeline Company Thoreau Compressor Station

I. Groundwater Monitoring Activities

Groundwater Sampling Events

Four groundwater sampling events were completed since the last reporting period. These events were completed in June 1998, October 1998, April 1999, and October 1999.

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. The measured depth to water and the corresponding water table elevation for each monitor well is presented in Table 1.

In the course of each sample event, groundwater samples were collected from each of the monitor wells at the site. Samples were not collected from monitor wells currently in use as an SVE well, from downgradient monitor well 5-41B (pursuant to approved changes to the monitoring plan), or from well 5-22B which has become dry due to a decline of the water level in the perched zone. Groundwater samples were delivered to a laboratory for analysis by EPA Method 8021B for benzene, toluene, ethylbenzene, and xylenes (BTEX). In addition, samples collected from monitor wells 5-1C, 5-6C, and 5-17B were also submitted to a laboratory for analysis for PCB compounds. A summary of field measured groundwater quality parameters (pH, temperature, electrical conductivity, and dissolved oxygen) obtained in the course of sampling is presented in Table 2. An updated summary of analytical results for BTEX compounds is presented in Table 3. An updated summary of analytical results for PCB compounds is presented in Table 4. A summary of quality assurance program results is presented in Table 5.

Results/Conclusions from Groundwater Sampling Events

Occurrence and Direction of Groundwater Flow

A water table elevation map based on measurements obtained during the April 1999 sampling event is included as Figure 3. The apparent direction of groundwater flow is consistent with water table elevation maps previously developed for this site. The hydraulic gradient has remained relatively unchanged from previous sampling events at approximately 0.037 ft/ft.

The depth to water measurements obtained in the course of recent sampling events indicate that the water table elevation has continued to decline. The relative change in water table elevation over the past six year period is illustrated graphically in Figures 6 and 7 for elevations measured at monitor wells 5-3B and 5-48B, respectively. This condition should have a significant positive influence on the effectiveness of the ongoing remediation activities.

Lateral Extent of Phase Separated Hydrocarbon

The lateral extent of PSH is currently defined by the occurrence of PSH at the water table in wells 5-02B (0.05 ft measured 10/11/99), 5-34B (0.02 ft measured 10/11/99), and 5-35B (0.01 ft measured 10/11/99), and the absence of PSH in all other wells. The three wells with a

measurable accumulation of PSH are all located on-site and near to the original release area. PSH had not been measured in any of these wells prior to implementation of the remediation system. The presence of PSH in these wells is more likely associated with the preferential accumulation of PSH in low pressure areas, such as soil vapor extraction wells, and is not likely indicative of PSH present at the water table outside of the immediate vicinity of the well casing.

In addition, in the course of each sample event since February 1998, a hydrocarbon sheen was noted in the purge water removed from monitor well 5-16B.

Condition of Affected Groundwater

The more recent sample results are consistent with previous sample events with the exception of an increase in benzene concentration at monitor well 5-16B. A map indicating the relative distribution of benzene and dissolved oxygen concentrations in shallow groundwater, based on measurements obtained during the October 1999 sampling event, is included as Figure 4.

The detection of low concentrations of PCBs has continued for samples collected from monitor wells 5-1C and 5-6C. It is suspected that the detection of PCBs in groundwater samples from these two wells is a result of minor amounts of PCBs contained in near surface soil which were inadvertently carried down the soil borings in the course of monitor well installation.

Copies of the laboratory reports for all groundwater sampling events are included as an attachment to this report.

II. Planned Changes to the Groundwater Monitoring Program

Disposal of Monitor Well Purge Water

No changes are proposed at this time.

Frequency of Groundwater Monitoring

Groundwater sampling events will continue on a semi-annual basis. A selected list of monitor wells will move from semiannual to annual sampling as indicated in Table 6. The next sampling event is scheduled to occur in April 2000.

Sample Analysis Plan

No changes are proposed at this time.

Routine Reporting of Monitoring Activities

Routine reporting will continue on an annual basis. The next annual report will be submitted by December 1, 2000.

III. Status of Remediation Activities

Remediation Activities Completed through April 1998

The following remediation activities were completed during the reporting period:

- 1) Transwestern completed four groundwater sampling events.

- 2) A groundwater recovery system was installed in June 1998 in order to accelerate the natural dewatering of the perched water zone. This system operated between June 1998 through October 1998 and again between May 1999 and October 1999.
- 3) Routine O&M of the remediation system has continued to ensure efficient and effective operation. The SVE system operated year-round. The groundwater recovery system only operates during summer months due to the threat of freezing conditions during winter months. The air sparge system only operates during winter months due to electric power service limitations. The electric power service to the remediation system can provide power to either the air sparge compressor or the groundwater recovery system air compressor, but not to both systems at the same time.

Current Status of Remediation Activities

Routine operation and maintenance of the SVE and air sparge systems is ongoing. The dewatering system was shut down in October 1999 due to cold weather and will not be reactivated until April 2000 when the threat of freezing weather conditions has passed.

Remediation Activities Planned for December 1999 through November 2000

The remediation system is anticipated to be in operation at least through year-2000 in order to achieve its cleanup objectives. The groundwater sampling program will continue as outlined above. The dewatering system will be operated during the months of April through October 2000.

Report of Groundwater Remediation Activities

**Transwestern Pipeline Company
Thoreau Compressor Station**

Figures

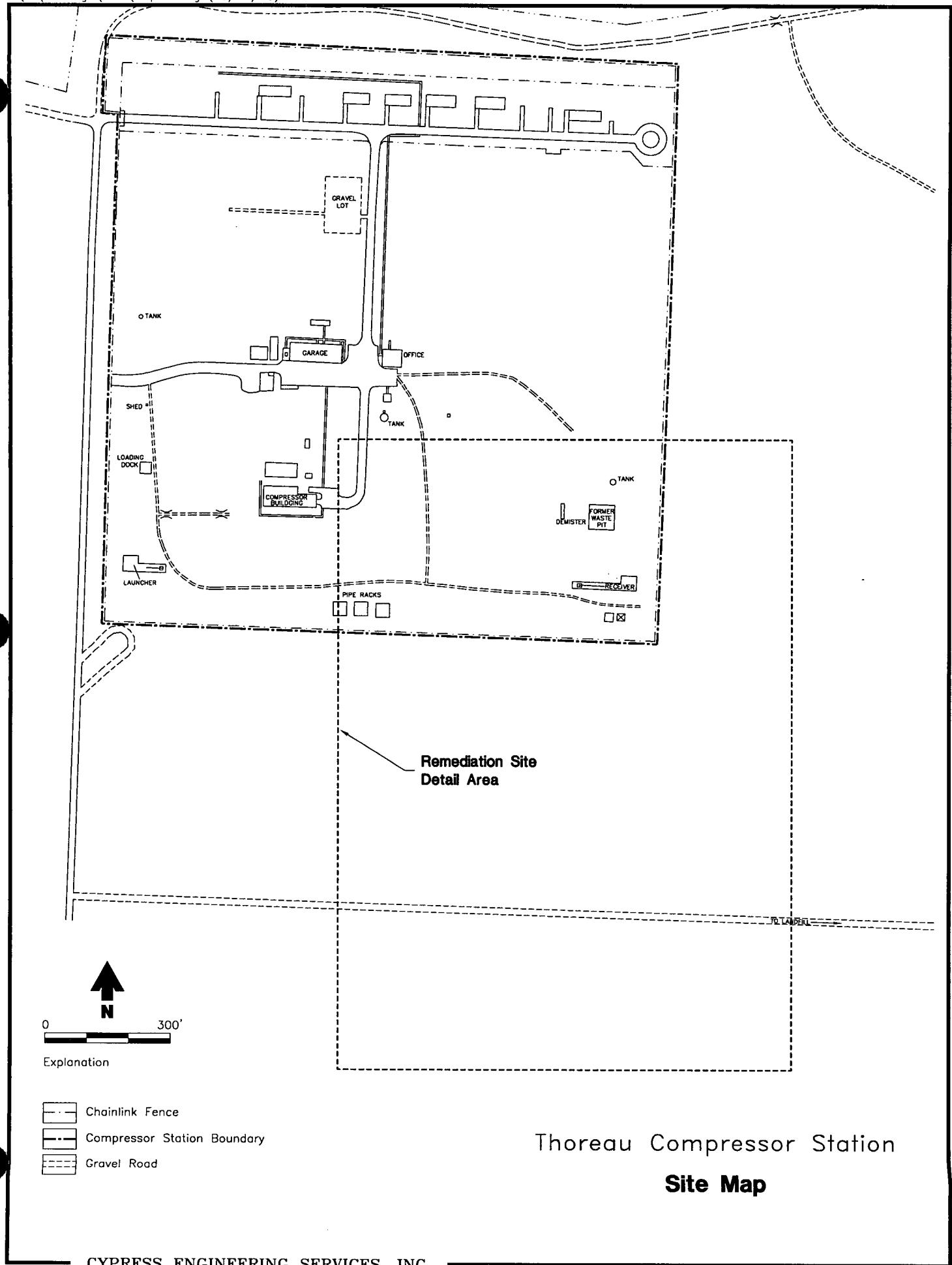


Figure 1

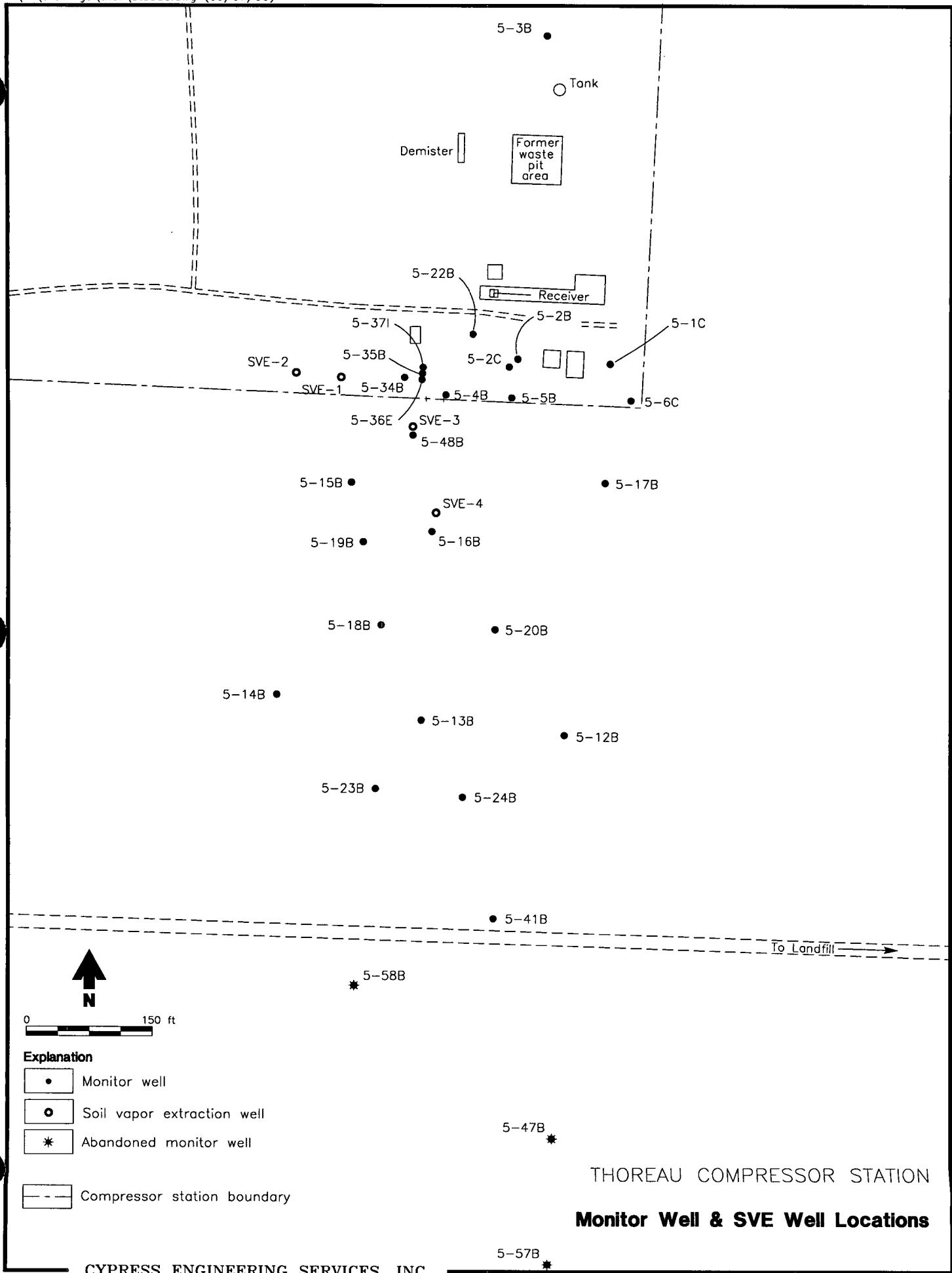
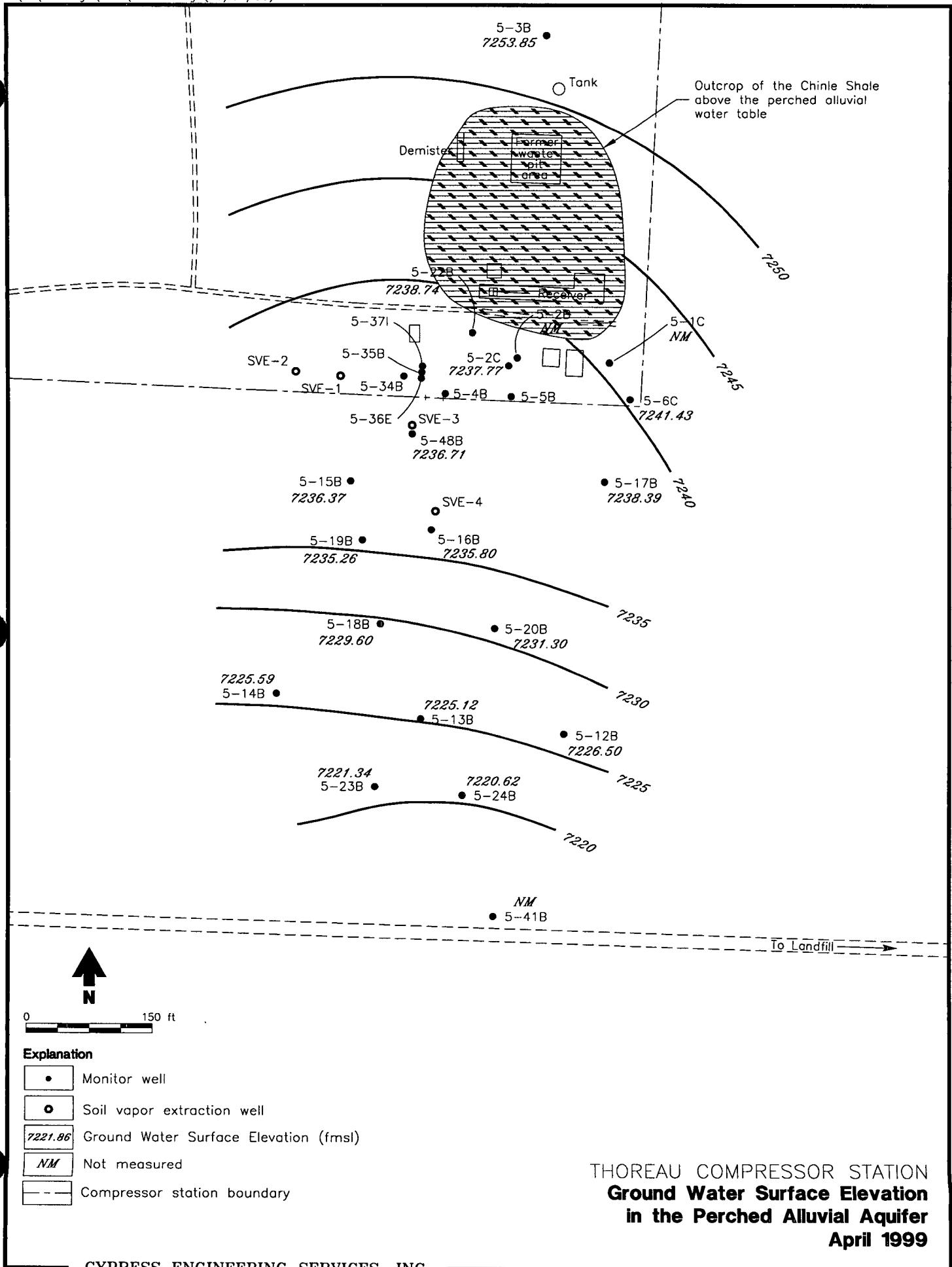
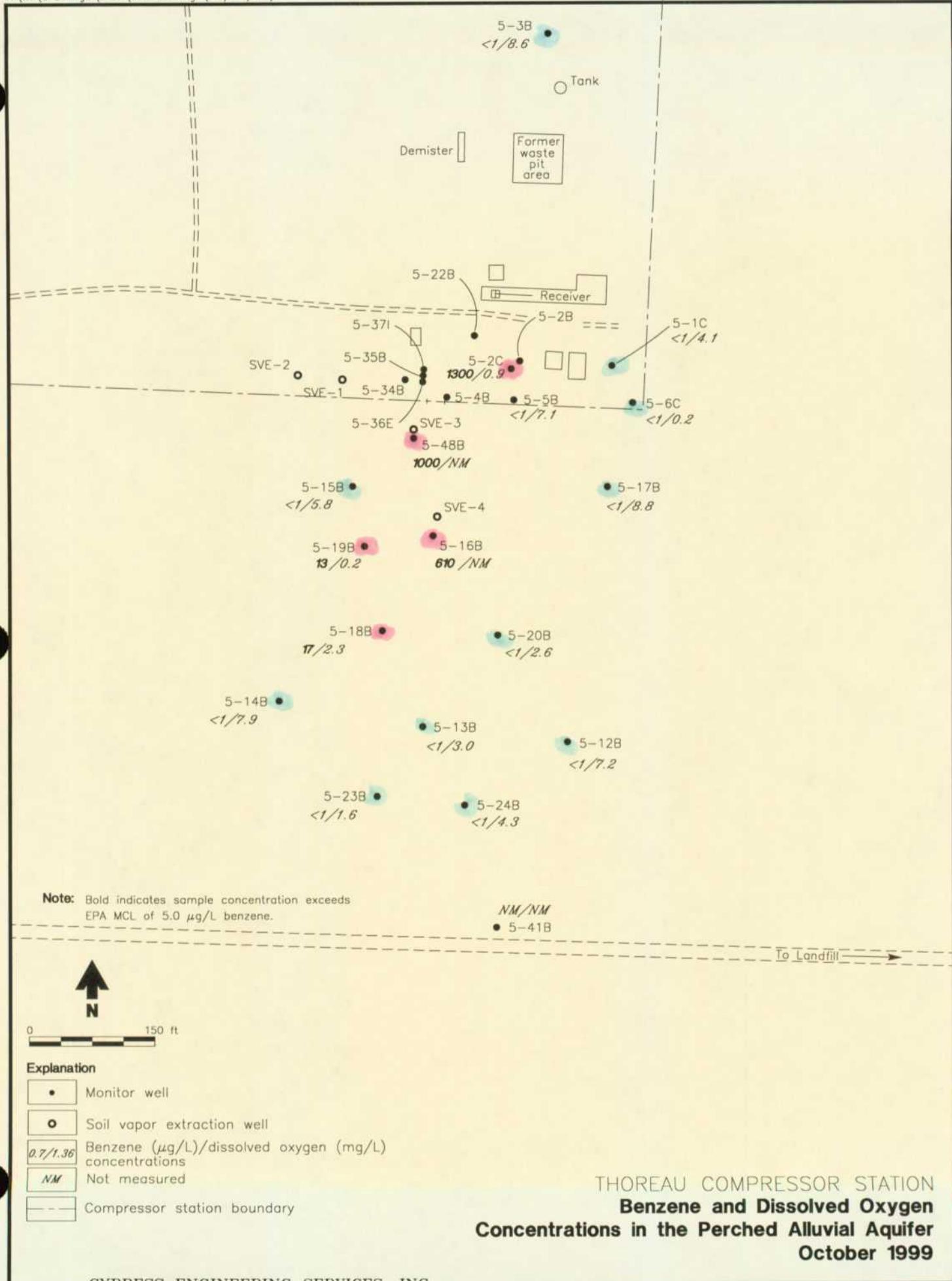
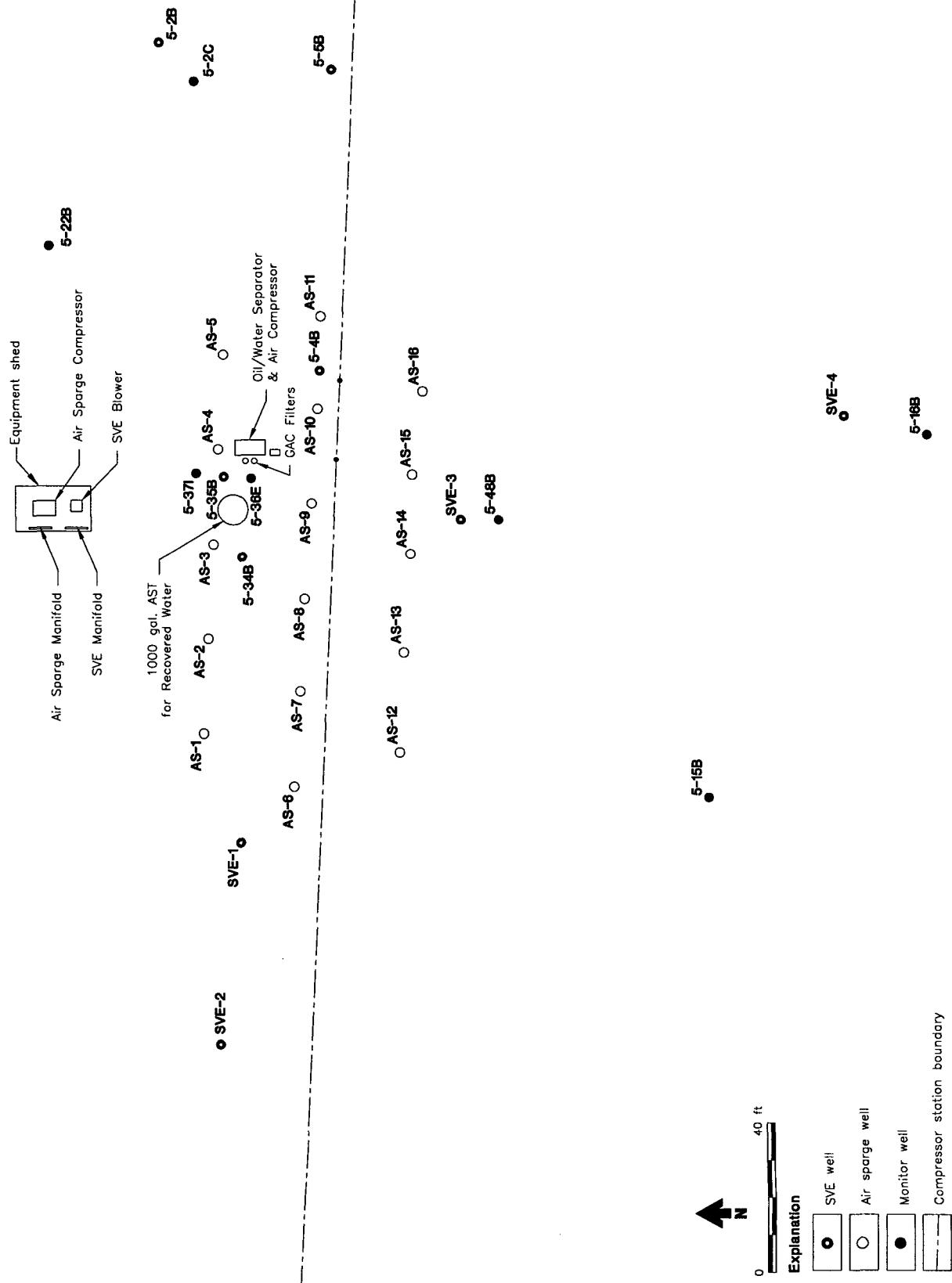


Figure 2



THOREAU COMPRESSOR STATION
**Ground Water Surface Elevation
in the Perched Alluvial Aquifer**
April 1999





THOREAU COMPRESSOR STATION
Remediation System Layout

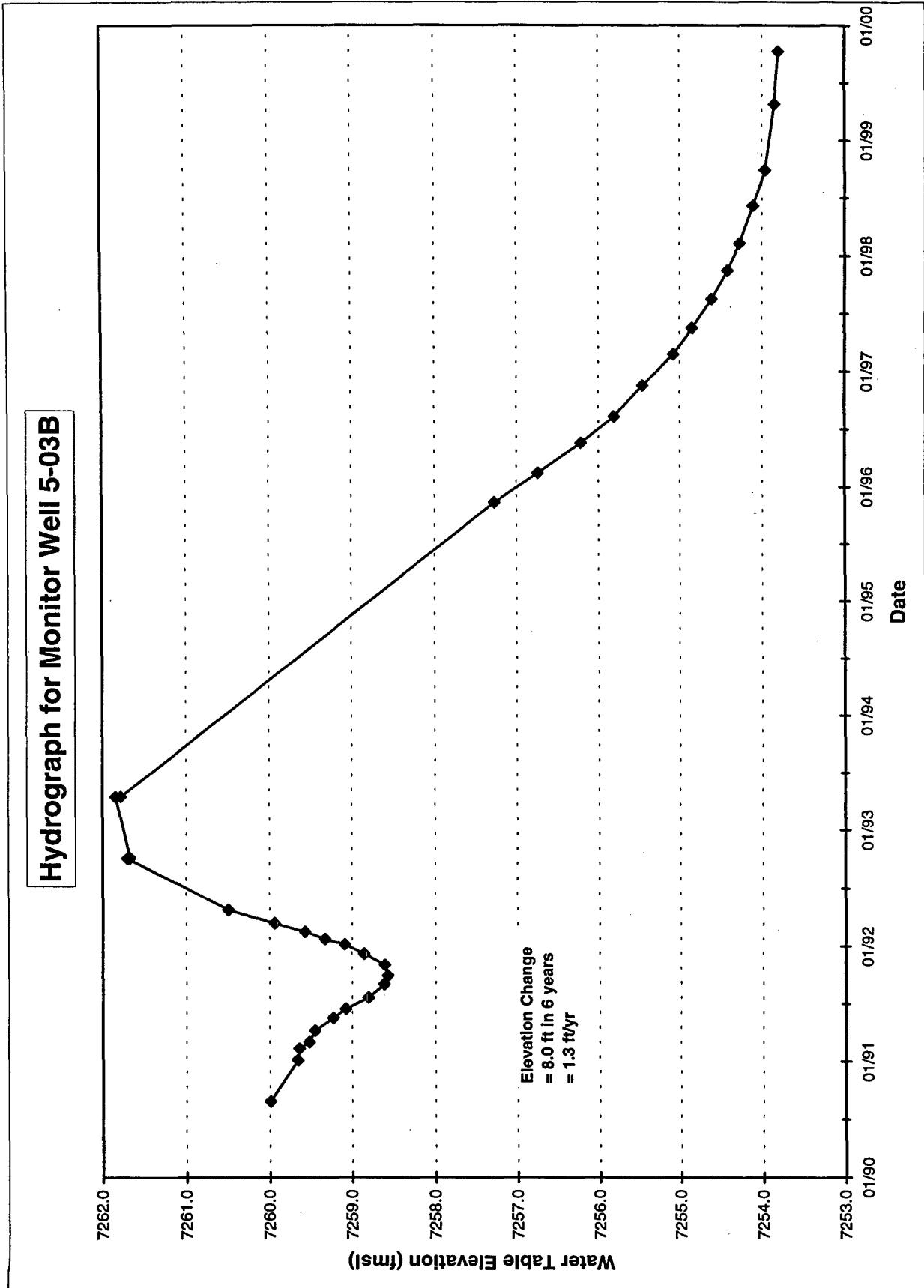


Figure 6

Hydrograph for Monitor Well 5-48B

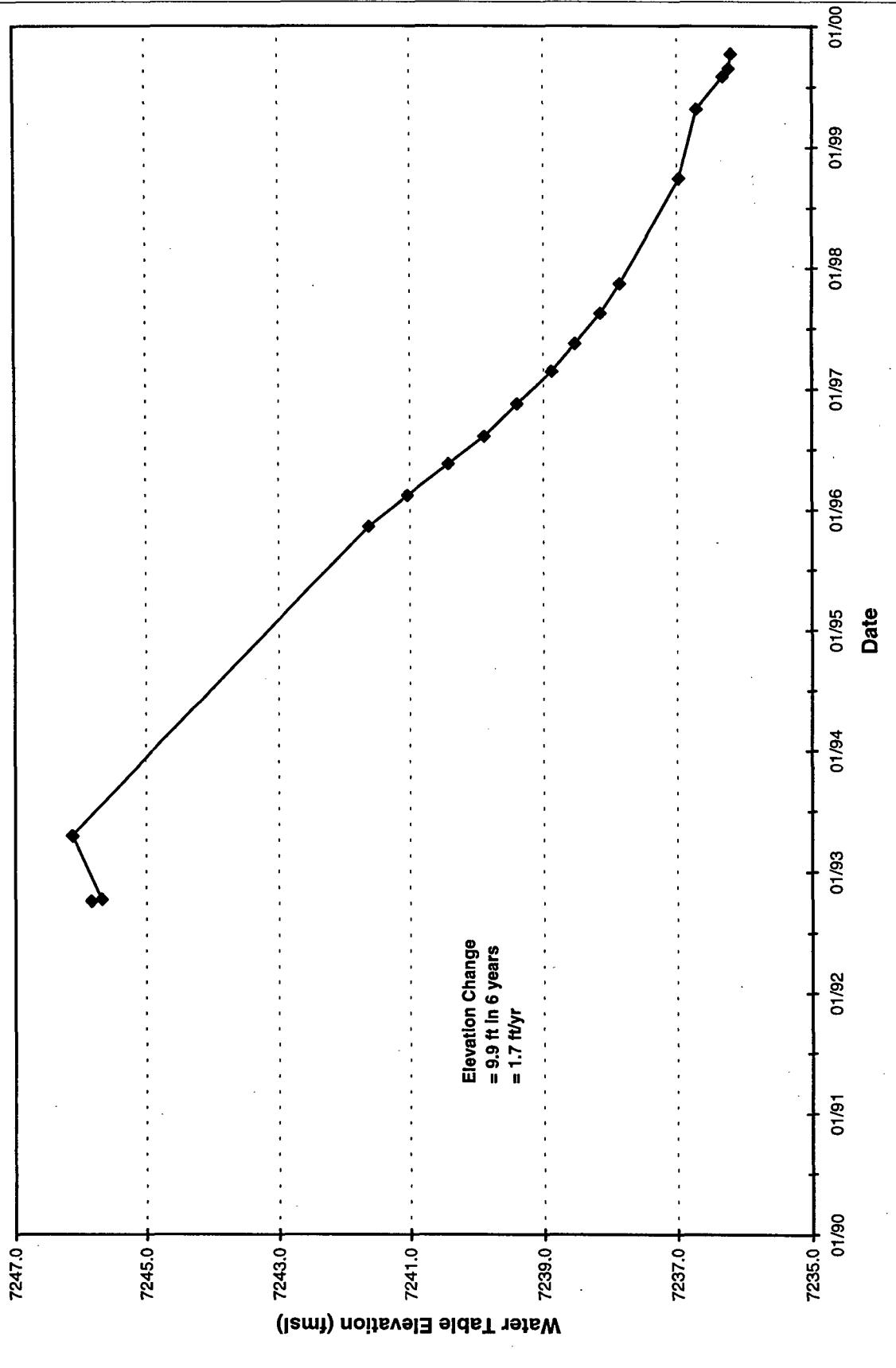


Figure 7

Report of Groundwater Remediation Activities

**Transwestern Pipeline Company
Thoreau Compressor Station**

Tables

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
5 01B	7,290.53	08/29/90	44.69	7245.84
		11/08/90	44.70	7245.83
		01/08/91	44.82	7245.71
		02/05/91	44.86	7245.67
		03/05/91	44.91	7245.62
		04/10/91	44.94	7245.59
		05/21/91	45.08	7245.45
		06/18/91	45.15	7245.38
		07/23/91	45.28	7245.25
		09/04/91	45.38	7245.15
		10/02/91	45.52	7245.01
		11/06/91	45.63	7244.90
		12/10/91	45.64	7244.89
		01/09/92	45.61	7244.92
		01/27/92	45.53	7245.00
		02/20/92	45.39	7245.14
		03/18/92	45.18	7245.35
		04/29/92	44.78	7245.75
		10/06/92	43.71	7246.82
		10/14/92	43.67	7246.86
		04/19/93	42.96	7247.57
		11/14/95	46.16	7244.37
		02/15/96	46.64	7243.89
		05/21/96	47.32	7243.21
		08/12/96	NM	--
		11/18/96	47.91	7242.62
		02/24/97	48.31	7242.22
		05/19/97	48.57	7241.96
	(Recorded DTW=49.77?)	08/18/97	48.77	7241.76
		11/16/97	49.03	7241.50
5 01C	7,292.11	02/10/98	TP	--
		06/08/98	TP	--
		09/29/98	TP	--
		04/27/99	TP	--
		10/11/99	TP	--
5 02B	7,292.06	08/29/90	47.60	7244.46
		11/08/90	47.72	7244.34
		01/11/91	47.88	7244.18
		02/12/91	47.90	7244.16
		03/05/91	47.93	7244.13
		04/11/91	47.92	7244.14
		05/20/91	48.14	7243.92
		06/18/91	48.23	7243.83
		07/24/91	48.36	7243.70
		09/05/91	48.55	7243.51
		10/03/91	48.62	7243.44

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		11/05/91	48.73	7243.33
		12/12/91	48.68	7243.38
		01/09/92	48.58	7243.48
		01/28/92	48.48	7243.58
		02/20/92	48.27	7243.79
		03/19/92	47.98	7244.08
		04/29/92	47.38	7244.68
		10/06/92	46.09	7245.97
		10/14/92	46.07	7245.99
		04/19/93	45.38	7246.68
		04/22/93	45.36	7246.70
		11/14/95	49.32	7242.74
		02/15/96	49.84	7242.22
		05/21/96	50.47	7241.59
		08/12/96	NM	--
		11/21/96	51.66	7240.40
		02/24/97	TP	--
		05/19/97	TP	--
		08/18/97	NM	--
		11/16/97	NM	--
	7,293.24 (w/SVE ext)	02/10/98	NM	--
	PSH @ 55.70	10/11/99	55.75	7237.53
5 02C	7,291.82	02/10/98	53.15	7238.67
		06/08/98	53.36	7238.46
		09/29/98	53.88	7237.94
		04/27/99	54.05	7237.77
		08/03/99	54.40	7237.42
		08/27/99	54.47	7237.35
		10/11/99	54.58	7237.24
5 03B	7,303.76	08/29/90	43.77	7259.99
		01/07/91	44.10	7259.66
		02/12/91	44.12	7259.64
		03/05/91	44.24	7259.52
		04/10/91	44.31	7259.45
		05/21/91	44.53	7259.23
		06/18/91	44.68	7259.08
		07/23/91	44.95	7258.81
		09/04/91	45.14	7258.62
		10/02/91	45.19	7258.57
		11/05/91	45.15	7258.61
		12/10/91	44.90	7258.86
		01/09/92	44.67	7259.09
		01/27/92	44.43	7259.33
		02/19/92	44.19	7259.57
		03/17/92	43.82	7259.94
		04/28/92	43.26	7260.50

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		10/06/92	42.06	7261.70
		10/07/92	42.09	7261.67
		04/19/93	41.92	7261.84
		04/20/93	41.98	7261.78
		11/14/95	46.49	7257.27
		02/15/96	47.02	7256.74
		05/21/96	47.54	7256.22
		08/12/96	47.95	7255.81
		11/18/96	48.30	7255.46
		02/24/97	48.68	7255.08
		05/19/97	48.91	7254.85
		08/18/97	49.15	7254.61
		11/16/97	49.34	7254.42
		02/10/98	49.49	7254.27
		06/08/98	49.65	7254.11
		09/29/98	49.80	7253.96
		04/27/99	49.91	7253.85
		10/11/99	49.96	7253.80
5 04B	7,292.39	08/29/90	48.35	7244.04
		11/08/90	48.42	7243.97
		01/11/91	48.42	7243.97
		01/31/91	48.94	7243.45
		03/04/91	48.68	7243.71
		04/12/91	48.79	7243.60
		05/21/91	49.90	7242.49
		06/17/91	49.00	7243.39
		07/24/91	49.15	7243.24
		09/04/91	49.34	7243.05
		10/03/91	49.44	7242.95
		11/05/91	49.50	7242.89
		12/12/91	48.40	7243.99
		01/09/92	49.23	7243.16
		01/28/92	49.11	7243.28
		02/19/92	48.91	7243.48
		03/18/92	47.22	7245.17
	(Recorded DTW=47.65?)	04/28/92	46.65	7245.74
		10/06/92	46.36	7246.03
		10/13/92	46.35	7246.04
		04/19/93	45.77	7246.62
		04/21/93	45.79	7246.60
		11/14/95	50.21	7242.18
		02/15/96	50.82	7241.57
		05/21/96	NM	--
		08/12/96	NM	--
		11/18/96	NM	--
		02/24/97	NM	--

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		05/19/97	NM	--
		08/18/97	NM	--
		11/16/97	NM	--
	7292.72 (w/SVE ext)	02/10/98	54.70	7238.02
		10/11/99	55.95	7236.77
5 05B	7,290.83	08/29/90	47.50	7243.33
		11/08/90	47.25	7243.58
		01/10/91	47.14	7243.69
		02/05/91	47.20	7243.63
		03/05/91	47.20	7243.63
		04/18/91	47.34	7243.49
		05/21/91	47.44	7243.39
		06/18/91	47.52	7243.31
		07/24/91	47.69	7243.14
		09/05/91	47.83	7243.00
		10/02/91	47.54	7243.29
		11/04/91	48.02	7242.81
		12/10/91	47.94	7242.89
		01/09/92	47.87	7242.96
		01/27/92	47.74	7243.09
		02/19/92	47.58	7243.25
	(Recorded DTW=48.43?)	03/17/92	47.43	7243.40
		04/28/92	46.61	7244.22
		10/06/92	45.39	7245.44
		10/12/92	45.37	7245.46
		04/19/93	44.76	7246.07
		04/21/93	44.75	7246.08
		11/14/95	48.59	7242.24
		02/15/96	49.12	7241.71
		05/21/96	49.71	7241.12
		08/12/96	50.22	7240.61
		11/18/96	50.65	7240.18
		02/24/97	51.14	7239.69
		05/19/97	NM	--
		08/18/97	NM	--
		11/16/97	NM	--
	7292.02 (w/SVE ext)	02/10/98	53.51	7238.51
		10/11/99	55.02	7237.00
5 06B	7,289.30	08/29/90	43.47	7245.83
		11/08/90	43.24	7246.06
		01/08/91	43.42	7245.88
		02/12/91	43.50	7245.80
		03/05/91	43.50	7245.80
		04/18/91	43.61	7245.69
		05/21/91	43.66	7245.64
		06/18/91	43.74	7245.56

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		07/23/91	43.83	7245.47
		09/05/91	44.00	7245.30
		10/03/91	44.06	7245.24
		11/05/91	44.16	7245.14
		12/10/91	44.17	7245.13
		01/09/92	44.16	7245.14
		01/27/92	44.08	7245.22
		02/20/92	43.94	7245.36
		03/18/92	43.76	7245.54
		04/29/92	43.43	7245.87
		10/06/92	42.52	7246.78
		10/14/92	42.49	7246.81
		04/19/93	41.94	7247.36
		11/14/95	44.64	7244.66
		02/15/96	44.99	7244.31
		05/21/96	45.41	7243.89
		08/12/96	45.65	7243.65
		11/18/96	45.92	7243.38
		02/24/97	46.30	7243.00
		05/19/97	46.54	7242.76
		08/18/97	46.73	7242.57
		11/16/97	47.01	7242.29
5 06C	7,291.46	02/10/98	49.31	7242.15
		06/08/98	49.52	7241.94
		09/29/98	49.78	7241.68
		04/27/99	50.03	7241.43
		08/03/99	50.15	7241.31
		08/27/99	50.23	7241.23
		10/11/99	50.05	7241.41
5 12B	7,279.61	08/14/90	48.85	7230.76
		11/15/90	48.92	7230.69
		01/09/91	48.96	7230.65
		02/13/91	49.00	7230.61
		03/07/91	49.00	7230.61
		04/12/91	49.05	7230.56
		05/22/91	49.12	7230.49
		06/19/91	49.20	7230.41
		07/25/91	49.27	7230.34
		09/16/91	49.37	7230.24
		10/09/91	49.43	7230.18
		01/07/92	49.49	7230.12
		04/30/92	49.07	7230.54
		10/06/92	48.27	7231.34
		10/08/92	48.28	7231.33
		04/19/93	47.45	7232.16
		11/14/95	49.71	7229.90

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		02/15/96	50.02	7229.59
		05/21/96	50.31	7229.30
		08/12/96	50.61	7229.00
		11/18/96	50.89	7228.72
		02/24/97	51.24	7228.37
		05/19/97	51.49	7228.12
		08/18/97	51.78	7227.83
		11/16/97	52.07	7227.54
		02/10/98	52.28	7227.33
		06/08/98	52.51	7227.10
		09/29/98	52.78	7226.83
		04/27/99	53.11	7226.50
		10/11/99	53.37	7226.24
5 13B	7,282.43	08/14/90	52.43	7230.00
		11/15/90	52.76	7229.67
		01/09/91	52.82	7229.61
		02/07/91	52.89	7229.54
		03/07/91	52.92	7229.51
		04/12/91	53.00	7229.43
		05/22/91	53.06	7229.37
		06/19/91	53.15	7229.28
		07/26/91	53.26	7229.17
		09/16/91	53.36	7229.07
		10/10/91	53.42	7229.01
		01/08/92	53.58	7228.85
		05/01/92	52.88	7229.55
		10/06/92	51.80	7230.63
		10/13/92	51.78	7230.65
		04/19/93	51.08	7231.35
		11/14/95	53.85	7228.58
		02/15/96	54.18	7228.25
		05/21/96	54.52	7227.91
		08/12/96	54.81	7227.62
		11/18/96	55.05	7227.38
		02/24/97	55.37	7227.06
		05/19/97	55.60	7226.83
		08/18/97	55.87	7226.56
		11/16/97	56.13	7226.30
		02/10/98	56.36	7226.07
		06/08/98	56.63	7225.80
		09/29/98	56.90	7225.53
		04/27/99	57.31	7225.12
		10/11/99	57.75	7224.68
5 14B	7,285.76	08/14/90	55.14	7230.62
		11/14/90	55.02	7230.74
		01/09/91	55.12	7230.64

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		02/07/91	55.19	7230.57
		03/07/91	55.21	7230.55
		04/12/91	55.64	7230.12
		05/22/91	55.36	7230.40
		06/19/91	55.38	7230.38
		07/25/91	55.54	7230.22
		09/16/91	55.63	7230.13
		10/09/91	55.72	7230.04
		01/06/92	55.74	7230.02
		04/30/92	55.02	7230.74
		10/06/92	53.94	7231.82
		10/08/92	53.93	7231.83
		04/19/93	53.25	7232.51
		11/14/95	56.25	7229.51
		02/15/96	56.62	7229.14
		05/21/96	57.02	7228.74
		08/12/96	57.33	7228.43
		11/18/96	57.64	7228.12
		02/24/97	58.01	7227.75
		05/19/97	58.27	7227.49
		08/18/97	58.56	7227.20
		11/16/97	58.86	7226.90
		02/10/98	59.08	7226.68
		06/08/98	59.41	7226.35
		09/29/98	59.69	7226.07
		04/27/99	60.17	7225.59
		10/11/99	60.43	7225.33
5 15B	7,292.92	08/14/90	49.86	7243.06
		11/14/90	49.98	7242.94
	(Recorded DTW=51.10?)	01/10/91	50.10	7242.82
		02/07/91	50.16	7242.76
		03/06/91	50.17	7242.75
		04/10/91	50.25	7242.67
		05/23/91	50.45	7242.47
		06/19/91	50.54	7242.38
		07/25/91	50.70	7242.22
		09/16/91	50.92	7242.00
		10/09/91	50.95	7241.97
		01/07/92	50.57	7242.35
		04/30/92	48.74	7244.18
		10/06/92	47.75	7245.17
		10/08/92	47.74	7245.18
		04/19/93	47.41	7245.51
		11/14/95	51.84	7241.08
		02/15/96	52.42	7240.50
		05/21/96	53.04	7239.88

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		08/12/96	53.52	7239.40
		11/18/96	53.99	7238.93
		02/24/97	54.48	7238.44
		05/19/97	54.60	7238.32
		08/18/97	55.18	7237.74
		11/16/97	55.48	7237.44
		02/10/98	55.70	7237.22
		06/08/98	56.00	7236.92
		09/29/98	56.35	7236.57
		04/27/99	56.55	7236.37
		08/03/99	57.02	7235.90
		08/27/99	57.10	7235.82
		10/11/99	56.98	7235.94
5 16B	7,288.82	08/14/90	47.21	7241.61
		11/14/90	47.46	7241.36
		01/10/91	47.60	7241.22
		02/06/91	47.62	7241.20
		03/06/91	47.63	7241.19
		04/09/91	47.73	7241.09
		05/23/91	47.87	7240.95
		06/18/91	47.91	7240.91
		07/26/91	48.04	7240.78
		09/03/91	48.17	7240.65
		10/11/91	48.30	7240.52
		11/12/91	48.34	7240.48
		12/12/91	48.22	7240.60
		01/08/92	48.11	7240.71
		02/20/92	47.76	7241.06
		03/18/92	47.43	7241.39
		04/29/92	46.89	7241.93
		10/06/92	45.97	7242.85
		10/13/92	45.95	7242.87
		04/19/93	45.61	7243.21
		04/20/93	45.62	7243.20
		11/14/95	48.88	7239.94
		02/15/96	49.33	7239.49
		05/21/96	50.11	7238.71
		08/12/96	50.41	7238.41
		11/18/96	50.74	7238.08
		02/24/97	51.08	7237.74
		05/19/97	51.35	7237.47
		08/18/97	51.67	7237.15
		11/16/97	52.02	7236.80
		02/10/98	52.16	7236.66
		06/08/98	52.42	7236.40
		09/29/98	52.86	7235.96

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		04/27/99	53.02	7235.80
		08/03/99	53.98	7234.84
		08/27/99	54.06	7234.76
		10/11/99	53.66	7235.16
5 17B	7,284.75	08/14/90	40.79	7243.96
		11/15/90	40.83	7243.92
		01/10/91	40.96	7243.79
		02/08/91	40.99	7243.76
		03/06/91	41.01	7243.74
		04/11/91	41.06	7243.69
		05/22/91	41.14	7243.61
		06/18/91	41.23	7243.52
		07/25/91	41.34	7243.41
		09/16/91	41.50	7243.25
		10/09/91	41.60	7243.15
		01/07/92	41.60	7243.15
		02/19/92	41.46	7243.29
		03/17/92	41.21	7243.54
		04/28/92	40.84	7243.91
		10/06/92	39.97	7244.78
		10/07/92	39.97	7244.78
		04/19/93	39.40	7245.35
		11/14/95	42.06	7242.69
		02/15/96	42.46	7242.29
		05/21/96	42.94	7241.81
		08/12/96	43.33	7241.42
		11/18/96	43.72	7241.03
		02/24/97	44.14	7240.61
		05/19/97	44.44	7240.31
		08/18/97	44.76	7239.99
		11/16/97	45.07	7239.68
		02/10/98	45.30	7239.45
		06/08/98	45.58	7239.17
		09/29/98	45.97	7238.78
		04/27/99	46.36	7238.39
		10/11/99	46.78	7237.97
5 18B	7,286.41	08/14/90	51.67	7234.74
		08/24/90	51.68	7234.73
		11/15/90	51.60	7234.81
		01/04/91	51.66	7234.75
		02/13/91	51.76	7234.65
		03/06/91	51.79	7234.62
		04/16/91	51.90	7234.51
		06/19/91	52.05	7234.36
		07/26/91	52.21	7234.20
		09/16/91	52.35	7234.06

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		10/11/91	52.41	7234.00
		01/08/92	52.40	7234.01
		05/01/92	51.38	7235.03
		10/06/92	50.24	7236.17
		10/13/92	50.22	7236.19
		04/19/93	49.68	7236.73
		04/22/93	49.70	7236.71
		11/14/95	53.04	7233.37
		02/15/96	53.49	7232.92
		05/21/96	53.94	7232.47
		08/12/96	54.31	7232.10
		11/18/96	54.64	7231.77
		02/24/97	55.03	7231.38
		05/19/97	55.25	7231.16
		08/18/97	55.51	7230.90
		11/16/97	55.75	7230.66
		02/10/98	55.94	7230.47
		06/08/98	56.18	7230.23
		09/29/98	56.43	7229.98
		04/27/99	56.81	7229.60
		10/11/99	57.26	7229.15
5 19B	7,290.52	08/14/90	49.44	7241.08
		11/14/90	49.76	7240.76
		01/10/91	49.86	7240.66
		02/07/91	49.90	7240.62
		03/06/91	49.92	7240.60
		04/09/91	50.02	7240.50
	Questionable (DTW=50.12?)	05/23/91	50.92	7239.60
		06/19/91	50.23	7240.29
		07/26/91	50.37	7240.15
		09/16/91	50.55	7239.97
		10/10/91	50.60	7239.92
		01/08/92	50.36	7240.16
		02/20/92	50.04	7240.48
		03/19/92	49.60	7240.92
		04/29/92	48.97	7241.55
		10/06/92	48.05	7242.47
		10/13/92	48.04	7242.48
		04/19/93	47.73	7242.79
		11/14/95	51.30	7239.22
		02/15/96	51.75	7238.77
		05/21/96	52.26	7238.26
		08/12/96	52.66	7237.86
		11/18/96	53.02	7237.50
		02/24/97	53.44	7237.08
		05/19/97	53.73	7236.79

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		08/18/97	TP	--
		11/16/97	54.29	7236.23
		02/10/98	54.49	7236.03
		06/08/98	54.74	7235.78
		09/29/98	55.05	7235.47
		04/27/99	55.26	7235.26
		08/03/99	55.78	7234.74
		08/27/99	55.87	7234.65
		10/11/99	55.73	7234.79
5 20B	7,284.60	08/14/90	48.50	7236.10
		01/09/91	48.70	7235.90
		02/07/91	48.79	7235.81
		03/07/91	48.80	7235.80
		04/16/91	48.88	7235.72
		05/20/91	48.92	7235.68
		06/19/91	49.02	7235.58
		07/26/91	49.13	7235.47
		09/16/91	49.25	7235.35
		10/10/91	49.32	7235.28
		01/08/92	49.36	7235.24
		05/01/92	48.48	7236.12
		10/06/92	47.61	7236.99
		10/12/92	47.58	7237.02
		04/19/93	47.26	7237.34
		04/21/93	47.31	7237.29
		11/14/95	49.63	7234.97
		02/15/96	50.03	7234.57
		05/21/96	50.39	7234.21
		08/12/96	50.66	7233.94
		11/18/96	50.99	7233.61
		02/24/97	51.28	7233.32
		05/19/97	51.54	7233.06
		08/18/97	51.88	7232.72
		11/16/97	52.21	7232.39
		02/10/98	52.46	7232.14
		06/08/98	52.62	7231.98
		09/29/98	52.95	7231.65
		04/27/99	53.30	7231.30
		10/11/99	53.78	7230.82
5 22B	7,292.74	10/25/90	48.08	7244.66
		11/15/90	48.08	7244.66
		01/10/91	48.33	7244.41
		02/04/91	48.38	7244.36
		03/06/91	48.42	7244.32
		04/11/91	48.49	7244.25
		05/21/91	48.65	7244.09

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		06/17/91	48.76	7243.98
		07/24/91	49.24	7243.50
		09/04/91	49.06	7243.68
		10/03/91	49.19	7243.55
		11/04/91	49.26	7243.48
		12/12/91	49.15	7243.59
		01/10/92	49.00	7243.74
		01/28/92	48.84	7243.90
		02/19/92	48.67	7244.07
		03/18/92	48.24	7244.50
		04/28/92	47.46	7245.28
		10/06/92	45.97	7246.77
		10/08/92	45.98	7246.76
		04/19/93	45.34	7247.40
		11/14/95	NM	--
		02/15/96	NM	--
		05/21/96	51.25	7241.49
		08/12/96	51.91	7240.83
		11/18/96	NM	--
		02/27/97	52.95	7239.79
		05/19/97	53.13	7239.61
		08/18/97	53.51	7239.23
		11/16/97	53.79	7238.95
		02/10/98	53.86	7238.88
		09/08/98	54.05	7238.69
		09/29/98	54.16	7238.58
		04/27/99	54.00	7238.74
		10/11/99	54.13	7238.61
5 23B	7,282.63	10/25/90	55.78	7226.85
		11/15/90	55.75	7226.88
		01/03/91	55.90	7226.73
		02/07/91	56.20	7226.43
		03/07/91	56.02	7226.61
		04/16/91	56.08	7226.55
		05/22/91	56.14	7226.49
		06/19/91	56.17	7226.46
		07/25/91	56.28	7226.35
		09/03/91	56.38	7226.25
		10/09/91	56.47	7226.16
		11/11/91	56.56	7226.07
		12/13/91	56.63	7226.00
		01/07/92	56.58	7226.05
		02/18/92	56.58	7226.05
		03/17/92	56.42	7226.21
		04/30/92	56.12	7226.51
		10/06/92	55.19	7227.44

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		10/09/92	55.19	7227.44
		04/19/93	54.56	7228.07
		11/14/95	57.02	7225.61
		02/15/96	57.39	7225.24
		05/21/96	57.79	7224.84
		08/12/96	58.11	7224.52
		11/18/96	58.38	7224.25
		02/24/97	58.75	7223.88
		05/19/97	59.01	7223.62
	(Recorded DTW=60.33?)	08/18/97	59.33	7223.30
		11/16/97	59.66	7222.97
		02/10/98	59.97	7222.66
		06/08/98	60.36	7222.27
		09/29/98	60.73	7221.90
		04/27/99	61.29	7221.34
		10/11/99	61.66	7220.97
5 24B	7,279.18	10/25/90	53.64	7225.54
		11/15/90	53.72	7225.46
		01/03/91	53.76	7225.42
		01/09/91	53.78	7225.40
		02/07/91	53.86	7225.32
		03/07/91	53.86	7225.32
		04/16/91	53.94	7225.24
		05/22/91	54.00	7225.18
		07/26/91	54.15	7225.03
		09/03/91	54.21	7224.97
		10/10/91	54.30	7224.88
		11/11/91	54.38	7224.80
		12/13/91	54.43	7224.75
		01/07/92	54.40	7224.78
		02/18/92	54.40	7224.78
		03/17/92	54.25	7224.93
		04/30/92	53.98	7225.20
		10/06/92	53.06	7226.12
		10/13/92	53.02	7226.16
		04/19/93	52.33	7226.85
		04/21/93	52.33	7226.85
		11/14/95	54.62	7224.56
		02/15/96	54.96	7224.22
		05/21/96	55.38	7223.80
		08/12/96	55.66	7223.52
		11/18/96	55.93	7223.25
		02/24/97	56.26	7222.92
		05/19/97	56.50	7222.68
		08/18/97	56.78	7222.40
		11/16/97	57.07	7222.11

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		02/10/98	57.32	7221.86
		06/08/98	57.69	7221.49
		09/29/98	58.03	7221.15
		04/27/99	58.56	7220.62
		10/11/99	58.89	7220.29
5 34B	7,294.71	05/12/92	48.62	7246.09
		05/13/92	48.60	7246.11
		05/14/92	48.58	7246.13
		06/19/92	48.18	7246.53
		07/28/92	47.88	7246.83
		04/19/93	46.98	7247.73
		11/14/95	52.33	7242.38
		02/16/96	NM	--
		08/12/96	NM	--
		11/18/96	NM	--
		02/24/97	NM	--
		05/19/97	NM	--
		08/18/97	NM	--
		11/16/97	NM	--
	PSH @ 58.54	10/11/99	58.56	7236.17
5 35B	7,296.11	05/05/92	50.55	7245.56
		05/14/92	50.32	7245.79
		05/30/92	50.14	7245.97
		06/19/92	49.94	7246.17
		06/29/92	49.81	7246.30
		07/24/92	49.61	7246.50
		08/07/92	49.51	7246.60
		08/31/92	49.35	7246.76
		09/15/92	49.29	7246.82
		09/29/92	49.26	7246.85
		10/14/92	49.20	7246.91
		04/19/93	48.79	7247.32
		04/22/93	48.73	7247.38
		11/14/95	NM	--
		02/15/96	NM	--
		08/12/96	NM	--
		11/18/96	NM	--
		02/24/97	NM	--
	PSH=sheen	05/19/97	56.21	7240.67
	PSH=0.9 ft	08/18/97	56.41	7240.47
		11/16/97	NM	--
	7295.33 (w/SVE ext)			
	PSH not measured	02/10/98	55.79	7239.54
	PSH @ 57.15	10/11/99	57.16	7238.18
5 41B	7,279.73	10/06/92	61.03	7218.70
		10/09/92	60.99	7218.74

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		04/19/93	60.38	7219.35
		04/20/93	60.40	7219.33
		11/14/95	61.90	7217.83
		02/15/96	62.26	7217.47
		05/21/96	62.72	7217.01
		08/12/96	63.12	7216.61
		11/18/96	63.52	7216.21
		02/24/97	63.97	7215.76
		05/19/97	64.36	7215.37
		08/18/97	64.72	7215.01
		11/16/97	NM	--
		02/10/98	NM	--
5 47B	7,268.35	10/06/92	62.71	7205.64
		10/07/92	62.71	7205.64
		04/19/93	62.18	7206.17
		04/20/93	62.20	7206.15
		11/14/95	62.77	7205.58
		02/15/96	63.27	7205.08
		05/21/96	63.83	7204.52
		08/12/96	64.31	7204.04
		11/18/96	64.75	7203.60
		02/24/97	TP	--
		05/19/97	65.39	7202.96
		08/18/97	66.03	7202.32
		11/16/97	NM	--
5 48B	7,292.64	10/06/92	46.80	7245.84
		10/12/92	46.96	7245.68
		04/19/93	46.52	7246.12
		04/21/93	46.51	7246.13
		11/14/95	51.00	7241.64
		02/15/96	51.60	7241.04
		05/21/96	52.22	7240.42
		08/12/96	52.75	7239.89
		11/18/96	53.24	7239.40
		02/24/97	53.76	7238.88
		05/19/97	54.11	7238.53
		08/18/97	54.49	7238.15
		11/16/97	54.78	7237.86
		09/29/98	55.67	7236.97
		04/27/99	55.93	7236.71
		08/03/99	56.32	7236.32
		08/27/99	56.41	7236.23
		10/11/99	56.44	7236.20
5 57B	7,257.80	04/19/93	59.97	7197.83
		11/14/95	60.21	7197.59
		02/15/96	60.58	7197.22

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		05/21/96	61.03	7196.77
		08/12/96	61.44	7196.36
		11/18/96	61.80	7196.00
		02/24/97	62.20	7195.60
		05/19/97	62.51	7195.29
		08/18/97	62.82	7194.98
		11/16/97	NM	--
5 58B	7,279.38	04/19/93	64.09	7215.29
		11/14/95	65.55	7213.83
		02/15/96	66.16	7213.22
		05/21/96	66.83	7212.55
		08/12/96	67.37	7212.01
		11/18/96	67.86	7211.52
		02/24/97	68.42	7210.96
		05/19/97	68.82	7210.56
		08/18/97	69.21	7210.17
		11/16/97	NM	--
MP = Measuring point				
fmsl = Feet above mean sea level				
NM = Not measured				
TP = Tagged top of pump				

Table 2. Summary of Field Measured Parameters
Thoreau Compressor Station No. 5

Well ID	Date	Dissolved Oxygen (mg/L) Meter/Hach	pH	Temperature °C	Electrical Conductivity (μ mhos)	Remarks
5-01B	11/21/95	3.8	7.37	12.8	1,314	Muddy, no odor
	02/21/96	7.5	7.40	11.9	960	Turbid, no odor
	05/23/96	10.6a	7.28	13.2	1,327	Turbid
	08/14/96	NM	7.51	15.8	1,324	Turbid, no odor
	11/21/96	6.3	7.13	13.0	1,080	Turbid
	02/27/97	4.57	7.49	7.7	820	Turbid
	05/21/97	3.73	7.02	14.0	990	Slightly turbid
	08/20/97	NM	7.29	14.7	1,312	Turbid, no odor
5-01C	11/23/97	5.5	7.59	14.9	1252	Clear
	02/12/98	3.4	7.86	11.3	1137	Clear
	06/11/98	5.9	7.77	17.5	1248	Clear
	10/01/98	2.8	7.70	13.9	1255	Clear
	04/29/99	--/2.8	7.67	13.1	1262	Clear
	10/13/99	4.1	7.78	14.9	1294	Clear
5-02B	11/21/95	2.1	6.89	14.5	920	Slightly cloudy, HC odor
	02/22/96	4.0	7.14	11.9	1,010	Colorless, suspended black silt, HC odor
	05/23/96	1.4	7.21	14.0	1,430	HC odor, suspended black fine sand and silt
	08/14/96	NM	7.36	15.0	1,000	HC odor, suspended black fine sand and silt
	11/21/96	2.9	7.02	13.0	990	Black, HC odor
	02/28/97	2.17	7.20	9.6	990	Clear
5-02C	11/24/97	3.0	7.24	12.5	1439	Turbid, Reddish
	02/11/98	0.9	7.24	10.1	1397	Clear
	06/10/98	1.3	7.15	13.5	1502	Slightly turbid, odor
	10/01/98	2.1	7.17	14.6	1617	Cloudy, odor
	04/28/99	--/0.8	7.10	13.4	1756	Clear, Strong HC odor
	10/13/99	0.9	7.12	14.1	1858	Cloudy, odor
5-03B	11/15/95	8.0	7.59	14.0	860	Clear, no odor
	05/20/96	7.0b	8.26	13.4	1,282	Turbid
	08/12/96	8.6b	7.91	14.2	1,000	Turbid
	11/18/96	8.0/7.0	7.77	12.0	1,110	Turbid
	02/24/97	5.74/7.0	7.77	10.2	980	Turbid
	05/20/97	8.8/8.0	7.73	13.8	1,060	Turbid
	05/18/97	8.0	7.69	13.5	1,423	Turbid, Reddish
	11/17/97	7.36/8.0	7.64	13.4	1,100	Turbid
	02/10/98	8.17	7.36	12.5	1,000	Turbid
	06/08/98	8.8	7.58	13.4	1,375	Turbid
	06/11/98	8.8	7.60	13.3	1,379	Turbid (Resample - 1st Voa's broke)
	09/29/98	8.3	7.59	13.9	1,390	Turbid
	04/27/99	8.6	7.72	13.8	1,327	Redish silt, Turbid
	10/11/99	8.6/8.0	7.75	13.1	1,326	Redish silt, Turbid
5-04B	11/17/95	NM	7.15	14.6	1,097	Clear, moderate HC odor
	11/22/95	5.6	7.87	14.0	720	Slightly cloudy, no HC odor
5-05B	11/17/95	2.9	7.04	13.0	1,350	Clear, moderate HC odor
	05/22/96	1.4	7.36	13.8	1,419	Clear, no odor
	08/14/96	1.08	7.61	14.3	1,395	Cloudy, HC odor
	11/20/96	4.2	7.26	12.2	1,110	Clear
	02/25/97	2.86	7.46	8.2	890	Cloudy, HC odor
	10/13/99	7.1	7.42	13.2	1,512	Clear
5-06B	11/21/95	3.2	7.51	14.0	880	Slightly cloudy, no HC odor
	02/22/96	7.2	7.71	12.6	880	Clear, slight HC ordor
	05/23/96	1.7	7.90	13.2	1,248	Clear
	08/15/96	NM	7.57	15.0	980	Clear, possible slight HC odor
	11/22/96	4.5	7.34	11.9	900	Clear
	02/28/97	1.11	7.78	11.7	895	Clear
	05/22/97	1.66	7.29	13.5	920	Clear
	08/20/97	2.7/2.2	7.62	14.2	1,140	Clear
5-06C	11/23/97	0.5/0.8	7.67	14.3	1181	Turbid
	02/12/98	0.0	7.75	11.9	1072	Clear

Table 2. Summary of Field Measured Parameters
Thoreau Compressor Station No. 5

Well ID	Date	Dissolved Oxygen (mg/L) Meter/Hach	pH	Temperature °C	Electrical Conductivity (μ mhos)	Remarks
	06/11/98	3.2/0.6	7.67	16.0	1159	Clear
	10/02/98	0.7	7.64	13.6	1152	Clear
	04/29/99	--/1.0	7.55	12.8	1135	Clear
	10/14/99	0.2/0.4	7.66	13.3	1156	Clear
5-12B	11/16/95	6.5	7.38	13.9	900	Clear, no odor
	05/24/96	8.0	7.44	15.0	870	Clear
	08/13/96	8.6	8.27	13.9	1242	Clear
	11/19/96	--/8.0	7.25	12.5	890	Clear, no odor
	02/26/97	4.78/6.5	7.58	11.8	895	Clear
	05/21/97	6.15	7.48	13.7	905	Clear
	08/19/97	--/7.0	7.61	14.9	1255	Clear
	11/17/97	8.49	7.65	13.9	990	Clear
	02/11/98	6.2 /7.0	7.70	11.3	1114	Clear
	06/09/98	10.2/8	7.65	17.1	1217	Clear
	09/30/98	8.1	7.67	15.4	1232	Clear
	04/27/99	7.8	7.70	12.8	1240	Clear
	10/12/99	7.2	7.87	14.2	1241	Clear
5-13B	11/20/95	4.3	7.59	13.9	800	Clear, HC odor
	02/21/96	4.2	7.67	13.8	840	Clear, HC odor
	05/22/96	1.4	7.68	13.8	860	Clear
	08/13/96	3.04	8.71	14.5	850	Clear, HC odor
	11/20/96	2.7	7.49	13.0	850	Clear, HC odor
	02/26/97	1.51	7.53	11.9	850	Clear
	05/21/97	2.79	7.31	13.4	880	Clear, Slight HC odor
	08/19/97	1.2/0.8	7.49	17.6	1205	Clear, HC odor
	11/18/97	--/1.2	7.78	10.1	1060	Clear
	02/11/98	1.3/1.0	7.81	11.0	1077	Clear, Odor
	06/09/98	1.8	7.54	14.6	1166	Clear, Odor
	09/30/98	1.2	7.57	14.3	1187	Clear, HC odor
	04/27/99	--	7.54	12.8	1223	Clear, HC odor
	10/12/99	3.0	7.62	13.4	1257	Clear
5-14B	11/16/95	8.0	8.03	14.6	1,056	Very slightly cloudy
	05/21/96	9.8a	8.01	13.9	1,011	Clear
	08/13/96	6.89	8.64	15.6	992	Clear
	11/19/96	6.1	7.42	12.5	720	Silty amber, no odor
	02/26/97	--/6.5	7.87	10.5	931	Clear, no odor
	05/21/97	6.81/7.0	7.87	13.2	964	Clear
	11/17/97	6.8	7.86	11.9	841	Clear
	02/10/98	8.12	6.91	10.2	630	Clear
	06/09/98	8.7/8.5	7.85	17.3	923	Clear
	09/30/98	6.70	7.79	15.0	1,064	Slightly Turbid
	04/27/99	7.5/6.5	7.79	13.3	1,058	Turbid
	10/12/99	7.9	7.88	13.5	1,075	Cloudy
5-15B	11/16/95	6.9	7.98	12.5	982	Clear, no odor
	05/22/96	4.9	7.67	13.0	710	Clear
	08/14/96	9.85	8.26	14.4	1006	Clear
	11/20/96	--/8.0	7.54	14.0	720	Clear
	02/26/97	--/6.8	7.82	11.4	977	Clear, no odor
	05/21/97	6.49	7.77	12.9	1020	Clear
	08/19/97	8.0/8.0	7.80	14.5	934	Clear
	11/17/97	6.4/6.5	7.78	11.8	904	Clear
	02/11/98	6.22/7.0	7.39	13.1	720	Slightly Turbid
	06/10/98	8.0/7.0	7.73	14.4	979	Slightly Turbid
	09/30/98	9.6	7.76	16.1	1031	Turbid
	04/28/99	--/7.0	7.73	13.0	1022	Cloudy
	10/12/99	5.8	7.87	13.3	950	Clear
5-16B	11/20/95	2.4	7.50	13.0	800	Clear, strong HC odor
	02/21/96	3.5	7.58	13.8	840	Clear, HC odor

Table 2. Summary of Field Measured Parameters
Thoreau Compressor Station No. 5

Well ID	Date	Dissolved Oxygen (mg/L) Meter/Hach	pH	Temperature °C	Electrical Conductivity (μmhos)	Remarks
	05/23/96	1.3	7.47	13.2	1,181	Clear, very strong HC odor
	08/15/96	1.9/1.0	7.46	14.3	1,214	Clear, very strong HC odor
	11/21/96	--/1.0	7.45	13.0	1,000	Clear, HC odor
	02/27/97	2.31	7.52	12.0	1,131	Clear, strong HC odor
	05/22/97	1.13	7.30	14.9	900	Clear, strong HC odor
	08/20/97	1.6/0.4	7.41	15.4	1,100	Clear, HC odor, Film on top
	11/19/97	0.4/0.4	7.46	12.6	1,096	Clear, HC odor
	02/11/98	2.78	7.16	11.6	840	Clear, HC odor, film/sheen
	06/10/98	--	--	--	--	Clear w/sheen, turns blk, PSH odor
	10/01/98	--	--	--	--	Clear w/sheen, turns blk, PSH odor
	04/28/99	--	--	--	--	Clear w/sheen, turns blk, PSH odor
	10/13/99	--	--	--	--	Clear w/sheen, turns blk, PSH odor
5-17B	11/20/95	7.4	7.65	13.4	1,525	Clear, no odor
	05/22/96	6.4	7.44	12.5	1,005	Clear
	08/14/96	NM	7.66	17.0	1,090	Clear
	11/20/96	NM	7.69	13.6	1,160	Clear
	02/27/97	4.57	7.64	11.6	930	Clear
	05/21/97	NM	7.64	14.2	990	Clear
	08/20/97	9.0/8.0	7.67	15.8	1,335	Clear, no odor
	11/18/97	9.5	7.91	12.0	990	Clear
	02/11/98	NM	7.25	10.2	910	Clear
	06/10/98	9.4	7.67	13.9	1,331	Clear
	10/02/98	10.0	7.70	15.0	1,345	Clear
	04/28/99	--/7.8	7.69	13.7	1,344	Clear
	10/13/99	8.8/9.0	7.77	12.9	1,381	Clear
5-18B	11/17/95	1.4	7.68	14.0	720	Clear, HC odor
	02/21/96	5.6	7.76	12.2	760	Clear, HC odor
	05/22/96	1.5	7.62	13.3	790	Clear
	08/14/96	2.38	8.27	14.2	1071	Clear, HC odor
	11/20/96	2.3	7.70	13.0	890	Clear, HC odor
	02/27/97	1.29	7.78	11.7	988	Clear, HC odor
	05/22/97	4.45	7.71	13.3	1065	Clear, HC odor
	08/19/97	0.8/0.4	7.69	14.1	988	Clear, HC odor
	11/17/97	7.76	7.72	12.9	860	Clear
	02/11/98	2.28	7.33	12.8	790	Clear, HC odor
	06/10/98	0.6/0.6	7.61	13.6	1095	Clear, Odor
	09/30/98	2.2/0.8	7.60	15.6	1142	Clear, HC odor
	04/28/99	--/1.4	7.53	12.7	1144	Clear, HC odor
	10/12/99	2.3/2.0	7.64	14.0	1164	Clear, HC odor
5-19B	11/20/95	2.00	7.68	13.0	700	Clear, slight HC odor
	02/21/96	4.4	7.81	12.7	730	Clear, HC odor
	05/22/96	2.0	7.78	14.1	1,023	Clear, slight HC odor
	08/14/96	3.0	7.99	14.7	1,022	Clear
	11/21/96	3.2	7.79	12.8	840	Clear, HC odor
	02/27/97	1.9/1.8	7.83	10.2	951	Clear, HC odor
	05/21/97	2.7	7.84	12.8	1,002	Clear, HC odor
	08/20/97	2.5/1.6	7.82	15.7	939	Clear, HC odor
	11/17/97	3.68/1.0	7.91	12.3	800	Clear, Slight HC odor
	02/11/98	2.26	7.47	12.0	710	Clear, HC odor
	06/10/98	0.5	7.80	13.8	968	Clear, Odor
	10/01/98	0.2/0.4	7.75	14.0	982	Clear, HC odor
	04/28/99	--/0.4	7.89	12.7	982	Clear, HC odor
	10/12/99	0.2	8.00	13.6	990	Clear, HC odor
5-20B	11/17/95	2.9	7.16	13.7	1,200	Clear, slight HC odor
	05/22/96	1.8	7.18	14.4	1,120	Clear
	08/14/96	4.84	7.82	16.2	1,629	Clear, HC odor
	11/20/96	NM	7.04	12.5	1,180	Clear
	02/27/97	1.51	7.21	11.1	1,120	Slightly Cloudy

Table 2. Summary of Field Measured Parameters
Thoreau Compressor Station No. 5

Well ID	Date	Dissolved Oxygen (mg/L) Meter/Hach	pH	Temperature °C	Electrical Conductivity (μmhos)	Remarks
	05/22/97	1.83/1.0	7.39	13.4	1,537	Clear, HC odor
	08/19/97	2.5/1.2	7.13	16.9	1,590	Clear, HC odor
	11/18/97	6.91	7.42	12.4	1,200	Clear, HC odor
	02/11/98	0.00	7.35	10.9	1,369	Clear
	06/09/98	2.80	7.29	16.1	1,481	Clear
	10/01/98	2.4/1.8	7.31	15.8	1,467	Clear
	04/28/99	-/-0.8	7.30	13.4	1,362	Clear
	10/12/99	2.6/2.2	7.46	14.4	1,334	Clear
5-22B	11/15/95	6.4	7.70	12.9	990	Clear, no odor
	02/22/96	6.6	7.47	12.3	1,030	Turbid, very light brown, no odor
	05/20/96	NM	8.32	13.8	1,549	Slightly turbid
	08/12/96	8.01	7.63	15.0	1,100	Turbid, no odor
	11/18/96	5.6	7.48	12.2	1,300	Slightly cloudy
	02/27/97	3.53	7.39	10.0	1,180	Turbid, HC odor
	05/22/97	NM	7.49	13.0	1,899	Turbid
	08/20/97	3.0/2.2	7.32	14.8	2,060	Clear, HC odor
	11/18/97	-/-1.8	7.80	13.6	1,740	Turbid, slight odor
5-23B	11/16/95	3.8	7.31	13.3	800	Clear, no odor
	05/22/96	2.6	7.66	13.0	1,077	Clear
	08/13/96	5.06	8.80	15.0	780	Clear
	11/19/96	4.4	7.69	13.0	880	Clear
	02/26/97	-/-3.4	7.73	11.8	1,018	Clear, no odor (3.4 DO is low range of Hach)
	05/21/97	4.1/4.0	7.73	12.6	1,036	Clear, (low range Hach DO = 3.8)
	08/19/97	3.0/2.8	7.75	14.5	949	Clear
	11/17/97	2.0	7.74	11.1	920	Clear
	02/10/98	1.0	7.77	10.7	928	Clear
	06/08/98	2.8/2.2	7.01	13.7	1,004	Clear
	09/29/98	2.6	7.67	13.7	1,013	Clear
	04/27/99	3.3	7.72	12.9	1,015	Clear
	10/12/99	1.6/1.8	7.83	12.8	1,024	Clear
5-24B	11/17/95	1.7	7.33	13.2	1,050	Slight cloudy, HC odor
	05/21/96	3.5	7.41	13.9	1,050	Clear
	08/13/96	2.32	8.07	16.0	1,050	Clear
	11/19/96	3.30	7.36	12.6	1,210	Slightly turbid, faint odor
	02/26/97	-/-1.4	7.42	11.6	1,468	Clear, slight odor
	05/20/97	4.83	7.56	12.6	1,240	Clear
	05/21/97	3.44	7.24	13.1	1,110	Slight odor, little cloudy
	08/19/97	3.8/4.0	7.32	15.5	1,568	Slightly turbid, Red
	11/18/97	2.20	7.39	12.2	1,386	Slightly turbid
	02/10/98	3.2/3.0	7.44	11.2	1,392	Slightly turbid
	06/09/98	4.30	7.34	14.6	1,492	Cloudy, turbid
	09/29/98	5.5	7.32	13.6	1,499	Turbid
	04/27/99	9.7/8.0	7.37	14.1	1,501	Slightly Cloudy
	10/11/99	4.3	7.46	13.6	1,468	Very Turbid
5-37I	08/15/96	1.67	8.48	17.2	1382	Turbid, green cloudy color, strong HC odor
	11/22/96	NM	7.70	14.9	1,080	Greenish black, strong HC odor
5-41B	11/16/95	2.00	7.28	14.5	940	Clear, no odor
	05/21/96	1.82	7.41	15.8	920	Clear
	08/13/96	2.68	7.99	15.0	910	Clear
	11/19/96	3.80	7.41	13.8	1080	Clear
	02/25/97	1.65	7.43	12.5	930	Clear
	05/20/97	4.83/3.0	7.56	12.6	1230	Clear (Hach DO low range = 2.6)
	08/18/97	-/-2.2	7.55	14.1	1285	Clear
5-47B	11/15/95	2.50	7.83	13.0	900	Slightly cloudy, no odor
	05/21/96	4.70	7.54	14.6	1,080	Clear
	08/13/96	3.17	7.98	15.2	1,060	Clear
	11/19/96	NM	7.56	19.1	1,110	Clear
	02/26/97	2.20	7.71	11.0	1,000	Clear

Table 2. Summary of Field Measured Parameters
Thoreau Compressor Station No. 5

Well ID	Date	Dissolved Oxygen (mg/L) Meter/Hach	pH	Temperature °C	Electrical Conductivity (µmhos)	Remarks
	05/20/97	3.18/2.6	7.74	13.8	1,100	Slightly turbid
	08/18/97	--/4.0	7.68	16.3	1,470	Clear
5-48B	11/20/95	1.40	7.60	13.7	1,035	Clear, strong HC odor
	02/21/96	3.60	7.54	14.0	750	Very slightly cloudy, HC odor
	05/22/96	2.20	7.62	14.6	1,032	Clear, HC odor
	08/14/96	2.80	7.62	15.5	800	Clear, strong HC odor
	11/21/96	3.10	7.45	15.2	780	Clear, strong HC odor
	02/27/97	2.40	7.61	11.8	950	Clear, strong HC odor
	05/22/97	2.52	7.33	14.1	820	Clear, strong HC odor
	08/20/97	2.2/0.4	7.34	18.3	1,139	Yellow tint, strong HC odor
	11/19/97	5.57/1.6	7.48	14.0	900	Clear, strong HC odor
	02/12/98	2.23	7.44	14.8	810	Clear, HC odor
	06/11/98	3.6/2.0	7.53	16.3	1,176	Clear, HC odor
	10/01/98	0.2	7.56	15.7	1,239	Cloudy w/blk flec's, turns dark in light, odor
	04/28/99	--	7.47	15.4	1,261	Clear w/blk flec's, strong HC odor, sheen
	10/12/99	--	--	--	--	Clear w/blk flec's, strong HC odor, sheen
5-57B	11/15/95	4.60	7.59	13.1	880	Brown muddy
	05/20/96	3.10	8.75	13.2	1,212	Slightly turbid
	08/12/96	5.24	7.76	14.0	875	Slightly turbid, no odor
	11/18/96	5.4/2.2	7.53	12.9	980	Slightly cloudy
	02/25/97	--/3.4	7.71	10.6	1,191	Light amber, no odor
	05/20/97	6.01	7.69	12.8	1,130	Slightly cloudy, reddish tint, no odor
	08/18/97	0.7/2.6	7.69	14.4	1,071	Slightly turbid
5-58B	11/16/95	8.10	7.47	14.8	740	Cloudy brown, no odor
	05/20/96	6.70	8.71	13.2	1073	Slightly turbid
	08/12/96	6.44	7.71	14.5	750	Slightly turbid, no odor
	11/18/96	7.00	7.58	12.6	880	Slightly cloudy
	02/25/97	7.0b	7.69	11.4	1073	Light amber, no odor
	05/20/97	6.84	7.73	13.2	790	Slightly turbid
	08/18/97	5.8/6.5	7.68	15.2	964	Slightly turbid
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HC = Hydrocarbon						
NM = Not measured						
(a) Value above theoretical dissolved oxygen concentration for this altitude; therefore, measurement is suspect.						
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Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
5-01B	12/89	ER	< 5.0	6.3	< 5.0	NA
	03/90	ER	< 5.0	< 5.0	< 5.0	25
	06/90	ER	< 5.0	< 5.0	< 5.0	< 5.0
	08/90	AS	< 1	< 1	< 1	3.5
	11/90	EH	< 0.50	< 0.50	< 0.50	3.0
	01/91	EH	< 1.0	< 1.0	< 1.0	4.8
	02/91	EH	1.6	< 0.50	< 0.50	4.6
	03/91	EH	2.0	< 0.50	< 0.50	5.2
	04/91	EH	1.2	< 0.50	< 0.50	3.6
	05/91	EH	< 0.50	< 0.50	< 0.50	5.4
	06/91	EH	< 0.50	0.63	< 0.50	1.9
	07/91	EH	< 0.50	< 0.50	< 0.50	6.0
	09/91	EH	< 0.50	< 0.50	< 0.50	7.8
	10/91	ER	< 0.50	< 0.50	< 0.50	6.4
	11/91	ER	< 0.50	< 0.50	< 0.50	9.8
	12/91	ER	< 0.50	< 0.50	< 0.50	2.4
	01/09/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/27/92	ER	< 0.50	< 0.50	< 0.50	0.79
	02/20/92	ER	< 0.50	< 0.50	< 0.50	5.2
	03/18/92	ATI-P	< 2.5	< 0.5	< 0.5	3.3
	04/29/92	ATI-P	< 0.5	< 0.5	< 0.5	2.3
	10/14/92	ATI-P	< 0.5	< 0.5	< 0.5	4.7
	12/13/94	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	06/27/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	10/06/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/21/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/22/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/15/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/22/96	HEAL	0.8	< 0.5	< 0.5	< 0.5
	02/28/97	HEAL	0.6	< 0.5	< 0.5	< 0.5
	05/22/97	HEAL	1.2	< 0.5	< 0.5	< 0.5
	08/21/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-01C	11/23/97	HEAL	1.4	< 0.5	< 0.5	< 0.5
	01/08/98	HEAL	2.0	< 0.5	< 0.5	< 0.5
	02/12/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	06/11/98	HEAL	6.5	< 0.5	< 0.5	< 0.5
	10/02/98	HEAL	5.2	< 0.5	< 0.5	< 0.5
	04/29/99	OAL	< 1	< 1	< 1	< 1
	10/14/99	OAL	< 1	< 2	< 2	< 4
5-02B	05/89	ER	1800	2000	< 200	NA
	08/89	ER	2500	4700	< 500	NA
	11/89	ER	1800	3100	250	NA
	03/90	ER	2300	3800	< 250	2400
	06/90	ER	1900	3100	< 250	2300

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	08/90	AS	1400	2300	180	1700
	11/90	EH	1500	2400	230	1900
	01/91	EH	600	730	110	940
	02/91	EH	460	580	75	600
	03/91	EH	2400	3300	290	2600
	04/91	EH	830	1200	110	920
	05/91	EH	830	1200	150	1300
	06/91	EH	5.1	7.0	0.57	4.7
	07/91	EH	400	600	49	420
	09/91	EH	510	750	57	530
	10/91	ER	290	450	37	310
	11/91	ER	740	1200	97	950
	12/91	ER	330	580	31	320
	01/09/92	ER	360	710	52	480
	01/28/92	ER	420	810	64	560
	02/20/92	ER	890	1600	140	1200
	03/19/92	ATI-P	910	2100	170	1700
	04/29/92	ATI-P	1700	3800	240	2200
	10/14/92	ATI-P	800	700	74	640
	04/22/93	ATI-A	120	< 0.5	11	38
	12/09/94	HEAL	2100	2600	220	1800
	06/26/95	HEAL	1200	2700	130	1200
	10/06/95	HEAL	490	1600	66	640
	11/21/95	HEAL	740	2900	160	1100
	02/22/96	HEAL	260	1000	62	600
	05/21/96	HEAL	380	120	1300	1100
	08/14/96	HEAL	420	1200	100	880
	11/21/96	HEAL	660	1300	150	1600
	02/28/97	HEAL	260	500	90	680
5-02C	11/23/97	HEAL	26	2.7	9.1	2.7
	02/11/98	HEAL	110	7.0	33	8.3
	06/10/98	HEAL	460	1000	120	750
	10/01/98	HEAL	1300	3500	230	1800
	04/28/99	OAL	1500	4400	260	2500
	10/13/99	OAL	1300	3900	320	3100
5-03B	05/89	ER	< 5.0	< 5.0	< 5.0	NA
	11/89	ER	< 5.0	< 5.0	< 5.0	NA
	04/90	ER	< 5.0	< 5.0	< 5.0	< 5.0
	05/90	ER	< 5.0	< 5.0	< 5.0	< 5.0
	08/90	AS	< 1	< 1	< 1	< 1
	11/90	EH	< 0.50	< 0.50	< 0.50	< 1
	01/91	EH	< 0.30	< 0.30	< 0.30	< 0.60
	02/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	03/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	04/91	EH	< 0.50	< 0.50	< 0.50	< 1.0

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	05/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	06/91	EH	< 0.50	1.4	< 0.50	2.2
	07/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	09/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	10/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	11/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	12/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/09/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/27/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	02/19/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	03/17/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	04/28/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/07/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	12/09/94	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	06/26/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	10/03/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/15/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/12/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/18/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/24/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/20/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/18/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/17/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/10/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	06/11/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	09/29/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	04/27/99	OAL	< 1	< 1	< 1	< 1
	10/11/99	OAL	< 1	< 2	< 2	< 4
5-04B	10/89	ER	< 25	< 25	< 25	NA
	12/89	ER	18	< 5.0	< 5.0	NA
	01/90	ER	21	< 5.0	< 5.0	NA
	04/90	ER	54	< 5.0	7.1	110
	06/90	ER	60	< 50	< 50	64
	08/90	AS	63	9.5	< 1	15
	11/90	EH	25	< 5.0	< 5.0	< 10
	01/91	EH	22	1.6	0.75	5.6
	03/91	EH	76	11	< 0.50	5.7
	04/91	EH	39	0.66	< 0.50	2.9
	05/91	EH	90	1.1	0.96	13
	06/91	EH	81	21	14	87
	07/91	EH	71	< 0.5	4.5	43
	09/91	EH	270	< 1.0	6.6	54
	10/91	ER	180	< 5.0	7.8	48

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	11/91	ER	< 1.2	< 1.2	11	83
	12/91	ER	100	< 2.5	5.1	45
	01/10/92	ER	53	< 1.2	3.7	44
	01/28/92	ER	48	2.8	6.5	44
	02/19/92	ER	42	< 1.0	3.4	39
	03/18/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	04/28/92	ATI-P	86	80	60	570
	10/13/92	ATI-P	230	40	19	260
	04/21/93	ATI-A	170	130	26	280
	12/12/94	HEAL	12	2.2	3.4	3.3
	12/20/94	HEAL	2.7	0.7	< 0.5	1.3
	01/10/95	HEAL	9.8	2.3	< 0.5	2.0
	03/07/95	HEAL	93	1.5	6.1	1.9
	06/08/95	HEAL	9.4	1.4	0.6	< 0.5
	06/26/95	HEAL	15	< 0.5	0.7	< 0.5
	10/05/95	HEAL	44	1.7	3.1	< 0.5
	11/17/95	HEAL	9.9	1.1	0.6	< 0.5
	02/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-05B	10/89	ER	< 5.0	< 5.0	8.7	NA
	11/89	ER	< 5.0	< 5.0	< 5.0	NA
	04/90	ER	< 5.0	< 5.0	< 5.0	< 5.0
	06/90	ER	< 5.0	< 5.0	< 5.0	< 5.0
	08/90	AS	2.5	< 1	< 1	4.6
	11/90	EH	1.4	< 0.50	< 0.50	2.9
	01/91	EH	< 0.50	< 0.50	< 0.50	0.56
	02/91	EH	49	35	7.4	56
	03/91	EH	12	1.2	< 0.50	< 1.0
	04/91	EH	1.3	< 0.50	< 0.50	< 1.0
	05/91	EH	4.6	< 0.50	< 0.50	< 1.0
	06/91	EH	3.8	< 0.50	< 0.50	< 1.0
	07/91	EH	0.51	< 0.50	< 0.50	< 1.0
	09/91	EH	3.0	< 0.50	< 0.50	< 1.0
	10/91	ER	0.90	< 0.50	< 0.50	< 0.50
	11/91	ER	1.2	< 0.50	< 0.50	< 0.50
	12/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/09/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/27/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	02/19/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	03/17/92	ATI-P	53	< 0.5	11	84
	04/28/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/12/92	ATI-P	770	110	25	160
	04/21/93	ATI-A	38	< 0.5	2.4	3
	12/12/94	HEAL	150	33	16	47
	06/26/95	HEAL	17	0.7	1.6	0.9
	10/05/95	HEAL	8.2	< 0.5	0.9	< 0.5

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	11/17/95	HEAL	5.0	< 0.5	< 0.5	< 0.5
	02/20/96	HEAL	0.9	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	1.0	< 0.5	< 0.5	< 0.5
	08/14/96	HEAL	0.9	< 0.5	< 0.5	< 0.5
	11/20/96	HEAL	3.3	1.5	< 0.5	< 0.5
	02/25/97	HEAL	3.0	1.4	< 0.5	0.6
	10/14/99	OAL	< 1	< 2	< 2	< 4
5-06B	10/89	ER	15	< 5.0	< 5.0	NA
	12/89	ER	7.4	35	21	NA
	01/90	ER	< 5.0	< 5.0	8.3	NA
	04/90	ER	5.3	< 5.0	< 5.0	120
	06/90	ER	< 5.0	< 5.0	< 5.0	19
	08/90	AS	< 1	< 1	1.5	36
	11/90	EH	1.8	< 0.50	0.5	21
	01/91	EH	< 1.0	< 1.0	< 1.0	31
	02/91	EH	12	2.5	< 0.50	21
	03/91	EH	2.0	< 0.50	< 0.50	5.1
	04/91	EH	5.2	< 0.50	< 0.50	12
	05/91	EH	7.7	< 0.50	< 0.50	18
	06/91	EH	11	2.3	< 0.50	25
	07/91	EH	1.5	< 0.50	< 0.50	15
	09/91	EH	3.5	< 0.50	< 0.50	13
	10/91	ER	3.1	0.62	0.77	9.3
	11/91	ER	1.4	< 0.50	< 0.50	6.0
	11/91	ATI	2.3	< 0.50	< 0.50	18
	12/91	ER	< 0.50	< 0.50	< 0.50	5.0
	01/09/92	ER	2.3	< 0.50	< 0.50	< 0.50
	01/27/92	ER	1.3	< 0.50	< 0.50	2.6
	02/20/92	ER	1.0	< 0.50	< 0.50	1.2
	03/18/92	ATI-P	0.9	< 0.50	< 0.50	2.3
	04/29/92	ATI-P	1.4	< 0.50	< 0.50	3.6
	10/14/92	ATI-P	1.0	< 0.50	< 0.50	2.8
	12/14/94	HEAL	4.3	< 0.50	< 0.50	0.7
	06/27/95	HEAL	2.2	< 0.5	< 0.5	< 0.5
	10/06/95	HEAL	4.6	< 0.5	< 0.5	< 0.5
	11/21/95	HEAL	6.2	< 0.5	< 0.5	< 0.5
	02/22/96	HEAL	4.3	< 0.5	< 0.5	< 0.5
	04/17/96	HEAL	8.9	< 0.5	< 0.5	0.5
	04/17/96	AEN	9.4	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	1.2	< 0.5	< 0.5	< 0.5
	08/15/96	HEAL	2.4	< 0.5	< 0.5	< 0.5
	11/22/96	HEAL	0.9	< 5.0	< 5.0	< 0.5
	02/28/97	HEAL	0.9	< 5.0	< 5.0	< 0.5
	05/22/97	HEAL	0.7	< 5.0	< 5.0	< 0.5
	08/20/97	HEAL	0.7	< 5.0	< 5.0	< 0.5

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
5-06C	11/23/97	HEAL	1.4	0.6	< 5.0	11
	12/08/98	HEAL	1.0	< 0.5	< 0.5	5.7
	01/08/98	HEAL	1.9	< 0.5	< 0.5	3.1
	02/12/98	HEAL	2.2	1.4	< 0.5	1.3
	06/11/98	HEAL	1.2	0.6	< 0.5	< 0.5
	10/02/98	HEAL	1.5	1.3	< 0.5	< 0.5
	04/29/99	OAL	< 1	< 1	< 1	< 1
	10/14/99	OAL	< 1	< 2	< 2	< 4
5-12B	08/90	AS	< 1	< 1	< 1	< 1
	11/90	EH	< 0.50	< 0.50	< 0.50	< 1.0
	01/91	EH	1.5	4.7	0.79	3.8
	02/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	03/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	04/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	05/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	06/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	07/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	10/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/07/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	04/30/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/08/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/03/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/16/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/13/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/26/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/19/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/17/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/11/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	06/09/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	09/30/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	04/27/99	OAL	< 1	< 1	< 1	< 1
	10/12/99	OAL	< 1	< 2	< 2	< 4
5-13B	08/90	AS	54	13	< 1	330
	11/90	EH	61	< 10	< 10	480
	01/91	EH	180	17	< 5.0	310
	02/91	EH	270	25	< 10	460
	03/91	EH	240	< 50	< 50	480
	04/91	EH	430	< 0.50	< 0.50	620
	05/91	EH	290	< 10	< 10	450
	06/91	EH	330	0.53	< 0.50	600
	07/91	EH	97	0.72	< 0.50	760

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	10/91	ER	71	< 5.0	< 5.0	510
	01/08/92	ER	150	< 25	< 25	570
	05/01/92	ATI-P	76	8.0	< 0.5	67
	10/13/92	ATI-P	88	8.7	< 0.5	1.5
	10/05/95	HEAL	0.6	2.5	0.5	1.9
	11/20/95	HEAL	< 0.5	< 0.5	0.6	2.0
	02/21/96	HEAL	1.0	0.7	< 0.5	< 0.5
	05/21/96	HEAL	0.7	< 0.5	< 0.5	0.8
	08/13/96	HEAL	1	5.4	< 0.5	< 0.5
	11/21/96	HEAL	1.2	6.1	< 0.5	< 0.5
	02/26/97	HEAL	1.5	5.9	< 0.5	2.5
	05/21/97	HEAL	1.1	4.3	< 0.5	0.7
	08/19/97	HEAL	1.2	2.9	< 0.5	0.6
	11/18/97	HEAL	1.3	2	< 0.5	< 0.5
	02/11/98	HEAL	0.9	1.5	< 0.5	< 0.5
	06/09/98	HEAL	0.8	0.7	< 0.5	< 0.5
	09/30/98	HEAL	< 0.5	< 1.5	< 0.5	< 0.5
	04/27/99	OAL	< 1	< 1	< 1	< 1
	10/12/99	OAL	< 1	< 2	< 2	< 4
5-14B	08/90	AS	< 1	< 1	< 1	< 1
	11/90	EH	< 0.50	< 0.50	< 0.50	< 1.0
	01/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	02/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	03/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	04/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	05/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	06/91	EH	2.8	3.2	0.53	2.0
	07/91	EH	0.60	< 0.50	< 0.50	< 1.0
	10/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/06/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	04/30/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/08/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/04/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/16/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	2.6	1.5	< 0.5
	08/13/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/26/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/19/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/17/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/10/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	06/09/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	09/30/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	04/27/99	OAL	< 1	< 1	< 1	< 1
	10/12/99	OAL	< 1	< 2	< 2	< 4
5-15B	08/90	AS	< 1	< 1	< 1	< 1
	11/90	EH	2.1	< 0.50	< 0.50	< 1.0
	01/91	EH	< 0.30	< 0.30	< 0.30	1.0
	02/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	03/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	04/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	05/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	06/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	07/91	EH	< 0.50	0.59	< 0.50	< 1.0
	10/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/07/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	04/30/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/08/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/05/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/16/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/14/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/26/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/19/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/17/97	HEAL	0.9	< 0.5	< 0.5	0.5
	02/11/98	HEAL	1.5	< 0.5	1.0	1.2
	06/10/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	09/30/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	04/28/99	OAL	< 1	< 1	< 1	< 1
	10/12/99	OAL	< 1	< 2	< 2	< 4
5-16B	08/90	AS	19	25	50	320
	01/91	EH	< 0.30	< 0.30	< 0.30	< 0.60
	02/91	EH	320	46	170	860
	03/91	EH	920	14	1.2	130
	04/91	EH	92	< 0.50	0.68	9.2
	05/91	EH	270	< 12	230	1100
	06/91	EH	450	490	460	2300
	07/91	EH	260	140	400	2400
	09/91	EH	460	320	550	3600
	10/91	ER	170	420	460	3200
	11/91	ER	180	430	330	2400
	12/91	ER	140	490	360	2900
	01/08/92	ER	200	500	410	3000
	02/20/92	ER	170	330	470	3200
	03/18/92	ATI-P	53	89	400	2400

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	04/29/92	ATI-P	23	3.3	210	1000
	10/13/92	ATI-P	5.1	2.3	12	63
	04/20/93	ATI-A	6.5	< 0.5	14	51
	10/05/95	HEAL	610	5900	300	2600
	11/20/95	HEAL	970	7100	430	3100
	02/21/96	HEAL	1700	6900	340	3600
	05/21/96	HEAL	1500	280	6900	3500
	08/15/96	HEAL	670	3600	130	2400
	11/21/96	HEAL	460	2200	130	2500
	02/27/97	HEAL	250	1100	190	2000
	05/22/97	HEAL	130	720	110	1500
	08/20/97	HEAL	130	820	120	1300
	11/19/97	HEAL	85	730	100	1100
	02/11/98	HEAL	41	360	90	660
	06/10/98	HEAL	23	210	56	590
	10/01/98	HEAL	140	190	66	590
	04/28/99	OAL	200	170	45	620
	10/13/99	OAL	610	630	79	600
	12/05/99	OAL	720	390	130	570
5-17B	08/90	AS	< 1	< 1	< 1	< 1
	11/90	EH	< 0.50	< 0.50	< 0.50	< 1.0
	01/91	EH	< 0.50	< 0.50	< 0.50	< 0.50
	02/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	03/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	04/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	05/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	06/91	EH	0.72	2.9	1.8	11
	07/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	10/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/08/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	02/19/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	03/17/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	04/28/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/07/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/06/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/20/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/14/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/27/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/20/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/18/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/11/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	06/10/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	10/01/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	04/28/99	OAL	< 1	< 1	< 1	< 1
	10/13/99	OAL	< 1	< 2	< 2	< 4
5-18B	08/90	AS	1100	14	< 1	220
	11/90	EH	1900	< 100	< 100	320
	01/91	EH	1300	< 25	< 25	170
	02/91	EH	970	11	< 5.0	170
	03/91	EH	260	1.8	< 0.50	23
	04/91	EH	1000	< 1.0	< 1.0	78
	06/91	EH	680	1.1	1.0	150
	07/91	EH	1500	3.0	1.5	70
	10/91	ER	1200	< 25	< 25	130
	01/08/92	ER	1100	< 25	< 25	88
	05/01/92	ATI-P	790	2.7	< 0.5	36
	10/13/92	ATI-P	820	< 0.5	1.0	36
	04/22/93	ATI-A	360	< 0.5	0.5	2.6
	10/05/95	HEAL	87	8.4	9.0	26
	11/17/95	HEAL	240	24	22	53
	02/21/96	HEAL	290	54	37	110
	05/21/96	HEAL	390	56	1.3	50
	08/14/96	HEAL	400	< 0.5	53	0.9
	11/21/96	HEAL	210	5	48	< 0.5
	02/27/97	HEAL	9.4	5.2	64	1.5
	05/22/97	HEAL	< 0.5	4.7	88	0.8
	08/19/97	HEAL	1.1	4.9	110	1.5
	11/17/97	HEAL	0.9	6	140	1.1
	02/11/98	HEAL	0.9	6.4	120	1.1
	06/10/98	HEAL	< 0.5	6.2	64	< 0.5
	09/30/98	HEAL	5.6	1.3	17	1.0
	04/28/99	OAL	2	< 1	< 1	2.0
	10/12/99	OAL	17	< 2	5	42
5-19B	08/90	AS	190	3.5	5.8	44
	11/90	EH	180	11	< 10	< 20
	01/91	EH	150	< 0.30	0.60	15
	02/91	EH	200	5.8	< 2.5	14
	03/91	EH	200	30	180	880
	04/91	EH	290	< 25	210	880
	05/91	EH	240	< 0.50	0.71	21
	06/91	EH	290	7.5	2.2	22
	07/91	EH	240	< 0.50	0.58	14
	10/91	ER	140	< 2.5	< 2.5	12
	01/08/92	ER	240	< 5.0	< 5.0	9.0
	02/20/92	ER	150	< 2.5	< 2.5	4.2
	03/19/92	ATI-P	140	< 0.5	< 0.5	5.9

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	04/29/92	ATI-P	190	< 0.5	< 0.5	4.3
	10/13/92	ATI-P	130	< 0.5	< 0.5	4.4
	10/05/95	HEAL	1.0	0.7	< 0.5	< 0.5
	11/20/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/21/96	HEAL	0.9	0.8	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/14/96	HEAL	0.7	0.6	< 0.5	< 0.5
	11/21/96	HEAL	0.9	0.6	< 0.5	< 0.5
	02/27/97	HEAL	1.3	1	< 0.5	0.7
	05/21/97	HEAL	1.2	1	< 0.5	< 0.5
	08/20/97	HEAL	1.7	1.3	0.6	< 0.5
	11/17/97	HEAL	2.5	2.0	0.9	0.7
	02/11/98	HEAL	2.3	1.8	0.8	0.7
	06/10/98	HEAL	1.5	1.4	1.5	0.6
	10/01/98	HEAL	7.4	3.9	1.6	2.9
	04/28/99	OAL	43	< 1	1	3
	10/12/99	OAL	13	< 2	< 2	< 4
5-20B	08/90	AS	58	8.0	< 1	51
	11/90	EH	180	< 5.0	< 5.0	12
	01/91	EH	93	14	< 1.0	23
	02/91	EH	280	14	< 10	46
	02/91	EH	110	< 5.0	< 5.0	< 5.0
	03/91	EH	200	< 5.0	< 5.0	< 10
	04/91	EH	180	< 1.0	< 1.0	19
	05/91	EH	160	< 5.0	< 5.0	32
	06/91	EH	300	1.1	< 0.50	15
	07/91	EH	73	1.1	1.0	24
	10/91	ER	57	2.2	< 1.2	11
	01/08/92	ER	31	< 1.2	< 1.2	6.7
	05/01/92	ATI-P	55	3.9	4.9	6.2
	10/12/92	ATI-P	52	2.7	4.4	11
	04/21/93	ATI-A	14	< 0.5	6.1	10
	10/05/95	HEAL	3.2	0.7	3.5	< 0.5
	11/17/95	HEAL	12	2.3	< 0.5	2.6
	02/21/96	HEAL	2.8	1.7	2.7	2.3
	05/21/96	HEAL	1.7	1.3	0.8	< 0.5
	08/14/96	HEAL	8.1	0.7	0.8	1.5
	11/20/96	HEAL	7.2	0.9	1.4	< 0.5
	02/27/97	HEAL	12	1.3	1.8	3.3
	05/22/97	HEAL	2.0	0.7	0.8	0.5
	08/19/97	HEAL	10.0	1.0	1.9	1.4
	11/18/97	HEAL	4.3	0.8	1.1	1.1
	02/11/98	HEAL	< 0.5	1.3	2.3	0.5
	06/09/98	HEAL	15	0.8	0.7	< 0.5
	10/01/98	HEAL	1.5	1.4	1.5	1.3

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	04/28/99	OAL	< 1	< 1	1	< 1
	10/12/99	OAL	< 1	< 2	< 2	< 4
5-22B	10/90	AS	< 1	< 1	< 1	< 1
	01/91	EH	< 0.50	< 0.50	< 0.50	< 0.50
	02/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	03/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	04/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	05/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	06/91	EH	1.9	5.5	13	58
	07/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	09/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	10/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	11/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	12/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/10/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/28/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	02/19/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	03/18/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	04/28/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/08/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	12/12/94	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	06/26/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	10/03/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/15/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/12/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/18/96	HEAL	< 0.5	< 0.5	< 0.5	1.9
	02/27/97	HEAL	5.6	9.3	< 0.5	65
	05/22/97	HEAL	3.6	< 0.5	< 0.5	7.1
	08/20/97	HEAL	3.2	7.3	< 0.5	5.3
	11/18/97	HEAL	3.8	2.3	< 0.5	0.6
5-23B	10/90	AS	5.3	< 1	< 1	< 1
	11/90	EH	5.1	< 0.50	< 0.50	< 1.0
	01/91	EH	3.0	< 0.50	< 0.50	< 0.60
	02/91	EH	6.6	< 0.50	< 0.50	< 1.0
	03/91	EH	8.5	< 0.50	< 0.50	1.2
	04/91	EH	5.0	< 0.50	< 0.50	< 1.0
	05/91	EH	120	< 0.50	< 0.50	7.5
	06/91	EH	3.8	0.55	< 0.50	5.7
	07/91	EH	2.0	< 0.50	< 0.50	1.3
	09/91	EH	2.1	< 0.50	< 0.50	1.1
	10/91	ER	1.6	< 0.50	< 0.50	< 0.50
	11/91	ER	0.59	< 0.50	< 0.50	< 0.50
	12/91	ER	< 0.50	< 0.50	< 0.50	< 0.50

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	01/07/92	ER	0.65	< 0.50	< 0.50	< 0.50
	02/18/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	03/17/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	04/30/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/09/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/04/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/16/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/22/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/13/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/26/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/19/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/17/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/10/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	06/08/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	09/29/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	04/27/99	OAL	< 1	< 1	< 1	< 1
	10/12/99	OAL	< 1	< 2	< 2	< 4
5-24B	10/90	AS	63	< 1	2.0	1.6
	11/90	EH	100	< 5.0	< 5.0	< 10
	01/91	EH	40	0.55	0.74	< 1.0
	02/91	EH	150	16	< 5.0	21
	03/91	EH	89	9.8	< 0.50	3.5
	04/91	EH	230	< 1.0	< 1.0	6.3
	05/91	EH	4.3	< 0.50	< 0.50	1.3
	06/91	EH	280	0.86	0.64	13
	07/91	EH	130	< 0.50	< 0.50	8.7
	09/91	EH	250	0.54	< 0.50	12
	10/91	ER	140	< 2.5	< 2.5	< 2.5
	11/91	ER	180	< 5.0	< 5.0	< 5.0
	12/91	ER	180	< 5.0	< 5.0	< 5.0
	01/07/92	ER	120	< 2.5	< 2.5	< 2.5
	02/18/92	ER	140	< 2.5	< 2.5	< 2.5
	03/17/92	ATI-P	120	< 2.5	0.8	1.4
	04/30/92	ATI-P	100	2.1	1.4	2.2
	10/13/92	ATI-P	1.2	< 0.5	0.8	0.8
	04/21/93	ATI-P	< 0.5	< 0.5	0.7	1.4
	10/03/95	HEAL	< 0.5	< 0.5	1.0	1.0
	11/17/95	HEAL	1.2	0.8	0.5	1.0
	02/20/96	HEAL	1.3	1.0	0.7	2.0
	05/21/96	HEAL	< 0.5	0.9	< 0.5	0.7
	08/13/96	HEAL	1.2	0.6	0.7	1.3
	11/19/95	HEAL	0.9	< 0.5	0.6	0.8

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	02/26/97	HEAL	0.9	0.6	1	1.8
	05/21/97	HEAL	0.7	< 0.5	1	1.6
	08/19/97	HEAL	1.2	0.5	0.9	< 5.0
	11/18/97	HEAL	0.6	< 0.5	0.7	1.3
	02/10/98	HEAL	0.5	< 0.5	0.7	< 0.5
	06/09/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	09/29/98	HEAL	< 0.5	0.6	< 0.5	< 0.5
	04/27/99	OAL	< 1	< 1	< 1	< 1
	10/11/99	OAL	< 1	< 2	< 2	< 4
5-34B	01/07/92	ER	120	< 2.5	< 2.5	< 2.5
	02/18/92	ER	140	< 2.5	< 2.5	< 2.5
	03/17/92	ATI-P	120	< 0.5	0.8	1.4
	04/30/92	ATI-P	100	2.1	1.4	2.2
	10/13/92	ATI-P	1.2	< 0.5	0.8	0.8
	04/21/93	ATI-A	< 0.5	< 0.5	0.7	1.4
	12/13/94	HEAL	4700	13,000	460	5,900
5-35B	04/22/93	ATI-A	360	1400	130	1700
5-36E	12/14/94	HEAL	620	2700	230	3300
5-37I	02/22/96	HEAL	640	520	24	990
	04/16/96	HEAL	580	300	22	600
	05/21/96	HEAL	590	19	340	600
	07/03/96	HEAL	1100	600	31	880
	08/15/96	HEAL	310	54	14	430
	11/22/96	HEAL	440	140	20	520
05-41B	10/09/92	ATI-P	47	3.9	0.7	1.0
	04/20/93	ATI-A	1.4	< 0.5	2.5	2.1
	10/04/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/16/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/13/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/25/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/20/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/18/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-47B	10/07/92	ATI-P	1.0	< 0.5	< 0.5	< 0.5
	04/20/93	ATI-A	2.9	< 0.5	< 0.5	< 0.5
	10/04/95	HEAL	7.2	2.0	0.6	4.6
	11/15/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/13/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/26/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/20/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	08/18/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-48B	10/12/92	ATI-P	380	1100	84	840
	04/21/93	ATI-A	99	390	34	360
	10/05/95	HEAL	550	940	290	1900
	11/20/95	HEAL	820	1700	390	2600
	02/21/96	HEAL	690	1100	550	3300
	04/16/96	HEAL	600	1700	420	3100
	05/21/96	HEAL	620	480	3600	3600
	07/03/96	HEAL	670	5100	410	3500
	08/14/96	HEAL	770	7600	340	3900
	11/21/96	HEAL	960	8500	330	3900
	02/27/97	HEAL	1100	10000	430	4700
	05/22/97	HEAL	1100	8000	450	4400
	08/20/97	HEAL	1200	7000	440	4200
	11/19/97	HEAL	1400	6900	330	3900
	12/09/97	HEAL	1800	7700	430	4700
	01/08/98	HEAL	1600	7600	440	4100
	02/11/98	HEAL	2100	8000	460	4600
	06/11/98	HEAL	2100	8000	200	3800
	10/01/98	HEAL	2100	6100	420	4300
	04/28/99	OAL	1700	4400	140	3100
	10/12/99	OAL	1000	1900	320	2900
5-57B	04/19/93	ATI-A	< 0.5	< 0.5	< 0.5	< 0.5
	10/04/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/15/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/12/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/08/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/25/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/20/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/18/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-58B	04/19/93	ATI-A	< 0.5	< 0.5	< 0.5	< 0.5
	10/04/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/16/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/12/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/18/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/25/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/20/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/18/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
† Lab Designations						
ABB = ASEA Brown Boveri						
AEN = American Environmental Network, Inc. (Albuquerque)						
AS = Assaigai Laboratories (Albuquerque)						
ATI-A = Analytical Technologies, Inc. (Albuquerque)						
ATI-P = Analytical Technologies, Inc. (Phoenix)						
ER = Enseco (Rocky Mountain Analytical)						
EH = Enseco (Houston)						
HEAL = Hall Environmental Analysis Laboratory (Albuquerque)						
OAL = Oregon Analytical Laboratory						
NA = Not Analyzed						

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	Total PCB Concentration ($\mu\text{g}/\text{L}$)	Aroclor Reported
5-01B	08/89	ER	2.1	1016
	12/89	ER	2.0	1242
	03/90	ER	94	1221
	06/90	ER	11	1242
	08/90	AS	2.0	1242
	11/90	EH	5.5	1242
	01/91	EH	28	1242
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	07/91	EH	< 1.0	
	09/91	EH	< 1.0	
	10/91	ER	210	1221
	11/91	ER	76	1221
	12/91	ER	< 1.0	
	01/09/92	ER	< 1.0	
	01/27/92	ER	67	1221
	02/20/92	ER	82	1221
	03/18/92	ATI-P	54	1221
	04/29/92	ATI-P	71	1221
	10/14/92	ATI-P	82	1221
	12/13/94	ATI-P	4.9	1016
	06/27/95	NET	4.18	1242
	10/06/95	NET	< 0.65	
	11/21/95	NET	< 0.065	
	02/22/96	NET	< 0.065	
	04/17/96	NET	< 0.065	
	04/17/96	PA	0.93	1221
	05/24/96	NET	34	1221
	08/15/96	NET	14.2	1221
	11/22/96	EPIC	15.6	1221
	02/28/97	EPIC	15.2	1221
	05/22/97	EPIC	11.9	1221
	08/21/97	EPIC	18.2	1221
5-01C	11/23/97	EPIC	79.7/49.0	1221/1242
	01/08/98	HALL	38	1221
	02/12/98	HALL	< 1.0	
	06/11/98	HALL	38	1221
	10/02/98	HALL	10	1221
	04/29/99	OAL	3.8/9.8	1016/1221
	10/14/99	OAL	4.9/3.5	1016/1221
5-02B	05/89	ER	< 1.0	
	08/89	ER	< 1.0	

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	Total PCB Concentration ($\mu\text{g}/\text{L}$)	Aroclor Reported
	11/89	ER	< 1.0	
	03/90	ER	< 1.0	
	06/90	ER	< 5.0	
	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	07/91	EH	< 1.0	
	09/91	EH	< 1.0	
	10/91	ER	< 1.0	
	11/91	ER	< 1.0	
	12/91	ER	< 1.0	
	01/09/92	ER	< 1.0	
	01/28/92	ER	< 1.0	
	02/20/92	ER	< 1.0	
	03/19/92	ATI-P	< 0.5	
	04/29/92	ATI-P	< 25.0	
5-03B	05/89	ER	< 1.0	
	11/89	ER	< 1.0	
	04/90	ER	< 1.0	
	05/90	ER	< 1.0	
	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	07/91	EH	< 1.0	
	09/91	EH	< 1.0	
	10/91	ER	< 1.0	
	11/91	ER	< 0.1	
	12/91	ER	< 0.1	
	01/09/92	ER	< 1.0	
	01/27/92	ER	< 1.0	
	02/19/92	ER	< 1.0	
	03/17/92	ATI-P	< 0.5	
	04/28/92	ATI-P	< 0.5	
5-04B	12/89	ER	< 1.0	
	01/90	ER	< 1.0	

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	Total PCB Concentration ($\mu\text{g/L}$)	Aroclor Reported
	04/90	ER	< 1.0	
	06/90	ER	< 1.0	
	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	07/91	EH	< 1.0	
	09/91	EH	< 1.0	
	10/91	ER	< 1.0	
	11/91	ER	< 1.0	
	12/91	ER	< 1.0	
	01/10/92	ER	< 1.0	
	01/28/92	ER	< 1.0	
	02/19/92	ER	< 1.0	
	03/18/92	ATI-P	< 0.5	
	04/28/92	ATI-P	< 0.5	
5-05B	10/89	ER	< 1.0	
	11/89	ER	< 1.0	
	04/90	ER	< 1.0	
	06/90	ER	< 1.0	
	08/90	AS	0.19	1242
	11/90	EH	2.4	1242
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	07/91	EH	< 1.0	
	09/91	EH	< 1.0	
	10/91	ER	< 5.0	
	11/91	ER	< 1.0	
	12/91	ER	< 2.0	
	01/09/92	ER	< 1.0	
	01/27/92	ER	< 1.0	
	02/19/92	ER	< 10.0	
	03/17/92	ATI-P	< 0.5	
	04/28/92	ATI-P	< 0.5	
5-06B	10/89	ER	< 1.0	
	12/89	ER	180	1221
	01/90	ER	100	1221
	04/90	ER	170	

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	Total PCB Concentration ($\mu\text{g/L}$)	Aroclor Reported
	06/90	ER	39	1242
	08/90	AS	1.1	1242
	11/90	EH	65	1242
	01/91	EH	39	1242
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	07/91	EH	< 1.0	
	09/91	EH	< 1.0	
	10/91	ER	250	1221
	11/91	ER	140	1221
	11/91	ATI	210	1221
	12/91	ER	270	1221
	01/09/92	ER	< 1.0	
	01/27/92	ER	190	1221
	02/20/92	ER	200	1221
	03/18/92	ATI-P	140	1221
	04/29/92	ATI-P	150	1221
	10/14/92	ATI-P	280	1221
	12/14/94	NET	88	1016
	06/27/95	NET	26.3	1242
	10/06/95	NET	30.1	1242
	11/21/95	NET	44.4	1242
	02/22/96	NET	< 0.065	
	04/17/96	NET	< 0.065	
	05/23/96	NET	78	1221
	08/15/96	NET	166.7	1221
(NMOCD split sample)	08/15/96	AEN	260	1221
	11/22/96	EPIC	42.8	1221
	02/28/97	EPIC	48.2	1221
	05/22/97	EPIC	7.29	1221
	08/20/97	EPIC	16.5	1221
5-06C	11/23/97	EPIC	160.0/114.0	1221/1242
	12/09/97	HALL	65	1232
	01/08/98	HALL	220	1221
	02/12/98	HALL	320	1221
	06/11/98	HALL	180	1221
	10/02/98	HALL	29	1221
	04/29/99	OAL	7.1/320	1016/1221
	10/14/99	OAL	14/300	1016/1221
5-12B	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	Total PCB Concentration ($\mu\text{g/L}$)	Aroclor Reported
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
5-13B	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
5-14B	08/90	AS	< 0.1	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
5-15B	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
5-16B	08/90	AS	< 0.1	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	02/20/92	ER	< 1.0	
	03/18/92	ATI-P	< 5.0	
	04/29/92	ATI-P	< 10.0	
5-17B	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	Total PCB Concentration ($\mu\text{g/L}$)	Aroclor Reported
	06/91	EH	< 1.0	
	02/19/92	ER	< 1.0	
	03/17/92	ATI-P	< 0.5	
	04/28/92	ATI-P	< 0.5	
	10/07/92	ATI-P	< 0.5	
	10/06/95	NET	< 0.65	
	11/20/95	NET	< 0.065	
	02/20/96	NET	< 0.065	
	05/21/96	NET	< 0.065	
	08/14/96	NET	< 0.70	
	11/20/96	EPIC	< 0.065	
	02/28/97	EPIC	< 0.065	
	05/21/97	EPIC	< 0.065	
	08/20/97	EPIC	< 0.65	
	11/18/97	EPIC	< 0.65	
	02/11/98	HALL	< 1.0	
	06/10/98	HALL	< 1.0	
	10/01/98	HALL	< 1.0	
	04/28/99	OAL	< 0.5	
	10/13/99	OAL	< 0.5	
5-18B	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	06/91	EH	< 1.0	
5-19B	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	02/20/92	ER	< 1.0	
	03/19/92	ATI-P	< 0.5	
	04/29/92	ATI-P	< 0.5	
5-20B	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	Total PCB Concentration ($\mu\text{g}/\text{L}$)	Aroclor Reported
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
5-22B	10/90	AS	2.2	1242
	01/91	EH	13	1248
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	07/91	EH	< 1.0	
	09/91	EH	< 1.0	
	10/91	ER	< 1.0	
	11/91	ER	< 1.0	
	12/91	ER	< 1.0	
	01/10/92	ER	< 1.0	
	01/28/92	ER	< 1.0	
	02/19/92	ER	< 1.0	
	03/18/92	ATI-P	< 0.5	
	04/28/92	ATI-P	< 0.5	
5-23B	10/90	AS	30	1254
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
5-24B	10/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab	Total PCB Concentration ($\mu\text{g}/\text{L}$)	Aroclor Reported
5-37I	05/21/96	NET	< 6.5	

† Lab Designations
 ABB = ASEA Brown Boveri
 AEN = American Environmental Network, Inc. (Albuquerque)
 AS = Assaigai Laboratories (Albuquerque)
 ATI-A = Analytical Technologies, Inc. (Albuquerque)
 ATI-P = Analytical Technologies, Inc. (Phoenix)
 ER = Enseco (Rocky Mountain Analytical)
 EH = Enseco (Houston)
 HEAL = Hall Environmental Analysis Laboratory (Albuquerque)
 PA = Paragon Analytics, Inc. (Fort Collins)
 NET = National Environmental Testing, Inc. (Carrollton, Texas)
 EPIC = EPIC Laboratories, Inc. (Carrollton, Texas)
 OAL = Oregon Analytical Laboratory
 ND = Not detected
 ‡ Total PCB includes Aroclor 1016, 1221, 1232, 1242, 1248, 1254, and 1260

Table 5. Summary of Quality Assurance Program Results
Thoreau Compressor Station No. 5

Well ID	Date	Replicate ID	Lab	Concentration ($\mu\text{g/L}$)										
				PCBs	Aroclor	RL	Benzene	RL	Toluene	RL	Ethylbenzene	RL	Total Xylenes	RL
5-24B	5/22/1991	5-24B	EH	ND	---	0.50	4.3	0.50	ND	0.50	ND	0.50	1.3	1.0
	5/22/1991	91-5-22-5-24BI	EH	ND	---	0.50	130	5.0	ND	0.50	ND	0.50	9.4	1.0
5-17B	5/22/1991	5-17B	EH	ND	---	0.50	ND	0.50	ND	0.50	ND	0.50	ND	1.0
	5/22/1991	91-5-22-5-17BI	EH	ND	---	0.50	ND	0.50	ND	0.50	ND	0.50	ND	1.0
5-02B	7/24/91	5-02B	EH	ND	---	0.50	830	250	1200	250	150	25	1300	50
	7/24/91	9107245-2BR	EH	ND	---	0.50	680	50	1000	50	73	50	670	100
5-18B	10/11/91	5-18B	ER	NA	---	NA	1200	25	ND	25	ND	25	130	25
	10/11/91	91110115 18BR	ER	NA	---	NA	1200	25	ND	25	ND	25	110	25
5-04B	10/3/91	5-04B	ER	ND	---	0.50	180	5.0	ND	5.0	7.8	5.0	48	5.0
	10/3/91	9110035-4R	ER	ND	---	0.50	86	2.5	2.5	2.5	6.5	2.5	40	2.5
5-06B	11/5/91	5-06B	ER	140	1221	100	1.4	0.50	ND	0.50	ND	0.50	6.0	0.50
	11/5/91	6-99	ER	ND	---	1.0	1.8	0.50	ND	0.50	ND	0.50	14	0.50
5-06B	12/10/91	5-06B	ER	270	1221	100	ND	0.50	ND	0.50	ND	0.50	5.0	0.50
	12/10/91	9112105-99	ER	170	1221	100	ND	0.50	ND	0.50	ND	0.50	5.4	0.50
5-01B	1/9/92	5-01B	ER	ND	---	1.0	ND	0.50	ND	0.50	ND	0.50	ND	0.50
	1/9/92	5-99	ER	ND	---	1.0	ND	0.50	ND	0.50	ND	0.50	ND	0.50
5-01B	2/20/92	5-01B	ER	82	1221	10	ND	0.50	ND	0.50	ND	0.50	5.2	0.50
	2/20/92	5-99	ER	87	1221	10	ND	0.50	ND	0.50	ND	0.50	6.7	0.50
5-06B	1/27/92	5-06B	ER	190	1221	100	1.3	0.50	ND	0.50	ND	0.50	2.6	0.50
	1/27/92	9201275-99	ER	250	1221	100	3.0	0.50	ND	0.50	ND	0.50	13	0.50
5-01B	3/18/92	5-01B	ATI	54	1221	2.5	ND	0.50	ND	0.50	ND	0.50	3.3	0.50
	3/18/92	5-99	ATI	65	1221	2.5	ND	0.50	ND	0.50	ND	0.50	3.9	0.50
5-06B	4/29/92	5-06B	ATI	150	1221	0.50	1.4	0.50	ND	0.50	ND	0.50	3.6	0.50
	4/29/92	5-99	ATI	150	1221	0.50	1.3	0.50	ND	0.50	ND	0.50	2.0	0.50
5-06B	10/14/92	5-06B	ATI	280	1221	5.0	1.0	0.50	ND	0.50	ND	0.50	2.8	0.50
	10/14/92	5-99	ATI	270	1221	5.0	1.0	0.50	ND	0.50	ND	0.50	2.6	0.50
5-06B	12/14/94	5-06B	HEAL	NA	---	NA	4.3	0.50	ND	0.50	ND	0.50	0.7	0.50
	12/14/94	5-99	HEAL	NA	---	NA	3.2	0.50	ND	0.50	ND	0.50	ND	0.50
5-48B	10/06/95	5-48B	HEAL	NA	---	NA	550	12.5	940	12.5	290	12.5	1900	12.5
	10/06/95	5-99	HEAL	NA	---	NA	730	20	1000	20	290	20	2300	20
5-02B	11/21/95	5-02B	HEAL	NA	---	NA	740	0.50	2900	0.50	160	0.50	1100	0.50
	11/21/95	5-99	HEAL	NA	---	NA	670	0.50	2000	0.50	120	0.50	990	0.50
5-06B	11/21/95	5-06B	HEAL/NET	44.4	1242	0.50	6.2	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	11/21/95	5-99	HEAL/NET	37.8	1242	0.50	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-01B	2/22/96	5-01B	HEAL/NET	<0.065	---	0.065	4.3	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	2/22/96	5-99	HEAL/NET	<0.065	---	0.065	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-48B	2/21/96	5-48B	HEAL	NA	---	NA	690	0.50	1100	0.50	550	0.50	3300	0.50
	2/21/96	5-98	HEAL	NA	---	NA	580	0.50	1200	0.50	540	0.50	3100	0.50
5-06B	05/23/96	5-06B	HEAL/NET	78	---	0.065	1.2	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	05/23/96	5-99	HEAL/NET	<0.065	---	0.065	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-02B	05/23/96	5-02B	HEAL	NA	---	NA	380	0.50	120	0.50	1300	0.50	1100	0.50
	05/23/96	5-98	HEAL	NA	---	NA	520	0.50	160	0.50	1600	0.50	1200	0.50
5-01B	08/14/96	5-01B	HEAL/NET	14.2	1221	NA	<0.5	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	08/14/96	5-99	HEAL/NET	5.61	1221	NA	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-48B	08/14/96	5-48B	HEAL	NA	---	NA	770	0.50	7600	0.50	340	0.50	3900	0.50
	08/14/96	5-98	HEAL	NA	---	NA	630	0.50	7900	0.50	300	0.50	3600	0.50
5-06B	11/22/96	5-06B	HEAL/NET	42.8	1221	0.065	0.9	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	11/22/96	5-99	HEAL/NET	34.1	1221	0.065	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-48B	11/21/96	5-48B	HEAL	NA	---	NA	960	0.50	8500	0.50	330	0.50	3900	0.50
	11/21/96	5-98	HEAL	NA	---	NA	970	0.50	8800	0.50	330	0.50	4000	0.50
5-06B	2/28/97	5-06B	HEAL/NET	48.2	1221	0.065	0.9	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	2/28/97	5-99	HEAL/NET	49.7	1221	0.065	0.8	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
5-02B	2/28/97	5-06B	HEAL	NA	---	NA	260	0.50	500	0.50	90	0.50	680	0.50
	2/28/97	5-98	HEAL	NA	---	NA	290	0.50	510	0.50	91	0.50	690	0.50
5-06B	5/22/97	5-06B	HEAL/NET	7.29	1221	0.065	0.7	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	5/22/97	5-99B	HEAL/NET	5.18	1221	0.065	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-18B	5/22/97	5-18B	HEAL	NA	---	NA	<0.5	0.50	4.7	0.50	88	0.50	0.8	0.50
	5/22/97	5-98	HEAL	NA	---	NA	<0.5	0.50	4.3	0.50	89	0.50	0.8	0.50
5-06B	8/20/97	5-06B	HEAL/EPIC	16.5	1221	0.65	0.7	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	8/20/97	5-99B	HEAL/EPIC	8.1	1221	0.065	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-16B	8/20/97	5-16B	HEAL	NA	---	NA	130	0.50	820	0.50	120	0.50	1300	0.50
	8/20/97	5-98	HEAL	NA	---	NA	130	0.50	790	0.50	120	0.50	1200	0.50
5-48B	11/19/97	5-48B	HEAL	NA	---	NA	1400	0.50	6900	0.50	330	0.50	3900	0.50
	11/19/97	5-98	HEAL	NA	---	NA	1600	0.50	7300	0.50	330	0.50	4100	0.50
5-16B	2/11/98	5-16B	HEAL	NA	---	NA	41	0.50	360	0.50	90	0.50	660	0.50
	2/11/98	5-98	HEAL	NA	---	NA	45	0.50	350	0.50	91	0.50	650	0.50
5-06C	2/12/98	5-06C	HEAL	320	1221	5.0	2.2	0.50	1.4	0.50	<0.5	0.50	1.3	0.50
	2/12/98	5-99	HEAL	280	1221	5.0	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-48B	6/11/98	5-48B	HEAL	NA	---	NA	2100	0.50	8000	0.50	200	0.50	3800	0.50
	6/11/98	5-98	HEAL	NA	---	NA	2000	0.50	7900	0.50	210	0.50	3800	0.50
5-06C	6/11/98	5-06C	HEAL	180	1221	5.0	1.2	0.50	0.6	0.50	<0.5	0.50	<0.5	0.50
	6/11/98	5-99	HEAL	190	1221	5.0	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-02C	10/01/98	5-02C	HEAL	NA	---	NA	1300	0.50	3500	0.50	230	0.50	1800	0.50
	10/01/98	5-98	HEAL	29	1221	5.0	1.5	0.50	1.3	0.50	<0.5	0.50	1800	0.50
5-06C	10/01/98	5-06C	HEAL	33	1221	5.0	NA	0.50	NA	0.50	NA	0.50	<0.5	0.50

Table 5. Summary of Quality Assurance Program Results
Thoreau Compressor Station No. 5

Well ID	Date	Replicate ID	Lab	Concentration ($\mu\text{g/L}$)											
				PCBs	Aroclor	RL	Benzene	RL	Toluene	RL	Ethylbenzene	RL	Total Xylenes	RL	RL
5-02C	4/28/99 4/28/99	5-02C 5-98	OAL OAL	NA NA	---	NA	1500 1500	1 1	4400 4400	1 1	260 250	1 1	2500 2400	1 1	
5-06C	4/28/99 4/28/99	5-06C 5-99	OAL OAL	7.1/320 6.3/280	1061/1221 1061/1221	1.5/1.0 0.5/1.0	<1 NA	1 1	<1 NA	1 1	<1 NA	1 1	<1 NA	1 1	
5-48B	10/12/99 10/12/99	5-48B 5-98	OAL OAL	NA NA	---	NA	1000 960	50 50	1900 1800	100 100	320 300	100 100	2900 2600	200 200	
5-06C	10/14/99 10/14/99	5-06C 5-99	OAL OAL	14/300 14/290	1061/1221 1061/1221	5.0/10 5.0/10	<1 NA	1 1	<2 NA	2 2	<2 NA	2 2	<4 NA	4 4	

t Lab Designations:
 ATI-A = Analytical Technologies, Inc. (Albuquerque)
 ATI-P = Analytical Technologies, Inc. (Phoenix)
 ER = Enseco (Rocky Mountain Analytical)
 EH = Enseco (Houston)
 HEAL = Hall Environmental Analysis Laboratory (Albuquerque)
 NET = National Environmental Testing, INC.
 OAL = Oregon Analytical Laboratory
 NA = Not Analyzed

Table 6. Monitor Well Sampling Locations, Frequency, and Sample Analysis Plan
Thoreau Compressor Station No. 5

Well ID	Analytical Requirements		Benzene (ppb) October 1999	Comments
	1st Semiannual Event	2nd Semiannual Event		
5-01B	---	---	na	well replaced by 5-01C
5-01C	BTEX & PCBs	BTEX & PCBs	<1	
5-02B	---	---	na	SVE well; not enough water
5-02C	BTEX	BTEX	1300	
5-03B	---	BTEX	<1	clean upgradient well
5-04B	BTEX	BTEX	na	SVE well; no sample collected since 02/96
5-05B	BTEX	BTEX	<1	
5-06B	---	---	na	well replaced by 5-06C
5-06C	BTEX & PCBs	BTEX & PCBs	<1	
5-12B	---	BTEX	<1	clean perimeter well
5-13B	BTEX	BTEX	<1	
5-14B	---	BTEX	<1	clean perimeter well
5-15B	---	BTEX	<1	clean perimeter well
5-16B	BTEX	BTEX	610	
5-17B	BTEX & PCBs	BTEX & PCBs	<1	
5-18B	BTEX	BTEX	17	
5-19B	BTEX	BTEX	13	
5-20B	BTEX	BTEX	<1	
5-22B	---	---	na	not enough water to collect a sample
5-23B	---	BTEX	<1	clean downgradient well
5-24B	BTEX	BTEX	<1	
5-34B	BTEX	BTEX	na	SVE well; no sample collected since 12/94
5-35B	---	---	na	pilot test well not suitable for sampling
5-36E	---	---	na	pilot test well not suitable for sampling
5-37I	---	---	na	pilot test well not suitable for sampling
5-41B	---	---	na	clean far downgradient well
5-47B	---	---	na	well abandoned
5-48B	BTEX	BTEX	1000	
5-57B	---	---	na	well abandoned
5-58B	---	---	na	well abandoned
SVE-1	BTEX	BTEX	na	SVE well not previously sampled
SVE-2	---	---	na	SVE well outside of affected area
SVE-3	---	---	na	SVE well near well 5-48B
SVE-4	---	---	na	SVE well near well 5-16B

Notes:

- 1) na - not available
- 2) BTEX - BTEX Compounds by EPA Method 8021B
- 3) PCBs - Polychlorinated Biphenyls by EPA Method 8081
- 4) "Comments" are provided for wells that will not be sampled during one or more events

Report of Groundwater Remediation Activities

**Transwestern Pipeline Company
Thoreau Compressor Station**

Attachment #1

**Laboratory Reports for
Groundwater Sampling Events**



L13495

October 28, 1999

George Robinson
Enron Gas Pipeline Group
333 Clay St., Room 3142
P.O. Box 1188
Houston, TX 77002

Phone: (713) 646-7327
FAX: (713) 646-7867

Re: Laboratory Sample Analysis

Project: Transwestern Pipeline, Thoreau Station 5

Project Manager: George Robinson

Dear George Robinson:

On October 14 through 16, 1999, OAL received twenty (20) water samples for analysis. The samples were analyzed utilizing EPA, ASTM, or equivalent methodology.

Should you have any questions concerning the results in this report, please contact us at (503) 590-5300. Refer to OAL login number L13495.

Sincerely,

Doug McKenzie
Client Manager

OREGON ANALYTICAL LABORATORY

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www.oalab.com • Toll-Free 1-800-644-0967



L13495

Sample Summary

Sample ID	Lab #	Description	Sampled	Received
5-03B	L13495-1	Water	10/11/1999 16:30	10/14/1999 13:00
5-24B	L13495-2	Water	10/11/1999 18:30	10/14/1999 13:00
5-23	L13495-3	Water	10/12/1999 09:40	10/14/1999 13:00
5-14	L13495-4	Water	10/12/1999 11:05	10/14/1999 13:00
5-13	L13495-5	Water	10/12/1999 11:45	10/14/1999 13:00
5-12	L13495-6	Water	10/12/1999 13:15	10/14/1999 13:00
5-20	L13495-7	Water	10/12/1999 14:25	10/14/1999 13:00
5-98	L13495-8	Water	10/12/1999 15:30	10/14/1999 13:00
5-18	L13495-9	Water	10/12/1999 16:25	10/14/1999 13:00
5-19	L13495-10	Water	10/12/1999 17:10	10/14/1999 13:00
5-48	L13495-11	Water	10/12/1999 18:30	10/14/1999 13:00
5-15	L13495-12	Water	10/12/1999 18:45	10/14/1999 13:00
5-17B	L13495-13	water	10/13/1999 14:30	10/16/1999 09:38
5-16B	L13495-14	water	10/13/1999 15:10	10/16/1999 09:38
5-02C	L13495-15	water	10/13/1999 17:45	10/16/1999 09:38
5-99	L13495-16	water	10/14/1999 10:00	10/16/1999 09:38
5-05B	L13495-17	water	10/14/1999 11:45	10/16/1999 09:38
5-01C	L13495-18	water	10/14/1999 11:15	10/16/1999 09:38
5-06C	L13495-19	water	10/14/1999 12:25	10/16/1999 09:38
TRIP BLANK	L13495-20	water	10/14/1999	10/16/1999 09:38

Definition of Terms

- D Reported value is based on a dilution.
ND Analytical result was below the reporting limit.
P Sample was unpreserved.

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L13495

Laboratory Certifications*

<u>Agency</u>	<u>Number</u>
Florida Department of Health	ID #E87569
Oregon Health Division	State Lab #OR020
Washington Department of Ecology	Lab Accreditation #C136
Washington Department of Health	Washington Code #136

* Current Scopes of Accreditation are available upon request.

Analysts

<u>Initials</u>	<u>Analyst</u>	<u>Title</u>
WB	Wayne Boyle	Chemist

Method Summary

<u>Analysis</u>	<u>Method</u>
BTEX	EPA 8021
Polychlorinated Biphenyl (PCB)	EPA 608/8082

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Client: **Enron Gas Pipeline Group**
 Contact: **George Robinson**

Project: **Transwestern Pipeline,
 Thoreau Station 5**

BTEX

by EPA 8021

Sample ID	Matrix						Lab Number
CAS	Analyte	Result	Reporting Limit	Units (ppb)	Dilution	Comment	

		Sampled: 10/11/1999 Analyzed: 10/22/1999 by WB					
5-03B	Water						L13495-1
71-43-2	Benzene	ND	1.	µg/L			
108-88-3	Toluene	ND	2.	µg/L			
100-41-4	Ethylbenzene	ND	2.	µg/L			
1330-20-7	Total Xylenes	ND	4.	µg/L			
	Surrogate			Recovery		Limit	
	Trifluorotoluene			93.%	50 - 150		
	4-Bromofluorobenzene			101.%	50 - 150		

		Sampled: 10/11/1999 Analyzed: 10/22/1999 by WB					
5-24B	Water						L13495-2
71-43-2	Benzene	ND	1.	µg/L		P	
108-88-3	Toluene	ND	2.	µg/L			
100-41-4	Ethylbenzene	ND	2.	µg/L			
1330-20-7	Total Xylenes	ND	4.	µg/L			
	Surrogate			Recovery		Limit	
	Trifluorotoluene			93.%	50 - 150		
	4-Bromofluorobenzene			108.%	50 - 150		

		Sampled: 10/12/1999 Analyzed: 10/25/1999 by WB					
5-23	Water						L13495-3
71-43-2	Benzene	ND	1.	µg/L			
108-88-3	Toluene	ND	2.	µg/L			
100-41-4	Ethylbenzene	ND	2.	µg/L			
1330-20-7	Total Xylenes	ND	4.	µg/L			
	Surrogate			Recovery		Limit	
	Trifluorotoluene			102.%	50 - 150		
	4-Bromofluorobenzene			109.%	50 - 150		

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Client: **Enron Gas Pipeline Group**
 Contact: **George Robinson**

Project: **Transwestern Pipeline,
 Thoreau Station 5**

BTEX

by EPA 8021

Sample ID	Matrix		Lab Number			
CAS	Analyte	Result	Reporting Limit	Units (ppb)	Dilution	Comment
5-14				Sampled: 10/12/1999		
	Water			Analyzed: 10/25/1999 by WB		L13495-4
71-43-2	Benzene	ND	1.	µg/L		
108-88-3	Toluene	ND	2.	µg/L		
100-41-4	Ethylbenzene	ND	2.	µg/L		
1330-20-7	Total Xylenes	ND	4.	µg/L		
	Surrogate		Recovery		Limit	
	Trifluorotoluene		106.%		50 - 150	
	4-Bromofluorobenzene		114.%		50 - 150	
5-13				Sampled: 10/12/1999		
	Water			Analyzed: 10/25/1999 by WB		L13495-5
71-43-2	Benzene	ND	1.	µg/L		
108-88-3	Toluene	ND	2.	µg/L		
100-41-4	Ethylbenzene	ND	2.	µg/L		
1330-20-7	Total Xylenes	ND	4.	µg/L		
	Surrogate		Recovery		Limit	
	Trifluorotoluene		103.%		50 - 150	
	4-Bromofluorobenzene		106.%		50 - 150	
5-12				Sampled: 10/12/1999		
	Water			Analyzed: 10/25/1999 by WB		L13495-6
71-43-2	Benzene	ND	1.	µg/L		
108-88-3	Toluene	ND	2.	µg/L		
100-41-4	Ethylbenzene	ND	2.	µg/L		
1330-20-7	Total Xylenes	ND	4.	µg/L		
	Surrogate		Recovery		Limit	
	Trifluorotoluene		100.%		50 - 150	
	4-Bromofluorobenzene		108.%		50 - 150	

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Client: **Enron Gas Pipeline Group**
 Contact: **George Robinson**

Project: **Transwestern Pipeline,
 Thoreau Station 5**

BTEX by EPA 8021

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Dilution	Lab Number
CAS	Analyte					Comment

5-20	Water				Sampled: 10/12/1999	
					Analyzed: 10/25/1999 by WB	L13495-7
71-43-2	Benzene	ND	1.	µg/L		
108-88-3	Toluene	ND	2.	µg/L		
100-41-4	Ethylbenzene	ND	2.	µg/L		
1330-20-7	Total Xylenes	ND	4.	µg/L		
	Surrogate			Recovery	Limit	
	Trifluorotoluene			111.%	50 - 150	
	4-Bromofluorobenzene			109.%	50 - 150	

5-98	Water				Sampled: 10/12/1999	
					Analyzed: 10/25/1999 by WB	L13495-8
71-43-2	Benzene	960	50.	µg/L	50.	D,P
108-88-3	Toluene	1,800	100	µg/L	50.	D
100-41-4	Ethylbenzene	300	100	µg/L	50.	D
1330-20-7	Total Xylenes	2,600	200	µg/L	50.	D
	Surrogate			Recovery	Limit	
	Trifluorotoluene			93.%	50 - 150	
	4-Bromofluorobenzene			105.%	50 - 150	

5-18	Water				Sampled: 10/12/1999	
					Analyzed: 10/25/1999 by WB	L13495-9
71-43-2	Benzene	17.	1.	µg/L		
108-88-3	Toluene	ND	2.	µg/L		
100-41-4	Ethylbenzene	5.	2.	µg/L		
1330-20-7	Total Xylenes	42.	4.	µg/L		
	Surrogate			Recovery	Limit	
	Trifluorotoluene			60.%	50 - 150	
	4-Bromofluorobenzene			103.%	50 - 150	

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Client: **Enron Gas Pipeline Group**
 Contact: **George Robinson**

Project: **Transwestern Pipeline,**
Thoreau Station 5

BTEX by EPA 8021

<i>Sample ID</i>		<i>Matrix</i>	<i>Lab Number</i>				
<i>CAS</i>	<i>Analyte</i>		<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Dilution</i>	<i>Comment</i>
<u>5-19</u>		<i>Water</i>					
71-43-2	Benzene		13.	1.	µg/L		
108-88-3	Toluene		ND	2.	µg/L		
100-41-4	Ethylbenzene		ND	2.	µg/L		
1330-20-7	Total Xylenes		ND	4.	µg/L		
		<i>Surrogate</i>			<i>Recovery</i>		<i>Limit</i>
		Trifluorotoluene			87.%		50 - 150
		4-Bromofluorobenzene			101.%		50 - 150
<u>5-48</u>		<i>Water</i>					
71-43-2	Benzene		1,000	50.	µg/L	50.	D
108-88-3	Toluene		1,900	100	µg/L	50.	D
100-41-4	Ethylbenzene		320	100	µg/L	50.	D
1330-20-7	Total Xylenes		2,900	200	µg/L	50.	D
		<i>Surrogate</i>			<i>Recovery</i>		<i>Limit</i>
		Trifluorotoluene			94.%		50 - 150
		4-Bromofluorobenzene			107.%		50 - 150
<u>5-15</u>		<i>Water</i>					
71-43-2	Benzene		ND	1.	µg/L		
108-88-3	Toluene		ND	2.	µg/L		
100-41-4	Ethylbenzene		ND	2.	µg/L		
1330-20-7	Total Xylenes		ND	4.	µg/L		
		<i>Surrogate</i>			<i>Recovery</i>		<i>Limit</i>
		Trifluorotoluene			98.%		50 - 150
		4-Bromofluorobenzene			109.%		50 - 150

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Client: **Enron Gas Pipeline Group**
 Contact: **George Robinson**

Project: **Transwestern Pipeline,
 Thoreau Station 5**

BTEX by EPA 8021

Sample ID	Matrix						Lab Number
CAS	Analyte	Result	Reporting Limit	Units (ppb)	Dilution	Comment	

5-17B	water						Sampled: 10/13/1999 Analyzed: 10/25/1999 by WB L13495-13
71-43-2	Benzene	ND	1.	µg/L			
108-88-3	Toluene	ND	2.	µg/L			
100-41-4	Ethylbenzene	ND	2.	µg/L			
1330-20-7	Total Xylenes	ND	4.	µg/L			
	Surrogate			Recovery			
	Trifluorotoluene			104.%		50 - 150	
	4-Bromofluorobenzene			114.%		50 - 150	

5-16B	water						Sampled: 10/13/1999 Analyzed: 10/25/1999 by WB L13495-14
71-43-2	Benzene	610	50.	µg/L	50.	D	
108-88-3	Toluene	630	100	µg/L	50.	D	
100-41-4	Ethylbenzene	79.	20.	µg/L	10.	D	
1330-20-7	Total Xylenes	600	200	µg/L	50.	D	
	Surrogate			Recovery		Limit	
	Trifluorotoluene			99.%		50 - 150	
	4-Bromofluorobenzene			106.%		50 - 150	

5-02C	water						Sampled: 10/13/1999 Analyzed: 10/25/1999 by WB L13495-15
71-43-2	Benzene	1,300	50.	µg/L	50.	D,P	
108-88-3	Toluene	3,900	100	µg/L	50.	D	
100-41-4	Ethylbenzene	320	100	µg/L	50.	D	
1330-20-7	Total Xylenes	3,100	200	µg/L	50.	D	
	Surrogate			Recovery		Limit	
	Trifluorotoluene			88.%		50 - 150	
	4-Bromofluorobenzene			94.%		50 - 150	

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Client: **Enron Gas Pipeline Group**
 Contact: **George Robinson**

Project: **Transwestern Pipeline,**
Thoreau Station 5

BTEX by EPA 8021

<i>Sample ID</i>	<i>Matrix</i>						<i>Lab Number</i>
<i>CAS</i>	<i>Analyte</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Dilution</i>	<i>Comment</i>	

5-05B	<i>water</i>						Sampled: 10/14/1999
							Analyzed: 10/25/1999 by WB
71-43-2	Benzene	ND	1.	µg/L			L13495-17
108-88-3	Toluene	ND	2.	µg/L			
100-41-4	Ethylbenzene	ND	2.	µg/L			
1330-20-7	Total Xylenes	ND	4.	µg/L			
	<i>Surrogate</i>			<i>Recovery</i>		<i>Limit</i>	
	Trifluorotoluene			101.%		50 - 150	
	4-Bromofluorobenzene			114.%		50 - 150	

5-01C	<i>water</i>						Sampled: 10/14/1999
							Analyzed: 10/25/1999 by WB
71-43-2	Benzene	ND	1.	µg/L			L13495-18
108-88-3	Toluene	ND	2.	µg/L			
100-41-4	Ethylbenzene	ND	2.	µg/L			
1330-20-7	Total Xylenes	ND	4.	µg/L			
	<i>Surrogate</i>			<i>Recovery</i>		<i>Limit</i>	
	Trifluorotoluene			103.%		50 - 150	
	4-Bromofluorobenzene			110.%		50 - 150	

5-06C	<i>water</i>						Sampled: 10/14/1999
							Analyzed: 10/25/1999 by WB
71-43-2	Benzene	ND	1.	µg/L			L13495-19
108-88-3	Toluene	ND	2.	µg/L			
100-41-4	Ethylbenzene	ND	2.	µg/L			
1330-20-7	Total Xylenes	ND	4.	µg/L			
	<i>Surrogate</i>			<i>Recovery</i>		<i>Limit</i>	
	Trifluorotoluene			99.%		50 - 150	
	4-Bromofluorobenzene			108.%		50 - 150	

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Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Transwestern Pipeline,
Thoreau Station 5**

BTEX

by EPA 8021

Sample ID	Matrix						Lab Number
CAS	Analyte	Result	Reporting Limit	Units (ppb)	Dilution	Comment	

TRIP BLANK	water						
71-43-2	Benzene	ND	1.	µg/L			
108-88-3	Toluene	ND	2.	µg/L			
100-41-4	Ethylbenzene	ND	2.	µg/L			
1330-20-7	Total Xylenes	ND	4.	µg/L			
	Surrogate			Recovery			
	Trifluorotoluene			105.%		50.- 150	
	4-Bromofluorobenzene			110.%		50 - 150	

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Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Transwestern Pipeline,
Thoreau Station 5**

Polychlorinated Biphenyl (PCB) by EPA 608/8082

<i>Sample ID</i>	<i>Matrix</i>	<i>Lab Number</i>				
CAS	Analyte	Result	Reporting Limit	Units (ppb)	Dilution	Comment

5-17B	water					
1336-36-3	Total PCB	ND	0.5	µg/L		
	Surrogate			Recovery	Limit	
	Tetrachloro-m-xylene			98.%	50 - 150	
	Decachlorobiphenyl			94.%	50 - 150	

5-17C	water					
12674-11-2	Aroclor 1016	14.	5.0	µg/L	10.	D
11104-28-2	Aroclor 1221	290	10.	µg/L	10.	D
1336-36-3	Aroclor Total	310	5.0	µg/L	10.	D
	Surrogate			Recovery	Limit	
	Tetrachloro-m-xylene			113.%	50 - 150	
	Decachlorobiphenyl			98.%	50 - 150	

5-01C	water					
12674-11-2	Aroclor 1016	4.9	0.5	µg/L		
11104-28-2	Aroclor 1221	3.5	1.0	µg/L		
1336-36-3	Aroclor Total	8.4	0.5	µg/L		
	Surrogate			Recovery	Limit	
	Tetrachloro-m-xylene			93.%	50 - 150	
	Decachlorobiphenyl			101.%	50 - 150	

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Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Transwestern Pipeline,
Thoreau Station 5**

Polychlorinated Biphenyl (PCB) **by EPA 608/8082**

<i>Sample ID</i>		<i>Matrix</i>	<i>Lab Number</i>				
<i>CAS</i>	<i>Analyte</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Dilution</i>	<i>Comment</i>	
<i>5-06C</i>	<i>water</i>						<i>Sampled: 10/14/1999 Extracted: 10/19/1999 Analyzed: 10/25/1999 by WB</i>
12674-11-2	Aroclor 1016	14.	5.0	µg/L	10.		<i>L13495-19</i>
11104-28-2	Aroclor 1221	300	10.	µg/L	10.		
1336-36-3	Aroclor Total	310	0.5	µg/L			
	Surrogate			Recovery		Limit	
	Tetrachloro-m-xylene			113.%		50 - 150	
	Decachlorobiphenyl			100.%		50 - 150	

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L13495

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Transwestern Pipeline, Thoreau Station 5**

**Batch Q.C.
Method Blank
BTEX/Water (ug/L)**

Analyte	Result	Reporting		Date Analyzed			
		Limit	Q				
Benzene	ND	1		10/22/99			
Toluene	ND	2					
Ethylbenzene	ND	2					
Xylenes	ND	4					
<hr/>							
Surrogates		% Recovery					
Trifluorotoluene		95					
Promofluorobenzene		100					
<hr/>							
Comments:	L13495-1 & 2.						

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L13495

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Transwestern Pipeline, Thoreau Station 5**

**Batch Q.C.
Method Blank
BTEX/Water (ug/L)**

Analyte	Reporting			Date Analyzed
	Result	Limit	Q	
Benzene	ND	1		10/25/99
Toluene	ND	2		
Ethylbenzene	ND	2		
Xylenes	ND	4		
Surrogates				
Trifluorotoluene	103			
Bromofluorobenzene	112			
Comments: L13495-3 through 20.				

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L13495

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Transwestern Pipeline, Thoreau Station 5**

Batch Q.C.

LCS

BTEX/Water (ug/L)

Analyte	Result	True Value	% Recovery	Q	Date	Analyzed
Benzene	8.7	10.0	87			
Toluene	9.2	10.0	92			
Ethylbenzene	9.2	10.0	92			
Xylenes	29.1	30.0	97			
Surrogates		% Recovery				
Trifluorotoluene		105				
Bromofluorobenzene		95				
Comments: L13495-1 through 17.						

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L13495

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Transwestern Pipeline, Thoreau Station 5**

Batch Q.C.

LCS

BTEX/Water (ug/L)

Analyte	Result	True Value	% Recovery	Q	Date Analyzed
Benzene	9.6	10.0	96		10/25/99
Toluene	10.3	10.0	103		
Ethylbenzene	10.4	10.0	104		
Xylenes	32.1	30.0	107		
<hr/>					
Surrogates		% Recovery			
Trifluorotoluene		107			
Bromofluorobenzene		103			
<hr/>					
Comments: L13495-18 through 20.					

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L13495

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Transwestern Pipeline, Thoreau Station 5**

Batch Q.C.

MS**BTEX/Water (ug/L)**

Analyte	Sample Result	MS Result	True Value	% Recovery	Q	Date Analyzed
Benzene	ND	9.0	10.0	90		10/22/99
Toluene	ND	9.4	10.0	94		
Ethylbenzene	ND	9.4	10.0	94		
Xylenes	ND	29.6	30.0	99		
<hr/>						
Surrogates		% Recovery	% Recovery			
Trifluorotoluene		91	108			
Dromofluorobenzene		99	98			
<hr/>						
Comments: L13495-1 through 17.						

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L13495

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Transwestern Pipeline, Thoreau Station 5**

Batch Q.C.

MS**BTEX/Water (ug/L)**

Analyte	Sample	MS	True Value	% Recovery	Q	Date Analyzed
	Result	Result				
Benzene	ND	10.6	10.0	106		10/25/99
Toluene	ND	10.6	10.0	106		
Ethylbenzene	ND	10.7	10.0	107		
Xylenes	ND	33.1	30.0	110		
Surrogates		% Recovery	% Recovery			
	Sample	MS				
Trifluorotoluene		103	117			
Bromofluorobenzene		110	105			
Comments:	L13495-18 through 20.					

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L13495

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Transwestern Pipeline, Thoreau Station 5**

Batch Q.C.

Duplicate

BTEX/Water (ug/L)

Analyte	Duplicate		Reporting		Date
	Result	Result	RPD	Limit	Q Analyzed
Benzene	ND	ND	NA	1	10/22/99
Toluene	ND	ND	NA	2	
Ethylbenzene	ND	ND	NA	2	
Xylenes	ND	ND	NA	4	
Surrogates		% Recovery	% Recovery		
		Sample	Duplicate		
Trifluorotoluene		91	92		
Bromoform		99	105		
Comments: L13495-1 through 6.					

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L13495

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Transwestern Pipeline, Thoreau Station 5**

Batch Q.C.

Duplicate

BTEX/Water (ug/L)

Analyte	Duplicate		Reporting		Date
	Result	Result	RPD	Limit	Q Analyzed
Benzene	ND	ND	NA	1	10/25/99
Toluene	ND	ND	NA	2	
Ethylbenzene	ND	ND	NA	2	
Xylenes	ND	ND	NA	4	
Surrogates	% Recovery		% Recovery		
	Sample	Duplicate			
Trifluorotoluene	111	104			
Bromofluorobenzene	109	103			
Comments: L13495-7 through 17.					

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L13495

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Transwestern Pipeline, Thoreau Station 5**

Batch Q.C.

Duplicate BTEX/Water (ug/L)

Analyte	Duplicate		RPD	Reporting Limit	Q	Date Analyzed
	Result	Result				
Benzene	ND	ND	NA	1		10/25/99
Toluene	ND	ND	NA	2		
Ethylbenzene	ND	ND	NA	2		
Xylenes	ND	ND	NA	4		
Surrogates		% Recovery	% Recovery			
		Sample	Duplicate			
Trifluorotoluene		103	108			
Perfluorobenzene		110	118			
Comments: L13495-18 through 20.						

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L13495

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Transwestern Pipeline, Thoreau Station 5**

**Batch Q.C.
Method Blank
PCB/Water (ug/L)**

Analyte	Result	Reporting Limit*	Reporting		Date Analyzed
			Q	Q	
PCB.....	ND	0.5			10/21/99
Surrogates					
% Recovery					
Tetrachloro-m-xylene		93			
Decachlorobiphenyl		90			
Comments:					
* Reporting limit based on individual Aroclors					

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L13495

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Transwestern Pipeline, Thoreau Station 5**

Batch Q.C.

LCS

PCB/Water (ug/L)

Analyte	Result	True Value	% Recovery	Q	Date Analyzed				
PCB	25.2	25.0	101		10/08/99				
<hr/>									
Surrogates		% Recovery							
Tetrachloro-m-xylene		100							
Decachlorobiphenyl		105							
<hr/>									
Comments:									

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Oregon Analytical Laboratory

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CHAIN OF CUSTODY RECORD

LABORATORY ANALYSIS REQUEST

Client Information		Billing Information	
Company	ENKOM	Contact	George Johnson
Contact	Sandy Sharp	Address	10235 West Mayenne St #250
Address	Houston TX 77040	Phone #	646-7252
Phone #	Fax #	Phone #	X7327
Fax #		Fax #	X7867

Project Information	
Project Name	TRANSWESTERN Pipeline
Project #	I Holland STA. S
P.O. #	
Comments	Colder 1 of 2
Provide Fax Results	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Remarks	
---------	--

Sample Identification	Date	Time	FOR LAB USE ONLY OAL Login #	# of Containers	Analyses	
					Matrix	Soil
1 5-03 B	10/11/99	1630	L1349513	1	Water	
2 5-24 B	10/11	1830		2		
3 5-23	10/12	0940		3		
4 5-14	10/12	1105		4		
5 5-13	10/12	1145		5		
6 5-12	10/12	1315		6		
7 5-20	10/12	1415		7		
8 5-98	10/12	1530		8		
9 5-18	10/12	1625		9		

[N] Normal - 10 working days	<input checked="" type="checkbox"/>
[S] Special - 5 working days	<input type="checkbox"/>
[R] Rush - 24-72 hrs	<input type="checkbox"/>
[O] Other -	<input type="checkbox"/>
NOTE: If quote number is not referenced, standard pricing will be applied.	
Quote #	
Provide Fax Results	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

<input type="checkbox"/> Courier	<input checked="" type="checkbox"/> UPS	<input type="checkbox"/> FedEx	<input type="checkbox"/> Other
Received @	OC	4oz/6oz. Jars	4oz
Appropriate Containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
30 VOA Vials			
Plastic Bottles			
Glass Bottles			
Other			

Relinquished	
Signature	Date
Print Name	Time
Company	
Received	
Signature	Date
Print Name	Time
Company	

Relinquished	
Signature	Date
Print Name	Time
Company	
Received	
Signature	Date
Print Name	Time
Company	

Relinquished	
Signature	Date
Print Name	Time
Company	
Received	
Signature	Date
Print Name	Time
Company	



**14855 SW Scholls Ferry Rd
Beaverton OR 97007
(503) 590-5300
FAX (503) 590-1404
1-800-644-0867**

**Oregon
Analytical
Laboratory**

CHAIN OF CUSTODY RECORD

LABORATORY ANALYSIS REQUEST

Client Information		Billing Information
Company <u>CYPRESS ENGINEERING</u>	Company <u>ONE</u>	Contact <u>Joe G</u>
Contact <u>Shelly Shiley</u>	Address _____	Address _____
Address <u>1023 West Commerce St.</u>	<u>Houston TX 77040</u>	Phone # <u>X732</u>
Phone # <u>713-674-7252</u>	Fax # <u>X77807</u>	Phone # <u>X732</u>

Billing Information
Company DNP Contact Slo BZ
Address _____ Phone # X7732

Client Information
Company CYCLES ENGINEERING
Contact Sherry Shiley
Address 1093 West 20th Street
City Houston
State TX
Zip 77060
Phone # 713-7252
Fax # X-77807

Client Information
Company Cyber
Contact Sherri
Address 10235
1153, House
Phone # 646-7

Project Information		Sampler's Name <u>Sandy Sharp</u>
Project Name <u>TENNESSEE Pipeline</u>		Signature <u>Sandy Sharp</u>
Project # <u>THOROUGHBRAKE STA. 5</u>		Quote # _____
P.O. #	Comments <u>COLDRK 1022</u>	
Fax # <u>17867</u>	Provide Fax Results <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If quote number is not referenced, standard pricing will be applied.		

Relinquished		Received	
Signature	Date	Signature	Date
Print Name	Time	Print Name	Time
Company		Company	
Relinquished		Received	
Signature	Date	Signature	Date
Print Name	Time	Print Name	Time
Company		Company	

<input type="checkbox"/> Courier	<input type="checkbox"/> UPS	<input checked="" type="checkbox"/> FedEx
Received @	6 °C	18 °C
Appropriate Containers		<input type="checkbox"/> Yes
g 4oz/Boz. Jars		<input type="checkbox"/> No
g VOA Vials		
		Plastic Bottles
		Glass Bottles
		Other _____



Oregon
Analytical
Laboratory
14855 SW Scholls Ferry Rd
Beaverton OR 97007
(503) 590-5300
FAX (503) 590-1404
1-800-644-0967

CHAIN OF CUSTODY RECORD

LABORATORY ANALYSIS REQUEST

Sampling: Grab Comp
OAL Hours _____
ISCO _____
Site Visit
www.oalab.com/oai

Client Information

Company Cypress Engineering
Contact Simon Sharp
Address 10335 West Little York Street
(713) 770-4040
Phone # 646-7252 Fax # X7667

Billing Information

Company ENCON
Contact George Johnson
Address Spane
Comments Cover 2 of 2

Project Information

Project Name TRANSPORT Pipeline
Project # THOREAU STA. 5
P.O. # _____
Phone # X7327 Fax # X7807

Remarks

Analyses

Sample Identification	Date	Time	FOR LAB USE ONLY OAL Login #	# of Containers	Water	Soil	Other (Note in Remarks)	Analyses				Turnaround	Remarks
								[N]	[S]	[R]	[O]		
1 5-17B	10/13/99	1550	L13495-134	X	X			3/6					
2 5-16B	10/13	1510	-14	3	X			3/6					
3 5-02C	10/13	1745	-15	3	X			3/6					
4 5-99	10/14	1000	-16	1	X			1/6					
5 5-05B	10/14	1145	-17	3	X			3/6					
6 5-01C	10/14	1115	-18	4	X			1/6					
7 5-06C	10/14	1225	-19	4	X			3/6					
8 TRIP BLANK			-20	2	X			2/6					
9													

Relinquished

<input type="checkbox"/> Courier	<input type="checkbox"/> UPS	<input checked="" type="checkbox"/> FedEx	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> Air	<input checked="" type="checkbox"/> O	<input type="checkbox"/> C	
<input type="checkbox"/> Appropriate Containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<input type="checkbox"/> 4oz./8oz. Jars			
<input checked="" type="checkbox"/> VOA Vials			
<input type="checkbox"/> Plastic Bottles			
<input checked="" type="checkbox"/> Glass Bottles			
<input type="checkbox"/> Other			

Relinquished

<input type="checkbox"/> Signature	Date	<input type="checkbox"/> Print Name	Date

Received

<input type="checkbox"/> Signature	Date	<input type="checkbox"/> Print Name	Date
<input checked="" type="checkbox"/> <u>Simon Sharp</u>	10/13/99	<input type="checkbox"/> Print Name	
	Time		
<input type="checkbox"/> Received			
<input checked="" type="checkbox"/> <u>Calum Evans</u>	10/16/99	<input type="checkbox"/> Print Name	
	Time		
<input type="checkbox"/> Company			
<input checked="" type="checkbox"/> <u>OAI</u>	10/13/99	<input type="checkbox"/> Print Name	
	Time		



L11156

May 17, 1999

George Robinson
Enron Gas Pipeline Group
333 Clay St., Room 3142
P.O. Box 1188
Houston, TX 77002

Phone: (713) 646-7327
FAX: (713) 646-7867

Re: Laboratory Sample Analysis

Project: Thoreau

Project Manager: George Robinson

Dear George Robinson:

On Friday, April 30, 1999, OAL received ten (10) water samples for analysis. The samples were analyzed utilizing EPA, ASTM, or equivalent methodology.

Should you have any questions concerning the results in this report, please contact us at (503) 590-5300. Refer to OAL login number L11156.

Sincerely,

Kami Morrow
Project Manager

Suzanne LeMay
QA/QC Officer

OREGON ANALYTICAL LABORATORY

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Sample Summary

Sample ID	Lab #	Description	Sampled	Received
5-19B	L11156-1	water	04/28/99 10:25	04/30/99
5-20B	L11156-2	water	04/28/99 13:00	04/30/99
5-17B	L11156-3	water	04/28/99 14:30	04/30/99
5-02C	L11156-4	water	04/28/99 16:30	04/30/99
5-48B	L11156-5	water	04/28/99 17:10	04/30/99
5-16B	L11156-6	water	04/28/99 18:15	04/30/99
5-99	L11156-7	water	04/28/99 08:30	04/30/99
5-01C	L11156-8	water	04/29/99 10:05	04/30/99
5-06C	L11156-9	water	04/29/99 10:55	04/30/99
TRIP BLANK	L11156-10	water		04/30/99

Definition of Terms

- D Reported value is based on a dilution.
MI Matrix interference.
ND Analytical result was below the reporting limit.
P Sample was unpreserved.

Analysts

Initials	Analyst	Title
WB	Wayne Boyle	Analyst

Method Summary

Analysis	Method
BTEX	EPA 8021
Polychlorinated Biphenyl (PCB)	EPA 608/8081

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Thoreau****BTEX**
by EPA 8021

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment

5-19B	Water	Sampled: 04/28/99 Analyzed: 05/06/99 by WB	L11156-1
Benzene	43.	1. $\mu\text{g/L}$	P
Toluene	ND	1. $\mu\text{g/L}$	
Ethylbenzene	1.	1. $\mu\text{g/L}$	
Total Xylenes	3.	1. $\mu\text{g/L}$	
	Surrogate	Recovery	Limit
	Trifluorotoluene	MI	50 - 150
	Bromofluorobenzene	85. %	50 - 150

5-20B	Water	Sampled: 04/28/99 Analyzed: 05/06/99 by WB	L11156-2
Benzene	ND	1. $\mu\text{g/L}$	P
Toluene	ND	1. $\mu\text{g/L}$	
Ethylbenzene	1.	1. $\mu\text{g/L}$	
Total Xylenes	ND	1. $\mu\text{g/L}$	
	Surrogate	Recovery	Limit
	Trifluorotoluene	89. %	50 - 150
	Bromofluorobenzene	107. %	50 - 150

5-17B	Water	Sampled: 04/28/99 Analyzed: 05/06/99 by WB	L11156-3
Benzene	ND	1. $\mu\text{g/L}$	P
Toluene	ND	1. $\mu\text{g/L}$	
Ethylbenzene	ND	1. $\mu\text{g/L}$	
Total Xylenes	ND	1. $\mu\text{g/L}$	
	Surrogate	Recovery	Limit
	Trifluorotoluene	86. %	50 - 150
	Bromofluorobenzene	97. %	50 - 150

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Client: **Enron Gas Pipeline Group**
 Contact: **George Robinson**

Project: **Thorea**

BTEX

by EPA 8021

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment

S-02C	Water				Sampled: 04/28/99 Analyzed: 05/06/99 by WB	L11156-4
Benzene		1,500	1.	µg/L	P	
Toluene		4,400	1.	µg/L		
Ethylbenzene		260	1.	µg/L		
Total Xylenes		2,500	1.	µg/L		
	Surrogate			Recovery	Limit	
	Trifluorotoluene			78.%	50 - 150	
	Bromofluorobenzene			89.%	50 - 150	

S-48B	Water				Sampled: 04/28/99 Analyzed: 05/06/99 by WB	L11156-5
Benzene		1,700	1.	µg/L	P	
Toluene		4,400	1.	µg/L		
Ethylbenzene		140	1.	µg/L		
Total Xylenes		3,100	1.	µg/L		
	Surrogate			Recovery	Limit	
	Trifluorotoluene			82.%	50 - 150	
	Bromofluorobenzene			97.%	50 - 150	

S-16B	Water				Sampled: 04/28/99 Analyzed: 05/06/99 by WB	L11156-6
Benzene		200	1.	µg/L	P	
Toluene		170	1.	µg/L		
Ethylbenzene		45.	1.	µg/L		
Total Xylenes		620	1.	µg/L		
	Surrogate			Recovery	Limit	
	Trifluorotoluene			79.%	50 - 150	
	Bromofluorobenzene			87.%	50 - 150	

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Client: **Enron Gas Pipeline Group**
 Contact: **George Robinson**

Project: **Thoreau**

BTEX

by EPA 8021

Sample ID	Matrix				Lab Number
		Result	Reporting Limit	Units (ppb)	Comment

		Sampled: 04/29/99 Analyzed: 05/06/99 by WB			L11156-8
5-01C	Water				
Benzene	ND	1.	µg/L	P	
Toluene	ND	1.	µg/L		
Ethylbenzene	ND	1.	µg/L		
Total Xylenes	ND	1.	µg/L		
	Surrogate		Recovery	Limit	
	Trifluorotoluene		87.%	50 - 150	
	Bromofluorobenzene		94.%	50 - 150	

		Sampled: 04/29/99 Analyzed: 05/07/99 by WB			L11156-9
5-06C	Water				
Benzene	ND	1.	µg/L	P	
Toluene	ND	1.	µg/L		
Ethylbenzene	ND	1.	µg/L		
Total Xylenes	ND	1.	µg/L		
	Surrogate		Recovery	Limit	
	Trifluorotoluene		98.%	50 - 150	
	Bromofluorobenzene		100.%	50 - 150	

		Received: 04/30/99 Analyzed: 05/07/99 by WB			L11156-10
TRIP BLANK	Water				
Benzene	ND	1.	µg/L	P	
Toluene	ND	1.	µg/L		
Ethylbenzene	ND	1.	µg/L		
Total Xylenes	ND	1.	µg/L		
	Surrogate		Recovery	Limit	
	Trifluorotoluene		100.%	50 - 150	
	Bromofluorobenzene		109.%	50 - 150	

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Client: *Enron Gas Pipeline Group*
Contact: *George Robinson*

Project: *Thoreau*

Polychlorinated Biphenyl (PCB)

by EPA 608/8081

Sample ID	Matrix	Lab Number			
Analyte		Result	Reporting Limit	Units (ppb)	Comment
S-17B	Water				Sampled: 04/28/99 Extracted: 05/03/99 Analyzed: 05/11/99 by WB L11156-3
Total PCB		ND	0.5	µg/L	
	Surrogate			Recovery	Limit
	Tetrachloro-m-xylene			99.%	50 - 150
	Decachlorobiphenyl			87.%	50 - 150
S-99	Water				Sampled: 04/28/99 Extracted: 05/03/99 Analyzed: 05/14/99 by WB L11156-4
Total PCB		280	5.0	µg/L	D
	Surrogate			Recovery	Limit
	Tetrachloro-m-xylene			128.%	50 - 150
	Decachlorobiphenyl			89.%	50 - 150
S-01C	Water				Sampled: 04/29/99 Extracted: 05/03/99 Analyzed: 05/14/99 by WB L11156-5
Total PCB		14.	0.5	µg/L	
	Surrogate			Recovery	Limit
	Tetrachloro-m-xylene			101.%	50 - 150
	Decachlorobiphenyl			102.%	50 - 150
S-06C	Water				Sampled: 04/29/99 Extracted: 05/03/99 Analyzed: 05/14/99 by WB L11156-6
Total PCB		330	5.0	µg/L	D
	Surrogate			Recovery	Limit
	Tetrachloro-m-xylene			131.%	50 - 150
	Decachlorobiphenyl			95.%	50 - 150

OREGON ANALYTICAL LABORATORY



L11156

Client: *Enron Gas Pipeline Group*
Contact: *George Robinson*

Project: *Thoreau*

Batch Q.C.
Method Blank
PCB/Water (ug/L)

Analyte	Result	Reporting Limit *	Q	Date Analyzed
PCB	ND	0.5		05/04/99
<hr/>				
Surrogates				
Tetrachloro-m-xylene % Recovery				
Decachlorobiphenyl 91				
Comments:				
Reporting limit based on individual Aroclors				

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L11156

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Thoreau**

Batch Q.C.

LCS

PCB/Water (ug/L)

Analyte	Result	True Value	% Recovery	Q	Date Analyzed					
PCB	26.5	25.0	106		05/04/99					
<hr/>										
Surrogates	% Recovery									
Tetrachloro-m-xylene	101									
Decachlorobiphenyl	110									
<hr/>										
Comments:										

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L11156

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Thoreau**

Batch Q.C.
Method Blank
BTEX/Water (ug/L)

Analyte	Result	Limit	Q	Reported	Date Analyzed
Benzene	ND	1			05/06/99
Toluene	ND	1			
Ethylbenzene	ND	1			
Xylenes	ND	1			
Surrogates	% Recovery				
Trifluorotoluene	88				
Bromofluorobenzene	91				
Comments:	L11156-1 through 8.				

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OAL**L11156**

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Thorea**

Batch Q.C.
Method Blank
BTEX/Water (ug/L)

Analyte	Result	Reporting Limit	Q	Date Analyzed
Benzene	ND	1		05/07/99
Toluene	ND	1		
Ethylbenzene	ND	1		
Xylenes	ND	1		
Surrogates	% Recovery			
Trifluorotoluene	96			
Bromofluorobenzene	98			
Comments: L11156-9 & 10.				

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L11156

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Thoreau**

Batch Q.C.

LCS

BTEX/Water (ug/L)

Analyte	Result	True Value	% Recovery	Q	Date
Benzene	10.1	10.0	101		05/07/99
Toluene	9.6	10.0	96		
Ethylbenzene	9.5	10.0	95		
Xylenes	18.7	20.0	94		

Surrogates	% Recovery
Trifluorotoluene	95
Bromofluorobenzene	96

Comments:

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OAL**L11156**

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Thorea****Batch Q.C.****MS****BTEX/Water (ug/L)**

Analyte	Sample	MS	True Value	% Recovery	Q	Date
	Result	Result				Analyzed

Benzene	ND	10.1	10.0	101	05/07/99
Toluene	ND	9.6	10.0	96	
Ethylbenzene	ND	9.5	10.0	95	
Xylenes	ND	18.7	20.0	94	

Surrogates	% Recovery	% Recovery
	Sample	MS
Trifluorotoluene	87	95
Bromofluorobenzene	94	96

Comments:

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L11156

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Thoreau**

Batch Q.C.

Duplicate BTEX/Water (ug/L)

Analyte	Result	Duplicate Result	RPD	Reporting Limit	Q	Date Analyzed
Benzene	ND	ND	NA	1		05/07/99
Toluene	ND	ND	NA	1		
Ethylbenzene	ND	ND	NA	1		
Xylenes	ND	ND	NA	1		

Surrogates	% Recovery	% Recovery
	Sample	Duplicate
Trifluorotoluene	87	94
Chlorofluorobenzene	94	100

Comments:

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L11179

May 11, 1999

George Robinson
Enron Gas Pipeline Group
333 Clay St., Room 3142
P.O. Box 1188
Houston, TX 77002

Phone: (713) 646-7327
FAX: (713) 646-7867

Re: Laboratory Sample Analysis

Project: Thoreau

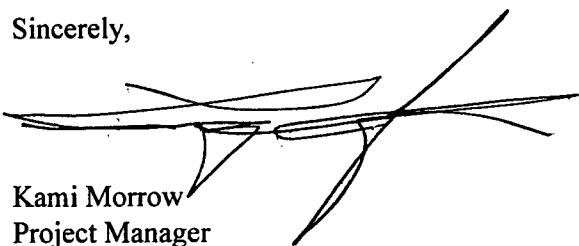
Project Manager: George Robinson

Dear George Robinson:

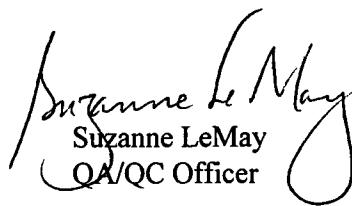
On Saturday, May 1, 1999, OAL received nine (9) water samples for analysis. The samples were analyzed utilizing EPA, ASTM, or equivalent methodology.

Should you have any questions concerning the results in this report, please contact us at (503) 590-5300. Refer to OAL login number L11179.

Sincerely,



Kami Morrow
Project Manager



Suzanne LeMay
QA/QC Officer

OREGON ANALYTICAL LABORATORY

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OAL

L11179

Sample Summary

Sample ID	Lab #	Description	Sampled	Received
MW-98	L11179-1	water	04/28/99 08:30	05/01/99
MW-18B	L11179-2	water	04/28/99 09:40	05/01/99
MW-12B	L11179-3	water	04/27/99 19:10	05/01/99
MW-14B	L11179-4	water	04/27/99 16:30	05/01/99
MW-3B	L11179-5	water	04/27/99 12:45	05/01/99
MW-13B	L11179-6	water	04/27/99 17:20	05/01/99
MW-23B	L11179-7	water	04/27/99 15:15	05/01/99
MW-24B	L11179-8	water	04/27/99 14:10	05/01/99
MW-15B	L11179-9	water	04/28/99 11:30	05/01/99

Definition of Terms

- MI Matrix interference.
ND Analytical result was below the reporting limit.
P Sample was unpreserved.

Analysts

Initials	Analyst	Title
WB	Wayne Boyle	Analyst

Method Summary

Analysis	Method
BTEX	EPA 8021

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Client: *Enron Gas Pipeline Group*
Contact: *George Robinson*

Project: *Thoreau*

BTEX by EPA 8021

Sample ID	Matrix			Lab Number
Analyte		Result	Reporting Limit	Units (ppb)

MW-98	Water			Sampled: 04/28/99 Analyzed: 05/10/99 by WB	L11179-1
Benzene		1,500	1.	µg/L	P
Toluene		4,400	1.	µg/L	
Ethylbenzene		250	1.	µg/L	
Total Xylenes		2,400	1.	µg/L	
	Surrogate			Recovery	Limit
	Trifluorotoluene			76.%	50 - 150
	Bromofluorobenzene			90.%	50 - 150

MW-18B	Water			Sampled: 04/28/99 Analyzed: 05/11/99 by WB	L11179-2
Benzene		2.	1.	µg/L	P
Toluene		ND	1.	µg/L	
Ethylbenzene		ND	1.	µg/L	
Total Xylenes		2.	1.	µg/L	
	Surrogate			Recovery	Limit
	Trifluorotoluene			MI	50 - 150
	Bromofluorobenzene			96.%	50 - 150

MW-12B	Water			Sampled: 04/27/99 Analyzed: 05/10/99 by WB	L11179-3
Benzene		ND	1.	µg/L	P
Toluene		ND	1.	µg/L	
Ethylbenzene		ND	1.	µg/L	
Total Xylenes		ND	1.	µg/L	
	Surrogate			Recovery	Limit
	Trifluorotoluene			91.%	50 - 150
	Bromofluorobenzene			97.%	50 - 150

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Client: **Enron Gas Pipeline Group**
 Contact: **George Robinson**

Project: **Thorea**

BTEX

by EPA 8021

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment

MW-14B	Water				Sampled: 04/27/99 Analyzed: 05/10/99 by WB	L11179-4
Benzene		ND	1.	µg/L	P	
Toluene		ND	1.	µg/L		
Ethylbenzene		ND	1.	µg/L		
Total Xylenes		ND	1.	µg/L		
	Surrogate			Recovery	Limit	
	Trifluorotoluene			97.%	50 - 150	
	Bromofluorobenzene			104.%	50 - 150	

MW-3B	Water				Sampled: 04/27/99 Analyzed: 05/10/99 by WB	L11179-5
Benzene		ND	1.	µg/L	P	
Toluene		ND	1.	µg/L		
Ethylbenzene		ND	1.	µg/L		
Total Xylenes		ND	1.	µg/L		
	Surrogate			Recovery	Limit	
	Trifluorotoluene			89.%	50 - 150	
	Bromofluorobenzene			97.%	50 - 150	

MW-13B	Water				Sampled: 04/27/99 Analyzed: 05/10/99 by WB	L11179-6
Benzene		ND	1.	µg/L	P	
Toluene		ND	1.	µg/L		
Ethylbenzene		ND	1.	µg/L		
Total Xylenes		ND	1.	µg/L		
	Surrogate			Recovery	Limit	
	Trifluorotoluene			95.%	50 - 150	
	Bromofluorobenzene			110.%	50 - 150	

OREGON ANALYTICAL LABORATORY

PJ899

A Division of Portland General Electric
 14855 S.W. Scholls Ferry Road, Beaverton, OR 97007
 Phone 503-590-5300 • Fax 503-590-1404
www.oalab.com/oal • Toll-Free 1-800-644-0967

Printed on recycled paper

Client: **Enron Gas Pipeline Group**
 Contact: **George Robinson**

Project: **Thoreau**

BTEX

by EPA 8021

Sample ID	Matrix				Lab Number
		Result	Reporting Limit	Units (ppb)	Comment

MW-23B	Water				Sampled: 04/27/99 Analyzed: 05/10/99 by WB	L11179-7
Benzene	ND	1.	µg/L	P		
Toluene	ND	1.	µg/L			
Ethylbenzene	ND	1.	µg/L			
Total Xylenes	ND	1.	µg/L			
Surrogate				Recovery	Limit	
Trifluorotoluene				89.%	50 - 150	
Bromofluorobenzene				100.%	50 - 150	

MW-24B	Water				Sampled: 04/27/99 Analyzed: 05/11/99 by WB	L11179-8
Benzene	ND	1.	µg/L	P		
Toluene	ND	1.	µg/L			
Ethylbenzene	ND	1.	µg/L			
Total Xylenes	ND	1.	µg/L			
Surrogate				Recovery	Limit	
Trifluorotoluene				92.%	50 - 150	
Bromofluorobenzene				117.%	50 - 150	

MW-15B	Water				Sampled: 04/28/99 Analyzed: 05/11/99 by WB	L11179-9
Benzene	ND	1.	µg/L	P		
Toluene	ND	1.	µg/L			
Ethylbenzene	ND	1.	µg/L			
Total Xylenes	ND	1.	µg/L			
Surrogate				Recovery	Limit	
Trifluorotoluene				89.%	50 - 150	
Bromofluorobenzene				98.%	50 - 150	

OREGON ANALYTICAL LABORATORY



OAL**L11179**

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Thorea**

**Batch Q.C.
Method Blank
BTEX/Water (ug/L)**

Analyte	Reporting			Date Analyzed
	Result	Limit	Q	
Benzene	ND	1		05/10/99
Toluene	ND	1		
Ethylbenzene	ND	1		
Xylenes	ND	1		
Surrogates	% Recovery			
Trifluorotoluene	91			
Bromofluorobenzene	100			
Comments: L11179-1 & 3 through 7.				

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L11179

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Thoreau**

Batch Q.C.
Method Blank
BTEX/Water (ug/L)

Analyte	Reporting			Date Analyzed
	Result	Limit	Q	
Benzene	ND	1		05/11/99
Toluene	ND	1		
Ethylbenzene	ND	1		
Xylenes	ND	1		
Surrogates		% Recovery		
Trifluorotoluene		88		
Bromofluorobenzene		96		
Comments: L11156-2, 8 & 9.				

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L11179

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Thoreau**

Batch Q.C.

LCS

BTEX/Water (ug/L)

Analyte	Result	True Value	% Recovery	Q	Date Analyzed
Benzene	9.1	10.0	91		05/07/99
Toluene	9.5	10.0	95		
Ethylbenzene	9.5	10.0	95		
Xylenes	18.7	20.0	94		
Surrogates		% Recovery			
Trifluorotoluene		91			
Bromofluorobenzene		93			
Comments:					

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L11179

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Thoreau**

Batch Q.C.

MS**BTEX/Water (ug/L)**

Analyte	Sample Result	MS Result	True Value	% Recovery	Q	Date Analyzed
Benzene	ND	10.1	10.0	101		05/07/99
Toluene	ND	9.6	10.0	96		
Ethylbenzene	ND	9.5	10.0	95		
Xylenes	ND	18.7	20.0	94		

Surrogates	% Recovery	% Recovery
	Sample	MS
Trifluorotoluene	87	95
Dromofluorobenzene	94	96

Comments:

OREGON ANALYTICAL LABORATORY

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OAL**L11179**

Client: **Enron Gas Pipeline Group**
Contact: **George Robinson**

Project: **Thorea****Batch Q.C.****Duplicate****BTEX/Water (ug/L)**

Analyte	Duplicate		Reporting		Date	
	Result	Result	RPD	Limit	Q	Analyzed
Benzene	ND	ND	NA	1		05/10/99
Toluene	ND	ND	NA	1		
Ethylbenzene	ND	ND	NA	1		
Xylenes	ND	ND	NA	1		
Surrogates	% Recovery		% Recovery			
	Sample	Duplicate	Sample	Duplicate		
Trifluorotoluene	89		98			
Bromofluorobenzene	100		106			
Comments:						

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www.oalab.com/oal • Toll-Free 1-800-644-0967



Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite A
Albuquerque, NM 87109
(505)345-3975

10/28/98

Cypress Engineering
10235 West Little York Rd., Ste. 256
Houston, TX 77040

Dear Mr. George Robinson,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Nancy McDuffie".

Nancy McDuffie
Assistant Laboratory Manager

Project: 9810007/Transwestern Pipeline Thoreau Station 5

Hall Environmental Analysis Laboratory, Inc.

Volatile Organic Compounds

Units: PPB ($\mu\text{g/L}$)

Sample Name:	5-03B	5-23B	5-24B
Lab Code:	9810007-1	9810007-2	9810007-3
Date Analyzed:	10/7/98	10/7/98	10/7/98

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	nd	nd	nd
Toluene	0.5	nd	nd	0.6
Ethylbenzene	0.5	nd	nd	nd
Total Xylenes	0.5	nd	nd	nd
BFB (Surrogate) Recovery		95%	93%	94%
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Volatile Organic Compounds

Units: PPB ($\mu\text{g/L}$)

Sample Name:	5-12B	5-15B	5-14B
Lab Code:	9810007-4	9810007-5	9810007-6
Date Analyzed:	10/7/98	10/7/98	10/7/98

EPA Method 8021

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	nd	nd	nd
Toluene	0.5	nd	nd	nd
Ethylbenzene	0.5	nd	nd	nd
Total Xylenes	0.5	nd	nd	nd
BFB (Surrogate) Recovery		94%	93%	94%
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Volatile Organic Compounds

Units: PPB ($\mu\text{g/L}$)

Sample Name:	5-18B	5-13B	5-19B
Lab Code:	9810007-7	9810007-8	9810007-9
Date Analyzed:	10/7/98	10/7/98	10/7/98

EPA Method 8021				
<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	5.6	nd	7.4
Toluene	0.5	1.3	1.5	3.9
Ethylbenzene	0.5	17	nd	1.6
Total Xylenes	0.5	1.0	nd	2.9
BFB (Surrogate) Recovery		99%	93%	98%
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Volatile Organic Compounds

Units: PPB ($\mu\text{g/L}$)

Sample Name: 5-20B **5-17B** **5-16B**
Lab Code: 9810007-10 9810007-11 9810007-12
Date Analyzed: 10/7/98 10/8/98 10/8/98

EPA Method 8021

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	1.5	nd	140
Toluene	0.5	1.4	nd	190
Ethylbenzene	0.5	1.5	nd	66
Total Xylenes	0.5	1.3	nd	590
BFB (Surrogate) Recovery		95%	97%	97%
Dilution Factor		1	1	10

Hall Environmental Analysis Laboratory, Inc.

Volatile Organic Compounds

Units: PPB ($\mu\text{g/L}$)

Sample Name:	5-48B	5-02C	5-01C
Lab Code:	9810007-13	9810007-14	9810007-15
Date Analyzed:	10/8/98	10/8/98	10/8/98

EPA Method 8021

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	2,100	1,300	5.2
Toluene	0.5	6,100	3,500	nd
Ethylbenzene	0.5	420	230	nd
Total Xylenes	0.5	4,300	1,800	nd
BFB (Surrogate) Recovery		100%	104%	100%
Dilution Factor		200	20	1

Hall Environmental Analysis Laboratory, Inc.

Volatile Organic Compounds

Units: PPB ($\mu\text{g/L}$)

Sample Name:	5-06C	Filtered	GAC Filters
		Purge H ₂ O	
Lab Code:	9810007-16	9810007-17	9810007-18
Date Analyzed:	10/8/98	10/8/98	10/8/98

EPA Method 8021

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	1.5	nd	nd
Toluene	0.5	1.3	nd	nd
Ethylbenzene	0.5	nd	nd	nd
Total Xylenes	0.5	nd	nd	nd
BFB (Surrogate) Recovery		98%	91%	91%
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Volatile Organic Compounds

Sample Name: 5-98 Trip Blank Reagent
Lab Code: 9810007-19 9810007-21 Blank
Date Analyzed: 10/8/98 10/8/98 10/7/98

EPA Method 8021				
<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	1,300	nd	nd
Toluene	0.5	3,400	nd	nd
Ethylbenzene	0.5	230	nd	nd
Total Xylenes	0.5	1,800	nd	nd
BFB (Surrogate) Recovery		91%	91%	91%
Dilution Factor		20	1	1

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering Date Collected: NA
Project: Transwestern Pipeline Date Received: NA
 Thoreau Station 5
Sample Matrix: Aqueous Date Extracted: NA

Volatile Organic Compounds
Units: PPB (μ g/L)

Sample Name: Reagent
Lab Code: Blank
Date Analyzed: 10/8/98

EPA Method 8021

<u>Compound</u>	<u>MRL</u>	<u>Result</u>
Benzene	0.5	nd
Toluene	0.5	nd
Ethylbenzene	0.5	nd
Total Xylenes	0.5	nd
BFB (Surrogate) Recovery		96%
Dilution Factor		1

Hall Environmental Analysis Laboratory, Inc.

**Polychlorinated Biphenyls
EPA Method 8082
Units: PPB (μ g/L)**

Sample Name: 5-17B 5-01C 5-06C
Lab Code: 9810007-11 9810007-15 9810007-16
Date Analyzed: 10/8/98 10/8/98 10/8/98

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Arochlor 1016	1.0	nd	nd	nd
Arochlor 1221	1.0	nd	10	29
Arochlor 1232	1.0	nd	nd	nd
Arochlor 1242	1.0	nd	nd	nd
Arochlor 1248	1.0	nd	nd	nd
Arochlor 1254	1.0	nd	nd	nd
Arochlor 1260	1.0	nd	nd	nd
% Decachlorobiphenyl (Surrogate):		110%	108%	108%
Dilution Factor		1	1	1

11/18/98

FAXED TO SANDY



Hall Environmental Analysis Laboratory, Inc.

**Polychlorinated Biphenyls
EPA Method 8082
Units: PPB (μ g/L)**

Sample Name:	Filtered	Purge H ₂ O	GAC Filters	5-99	Extraction
Lab Code:	9810007-17	9810007-18	9810007-20	Blank	
Date Analyzed:	10/8/98	10/8/98	10/8/98	10/8/98	

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Arochlor 1016	1.0	nd	nd	nd	nd
Arochlor 1221	1.0	nd	nd	33	nd
Arochlor 1232	1.0	nd	nd	nd	nd
Arochlor 1242	1.0	nd	nd	nd	nd
Arochlor 1248	1.0	nd	nd	nd	nd
Arochlor 1254	1.0	nd	nd	nd	nd
Arochlor 1260	1.0	nd	nd	nd	nd
% Decachlorobiphenyl (Surrogate):		108%	110%	111%	91%
Dilution Factor		1	1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client: Cypress Engineering Services
Project: Transwestern Pipeline
Thoreau Station 5
Sample Matrix: Aqueous

Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 10/8/98

Volatile Organic Compounds
Units: PPB (μ g/l)
BS/BSD 10/8

EPA Method 8021

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	19.4	97	19.1	96	2
Toluene	<0.5	20.0	19.5	98	19.2	96	2
Ethylbenzene	<0.5	20.0	20.7	104	20.6	103	0
Total Xylenes	<0.5	60.0	60.5	101	58.8	98	3

Hall Environmental Analysis Laboratory, Inc.

Client: Cypress Engineering Services
Project: Transwestern Pipeline

Thoreau Station 5

Sample Matrix: Aqueous

Date Collected: NA

Date Received: NA

Date Extracted: 10/6/98

Date Analyzed: 10/7,8/98

Volatile Organic Compounds

Units: PPB ($\mu\text{g/l}$)

BS/BSD 10/7

EPA Method 8021

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	20.2	101	20.0	100	1
Toluene	<0.5	20.0	20.4	102	20.2	101	1
Ethylbenzene	<0.5	20.0	19.9	100	20.5	103	3
Total Xylenes	<0.5	60.0	62.0	103	62.1	104	0

PCB's

EPA Method 8082

Units: PPB ($\mu\text{g/L}$)

BS/BSD 10/6

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Arochlor 1260	1.0	5.0	5.4	108	5.2	104	4

CHAIN-OF-CUSTODY RECORD

Client: Cypress Engineering
 Project Name: TRANSWESTERN PIPELINE
 Project #: THOROM STATION 5

Address: 10235 WEST 4TH YORK

Suite 150

Phone # (713) 455-7980

Fax #: (713) 646-7867

Time: 1410

Matrix: H₂O

Sample I.D. No.: 5-03B

Project Manager:

GEORGE B. BROWN

Sampler: S. Sharp

Samples Col'd?: Yes No

Number/Volume

Preservative

HEAL No.

9/29/98	1410	H ₂ O	5-03B	34ml water	X	980007-1
9/29/98	1555		5-23B		X	9810007-2
9/29/98	1730		5-24B		-3	X
9/30/98	1110		5-12B		-4	X
9/30/98	1250		5-15B		-5	X
9/30/98	1440		5-14B		-6	X
9/30/98	1615		5-18B		-7	X
9/30/98	1820		5-13B		-8	X
10/1/98	1010		5-19B		-9	X
10/1/98	1200		5-20B	34ml water	-10	X
10/1/98	1350		5-17B	1/4 liter	-11	X
10/1/98	1515		5-16B	34ml water	-12	X

Relinquished By: Signature: Stanley Sharp

Received By: Signature: John Green

Time: 10/09/98

Date: 1500

Relinquished By: Signature: Stanley Sharp

Received By: Signature: John Green

Time: 10/09/98

Date: 1350

Remarks: 10/2

Air Bubbles or Headspace (Y or N)

8270 (Semi-VOA)

8260 (VOA)

8081 PCB's (8082)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

Cations (Na, K, Ca, Mg)

RCRA 8 Metals

8310 (PNA or PAH)

EDC (Method 8021)

EDB (Method 5041)

Volatiles Full List (8021)

TPH (Method 418.1)

TPH Method 8015B MOD (Gasoline Only)

BTEX + MTEB + TPH (Gasoline Only)

BTEX (8021)

REMARKS: Sample supposed to be v.a. mistake.

5-17B for PCB's.

only one w/ litter.

CHAIN-OF-CUSTODY RECORD

Client: Cypress Engineering

Project Name:
TRANSVERSE Pipeline
TERMINAL STATION 5

Address: 1025 West Little York
Suite 2520
Austin TX 78740
Phone # 512-7252
Fax #: (512) 644-2867

Project #: /

Project Manager:

George Robinson

Sampler:

Yes No

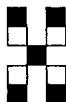
Samples Cold?:

<input checked="" type="checkbox"/> TPEX + MTE + MTBE + NMDS (8021)	<input checked="" type="checkbox"/> TPH Method 8015B MOD (Gas/Diesel)	<input checked="" type="checkbox"/> Volatiles Full List (8021)	<input checked="" type="checkbox"/> EDB (Method 504.1)	<input checked="" type="checkbox"/> EDC (Method 8021)	<input checked="" type="checkbox"/> 8310 (PNA or PAH)	<input checked="" type="checkbox"/> RCRA 8 Metals	<input checked="" type="checkbox"/> Cations (Na, K, Ca, Mg)	<input checked="" type="checkbox"/> Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	<input checked="" type="checkbox"/> 8081 Pesticides / PCBs (8082)	<input checked="" type="checkbox"/> 8260 (VOA)	<input checked="" type="checkbox"/> 8270 (Semi-VOA)	<input checked="" type="checkbox"/> Air Bubbles or Headspace (Y or N)
---	---	--	--	---	---	---	---	--	---	--	---	---

Date: 10/1/98	Time: 1500	Relinquished By: (Signature)	Received By: (Signature)	10 / 2
Date: 10/1/98	Time: 1500	Relinquished By: (Signature)	Received By: (Signature)	
Date: 10/1/98	Time: 1500	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative	HEAL No.
10/1/98	1555	H ₂ O	5-48B	1/40 ml VOA	X	1810 007-13
10/1/98	1710	/	5-02C	1/40 ml VOA	X	-14
10/2/98	0935	/	5-01C	1/40 ml VOA	X	-15
10/2/98	1035	/	5-08C	1/40 ml VOA	X	-16
10/2/98	1115	Ground water H ₂ O	5-08C	1/40 ml VOA	X	-17
10/2/98	1330	GAC GURDS	5-08C	1/40 ml VOA	X	-18
10/2/98	—	/	5-98	1/40 ml VOA	X	-19
10/1/98	1700	/	5-99	1/40 ml VOA	X	-20
10/1/98	1700	TRIP BURNT	5-00	1/40 ml VOA	X	-21



Hall Environmental Analysis Laboratory, Inc.

Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite A
Albuquerque, NM 87109
(505)345-3975

7/6/98

Cypress Engineering
10235 West Little York Rd.
Suite 256
Houston, TX 77040

Dear Mr. George Robinson,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,



7/8/98

Scott Hallenbeck, Lab Manager

Project: 9806072/Thoreau/TWP Station 5

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering Services **Date Collected:** 6/8/98
Project: Thoreau/TWP Station 5 **Date Received:** 6/12/98
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
EPA Method 8021
Units: PPB (μ g/L)

Sample Name:	5-23B	5-14B	5-12B
Lab Code:	9806072-1	9806072-2	9806072-3
Date Analyzed:	6/13/98	6/13/98	6/13/98

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	nd	nd	nd
Toluene	0.5	nd	nd	nd
Ethylbenzene	0.5	nd	nd	nd
Total Xylenes	0.5	nd	nd	nd
BFB (Surrogate) Recovery		103%	103%	101%
Dilution Factor		1	1	1

Sample Name:	5-20B	5-24B	5-13B
Lab Code:	9806072-4	9806072-5	9806072-6
Date Analyzed:	6/13/98	6/13/98	6/13/98

EPA Method 8021 <u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	15	nd	0.8
Toluene	0.5	0.8	nd	0.7
Ethylbenzene	0.5	0.7	nd	nd
Total Xylenes	0.5	nd	nd	nd
BFB (Surrogate) Recovery		104%	103%	102%
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering Services **Date Collected:** 6/10/98
Project: Thoreau/TWP Station 5 **Date Received:** 6/12/98
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
EPA Method 8021
Units: PPB (μ g/L)

Sample Name:	5-18B	5-19B	5-15B
Lab Code:	9806072-7	9806072-8	9806072-9
Date Analyzed:	6/13/98	6/13/98	6/13/98

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	nd	1.5	nd
Toluene	0.5	6.2	1.4	nd
Ethylbenzene	0.5	64	1.5	nd
Total Xylenes	0.5	nd	0.6	nd
BFB (Surrogate) Recovery		88%	105%	100%
Dilution Factor		1	1	1

Sample Name:	5-17B	5-16B	5-02C
Lab Code:	9806072-10	9806072-11	9806072-12
Date Analyzed:	6/13/98	6/13/98	6/13/98

EPA Method 8021	<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	Benzene	0.5	nd	23	460
Toluene	Toluene	0.5	nd	210	1,000
Ethylbenzene	Ethylbenzene	0.5	nd	56	120
Total Xylenes	Total Xylenes	0.5	nd	590	750
BFB (Surrogate) Recovery			96%	95%	103%
Dilution Factor			1	10	5

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering Services **Date Collected:** 6/10,11/98
Project: Thoreau/TWP Station 5 **Date Received:** 6/12/98
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
EPA Method 8021
Units: PPB (µg/L)

Sample Name: Lab Code: Date Analyzed:	<i>5-48B</i> 5-98 9806072-13 6/13/98	<i>5-48B</i> 5-48B 9806072-14 6/13/98	<i>5-01C</i> 5-01C 9806072-15 6/13/98
---	--	---	---

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	2,000	2,100	6.5
Toluene	0.5	7,900	8,000	nd
Ethylbenzene	0.5	210	200	nd
Total Xylenes	0.5	3,800	3,800	nd
BFB (Surrogate) Recovery		101%	97%	99%
Dilution Factor		200	200	1

Sample Name: Lab Code: Date Analyzed:	5-06C 9806072-16 6/13/98	5-03B 9806072-17 6/13/98	Trip Blank 9806072-19 6/13/98	Reagent Blank 6/13/98
---	---------------------------------------	---------------------------------------	--	---------------------------------

EPA Method 8021 <u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	1.2	nd	nd	nd
Toluene	0.5	0.6	nd	nd	nd
Ethylbenzene	0.5	nd	nd	nd	nd
Total Xylenes	0.5	nd	nd	nd	nd
BFB (Surrogate) Recovery		100%	103%	101%	102%
Dilution Factor		1	1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client: Cypress Engineering Services **Date Collected:** 6/10/98
Project: Thoreau/TWP Station 5 **Date Received:** 6/12/98
Sample Matrix: Aqueous **Date Extracted:** 6/14/98

Polychlorinated Biphenyls
EPA Method 8080
Units: PPB (μ g/L)

Sample Name:	5-17B	5-01C	5-06C
Lab Code:	9806072-10	9806072-15	9806072-16
Date Analyzed:	6/24/98	6/24/98	6/24/98

<u>Compound</u>	<u>MDL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Arochlor 1016	1.0	nd	nd	nd
Arochlor 1221	5.0	nd	40	180
Arochlor 1232	1.0	nd	nd	nd
Arochlor 1242	1.0	nd	nd	nd
Arochlor 1248	1.0	nd	nd	nd
Arochlor 1254	1.0	nd	nd	nd
Arochlor 1260	1.0	nd	nd	nd
% Decachlorobiphenyl:		92	95	92
Dilution Factor		1	1	1

Sample Name:	5-99	Extraction
Lab Code:	9806072-18	Blank
Date Analyzed:	6/24/98	6/24/98

<u>Compound</u>	<u>MDL</u>	<u>Result</u>	<u>Result</u>
Arochlor 1016	1.0	nd	nd
Arochlor 1221	5.0	190	nd
Arochlor 1232	1.0	nd	nd
Arochlor 1242	1.0	nd	nd
Arochlor 1248	1.0	nd	nd
Arochlor 1254	1.0	nd	nd
Arochlor 1260	1.0	nd	nd
% Decachlorobiphenyl:		93	93
Dilution Factor		1	1

Hall Environmental Analysis Laboratory, Inc.

Client: Cypress Engineering Services **Date Collected:** NA
Project: Thoreau/TWP Station 5 **Date Received:** NA
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds

EPA Method 8021

Units: PPB (μ g/l)

9806072-3 MS/MSD

9806072-10 MS/MSD

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Matrix Spike</u>	<u>MS %</u>	<u>MS Dup</u>	<u>MSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	20.3	102	19.3	97	5
Toluene	<0.5	20.0	20.7	104	19.6	98	5
Ethylbenzene	<0.5	20.0	20.5	103	20.2	101	1
Total Xylenes	<0.5	60.0	63.4	106	60.9	102	4

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Matrix Spike</u>	<u>MS %</u>	<u>MS Dup</u>	<u>MSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	19.5	98	19.7	99	1
Toluene	<0.5	20.0	19.8	99	19.9	100	1
Ethylbenzene	<0.5	20.0	19.6	98	20.2	101	3
Total Xylenes	<0.5	60.0	59.3	99	58.7	98	1

Polychlorinated Biphenyls

EPA Method 8080

Units: PPB (μ g/L)

BS/BSD 6/14

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Arochlor 1260	<1.0	5.0	4.9	98	4.9	98	0

CHAIN-OFF-CUSTODY RECORD

Client: Cypress Engineering

Project Name:

4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Phone 505.345.3975
Fax 505.345.4107

Address:

10235 WEST LITTLE YORK,
SUITE 250

Project #:

Project Manager:

George Robinson

Sampler:

Sandy Sharp

Samples Col'd?

Yes No

ANALYSIS REQUEST		Air Bubbles or Headspace (Y or N)	
8270 (Semi-VOA)			
8260 (VOA)			
8080 PCBs			X
Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)			
Cations (Na, K, Ca, Mg)			
RCRA 8 Metals			
8310 (PNA or PAH)			
EDC (Method 801D)			
EDB (Method 504)			
8010/8020 Volatiles			
TPH (Method 418.1)			
TPH Method 8015 MOD (Gasoline Only)			
BTEX + MTBE + TPH (Gasoline Only)			
BTEX + MTBE (602/8020)			X

Received By: (Signature) George Robinson

Remarks: 523-B

Received By: (Signature) Sandy Sharp

Remarks: 523-B has only 1 VOA
(9800072-1)

Date: 9/12/98 Time: 10:30 Received By: (Signature) George Robinson
Date: 9/12/98 Time: 10:30 Relinquished By: (Signature) Sandy Sharp

CHAIN-OF-CUSTODY RECORD

Client: Oppress Engineering

Address: 4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109

Phone #: 505.345.3975

Fax # 505.345.4107

Project Name:

TWP THOMAS SPA. 5

Project #:

1035 WEST COTTLE VENUE, SUITE 256
HOUSTON, TX 77060

Project Manager:

George Dawson

Sampler: Sandy Sharp

Samples Collected: Yes No

Date Time Matrix Sample I.D. No.

Number/Volume

Preservative

HEAL No.

ANALYSIS REQUEST		Air Bubbles or Headspace (Y or N)
		8270 (Semi-VOA)
		8260 (VOA)
		8080 (PCBs)
		Ations (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)
		Cations (Na, K, Ca, Mg)
		RCRA 8 Metals
		8310 (PNA or PAH)
		EDC (Method 8010)
		EDB (Method 504)
		8010/8020 Volatiles
		TPH (Method 418.1)
		TPH Method 8015 MOD (Gasoline/Diesel)
		BTEX + MTBE + TPH (Gasoline Only)
		BTEX + MTBE (602/8020)

Remarks:

Received By: (Signature) George Dawson Date: 6/10/98 Time: 1030

Relinquished By: (Signature) Sandy Sharp Date: 6/10/98 Time: 1030

Received By: (Signature) George Dawson Date: 6/10/98 Time: 1030

HgCl ₂	HCl
X	X
X	-14
X	-15
X	-16
X	-17
X	-18
X	-19



Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite A
Albuquerque, NM 87109
(505)345-3975

11/13/98

Cypress Engineering
10235 West Little York Rd., Ste. 256
Houston, TX 77040

Dear Mr. George Robinson,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,

A handwritten signature in cursive ink, appearing to read "Andy Freeman".

Andy Freeman
Assistant Laboratory Manager

Project: 9811006/Station #5

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering **Date Collected:** 11/2/98
Project: Station #5 **Date Received:** 11/2/98
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
Units: PPB (μ g/L)

Sample Name:	GAC Filter	FP H ₂ O	Reagent
Lab Code:	9811006-1	9811006-2	Blank
Date Analyzed:	11/3/98	11/3/98	11/3/98

EPA Method 8021

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	nd	<5.0	nd
Toluene	0.5	nd	<5.0	nd
Ethylbenzene	0.5	nd	<5.0	nd
Total Xylenes	0.5	nd	<5.0	nd
BFB (Surrogate) Recovery		103%	100%	100%
Dilution Factor		1	10	1

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering Date Collected: 11/2/98
Project: Station #5 Date Received: 11/2/98
Sample Matrix: Aqueous Date Extracted: 11/9/98

Polychlorinated Biphenyls

EPA Method 8082

Units: PPB (μ g/L)

Sample Name:	GAC Filter	FP H ₂ O	Extraction
Lab Code:	9811006-1	9811006-2	Blank
Date Analyzed:	11/12/98	11/12/98	11/12/98

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Arochlor 1016	1.0	nd	nd	nd
Arochlor 1221	1.0	nd	nd	nd
Arochlor 1232	1.0	nd	nd	nd
Arochlor 1242	1.0	nd	nd	nd
Arochlor 1248	1.0	nd	nd	nd
Arochlor 1254	1.0	nd	nd	nd
Arochlor 1260	1.0	nd	nd	nd
% TCMX (Surrogate):		85%	69%	86%
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client: Cypress Engineering Services
Project: Station #5
Sample Matrix: Aqueous

Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 11/3/98

Volatile Organic Compounds
Units: PPB (μ g/l)
BS/BSD 11/3

EPA Method 8021

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	19.6	98	20.5	103	4
Toluene	<0.5	20.0	20.2	101	20.4	102	1
Ethylbenzene	<0.5	20.0	20.8	104	20.4	102	2
Total Xylenes	<0.5	60.0	62.6	104	62.8	105	0

PCB's
EPA Method 8082
Units: PPB (μ g/L)
BS/BSD 11/12

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Arochlor 1260	1.0	5.0	4.3	86	4.3	86	0

CHAIN-OF-CUSTODY RECORD

Client: City of El Paso Eng.

Address: 1012 3rd West Avenue York.
Site 2 & 6.
Houston TX 77000-37229

Project Name:

STATION 0

Project #:

Address: 1012 3rd West Avenue York.
Site 2 & 6.

Project Manager:

Phone #: 713 396 7980

Fax #: 713 396 7981

Sampler: George Robinson

Sample I.D. No.

Sample ID. No.

Number/Volume

Preservative

HEAL No.

Yes No

BTEx + MTEB + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

Volatile Full List (8021)

EDB (Method 504.1)

EDC (Method 8021)

8310 (PNA or PAH)

RCRA 8 Metals

Cations (Na, K, Ca, Mg)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCBs (8082)

8260 (VOA)

8270 (Semi-VOA)

8281 (PCBs)

RCRA 8 Metals

8310 (PNA or PAH)

EDC (Method 8021)

EDB (Method 504.1)

TPH (Method 418.1)

BTEx + MTEB + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

Volatile Full List (8021)

EDB (Method 504.1)

EDC (Method 8021)

8310 (PNA or PAH)

RCRA 8 Metals

Cations (Na, K, Ca, Mg)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCBs (8082)

8260 (VOA)

8270 (Semi-VOA)

8281 (PCBs)

RCRA 8 Metals

8310 (PNA or PAH)

EDC (Method 8021)

EDB (Method 504.1)

TPH (Method 418.1)

BTEx + MTEB + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

Volatile Full List (8021)

EDB (Method 504.1)

EDC (Method 8021)

8310 (PNA or PAH)

RCRA 8 Metals

Cations (Na, K, Ca, Mg)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCBs (8082)

8260 (VOA)

8270 (Semi-VOA)

8281 (PCBs)

RCRA 8 Metals

8310 (PNA or PAH)

EDC (Method 8021)

EDB (Method 504.1)

TPH (Method 418.1)

BTEx + MTEB + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

Volatile Full List (8021)

EDB (Method 504.1)

EDC (Method 8021)

8310 (PNA or PAH)

RCRA 8 Metals

Cations (Na, K, Ca, Mg)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCBs (8082)

8260 (VOA)

8270 (Semi-VOA)

8281 (PCBs)

RCRA 8 Metals

8310 (PNA or PAH)

EDC (Method 8021)

EDB (Method 504.1)

TPH (Method 418.1)

BTEx + MTEB + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

Volatile Full List (8021)

EDB (Method 504.1)

EDC (Method 8021)

8310 (PNA or PAH)

RCRA 8 Metals

Cations (Na, K, Ca, Mg)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCBs (8082)

8260 (VOA)

8270 (Semi-VOA)

8281 (PCBs)

RCRA 8 Metals

8310 (PNA or PAH)

EDC (Method 8021)

EDB (Method 504.1)

TPH (Method 418.1)

BTEx + MTEB + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

Volatile Full List (8021)

EDB (Method 504.1)

EDC (Method 8021)

8310 (PNA or PAH)

RCRA 8 Metals

Cations (Na, K, Ca, Mg)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCBs (8082)

8260 (VOA)

8270 (Semi-VOA)

8281 (PCBs)

RCRA 8 Metals

8310 (PNA or PAH)

EDC (Method 8021)

EDB (Method 504.1)

TPH (Method 418.1)

BTEx + MTEB + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

Volatile Full List (8021)

EDB (Method 504.1)

EDC (Method 8021)

8310 (PNA or PAH)

RCRA 8 Metals

Cations (Na, K, Ca, Mg)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCBs (8082)

8260 (VOA)

8270 (Semi-VOA)

8281 (PCBs)

RCRA 8 Metals

8310 (PNA or PAH)

EDC (Method 8021)

EDB (Method 504.1)

TPH (Method 418.1)

BTEx + MTEB + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

Volatile Full List (8021)

EDB (Method 504.1)

EDC (Method 8021)

8310 (PNA or PAH)

RCRA 8 Metals

Cations (Na, K, Ca, Mg)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCBs (8082)

8260 (VOA)

8270 (Semi-VOA)

8281 (PCBs)

RCRA 8 Metals

8310 (PNA or PAH)

EDC (Method 8021)

EDB (Method 504.1)

TPH (Method 418.1)

BTEx + MTEB + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

Volatile Full List (8021)

EDB (Method 504.1)

EDC (Method 8021)

8310 (PNA or PAH)

RCRA 8 Metals

Cations (Na, K, Ca, Mg)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCBs (8082)

8260 (VOA)

8270 (Semi-VOA)

8281 (PCBs)

RCRA 8 Metals

8310 (PNA or PAH)

EDC (Method 8021)

EDB (Method 504.1)

TPH (Method 418.1)

BTEx + MTEB + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

Volatile Full List (8021)

EDB (Method 504.1)

EDC (Method 8021)

8310 (PNA or PAH)

RCRA 8 Metals

Cations (Na, K, Ca, Mg)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCBs (8082)

8260 (VOA)

8270 (Semi-VOA)

8281 (PCBs)

RCRA 8 Metals

8310 (PNA or PAH)

EDC (Method 8021)

EDB (Method 504.1)

TPH (Method 418.1)

BTEx + MTEB + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

Volatile Full List (8021)

EDB (Method 504.1)

EDC (Method 8021)

8310 (PNA or PAH)

RCRA 8 Metals

Cations (Na, K, Ca, Mg)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCBs (8082)

8260 (VOA)

8270 (Semi-VOA)

8281 (PCBs)

RCRA 8 Metals

8310 (PNA or PAH)

EDC (Method 8021)

EDB (Method 504.1)

TPH (Method 418.1)

BTEx + MTEB + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

Volatile Full List (8021)

EDB (Method 504.1)

EDC (Method 8021)

8310 (PNA or PAH)

RCRA 8 Metals

Cations (Na, K, Ca, Mg)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCBs (8082)

8260 (VOA)

8270 (Semi-VOA)

8281 (PCBs)

RCRA 8 Metals

8310 (PNA or PAH)

EDC (Method 8021)

EDB (Method 504.1)

TPH (Method 418.1)

BTEx + MTEB + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

Volatile Full List (8021)

EDB (Method 504.1)

EDC (Method 8021)

8310 (PNA or PAH)

RCRA 8 Metals

Cations (Na, K, Ca, Mg)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCBs (8082)

8260 (VOA)

8270 (Semi-VOA)

8281 (PCBs)

RCRA 8 Metals

8310 (PNA or PAH)

EDC (Method 8021)

EDB (Method 504.1)

TPH (Method 418.1)

BTEx + MTEB + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

Volatile Full List (8021)

EDB (Method 504.1)

EDC (Method 8021)



Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite A
Albuquerque, NM 87109
(505)345-3975

9/17/98

Cypress Engineering
10235 West Little York Rd., Ste. 256
Houston, TX 77040

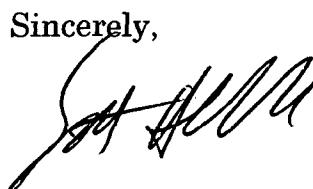
Dear Mr. George Robinson,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Hallenbeck". To the right of the signature is the date "9/19/98" written vertically.

Scott Hallenbeck, Lab Manager

Project: 9808099/Sve System

Hall Environmental Analysis Laboratory, Inc.

Volatile Organic Compounds

Units: PPB ($\mu\text{g/L}$)

Sample Name:	GAC Filter	Reagent
Lab Code:	9808099-1	Blank
Date Analyzed:	8/31/98	8/31/98

EPA Method 8021

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>
MTBE	2.5	nd	nd
Benzene	0.5	nd	nd
Toluene	0.5	nd	nd
Ethylbenzene	0.5	nd	nd
Total Xylenes	0.5	nd	nd
1,3,5-TMB	0.5	nd	nd
1,2,4-TMB	0.5	nd	nd
BFB (Surrogate)		105%	100%
Recovery			
Dilution Factor		1	1

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering **Date Collected:** 8/27/98
Project: Sve System **Date Received:** 8/28/98
Sample Matrix: Aqueous **Date Extracted:** 9/1/98

Polychlorinated Biphenyls
EPA Method 8082
Units: PPB (μ g/L)

Sample Name:	GAC Filter	Extraction
Lab Code:	9808099-1	Blank
Date Analyzed:	9/10/98	9/10/98

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>
Arochlor 1016	1.0	nd	nd
Arochlor 1221	1.0	nd	nd
Arochlor 1232	1.0	nd	nd
Arochlor 1242	1.0	nd	nd
Arochlor 1248	1.0	nd	nd
Arochlor 1254	1.0	nd	nd
Arochlor 1260	1.0	nd	nd
% TCMX (Surrogate):		105%	103%
Dilution Factor		1	1

Hall Environmental Analysis Laboratory, Inc.

Client: Cypress Engineering Services **Date Collected:** NA
Project: Sve System **Date Received:** NA
Sample Matrix: Aqueous **Date Extracted:** 9/1/98
 Date Analyzed: 9/10/98

Organic Compounds
 Units: PPB (μ g/l)
 BS/BSD 9/1

EPA Method 8021

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
MTBE	<2.5	40.0	36.4	91	40.2	101	10
Benzene	<0.5	20.0	19.1	96	19.9	100	4
Toluene	<0.5	20.0	19.6	98	20.1	101	3
Ethylbenzene	<0.5	20.0	19.9	100	20.5	103	3
Total Xylenes	<0.5	60.0	60.5	101	62.0	103	2
1,3,5-TMB	<0.5	20.0	21.2	106	21.6	108	2
1,2,4-TMB	<0.5	20.0	21.3	107	21.7	109	2

PCB's
 EPA Method 8082
 Units: PBM (μ g/L)
 BS/BSD 9/10

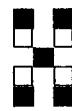
<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Arochlor 1260	1.0	5.0	5.2	84	4.2	84	0

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
505.345.3975
Fax 505.345.4107

ANALYSIS REQUEST

Client:	Cypress Engineering		Project Name:	Station #5			
Address:			Project #:	Sta. #5 SVE System			
Phone #:			Project Manager:	George Robinson			
Fax #:			Sampler:	George Friend			
			Samples Cold?:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Date	Time	Matrix	Sample I.D. No.	Number/Volume		Preservative	HEAL No.
				HgCl ₂	HCl		
8/27	1630	Ag GAC Filter	12			980809-1	
8/27	1630	Ag GAC Filter	2/40mL		✓	-1	
Date:	Time:	Relinquished By: (Signature)		Received By: (Signature)			
28/08/19	3:00	<u>George Friend</u>		<u>John E. Sauer</u>			
Date:	Time:	Relinquished By: (Signature)		Received By: (Signature)			
Date:	Time:	Relinquished By: (Signature)		Received By: (Signature)			



Hall Environmental Analysis Laboratory

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Suite A
Albuquerque, NM 87109

8/26/98

Cypress Engineering
10235 West Little York
#256
Houston, TX 77040

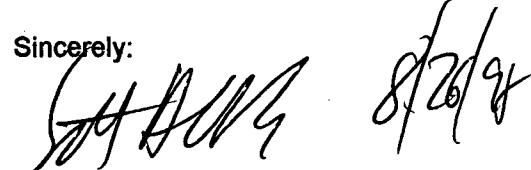
Dear Mr. George Robinson,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or equivalent.

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

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

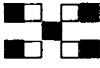
Sincerely:



Scott Hallenbeck
Laboratory Manager

Project: 9808059 - Station #5

4901 Hawkins NE, Suite A, Albuquerque, NM 87109
Ph (505) 345-3975, Fax (505) 345-4107

 Hall Environmental
Analysis Laboratory

Client: Cypress Engineering **Date Collected:** 8/17/98
Project: Station #5 **Date Received:** 8/17/98
Project Manager: George Robinson **Sample Matrix:** Aqueous
Project Number:

Volatile Organic Compounds

EPA Method 8021		Units:		PPB (ug/L)		Date Extracted:		NA		
HEAL LAB ID	Sample ID	MTBE	Benzene	Toluene	Ethyl-benzene	Total Xylenes	BFB Recovery	Dilution Factor	Date Analyzed	Total BTEX
9808059-1	GAC Filter	ND	ND	ND	ND	ND	98	1	8/19/98	NA
Reagent Blk.	-	ND	ND	ND	ND	ND	97	1	8/19/98	NA

2.50	0.50	0.50	0.50	0.50
------	------	------	------	------

MRL

4901 Hawkins NE Suite A, Albuquerque, NM 87109
Ph (505) 345-3975, Fax (505) 345-4107

**Client:
Address:** Cypress Engineering
10235 West Little York
#256
Houston, TX 77040

**Project:
Project Number:
Project Manager:** Station #5
George Robinson

**Results for
QC:** 9808059-1 MS/MSD

**Sample Matrix:
Analysis Date:
Extraction Date** Aqueous
8/19/98
NA

EPA Method - 8021

<u>Compound</u>	<u>Sample Amount</u>	<u>Spike</u>	<u>Recovery</u>	<u>% Rec</u>	<u>Dup</u>	<u>% Dup</u>	<u>RPD</u>
MTBE	<0.10	40.0	44.6	112	44.5	111	0
Benzene	<0.05	20.0	21.1	106	21.2	106	0
Toluene	<0.05	20.0	20.7	104	20.2	101	2
Ethylbenzene	<0.05	20.0	21.6	108	21.1	106	2
Total Xylenes	<0.05	60.0	65.3	109	65.1	109	0
1,3,5-TMBs	<0.5	20.0	23.2	116	22.9	115	1
1,2,4-TMBs	<0.5	20.0	23.6	118	23.5	118	0



Hall Environmental Analysis Laboratory

Hall Environmental Analysis Laboratory
4901 Hawkins, NE
Suite A
Albuquerque, NM 87109

8/5/98

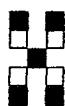
Cypress Engineering
10235 West Little York
#256
Houston, TX 77040

Dear Mr. George Robinson,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or equivalent.

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

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



Hall Environmental Analysis Laboratory

Client: Cypress Engineering **Date Collected:** 7/28/98
Project: Station # 5 **Date Received:** 7/28/98
Project Manager: George Robinson **Sample Matrix:** Aqueous
Project Number:

Volatile Organic Compounds

EPA Method 8021**Units:** PPB (ug/l)**Date Extracted:**

NA

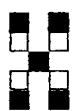
HEAL LAB ID	Sample ID	MTBE	Benzene	Toluene	Ethyl-benzene	Total Xylenes	BFB % Recovery	Dilution Factor	Date Analyzed
9807096-1	GAC-Filter	ND	ND	ND	ND	ND	104	1	7/29/98
Reagent Blk.	NA	ND	ND	ND	ND	ND	103	1	7/29/98

MRL

2.5 0.50 0.50 0.50 0.50

Sincerely:

Scott Hallenbeck
Laboratory Manager



Hall Environmental Analysis Laboratory

Client: Cypress Engineering **Date Extracted:** NA
Project: Station # 5 **Date Analyzed:** 7/30/98
Project Manager: George Robinson **Sample Matrix:** Aqueous

Results for QC: 9807096-1 MS/MSD

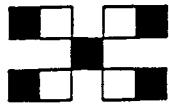
EPA Method 8021

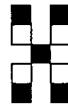
<u>Compound</u>	<u>Sample Amount</u>	<u>Spike</u>	<u>Recovery</u>	<u>% Rec</u>	<u>Dup</u>	<u>% Dup</u>	<u>RPD</u>
MTBE	<2.5	40.0	50.9	127	38.5	96	28
Benzene	<0.5	20.0	19.7	99	19.5	98	1
Toluene	<0.5	20.0	19.8	99	19.8	99	0
Ethylbenzene	<0.5	20.0	20.0	100	20.3	102	1
Total Xylenes	<0.5	60.0	61.0	102	60.0	100	2

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY

**4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
505.345.3975
Fax 505.345.4107**





Hall Environmental Analysis Laboratory, Inc.

Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite A
Albuquerque, NM 87109
(505)345-3975

7/28/98

Cypress Engineering
10235 West Little York Rd.
Suite 256
Houston, TX 77040

Dear Mr. George Robinson,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,



7/28/98

Scott Hallenbeck, Lab Manager

Project: 9807070/Station #5

Hall Environmental Analysis Laboratory, Inc.

Volatile Organic Compounds

Units: PPB ($\mu\text{g/L}$)

Sample Name:	GAC Filter	Reagent Blank
Lab Code:	9807070-1	9807070-2
Date Analyzed:	7/17/98	7/17/98

EPA Method 8021

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	nd	nd
Toluene	0.5	nd	nd
Ethylbenzene	0.5	nd	nd
Total Xylenes	0.5	nd	nd
BFB (Surrogate)		104%	109%
Recovery			
Dilution Factor	1		1

Hall Environmental Analysis Laboratory, Inc.

Volatile Organic Compounds

EPA Method 8021

· Units: PPB ($\mu\text{g/l}$)

BS/BSD 7/17

EPA Method 8021

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	20.4	102	20.5	103	0
Toluene	<0.5	20.0	19.1	96	20.2	101	6
Ethylbenzene	<0.5	20.0	20.2	101	19.9	100	1
Total Xylenes	<0.5	60.0	59.7	100	61.0	102	2

CHAIN-OF-CUSTODY RECORD

Client: Cyphess Env.

Project Name:

STATION 45

Project #: 10235

Address: # 266,

Houston TX

Project Manager: George Rodriguez

Phone #: 713 856 7980

Fax #: 713 856 7981

Sampler: George Rodriguez

Samples Col'd?: Yes No

Date: 7-12-98

Time: 1:30P

Matrix: GAC Filter

Sample I.D. No.: 74041

Number/Volume

Preservative

HgCl₂

HCl

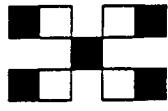
HEAL No.

7807070-1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109

505.345.3975
Fax 505.345.4107



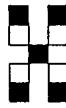
ANALYSIS REQUEST		Air Bubbles or Headspace (Y or N)
8270 (Semi-VOA)		
8260 (VOA)		
8080 Pesticides / PCB's		
Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)		
Cations (Na, K, Ca, Mg)		
RCRA 8 Metals		
8310 (PNA or PAH)		
EDC (Method 8010)		
EDB (Method 504)		
8010/B020 Volatiles		
TPH (Method 418.1)		
TPH Method 8015 MOD (Gas/Diesel)		
BTEX + MTBE + TPH (Gasoline Only)		
BTEX + MTBE (9002/8020)		

Remarks:

Jerry Lewis

Received By: (Signature)

Jerry



Hall Environmental Analysis Laboratory, Inc.

Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite A
Albuquerque, NM 87109
(505)345-3975

7/20/98

Cypress Engineering
10235 West Little York Rd.
Suite 256
Houston, TX 77040

Dear Mr. George Robinson,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,

Scott Hallenbeck, Lab Manager

Project: 9807041/Station #5

Hall Environmental Analysis Laboratory, Inc.

**Volatile Organic Compounds
EPA Method 8021**
Units: PPB ($\mu\text{g/L}$)

Sample Name:	GAC Filter	Reagent
Lab Code:	9807041-1	Blank
Date Analyzed:	7/14/98	7/14/98

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>
MTBE	2.5	nd	nd
Benzene	0.5	nd	nd
Toluene	0.5	nd	nd
Ethylbenzene	0.5	nd	nd
Total Xylenes	0.5	nd	nd
BFB (Surrogate)		99%	100%
Recovery			
Dilution Factor		1	1

Hall Environmental Analysis Laboratory, Inc.

Volatile Organic Compounds

EPA Method 8021

Units: PPB ($\mu\text{g/l}$)

9807041-1 MS/MSD

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Matrix Spike</u>	<u>MS %</u>	<u>MS Dup</u>	<u>MSD %</u>	<u>RPD</u>
MTBE	<2.5	40.0	37.9	95	37.2	93	2
Benzene	<0.5	20.0	20.3	102	20.3	102	0
Toluene	<0.5	20.0	21.2	106	20.6	103	3
Ethylbenzene	<0.5	20.0	21.2	106	20.6	103	3
Total Xylenes	<0.5	60.0	63.5	106	61.8	103	3

CHAIN-OF-CUSTODY RECORD

Client: Cypress Energy

Address: 10235 W 5th Street
Phone #: (713) 836-7980
Fax #: 713 256-1400

Project Name:

SURE SYSTEM.
Gulf Coast Refinery.

Project Manager:

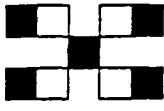
G. Colette Rutherford.

Sampler: G. Colette Rutherford.

Samples Cold?: Yes No

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
505.345.3975
Fax 505.345.4107



ANALYSIS REQUEST		Air Bubbles or Headspace (Y or N)	
		8270 (Semi-VOA)	
		8260 (VOA)	
		8080 Pesticides / PCB's	
		Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	
		Cations (Na, K, Ca, Mg)	
		RCRA 8 Metals	
		8310 (PNA or PAH)	
		EDC (Method 8010)	
		EDB (Method 504)	
		8010/8020 Volatiles	
		TPH (Method 418.1)	
		TPH Method 8015 MOD (Gas/Diesel)	
		BTEX + MTBE + TPH (Gasoline Only)	
		BTEX + MTBE (602/8020)	

Remarks:

Received By: (Signature) 7/3
[Signature]

Received By: (Signature)
[Signature]

Date: 7/3/98 Relinquished By: (Signature) *[Signature]* Received By: (Signature) 7/3
Time: 1645 Relinquished By: (Signature) *[Signature]* Received By: (Signature)

Date: 7/3/98 Relinquished By: (Signature) *[Signature]* Received By: (Signature)
Time: Relinquished By: (Signature) *[Signature]* Received By: (Signature)



Hall Environmental Analysis Laboratory, Inc.

Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite A
Albuquerque, NM 87109
(505)345-3975

7/6/98

Cypress Engineering
10235 West Little York Rd.
Suite 256
Houston, TX 77040

Dear Mr. George Robinson,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,

A handwritten signature in black ink that appears to read "Scott Hallenbeck". To the right of the signature is the date "7/6/98" written vertically.

Scott Hallenbeck, Lab Manager

Project: 9806108/Thoreau/TWP Station 5

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering Services **Date Collected:** 6/24/98
Project: Thoreau/TWP Station 5 **Date Received:** 6/24/98
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
EPA Method 8021
Units: PPB (μ g/L)

	Sample Name:	GAC	Reagent
	Lab Code:	9806108-1	Blank
	Date Analyzed:	6/25/98	6/25/98
Compound	MRL	Result	Result
Benzene	0.5	nd	nd
Toluene	0.5	nd	nd
Ethylbenzene	0.5	nd	nd
Total Xylenes	0.5	nd	nd
BFB (Surrogate)		103%	95%
Recovery			
Dilution Factor		1	1

Hall Environmental Analysis Laboratory, Inc.

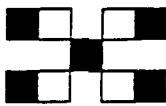
Client: Cypress Engineering Services **Date Collected:** NA
Project: Thoreau/TWP Station 5 **Date Received:** NA
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
EPA Method 8021
Units: PPB (μ g/l)
BS/BSD 6/25

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	21.2	106	20.0	100	6
Toluene	<0.5	20.0	21.7	109	19.8	99	9
Ethylbenzene	<0.5	20.0	18.6	93	21.7	109	15
Total Xylenes	<0.5	60.0	61.0	102	56.7	95	7

CHAIN-OFF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
505.345.3975
Fax 505.345.4107



Report of Ground Water Remediation Activities

**Transwestern Pipeline Company
Thoreau Compressor Station
McKinley County, New Mexico**

RECEIVED

SEP 02 1998

**ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION**

**Submitted to:
New Mexico Oil Conservation Division
and
Navajo Nation Environmental Protection Administration**

August 21, 1998

**Prepared For:
Transwestern Pipeline Company
6381 North Main Street
Roswell, NM 88201**

**Prepared by:
Cypress Engineering Services, Inc.
10235 West Little York Road, Suite 256
Houston, Texas 77040**

Report of Ground Water Remediation Activities

Transwestern Pipeline Company Thoreau Compressor Station

I. Installation of Additional Monitor Wells, SVE Wells, and Air Sparge Wells

Installation of Two Additional SVE Wells

Transwestern Pipeline Company installed two additional soil vapor extraction (SVE) wells on November 16, 1997. The locations of the new wells are indicated in Figure 2 as wells SVE-3 and SVE-4. These wells were installed in order to accelerate the removal of residual petroleum hydrocarbon compounds from the unsaturated zone above the perched water table. Neither of the two new SVE wells has indicated the presence of phase separated hydrocarbon (PSH) accumulated in the well casing. Both wells were connected to the SVE system manifold upon completion. A completion diagram for each of the new wells is included in Attachment #1.

Installation of Five Additional Air Sparge Wells

Transwestern Pipeline Company installed five additional air sparge wells on November 19-21, 1997. The locations of the new wells are indicated in Figure 5 as wells AS-12 through AS-16. These wells were installed in order to accelerate the removal of dissolved phase contaminants in the perched ground water. All five air sparge wells were connected to the air sparge manifold upon completion. A completion diagram for each of the new wells is included in Attachment #1.

Installation of One Replacement Monitor Well

Transwestern Pipeline Company installed one replacement ground water monitor well on November 15, 1997. The location of the replacement well is indicated in Figure 2 as well 5-2C. This well was installed to replace monitor well 5-2B which had become dry due to a decline of the water level in the perched zone. A completion diagram for monitor well 5-2C is included in Attachment #1.

Recompletion of Two Monitor Wells

Transwestern Pipeline Company removed and recompleted two ground water monitor wells, 5-1B and 5-6B, on November 17-18, 1997. The locations of these wells are indicated in Figure 2 as wells 5-1C and 5-6C. These wells were recompleted in an effort to verify the presence or absence of PCB compounds detected in ground water samples collected from the two wells. Subsequent to recompletion, both monitor wells continue to produce ground water samples with detectable concentrations of PCB compounds.

II. Ground Water Monitoring Activities

Abandonment of Monitor Wells 5-47B, 5-57B, and 5-58B

Transwestern Pipeline Company abandoned three monitor wells (5-47B, 5-57B, and 5-58B) on November 21, 1997. These wells were abandoned pursuant to the abandonment plan presented in the last report of remediation activities dated April 29, 1997.

Quarterly Ground Water Sampling Events

Transwestern Pipeline Company completed four quarterly sampling events since the last reporting period. These events were completed on May 19, 1997, August 18, 1997, November 16, 1997, and February 10, 1998. [Note: Results obtained in the course of an additional sample event completed in June 1998 will be included in the next report of remediation activities.]

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. The measured depth to water and the corresponding water table elevation for each monitor well is presented in Table 1.

In the course of each sample event, ground water samples were collected from each of the monitor wells at the site. Samples were not collected from monitor wells currently in use as an SVE well, from downgradient monitor well 5-41B (pursuant to approved changes to the monitoring plan), or from well 5-22B which has become dry due to a decline of the water level in the perched zone. Ground water samples were delivered to a laboratory for analysis by EPA Method 8020 for benzene, toluene, ethylbenzene, and xylenes (BTEX). In addition, samples collected from monitor wells 5-1C (5-1B prior to November 1997), 5-6C (5-6B prior to November 1997), and 5-17B were also submitted to a laboratory for analysis for PCB compounds. A summary of field measured ground water quality parameters (pH, temperature, electrical conductivity, and dissolved oxygen) obtained in the course of sampling is presented in Table 2. An updated summary of analytical results for BTEX compounds is presented in Table 3. An updated summary of analytical results for PCB compounds is presented in Table 4. A summary of quality assurance program results is presented in Table 5.

Results/Conclusions from Ground Water Sampling Events

Occurrence and Direction of Ground Water Flow

A water table elevation map based on measurements obtained during the 1st quarter 1998 sampling event is included as Figure 3. The apparent direction of ground water flow is consistent with water table elevation maps previously developed for this site. The hydraulic gradient has remained relatively unchanged from previous sampling events at approximately 0.033 ft/ft.

The depth to water measurements obtained in the course of the quarterly sampling events indicate that the water table elevation has continued to decline. The relative change in water table elevation over the past six year period is illustrated graphically in Figure 6 for elevations measured at monitor well 5-3B. This condition should have a significant positive influence on the effectiveness of the ongoing remediation activities.

Lateral Extent of Phase Separated Hydrocarbon

The lateral extent of PSH is currently defined by the occurrence of PSH at the water table in wells 5-34B, 5-35B, 5-36E, and 5-37I, and the absence of PSH in all other wells. The four wells with a measurable accumulation of PSH are all located within a radius of about 20 feet from the original release site. PSH had not been measured in any of these wells prior to implementation of the remediation system. The presence of PSH in these wells is more likely associated the preferential accumulation of PSH in low pressure areas, such as soil vapor extraction wells, and is not likely indicative of PSH present at the water table outside of the immediate vicinity of the well casing.

In the course of the February 1998 sampling event, a hydrocarbon sheen was noted in the purge water removed from monitor well 5-16B. In spite of this, the concentration of BTEX constituents continues to decline at this sampling location.

Condition of Affected Ground Water

The more recent results are consistent with previous sample events which indicate that the area encompassing elevated benzene concentrations is continuing to get smaller. A map indicating the relative distribution of benzene and dissolved oxygen concentrations in shallow ground water, based on measurements obtained during the February 1998 sampling event, is included as Figure 4.

The detection of low concentrations of PCBs has continued for samples collected from monitor wells 5-1C and 5-6C. Transwestern continues to maintain the opinion that the detection of PCBs in ground water samples from these two wells is a result of minor amounts of PCBs contained in near surface soil which were inadvertently carried down the soil borings in the course of monitor well installation.

Copies of the laboratory reports for all ground water sampling events are attached.

III. Planned Changes to the Ground Water Monitoring Program

Disposal of Monitor Well Purge Water

No changes are proposed at this time.

Frequency of Ground Water Monitoring

Transwestern proposes to move from quarterly sampling events to semiannual sampling events.

Sample Analysis Plan

No changes are proposed at this time.

Routine Reporting of Monitoring Activities

Transwestern proposes to continue with annual reporting. The next annual report will be submitted to the OCD and the NNEPA by August 1, 1999.

IV. Status of Remediation Activities

Remediation Activities Completed through April 1998

The following remediation activities were completed between April 1997 and April 1998:

- 1) Transwestern installed two additional SVE wells in November 1997. Both wells have been connected to the SVE system manifold.
- 2) Transwestern installed five additional air sparge points in November 1997. These points were completed at a greater depth than the original eleven sparge points. All five additional air sparge points were connected to the compressed air manifold. The five northernmost air sparge points were disconnected from the manifold so that the new points could be connected.
- 3) Transwestern completed four quarterly ground water sampling events.

Current Status of Remediation Activities

Routine operation and maintenance of the SVE system is ongoing. A dewatering system was installed in June 1998 in order to accelerate the natural dewatering of the perched water zone. The installation and operation of this system will be described in the next report of remediation activities.

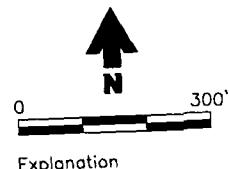
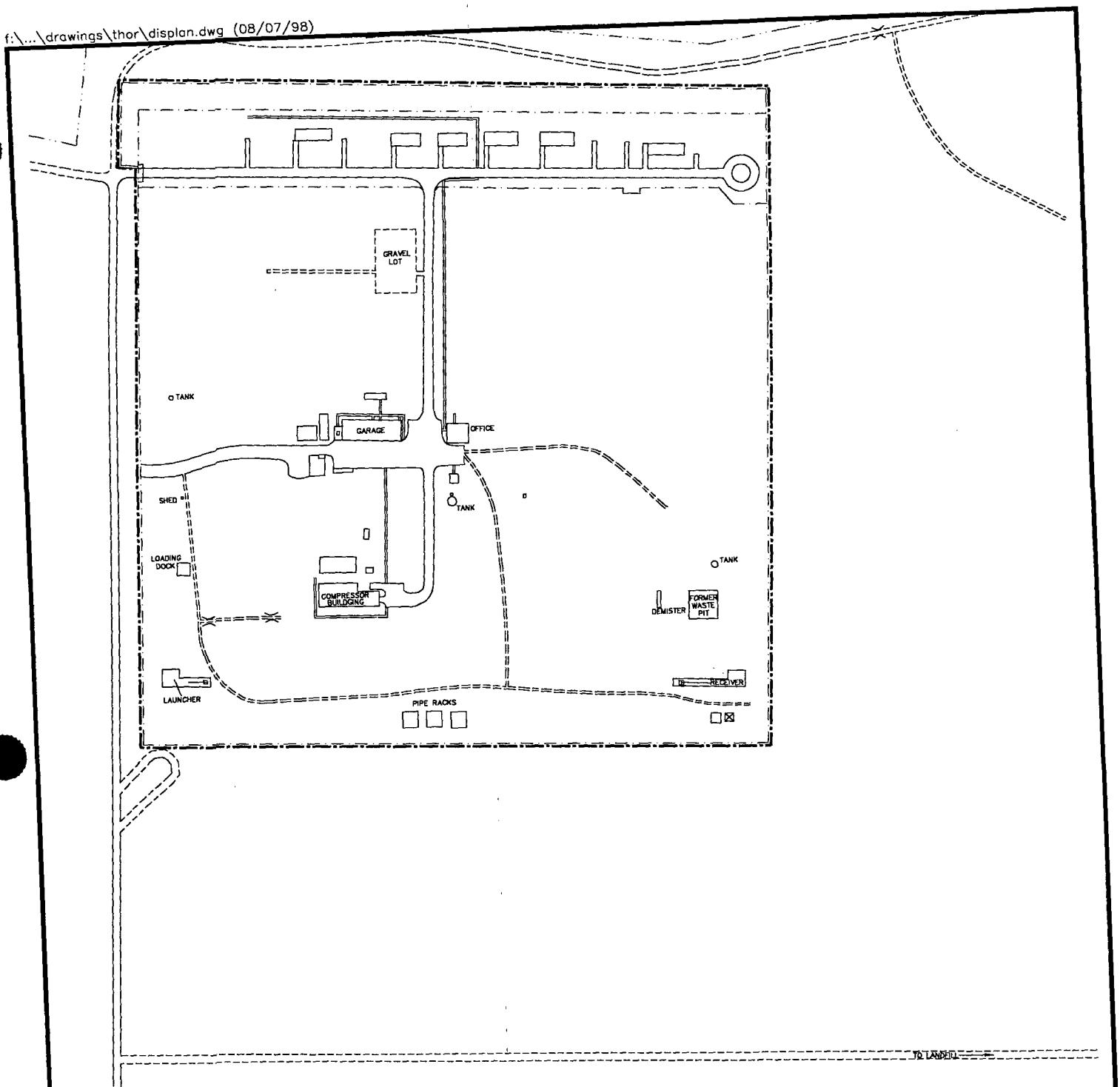
Remediation Activities Planned for August 1998 through July 1999

Transwestern anticipates that the remediation system will be in operation at least through mid-year 1999 in order to achieve its cleanup objectives. In addition, Transwestern plans to complete the ground water sampling program as outlined above.

Report of Ground Water Remediation Activities

**Transwestern Pipeline Company
Thoreau Compressor Station**

Figures



- [Chainlink Fence symbol] Chainlink Fence
- [Compressor Station Boundary symbol] Compressor Station Boundary
- [Gravel Road symbol] Gravel Road

**Thoreau Compressor Station
Site Map**

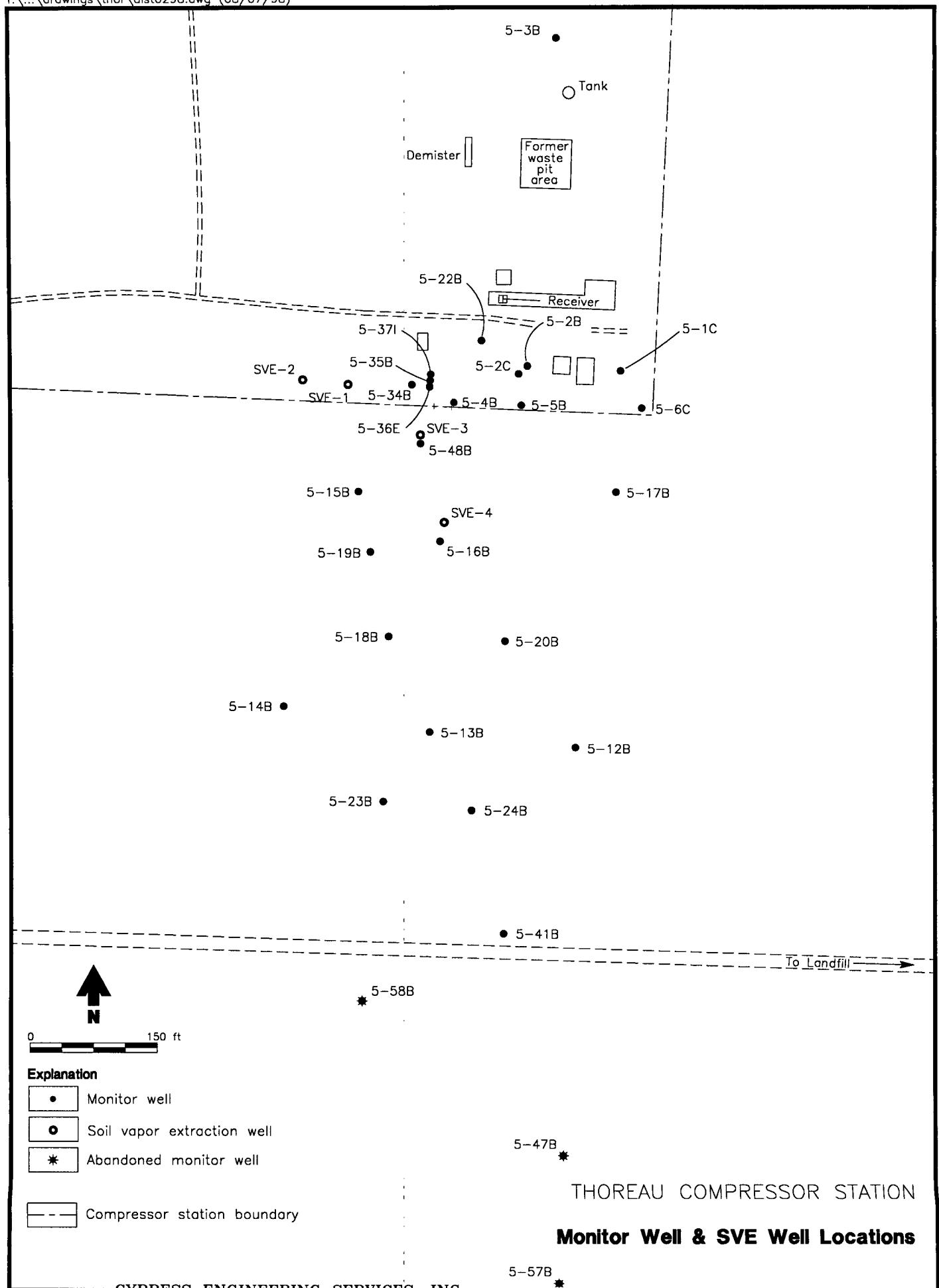
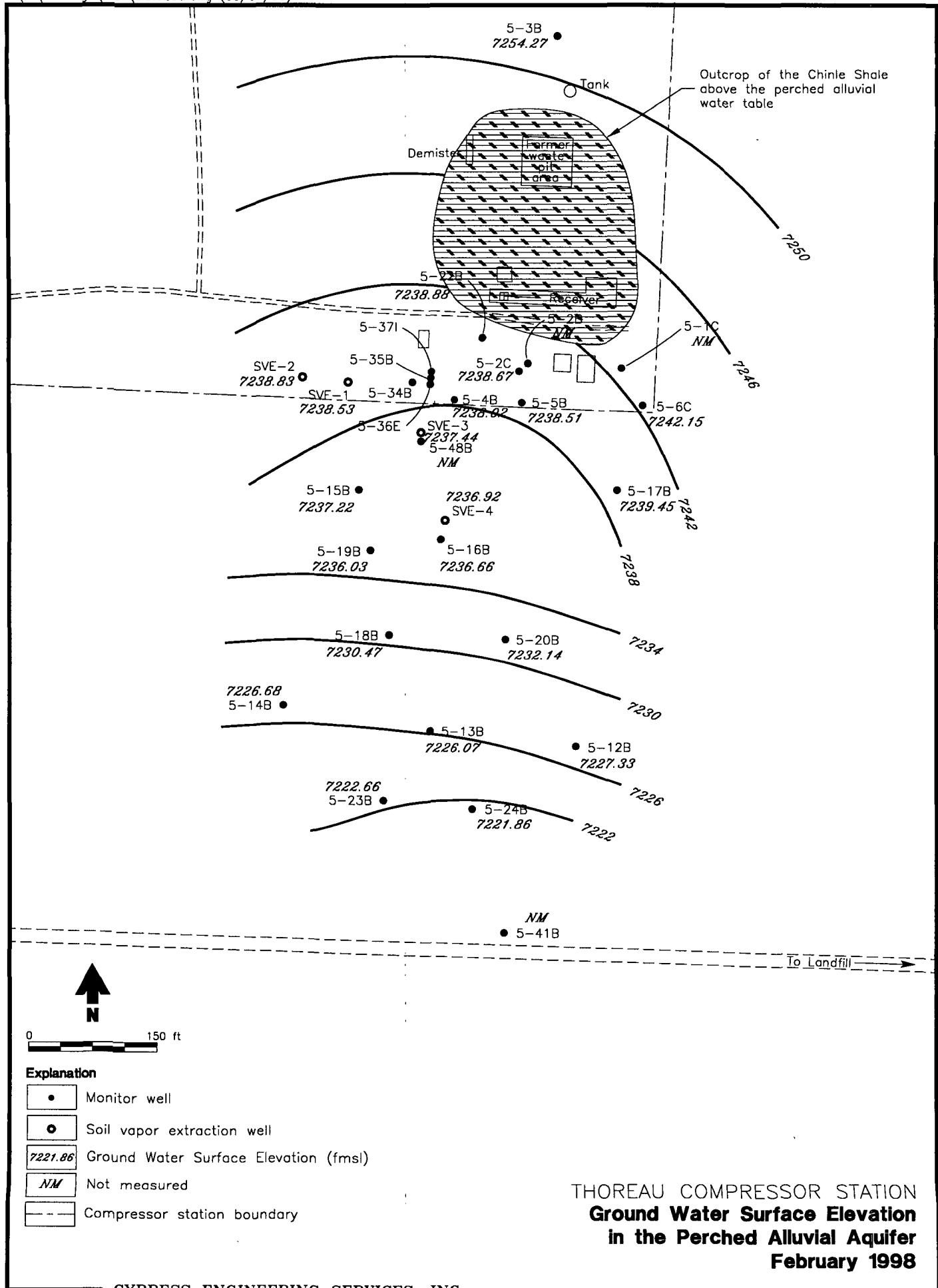
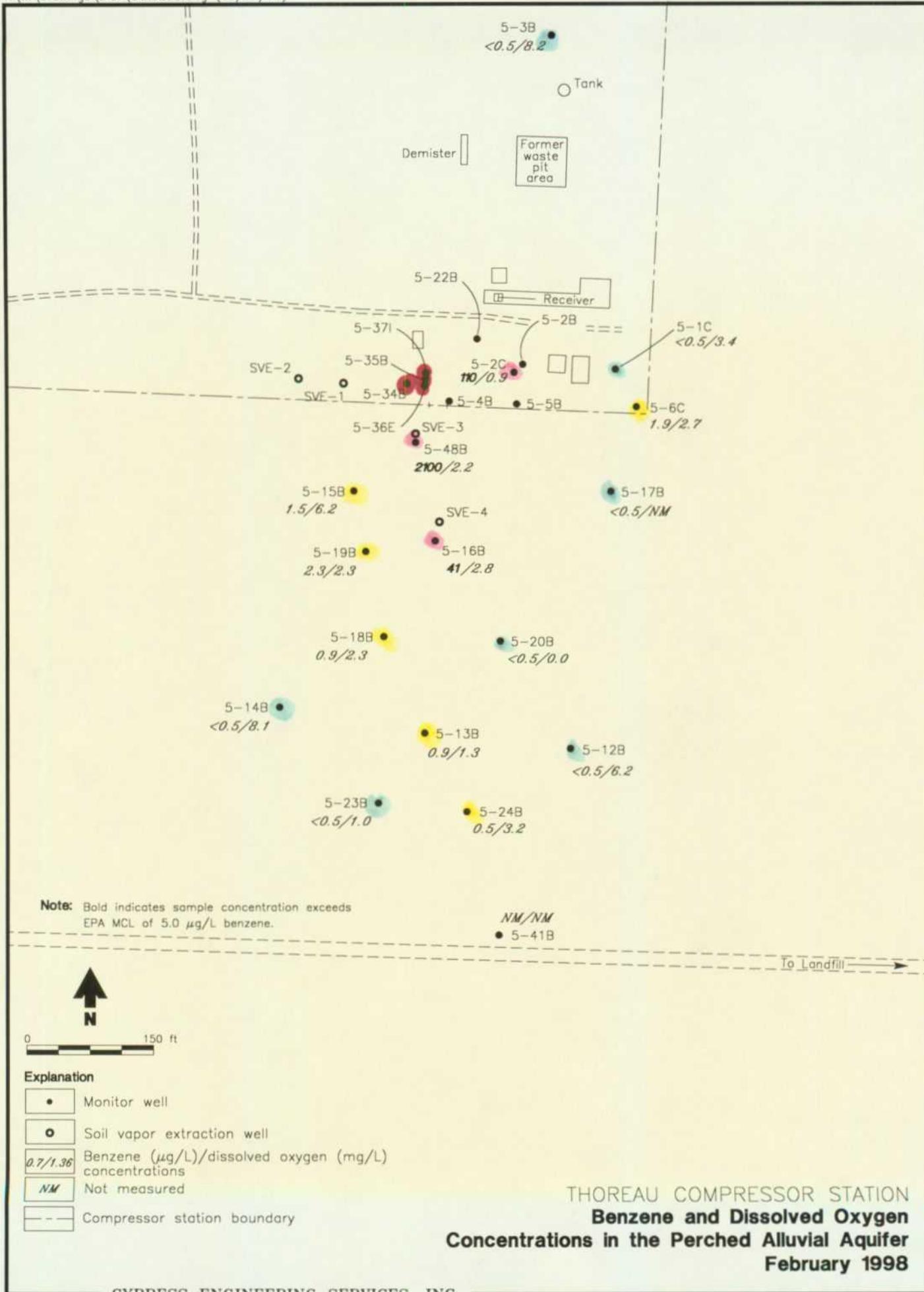
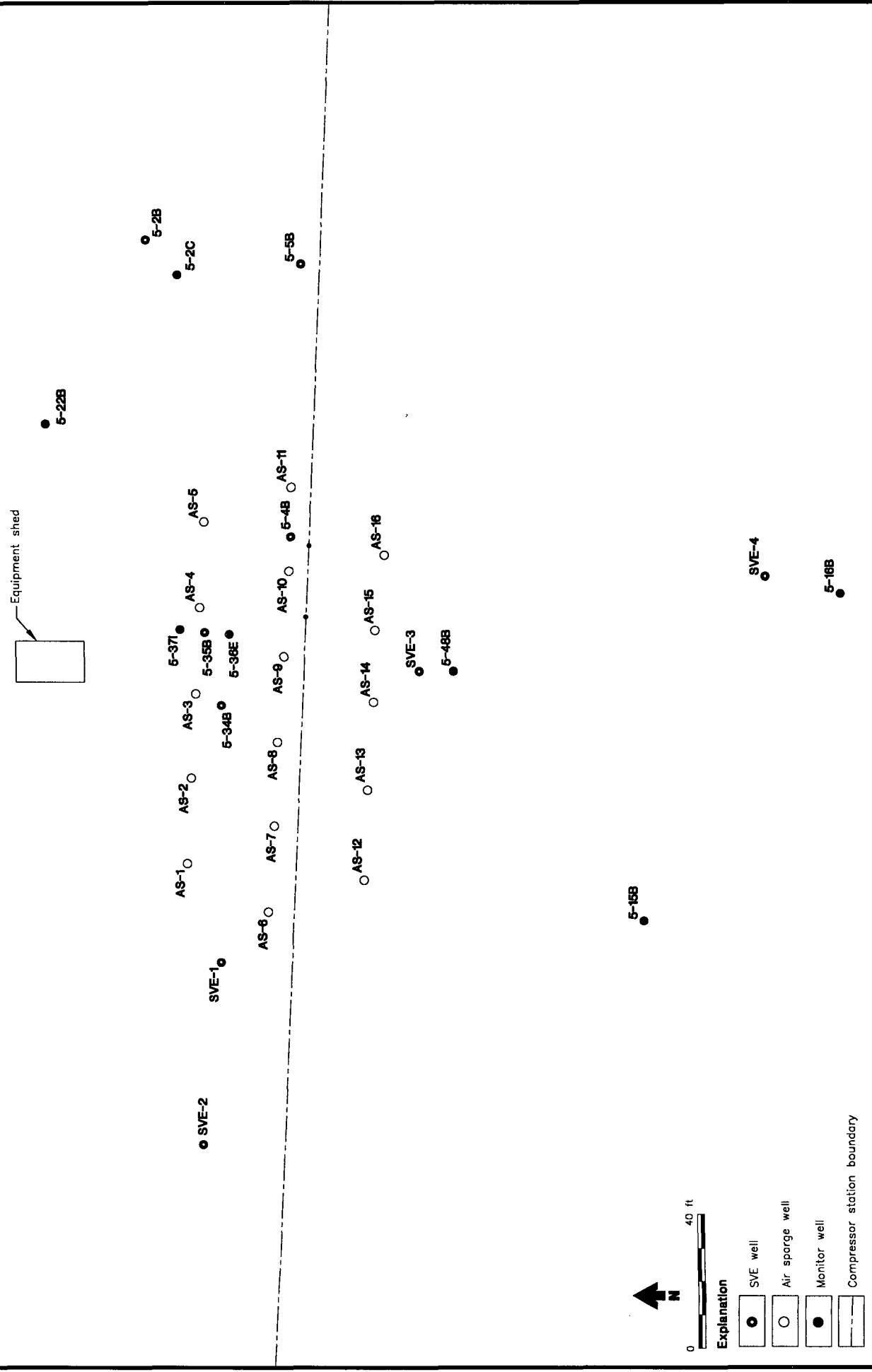


Figure 2



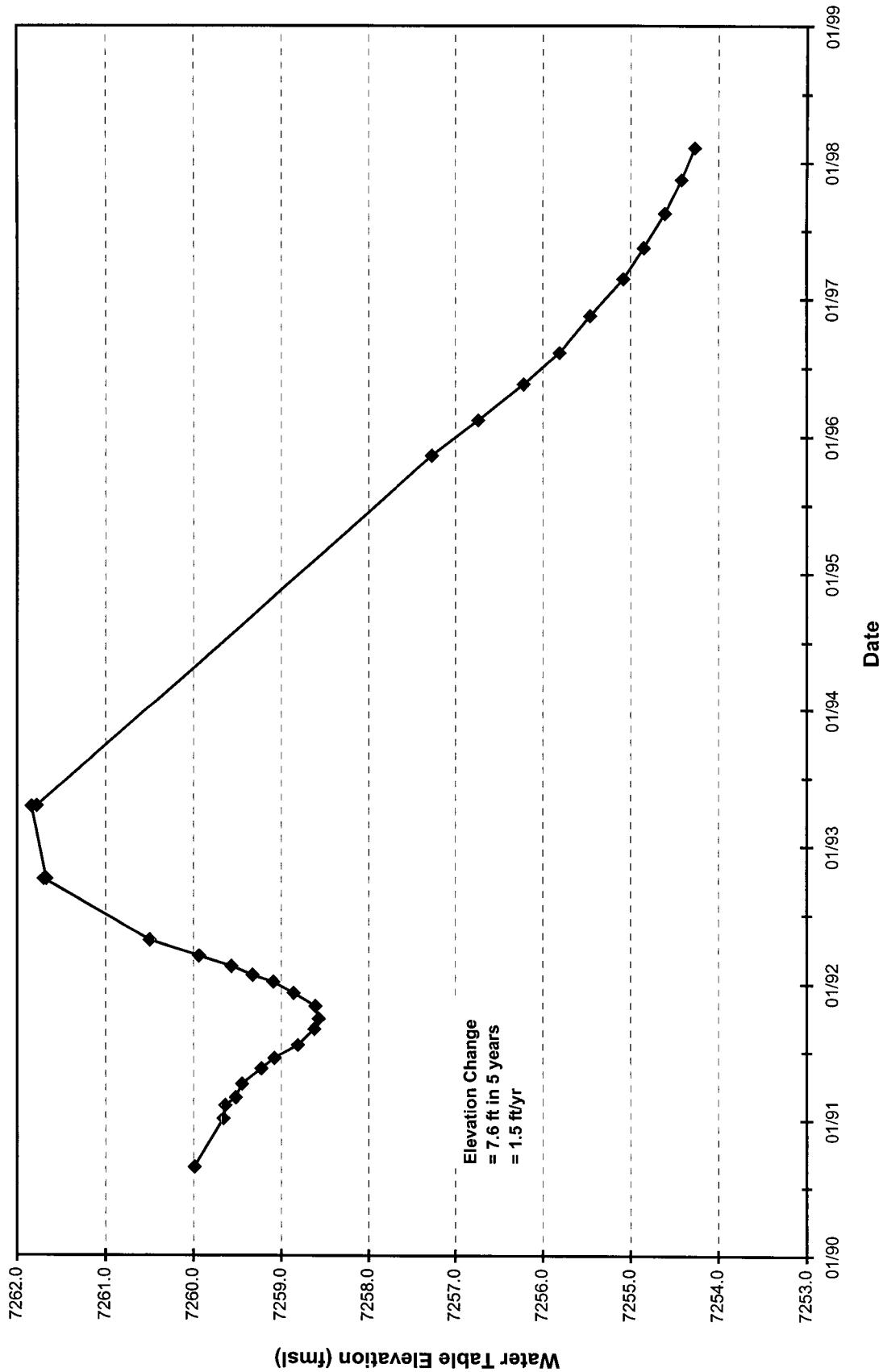




THOREAU COMPRESSOR STATION
Phase III Remediation System Modifications

CYPRESS ENGINEERING SERVICES, INC.

Hydrograph for Monitor Well 5-03B



Report of Ground Water Remediation Activities

**Transwestern Pipeline Company
Thoreau Compressor Station**

Tables

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
5 01B	7,290.53	08/29/90	44.69	7245.84
		11/08/90	44.70	7245.83
		01/08/91	44.82	7245.71
		02/05/91	44.86	7245.67
		03/05/91	44.91	7245.62
		04/10/91	44.94	7245.59
		05/21/91	45.08	7245.45
		06/18/91	45.15	7245.38
		07/23/91	45.28	7245.25
		09/04/91	45.38	7245.15
		10/02/91	45.52	7245.01
		11/06/91	45.63	7244.90
		12/10/91	45.64	7244.89
		01/09/92	45.61	7244.92
		01/27/92	45.53	7245.00
		02/20/92	45.39	7245.14
		03/18/92	45.18	7245.35
		04/29/92	44.78	7245.75
		10/06/92	43.71	7246.82
		10/14/92	43.67	7246.86
		04/19/93	42.96	7247.57
		11/14/95	46.16	7244.37
		02/15/96	46.64	7243.89
		05/21/96	47.32	7243.21
		08/12/96	NM	--
		11/18/96	47.91	7242.62
		02/24/97	48.31	7242.22
		05/19/97	48.57	7241.96
	Questionable (DTW=48.77?)	08/18/97	49.77	7240.76
		11/16/97	49.03	7241.50
5 01C	7,292.11	02/10/98	TP	--
5 02B	7,292.06	08/29/90	47.60	7244.46
		11/08/90	47.72	7244.34
		01/11/91	47.88	7244.18
		02/12/91	47.90	7244.16
		03/05/91	47.93	7244.13
		04/11/91	47.92	7244.14
		05/20/91	48.14	7243.92
		06/18/91	48.23	7243.83
		07/24/91	48.36	7243.70
		09/05/91	48.55	7243.51
		10/03/91	48.62	7243.44
		11/05/91	48.73	7243.33

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		12/12/91	48.68	7243.38
		01/09/92	48.58	7243.48
		01/28/92	48.48	7243.58
		02/20/92	48.27	7243.79
		03/19/92	47.98	7244.08
		04/29/92	47.38	7244.68
		10/06/92	46.09	7245.97
		10/14/92	46.07	7245.99
		04/19/93	45.38	7246.68
		04/22/93	45.36	7246.70
		11/14/95	49.32	7242.74
		02/15/96	49.84	7242.22
		05/21/96	50.47	7241.59
		08/12/96	NM	--
		11/21/96	51.66	7240.40
		02/24/97	TP	--
		05/19/97	TP	--
		08/18/97	NM	--
		11/16/97	NM	--
	7,293.24 (w/SVE ext)	02/10/98	NM	--
5 02C	7,291.82	02/10/98	53.15	7238.67
5 03B	7,303.76	08/29/90	43.77	7259.99
		01/07/91	44.10	7259.66
		02/12/91	44.12	7259.64
		03/05/91	44.24	7259.52
		04/10/91	44.31	7259.45
		05/21/91	44.53	7259.23
		06/18/91	44.68	7259.08
		07/23/91	44.95	7258.81
		09/04/91	45.14	7258.62
		10/02/91	45.19	7258.57
		11/05/91	45.15	7258.61
		12/10/91	44.90	7258.86
		01/09/92	44.67	7259.09
		01/27/92	44.43	7259.33
		02/19/92	44.19	7259.57
		03/17/92	43.82	7259.94
		04/28/92	43.26	7260.50
		10/06/92	42.06	7261.70
		10/07/92	42.09	7261.67
		04/19/93	41.92	7261.84
		04/20/93	41.98	7261.78
		11/14/95	46.49	7257.27

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		02/15/96	47.02	7256.74
		05/21/96	47.54	7256.22
		08/12/96	47.95	7255.81
		11/18/96	48.30	7255.46
		02/24/97	48.68	7255.08
		05/19/97	48.91	7254.85
		08/18/97	49.15	7254.61
		11/16/97	49.34	7254.42
		02/10/98	49.49	7254.27
5 04B	7,292.39	08/29/90	48.35	7244.04
		11/08/90	48.42	7243.97
		01/11/91	48.42	7243.97
		01/31/91	48.94	7243.45
		03/04/91	48.68	7243.71
		04/12/91	48.79	7243.60
		05/21/91	49.90	7242.49
		06/17/91	49.00	7243.39
		07/24/91	49.15	7243.24
		09/04/91	49.34	7243.05
		10/03/91	49.44	7242.95
		11/05/91	49.50	7242.89
		12/12/91	48.40	7243.99
		01/09/92	49.23	7243.16
		01/28/92	49.11	7243.28
		02/19/92	48.91	7243.48
		03/18/92	47.22	7245.17
	Questionable (DTW=46.65?)	04/28/92	47.65	7244.74
		10/06/92	46.36	7246.03
		10/13/92	46.35	7246.04
		04/19/93	45.77	7246.62
		04/21/93	45.79	7246.60
		11/14/95	50.21	7242.18
		02/15/96	50.82	7241.57
		05/21/96	NM	--
		08/12/96	NM	--
		11/18/96	NM	--
		02/24/97	NM	--
		05/19/97	NM	--
		08/18/97	NM	--
		11/16/97	NM	--
	7292.72 (w/SVE ext)	02/10/98	54.70	7238.02
5 05B	7,290.83	08/29/90	47.50	7243.33
		11/08/90	47.25	7243.58

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		01/10/91	47.14	7243.69
		02/05/91	47.20	7243.63
		03/05/91	47.20	7243.63
		04/18/91	47.34	7243.49
		05/21/91	47.44	7243.39
		06/18/91	47.52	7243.31
		07/24/91	47.69	7243.14
		09/05/91	47.83	7243.00
		10/02/91	47.54	7243.29
		11/04/91	48.02	7242.81
		12/10/91	47.94	7242.89
		01/09/92	47.87	7242.96
		01/27/92	47.74	7243.09
		02/19/92	47.58	7243.25
	Questionable (DTW=47.43?)	03/17/92	48.43	7242.40
		04/28/92	46.61	7244.22
		10/06/92	45.39	7245.44
		10/12/92	45.37	7245.46
		04/19/93	44.76	7246.07
		04/21/93	44.75	7246.08
		11/14/95	48.59	7242.24
		02/15/96	49.12	7241.71
		05/21/96	49.71	7241.12
		08/12/96	50.22	7240.61
		11/18/96	50.65	7240.18
		02/24/97	51.14	7239.69
		05/19/97	NM	--
		08/18/97	NM	--
		11/16/97	NM	--
	7292.02 (w/SVE ext)	02/10/98	53.51	7238.51
5 06B	7,289.30	08/29/90	43.47	7245.83
		11/08/90	43.24	7246.06
		01/08/91	43.42	7245.88
		02/12/91	43.50	7245.80
		03/05/91	43.50	7245.80
		04/18/91	43.61	7245.69
		05/21/91	43.66	7245.64
		06/18/91	43.74	7245.56
		07/23/91	43.83	7245.47
		09/05/91	44.00	7245.30
		10/03/91	44.06	7245.24
		11/05/91	44.16	7245.14
		12/10/91	44.17	7245.13

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		01/09/92	44.16	7245.14
		01/27/92	44.08	7245.22
		02/20/92	43.94	7245.36
		03/18/92	43.76	7245.54
		04/29/92	43.43	7245.87
		10/06/92	42.52	7246.78
		10/14/92	42.49	7246.81
		04/19/93	41.94	7247.36
		11/14/95	44.64	7244.66
		02/15/96	44.99	7244.31
		05/21/96	45.41	7243.89
		08/12/96	45.65	7243.65
		11/18/96	45.92	7243.38
		02/24/97	46.30	7243.00
		05/19/97	46.54	7242.76
		08/18/97	46.73	7242.57
		11/16/97	47.01	7242.29
5 06C	7,291.46	02/10/98	49.31	7242.15
5 12B	7,279.61	08/14/90	48.85	7230.76
		11/15/90	48.92	7230.69
		01/09/91	48.96	7230.65
		02/13/91	49.00	7230.61
		03/07/91	49.00	7230.61
		04/12/91	49.05	7230.56
		05/22/91	49.12	7230.49
		06/19/91	49.20	7230.41
		07/25/91	49.27	7230.34
		09/16/91	49.37	7230.24
		10/09/91	49.43	7230.18
		01/07/92	49.49	7230.12
		04/30/92	49.07	7230.54
		10/06/92	48.27	7231.34
		10/08/92	48.28	7231.33
		04/19/93	47.45	7232.16
		11/14/95	49.71	7229.90
		02/15/96	50.02	7229.59
		05/21/96	50.31	7229.30
		08/12/96	50.61	7229.00
		11/18/96	50.89	7228.72
		02/24/97	51.24	7228.37
		05/19/97	51.49	7228.12
		08/18/97	51.78	7227.83
		11/16/97	52.07	7227.54

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		02/10/98	52.28	7227.33
5 13B	7,282.43	08/14/90	52.43	7230.00
		11/15/90	52.76	7229.67
		01/09/91	52.82	7229.61
		02/07/91	52.89	7229.54
		03/07/91	52.92	7229.51
		04/12/91	53.00	7229.43
		05/22/91	53.06	7229.37
		06/19/91	53.15	7229.28
		07/26/91	53.26	7229.17
		09/16/91	53.36	7229.07
		10/10/91	53.42	7229.01
		01/08/92	53.58	7228.85
		05/01/92	52.88	7229.55
		10/06/92	51.80	7230.63
		10/13/92	51.78	7230.65
		04/19/93	51.08	7231.35
		11/14/95	53.85	7228.58
		02/15/96	54.18	7228.25
		05/21/96	54.52	7227.91
		08/12/96	54.81	7227.62
		11/18/96	55.05	7227.38
		02/24/97	55.37	7227.06
		05/19/97	55.60	7226.83
		08/18/97	55.87	7226.56
		11/16/97	56.13	7226.30
		02/10/98	56.36	7226.07
5 14B	7,285.76	08/14/90	55.14	7230.62
		11/14/90	55.02	7230.74
		01/09/91	55.12	7230.64
		02/07/91	55.19	7230.57
		03/07/91	55.21	7230.55
		04/12/91	55.64	7230.12
		05/22/91	55.36	7230.40
		06/19/91	55.38	7230.38
		07/25/91	55.54	7230.22
		09/16/91	55.63	7230.13
		10/09/91	55.72	7230.04
		01/06/92	55.74	7230.02
		04/30/92	55.02	7230.74
		10/06/92	53.94	7231.82
		10/08/92	53.93	7231.83
		04/19/93	53.25	7232.51

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		11/14/95	56.25	7229.51
		02/15/96	56.62	7229.14
		05/21/96	57.02	7228.74
		08/12/96	57.33	7228.43
		11/18/96	57.64	7228.12
		02/24/97	58.01	7227.75
		05/19/97	58.27	7227.49
		08/18/97	58.56	7227.20
		11/16/97	58.86	7226.90
		02/10/98	59.08	7226.68
5 15B	7,292.92	08/14/90	49.86	7243.06
		11/14/90	49.98	7242.94
	Questionable (DTW=50.10?)	01/10/91	51.10	7241.82
		02/07/91	50.16	7242.76
		03/06/91	50.17	7242.75
		04/10/91	50.25	7242.67
		05/23/91	50.45	7242.47
		06/19/91	50.54	7242.38
		07/25/91	50.70	7242.22
		09/16/91	50.92	7242.00
		10/09/91	50.95	7241.97
		01/07/92	50.57	7242.35
		04/30/92	48.74	7244.18
		10/06/92	47.75	7245.17
		10/08/92	47.74	7245.18
		04/19/93	47.41	7245.51
		11/14/95	51.84	7241.08
		02/15/96	52.42	7240.50
		05/21/96	53.04	7239.88
		08/12/96	53.52	7239.40
		11/18/96	53.99	7238.93
		02/24/97	54.48	7238.44
		05/19/97	54.60	7238.32
		08/18/97	55.18	7237.74
		11/16/97	55.48	7237.44
		02/10/98	55.70	7237.22
5 16B	7,288.82	08/14/90	47.21	7241.61
		11/14/90	47.46	7241.36
		01/10/91	47.60	7241.22
		02/06/91	47.62	7241.20
		03/06/91	47.63	7241.19
		04/09/91	47.73	7241.09
		05/23/91	47.87	7240.95

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		06/18/91	47.91	7240.91
		07/26/91	48.04	7240.78
		09/03/91	48.17	7240.65
		10/11/91	48.30	7240.52
		11/12/91	48.34	7240.48
		12/12/91	48.22	7240.60
		01/08/92	48.11	7240.71
		02/20/92	47.76	7241.06
		03/18/92	47.43	7241.39
		04/29/92	46.89	7241.93
		10/06/92	45.97	7242.85
		10/13/92	45.95	7242.87
		04/19/93	45.61	7243.21
		04/20/93	45.62	7243.20
		11/14/95	48.88	7239.94
		02/15/96	49.33	7239.49
		05/21/96	50.11	7238.71
		08/12/96	50.41	7238.41
		11/18/96	50.74	7238.08
		02/24/97	51.08	7237.74
		05/19/97	51.35	7237.47
		08/18/97	51.67	7237.15
		11/16/97	52.02	7236.80
		02/10/98	52.16	7236.66
5 17B	7,284.75	08/14/90	40.79	7243.96
		11/15/90	40.83	7243.92
		01/10/91	40.96	7243.79
		02/08/91	40.99	7243.76
		03/06/91	41.01	7243.74
		04/11/91	41.06	7243.69
		05/22/91	41.14	7243.61
		06/18/91	41.23	7243.52
		07/25/91	41.34	7243.41
		09/16/91	41.50	7243.25
		10/09/91	41.60	7243.15
		01/07/92	41.60	7243.15
		02/19/92	41.46	7243.29
		03/17/92	41.21	7243.54
		04/28/92	40.84	7243.91
		10/06/92	39.97	7244.78
		10/07/92	39.97	7244.78
		04/19/93	39.40	7245.35
		11/14/95	42.06	7242.69

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		02/15/96	42.46	7242.29
		05/21/96	42.94	7241.81
		08/12/96	43.33	7241.42
		11/18/96	43.72	7241.03
		02/24/97	44.14	7240.61
		05/19/97	44.44	7240.31
		08/18/97	44.76	7239.99
		11/16/97	45.07	7239.68
		02/10/98	45.30	7239.45
5 18B	7,286.41	08/14/90	51.67	7234.74
		08/24/90	51.68	7234.73
		11/15/90	51.60	7234.81
		01/04/91	51.66	7234.75
		02/13/91	51.76	7234.65
		03/06/91	51.79	7234.62
		04/16/91	51.90	7234.51
		06/19/91	52.05	7234.36
		07/26/91	52.21	7234.20
		09/16/91	52.35	7234.06
		10/11/91	52.41	7234.00
		01/08/92	52.40	7234.01
		05/01/92	51.38	7235.03
		10/06/92	50.24	7236.17
		10/13/92	50.22	7236.19
		04/19/93	49.68	7236.73
		04/22/93	49.70	7236.71
		11/14/95	53.04	7233.37
		02/15/96	53.49	7232.92
		05/21/96	53.94	7232.47
		08/12/96	54.31	7232.10
		11/18/96	54.64	7231.77
		02/24/97	55.03	7231.38
		05/19/97	55.25	7231.16
		08/18/97	55.51	7230.90
		11/16/97	55.75	7230.66
		02/10/98	55.94	7230.47
5 19B	7,290.52	08/14/90	49.44	7241.08
		11/14/90	49.76	7240.76
		01/10/91	49.86	7240.66
		02/07/91	49.90	7240.62
		03/06/91	49.92	7240.60
		04/09/91	50.02	7240.50
	Questionable (DTW=50.12?)	05/23/91	50.92	7239.60

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		06/19/91	50.23	7240.29
		07/26/91	50.37	7240.15
		09/16/91	50.55	7239.97
		10/10/91	50.60	7239.92
		01/08/92	50.36	7240.16
		02/20/92	50.04	7240.48
		03/19/92	49.60	7240.92
		04/29/92	48.97	7241.55
		10/06/92	48.05	7242.47
		10/13/92	48.04	7242.48
		04/19/93	47.73	7242.79
		11/14/95	51.30	7239.22
		02/15/96	51.75	7238.77
		05/21/96	52.26	7238.26
		08/12/96	52.66	7237.86
		11/18/96	53.02	7237.50
		02/24/97	53.44	7237.08
		05/19/97	53.73	7236.79
		08/18/97	TP	--
		11/16/97	54.29	7236.23
		02/10/98	54.49	7236.03
5 20B	7,284.60	08/14/90	48.50	7236.10
		01/09/91	48.70	7235.90
		02/07/91	48.79	7235.81
		03/07/91	48.80	7235.80
		04/16/91	48.88	7235.72
		05/20/91	48.92	7235.68
		06/19/91	49.02	7235.58
		07/26/91	49.13	7235.47
		09/16/91	49.25	7235.35
		10/10/91	49.32	7235.28
		01/08/92	49.36	7235.24
		05/01/92	48.48	7236.12
		10/06/92	47.61	7236.99
		10/12/92	47.58	7237.02
		04/19/93	47.26	7237.34
		04/21/93	47.31	7237.29
		11/14/95	49.63	7234.97
		02/15/96	50.03	7234.57
		05/21/96	50.39	7234.21
		08/12/96	50.66	7233.94
		11/18/96	50.99	7233.61
		02/24/97	51.28	7233.32

**Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5**

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		05/19/97	51.54	7233.06
		08/18/97	51.88	7232.72
		11/16/97	52.21	7232.39
		02/10/98	52.46	7232.14
5 22B	7,292.74	10/25/90	48.08	7244.66
		11/15/90	48.08	7244.66
		01/10/91	48.33	7244.41
		02/04/91	48.38	7244.36
		03/06/91	48.42	7244.32
		04/11/91	48.49	7244.25
		05/21/91	48.65	7244.09
		06/17/91	48.76	7243.98
		07/24/91	49.24	7243.50
		09/04/91	49.06	7243.68
		10/03/91	49.19	7243.55
		11/04/91	49.26	7243.48
		12/12/91	49.15	7243.59
		01/10/92	49.00	7243.74
		01/28/92	48.84	7243.90
		02/19/92	48.67	7244.07
		03/18/92	48.24	7244.50
		04/28/92	47.46	7245.28
		10/06/92	45.97	7246.77
		10/08/92	45.98	7246.76
		04/19/93	45.34	7247.40
		11/14/95	NM	--
		02/15/96	NM	--
		05/21/96	51.25	7241.49
		08/12/96	51.91	7240.83
		11/18/96	NM	--
		02/27/97	52.95	7239.79
		05/19/97	53.13	7239.61
		08/18/97	53.51	7239.23
		11/16/97	53.79	7238.95
		02/10/98	53.86	7238.88
5 23B	7,282.63	10/25/90	55.78	7226.85
		11/15/90	55.75	7226.88
		01/03/91	55.90	7226.73
		02/07/91	56.20	7226.43
		03/07/91	56.02	7226.61
		04/16/91	56.08	7226.55
		05/22/91	56.14	7226.49
		06/19/91	56.17	7226.46

**Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5**

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		07/25/91	56.28	7226.35
		09/03/91	56.38	7226.25
		10/09/91	56.47	7226.16
		11/11/91	56.56	7226.07
		12/13/91	56.63	7226.00
		01/07/92	56.58	7226.05
		02/18/92	56.58	7226.05
		03/17/92	56.42	7226.21
		04/30/92	56.12	7226.51
		10/06/92	55.19	7227.44
		10/09/92	55.19	7227.44
		04/19/93	54.56	7228.07
		11/14/95	57.02	7225.61
		02/15/96	57.39	7225.24
		05/21/96	57.79	7224.84
		08/12/96	58.11	7224.52
		11/18/96	58.38	7224.25
		02/24/97	58.75	7223.88
		05/19/97	59.01	7223.62
	Questionable (DTW=59.33?)	08/18/97	60.33	7222.30
		11/16/97	59.66	7222.97
		02/10/98	59.97	7222.66
5 24B	7,279.18	10/25/90	53.64	7225.54
		11/15/90	53.72	7225.46
		01/03/91	53.76	7225.42
		01/09/91	53.78	7225.40
		02/07/91	53.86	7225.32
		03/07/91	53.86	7225.32
		04/16/91	53.94	7225.24
		05/22/91	54.00	7225.18
		07/26/91	54.15	7225.03
		09/03/91	54.21	7224.97
		10/10/91	54.30	7224.88
		11/11/91	54.38	7224.80
		12/13/91	54.43	7224.75
		01/07/92	54.40	7224.78
		02/18/92	54.40	7224.78
		03/17/92	54.25	7224.93
		04/30/92	53.98	7225.20
		10/06/92	53.06	7226.12
		10/13/92	53.02	7226.16
		04/19/93	52.33	7226.85
		04/21/93	52.33	7226.85

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
		11/14/95	54.62	7224.56
		02/15/96	54.96	7224.22
		05/21/96	55.38	7223.80
		08/12/96	55.66	7223.52
		11/18/96	55.93	7223.25
		02/24/97	56.26	7222.92
		05/19/97	56.50	7222.68
		08/18/97	56.78	7222.40
		11/16/97	57.07	7222.11
		02/10/98	57.32	7221.86
5 34B	7,294.71	05/12/92	48.62	7246.09
		05/13/92	48.60	7246.11
		05/14/92	48.58	7246.13
		06/19/92	48.18	7246.53
		07/28/92	47.88	7246.83
		04/19/93	46.98	7247.73
		11/14/95	52.33	7242.38
		02/16/96	NM	--
		08/12/96	NM	--
		11/18/96	NM	--
		02/24/97	NM	--
		05/19/97	NM	--
		08/18/97	NM	--
		11/16/97	NM	--
	PSH not measured	02/10/98	61.00	7246.09
5 35B	7,296.11	05/05/92	50.55	7245.56
		05/14/92	50.32	7245.79
		05/30/92	50.14	7245.97
		06/19/92	49.94	7246.17
		06/29/92	49.81	7246.30
		07/24/92	49.61	7246.50
		08/07/92	49.51	7246.60
		08/31/92	49.35	7246.76
		09/15/92	49.29	7246.82
		09/29/92	49.26	7246.85
		10/14/92	49.20	7246.91
		04/19/93	48.79	7247.32
		04/22/93	48.73	7247.38
		11/14/95	NM	--
		02/15/96	NM	--
		08/12/96	NM	--
		11/18/96	NM	--
		02/24/97	NM	--

Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
	PSH=sheen	05/19/97	56.21	7240.67
	PSH=0.9 ft	08/18/97	56.41	7240.47
		11/16/97	NM	--
	7295.33 (w/SVE ext) PSH not measured	02/10/98	55.79	7239.54
5 41B	7,279.73	10/06/92	61.03	7218.70
		10/09/92	60.99	7218.74
		04/19/93	60.38	7219.35
		04/20/93	60.40	7219.33
		11/14/95	61.90	7217.83
		02/15/96	62.26	7217.47
		05/21/96	62.72	7217.01
		08/12/96	63.12	7216.61
		11/18/96	63.52	7216.21
		02/24/97	63.97	7215.76
		05/19/97	64.36	7215.37
		08/18/97	64.72	7215.01
		11/16/97	NM	--
		02/10/98	NM	--
5 47B	7,268.35	10/06/92	62.71	7205.64
		10/07/92	62.71	7205.64
		04/19/93	62.18	7206.17
		04/20/93	62.20	7206.15
		11/14/95	62.77	7205.58
		02/15/96	63.27	7205.08
		05/21/96	63.83	7204.52
		08/12/96	64.31	7204.04
		11/18/96	64.75	7203.60
		02/24/97	TP	--
		05/19/97	65.39	7202.96
		08/18/97	66.03	7202.32
		11/16/97	NM	--
5 48B	7,292.64	10/06/92	46.80	7245.84
		10/12/92	46.96	7245.68
		04/19/93	46.52	7246.12
		04/21/93	46.51	7246.13
		11/14/95	51.00	7241.64
		02/15/96	51.60	7241.04
		05/21/96	52.22	7240.42
		08/12/96	52.75	7239.89
		11/18/96	53.24	7239.40
		02/24/97	53.76	7238.88
		05/19/97	54.11	7238.53

**Table 1. Summary of Ground Water Level Data
Thoreau Compressor Station No. 5**

Well ID	Measuring Point Elevation (fmsl)	Date	Depth to Ground Water (ft below MP)	Ground Water Elevation (fmsl)
5 57B	7,257.80	08/18/97	54.49	7238.15
		11/16/97	54.78	7237.86
		02/10/98	TP	--
		04/19/93	59.97	7197.83
		11/14/95	60.21	7197.59
		02/15/96	60.58	7197.22
		05/21/96	61.03	7196.77
		08/12/96	61.44	7196.36
		11/18/96	61.80	7196.00
		02/24/97	62.20	7195.60
5 58B	7,279.38	05/19/97	62.51	7195.29
		08/18/97	62.82	7194.98
		11/16/97	NM	--
		04/19/93	64.09	7215.29
		11/14/95	65.55	7213.83
		02/15/96	66.16	7213.22
		05/21/96	66.83	7212.55
		08/12/96	67.37	7212.01
		11/18/96	67.86	7211.52
		02/24/97	68.42	7210.96
MP = Measuring point		05/19/97	68.82	7210.56
		08/18/97	69.21	7210.17
fmsl = Feet above mean sea level		11/16/97	NM	--
NM = Not measured				
TP = Tagged top of pump				

Table 2. Summary of Field Measured Parameters
Thoreau Compressor Station No. 5

Well ID	Date	pH	Temperature °C	Electrical Conductivity (μmhos)	Dissolved Oxygen (mg/L)	Remarks
5-01B	11/21/95	7.37	12.8	1,314	3.8	Muddy, no odor
	02/21/96	7.40	11.9	960	7.5	Turbid, no odor
	05/23/96	7.28	13.2	1,327	10.6a	Turbid
	08/14/96	7.51	15.8	1,324	NM	Turbid, no odor
	11/21/96	7.13	13.0	1,080	6.3	Turbid
	02/27/97	7.49	7.7	820	4.57	Turbid
	05/21/97	7.02	14.0	990	3.73	Slightly turbid
	08/20/97	7.29	14.7	1,312	NM	Turbid, no odor
5-01C	11/23/97	7.59	14.9	1252	5.5	Clear
	02/12/98	7.86	11.3	1137	3.4	Clear
5-02B	11/21/95	6.89	14.5	920	2.1	Slightly cloudy, HC odor
	02/22/96	7.14	11.9	1,010	4.0	Colorless, suspended black silt, HC odor
	05/23/96	7.21	14.0	1,430	1.4	HC odor, suspended black fine sand and silt
	08/14/96	7.36	15.0	1,000	NM	HC odor, suspended black fine sand and silt
	11/21/96	7.02	13.0	990	2.9	Black, HC odor
	02/28/97	7.20	9.6	990	2.17	Clear
5-02C	11/24/97	7.24	12.5	1439	3.0	Turbid, Reddish
	02/11/98	7.24	10.1	1397	0.9	Clear
5-03B	11/15/95	7.59	14.0	860	8.0	Clear, no odor
	05/20/96	8.26	13.4	1,282	7.0b	Turbid
	08/12/96	7.91	14.2	1,000	8.6b	Turbid
	11/18/96	7.77	12.0	1,110	7.0b / 8.0	Turbid
	02/24/97	7.77	10.2	980	7.0b/5.74	Turbid
	05/20/97	7.73	13.8	1,060	8.8/8.0b	Turbid
	05/18/97	7.69	13.5	1,423	8.0	Turbid, Reddish
	11/17/97	7.64	13.4	1,100	8.0b / 7.36	Turbid
	02/10/98	7.36	12.5	1,000	8.17	Turbid
	11/17/95	7.15	14.6	1,097	NM	Clear, moderate HC odor
5-04B	11/22/95	7.87	14.0	720	5.6	Slightly cloudy, no HC odor
	11/17/95	7.04	13.0	1,350	2.9	Clear, moderate HC odor
5-05B	05/22/96	7.36	13.8	1,419	1.4	Clear, no odor
	08/14/96	7.61	14.3	1,395	1.08	Cloudy, HC odor
	11/20/96	7.26	12.2	1,110	4.2	Clear
	02/25/97	7.46	8.2	890	2.86	Cloudy, HC odor
	11/21/95	7.51	14.0	880	3.2	Slightly cloudy, no HC odor
5-06B	02/22/96	7.71	12.6	880	7.2	Clear, slight HC ordor
	05/23/96	7.90	13.2	1,248	1.7	Clear
	08/15/96	7.57	15.0	980	NM	Clear, possible slight HC odor
	11/22/96	7.34	11.9	900	4.5	Clear
	02/28/97	7.78	11.7	895	1.11	Clear
	05/22/97	7.29	13.5	920	1.66	Clear
	08/20/97	7.62	14.2	1,140	2.2b / 2.7	Clear
5-06C	11/23/97	7.67	14.3	1181	0.8b / 0.5	Turbid
	02/12/98	7.75	11.9	1072	0.0	Clear
5-12B	11/16/95	7.38	13.9	900	6.5	Clear, no odor
	05/24/96	7.44	15.0	870	8.0	Clear
	08/13/96	8.27	13.9	1242	8.6	Clear
	11/19/96	7.25	12.5	890	8.0b	Clear, no odor
	02/26/97	7.58	11.8	895	6.5b/4.78	Clear
	05/21/97	7.48	13.7	905	6.15	Clear
	08/19/97	7.61	14.9	1255	7.0b	Clear
	11/17/97	7.65	13.9	990	8.49	Clear
	02/11/98	7.70	11.3	1114	7.0b / 6.2	Clear
	11/20/95	7.59	13.9	800	4.3	Clear, HC odor

Table 2. Summary of Field Measured Parameters
Thoreau Compressor Station No. 5

Well ID	Date	pH	Temperature °C	Electrical Conductivity (µmhos)	Dissolved Oxygen (mg/L)	Remarks
	02/21/96	7.67	13.8	840	4.2	Clear, HC odor
	05/22/96	7.68	13.8	860	1.4	Clear
	08/13/96	8.71	14.5	850	3.04	Clear, HC odor
	11/20/96	7.49	13.0	850	2.7	Clear, HC odor
	02/26/97	7.53	11.9	850	1.51	Clear
	05/21/97	7.31	13.4	880	2.79	Clear, Slight HC odor
	08/19/97	7.49	17.6	1205	0.8b / 1.2	Clear, HC odor
	11/18/97	7.78	10.1	1060	1.2b	Clear
	02/11/98	7.81	11.0	1077	1.0b / 1.3	Clear, Odor
5-14B	11/16/95	8.03	14.6	1,056	8.0	Very slightly cloudy
	05/21/96	8.01	13.9	1,011	9.8a	Clear
	08/13/96	8.64	15.6	992	6.89	Clear
	11/19/96	7.42	12.5	720	6.1	Silty amber, no odor
	02/26/97	7.87	10.5	931	6.5b	Clear, no odor
	05/21/97	7.87	13.2	964	6.81/7.0b	Clear
	11/17/97	7.86	11.9	841	6.8	Clear
	02/10/98	6.91	10.2	630	8.12	Clear
5-15B	11/16/95	7.98	12.5	982	6.9	Clear, no odor
	05/22/96	7.67	13.0	710	4.9	Clear
	08/14/96	8.26	14.4	1006	9.85	Clear
	11/20/96	7.54	14.0	720	8.0b	Clear
	02/26/97	7.82	11.4	977	6.8b	Clear, no odor
	05/21/97	7.77	12.9	1020	6.49	Clear
	08/19/97	7.80	14.5	934	8.0b / 8.0	Clear
	11/17/97	7.78	11.8	904	6.5b / 6.4	Clear
	02/11/98	7.39	13.1	720	7.0b / 6.22	Slightly Turbid
5-16B	11/20/95	7.50	13.0	800	2.4	Clear, strong HC odor
	02/21/96	7.58	13.8	840	3.5	Clear, HC odor
	05/23/96	7.47	13.2	1,181	1.3	Clear, very strong HC odor
	08/15/96	7.46	14.3	1,214	1.0b/1.9	Clear, very strong HC odor
	11/21/96	7.45	13.0	1,000	1.0b	Clear, HC odor
	02/27/97	7.52	12.0	1,131	2.31	Clear, strong HC odor
	05/22/97	7.30	14.9	900	1.13	Clear, strong HC odor
	08/20/97	7.41	15.4	1,100	0.4b / 1.6	Clear, HC odor, Film on top
	11/19/97	7.46	12.6	1,096	0.4b / 0.4	Clear, HC odor
	02/11/98	7.16	11.6	840	2.78	Clear, HC odor, film/sheen
5-17B	11/20/95	7.65	13.4	1,525	7.4	Clear, no odor
	05/22/96	7.44	12.5	1,005	6.4	Clear
	08/14/96	7.66	17.0	1,090	NM	Clear
	11/20/96	7.69	13.6	1,160	NM	Clear
	02/27/97	7.64	11.6	930	4.57	Clear
	05/21/97	7.64	14.2	990	NM	Clear
	08/20/97	7.67	15.8	1,335	8.0b / 9.0	Clear, no odor
	11/18/97	7.91	12.0	990	9.5	Clear
	02/11/98	7.25	10.2	910	NM	Clear
5-18B	11/17/95	7.68	14.0	720	1.4	Clear, HC odor
	02/21/96	7.76	12.2	760	5.6	Clear, HC odor
	05/22/96	7.62	13.3	790	1.5	Clear
	08/14/96	8.27	14.2	1071	2.38	Clear, HC odor
	11/20/96	7.70	13.0	890	2.3	Clear, HC odor
	02/27/97	7.78	11.7	988	1.29	Clear, HC odor
	05/22/97	7.71	13.3	1065	4.45	Clear, HC odor
	08/19/97	7.69	14.1	988	0.4b / 0.8	Clear, HC odor
	11/17/97	7.72	12.9	860	7.76	Clear

Table 2. Summary of Field Measured Parameters
Thoreau Compressor Station No. 5

Well ID	Date	pH	Temperature °C	Electrical Conductivity (μmhos)	Dissolved Oxygen (mg/L)	Remarks
5-19B	02/11/98	7.33	12.8	790	2.28	Clear, HC odor
	11/20/95	7.68	13.0	700	2.00	Clear, slight HC odor
	02/21/96	7.81	12.7	730	4.4	Clear, HC odor
	05/22/96	7.78	14.1	1,023	2.0	Clear, slight HC odor
	08/14/96	7.99	14.7	1,022	3.0	Clear
	11/21/96	7.79	12.8	840	3.2	Clear, HC odor
	02/27/97	7.83	10.2	951	1.8b/1.9	Clear, HC odor
	05/21/97	7.84	12.8	1,002	2.7	Clear, HC odor
	08/20/97	7.82	15.7	939	1.6b / 2.5	Clear, HC odor
	11/17/97	7.91	12.3	800	1.0b / 3.68	Clear, Slight HC odor
5-20B	02/11/98	7.47	12.0	710	2.26	Clear, HC odor
	11/17/95	7.16	13.7	1,200	2.9	Clear, slight HC odor
	05/22/96	7.18	14.4	1,120	1.8	Clear
	08/14/96	7.82	16.2	1,629	4.84	Clear, HC odor
	11/20/96	7.04	12.5	1,180	NM	Clear
	02/27/97	7.21	11.1	1,120	1.51	Slightly Cloudy
	05/22/97	7.39	13.4	1,537	1.83/1.0b	Clear, HC odor
	08/19/97	7.13	16.9	1,590	1.2b / 2.5	Clear, HC odor
5-22B	11/18/97	7.42	12.4	1,200	6.91	Clear, HC odor
	02/11/98	7.35	10.9	1,369	0.00	Clear
	11/15/95	7.70	12.9	990	6.4	Clear, no odor
	02/22/96	7.47	12.3	1,030	6.6	Turbid, very light brown, no odor
	05/20/96	8.32	13.8	1,549	NM	Slightly turbid
	08/12/96	7.63	15.0	1,100	8.01	Turbid, no odor
	11/18/96	7.48	12.2	1,300	5.6	Slightly cloudy
	02/27/97	7.39	10.0	1,180	3.53	Turbid, HC odor
5-23B	05/22/97	7.49	13.0	1,899	NM	Turbid
	08/20/97	7.32	14.8	2,060	2.2b / 3.0	Clear, HC odor
	11/18/97	7.80	13.6	1,740	1.8b	Turbid, slight odor
	11/16/95	7.31	13.3	800	3.8	Clear, no odor
	05/22/96	7.66	13.0	1,077	2.6	Clear
	08/13/96	8.80	15.0	780	5.06	Clear
	11/19/96	7.69	13.0	880	4.4	Clear
	02/26/97	7.73	11.8	1,018	4.0b/3.4b	Clear, no odor (3.4 DO is low range of Hach)
5-24B	05/21/97	7.73	12.6	1,036	4.1/4.0b	Clear, (low range Hach DO = 3.8)
	08/19/97	7.75	14.5	949	2.8b / 3.0	Clear
	11/17/97	7.74	11.1	920	2.0	Clear
	02/10/98	7.77	10.7	928	1.0	Clear
	11/17/95	7.33	13.2	1,050	1.7	Slight cloudy, HC odor
	05/21/96	7.41	13.9	1,050	3.5	Clear
	08/13/96	8.07	16.0	1,050	2.32	Clear
	11/19/96	7.36	12.6	1,210	3.30	Slightly turbid, faint odor
5-41B	02/26/97	7.42	11.6	1,468	1.4b	Clear, slight odor
	05/20/97	7.56	12.6	1,240	4.83	Clear
	05/21/97	7.24	13.1	1,110	3.44	Slight odor, little cloudy
	08/19/97	7.32	15.5	1,568	4.0b / 3.8	Slightly turbid, Red
	11/18/97	7.39	12.2	1,386	2.20	Slightly turbid
	02/10/98	7.44	11.2	1,392	3.0b / 3.2	Slightly turbid
	11/16/95	7.28	14.5	940	2.00	Clear, no odor
	05/21/96	7.41	15.8	920	1.82	Clear
	08/13/96	7.99	15.0	910	2.68	Clear
	11/19/96	7.41	13.8	1080	3.80	Clear
	02/25/97	7.43	12.5	930	1.65	Clear
	05/20/97	7.56	12.6	1230	4.83/3.0b	Clear (Hach DO low range = 2.6)

Table 2. Summary of Field Measured Parameters
Thoreau Compressor Station No. 5

Well ID	Date	pH	Temperature °C	Electrical Conductivity (μmhos)	Dissolved Oxygen (mg/L)	Remarks
	08/18/97	7.55	14.1	1285	2.2b	Clear
5-47B	11/15/95	7.83	13.0	900	2.50	Slightly cloudy, no odor
	05/21/96	7.54	14.6	1,080	4.70	Clear
	08/13/96	7.98	15.2	1,060	3.17	Clear
	11/19/96	7.56	19.1	1,110	NM	Clear
	02/26/97	7.71	11.0	1,000	2.20	Clear
	05/20/97	7.74	13.8	1,100	3.18/2.6b	Slightly turbid
	08/18/97	7.68	16.3	1,470	4.0b	Clear
5-48B	11/20/95	7.60	13.7	1,035	1.40	Clear, strong HC odor
	02/21/96	7.54	14.0	750	3.60	Very slightly cloudy, HC odor
	05/22/96	7.62	14.6	1,032	2.20	Clear, HC odor
	08/14/96	7.62	15.5	800	2.80	Clear, strong HC odor
	11/21/96	7.45	15.2	780	3.10	Clear, strong HC odor
	02/27/97	7.61	11.8	950	2.40	Clear, strong HC odor
	05/22/97	7.33	14.1	820	2.52	Clear, strong HC odor
	08/20/97	7.34	18.3	1,139	0.4b / 2.2	Yellow tint, strong HC odor
	11/19/97	7.48	14.0	900	1.6b / 5.57	Clear, strong HC odor
	02/12/98	7.44	14.8	810	2.23	Clear, HC odor
5-57B	11/15/95	7.59	13.1	880	4.60	Brown muddy
	05/20/96	8.75	13.2	1,212	3.10	Slightly turbid
	08/12/96	7.76	14.0	875	5.24	Slightly turbid, no odor
	11/18/96	7.53	12.9	980	2.2b / 5.4	Slightly cloudy
	02/25/97	7.71	10.6	1,191	3.4b	Light amber, no odor
	05/20/97	7.69	12.8	1,130	6.01	Slightly cloudy, reddish tint, no odor
	08/18/97	7.69	14.4	1,071	2.6b / 0.7	Slightly turbid
5-58B	11/16/95	7.47	14.8	740	8.10	Cloudy brown, no odor
	05/20/96	8.71	13.2	1073	6.70	Slightly turbid
	08/12/96	7.71	14.5	750	6.44	Slightly turbid, no odor
	11/18/96	7.58	12.6	880	7.00	Slightly cloudy
	02/25/97	7.69	11.4	1073	7.0b	Light amber, no odor
	05/20/97	7.73	13.2	790	6.84	Slightly turbid
	08/18/97	7.68	15.2	964	6.5b / 5.8	Slightly turbid
5-37i	08/15/96	8.48	17.2	1382	1.67	Turbid, green cloudy color, strong HC odor
	11/22/96	7.70	14.9	1,080	NM	Greenish black, strong HC odor
<hr/>						
HC = Hydrocarbon						
NM = Not measured						
(a) Value above theoretical dissolved oxygen concentration for this altitude; therefore, measurement is suspect.						
(b) Concentration measured with a HACH kit.						

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
5-01B	12/89	ER	< 5.0	6.3	< 5.0	NA
	03/90	ER	< 5.0	< 5.0	< 5.0	25
	06/90	ER	< 5.0	< 5.0	< 5.0	< 5.0
	08/90	AS	< 1	< 1	< 1	3.5
	11/90	EH	< 0.50	< 0.50	< 0.50	3.0
	01/91	EH	< 1.0	< 1.0	< 1.0	4.8
	02/91	EH	1.6	< 0.50	< 0.50	4.6
	03/91	EH	2.0	< 0.50	< 0.50	5.2
	04/91	EH	1.2	< 0.50	< 0.50	3.6
	05/91	EH	< 0.50	< 0.50	< 0.50	5.4
	06/91	EH	< 0.50	0.63	< 0.50	1.9
	07/91	EH	< 0.50	< 0.50	< 0.50	6.0
	09/91	EH	< 0.50	< 0.50	< 0.50	7.8
	10/91	ER	< 0.50	< 0.50	< 0.50	6.4
	11/91	ER	< 0.50	< 0.50	< 0.50	9.8
	12/91	ER	< 0.50	< 0.50	< 0.50	2.4
	01/09/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/27/92	ER	< 0.50	< 0.50	< 0.50	0.79
	02/20/92	ER	< 0.50	< 0.50	< 0.50	5.2
	03/18/92	ATI-P	< 2.5	< 0.5	< 0.5	3.3
	04/29/92	ATI-P	< 0.5	< 0.5	< 0.5	2.3
	10/14/92	ATI-P	< 0.5	< 0.5	< 0.5	4.7
	12/13/94	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	06/27/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	10/06/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/21/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/22/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/15/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/22/96	HEAL	0.8	< 0.5	< 0.5	< 0.5
	02/28/97	HEAL	0.6	< 0.5	< 0.5	< 0.5
	05/22/97	HEAL	1.2	< 0.5	< 0.5	< 0.5
	08/21/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-01C	11/23/97	HEAL	1.4	< 0.5	< 0.5	< 0.5
	01/08/98	HEAL	2.0	< 0.5	< 0.5	< 0.5
	02/12/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-02B	05/89	ER	1800	2000	< 200	NA
	08/89	ER	2500	4700	< 500	NA
	11/89	ER	1800	3100	250	NA
	03/90	ER	2300	3800	< 250	2400
	06/90	ER	1900	3100	< 250	2300
	08/90	AS	1400	2300	180	1700
	11/90	EH	1500	2400	230	1900

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	01/91	EH	600	730	110	940
	02/91	EH	460	580	75	600
	03/91	EH	2400	3300	290	2600
	04/91	EH	830	1200	110	920
	05/91	EH	830	1200	150	1300
	06/91	EH	5.1	7.0	0.57	4.7
	07/91	EH	400	600	49	420
	09/91	EH	510	750	57	530
	10/91	ER	290	450	37	310
	11/91	ER	740	1200	97	950
	12/91	ER	330	580	31	320
	01/09/92	ER	360	710	52	480
	01/28/92	ER	420	810	64	560
	02/20/92	ER	890	1600	140	1200
	03/19/92	ATI-P	910	2100	170	1700
	04/29/92	ATI-P	1700	3800	240	2200
	10/14/92	ATI-P	800	700	74	640
	04/22/93	ATI-A	120	< 0.5	11	38
	12/09/94	HEAL	2100	2600	220	1800
	06/26/95	HEAL	1200	2700	130	1200
	10/06/95	HEAL	490	1600	66	640
	11/21/95	HEAL	740	2900	160	1100
	02/22/96	HEAL	260	1000	62	600
	05/21/96	HEAL	380	120	1300	1100
	08/14/96	HEAL	420	1200	100	880
	11/21/96	HEAL	660	1300	150	1600
	02/28/97	HEAL	260	500	90	680
5-02C	11/23/97	HEAL	26	2.7	9.1	2.7
	02/11/98	HEAL	110	7.0	33	8.3
5-03B	05/89	ER	< 5.0	< 5.0	< 5.0	NA
	11/89	ER	< 5.0	< 5.0	< 5.0	NA
	04/90	ER	< 5.0	< 5.0	< 5.0	< 5.0
	05/90	ER	< 5.0	< 5.0	< 5.0	< 5.0
	08/90	AS	< 1	< 1	< 1	< 1
	11/90	EH	< 0.50	< 0.50	< 0.50	< 1
	01/91	EH	< 0.30	< 0.30	< 0.30	< 0.60
	02/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	03/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	04/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	05/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	06/91	EH	< 0.50	1.4	< 0.50	2.2
	07/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	09/91	EH	< 0.50	< 0.50	< 0.50	< 1.0

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	10/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	11/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	12/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/09/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/27/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	02/19/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	03/17/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	04/28/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/07/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	12/09/94	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	06/26/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	10/03/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/15/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/12/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/18/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/24/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/20/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/18/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/17/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/10/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-04B	10/89	ER	< 25	< 25	< 25	NA
	12/89	ER	18	< 5.0	< 5.0	NA
	01/90	ER	21	< 5.0	< 5.0	NA
	04/90	ER	54	< 5.0	7.1	110
	06/90	ER	60	< 50	< 50	64
	08/90	AS	63	9.5	< 1	15
	11/90	EH	25	< 5.0	< 5.0	< 10
	01/91	EH	22	1.6	0.75	5.6
	03/91	EH	76	11	< 0.50	5.7
	04/91	EH	39	0.66	< 0.50	2.9
	05/91	EH	90	1.1	0.96	13
	06/91	EH	81	21	14	87
	07/91	EH	71	< 0.5	4.5	43
	09/91	EH	270	< 1.0	6.6	54
	10/91	ER	180	< 5.0	7.8	48
	11/91	ER	< 1.2	< 1.2	11	83
	12/91	ER	100	< 2.5	5.1	45
	01/10/92	ER	53	< 1.2	3.7	44
	01/28/92	ER	48	2.8	6.5	44
	02/19/92	ER	42	< 1.0	3.4	39
	03/18/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	04/28/92	ATI-P	86	80	60	570
	10/13/92	ATI-P	230	40	19	260
	04/21/93	ATI-A	170	130	26	280
	12/12/94	HEAL	12	2.2	3.4	3.3
	12/20/94	HEAL	2.7	0.7	< 0.5	1.3
	01/10/95	HEAL	9.8	2.3	< 0.5	2.0
	03/07/95	HEAL	93	1.5	6.1	1.9
	06/08/95	HEAL	9.4	1.4	0.6	< 0.5
	06/26/95	HEAL	15	< 0.5	0.7	< 0.5
	10/05/95	HEAL	44	1.7	3.1	< 0.5
	11/17/95	HEAL	9.9	1.1	0.6	< 0.5
	02/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-05B	10/89	ER	< 5.0	< 5.0	8.7	NA
	11/89	ER	< 5.0	< 5.0	< 5.0	NA
	04/90	ER	< 5.0	< 5.0	< 5.0	< 5.0
	06/90	ER	< 5.0	< 5.0	< 5.0	< 5.0
	08/90	AS	2.5	< 1	< 1	4.6
	11/90	EH	1.4	< 0.50	< 0.50	2.9
	01/91	EH	< 0.50	< 0.50	< 0.50	0.56
	02/91	EH	49	35	7.4	56
	03/91	EH	12	1.2	< 0.50	< 1.0
	04/91	EH	1.3	< 0.50	< 0.50	< 1.0
	05/91	EH	4.6	< 0.50	< 0.50	< 1.0
	06/91	EH	3.8	< 0.50	< 0.50	< 1.0
	07/91	EH	0.51	< 0.50	< 0.50	< 1.0
	09/91	EH	3.0	< 0.50	< 0.50	< 1.0
	10/91	ER	0.90	< 0.50	< 0.50	< 0.50
	11/91	ER	1.2	< 0.50	< 0.50	< 0.50
	12/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/09/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/27/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	02/19/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	03/17/92	ATI-P	53	< 0.5	11	84
	04/28/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/12/92	ATI-P	770	110	25	160
	04/21/93	ATI-A	38	< 0.5	2.4	3
	12/12/94	HEAL	150	33	16	47
	06/26/95	HEAL	17	0.7	1.6	0.9
	10/05/95	HEAL	8.2	< 0.5	0.9	< 0.5
	11/17/95	HEAL	5.0	< 0.5	< 0.5	< 0.5
	02/20/96	HEAL	0.9	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	1.0	< 0.5	< 0.5	< 0.5
	08/14/96	HEAL	0.9	< 0.5	< 0.5	< 0.5

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	11/20/96	HEAL	3.3	1.5	< 0.5	< 0.5
	02/25/97	HEAL	3.0	1.4	< 0.5	0.6
5-06B	10/89	ER	15	< 5.0	< 5.0	NA
	12/89	ER	7.4	35	21	NA
	01/90	ER	< 5.0	< 5.0	8.3	NA
	04/90	ER	5.3	< 5.0	< 5.0	120
	06/90	ER	< 5.0	< 5.0	< 5.0	19
	08/90	AS	< 1	< 1	1.5	36
	11/90	EH	1.8	< 0.50	0.5	21
	01/91	EH	< 1.0	< 1.0	< 1.0	31
	02/91	EH	12	2.5	< 0.50	21
	03/91	EH	2.0	< 0.50	< 0.50	5.1
	04/91	EH	5.2	< 0.50	< 0.50	12
	05/91	EH	7.7	< 0.50	< 0.50	18
	06/91	EH	11	2.3	< 0.50	25
	07/91	EH	1.5	< 0.50	< 0.50	15
	09/91	EH	3.5	< 0.50	< 0.50	13
	10/91	ER	3.1	0.62	0.77	9.3
	11/91	ER	1.4	< 0.50	< 0.50	6.0
	11/91	ATI	2.3	< 0.50	< 0.50	18
	12/91	ER	< 0.50	< 0.50	< 0.50	5.0
	01/09/92	ER	2.3	< 0.50	< 0.50	< 0.50
	01/27/92	ER	1.3	< 0.50	< 0.50	2.6
	02/20/92	ER	1.0	< 0.50	< 0.50	1.2
	03/18/92	ATI-P	0.9	< 0.50	< 0.50	2.3
	04/29/92	ATI-P	1.4	< 0.50	< 0.50	3.6
	10/14/92	ATI-P	1.0	< 0.50	< 0.50	2.8
	12/14/94	HEAL	4.3	< 0.50	< 0.50	0.7
	06/27/95	HEAL	2.2	< 0.5	< 0.5	< 0.5
	10/06/95	HEAL	4.6	< 0.5	< 0.5	< 0.5
	11/21/95	HEAL	6.2	< 0.5	< 0.5	< 0.5
	02/22/96	HEAL	4.3	< 0.5	< 0.5	< 0.5
	04/17/96	HEAL	8.9	< 0.5	< 0.5	0.5
	04/17/96	AEN	9.4	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	1.2	< 0.5	< 0.5	< 0.5
	08/15/96	HEAL	2.4	< 0.5	< 0.5	< 0.5
	11/22/96	HEAL	0.9	< 5.0	< 5.0	< 0.5
	02/28/97	HEAL	0.9	< 5.0	< 5.0	< 0.5
	05/22/97	HEAL	0.7	< 5.0	< 5.0	< 0.5
	08/20/97	HEAL	0.7	< 5.0	< 5.0	< 0.5
5-06C	11/23/97	HEAL	1.4	0.6	< 5.0	11
	12/08/98	HEAL	1.0	< 0.5	< 0.5	5.7
	01/08/98	HEAL	1.9	< 0.5	< 0.5	3.1

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	02/12/98	HEAL	2.2	1.4	< 0.5	1.3
5-12B	08/90	AS	< 1	< 1	< 1	< 1
	11/90	EH	< 0.50	< 0.50	< 0.50	< 1.0
	01/91	EH	1.5	4.7	0.79	3.8
	02/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	03/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	04/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	05/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	06/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	07/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	10/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/07/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	04/30/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/08/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/03/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/16/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/13/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/26/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/19/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/17/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/11/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-13B	08/90	AS	54	13	< 1	330
	11/90	EH	61	< 10	< 10	480
	01/91	EH	180	17	< 5.0	310
	02/91	EH	270	25	< 10	460
	03/91	EH	240	< 50	< 50	480
	04/91	EH	430	< 0.50	< 0.50	620
	05/91	EH	290	< 10	< 10	450
	06/91	EH	330	0.53	< 0.50	600
	07/91	EH	97	0.72	< 0.50	760
	10/91	ER	71	< 5.0	< 5.0	510
	01/08/92	ER	150	< 25	< 25	570
	05/01/92	ATI-P	76	8.0	< 0.5	67
	10/13/92	ATI-P	88	8.7	< 0.5	1.5
	10/05/95	HEAL	0.6	2.5	0.5	1.9
	11/20/95	HEAL	< 0.5	< 0.5	0.6	2.0
	02/21/96	HEAL	1.0	0.7	< 0.5	< 0.5
	05/21/96	HEAL	0.7	< 0.5	< 0.5	0.8
	08/13/96	HEAL	1	5.4	< 0.5	< 0.5

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	11/21/96	HEAL	1.2	6.1	< 0.5	< 0.5
	02/26/97	HEAL	1.5	5.9	< 0.5	2.5
	05/21/97	HEAL	1.1	4.3	< 0.5	0.7
	08/19/97	HEAL	1.2	2.9	< 0.5	0.6
	11/18/97	HEAL	1.3	2	< 0.5	< 0.5
	02/11/98	HEAL	0.9	1.5	< 0.5	< 0.5
5-14B	08/90	AS	< 1	< 1	< 1	< 1
	11/90	EH	< 0.50	< 0.50	< 0.50	< 1.0
	01/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	02/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	03/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	04/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	05/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	06/91	EH	2.8	3.2	0.53	2.0
	07/91	EH	0.60	< 0.50	< 0.50	< 1.0
	10/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/06/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	04/30/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/08/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/04/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/16/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	2.6	1.5	< 0.5
	08/13/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/26/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/19/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/17/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/10/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-15B	08/90	AS	< 1	< 1	< 1	< 1
	11/90	EH	2.1	< 0.50	< 0.50	< 1.0
	01/91	EH	< 0.30	< 0.30	< 0.30	1.0
	02/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	03/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	04/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	05/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	06/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	07/91	EH	< 0.50	0.59	< 0.50	< 1.0
	10/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/07/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	04/30/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/08/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	10/05/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/16/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/14/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/26/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/19/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/17/97	HEAL	0.9	< 0.5	< 0.5	0.5
	02/11/98	HEAL	1.5	< 0.5	1.0	1.2
5-16B	08/90	AS	19	25	50	320
	01/91	EH	< 0.30	< 0.30	< 0.30	< 0.60
	02/91	EH	320	46	170	860
	03/91	EH	920	14	1.2	130
	04/91	EH	92	< 0.50	0.68	9.2
	05/91	EH	270	< 12	230	1100
	06/91	EH	450	490	460	2300
	07/91	EH	260	140	400	2400
	09/91	EH	460	320	550	3600
	10/91	ER	170	420	460	3200
	11/91	ER	180	430	330	2400
	12/91	ER	140	490	360	2900
	01/08/92	ER	200	500	410	3000
	02/20/92	ER	170	330	470	3200
	03/18/92	ATI-P	53	89	400	2400
	04/29/92	ATI-P	23	3.3	210	1000
	10/13/92	ATI-P	5.1	2.3	12	63
	04/20/93	ATI-A	6.5	< 0.5	14	51
	10/05/95	HEAL	610	5900	300	2600
	11/20/95	HEAL	970	7100	430	3100
	02/21/96	HEAL	1700	6900	340	3600
	05/21/96	HEAL	1500	280	6900	3500
	08/15/96	HEAL	670	3600	130	2400
	11/21/96	HEAL	460	2200	130	2500
	02/27/97	HEAL	250	1100	190	2000
	05/22/97	HEAL	130	720	110	1500
	08/20/97	HEAL	130	820	120	1300
	11/19/97	HEAL	85	730	100	1100
	02/11/98	HEAL	41	360	90	660
5-17B	08/90	AS	< 1	< 1	< 1	< 1
	11/90	EH	< 0.50	< 0.50	< 0.50	< 1.0
	01/91	EH	< 0.50	< 0.50	< 0.50	< 0.50

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	02/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	03/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	04/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	05/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	06/91	EH	0.72	2.9	1.8	11
	07/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	10/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/08/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	02/19/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	03/17/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	04/28/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/07/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/06/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/20/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/14/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/27/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/20/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/18/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/11/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-18B	08/90	AS	1100	14	< 1	220
	11/90	EH	1900	< 100	< 100	320
	01/91	EH	1300	< 25	< 25	170
	02/91	EH	970	11	< 5.0	170
	03/91	EH	260	1.8	< 0.50	23
	04/91	EH	1000	< 1.0	< 1.0	78
	06/91	EH	680	1.1	1.0	150
	07/91	EH	1500	3.0	1.5	70
	10/91	ER	1200	< 25	< 25	130
	01/08/92	ER	1100	< 25	< 25	88
	05/01/92	ATI-P	790	2.7	< 0.5	36
	10/13/92	ATI-P	820	< 0.5	1.0	36
	04/22/93	ATI-A	360	< 0.5	0.5	2.6
	10/05/95	HEAL	87	8.4	9.0	26
	11/17/95	HEAL	240	24	22	53
	02/21/96	HEAL	290	54	37	110
	05/21/96	HEAL	390	56	1.3	50
	08/14/96	HEAL	400	< 0.5	53	0.9
	11/21/96	HEAL	210	5	48	< 0.5

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	02/27/97	HEAL	9.4	5.2	64	1.5
	05/22/97	HEAL	< 0.5	4.7	88	0.8
	08/19/97	HEAL	1.1	4.9	110	1.5
	11/17/97	HEAL	0.9	6	140	1.1
	02/11/98	HEAL	0.9	6.4	120	1.1
5-19B	08/90	AS	190	3.5	5.8	44
	11/90	EH	180	11	< 10	< 20
	01/91	EH	150	< 0.30	0.60	15
	02/91	EH	200	5.8	< 2.5	14
	03/91	EH	200	30	180	880
	04/91	EH	290	< 25	210	880
	05/91	EH	240	< 0.50	0.71	21
	06/91	EH	290	7.5	2.2	22
	07/91	EH	240	< 0.50	0.58	14
	10/91	ER	140	< 2.5	< 2.5	12
	01/08/92	ER	240	< 5.0	< 5.0	9.0
	02/20/92	ER	150	< 2.5	< 2.5	4.2
	03/19/92	ATI-P	140	< 0.5	< 0.5	5.9
	04/29/92	ATI-P	190	< 0.5	< 0.5	4.3
	10/13/92	ATI-P	130	< 0.5	< 0.5	4.4
	10/05/95	HEAL	1.0	0.7	< 0.5	< 0.5
	11/20/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/21/96	HEAL	0.9	0.8	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/14/96	HEAL	0.7	0.6	< 0.5	< 0.5
	11/21/96	HEAL	0.9	0.6	< 0.5	< 0.5
	02/27/97	HEAL	1.3	1	< 0.5	0.7
	05/21/97	HEAL	1.2	1	< 0.5	< 0.5
	08/20/97	HEAL	1.7	1.3	0.6	< 0.5
	11/17/97	HEAL	2.5	2.0	0.9	0.7
	02/11/98	HEAL	2.3	1.8	0.8	0.7
5-20B	08/90	AS	58	8.0	< 1	51
	11/90	EH	180	< 5.0	< 5.0	12
	01/91	EH	93	14	< 1.0	23
	02/91	EH	280	14	< 10	46
	02/91	EH	110	< 5.0	< 5.0	< 5.0
	03/91	EH	200	< 5.0	< 5.0	< 10
	04/91	EH	180	< 1.0	< 1.0	19
	05/91	EH	160	< 5.0	< 5.0	32
	06/91	EH	300	1.1	< 0.50	15
	07/91	EH	73	1.1	1.0	24
	10/91	ER	57	2.2	< 1.2	11
	01/08/92	ER	31	< 1.2	< 1.2	6.7

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	05/01/92	ATI-P	55	3.9	4.9	6.2
	10/12/92	ATI-P	52	2.7	4.4	11
	04/21/93	ATI-A	14	< 0.5	6.1	10
	10/05/95	HEAL	3.2	0.7	3.5	< 0.5
	11/17/95	HEAL	12	2.3	< 0.5	2.6
	02/21/96	HEAL	2.8	1.7	2.7	2.3
	05/21/96	HEAL	1.7	1.3	0.8	< 0.5
	08/14/96	HEAL	8.1	0.7	0.8	1.5
	11/20/96	HEAL	7.2	0.9	1.4	< 0.5
	02/27/97	HEAL	12	1.3	1.8	3.3
	05/22/97	HEAL	2.0	0.7	0.8	0.5
	08/19/97	HEAL	10.0	1.0	1.9	1.4
	11/18/97	HEAL	4.3	0.8	1.1	1.1
	02/11/98	HEAL	< 0.5	1.3	2.3	0.5
5-22B	10/90	AS	< 1	< 1	< 1	< 1
	01/91	EH	< 0.50	< 0.50	< 0.50	< 0.50
	02/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	03/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	04/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	05/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	06/91	EH	1.9	5.5	13	58
	07/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	09/91	EH	< 0.50	< 0.50	< 0.50	< 1.0
	10/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	11/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	12/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/10/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/28/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	02/19/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	03/18/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	04/28/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/08/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	12/12/94	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	06/26/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	10/03/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/15/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/12/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/18/96	HEAL	< 0.5	< 0.5	< 0.5	1.9
	02/27/97	HEAL	5.6	9.3	< 0.5	65
	05/22/97	HEAL	3.6	< 0.5	< 0.5	7.1
	08/20/97	HEAL	3.2	7.3	< 0.5	5.3

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	11/18/97	HEAL	3.8	2.3	< 0.5	0.6
5-23B	10/90	AS	5.3	< 1	< 1	< 1
	11/90	EH	5.1	< 0.50	< 0.50	< 1.0
	01/91	EH	3.0	< 0.50	< 0.50	< 0.60
	02/91	EH	6.6	< 0.50	< 0.50	< 1.0
	03/91	EH	8.5	< 0.50	< 0.50	1.2
	04/91	EH	5.0	< 0.50	< 0.50	< 1.0
	05/91	EH	120	< 0.50	< 0.50	7.5
	06/91	EH	3.8	0.55	< 0.50	5.7
	07/91	EH	2.0	< 0.50	< 0.50	1.3
	09/91	EH	2.1	< 0.50	< 0.50	1.1
	10/91	ER	1.6	< 0.50	< 0.50	< 0.50
	11/91	ER	0.59	< 0.50	< 0.50	< 0.50
	12/91	ER	< 0.50	< 0.50	< 0.50	< 0.50
	01/07/92	ER	0.65	< 0.50	< 0.50	< 0.50
	02/18/92	ER	< 0.50	< 0.50	< 0.50	< 0.50
	03/17/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	04/30/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/09/92	ATI-P	< 0.5	< 0.5	< 0.5	< 0.5
	10/04/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/16/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/20/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/22/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/13/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/26/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/19/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/17/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/10/98	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-24B	10/90	AS	63	< 1	2.0	1.6
	11/90	EH	100	< 5.0	< 5.0	< 10
	01/91	EH	40	0.55	0.74	< 1.0
	02/91	EH	150	16	< 5.0	21
	03/91	EH	89	9.8	< 0.50	3.5
	04/91	EH	230	< 1.0	< 1.0	6.3
	05/91	EH	4.3	< 0.50	< 0.50	1.3
	06/91	EH	280	0.86	0.64	13
	07/91	EH	130	< 0.50	< 0.50	8.7
	09/91	EH	250	0.54	< 0.50	12
	10/91	ER	140	< 2.5	< 2.5	< 2.5
	11/91	ER	180	< 5.0	< 5.0	< 5.0
	12/91	ER	180	< 5.0	< 5.0	< 5.0

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	01/07/92	ER	120	< 2.5	< 2.5	< 2.5
	02/18/92	ER	140	< 2.5	< 2.5	< 2.5
	03/17/92	ATI-P	120	< 2.5	0.8	1.4
	04/30/92	ATI-P	100	2.1	1.4	2.2
	10/13/92	ATI-P	1.2	< 0.5	0.8	0.8
	04/21/93	ATI-P	< 0.5	< 0.5	0.7	1.4
	10/03/95	HEAL	< 0.5	< 0.5	1.0	1.0
	11/17/95	HEAL	1.2	0.8	0.5	1.0
	02/20/96	HEAL	1.3	1.0	0.7	2.0
	05/21/96	HEAL	< 0.5	0.9	< 0.5	0.7
	08/13/96	HEAL	1.2	0.6	0.7	1.3
	11/19/95	HEAL	0.9	< 0.5	0.6	0.8
	02/26/97	HEAL	0.9	0.6	1	1.8
	05/21/97	HEAL	0.7	< 0.5	1	1.6
	08/19/97	HEAL	1.2	0.5	0.9	< 5.0
	11/18/97	HEAL	0.6	< 0.5	0.7	1.3
	02/10/98	HEAL	0.5	< 0.5	0.7	< 0.5
5-34B	01/07/92	ER	120	< 2.5	< 2.5	< 2.5
5-34B	02/18/92	ER	140	< 2.5	< 2.5	< 2.5
5-34B	03/17/92	ATI-P	120	< 0.5	0.8	1.4
5-34B	04/30/92	ATI-P	100	2.1	1.4	2.2
5-34B	10/13/92	ATI-P	1.2	< 0.5	0.8	0.8
5-34B	04/21/93	ATI-A	< 0.5	< 0.5	0.7	1.4
5-34B	12/13/94	HEAL	4700	13,000	460	5,900
5-35B	04/22/93	ATI-A	360	1400	130	1700
5-36E	12/14/94	HEAL	620	2700	230	3300
5-37I	02/22/96	HEAL	640	520	24	990
5-37I	04/16/96	HEAL	580	300	22	600
5-37I	05/21/96	HEAL	590	19	340	600
5-37I	07/03/96	HEAL	1100	600	31	880
5-37I	08/15/96	HEAL	310	54	14	430
5-37I	11/22/96	HEAL	440	140	20	520
05-41B	10/09/92	ATI-P	47	3.9	0.7	1.0
05-41B	04/20/93	ATI-A	1.4	< 0.5	2.5	2.1
05-41B	10/04/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
05-41B	11/16/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
05-41B	02/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
05-41B	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
05-41B	08/13/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
05-41B	11/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
05-41B	02/25/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
05-41B	05/20/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
05-41B	08/18/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
5-47B	10/07/92	ATI-P	1.0	< 0.5	< 0.5	< 0.5
	04/20/93	ATI-A	2.9	< 0.5	< 0.5	< 0.5
	10/04/95	HEAL	7.2	2.0	0.6	4.6
	11/15/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/13/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/26/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/20/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-48B	10/12/92	ATI-P	380	1100	84	840
	04/21/93	ATI-A	99	390	34	360
	10/05/95	HEAL	550	940	290	1900
	11/20/95	HEAL	820	1700	390	2600
	02/21/96	HEAL	690	1100	550	3300
	04/16/96	HEAL	600	1700	420	3100
	05/21/96	HEAL	620	480	3600	3600
	07/03/96	HEAL	670	5100	410	3500
	08/14/96	HEAL	770	7600	340	3900
	11/21/96	HEAL	960	8500	330	3900
	02/27/97	HEAL	1100	10000	430	4700
	05/22/97	HEAL	1100	8000	450	4400
	08/20/97	HEAL	1200	7000	440	4200
	11/19/97	HEAL	1400	6900	330	3900
	12/09/98	HEAL	1800	7700	430	4700
5-57B	01/08/98	HEAL	1600	7600	440	4100
	02/11/98	HEAL	2100	8000	460	4600
	04/19/93	ATI-A	< 0.5	< 0.5	< 0.5	< 0.5
	10/04/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/15/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/12/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/08/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/25/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-58B	05/20/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/18/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	04/19/93	ATI-A	< 0.5	< 0.5	< 0.5	< 0.5
	10/04/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/16/95	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
5-58B	02/19/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/21/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5

Table 3. Summary of Analytical Results for BTEX Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	BTEX Concentration (ug/L)			
			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	08/12/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	11/18/96	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	02/25/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	05/20/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
	08/18/97	HEAL	< 0.5	< 0.5	< 0.5	< 0.5
† Lab Designations						
ABB = ASEA Brown Boveri						
AEN = American Environmental Network, Inc. (Albuquerque)						
AS = Assaigai Laboratories (Albuquerque)						
ATI-A = Analytical Technologies, Inc. (Albuquerque)						
ATI-P = Analytical Technologies, Inc. (Phoenix)						
ER = Enseco (Rocky Mountain Analytical)						
EH = Enseco (Houston)						
HEAL = Hall Environmental Analysis Laboratory (Albuquerque)						
NA = Not Analyzed						

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	Total PCB‡ Concentration (µg/L)	Aroclor Reported
5-01B	08/89	ER	2.1	1016
	12/89	ER	2.0	1242
	03/90	ER	94	1221
	06/90	ER	11	1242
	08/90	AS	2.0	1242
	11/90	EH	5.5	1242
	01/91	EH	28	1242
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	07/91	EH	< 1.0	
	09/91	EH	< 1.0	
	10/91	ER	210	1221
	11/91	ER	76	1221
	12/91	ER	< 1.0	
	01/09/92	ER	< 1.0	
	01/27/92	ER	67	1221
	02/20/92	ER	82	1221
	03/18/92	ATI-P	54	1221
	04/29/92	ATI-P	71	1221
	10/14/92	ATI-P	82	1221
	12/13/94	ATI-P	4.9	1016
	06/27/95	NET	4.18	1242
	10/06/95	NET	< 0.65	
	11/21/95	NET	< 0.065	
	02/22/96	NET	< 0.065	
	04/17/96	NET	< 0.065	
	04/17/96	PA	0.93	1221
	05/24/96	NET	34	1221
	08/15/96	NET	14.2	1221
	11/22/96	EPIC	15.6	1221
	02/28/97	EPIC	15.2	1221
	05/22/97	EPIC	11.9	1221
	08/21/97	EPIC	18.2	1221
5-01C	11/23/97	EPIC	79.7	1221
	11/23/97	EPIC	49.0	1242
	01/08/98	HALL	38	1221
	02/12/98	HALL	< 1.0	
5-02B	05/89	ER	< 1.0	
	08/89	ER	< 1.0	
	11/89	ER	< 1.0	

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	Total PCB‡ Concentration (µg/L)	Aroclor Reported
	03/90	ER	< 1.0	
	06/90	ER	< 5.0	
	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	07/91	EH	< 1.0	
	09/91	EH	< 1.0	
	10/91	ER	< 1.0	
	11/91	ER	< 1.0	
	12/91	ER	< 1.0	
	01/09/92	ER	< 1.0	
	01/28/92	ER	< 1.0	
	02/20/92	ER	< 1.0	
	03/19/92	ATI-P	< 0.5	
	04/29/92	ATI-P	< 25.0	
5-03B	05/89	ER	< 1.0	
	11/89	ER	< 1.0	
	04/90	ER	< 1.0	
	05/90	ER	< 1.0	
	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	07/91	EH	< 1.0	
	09/91	EH	< 1.0	
	10/91	ER	< 1.0	
	11/91	ER	< 0.1	
	12/91	ER	< 0.1	
	01/09/92	ER	< 1.0	
	01/27/92	ER	< 1.0	
	02/19/92	ER	< 1.0	
	03/17/92	ATI-P	< 0.5	
	04/28/92	ATI-P	< 0.5	
5-04B	12/89	ER	< 1.0	

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	Total PCB‡ Concentration (µg/L)	Aroclor Reported
	01/90	ER	< 1.0	
	04/90	ER	< 1.0	
	06/90	ER	< 1.0	
	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	07/91	EH	< 1.0	
	09/91	EH	< 1.0	
	10/91	ER	< 1.0	
	11/91	ER	< 1.0	
	12/91	ER	< 1.0	
	01/10/92	ER	< 1.0	
	01/28/92	ER	< 1.0	
	02/19/92	ER	< 1.0	
	03/18/92	ATI-P	< 0.5	
	04/28/92	ATI-P	< 0.5	
5-05B	10/89	ER	< 1.0	
	11/89	ER	< 1.0	
	04/90	ER	< 1.0	
	06/90	ER	< 1.0	
	08/90	AS	0.19	1242
	11/90	EH	2.4	1242
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	07/91	EH	< 1.0	
	09/91	EH	< 1.0	
	10/91	ER	< 5.0	
	11/91	ER	< 1.0	
	12/91	ER	< 2.0	
	01/09/92	ER	< 1.0	
	01/27/92	ER	< 1.0	
	02/19/92	ER	< 10.0	
	03/17/92	ATI-P	< 0.5	
	04/28/92	ATI-P	< 0.5	
5-06B	10/89	ER	< 1.0	

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	Total PCB‡ Concentration (µg/L)	Aroclor Reported
	12/89	ER	180	1221
	01/90	ER	100	1221
	04/90	ER	170	
	06/90	ER	39	1242
	08/90	AS	1.1	1242
	11/90	EH	65	1242
	01/91	EH	39	1242
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	07/91	EH	< 1.0	
	09/91	EH	< 1.0	
	10/91	ER	250	1221
	11/91	ER	140	1221
	11/91	ATI	210	1221
	12/91	ER	270	1221
	01/09/92	ER	< 1.0	
	01/27/92	ER	190	1221
	02/20/92	ER	200	1221
	03/18/92	ATI-P	140	1221
	04/29/92	ATI-P	150	1221
	10/14/92	ATI-P	280	1221
	12/14/94	NET	88	1016
	06/27/95	NET	26.3	1242
	10/06/95	NET	30.1	1242
	11/21/95	NET	44.4	1242
	02/22/96	NET	< 0.065	
	04/17/96	NET	< 0.065	
	05/23/96	NET	78	1221
	08/15/96	NET	166.7	1221
(NMOCD split sample)	08/15/96	AEN	260	1221
	11/22/96	EPIC	42.8	1221
	02/28/97	EPIC	48.2	1221
	05/22/97	EPIC	7.29	1221
	08/20/97	EPIC	16.5	1221
5-06C	11/23/97	EPIC	160.0	1221
	11/23/97	EPIC	114.0	1242
	12/09/97	HALL	65	1232
	01/08/98	HALL	220	1221
	02/12/98	HALL	320	1221
5-12B	08/90	AS	< 0.1	

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	Total PCB‡ Concentration (µg/L)	Aroclor Reported
5-13B	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
5-14B	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
5-15B	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
5-16B	08/90	AS	< 0.1	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
5-17B	02/20/92	ER	< 1.0	
	03/18/92	ATI-P	< 5.0	
	04/29/92	ATI-P	< 10.0	
	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	Total PCB‡ Concentration (µg/L)	Aroclor Reported
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	02/19/92	ER	< 1.0	
	03/17/92	ATI-P	< 0.5	
	04/28/92	ATI-P	< 0.5	
	10/07/92	ATI-P	< 0.5	
	10/06/95	NET	< 0.65	
	11/20/95	NET	< 0.065	
	02/20/96	NET	< 0.065	
	05/21/96	NET	< 0.065	
	08/14/96	NET	< 0.70	
	11/20/96	EPIC	< 0.065	
	02/28/97	EPIC	< 0.065	
	05/21/97	EPIC	< 0.065	
	08/20/97	EPIC	< 0.65	
	11/18/97	EPIC	< 0.65	
	02/11/98	HALL	< 1.0	
5-18B	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	06/91	EH	< 1.0	
5-19B	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	02/20/92	ER	< 1.0	
	03/19/92	ATI-P	< 0.5	
	04/29/92	ATI-P	< 0.5	
5-20B	08/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	02/91	EH	< 1.0	

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	Total PCB‡ Concentration (µg/L)	Aroclor Reported
5-22B	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	10/90	AS	2.2	1242
	01/91	EH	13	1248
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	07/91	EH	< 1.0	
	09/91	EH	< 1.0	
5-23B	10/91	ER	< 1.0	
	11/91	ER	< 1.0	
	12/91	ER	< 1.0	
	01/10/92	ER	< 1.0	
	01/28/92	ER	< 1.0	
	02/19/92	ER	< 1.0	
	03/18/92	ATI-P	< 0.5	
	04/28/92	ATI-P	< 0.5	
	10/90	AS	30	1254
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
5-24B	04/91	EH	< 1.0	
	05/91	EH	< 1.0	
	06/91	EH	< 1.0	
	10/90	AS	< 0.1	
	11/90	EH	< 1.0	
	01/91	EH	< 1.0	
	02/91	EH	< 1.0	
	03/91	EH	< 1.0	
	04/91	EH	< 1.0	
	05/91	EH	< 1.0	

Table 4. Summary of Analytical Results for PCB Compounds
Thoreau Compressor Station No. 5

Well ID	Date	Lab†	Total PCB‡ Concentration (µg/L)	Aroclor Reported
	06/91	EH	< 1.0	
5-37I	05/21/96	NET	< 6.5	

† Lab Designations
ABB = ASEA Brown Boveri
AEN = American Environmental Network, Inc. (Albuquerque)
AS = Assaigai Laboratories (Albuquerque)
ATI-A = Analytical Technologies, Inc. (Albuquerque)
ATI-P = Analytical Technologies, Inc. (Phoenix)
ER = Enseco (Rocky Mountain Analytical)
EH = Enseco (Houston)
HEAL = Hall Environmental Analysis Laboratory (Albuquerque)
PA = Paragon Analytics, Inc. (Fort Collins)
NET = National Environmental Testing, Inc. (Carrollton, Texas)
EPIC = EPIC Laboratories, Inc. (Carrollton, Texas)
ND = Not detected
‡ Total PCB includes Aroclor 1016, 1221, 1232, 1242, 1248, 1254, and 1260

Table 5. Summary of Quality Assurance Program Results
Thoreau Compressor Station No. 5

Well ID	Date	Replicate ID	Lab†	Concentration ($\mu\text{g/L}$)										
				PCBs	Aroclor	RL	Benzene	RL	Toluene	RL	Ethylbenzene	RL	Total Xylenes	RL
5-24B	5/22/1991	5-24B	EH	ND	—	0.50	4.3	0.50	ND	0.50	ND	0.50	1.3	1.0
	5/22/1991	91-5-22-5-24B1	EH	ND	—	0.50	130	5.0	ND	0.50	ND	0.50	9.4	1.0
5-17B	5/22/1991	5-17B	EH	ND	—	0.50	ND	0.50	ND	0.50	ND	0.50	ND	1.0
	5/22/1991	91-5-22-5-17B1	EH	ND	—	0.50	ND	0.50	ND	0.50	ND	0.50	ND	1.0
5-02B	7/24/91	5-02B	EH	ND	—	0.50	830	250	1200	250	150	25	1300	50
	7/24/91	9107245-2BR	EH	ND	—	0.50	680	50	1000	50	73	50	670	100
5-18B	10/11/91	5-18B	ER	NA	—	NA	1200	25	ND	25	ND	25	130	25
	10/11/91	91110115 18BR	ER	NA	—	NA	1200	25	ND	25	ND	25	110	25
5-04B	10/3/91	5-04B	ER	ND	—	0.50	180	5.0	ND	5.0	7.8	5.0	48	5.0
	10/3/91	9110035-4R	ER	ND	—	0.50	86	2.5	2.5	2.5	6.5	2.5	40	2.5
5-06B	11/5/91	5-06B	ER	140	1221	100	1.4	0.50	ND	0.50	ND	0.50	6.0	0.50
	11/5/91	6-99	ER	ND	—	1.0	1.8	0.50	ND	0.50	ND	0.50	14	0.50
5-06B	12/10/91	5-06B	ER	270	1221	100	ND	0.50	ND	0.50	ND	0.50	5.0	0.50
	12/10/91	9112105-99	ER	170	1221	100	ND	0.50	ND	0.50	ND	0.50	5.4	0.50
5-01B	1/9/92	5-01B	ER	ND	—	1.0	ND	0.50	ND	0.50	ND	0.50	ND	0.50
	1/9/92	5-99	ER	ND	—	1.0	ND	0.50	ND	0.50	ND	0.50	ND	0.50
5-01B	2/20/92	5-01B	ER	82	1221	10	ND	0.50	ND	0.50	ND	0.50	5.2	0.50
	2/20/92	5-99	ER	87	1221	10	ND	0.50	ND	0.50	ND	0.50	6.7	0.50
5-06B	1/27/92	5-06B	ER	190	1221	100	1.3	0.50	ND	0.50	ND	0.50	2.6	0.50
	1/27/92	9201275-99	ER	250	1221	100	3.0	0.50	ND	0.50	ND	0.50	13	0.50
5-01B	3/18/92	5-01B	ATI	54	1221	2.5	ND	0.50	ND	0.50	ND	0.50	3.3	0.50
	3/18/92	5-99	ATI	65	1221	2.5	ND	0.50	ND	0.50	ND	0.50	3.9	0.50
5-06B	4/29/92	5-06B	ATI	150	1221	0.50	1.4	0.50	ND	0.50	ND	0.50	3.6	0.50
	4/29/92	5-99	ATI	150	1221	0.50	1.3	0.50	ND	0.50	ND	0.50	2.0	0.50
5-06B	10/14/92	5-06B	ATI	280	1221	5.0	1.0	0.50	ND	0.50	ND	0.50	2.8	0.50
	10/14/92	5-99	ATI	270	1221	5.0	1.0	0.50	ND	0.50	ND	0.50	2.6	0.50
5-06B	12/14/94	5-06B	HEAL	NA	—	NA	4.3	0.50	ND	0.50	ND	0.50	0.7	0.50
	12/14/94	5-99	HEAL	NA	—	NA	3.2	0.50	ND	0.50	ND	0.50	ND	0.50
5-48B	10/06/95	5-48B	HEAL	NA	—	NA	550	12.5	940	12.5	290	12.5	1900	12.5
	10/06/95	5-99	HEAL	NA	—	NA	730	20	1000	20	290	20	2300	20
5-02B	11/21/95	5-02B	HEAL	NA	—	NA	740	0.50	2900	0.50	160	0.50	1100	0.50
	11/21/95	5-98	HEAL	NA	—	NA	670	0.50	2000	0.50	120	0.50	990	0.50
5-06B	11/21/95	5-06B	HEAL/NET	44.4	1242	0.50	6.2	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	11/21/95	5-99	HEAL/NET	37.8	1242	0.50	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-01B	2/22/96	5-01B	HEAL/NET	<0.065	—	0.065	4.3	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	2/22/96	5-99	HEAL/NET	<0.065	—	0.065	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-48B	2/21/96	5-48B	HEAL	NA	—	NA	690	0.50	1100	0.50	550	0.50	3300	0.50
	2/21/96	5-98	HEAL	NA	—	NA	580	0.50	1200	0.50	540	0.50	3100	0.50
5-06B	05/23/96	5-06B	HEAL/NET	78	—	0.065	1.2	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	05/23/96	5-99	HEAL/NET	<0.065	—	0.065	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-02B	05/23/96	5-02B	HEAL	NA	—	NA	380	0.50	120	0.50	1300	0.50	1100	0.50
	05/23/96	5-98	HEAL	NA	—	NA	520	0.50	160	0.50	1600	0.50	1200	0.50
5-01B	08/14/96	5-01B	HEAL/NET	14.2	1221	NA	<0.5	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	08/14/96	5-99	HEAL/NET	5.61	1221	NA	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-48B	08/14/96	5-48B	HEAL	NA	—	NA	770	0.50	7600	0.50	340	0.50	3900	0.50
	08/14/96	5-98	HEAL	NA	—	NA	630	0.50	7900	0.50	300	0.50	3600	0.50
5-06B	11/22/96	5-06B	HEAL/NET	42.8	1221	0.065	0.9	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	11/22/96	5-99	HEAL/NET	34.1	1221	0.065	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-48B	11/21/96	5-48B	HEAL	NA	—	NA	960	0.50	8500	0.50	330	0.50	3900	0.50
	11/21/96	5-98	HEAL	NA	—	NA	970	0.50	8600	0.50	330	0.50	4000	0.50
5-06B	2/28/97	5-06B	HEAL/NET	48.2	1221	0.065	0.9	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	2/28/97	5-99	HEAL/NET	49.7	1221	0.065	0.8	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
5-02B	2/28/97	5-06B	HEAL	NA	—	NA	260	0.50	500	0.50	90	0.50	680	0.50
	2/28/97	5-98	HEAL	NA	—	NA	290	0.50	510	0.50	91	0.50	690	0.50
5-06B	5/22/97	5-06B	HEAL/NET	7.29	1221	0.065	0.7	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	5/22/97	5-99B	HEAL/NET	5.18	1221	0.065	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-18B	5/22/97	5-18B	HEAL	NA	—	NA	<0.5	0.50	4.7	0.50	88	0.50	0.8	0.50
	5/22/97	5-98	HEAL	NA	—	NA	<0.5	0.50	4.3	0.50	89	0.50	0.8	0.50
5-06B	8/20/97	5-06B	HEAL/EPIC	16.5	1221	0.65	0.7	0.50	<0.5	0.50	<0.5	0.50	<0.5	0.50
	8/20/97	5-99B	HEAL/EPIC	8.1	1221	0.065	NA	0.50	NA	0.50	NA	0.50	NA	0.50
5-16B	8/20/97	5-16B	HEAL	NA	—	NA	130	0.50	820	0.50	120	0.50	1300	0.50
	8/20/97	5-98	HEAL	NA	—	NA	130	0.50	790	0.50	120	0.50	1200	0.50
5-48B	11/19/97	5-48B	HEAL	NA	—	NA	1400	0.50	6900	0.50	330	0.50	3900	0.50
	11/19/97	5-98	HEAL	NA	—	NA	1600	0.50	7300	0.50	330	0.50	4100	0.50
5-16B	2/11/98	5-16B	HEAL	NA	—	NA	41	0.50	360	0.50	90	0.50	660	0.50
	2/11/98	5-98	HEAL	NA	—	NA	45	0.50	350	0.50	91	0.50	650	0.50
5-06C	2/12/98	5-06C	HEAL	320	1221	5.0	2.2	0.50	1.4	0.50	<0.5	0.50	1.3	0.50
	2/12/98	5-99	HEAL	280	1221	5.0	NA	0.50	NA	0.50	NA	0.50	NA	0.50

† Lab Designations

ATI-A = Analytical Technologies, Inc. (Albuquerque)

ATI-P = Analytical Technologies, Inc. (Phoenix)

ER = Enseco (Rocky Mountain Analytical)

EH = Enseco (Houston)

HEAL = Hell Environmental Analysis Laboratory (Albuquerque)

NET = National Environmental Testing, INC.

NA = Not Analyzed

Table 6. Summary of SVE System Emissions
Thoreau Compressor Station No. 5

Date	Concentration (ppmv)						
	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Hexane + Hydrocarbons	Non-Methane Hydrocarbons	PID Readings
04/29/96	< 10	30	10	70	2,050	na	450
05/24/96	< 10	30	10	80	2,000	na	420
07/03/96	< 10	10	< 10	10	1,310	na	442
08/15/96	< 10	260	< 10	30	1,050	na	1005
11/22/96	10	30	< 10	20	990	1,090	536
04/21/97	< 10	10	< 10	30	790	810	na
05/20/97	< 10	10	< 10	30	680	680	240
08/21/97	10	60	10	90	760	760	184
11/24/97	< 10	10	< 10	10	300	360	na
12/09/97	na	na	na	na	na	na	620
01/08/98 ^a	na	na	na	na	na	834	na

Air samples analyzed by Core Laboratories of Houston, Texas

(a) Air sample analyzed by Hall Laboratory of Albuquerque, NM

ppmv = parts per million by volume

PID = Photoionization detector

na = information not available

Table 7. Summary of SVE System Emissions at Individual Extraction Points
Thoreau Compressor Station No. 5

SVE Well	Date	PID Reading	Gasoline Range VOCs		< C5	C5-C6	C6-C7	C7-C8	C8-C9	C9-C10	C10-C11	C11-C12	C12-C14	C14+
			(ppmv)	(ug/L)	(ppmv) ^(a)	(%)								
SVE-1	11/22/96	178.9	1,400	403	0.0	0.7	46.7	39.7	4.9	0.1	0.0	0.0	0.0	0.0
	08/21/97	10.4	47	14	0.1	0.2	0.6	4.2	14.8	30.6	23.9	16.6	8.9	0.1
	11/24/97	na	19	5	0.4	0.7	1.2	2.3	10.4	22.6	23.2	27.7	11.1	0.4
	01/07/98	na	130	37	0.0	0.1	0.3	0.8	12.2	30.2	32.2	17.7	6.5	0.0
SVE-3	11/24/97	na	900	259	0.0	3.5	9.2	16.9	25.4	27.9	11.1	5.1	0.9	0.0
	01/07/98	na	720	207	0.1	6.6	12.0	14.5	18.9	19.1	17.7	8.4	2.7	0.0
SVE-4	11/24/97	na	590	170	0.0	2.2	11.8	27.9	30.6	15.8	6.7	4.2	0.8	0.0
	01/07/98	na	710	204	0.1	3.1	9.7	16.5	26.9	19.8	15.5	6.4	2.0	0.0
5-02B	08/21/97	23.3	490	141	1.4	13.5	34.0	41.7	7.1	1.3	0.6	0.4	0.0	0.0
	11/24/97	na	10	3	0.0	5.0	13.1	14.6	15.5	15.2	21.8	11.1	3.7	0.0
	01/07/98	na	250	72	0.1	14.3	37.7	27.6	8.0	2.4	4.4	3.6	1.9	0.0
5-04B	11/22/96	122.3	210	60	0.0	2.0	8.2	35.3	43.0	9.8	1.2	0.3	0.2	0.0
	08/21/97	41.1	530	152	0.0	0.1	1.6	9.0	39.8	38.1	8.2	2.8	0.4	0.0
	11/24/97	na	290	83	0.0	1.9	3.4	8.8	35.2	32.7	11.3	4.9	1.8	0.0
	01/07/98	na	44	13	0.0	0.0	0.2	0.9	8.1	32.1	33.9	17.4	7.4	0.0
5-05B	08/21/97	8.4	44	13	0.1	0.2	0.6	4.2	14.2	31.4	23.9	16.5	8.8	0.1
	11/24/97	na	6.7	2	0.0	0.0	0.6	3.1	19.9	22.9	28.0	15.6	9.6	0.3
	01/07/98	na	69	20	0.0	0.1	0.2	0.4	6.1	21.1	34.9	25.5	11.7	0.0
5-34B	11/22/96	307.0	3,000	863	0.0	6.4	18.3	59.4	14.9	1.0	0.0	0.0	0.0	0.0
	08/21/97	186.0	7,700	2,215	0.2	1.4	6.5	26.6	23.8	26.7	11.3	3.0	0.5	0.0
	11/24/97	na	4,400	1,265	0.0	1.0	4.6	23.5	38.9	24.9	1.8	1.9	1.3	2.1
	01/07/98	na	7,100	2,042	0.1	2.0	5.7	21.5	38.6	22.0	8.3	1.7	0.1	0.0
5-35B	11/22/96	135.8	120	35	0.0	12.9	28.2	32.5	16.7	7.8	1.7	0.2	0.0	0.0
	11/24/97	na	1,600	460	0.0	0.1	1.0	7.1	16.6	28.6	31.6	12.8	2.2	0.0
	01/07/98	na	1,800	518	0.0	0.2	1.0	3.7	26.8	36.3	22.1	8.3	1.6	0.0

All air samples analyzed by Hall Laboratory of Albuquerque, NM

PID = Photionization detector

^(a) Conversion Factor:

P = 0.76 atm, MW = 110 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 * 0.2876

Report of Ground Water Remediation Activities

**Transwestern Pipeline Company
Thoreau Compressor Station**

Attachment #1

Soil Boring and Completion Details for New Wells

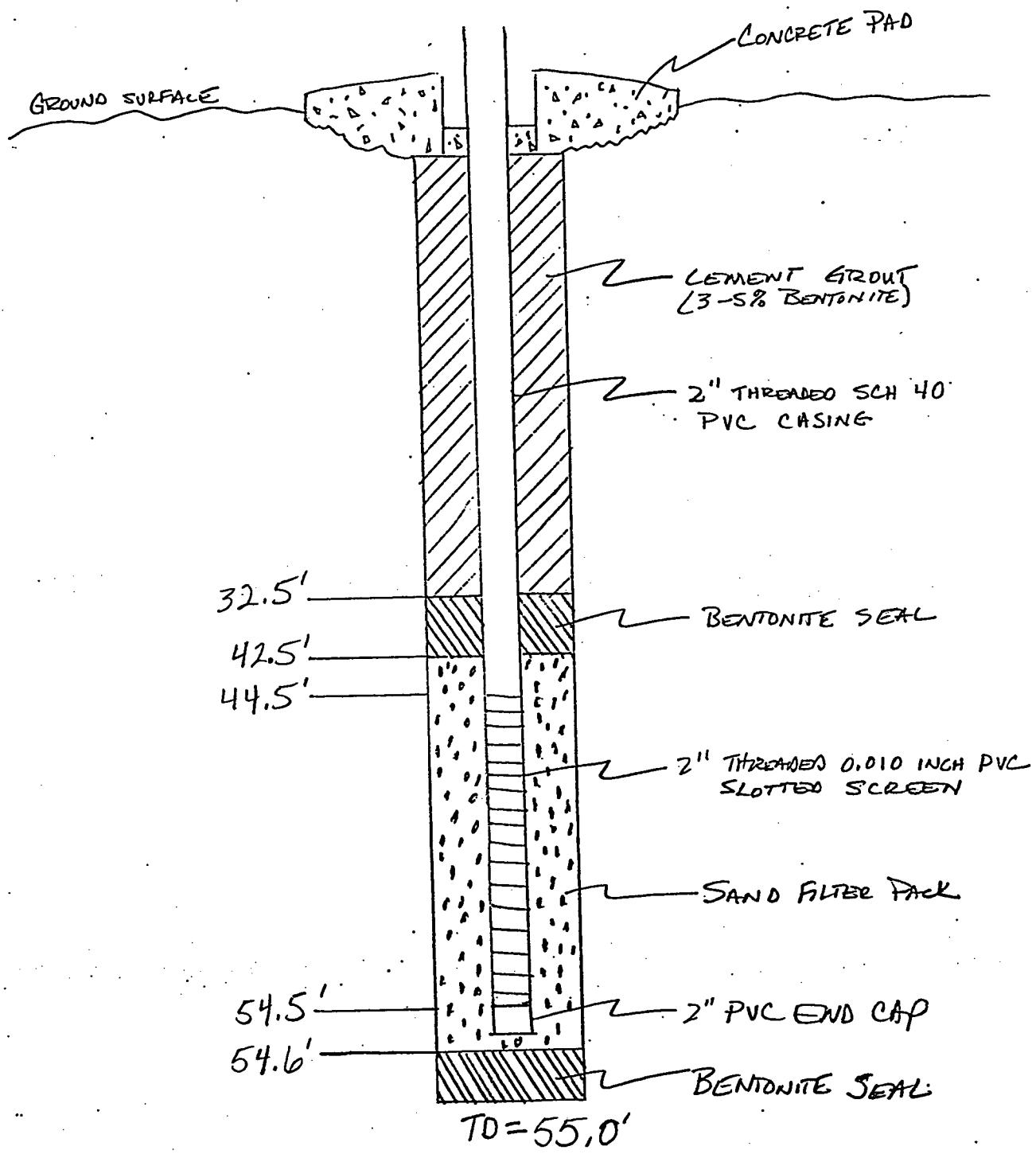
**Table 1. Well Completion Information for
the November 1997 Field Activities
Compressor Station No. 5 - Thoreau, NM**

Well No.	Date of Completion	Measuring Point Elevation ^b (ft)	Total Depth of Boring (ft bgs)	Casing Diameter (in.)	Screen Interval (ft bgs)	Top of Sand Pack (ft bgs)
MW-1C	11/17/97	7292.11	55.0	2	44.5 - 54.5	42.5
MW-6C	11/18/97	7291.46	58.5	2	42.0 - 57.0	40.0
MW-2C	11/15/97	7291.82	62.5	2	47.0 - 62.0	44.9
SVE-3	11/16/97	9293.68	65.0	2	44.0 - 64.0	41.9
SVE-4	11/16/97	7289.83	62.5	2	42.0 - 62.0	40.0
AS-12	11/21/97	7295.22	64.5	2	62.0 - 64.0	59.0
AS-13	11/21/97	7294.58	68.0	2	65.5 - 67.5	62.0
AS-14	11/20/97	7293.98	64.5	2	62.0 - 64.0	58.0
AS-15	11/20/97	7293.40	64.0	2	61.5 - 63.5	58.0
AS-16	11/19/97	7293.27	65.0	2	62.0 - 64.0	57.0

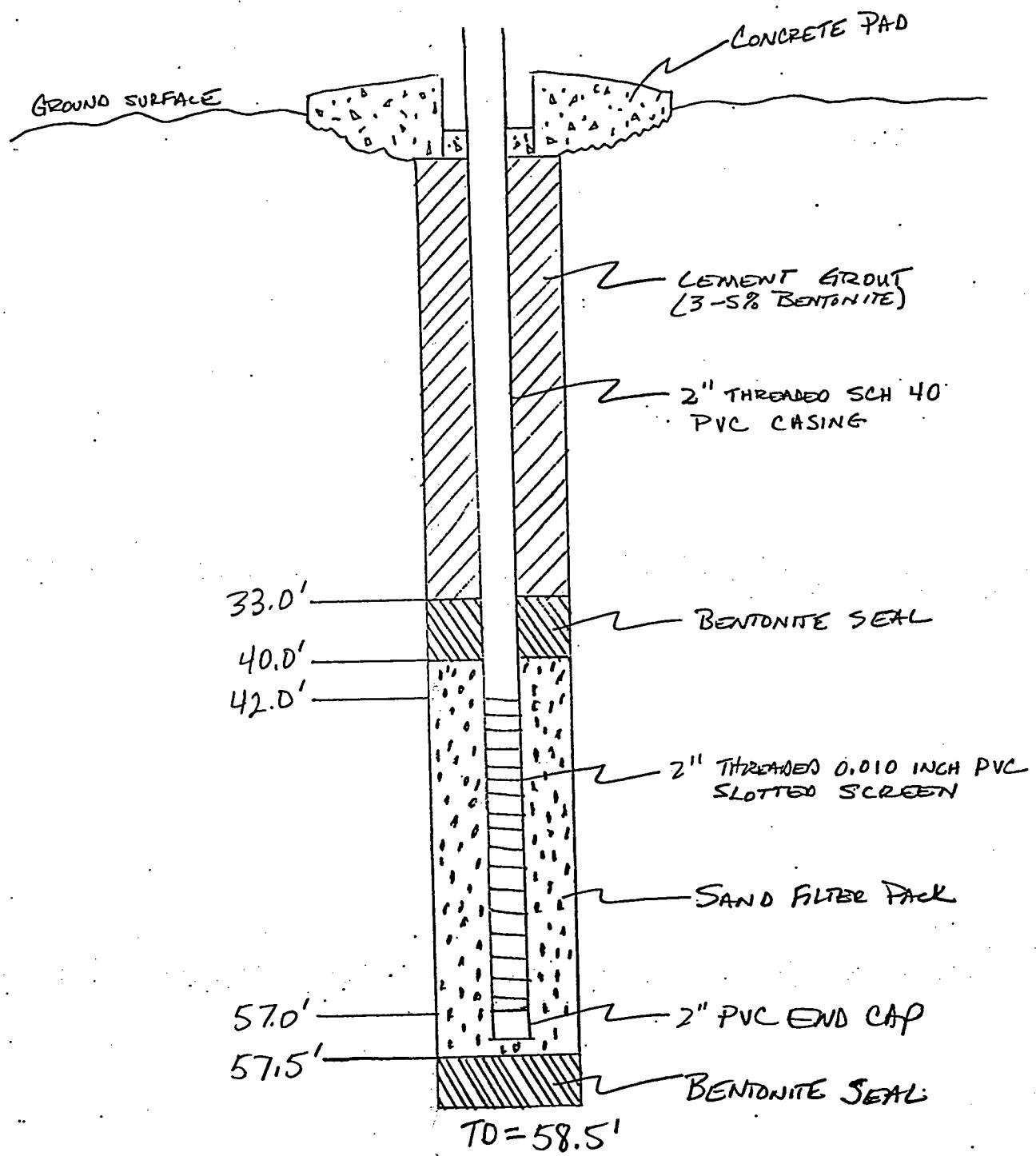
NOTES:

(b) The measuring point elevation is relative to mean sea level.

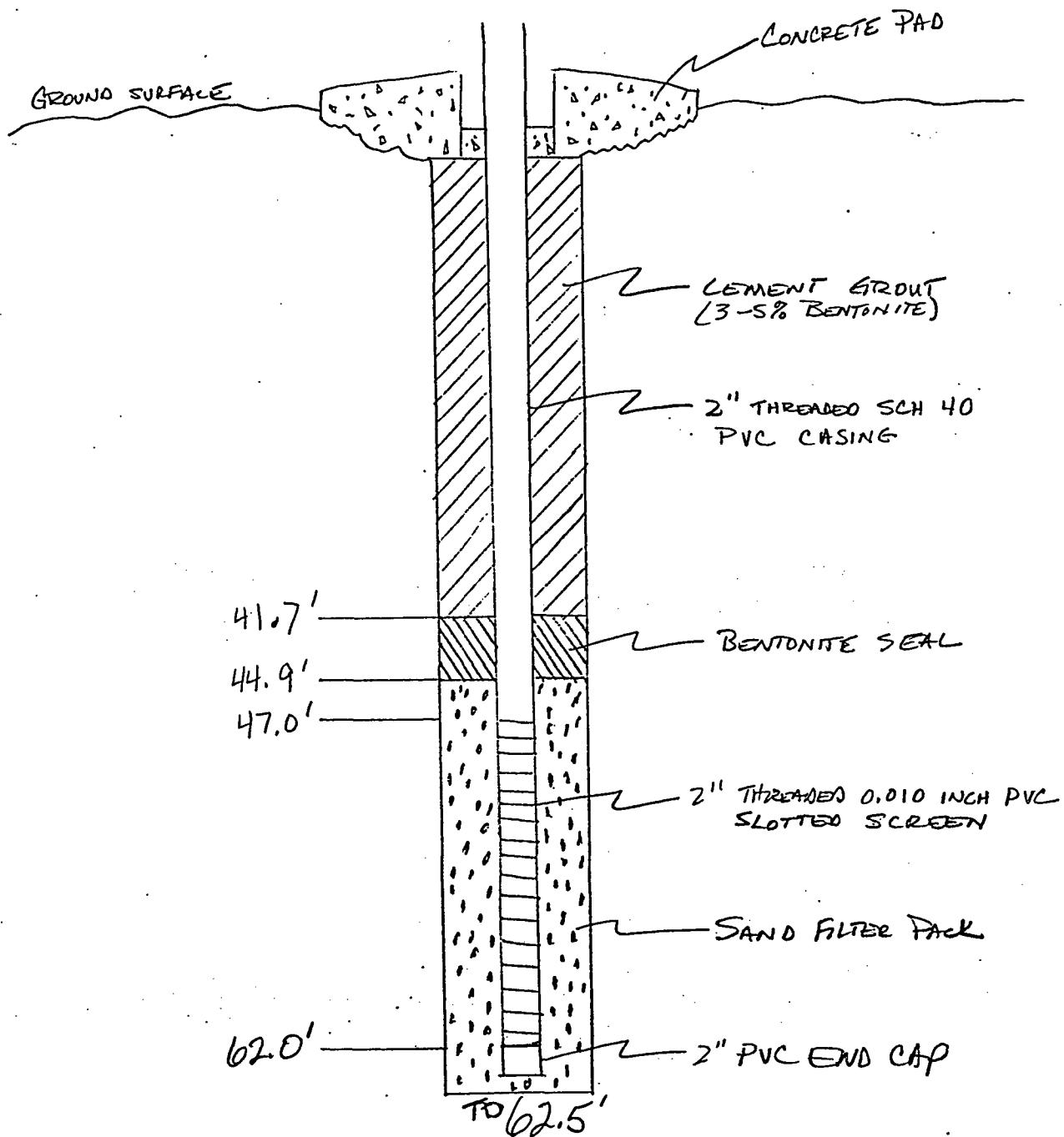
MW-1C (11/17/97)



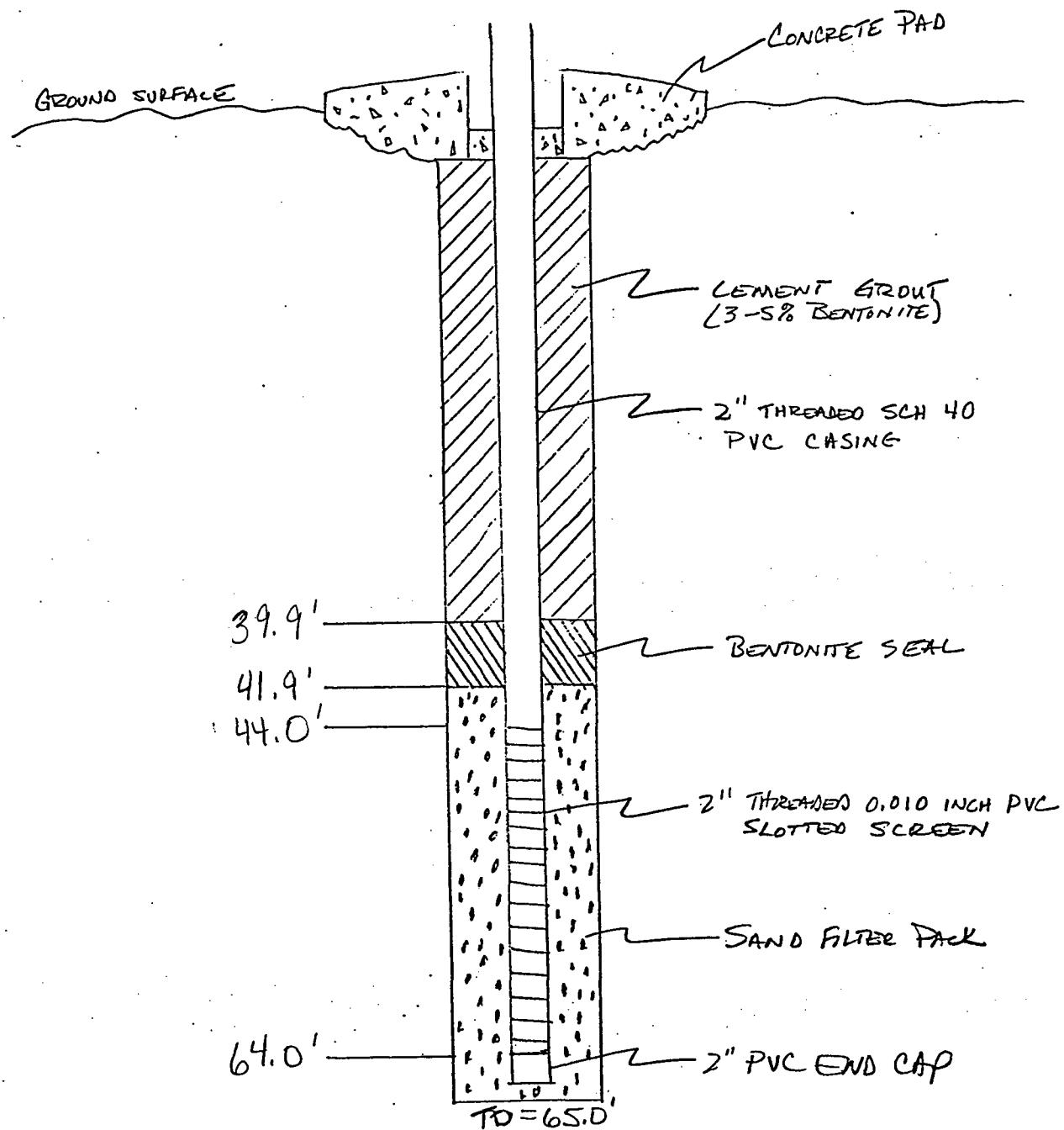
MW-6C (11/18/97)



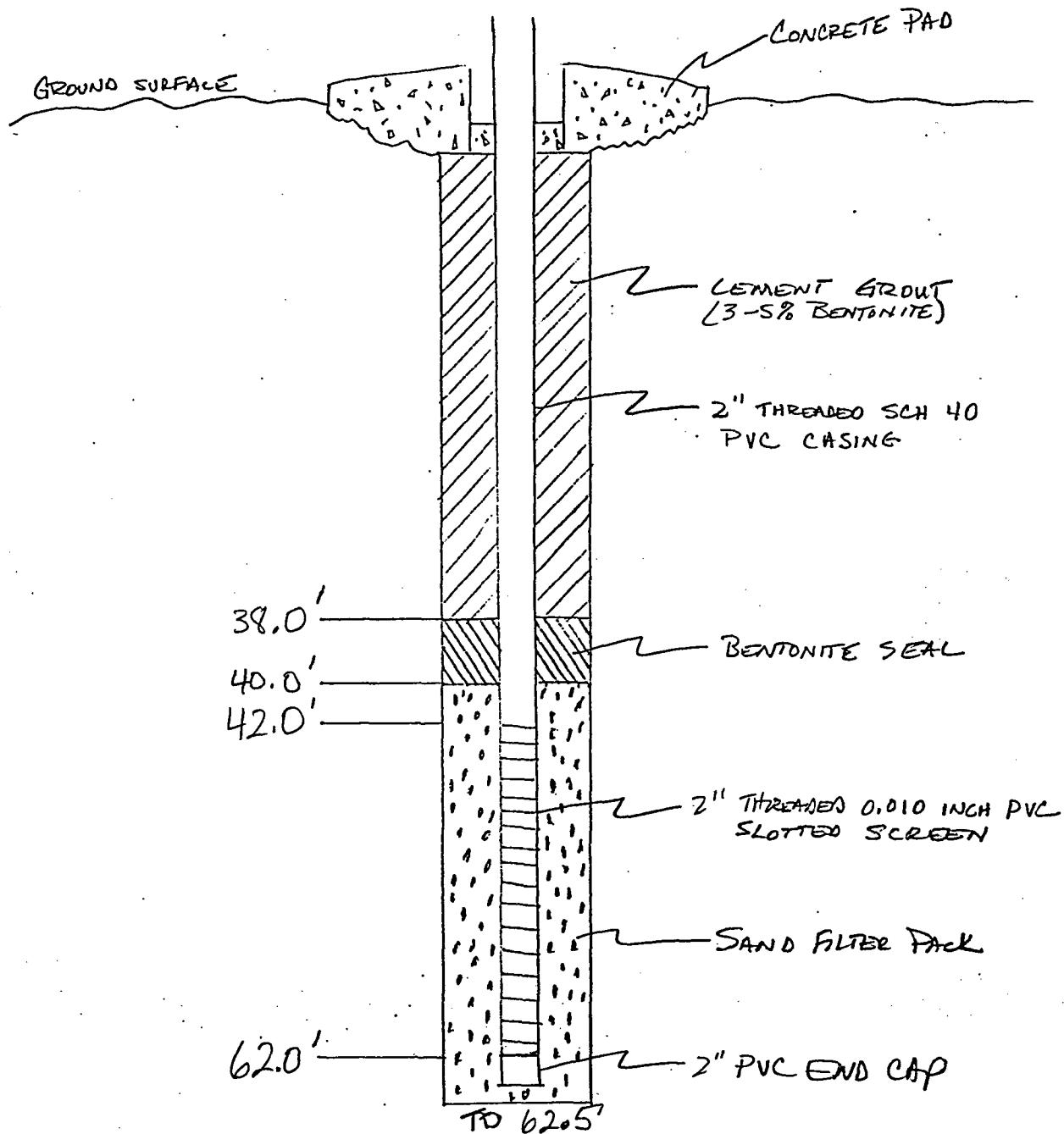
MW-2C (11/15/97)



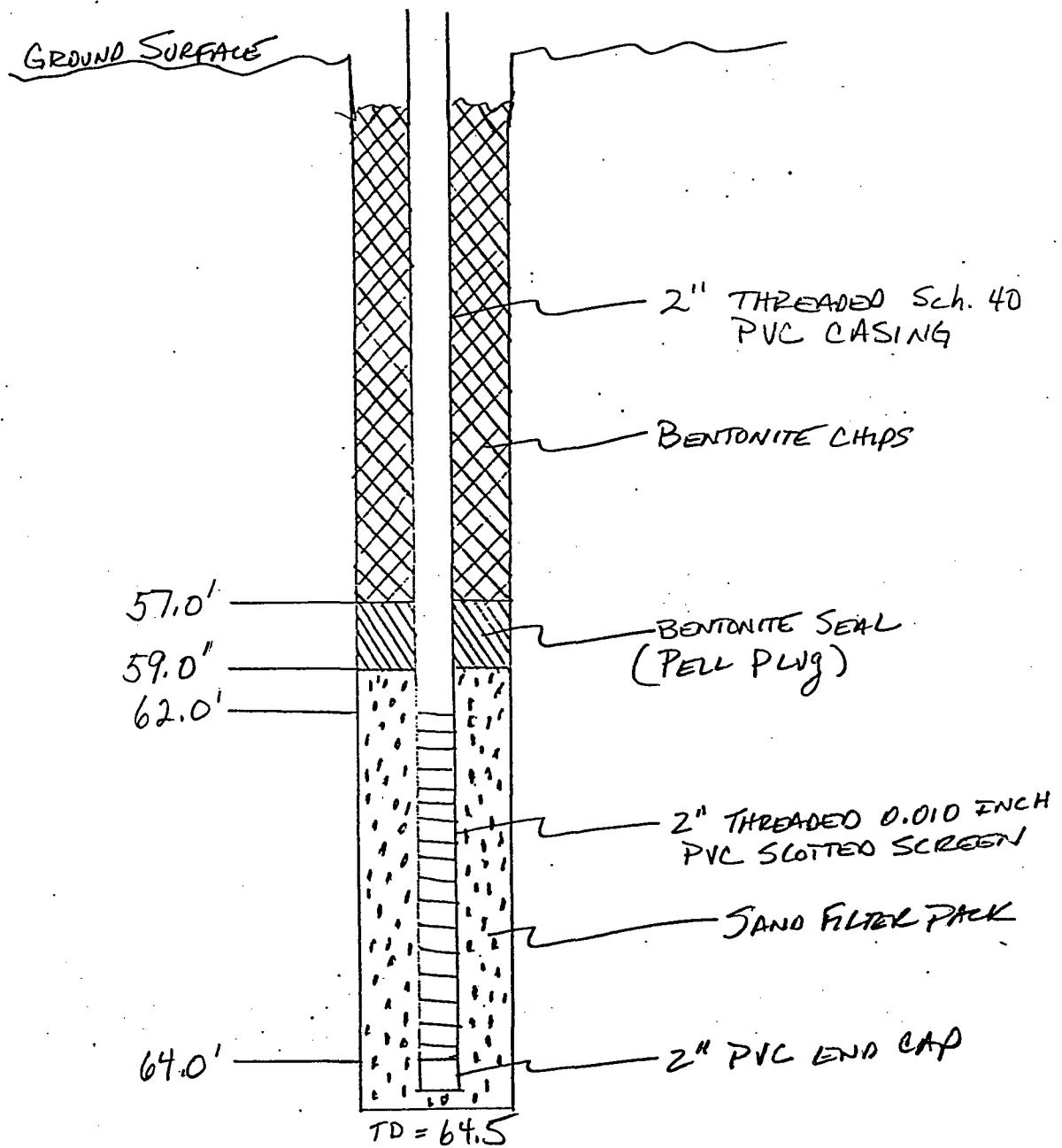
SVE - 3 (11/16/97)



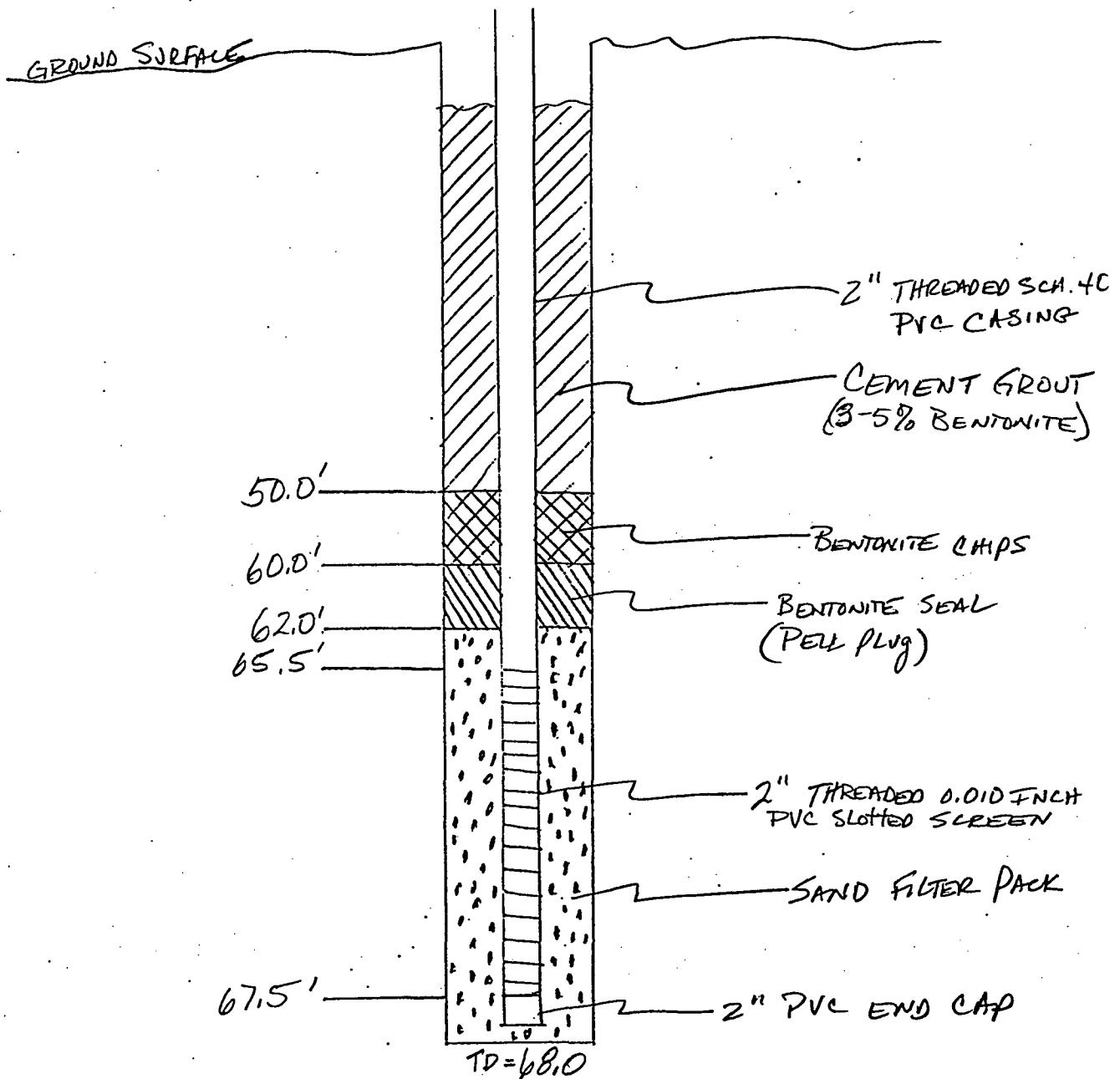
SVE - 4 (11/16/97)



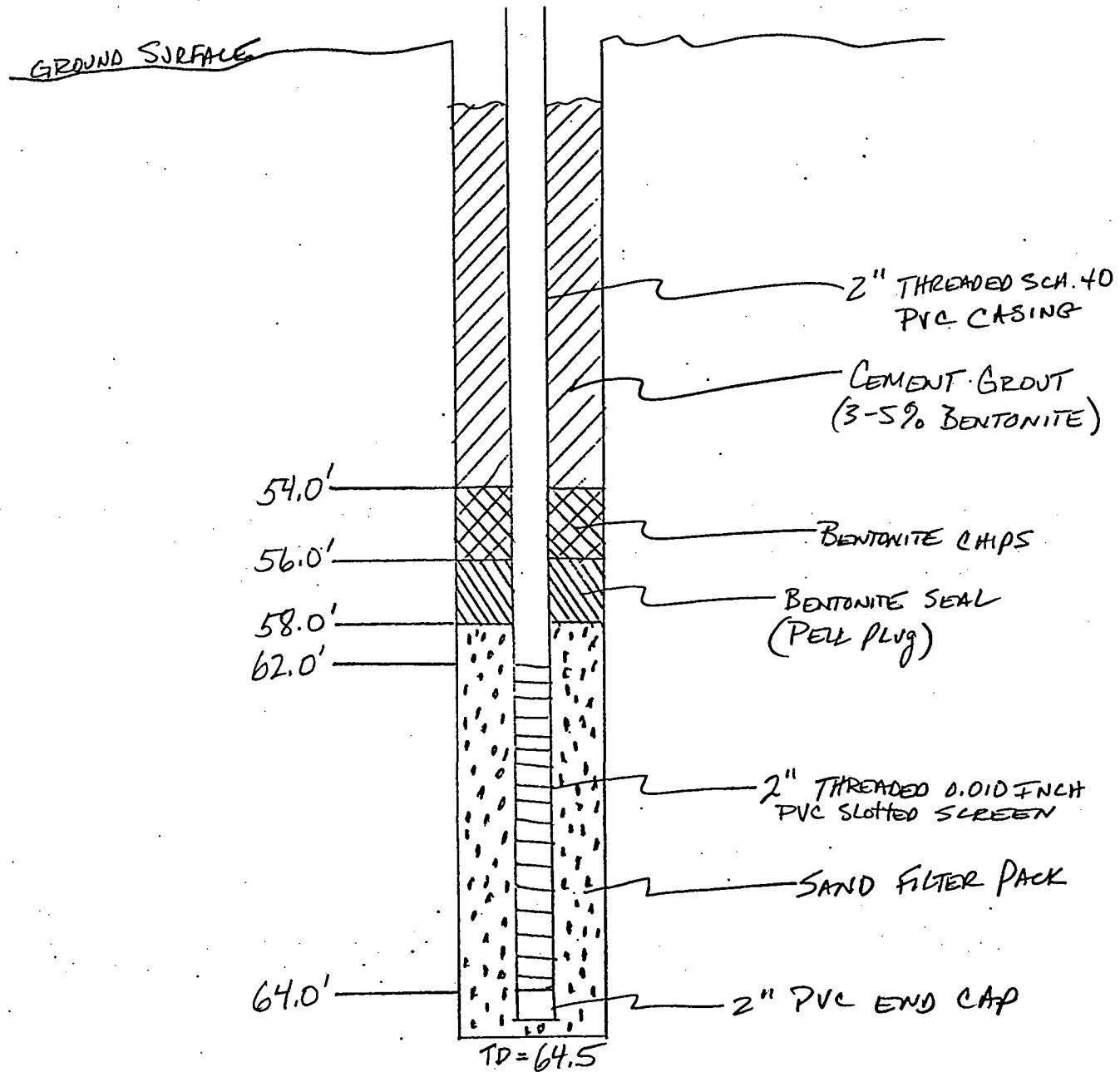
AS-12 (11/21/97)



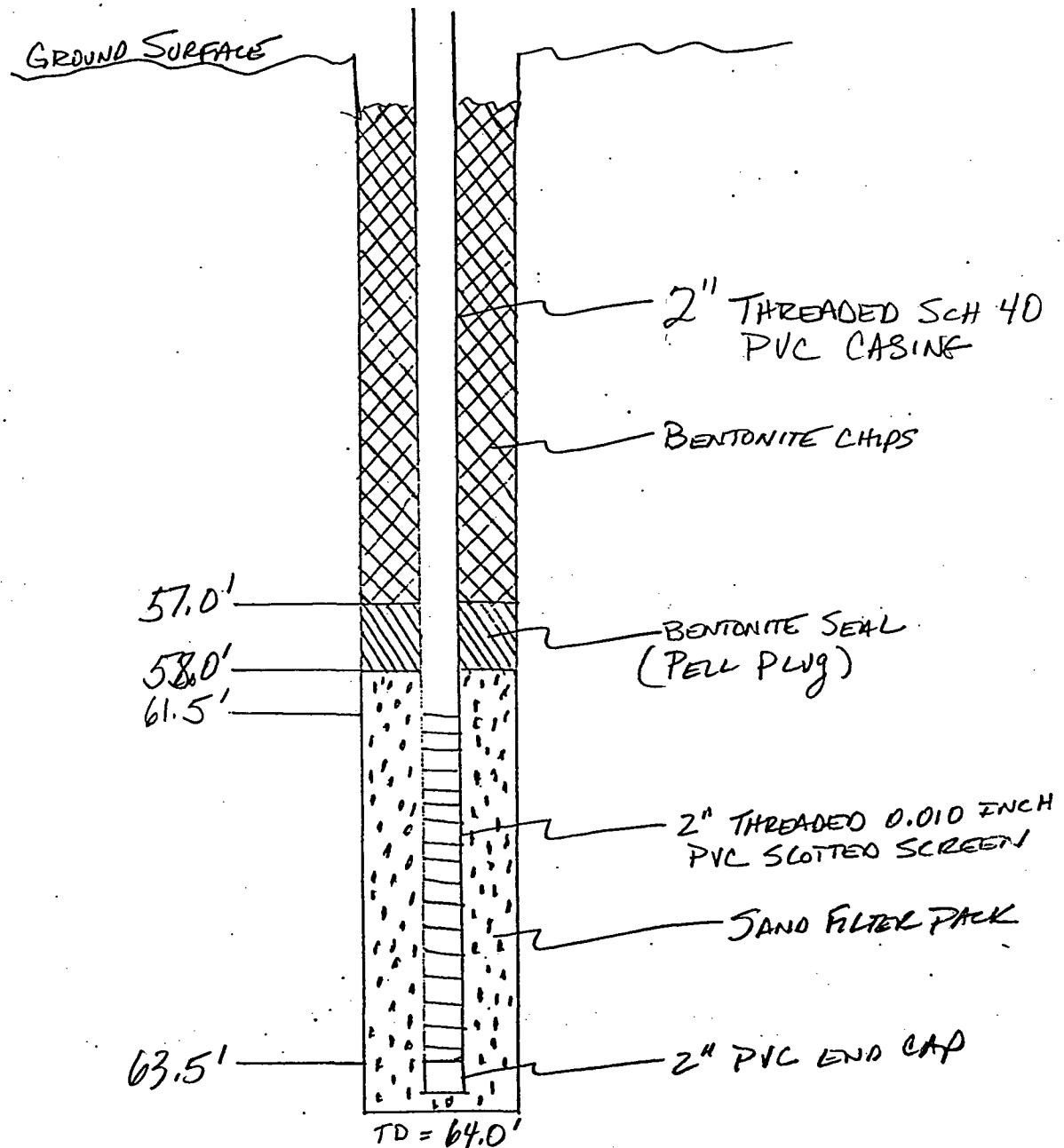
AS-13 (11/21/97)



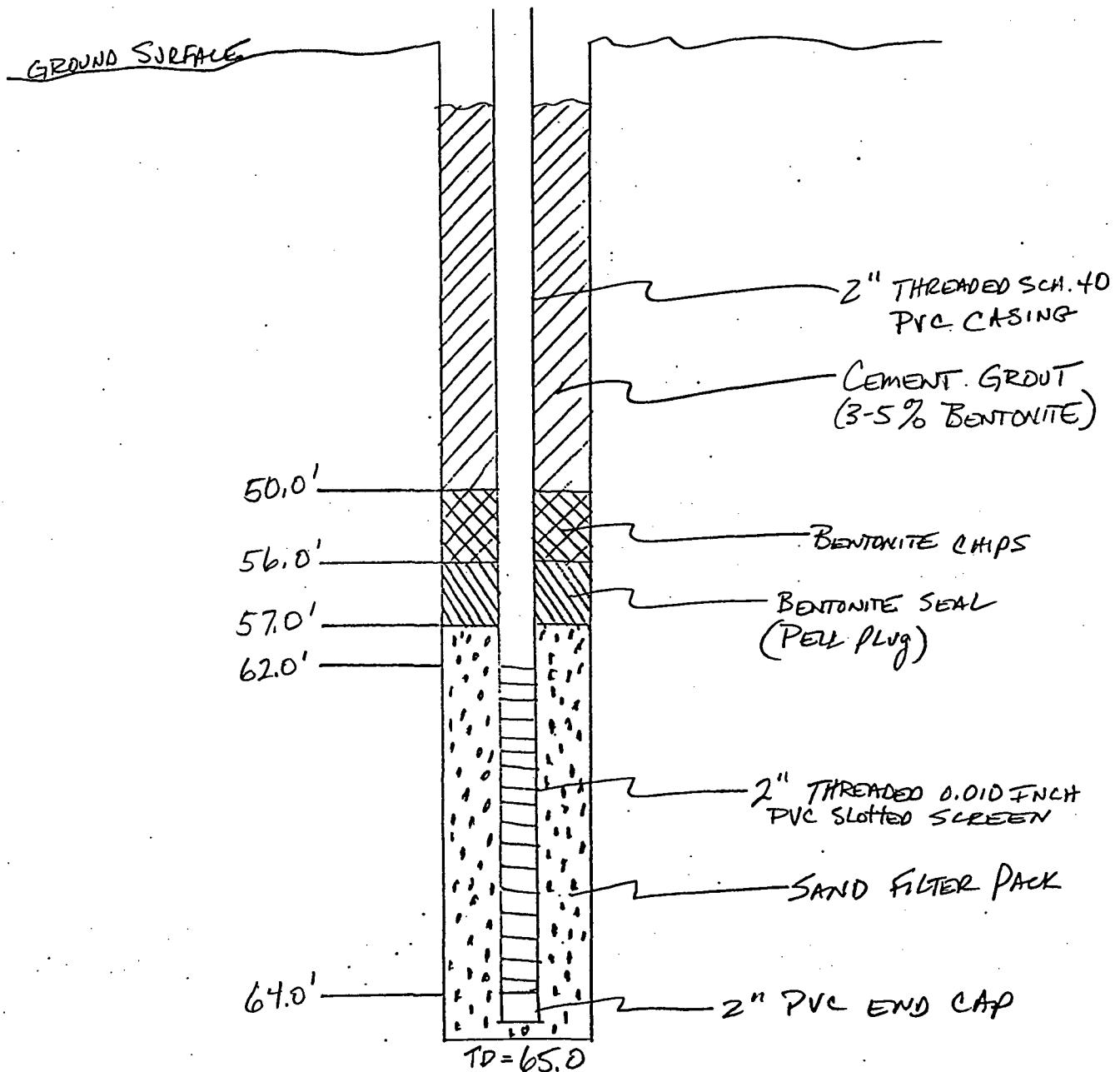
A5-14 (11/20/97)



AS-15 (11/20/97)



AS-16 (11/19/97)

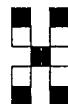


Report of Ground Water Remediation Activities

**Transwestern Pipeline Company
Thoreau Compressor Station**

Attachment #2

**Laboratory Reports for the May 1997
Ground Water Sampling Event**



Hall Environmental Analysis Laboratory

Hall Environmental Analysis Laboratory
4901 Hawkins, NE Suite A
Albuquerque, NM 87109
(505)345-3975

6/2/97

Daniel B. Stephens and Associates, Inc.
6020 Academy NE, Suite 100
Albuquerque, NM 87109

Dear Mr. Bob Marley,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,



6/3/97
COPY #1

Scott Hallenbeck, Lab Manager

Project: 9705060/Enron-Thoreau

Hall Environmental Analysis Laboratory, Inc.

Client : Daniel B. Stephens and Assoc., Inc.

Project: Enron Thoreau

Volatile Organic Compounds

Units: PPB ($\mu\text{g/L}$)

Test: EPA 8020

Sample Matrix: Aqueous

Date Received: 5/23/97

Sample Name: 5-03B 5-58B 5-57B 5-41B 5-47B 5-23B

Lab Code: 9705060 -1 -2 -3 -4 -5 -6

Date Collected: 5/20/97 5/20/97 5/20/97 5/20/97 5/20/97 5/21/97

Date Analyzed: 5/27/97 5/27/97 5/27/97 5/28/97 5/28/97 5/28/97

	Results	Results	Results	Results	Results	Results	Detection Limit
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Toluene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Ethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Xylenes (Total)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
BFB (Surrogate) Recovery	89%	89%	86%	91%	92%	91%	-
Dilution Factor	1	1	1	1	1	1	-

Sample Name: 5-17B 5-14B 5-15B 5-12B 5-24B 5-19B

Lab Code: 9705060 -7 -8 -9 -10 -11 -12

Date Collected: 5/21/97 5/21/97 5/21/97 5/21/97 5/21/97 5/21/97

Date Analyzed: 5/28/97 5/28/97 5/27/97 5/27/97 5/27/97 5/27/97

Analyte:	Results	Results	Results	Results	Results	Results	Detection Limit
Benzene	<0.5	<0.5	<0.5	<0.5	0.7	1.2	0.5
Toluene	<0.5	<0.5	<0.5	<0.5	<0.5	1.0	0.5
Ethylbenzene	<0.5	<0.5	<0.5	<0.5	1.0	<0.5	0.5
Xylenes (Total)	<0.5	<0.5	<0.5	<0.5	1.6	<0.5	0.5
BFB (Surrogate) Recovery	89%	89%	101%	100%	105%	105%	-
Dilution Factor	1	1	1	1	1	1	-

Sample Name: 5-13B 5-18B 5-16B 5-20B 5-22B 5-48B

Lab Code: 9705060 -13 -14 -15 -16 -17 -18

Date Collected: 5/21/97 5/22/97 5/22/97 5/22/97 5/22/97 5/22/97

Date Analyzed: 5/27/97 5/27/97 5/27/97 5/28/97 5/28/97 5/28/97

Analyte:	Results	Results	Results	Results	Results	Results	Detection Limit
Benzene	1.1	<0.5	130	2.0	3.6	1,100	0.5
Toluene	4.3	4.7	720	0.7	<0.5	8,000	0.5
Ethylbenzene	<0.5	88	110	0.8	<0.5	450	0.5
Xylenes (Total)	0.7	0.8	1,500	0.5	7.1	4,400	0.5
BFB (Surrogate) Recovery	97%	97%	101%	103%	106%	99%	-
Dilution Factor	1	1	40	1	1	200	-

Hall Environmental Analysis Laboratory, Inc.

Client: Daniel B. Stephens and Assoc., Inc.

Project: Enron Thoreau

Volatile Organic Compounds

Units: PPB ($\mu\text{g}/\text{L}$)

Test: EPA 8020

Sample Matrix: Aqueous

Date Received: 5/23/97

Sample Name:	5-01B	5-06B	5-98B	Trip	Reagent	Reagent
Lab Code:	9705060	-19	-20	Blank	Blank	Blank
Date Collected:	5/22/97	5/22/97	5/22/97	5/16/97	RB5/27	RB5/27
Date Analyzed:	5/28/97	5/28/97	5/28/97	5/28/97	5/27/97	5/27/97

	Results	Results	Results	Results	Results	Results	Detection Limit
Benzene	1.2	0.7	<0.5	<0.5	<0.5	<0.5	0.5
Toluene	<0.5	<0.5	4.3	<0.5	<0.5	<0.5	0.5
Ethylbenzene	<0.5	<0.5	89	<0.5	<0.5	<0.5	0.5
Xylenes (Total)	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	0.5
BFB (Surrogate) Recovery	95%	96%	94%	100%	93%	99%	-
Dilution Factor	1	1	1	1	1	1	-

Sample Name:	Reagent Blank
Lab Code:	RB5/28
Date Collected:	
Date Analyzed:	5/28/97

Analyte:	Results	Detection Limit
Benzene	<0.5	0.5
Toluene	<0.5	0.5
Ethylbenzene	<0.5	0.5
Xylenes (Total)	<0.5	0.5
BFB (Surrogate) Recovery	91%	-
Dilution Factor	1	-

Results for QC: Matrix Spike / Matrix Spike Duplicate

Date extracted: NA	Date analyzed: 5/27,28/97
Client: Daniel B. Stephens and Associates, Inc.	
Project Name: Enron-Thoreau	HEAL #: 9705060-1, 9705060-9,
Project Manager: Bob Marley	9705060-5 MS/MSD
Matrix: Aqueous	Units: PPB (μ g/L)

Test: EPA 8020

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Matrix Spike</u>	<u>MS %</u>	<u>Dup</u>	<u>MSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	20.7	104	20.6	103	0
Toluene	<0.5	20.0	20.6	103	20.6	103	0
Ethylbenzene	<0.5	20.0	21.0	105	20.1	101	4
Total Xylenes	<0.5	60.0	62.2	104	60.1	100	3

Test: EPA 8020

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Matrix Spike</u>	<u>MS %</u>	<u>Dup</u>	<u>MSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	20.7	104	20.5	103	1
Toluene	<0.5	20.0	20.6	103	20.5	103	0
Ethylbenzene	<0.5	20.0	20.3	102	20.0	100	1
Total Xylenes	0.5	60.0	62.7	105	60.8	101	3

Test: EPA 8020

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Matrix Spike</u>	<u>MS %</u>	<u>Dup</u>	<u>MSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	19.7	99	20.3	102	3
Toluene	<0.5	20.0	20.3	102	20.7	104	2
Ethylbenzene	<0.5	20.0	20.3	102	21.1	106	4
Total Xylenes	0.5	60.0	62.4	104	64.1	107	3

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Project Name: Daniel B. Stephens & Assoc.

Address: 4901 Hawkins NE, Suite A

Albuquerque, New Mexico 87109
505.345.3975

Fax 505.345.4107

Project #: C0031.1

ENRON - THOREAU

Project Manager:
Bob Marley

Phone #: 822-9400
Fax #: 822-8877

Sampler: V.Wolf / S. Sharp

Samples Cold?: Yes No

BTEX + MTEB + TPB (Gasoline Only)
BTEX + MTEB (602/8020)

TPH Method 418.1
TPH Method 8015 MOD (Gas/Diesel)

8010/6020/Volatiles (No MTBE)

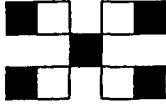
EDC (Method 8010)
EDB (Method 504)

8310 (PNA or PAH)
RCRA 8 Metals

Cations (Na, K, Ca, Mg)
Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8080 Pesticides / PCB's
8260 (VOA)

8270 (Semi-VOA)
Air Bubbles or Headspace (Y or N)



Date:	Received By: (Signature)
5/23/97	<i>[Signature]</i>

Remarks:
Please refer to pg 1 for billing info.

Date:	Relinquished By: (Signature)
5/23/97	<i>[Signature]</i>

Date:	Time:	Received By: (Signature)
5/23/97	1510	<i>[Signature]</i>
5/16/97	0825	8020 BETTER - NO MTBE

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative		HEAL No.
					HgCl ₂	HCl	
5/23/97	1800	H ₂ O	5-133	2/40 mL	✓		9705060-13
5/23/97	1115	H ₂ O	5-183	2/40 mL	✓		-14
5/23/97	1205	H ₂ O	5-163	2/40 mL	✓		-15
5/23/97	1255	H ₂ O	5-203	2/40 mL	✓		-16
5/23/97	1420	H ₂ O	5-223	2/40 mL	✓		-17
5/23/97	1450	H ₂ O	5-483	2/40 mL	✓		-18
5/23/97	1525	H ₂ O	5-013	2/40 mL	✓		-19
5/23/97	1615	H ₂ O	5-063	2/40 mL	✓		-20
5/23/97	—	H ₂ O	5-983	2/40 mL	✓		-21
5/16/97	0825	H ₂ O	TRIP BLANK	1/40 mL	✓		-22

EPIC

LABORATORIES, INC.

**ANALYTICAL AND QUALITY CONTROL REPORT**

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
PO Box 1188
Houston, TX 77251

06/06/1997
Addendum: 06/24/1997
EPIC Job Number: 97.02173

Page 1

Project Description: 6031.1
Job Description: Enron - Thoreau

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to EPIC Laboratories, Inc. for analysis:

Sample Number	Sample Description	Date Taken	Time Taken	Date Received
333198	5-17B	05/21/1997	13:00	05/29/1997
333199	5-01B	05/22/1997	15:25	05/29/1997
333200	5-06B	05/22/1997	16:15	05/29/1997
333201	Filtered Purge Water	05/22/1997	15:55	05/29/1997
333202	5-99B	05/22/1997	15:55	05/29/1997
333203	SVE Knockout Water	05/22/1997	16:30	05/29/1997
333204	MW-37i Purge Water	05/22/1997	16:10	05/29/1997

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Debby Skogen

Debby Skogen
Project Coordinator

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.

ANALYTICAL RESULTS REPORT

George Robinson
 ENRON CORPORATION
 Env. Affairs, Rm 3 AC 3142
 PO Box 1188
 Houston, TX 77251

06/06/1997
 Addendum: 06/24/1997
 EPIC Job Number: 97.02173
 Sample Number: 333198

Page 2

Project Description: 6031.1
 Job Description: Enron - Thoreau

Sample Description: 5-17B

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
PCB/PEST-AQUEOUS (8080)										
PCB-1016		<0.065	ug/L	S-8080A	05/29/1997	05/31/1997	tcc	314	583	0.065
PCB-1221		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1232		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1242		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1248		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1254		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1260		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
SURP: DCB		105	% Rec	S-8080A		05/31/1997	tcc	314	583	50-120
TCX		82	% Rec	S-8080A		05/31/1997	tcc	314	583	40-125

ANALYTICAL RESULTS REPORT

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
PO Box 1188
Houston, TX 77251

06/06/1997
Addendum: 06/24/1997
EPIC Job Number: 97.02173
Sample Number: 333199

Page 3

Project Description: 6031.1
Job Description: Enron - Thoreau

Sample Description: 5-01B

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
PCB/PEST-AQUEOUS (8080)										05/29/1997
PCB-1016		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1221		11.9	ug/L	S-8080A		06/03/1997	tcc	314	583	0.065
PCB-1232		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1242		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1248		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1254		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1260		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
STD: DCB		97	% Rec	S-8080A		05/31/1997	tcc	314	583	50-120
TCX		104	% Rec	S-8080A		05/31/1997	tcc	314	583	40-125

ANALYTICAL RESULTS REPORT

George Robinson
 ENRON CORPORATION
 Env. Affairs, Rm 3 AC 3142
 PO Box 1188
 Houston, TX 77251

06/06/1997
 Addendum: 06/24/1997
 EPIC Job Number: 97.02173
 Sample Number: 333200

Page 4

Project Description: 6031.1
 Job Description: Enron - Thoreau

Sample Description: 5-06B

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
PCB/PEST-AQUEOUS (8080)										
PCB-1016		<0.065	ug/L	S-8080A		05/29/1997		05/31/1997 tcc	314	583 0.065
PCB-1221		7.29	ug/L	S-8080A				06/03/1997 tcc	314	583 0.065
PCB-1232		<0.065	ug/L	S-8080A				05/31/1997 tcc	314	583 0.065
PCB-1242		<0.065	ug/L	S-8080A				05/31/1997 tcc	314	583 0.065
PCB-1248		<0.065	ug/L	S-8080A				05/31/1997 tcc	314	583 0.065
PCB-1254		<0.065	ug/L	S-8080A				05/31/1997 tcc	314	583 0.065
PCB-1260		<0.065	ug/L	S-8080A				05/31/1997 tcc	314	583 0.065
SPC DCB		89	% Rec	S-8080A				05/31/1997 tcc	314	583 50-120
TCX		86	% Rec	S-8080A				05/31/1997 tcc	314	583 40-125

ANALYTICAL RESULTS REPORT

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
PO Box 1188
Houston, TX 77251

06/06/1997
Addendum: 06/24/1997
EPIC Job Number: 97.02173
Sample Number: 333201

Page 5

Project Description: 6031.1
Job Description: Enron - Thoreau

Sample Description: Filtered Purge Water

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
PCB/PEST-AQUEOUS (8080)										
PCB-1016		<0.065	ug/L	S-8080A		05/29/1997		05/31/1997	tcc 314	583 0.065
PCB-1221		<0.065	ug/L	S-8080A				05/31/1997	tcc 314	583 0.065
PCB-1232		<0.065	ug/L	S-8080A				05/31/1997	tcc 314	583 0.065
PCB-1242		<0.065	ug/L	S-8080A				05/31/1997	tcc 314	583 0.065
PCB-1248		<0.065	ug/L	S-8080A				05/31/1997	tcc 314	583 0.065
PCB-1254		<0.065	ug/L	S-8080A				05/31/1997	tcc 314	583 0.065
PCB-1260		<0.065	ug/L	S-8080A				05/31/1997	tcc 314	583 0.065
SURF DCB		96	% Rec	S-8080A				05/31/1997	tcc 314	583 50-120
SPK TCX		79	% Rec	S-8080A				05/31/1997	tcc 314	583 40-125

ANALYTICAL RESULTS REPORT

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
PO Box 1188
Houston, TX 77251

06/06/1997
Addendum: 06/24/1997
EPIC Job Number: 97.02173
Sample Number: 333202

Page 6

Project Description: 6031.1
Job Description: Enron - Thoreau

Sample Description: 5-99B

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Batch Number	Batch Number	Reporting Limit
PCB/PEST-AQUEOUS (8080)										
PCB-1016		<0.065	ug/L	S-8080A		05/29/1997	tcc	314	583	0.065
PCB-1221		5.18	ug/L	S-8080A		06/03/1997	tcc	314	583	0.065
PCB-1232		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1242		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1248		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1254		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1260		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
SURP- DCB		107	% Rec	S-8080A		05/31/1997	tcc	314	583	50-120
SPUR- TCX		68	% Rec	S-8080A		05/31/1997	tcc	314	583	40-125

ANALYTICAL RESULTS REPORT

George Robinson
 ENRON CORPORATION
 Env. Affairs, Rm 3 AC 3142
 PO Box 1188
 Houston, TX 77251

06/06/1997
 Addendum: 06/24/1997
 EPIC Job Number: 97.02173
 Sample Number: 333203

Page 7

Project Description: 6031.1
 Job Description: Enron - Thoreau

Sample Description: SVE Knockout Water

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch	Run Batch	Reporting Limit
PCB/PEST-AQUEOUS (8080)					05/29/1997					
PCB-1016		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1221		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1232		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1242		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1248		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1254		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1260		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
SURR: DCB		93	% Rec	S-8080A		05/31/1997	tcc	314	583	50-120
TCX	SU	NA	% Rec	S-8080A		05/31/1997	tcc	314	583	40-125

SU - Surrogate outside limits due to matrix interference.

ANALYTICAL RESULTS REPORT

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
PO Box 1188
Houston, TX 77251

06/06/1997
Addendum: 06/24/1997
EPIC Job Number: 97.02173
Sample Number: 333204

Page 8

Project Description: 6031.1

Job Description: Enron - Thoreau

Sample Description: MW-37i Purge Water

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
PCB/PEST-AQUEOUS (8080)					05/29/1997					
PCB-1016		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1221		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1232		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1242		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1248		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1254		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
PCB-1260		<0.065	ug/L	S-8080A		05/31/1997	tcc	314	583	0.065
SURP: DCB		92	% Rec	S-8080A		05/31/1997	tcc	314	583	50-120
TCX		108	% Rec	S-8080A		05/31/1997	tcc	314	583	40-125

QUALITY CONTROL REPORT BLANKS

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
PO Box 1188
Houston, TX 77251

06/06/1997
Addendum: 06/24/1997
EPIC Job Number: 97.02173

Project Description: 6031.1
Job Description: Enron - Thoreau

Parameter	Flag	Blank	Result	Units	Reporting Limit	Date Analyzed	Prep Batch Number	Run Batch Number
PCB/PEST-AQUEOUS (8080)								
PCB-1016		<0.065		ug/L	0.065	05/31/1997	314	583
PCB-1221		<0.065		ug/L	0.065	05/31/1997	314	583
PCB-1232		<0.065		ug/L	0.065	05/31/1997	314	583
PCB-1242		<0.065		ug/L	0.065	05/31/1997	314	583
PCB-1248		<0.065		ug/L	0.065	05/31/1997	314	583
PCB-1254		<0.065		ug/L	0.065	05/31/1997	314	583
PCB-1260		<0.065		ug/L	0.065	05/31/1997	314	583

All parameters should be less than the reporting limit.

QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION STANDARD

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
PO Box 1188
Houston, TX 77251

06/06/1997
Addendum: 06/24/1997
EPIC Job Number: 97.02173

Project Description: 6031.1
Job Description: Enron - Thoreau

Parameter	Flag	CCVS True Concentration	CCVS Concentration Units	CCVS Found	CCVS Percent Recovery	Date Analyzed	Run Batch Number
PCB/PEST-AQUEOUS (8080)							
PCB-1016		0.50	ug/L	0.537	107.4	05/31/1997	583
PCB-1260		0.50	ug/L	0.471	94.2	05/31/1997	583
PCB/PEST-AQUEOUS (8080)							
PCB-1016		0.50	ug/L	0.557	111.4	06/03/1997	583
PCB-1221		0.50	ug/L	0.518	103.6	06/03/1997	583
PCB-1260		0.50	ug/L	0.548	109.6	06/03/1997	583

CCVS = Continuing Calibration Verification Standard

QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
PO Box 1188
Houston, TX 77251

06/06/1997
Addendum: 06/24/1997
EPIC Job Number: 97.02173

Project Description: 6031.1
Job Description: Enron - Thoreau

Analyte	Prep	Run	LCS		LCS	LCS	LCS	LCS	LCS	Date
	Batch	Batch	True	Conc	Conc	%	Dup	Dup	%	Analyzed
	No.	No.	Conc	Units	Found	Rec.	Found	% Rec	RPD	Flag
PCB/PEST-AQUEOUS (8080)										
PCB-1016		314	583	0.50	ug/L	0.428	85.6	0.446	89.2	4.1
PCB-1260		314	583	0.50	ug/L	0.359	71.8	0.365	73.0	1.7

LCS - Laboratory Control Standard

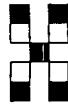
For samples with insufficient sample volume, an LCS/LCS duplicate is reported instead of an MS/MSD.

Report of Ground Water Remediation Activities

**Transwestern Pipeline Company
Thoreau Compressor Station**

Attachment #3

**Laboratory Reports for the August 1997
Ground Water Sampling Event**



Hall Environmental Analysis Laboratory

Hall Environmental Analysis Laboratory
4901 Hawkins, NE Suite A
Albuquerque, NM 87109
(505)345-3975

9/2/97

Daniel B. Stephens and Associates, Inc.
6020 Academy NE, Suite 100
Albuquerque, NM 87109

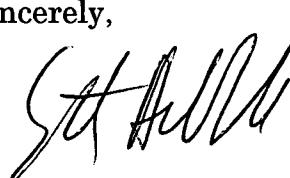
Dear Mr. Bob Marley,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,

 9/3/97

Scott Hallenbeck, Lab Manager

Project: 9705060/Enron-Thoreau

Hall Environmental Analysis Laboratory, Inc.

Client: Daniel B. Stephens and Assoc., Inc.

Project: Enron Thoreau

Volatile Organic Compounds

Units: PPB ($\mu\text{g}/\text{L}$)

Test: EPA 8020

Sample Matrix: Aqueous

Date Received: 8/21/97

	✓	✓	✓	✓	✓	✓
Sample Name:	5-03B	5-47B	5-57B	5-41B	5-58B	5-12B
Lab Code:	9708055	-1	-2	-3	-4	-5
Date Collected:	8/18/97	8/18/97	8/18/97	8/18/97	8/18/97	8/19/97
Date Analyzed:	8/25/97	8/25/97	8/25/97	8/25/97	8/25/97	8/25/97

	Results	Results	Results	Results	Results	Results	Detection Limit
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Toluene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Ethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Xylenes (Total)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
BFB (Surrogate) Recovery	94%	92%	94%	93%	93%	95%	-
Dilution Factor	1	1	1	1	1	1	-

	✓	✓	✓	✓	✓	✓
Sample Name:	5-23B	5-24B	5-14B	5-13B	5-15B	5-20B
Lab Code:	9708055	-7	-8	-9	-10	-11
Date Collected:	8/19/97	8/19/97	8/19/97	8/19/97	8/19/97	8/19/97
Date Analyzed:	8/25/97	8/25/97	8/25/97	8/25/97	8/25/97	8/25/97

	Results	Results	Results	Results	Results	Results	Detection Limit
Benzene	<0.5	1.2	<0.5	1.2	<0.5	10	0.5
Toluene	<0.5	0.5	<0.5	2.9	<0.5	1.0	0.5
Ethylbenzene	<0.5	0.9	<0.5	<0.5	<0.5	1.9	0.5
Xylenes (Total)	<0.5	<0.5	<0.5	0.6	<0.5	1.4	0.5
BFB (Surrogate) Recovery	92%	101%	94%	91%	93%	103%	-
Dilution Factor	1	1	1	1	1	1	-

	✓	✓	✓	✓	✓	✓
Sample Name:	5-18B	5-17B	5-19B	5-22B	5-16B	5-48B
Lab Code:	9708055	-13	-14	-15	-16	-17
Date Collected:	8/19/97	8/20/97	8/20/97	8/20/97	8/20/97	8/20/97
Date Analyzed:	8/22/97	8/22/97	8/22/97	8/22/97	8/22/97	8/22/97

	Results	Results	Results	Results	Results	Results	Detection Limit
Benzene	1.1	<0.5	1.7	3.2	130	1,200	0.5
Toluene	4.9	<0.5	1.3	7.3	820	7,000	0.5
Ethylbenzene	110	<0.5	0.6	<0.5	120	440	0.5
Xylenes (Total)	1.5	<0.5	<0.5	5.3	1,300	4,200	0.5
BFB (Surrogate) Recovery	91%	93%	96%	99%	95%	95%	-
Dilution Factor	1	1	1	1	20	40	-

Hall Environmental Analysis Laboratory, Inc.

Client : Daniel B. Stephens and Assoc., Inc.

Project: Enron Thoreau

Volatile Organic Compounds

Units: PPB ($\mu\text{g}/\text{L}$)

Test: EPA 8020

Sample Matrix: Aqueous

Date Received: 8/21/97

Sample Name:	✓	✓	(5-16) ✓	Trip Blank	Reagent Blank	Reagent Blank
Lab Code:	5-06B	5-01B	5-98B	-21	-22	RB8/22
Date Collected:	9708055	-19	-20	8/21/97	8/15/97	RB8/25
Date Analyzed:		8/20/97	*/*/97	8/22/97	8/22/97	8/22/97
		8/22/97	8/22/97	8/22/97	8/22/97	8/25/97

	Results	Detection Limit						
Benzene	0.7	<0.5	130	<0.5	<0.5	<0.5	<0.5	0.5
Toluene	<0.5	<0.5	790	<0.5	<0.5	<0.5	<0.5	0.5
Ethylbenzene	<0.5	<0.5	120	<0.5	<0.5	<0.5	<0.5	0.5
Xylenes (Total)	<0.5	<0.5	1,200	<0.5	<0.5	<0.5	<0.5	0.5
BFB (Surrogate) Recovery	94%	95%	91%	100%	93%	93%	-	-
Dilution Factor	1	1	20	1	1	1	-	-

Results for QC: Matrix Spike / Matrix Spike Duplicate

Date extracted: NA	Date analyzed: 8/25/97
Client: Daniel B. Stephens and Assoicates, Inc.	
Project Name: Enron-Thoreau	HEAL #: 9708055-1,14 MS/MDS
Project Manager: Bob Marley	
Matrix: Aqueous	Units: PPB (μ g/L)

Test: EPA 8020

<u>9708055-1 Compound</u>	<u>Result</u>	<u>Sample Added</u>	<u>Amount Spike</u>	<u>MS %</u>	<u>Matrix Dup</u>	<u>MSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	19.0	95	19.5	98	3
Toluene	<0.5	20.0	19.2	96	19.5	98	2
Ethylbenzene	<0.5	20.0	19.3	97	19.5	98	1
Total Xylenes	<0.5	60.0	59.0	98	59.3	99	1

Test: EPA 8020

<u>9708055-14 Compound</u>	<u>Result</u>	<u>Sample Added</u>	<u>Amount Spike</u>	<u>MS %</u>	<u>Matrix Dup</u>	<u>MSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	19.2	96	19.4	97	1
Toluene	<0.5	20.0	18.9	95	19.3	97	2
Ethylbenzene	<0.5	20.0	19.2	96	19.5	98	2
Total Xylenes	0.5	60.0	58.9	98	59.7	100	3

CHAIN-OF-CUSTODY RECORD

Client: DANIEL TS. STEPHENS & ASSOC.

Project Name:

ELTRON - THORPEAU

Address: 6020 ACADEMY

4901 Hawkins NE, Suite A

505.345.3975

Phone #: 505/822-9400

Fax 505.345.4107

ALBUQUERQUE, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

ANALYSIS REQUEST

Air Bubbles or Headspace (Y or N)	
8270 (Semi-VOA)	
8260 (VOA)	
8080 Pesticides / PCB's	
Amines (F, Cl, NO ₃ , PO ₄ , SO ₄)	
Cations (Na, K, Ca, Mg)	
RCRA 8 Metals	
8310 (PNA or PAH)	
EDC (Method 8010)	
EDB (Method 504)	
8010/8020 Volatiles No MTBE	
TPH (Method 418.1)	
TPH Method 8015 MOD (Gas/Diesel)	
BTEX + MTBE + TPH (Gasoline Only)	
BTEX + MTBE (602/8020)	

Date 1997	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative		HEAL No.
					HgCl ₂	HCl	
8/18	1235	H ₂ O	5-033	2/40ml	✓		9708055-1
8/18	1605	H ₂ O	5-473	2/40ml	✓		-2
8/18	1730	H ₂ O	5-573	2/40ml	✓		-3
8/18	1825	H ₂ O	5-413	2/40ml	✓		-4
8/18	1905	H ₂ O	5-583	2/40ml	✓		-5
8/19	1130	H ₂ O	5-123	2/40ml	✓		-6
8/19	1130	H ₂ O	5-233	2/40ml	✓		-7
8/19	1315	H ₂ O	5-243	2/40ml	✓		-8
8/19	1435	H ₂ O	5-143	2/40ml	✓		-9
8/19	1500	H ₂ O	5-133	2/40ml	✓		-10
8/19	1605	H ₂ O	5-153	2/40ml	✓		-11
8/19	1710	H ₂ O	5-203	2/40ml	✓		-12
Date: 8/21/97	Time: 1549	Relinquished By: (Signature)	Received By: (Signature)				Remarks: 90/20 (Ac MTBE)
Date: 8/21/97	Time: Relinquished By: (Signature)	Received By: (Signature)					



ANALYTICAL AND QUALITY CONTROL REPORT

Bob Marley
DANIEL B. STEPHENS & ASSOC
6020 Academy NE
Suite 100
Albuquerque, NM 87109

09/02/1997

EPIC Job Number: 97.03499

Page 1

Project Description: 6031.1
Job Description: Enron - Thoreau

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to EPIC Laboratories, Inc. for analysis:

Sample Number	Sample Description	Date Taken	Time Taken	Date Received
338119	5-17B	08/20/1997	12:20	08/22/1997
338120	5-06B	08/20/1997	16:55	08/22/1997
338121	5-01B	08/21/1997	09:25	08/22/1997
338122	5-99			08/22/1997
338123	Filtered Purge H2O	08/21/1997	10:00	08/22/1997

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Debby Skogen

Debby Skogen
Project Coordinator

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.

ANALYTICAL RESULTS REPORT

Bob Marley
DANIEL B. STEPHENS & ASSOC
6020 Academy NE
Suite 100
Albuquerque, NM 87109

09/02/1997

EPIC Job Number: 97.03499
Sample Number: 338119

Page 2

Project Description: 6031.1

Job Description: Enron - Thoreau

Sample Description: 5-17B

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
PCB/PEST-AQUEOUS (8080)										
PCB-1016	EDL	<0.65	ug/L	S-8080A	08/26/1997	08/26/1997	tcc	323	591	0.065
PCB-1221	EDL	<0.65	ug/L	S-8080A	08/26/1997	08/26/1997	tcc	323	591	0.065
PCB-1232	EDL	<0.65	ug/L	S-8080A	08/26/1997	08/26/1997	tcc	323	591	0.065
PCB-1242	EDL	<0.65	ug/L	S-8080A	08/26/1997	08/26/1997	tcc	323	591	0.065
PCB-1248	EDL	<0.65	ug/L	S-8080A	08/26/1997	08/26/1997	tcc	323	591	0.065
PCB-1254	EDL	<0.65	ug/L	S-8080A	08/26/1997	08/26/1997	tcc	323	591	0.065
PCB-1260	EDL	<0.65	ug/L	S-8080A	08/26/1997	08/26/1997	tcc	323	591	0.065
SURR: DCB		80	% Rec	S-8080A	08/26/1997	08/26/1997	tcc	323	591	50-120
SURR: TCX		39	% Rec	S-8080A	08/26/1997	08/26/1997	tcc	323	591	40-125

EDL - Elevated Detection Limit due to matrix interference.

ANALYTICAL RESULTS REPORT

Bob Marley
 DANIEL B. STEPHENS & ASSOC
 6020 Academy NE
 Suite 100
 Albuquerque, NM 87109

09/02/1997

EPIC Job Number: 97.03499
 Sample Number: 338120

Page 3

Project Description: 6031.1
 Job Description: Enron - Thoreau

Sample Description: 5-06B

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
PCB/PEST-AQUEOUS (8080)										
PCB-1016	EDL	<0.65	ug/L	S-8080A	08/26/1997	08/29/1997	tcc	323	591	0.065
PCB-1221		16.5	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065
PCB-1232	EDL	<0.65	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065
PCB-1242	EDL	<0.65	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065
PCB-1248	EDL	<0.65	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065
PCB-1254	EDL	<0.65	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065
PCB-1260	EDL	<0.65	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065
SURR: DCB		98	% Rec	S-8080A		08/26/1997	tcc	323	591	50-120
SURR: TCX		110	% Rec	S-8080A		08/26/1997	tcc	323	591	40-125

EDL - Elevated Detection Limit due to matrix interference.

ANALYTICAL RESULTS REPORT

Bob Marley
DANIEL B. STEPHENS & ASSOC
6020 Academy NE
Suite 100
Albuquerque, NM 87109

09/02/1997

EPIC Job Number: 97.03499
Sample Number: 338121

Page 4

Project Description: 6031.1
Job Description: Enron - Thoreau

Sample Description: 5-01B

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch	Run Batch	Reporting Limit
PCB/PEST-AQUEOUS (8080)										
PCB-1016		<0.065	ug/L	S-8080A	08/26/1997	08/29/1997	tcc	323	591	0.065
PCB-1221		18.2	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065
PCB-1232		<0.065	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065
PCB-1242		<0.065	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065
PCB-1248		<0.065	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065
PCB-1254		<0.065	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065
PCB-1260		<0.065	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065
SURR: DCB		95	% Rec	S-8080A		08/26/1997	tcc	323	591	50-120
TCX		66	% Rec	S-8080A		08/26/1997	tcc	323	591	40-125

ANALYTICAL RESULTS REPORT

Bob Marley
DANIEL B. STEPHENS & ASSOC
6020 Academy NE
Suite 100
Albuquerque, NM 87109

09/02/1997

EPIC Job Number: 97.03499
Sample Number: 338122

Page 5

Project Description: 6031.1

Job Description: Enron - Thoreau

Sample Description: 5-99

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Batch Number	Batch Number	Prep Run	Reporting Limit
PCB/PEST-AQUEOUS (8080)											
PCB-1016		<0.065	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065	
PCB-1221		8.1	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065	
PCB-1232		<0.065	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065	
PCB-1242		<0.065	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065	
PCB-1248		<0.065	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065	
PCB-1254		<0.065	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065	
PCB-1260		<0.065	ug/L	S-8080A		08/29/1997	tcc	323	591	0.065	
SURR- DCB		89	% Rec	S-8080A		08/26/1997	tcc	323	591	50-120	
ST-TCX		41	% Rec	S-8080A		08/26/1997	tcc	323	591	40-125	

ANALYTICAL RESULTS REPORT

Bob Marley
DANIEL B. STEPHENS & ASSOC
6020 Academy NE
Suite 100
Albuquerque, NM 87109

09/02/1997

EPIC Job Number: 97.03499
Sample Number: 338123

Page 6

Project Description: 6031.1

Job Description: Enron - Thoreau

Sample Description: Filtered Purge H2O

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep	Run	Reporting Limit
								Batch Number	Batch Number	
PCB/PEST-AQUEOUS (8080)										
PCB-1016		<0.065	ug/L	S-8080A	08/26/1997	08/26/1997	tcc	323	591	0.065
PCB-1221		<0.065	ug/L	S-8080A	08/26/1997	08/26/1997	tcc	323	591	0.065
PCB-1232		<0.065	ug/L	S-8080A	08/26/1997	08/26/1997	tcc	323	591	0.065
PCB-1242		<0.065	ug/L	S-8080A	08/26/1997	08/26/1997	tcc	323	591	0.065
PCB-1248		<0.065	ug/L	S-8080A	08/26/1997	08/26/1997	tcc	323	591	0.065
PCB-1254		<0.065	ug/L	S-8080A	08/26/1997	08/26/1997	tcc	323	591	0.065
PCB-1260		<0.065	ug/L	S-8080A	08/26/1997	08/26/1997	tcc	323	591	0.065
SURF. DCB		93	% Rec	S-8080A	08/26/1997	08/26/1997	tcc	323	591	50-120
ST. FCX		71	% Rec	S-8080A	08/26/1997	08/26/1997	tcc	323	591	40-125

QUALITY CONTROL REPORT BLANKS

Bob Marley
DANIEL B. STEPHENS & ASSOC
6020 Academy NE
Suite 100
Albuquerque, NM 87109

09/02/1997

EPIC Job Number: 97.03499

Project Description: 6031.1
Job Description: Enron - Thoreau

Parameter	Flag	Blank Result	Units	Reporting Limit	Date Analyzed	Prep Batch Number	Run Batch Number
PCB/PEST-AQUEOUS (8080)							
PCB-1016		<0.065	ug/L	0.065	08/26/1997	323	591
PCB-1221		<0.065	ug/L	0.065	08/26/1997	323	591
PCB-1232		<0.065	ug/L	0.065	08/26/1997	323	591
PCB-1242		<0.065	ug/L	0.065	08/26/1997	323	591
PCB-1248		<0.065	ug/L	0.065	08/26/1997	323	591
PCB-1254		<0.065	ug/L	0.065	08/26/1997	323	591
PCB-1260		<0.065	ug/L	0.065	08/26/1997	323	591

All parameters should be less than the reporting limit.

QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION STANDARD

Bob Marley
DANIEL B. STEPHENS & ASSOC
6020 Academy NE
Suite 100
Albuquerque, NM 87109

09/02/1997

EPIC Job Number: 97.03499

Project Description: 6031.1
Job Description: Enron - Thoreau

Parameter	Flag	CCVS		CCVS Concentration Found	CCVS Percent Recovery	Date Analyzed	Run Batch Number
		True	Concentration Units				
PCB/PEST-AQUEOUS (8080)							
PCB-1016		0.500	ug/L	0.497	99.4	08/26/1997	591
PCB-1221		0.500	ug/L	0.487	97.4	08/26/1997	591
PCB/PEST-AQUEOUS (8080)							
PCB-1016		0.500	ug/L	0.503	100.6	08/29/1997	591
PCB-1221		0.500	ug/L	0.516	103.2	08/29/1997	591

CCVS - Continuing Calibration Verification Standard

QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

Bob Marley
DANIEL B. STEPHENS & ASSOC
6020 Academy NE
Suite 100
Albuquerque, NM 87109

09/02/1997

EPIC Job Number: 97.03499

Project Description: 6031.1
Job Description: Enron - Thoreau

Analyte	Prep	Run	LCS	Units	LCS	LCS	LCS	LCS	LCS	Date
	Batch	Batch	True		Conc	%	Dup	Conc.	Dup	Analyzed
	No.	No.	Conc	Found	Rec.	Found	% Rec	RPD	Flag	
PCB/PEST-AQUEOUS (8080)										
PCB-1016		323	591	0.50	ug/L	0.391	78.2			08/26/1997
PCB-1260		323	591	0.50	ug/L	0.423	84.6			08/26/1997

LCS - Laboratory Control Standard

For samples with insufficient sample volume, an LCS/LCS duplicate is reported instead of an MS/MSD.



LABORATORIES, INC.

**1548 VALWOOD PARKWAY, SUITE 118
CARROLLTON, TEXAS 75006**
DALLAS (972) 406-8100
AUSTIN (512) 928-8905

CHAIN OF CUSTODY RECORD

COMPANY Daniel B. Steph & Associates
ADDRESS 6020 Academy NE, Ste 100; Albuquerque NM 87109
PHONE 505/822-9400 FAX 505/822-8877
PROJECT NAME/LOCATION ENRON - THOREAU
PROJECT NUMBER 600311
PROJECT MANAGER Bob Marley
REPORT TO: DBSA
INVOICE TO: George Robinson
P.O. NO. _____
EPIC QUOTE NO. _____

REPORT TO: DIBS&A
INVOICE TO: George Robinson

Associates
Ste 100, Albuquerque NM 87109
FAX 505-822-8877

20

EPIC QUOTE NO.

Report of Ground Water Remediation Activities

**Transwestern Pipeline Company
Thoreau Compressor Station**

Attachment #4

**Laboratory Reports for the November 1997
Ground Water Sampling Event**



Hall Environmental
Analysis Laboratory, Inc.

Hall Environmental Analysis Laboratory
4901 Hawkins, NE Suite A
Albuquerque, NM 87109
(505)345-3975

12/3/97

Daniel B. Stephens and Associates, Inc.
6020 Academy NE, Suite 100
Albuquerque, NM 87109

Dear Mr. Bob Marley,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,

A handwritten signature of "Scott Hallenbeck" followed by the date "12/5/97".

Scott Hallenbeck, Lab Manager

Project: 9711076/Enron-Thoreau

4901 Hawkins NE, Suite A Albuquerque, NM 87109 (505)345-3975 fax (505)345-4107

Hall Environmental Analysis Laboratory, Inc.

Client: D. B. Stephens and Associates, Inc. **Date Collected:** 11/17/97
Project: Enron-Thoreau **Date Received:** 11/21/97
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
Units: PPB (μ g/l)

	✓	✓	✓
Sample Name:	5-03B	5-15B	5-12B
Lab Code:	9711076-1	9711076-2	9711076-3
Date Analyzed:	11/26/97	11/26/97	11/26/97

EPA Method 8020

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	nd	0.9	nd
Toluene	0.5	nd	nd	nd
Ethylbenzene	0.5	nd	nd	nd
Total Xylenes	0.5	nd	0.5	nd
BFB (Surrogate)		102	102	102
Recovery				
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client: D. B. Stephens and Associates, Inc. **Date Collected:** 11/17/97
Project: Enron-Thoreau **Date Received:** 11/21/97
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds

Units: PPB (μ g/l)

Sample Name:	✓	✓	✓
Lab Code:	5-14B	5-18B	5-23B
Date Analyzed:	9711076-4	9711076-5	9711076-6
	11/26/97	11/26/97	11/26/97

EPA Method 8020

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	nd	0.9	nd
Toluene	0.5	nd	6.0	nd
Ethylbenzene	0.5	nd	140	nd
Total Xylenes	0.5	nd	1.1	nd
BFB (Surrogate)		104	100	104
Recovery				
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client : D. B. Stephens and Associates, Inc. **Date Collected:** 11/17/97
Project: Enron-Thoreau **Date Received:** 11/21/97
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic CompoundsUnits: PPB (μ g/l)

Sample Name:	5-19B ✓	5-22B ✓	5-24B ✓
Lab Code:	9711076-7	9711076-8	9711076-9
Date Analyzed:	11/26/97	11/26/97	12/1/97

EPA Method 8020

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	2.5	3.8	0.6
Toluene	0.5	2.0	2.3	nd
Ethylbenzene	0.5	0.9	nd	0.7
Total Xylenes	0.5	0.7	0.6	1.3
BFB (Surrogate)		110	97	104
Recovery				
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client: D. B. Stephens and Associates, Inc. **Date Collected:** 11/18/97
Project: Enron-Thoreau **Date Received:** 11/21/97
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds

Units: PPB (μ g/l)

Sample Name:	5-17B	5-20B	5-13B
Lab Code:	9711076-10	9711076-11	9711076-12
Date Analyzed:	12/1/97	12/1/97	12/1/97

EPA Method 8020

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	nd	4.3	1.3
Toluene	0.5	nd	0.8	2.0
Ethylbenzene	0.5	nd	1.1	nd
Total Xylenes	0.5	nd	1.1	nd
BFB (Surrogate)		100	106	99
Recovery				
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client: D. B. Stephens and Associates, Inc. **Date Collected:** 11/19/97
Project: Enron-Thoreau **Date Received:** 11/21/97
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
Units: PPB (μ g/l)

	✓ Sample Name: Lab Code: Date Analyzed:	✓ 5-16B 9711076-13 12/1/97	✓ 5-48B 9711076-14 12/1/97	SVE-3 9711076-15 12/1/97
--	--	-------------------------------------	-------------------------------------	--------------------------------

EPA Method 8020

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	85	1,400	1,600
Toluene	0.5	730	6,900	6,300
Ethylbenzene	0.5	100	330	420
Total Xylenes	0.5	1,100	3,900	4,800
BFB (Surrogate)		101	99	102
Recovery				
Dilution Factor		20	200	40

Hall Environmental Analysis Laboratory, Inc.

Client: D. B. Stephens and Associates, Inc. **Date Collected:** 11/19/97
Project: Enron-Thoreau **Date Received:** 11/21/97
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
Units: PPB (μ g/l)

EPA Method 8020 Compound	Sample Name:	SVE-4	5-98	Trip Blank
	Lab Code:	9711076-16	9711076-17	9711076-18
	Date Analyzed:	12/1/97	12/1/97	12/1/97
Benzene	0.5	240	1,600	nd
Toluene	0.6	310	7,300	nd
Ethylbenzene	0.5	52	330	nd
Total Xylenes	0.5	410	4,100	nd
BPP (Surrogate)		97	102	100
Recovery				
Dilution Factor		5	200	1

Hall Environmental Analysis Laboratory, Inc.

Client: D. B. Stephens and Associates, Inc. **Date Collected:** NA
Project: Enron-Thoreau **Date Received:** NA
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
Units: PPB (μ g/l)

EPA Method 8020 <u>Compound</u>	<u>MRL</u>	<u>Reagent</u> Blank	<u>Reagent</u> Blank
		11/26/97	12/1/97
Benzene	0.5	nd	nd
Toluene	0.5	nd	nd
Ethylbenzene	0.5	nd	nd
Total Xylenes	0.5	nd	nd
BFB (Surrogate)		102	104
Recovery			
Dilution Factor		1	1

Hall Environmental Analysis Laboratory, Inc.

Client: D. B. Stephens and Associates, Inc. **Date Collected:** NA
Project: Enron-Thoreau **Date Received:** NA
Sample Matrix: Aqueous **Date Analyzed:** 11/26, 12/1/97

Volatile Organic Compounds
9711076-2 MS/MSD

EPA Method 8020Units: PPB (μ g/l)

<u>Compound</u>	Sample Result	Amount Added	Matrix Spike	MS %	MS Dup	MSD %	RPD
Benzene	<0.5	20.0	21.3	102	21.6	103	1
Toluene	<0.5	20.0	20.0	100	20.3	102	1
Ethylbenzene	<0.5	20.0	20.5	103	20.7	104	1
Total Xylenes	<0.5	60.0	60.8	100	61.3	101	1

Volatile Organic Compounds
9711076-10 MS/MSD

EPA Method 8020Units: PPB (μ g/l)

<u>Compound</u>	Sample Result	Amount Added	Matrix Spike	MS %	MS Dup	MSD %	RPD
Benzene	<0.5	20.0	19.8	99	20.2	101	2
Toluene	<0.5	20.0	19.6	98	20.0	100	2
Ethylbenzene	<0.5	20.0	20.0	100	20.3	102	1
Total Xylenes	<0.5	60.0	59.4	99	60.5	101	2



Hall Environmental Analysis Laboratory
4901 Hawkins NE Suite A
Albuquerque, NM 87109
(505)345-3975

12/4/97

Cypress Engineering
16300 Katy Freeway, Suite 210
Houston, Texas 77094-1609

Dear Mr. George Robinson,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,

A handwritten signature in black ink that appears to read "Scott Hallenbeck". To the right of the signature is the date "12/5/97" written in a cursive style.

Scott Hallenbeck, Lab Manager

Project: 9711094/Enron-Thoreau

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering

Project: Enron-Thoreau

Volatile Organic Compounds

Units: PPB ($\mu\text{g/L}$)

Test: EPA 8020

Sample Matrix: Aqueous

Date Received: 11/25/97

Sample Name:	AS-16	AS-15	AS-14	AS-13	AS-12
Lab Code:	9711094	-1	-2	-3	-4
Date Collected:		11/22/97	11/22/97	11/22/97	11/22/97
Date Analyzed:		12/2/97	12/2/97	12/2/97	12/2/97

Compound	Results	Results	Results	Results	Results	Detection Limit
Benzene	7,200	7,800	8,600	5,600	8,600	0.5
Toluene	15,000	15,000	14,000	11,000	17,000	0.5
Ethylbenzene	590	550	570	580	630	0.5
Xylenes (Total)	5,800	5,200	5,300	5,000	6,300	0.5
BFB (Surrogate) Recovery	100%	100%	99%	101%	100%	-
Dilution Factor	40	40	40	40	40	-

Sample Name:	5-06C	5-01C	5-02C	filtered purge	Reagent Blank
Lab Code:	9711094	-6	-7	-8	-9
Date Collected:		11/23/97	11/23/97	11/24/97	11/24/97
Date Analyzed:		12/2/97	12/2/97	12/2/97	12/2/97

Compound	Results	Results	Results	Results	Results	Detection Limit
Benzene	1.4	1.4	26	nd	nd	0.5
Toluene	0.6	nd	2.7	nd	nd	0.5
Ethylbenzene	nd	nd	9.1	nd	nd	0.5
Xylenes (Total)	11	nd	2.7	nd	nd	0.5
BFB (Surrogate) Recovery	101%	102%	107%	99%	100%	-
Dilution Factor	1	1	1	1	1	-

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering

Project: Enron-Thoreau

Volatile Organic Compounds

Units: PPB ($\mu\text{g/L}$)

Test: EPA 8020

Sample Matrix: Aqueous

9711097-4 MS/MSD

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Matrix Spike</u>	<u>MS %</u>	<u>Dup</u>	<u>MSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	20.5	103	20.8	104	1
Toluene	<0.5	20.0	20.7	104	20.9	105	1
Ethylbenzene	<0.5	20.0	20.4	102	20.4	102	0
Total Xylenes	<0.5	60.0	61.1	102	61.4	102	0

CHAIN-OFF-CUSTODY RECORD

Client: Cypress Engineering

Project Name:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE, Suite A
Albuquerque New Mexico 87109

EOF 2 AE 207E

Fax 006 345 4407

ANALYSIS REQUEST									
Address:		Project #:		Project Manager:		Analyses Requested			
<u>1630 Kelly Floty St. Suite 210</u>		<u>Houston, TX 77094</u>		<u>George Johnson</u>		Air Bubbles or Headspace (Y or N) <input checked="" type="checkbox"/> 8270 (Semi-VOA) <input type="checkbox"/> 8260 (VOA) <input type="checkbox"/> 8080 Pesticides / PCB's <input type="checkbox"/> Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄) <input type="checkbox"/> Cations (Na, K, Ca, Mg) <input type="checkbox"/> RCRA 8 Metals <input type="checkbox"/> 8310 (PNA or PAH) <input type="checkbox"/> EDC (Method 8010) <input type="checkbox"/> EDB (Method 504) <input type="checkbox"/> 8020 MTBE <input type="checkbox"/> BTEX <input checked="" type="checkbox"/> TPH (Method 418.1) <input type="checkbox"/> TPH Method 8015 MUD (Gas/Diesel) <input type="checkbox"/> BTEX + MTBE + TPH (Gasoline Only) <input type="checkbox"/> BTEX + MTBE (8020/8020) <input type="checkbox"/>			
Date	Time	Matrix	Sample I.D. No.	Number/Volume		Preservative		HEAL No.	
				HgCl ₂	HCl				
11/21/97	1525	H ₂ O	AS-16	X				9711094-1	
11/21/97	1530	H ₂ O	AS-15	X				-2	
11/21/97	1540	H ₂ O	AS-14	X				-3	
11/22/97	1550	H ₂ O	AS-13	X				-4	
11/22/97	1620	H ₂ O	AS-12	X				-5	
11/23/97	1245	H ₂ O	5-0BC	X				-6	
11/23/97	1800	H ₂ O	5-01C	X				-7	
11/24/97	0955	H ₂ O	5-02C	X				-8	
11/24/97	1115	H ₂ O	FILTERED BORGE H ₂ O	X				-9	
			<i>WILL BORGE TEST</i>						
Date:	Time:	Relinquished By: (Signature)		Received By: (Signature)		Remarks:			
11/27/97	0700	<i>John A. Hengen</i>		<i>John A. Hengen</i>		11/25			
Date:	Time:	Relinquished By: (Signature)		Received By: (Signature)					



LABORATORIES, INC.



ANALYTICAL AND QUALITY CONTROL REPORT

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
P.O. Box 1188
Houston, TX 77251

12/03/1997

EPIC Job Number: 97.04656

Page 1

Project Description: 6031.1
Job Description: Enron - Thoreau

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to EPIC Laboratories, Inc. for analysis:

Sample Number	Sample Description	Date Taken	Time Taken	Date Received
342204	5-01 Vault	11/17/1997	08:10	11/24/1997
342205	5-06 Vault	11/17/1997	08:18	11/24/1997
342206	5-17B	11/18/1997	13:35	11/24/1997

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Debby Skogen

Debby Skogen
Project Coordinator

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.

ANALYTICAL RESULTS REPORT

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
P.O. Box 1188
Houston, TX 77251

12/03/1997

EPIC Job Number: 97.04656
Sample Number: 342204

Page 2

Project Description: 6031.1
Job Description: Enron - Thoreau

Sample Description: 5-01 Vault

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
PCB/PEST-AQUEOUS (8080)										11/24/1997
PCB-1016	LTD	<0.084	ug/L	S-8080A		11/26/1997	tcc	330	597	0.084
PCB-1221	LTD	<0.084	ug/L	S-8080A		11/26/1997	tcc	330	597	0.084
PCB-1232	LTD	<0.084	ug/L	S-8080A		11/26/1997	tcc	330	597	0.084
PCB-1242	LTD	<0.084	ug/L	S-8080A		11/26/1997	tcc	330	597	0.084
PCB-1248		1.68	ug/L	S-8080A		11/26/1997	tcc	330	597	0.084
PCB-1254	LTD	<0.084	ug/L	S-8080A		11/26/1997	tcc	330	597	0.084
PCB-1260	LTD	<0.084	ug/L	S-8080A		11/26/1997	tcc	330	597	0.084
SURR: DCB		115	% Rec	S-8080A		11/26/1997	tcc	330	597	50-120
TCX		88	% Rec	S-8080A		11/26/1997	tcc	330	597	40-125

LTD - Elevated detection limit due to limited sample volume.

ANALYTICAL RESULTS REPORT

George Robinson
 ENRON CORPORATION
 Env. Affairs, Rm 3 AC 3142
 P.O. Box 1188
 Houston, TX 77251

12/03/1997

EPIC Job Number: 97.04656
 Sample Number: 342205

Page 3

Project Description: 6031.1
 Job Description: Enron - Thoreau

Sample Description: 5-06 Vault

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
PCB/PEST-AQUEOUS (8080)										
PCB-1016	LTD	<0.072	ug/L	S-8080A		11/24/1997		11/26/1997 tcc	330	597 0.072
PCB-1221	LTD	<0.072	ug/L	S-8080A				11/26/1997 tcc	330	597 0.072
PCB-1232	LTD	<0.072	ug/L	S-8080A				11/26/1997 tcc	330	597 0.072
PCB-1242	LTD	<0.072	ug/L	S-8080A				11/26/1997 tcc	330	597 0.072
PCB-1248	LTD	<0.072	ug/L	S-8080A				11/26/1997 tcc	330	597 0.072
PCB-1254	LTD	<0.072	ug/L	S-8080A				11/26/1997 tcc	330	597 0.072
PCB-1260	LTD	<0.072	ug/L	S-8080A				11/26/1997 tcc	330	597 0.072
SURR: DCB		112	% Rec	S-8080A				11/26/1997 tcc	330	597 50-120
TCX		83	% Rec	S-8080A				11/26/1997 tcc	330	597 40-125

LTD - Elevated reporting limit due to limited sample volume.

ANALYTICAL RESULTS REPORT

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
P.O. Box 1188
Houston, TX 77251

12/03/1997

EPIC Job Number: 97.04656
Sample Number: 342206

Page 4

Project Description: 6031.1
Job Description: Enron - Thoreau

Sample Description: 5-17B

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
PCB/PEST-AQUEOUS (8080)										
PCB-1016	EDL	<0.65	ug/L	S-8080A	11/24/1997	11/24/1997	tcc	330	597	0.65
PCB-1221	EDL	<0.65	ug/L	S-8080A	11/24/1997	11/24/1997	tcc	330	597	0.65
PCB-1232	EDL	<0.65	ug/L	S-8080A	11/24/1997	11/24/1997	tcc	330	597	0.65
PCB-1242	EDL	<0.65	ug/L	S-8080A	11/24/1997	11/24/1997	tcc	330	597	0.65
PCB-1248	EDL	<0.65	ug/L	S-8080A	11/24/1997	11/24/1997	tcc	330	597	0.65
PCB-1254	EDL	<0.65	ug/L	S-8080A	11/24/1997	11/24/1997	tcc	330	597	0.65
PCB-1260	EDL	<0.65	ug/L	S-8080A	11/24/1997	11/24/1997	tcc	330	597	0.65
SURR: DCB		108	% Rec	S-8080A		11/24/1997	tcc	330	597	50-120
TCX		93	% Rec	S-8080A		11/24/1997	tcc	330	597	40-125

EDL - Elevated Detection Limit due to matrix interference.

QUALITY CONTROL REPORT BLANKS

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
P.O. Box 1188
Houston, TX 77251

12/03/1997

EPIC Job Number: 97.04656

Project Description: 6031.1
Job Description: Enron - Thoreau

Parameter	Flag	Blank	Reporting	Date	Prep	Run
		Result	Units	Limit	Analyzed	Batch
PCB/PEST-AQUEOUS (8080)						
PCB-1016		<0.065	ug/L	0.065	11/24/1997	330
PCB-1221		<0.065	ug/L	0.065	11/24/1997	330
PCB-1232		<0.065	ug/L	0.065	11/24/1997	330
PCB-1242		<0.065	ug/L	0.065	11/24/1997	330
PCB-1248		<0.065	ug/L	0.065	11/24/1997	330
PCB-1254		<0.065	ug/L	0.065	11/24/1997	330
PCB-1260		<0.065	ug/L	0.065	11/24/1997	330

All parameters should be less than the reporting limit.

QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION STANDARD

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
P.O. Box 1188
Houston, TX 77251

12/03/1997

EPIC Job Number: 97.04656

Project Description: 6031.1
Job Description: Enron - Thoreau

Parameter	Flag	CCVS		CCVS Concentration Found	CCVS Percent Recovery	Date Analyzed	Run Batch Number
		True Concentration	Units				
PCB/PEST-AQUEOUS (8080)							
PCB-1016		500	ug/L	513	102.6	11/24/1997	597
PCB-1221		500	ug/L	508	101.6	11/24/1997	597
PCB/PEST-AQUEOUS (8080)							
PCB-1016		500	ug/L	501	100.2	11/26/1997	597
PCB-1248		500	ug/L	477	95.4	11/26/1997	597
PCB-1260		500	ug/L	498	99.6	11/26/1997	597

CCVS - Continuing Calibration Verification Standard

QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
P.O. Box 1188
Houston, TX 77251

12/03/1997

EPIC Job Number: 97.04656

Project Description: 6031.1
Job Description: Enron - Thoreau

Analyte	Prep	Run	LCS	LCS Conc	LCS Found	LCS % Rec.	LCS	LCS	LCS	Date
	Batch	Batch	True				Dup Conc.	Dup % Rec.	RPD	Flag
No.	No.	Conc	Units	Found	Rec.	Found	% Rec.	RPD	Flag	Analyzed
PCB/PEST-AQUEOUS (8080)										
PCB-1016	330	597	0.5	ug/L	0.388	77.6	0.360	72.0	7.5	11/24/1997
PCB-1260	330	597	0.50	ug/L	0.364	72.8	0.369	73.8	1.4	11/24/1997

LCS - Laboratory Control Standard

For samples with insufficient sample volume, an LCS/LCS duplicate is reported instead of an MS/MSD.



LABORATORIES, INC.



ANALYTICAL AND QUALITY CONTROL REPORT

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
P.O. Box 1188
Houston, TX 77251

12/05/1997

EPIC Job Number: 97.04686

Page 1

Project Description:

Job Description: Enron TWP - Thoreau

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to EPIC Laboratories, Inc. for analysis:

Sample Number	Sample Description	Date Taken	Time Taken	Date Received
342313	5-06C	11/23/1997	12:45	11/26/1997
342314	5-01C	11/23/1997	18:00	11/26/1997
342315	Filtered Purge Water	11/24/1997	11:15	11/26/1997

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Debby Skogen

Debby Skogen
Project Coordinator

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.

ANALYTICAL RESULTS REPORT

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
P.O. Box 1188
Houston, TX 77251

12/05/1997

EPIC Job Number: 97.04686
Sample Number: 342313

Page 2

Project Description:
Job Description: Enron TWP - Thoreau

Sample Description: 5-06C

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
PCB/PEST-AQUEOUS (8080)	AHT				12/01/1997					
PCB-1016	EDL	<1.2	ug/L	S-8080A		12/04/1997	tcc	331	598	0.065
PCB-1221		160	ug/L	S-8080A		12/04/1997	tcc	331	598	0.065
PCB-1232	EDL	<1.2	ug/L	S-8080A		12/04/1997	tcc	331	598	0.065
PCB-1242		114	ug/L	S-8080A		12/04/1997	tcc	331	598	0.065
PCB-1248	EDL	<1.2	ug/L	S-8080A		12/04/1997	tcc	331	598	0.065
PCB-1254	EDL	<1.2	ug/L	S-8080A		12/04/1997	tcc	331	598	0.065
PCB-1260	EDL	<1.2	ug/L	S-8080A		12/04/1997	tcc	331	598	0.065
SURR: DCB		101	% Rec	S-8080A		12/04/1997	tcc	331	598	50-120
TCX		95	% Rec	S-8080A		12/04/1997	tcc	331	598	40-125

EDL - Elevated Detection Limit due to matrix interference.

AHT - Sample was extracted past established holding time for parameter.

ANALYTICAL RESULTS REPORT

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
P.O. Box 1188
Houston, TX 77251

12/05/1997

EPIC Job Number: 97.04686
Sample Number: 342314

Page 3

Project Description:

Job Description: Enron TWP - Thoreau

Sample Description: 5-01C

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
PCB/PEST-AQUEOUS (8080)	AHT				12/01/1997					
PCB-1016	EDL	<0.65	ug/L	S-8080A		12/04/1997	tcc	331	598	0.065
PCB-1221		79.7	ug/L	S-8080A		12/04/1997	tcc	331	598	0.065
PCB-1232	EDL	<0.65	ug/L	S-8080A		12/04/1997	tcc	331	598	0.065
PCB-1242		49	ug/L	S-8080A		12/04/1997	tcc	331	598	0.065
PCB-1248	EDL	<0.65	ug/L	S-8080A		12/04/1997	tcc	331	598	0.065
PCB-1254	EDL	<0.65	ug/L	S-8080A		12/04/1997	tcc	331	598	0.065
PCB-1260	EDL	<0.65	ug/L	S-8080A		12/04/1997	tcc	331	598	0.065
SURR: DCB	SU	140	% Rec	S-8080A		12/04/1997	tcc	331	598	50-120
TCX		48	% Rec	S-8080A		12/04/1997	tcc	331	598	40-125

AHT - Sample was extracted past established holding time for parameter.

EDL - Elevated Detection Limit due to matrix interference.

SU - Surrogate outside limits due to matrix interference.

ANALYTICAL RESULTS REPORT

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
P.O. Box 1188
Houston, TX 77251

12/05/1997

EPIC Job Number: 97.04686
Sample Number: 342315

Page 4

Project Description:

Job Description: Enron TWP - Thoreau

Sample Description: Filtered Purge Water

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Prep Batch Number	Run Batch Number	Reporting Limit
PCB/PEST-AQUEOUS (8080)									
PCB-1016	EDL	<0.65	ug/L	S-8080A		12/03/1997	tcc	331	598 0.065
PCB-1221	EDL	<0.65	ug/L	S-8080A		12/03/1997	tcc	331	598 0.065
PCB-1232	EDL	<0.65	ug/L	S-8080A		12/03/1997	tcc	331	598 0.065
PCB-1242	EDL	<0.65	ug/L	S-8080A		12/03/1997	tcc	331	598 0.065
PCB-1248	EDL	<0.65	ug/L	S-8080A		12/03/1997	tcc	331	598 0.065
PCB-1254	EDL	<0.65	ug/L	S-8080A		12/03/1997	tcc	331	598 0.065
PCB-1260	EDL	<0.65	ug/L	S-8080A		12/03/1997	tcc	331	598 0.065
SURR: DCB		105	% Rec	S-8080A		12/03/1997	tcc	331	598 50-120
SPK: TCX		71	% Rec	S-8080A		12/03/1997	tcc	331	598 40-125

EDL - Elevated Detection Limit due to matrix interference.

QUALITY CONTROL REPORT BLANKS

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
P.O. Box 1188
Houston, TX 77251

12/05/1997

EPIC Job Number: 97.04686

Project Description:
Job Description: Enron TWP - Thoreau

Parameter	Flag	Blank	Reporting	Date	Prep	Run
		Result	Units	Limit	Analyzed	Batch
PCB/PEST-AQUEOUS (8080)						
PCB-1016		<0.065	ug/L	0.065	12/03/1997	331
PCB-1221		<0.065	ug/L	0.065	12/03/1997	331
PCB-1232		<0.065	ug/L	0.065	12/03/1997	331
PCB-1242		<0.065	ug/L	0.065	12/03/1997	331
PCB-1248		<0.065	ug/L	0.065	12/03/1997	331
PCB-1254		<0.065	ug/L	0.065	12/03/1997	331
PCB-1260		<0.065	ug/L	0.065	12/03/1997	331

All parameters should be less than the reporting limit.

QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION STANDARD

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
P.O. Box 1188
Houston, TX 77251

12/05/1997

EPIC Job Number: 97.04686

Project Description:
Job Description: Enron TWP - Thoreau

Parameter	Flag	CCVS True Concentration	CCVS Concentration Units	CCVS Found	CCVS Percent Recovery	Date Analyzed	Run Batch Number
PCB/PEST-AQUEOUS (8080)							
PCB-1016		500	ug/L	491	98.2	12/03/1997	598
PCB-1260		500	ug/L	498	99.6	12/03/1997	598
PCB/PEST-AQUEOUS (8080)							
PCB-1016		500	ug/L	498	99.6	12/04/1997	598
PCB-1221		500	ug/L	498	99.6	12/04/1997	598
PCB-1260		500	ug/L	505	101.0	12/04/1997	598

CCVS - Continuing Calibration Verification Standard

QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

George Robinson
ENRON CORPORATION
Env. Affairs, Rm 3 AC 3142
P.O. Box 1188
Houston, TX 77251

12/05/1997

EPIC Job Number: 97.04686

Project Description:

Job Description: Enron TWP - Thoreau

Analyte	Prep	Run	LCS		LCS	LCS	LCS	LCS	LCS	Date		
	Batch	Batch	True	Conc	Units	Found	Rec.	Found	% Rec	RPD	Flag	Analyzed
PCB/PEST-AQUEOUS (8080)												
PCB-1016		331	598	0.5	ug/L	0.546	109.2	0.462	92.4	16.6		12/03/1997
PCB-1260		331	598	0.50	ug/L	0.513	102.6	0.422	84.4	19.4		12/03/1997

LCS - Laboratory Control Standard

For samples with insufficient sample volume, an LCS/LCS duplicate is reported instead of an MS/MSD.

Report of Ground Water Remediation Activities

**Transwestern Pipeline Company
Thoreau Compressor Station**

Attachment #5

**Laboratory Reports for the February 1998
Ground Water Sampling Event**



Hall Environmental Analysis Laboratory
4901 Hawkins, NE Suite A
Albuquerque, NM 87109
(505)345-3975

2/17/98

Daniel B. Stephens and Associates, Inc.
6020 Academy NE, Suite 100
Albuquerque, NM 87109

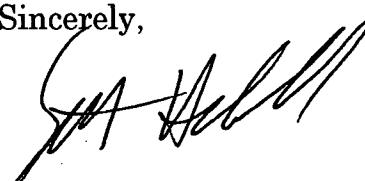
Dear Mr. Bob Marley,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,



3/5/98

Scott Hallenbeck, Lab Manager

Project: 9802035/Enron-Thoreau

Hall Environmental Analysis Laboratory, Inc.

Client : D. B. Stephens and Associates, Inc. **Date Collected:** 2/10/98
Project: Enron-Thoreau **Date Received:** 2/12/98
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
Units: PPB (μ g/l)

EPA Method 8020	Sample Name:	5-03B	5-24B	5-14B
	Lab Code:	9802035-1	9802035-2	9802035-3
	Date Analyzed:	2/13/98	2/13/98	2/13/98
<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	nd	0.5	nd
Toluene	0.5	nd	nd	nd
Ethylbenzene	0.5	nd	0.7	nd
Total Xylenes	0.5	nd	nd	nd
BFB (Surrogate)		103	108	101
Recovery				
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client : D. B. Stephens and Associates, Inc. **Date Collected:** 2/10,11/98
Project: Enron-Thoreau **Date Received:** 2/12/98
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
Units: PPB (μ g/l)

	Sample Name:	5-23B	5-17B	5-12B
	Lab Code:	9802035-4	9802035-5	9802035-6
	Date Analyzed:	2/13/98	2/13/98	2/13/98

EPA Method 8020

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	nd	nd	nd
Toluene	0.5	nd	nd	nd
Ethylbenzene	0.5	nd	nd	nd
Total Xylenes	0.5	nd	nd	nd
BFB (Surrogate)		101	103	104
Recovery				
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client : D. B. Stephens and Associates, Inc. **Date Collected:** 2/11/98
Project: Enron-Thoreau **Date Received:** 2/12/98
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
Units: PPB (μ g/l)

EPA Method 8020	Sample Name:	5-15B	5-13B	5-18B
	Lab Code:	9802035-7	9802035-8	9802035-9
	Date Analyzed:	2/13/98	2/13/98	2/13/98
<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	1.5	0.9	0.9
Toluene	0.5	nd	1.5	6.4
Ethylbenzene	0.5	1.0	nd	120
Total Xylenes	0.5	1.2	nd	1.1
BFB (Surrogate)		104	103	102
Recovery				
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client : D. B. Stephens and Associates, Inc. **Date Collected:** 2/11/98
Project: Enron-Thoreau **Date Received:** 2/12/98
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
Units: PPB (μ g/l)

EPA Method 8020	Sample Name:		Filtered		
	<u>Compound</u>	<u>MRL</u>	5-20B	5-02C	Purge Water
			Lab Code:	9802035-10	9802035-11
	Date Analyzed:		2/13/98	2/16/98	2/16/98
Benzene		0.5	nd	110	nd
Toluene		0.5	1.3	7.0	nd
Ethylbenzene		0.5	2.3	33	nd
Total Xylenes		0.5	0.5	8.3	nd
BFB (Surrogate)			113	104	110
Recovery					
Dilution Factor			1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client : D. B. Stephens and Associates, Inc. **Date Collected:** 2/11,12/98
Project: Enron-Thoreau **Date Received:** 2/12/98
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
Units: PPB (μ g/l)

EPA Method 8020	Sample Name: Lab Code: Date Analyzed:	5-16B 9802035-13 2/16/98	5-48B 9802035-14 2/16/98	5-01C 9802035-15 2/16/98
<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	41	2,100	nd
Toluene	0.5	360	8,000	nd
Ethylbenzene	0.5	90	460	nd
Total Xylenes	0.5	660	4,600	nd
BFB (Surrogate) Recovery		102	102	nd
Dilution Factor		20	40	103

Hall Environmental Analysis Laboratory, Inc.

Client : D. B. Stephens and Associates, Inc. **Date Collected:** 2/11,12/98
Project: Enron-Thoreau **Date Received:** 2/12/98
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
Units: PPB (μ g/l)

EPA Method 8020	Sample Name: Lab Code: Date Analyzed:	5-06C 9802035-16 2/16/98	5-98 9802035-17 2/16/98	Trip Blank 9802035-19 2/16/98
<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	2.2	45	nd
Toluene	0.5	1.4	350	nd
Ethylbenzene	0.5	nd	91	nd
Total Xylenes	0.5	1.3	650	nd
BFB (Surrogate)		104	104	101
Recovery				
Dilution Factor		1	10	1

Hall Environmental Analysis Laboratory, Inc.

Client : D. B. Stephens and Associates, Inc. **Date Collected:** 2/11/98
Project: Enron-Thoreau **Date Received:** 2/12/98
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
Units: PPB (μ g/l)

EPA Method 8020	Sample Name: Lab Code: Date Analyzed:	5-19B 9802035-20 2/16/98	Reagent Blank 2/13/98	Reagent Blank 2/16/98
<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	2.3	nd	nd
Toluene	0.5	1.8	nd	nd
Ethylbenzene	0.5	0.8	nd	nd
Total Xylenes	0.5	0.7	nd	nd
BFB (Surrogate)		108	102	101
Recovery				
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client : D. B. Stephens and Associates, Inc. **Date Collected:** 2/11,12/98
Project: Enron-Thoreau **Date Received:** 2/12/98
Sample Matrix: Aqueous **Date Extracted:** 2/16/98

PCBs
Units: PPB (μ g/l)

Sample Name:	5-17B	Filtered	Purge Water	5-01C
Lab Code:	9802035-5	9802035-12	9802035-15	
Date Analyzed:	2/16/98	2/16/98	2/16/98	

Test: EPA 8080 PCBs

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Arochlor 1016	1.0	nd	nd	nd
Arochlor 1221	5.0	nd	nd	nd
Arochlor 1232	1.0	nd	nd	nd
Arochlor 1242	1.0	nd	nd	nd
Arochlor 1248	1.0	nd	nd	nd
Arochlor 1254	1.0	nd	nd	nd
Arochlor 1260	1.0	nd	nd	nd
% DCBP		97	99	103
Dilution		1	1	1

Sample Name:	5-06C	5-99	Extraction
Lab Code:	9802035-16	9802035-18	Blank
Date Analyzed:	2/16/98	2/16/98	2/16/98

Test: EPA 8080 PCBs

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Arochlor 1016	1.0	nd	nd	nd
Arochlor 1221	5.0	320	280	nd
Arochlor 1232	1.0	nd	nd	nd
Arochlor 1242	1.0	nd	nd	nd
Arochlor 1248	1.0	nd	nd	nd
Arochlor 1254	1.0	nd	nd	nd
Arochlor 1260	1.0	nd	nd	nd
% DCBP		104	104	98
Dilution		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client: D. B. Stephens and Associates, Inc. **Date Collected:** NA
Project: Enron-Thoreau **Date Received:** NA
Sample Matrix: Aqueous **Date Analyzed:** 2/13,16/98

Volatile Organic Compounds
9802035-1 MS/MSD

EPA Method 8020

Units: PPB (μ g/l)

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Matrix Spike</u>	<u>MS %</u>	<u>MS Dup</u>	<u>MSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	19.6	98	19.3	97	2
Toluene	<0.5	20.0	19.8	99	19.5	98	2
Ethylbenzene	<0.5	20.0	20.3	102	20.0	100	1
Total Xylenes	<0.5	60.0	62.5	104	61.8	103	1

Volatile Organic Compounds
9802035-15 MS/MSD

EPA Method 8020

Units: PPB (μ g/l)

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Matrix Spike</u>	<u>MS %</u>	<u>MS Dup</u>	<u>MSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	21.4	107	21.3	107	0
Toluene	<0.5	20.0	20.8	104	20.8	104	0
Ethylbenzene	<0.5	20.0	21.3	107	21.0	105	1
Total Xylenes	<0.5	60.0	65.1	109	64.5	108	1

PCBs
BS/BSD 2/16

EPA Method 8080

Units: PPB (μ g/l)

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Arochlor 1260	1.0	5.0	4.9	98	4.9	98	0

CHAIN-OF-CUSTODY RECORD

Client: DANIEL B. STEPHENS & ASSOC.

Address: COORS ACADEMY NE
ABQ, NM 87109

Project Name:

E NRON - THORPE44

Phone #: 505/822-9400

Fax #: 505/822-8877

Project #:

6031.1

Project Manager

Babs Merley

Date:

1998

Time:

1145

Matrix

Ag

Sample I.D. No.

5-03B

Number/Volume

2/40mL

Preservative

H₂O₂

HCl

HEAL No.

9802035-1

✓

-2

✓

-3

✓

-4

✓

-5

✓

-6

✓

-7

✓

Date:

2/10

Time:

1450

Matrix

Ag

Sample I.D. No.

5-24B

Number/Volume

2/40mL

Preservative

H₂O₂

HCl

HEAL No.

9802035-1

✓

-2

✓

-3

✓

-4

✓

Date:

2/10

Time:

1630

Matrix

Ag

Sample I.D. No.

5-23B

Number/Volume

2/40mL

Preservative

H₂O₂

HCl

HEAL No.

9802035-1

✓

-2

✓

-3

✓

-4

✓

Date:

2/11

Time:

1000

Matrix

Ag

Sample I.D. No.

5-17B

Number/Volume

2/40mL

Preservative

H₂O₂

HCl

HEAL No.

9802035-1

✓

-2

✓

-3

✓

-4

✓

Date:

2/11

Time:

1025

Matrix

Ag

Sample I.D. No.

5-12B

Number/Volume

2/40mL

Preservative

H₂O₂

HCl

HEAL No.

9802035-1

✓

-2

✓

-3

✓

-4

✓

Date:

2/11

Time:

1135

Matrix

Ag

Sample I.D. No.

5-15B

Number/Volume

2/40mL

Preservative

H₂O₂

HCl

HEAL No.

9802035-1

✓

-2

✓

-3

✓

-4

✓

Date:

2/11

Time:

1230

Matrix

Ag

Sample I.D. No.

5-13B

Number/Volume

2/40mL

Preservative

H₂O₂

HCl

HEAL No.

9802035-1

✓

-2

✓

-3

✓

-4

✓

Date:

2/11

Time:

1310

Matrix

Ag

Sample I.D. No.

5-18B

Number/Volume

2/40mL

Preservative

H₂O₂

HCl

HEAL No.

9802035-1

✓

-2

✓

-3

✓

-4

✓

Date:

2/11

Time:

1420

Matrix

Ag

Sample I.D. No.

5-02C

Number/Volume

2/40mL

Preservative

H₂O₂

HCl

HEAL No.

9802035-1

✓

-2

✓

-3

✓

-4

✓

Date:

2/11

Time:

1550

Matrix

Ag

Sample I.D. No.

Fitter Pwge 420

Number/Volume

2/40mL

Preservative

H₂O₂

HCl

HEAL No.

9802035-1

✓

-2

✓

-3

✓

-4

✓

Date:

2/12

Time:

1537

Matrix

Ag

Sample I.D. No.

Fitter Pwge 420

Number/VOLUME

2/40mL

Preservative

H₂O₂

HCl

HEAL No.

9802035-1

✓

-2

✓

-3

✓

-4

✓

Date:

2/12

Time:

1700

Matrix

Ag

Sample I.D. No.

Fitter Pwge 420

Number/VOLUME

2/40mL

Preservative

H₂O₂

HCl

HEAL No.

9802035-1

✓

-2

✓

-3

✓

-4

✓

Date:

2/12

Time:

1715

Matrix

Ag

Sample I.D. No.

Fitter Pwge 420

Number/VOLUME

2/40mL

Preservative

H₂O₂

HCl

HEAL No.

9802035-1

✓

-2

✓

-3

✓

-4

✓</p

CHAIN-OF-CUSTODY RECORD

Client: DBS & A

Address: 4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
505.345.3975
Fax 505.345.4107

Project Name:

EXRON - THOR-E 4-1

Project #:

CO31.1

Project Manager:

Bob Marley

Phone #: 822-9400

Fax #:

Sampler: V/vsf / Sharp

Samples Cold?: Yes No

ANALYSIS REQUEST				Air Bubbles or Headspace (Y or N)
				8270 (Semi-VOA)
				8260 (VOA)
				8080 (Pesticides PCB's)
				Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)
				Cations (Na, K, Ca, Mg)
				RCRA 8 Metals
				8310 (PNA or PAH)
				EDC (Method 8010)
				EDB (Method 504)
				8010/8020 Volatiles
				TPH (Method 418.1)
				TPH Method 8015 MOD (Gas/Diesel)
				BTEX + MTBE + TPH (Gasoline Only)
				BTEX + MTBE (602/8020)

Date: 1/98	Time: 1605	Matrix: Ag	Sample I.D. No.: 5-16B	Number/Volume	Preservative	HEAL No.	Remarks: ANALYSES: 8020 BTEX (No MTBE)
2/1/2	1045	Ag	5-48B	2/40 mL	HCl 4°C	8020 35-B	
2/1/2	1020	Ag	5-01C	2/40 mL		44	
2/1/2	1145	Ag	5-06C	2/40 mL		15	
2/1/2	—	Ag	5-98	2/40 mL		16	
2/1/2	—	Ag	5-99	1 liter		17	
2/1/2	1130	Ag	TRIP BLANK	2/40 mL		18	
2/1/2	1430	Ag	5-19B	2/40 mL		19	
						-20	
							8080 PCBS only

Date: 2/1/2	Time: 1537	Relinquished By: (Signature) <i>John Miller</i>	Received By: (Signature) <i>John Miller</i>
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Report of Ground Water Remediation Activities

**Transwestern Pipeline Company
Thoreau Compressor Station**

Attachment #6

**Laboratory Reports for
Air Emission Sampling Events**



Hall Environmental Analysis Laboratory, Inc.

Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite A
Albuquerque, NM 87109
(505)345-3975

1/13/98

Cypress Engineering
16300 Katy Freeway, Suite 210
Houston, Texas 77094-1609

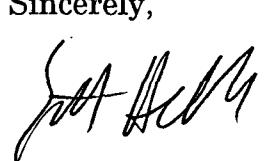
Dear Mr. George Robinson,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,

 1/15/98

Scott Hallenbeck, Lab Manager

Project: 9801013/TW Thoreau

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering Services **Date Collected:** 1/7/98
Project: TW Thoreau **Date Received:** 1/8/98
Sample Matrix: Air **Date Extracted:** NA

Gasoline Range Organics
EPA Method 8015 Modified
Units: µg/L

Sample Name:	SVE-1	SVE-3	SVE-4
Lab Code:	9801013-1	9801013-2	9801013-3
Date Analyzed:	1/8/98	1/8/98	1/8/98

Compound	MRL	Result	Result	Result
Gasoline Range Organics	5.0	130	720	710
TFT (Surrogate) Recovery		104	121*	106
Dilution Factor		2.5	10	10

Hydrocarbon Ranges

<C5	0.0 %	0.1 %	0.1 %
C5-C6	0.1 %	6.6 %	3.1 %
C6-C7	0.3 %	12.0 %	9.7 %
C7-C8	0.8 %	14.5 %	16.5 %
C8-C9	12.2 %	18.9 %	26.9 %
C9-C10	30.2 %	19.1 %	19.8 %
C10-C11	32.2 %	17.7 %	15.5 %
C11-C12	17.7 %	8.4 %	6.4 %
C12-C14	6.5 %	2.7 %	2.0 %
C14+	0.0 %	0.0 %	0.0 %

* Surrogate recovery high due to matrix interference.

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering Services **Date Collected:** 1/7/98
Project: TW Thoreau **Date Received:** 1/8/98
Sample Matrix: Air **Date Extracted:** NA

Gasoline Range Organics
EPA Method 8015 Modified
Units: µg/L

Sample Name:	MW-02B	MW-04B	MW-05B
Lab Code:	9801013-4	9801013-5	9801013-6
Date Analyzed:	1/8/98	1/8/98	1/8/98

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Gasoline Range Organics	5.0	250	44	69
BFB (Surrogate) Recovery		118	100	101
Dilution Factor		5	1	1

Hydrocarbon Ranges

<C5	0.1 %	0.0 %	0.0 %
C5-C6	14.3 %	0.0 %	0.1 %
C6-C7	37.7 %	0.2 %	0.2 %
C7-C8	27.6 %	0.9 %	0.4 %
C8-C9	8.0 %	8.1 %	6.1 %
C9-C10	2.4 %	32.1 %	21.1 %
C10-C11	4.4 %	33.9 %	34.9 %
C11-C12	3.6 %	17.4 %	25.5 %
C12-C14	1.9 %	7.4 %	11.7 %
C14+	0.0 %	0.0 %	0.0 %

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering Services **Date Collected:** 1/7/98
Project: TW Thoreau **Date Received:** 1/8/98
Sample Matrix: Air **Date Extracted:** NA

Gasoline Range Organics
EPA Method 8015 Modified
Units: µg/L

Sample Name:	MW-34B	MW-35B	SVE-Total
Lab Code:	9801013-7	9801013-8	9801013-9
Date Analyzed:	1/8/98	1/8/98	1/8/98

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Gasoline Range Organics	5.0	7,100	1,800	2,900

BFB (Surrogate) Recovery	**	101	111
Dilution Factor	50	50	50

Hydrocarbon Ranges

<C5	0.1 %	0.0 %	0.2 %
C5-C6	2.0 %	0.2 %	1.6 %
C6-C7	5.7 %	1.0 %	4.6 %
C7-C8	21.5 %	3.7 %	16.9 %
C8-C9	38.6 %	26.8 %	33.7 %
C9-C10	22.0 %	36.3 %	23.7 %
C10-C11	8.3 %	22.1 %	13.9 %
C11-C12	1.7 %	8.3 %	4.3 %
C12-C14	0.1 %	1.6 %	1.1 %
C14+	0.0 %	0.0 %	0.0 %

** Surrogate not recoverable due to matrix interference.

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering Services **Date Collected:** 1/7/98
Project: TW Thoreau **Date Received:** 1/8/98
Sample Matrix: Air **Date Extracted:** NA

Gasoline Range Organics
EPA Method 8015 Modified
Units: µg/L

Sample Name:	SVE-Dup	Reagent
Lab Code:	9801013-10	Blank
Date Analyzed:	1/8/98	1/8/98

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>
Gasoline Range Organics	5.0	2,800	nd
BFB (Surrogate) Recovery		108	100
Dilution Factor		50	1

Hydrocarbon Ranges

<C5	0.2 %
C5-C6	1.8 %
C6-C7	4.9 %
C7-C8	17.8 %
C8-C9	31.2 %
C9-C10	26.5 %
C10-C11	12.6 %
C11-C12	4.2 %
C12-C14	0.8 %
C14+	0.0 %

Hall Environmental Analysis Laboratory, Inc.

Volatile Organic Compounds

Units: PPB (mg/l)

BS/BSD 1/8

EPA Method 8015 Modified

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Gasoline	<0.05	0.50	0.51	102	0.50	100	2

CHAIN-OF-CUSTODY RECORD

Client: George Engineering

4901 Hawkins NE, Suite A

Albuquerque, New Mexico 87109

505.345.3975

Fax 505.345.4107

Address: 16300 East Frey, #200

Project #: —

Project Manager: —

ANALYSIS REQUEST

Air Bubbles or Headspace (Y or N)
8270 (Semi-VOA)
8260 (VOA)
8080 Pesticides / PCB's
Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)
Cations (Na, K, Ca, Mg)
RCRA 8 Metals
8310 (PNA or PAH)
EDC (Method 8010)
EDB (Method 504)
8010/8020 Volatiles
TPH (Method 418.1)
TPH Method 8015 MOD (Gas/Diesel)
BTEX + MTBE + TPH (Gasoline Only)
BTEX + MTBE (602/8020)

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative		HEAL No.
					HgCl ₂	HCl	
1/1/98	Air	SVE-1	1 L				980013-1
		SVE-3			-2		X
		SVE-4			-3		X
		MW-02B			-4		X
		MW-04B			-5		X
		MW-05B			-6		X
		MW-31B			-7		X
		MW-35B			-8		X
		SVE-TOTAL			-9		X
		SVE-Dust			-10		X

Remarks:

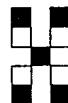
George Engineering

Received By: (Signature)

George Engineering

Received By: (Signature)

Date: 1/8/98 Time: 10:10 Received By: (Signature)



AIR
**Hall Environmental
Analysis Laboratory, Inc.**

Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite A
Albuquerque, NM 87109
(505)345-3975

12/4/97

Cypress Engineering
16300 Katy Freeway, Suite 210
Houston, Texas 77094-1609

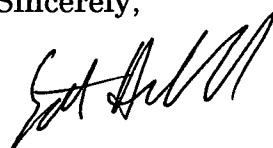
Dear Mr. George Robinson,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,

 12/5/97

Scott Hallenbeck, Lab Manager

Project: 9711095/TW Thoreau Station Site

Results for sample: MW-02B

Date collected: 11/24/97	Date received: 11/25/97
Date extracted: NA	Date analyzed: 11/25/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: 9711095-1
Site	
Project Manager: George Robinson	
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	10	µg/L

TFT (Surrogate) Recovery = 101 %

Dilution Factor = 1

Hydrocarbon Ranges

<C5	0.0 %
C5-C6	5.0 %
C6-C7	13.1 %
C7-C8	14.6 %
C8-C9	15.5 %
C9-C10	15.2 %
C10-C11	21.8 %
C11-C12	11.1 %
C12-C14	3.7 %
C14+	0.0 %

Results for sample: MW-04B

Date collected: 11/24/97	Date received: 11/25/97
Date extracted: NA	Date analyzed: 11/25/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: 9711095-2
Site	
Project Manager: George Robinson	
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	290	µg/L

BFB (Surrogate) Recovery = ** %

Dilution Factor = 1

Hydrocarbon Ranges

<C5	0.0 %
C5-C6	1.9 %
C6-C7	3.4 %
C7-C8	8.8 %
C8-C9	35.2 %
C9-C10	32.7 %
C10-C11	11.3 %
C11-C12	4.9 %
C12-C14	1.8 %
C14+	0.0 %

** Surrogate not recoverable due to matrix interference.

Results for sample: MW-05B

Date collected: 11/24/97	Date received: 11/25/97
Date extracted: NA	Date analyzed: 11/26/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: 9711095-3
Site	
Project Manager: George Robinson	
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	6.7	µg/L

TFT (Surrogate) Recovery = 106 %

Dilution Factor = 1

Hydrocarbon Ranges

<C5	0.0 %
C5-C6	0.0 %
C6-C7	0.6 %
C7-C8	3.1 %
C8-C9	19.9 %
C9-C10	22.9 %
C10-C11	28.0 %
C11-C12	15.6 %
C12-C14	9.6 %
C14+	0.3 %

Results for sample: MW-34B

Date collected: 11/24/97	Date received: 11/25/97
Date extracted: NA	Date analyzed: 11/26/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: 9711095-4
Site	
Project Manager: George Robinson	
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	4,400	µg/L

BFB (Surrogate) Recovery = ** %

Dilution Factor = 50

Hydrocarbon Ranges

<C5	0.0 %
C5-C6	1.0 %
C6-C7	4.6 %
C7-C8	23.5 %
C8-C9	38.9 %
C9-C10	24.9 %
C10-C11	1.8 %
C11-C12	1.9 %
C12-C14	1.3 %
C14+	2.1 %

** Surrogate not recoverable due to matrix interference.

Results for sample: MW-35B

Date collected: 11/24/97	Date received: 11/25/97
Date extracted: NA	Date analyzed: 12/1/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: 9711095-5
Site	
Project Manager: George Robinson	
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	1,600	µg/L

BFB (Surrogate) Recovery = 120* %

Dilution Factor = 10

Hydrocarbon Ranges

<C5	0.0 %
C5-C6	0.1 %
C6-C7	1.0 %
C7-C8	7.1 %
C8-C9	16.6 %
C9-C10	28.6 %
C10-C11	31.6 %
C11-C12	12.8 %
C12-C14	2.2 %
C14+	0.0 %

* Surrogate recovery high due to matrix interference.

Results for sample: SVE-1

Date collected: 11/24/97	Date received: 11/25/97
Date extracted: NA	Date analyzed: 11/28/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: 9711095-6
Site	
Project Manager: George Robinson	
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	19	µg/L

TFT (Surrogate) Recovery = 113 %

Dilution Factor = 1

Hydrocarbon Ranges

<C5	0.4 %
C5-C6	0.7 %
C6-C7	1.2 %
C7-C8	2.3 %
C8-C9	10.4 %
C9-C10	22.6 %
C10-C11	23.2 %
C11-C12	27.7 %
C12-C14	11.1 %
C14+	0.4 %

Results for sample: SVE-3

Date collected: 11/24/97	Date received: 11/25/97
Date extracted: NA	Date analyzed: 12/1/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: 9711095-7
Site	
Project Manager: George Robinson	
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	900	µg/L

BFB (Surrogate) Recovery = ** %

Dilution Factor = 10

Hydrocarbon Ranges

<C5	0.0 %
C5-C6	3.5 %
C6-C7	9.2 %
C7-C8	16.9 %
C8-C9	25.4 %
C9-C10	27.9 %
C10-C11	11.1 %
C11-C12	5.1 %
C12-C14	0.9 %
C14+	0.0 %

** Surrogate not recoverable due to matrix interference.

Results for sample: SVE-4

Date collected: 11/24/97	Date received: 11/25/97
Date extracted: NA	Date analyzed: 12/1/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: 9711095-8
Site	
Project Manager: George Robinson	
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	590	µg/L

BFB (Surrogate) Recovery = ** %

Dilution Factor = 10

Hydrocarbon Ranges

<C5	0.0 %
C5-C6	2.2 %
C6-C7	11.8 %
C7-C8	27.9 %
C8-C9	30.6 %
C9-C10	15.8 %
C10-C11	6.7 %
C11-C12	4.2 %
C12-C14	0.8 %
C14+	0.0 %

** Surrogate not recoverable due to matrix interference.

Results for sample: SVE-Dup

Date collected: 11/24/97	Date received: 11/25/97
Date extracted: NA	Date analyzed: 12/1/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: 9711095-9
Site	
Project Manager: George Robinson	
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	2,300	µg/L

TFT (Surrogate) Recovery = 117* %
Dilution Factor = 50

Hydrocarbon Ranges

<C5	0.0 %
C5-C6	3.7 %
C6-C7	7.3 %
C7-C8	25.9 %
C8-C9	30.9 %
C9-C10	18.4 %
C10-C11	9.8 %
C11-C12	3.2 %
C12-C14	0.8 %
C14+	0.0 %

* Surrogate recovery high due to matrix interference.

Results for sample: SVE-Total

Date collected: 11/24/97	Date received: 11/25/97
Date extracted: NA	Date analyzed: 12/1/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: 9711095-10
Site	
Project Manager: George Robinson	
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	2,300	µg/L

TFT (Surrogate) Recovery = 117* %
Dilution Factor = 50

Hydrocarbon Ranges

<C5	0.2 %
C5-C6	3.0 %
C6-C7	6.6 %
C7-C8	19.1 %
C8-C9	29.5 %
C9-C10	27.0 %
C10-C11	10.5 %
C11-C12	3.5 %
C12-C14	0.6 %
C14+	0.0 %

Results for QC: Reagent Blank

Date extracted: NA	Date analyzed: 11/25/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: RB 11/25
Site	
Project Manager: George Robinson	Sampled by: NA
Matrix: Aqueous	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	<0.05	PPM (mg/L)

BFB (Surrogate) Recovery = 93 %

Dilution Factor = 1

Results for QC: Reagent Blank

Date extracted: NA	Date analyzed: 11/26/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: RB 11/26
Site	
Project Manager: George Robinson	Sampled by: NA
Matrix: Aqueous	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	<0.05	PPM (mg/L)

BFB (Surrogate) Recovery = 99 %

Dilution Factor = 1

Results for QC: Reagent Blank

Date extracted: NA	Date analyzed: 11/28/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: RB 11/28
Site	
Project Manager: George Robinson	Sampled by: NA
Matrix: Aqueous.	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	<0.05	PPM (mg/L)

BFB (Surrogate) Recovery = 104 %

Dilution Factor = 1

Results for QC: Reagent Blank

Date extracted: NA	Date analyzed: 12/1/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: RB 12/1
Site	
Project Manager: George Robinson	Sampled by: NA
Matrix: Aqueous	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	<0.05	PPM (mg/L)

BFB (Surrogate) Recovery = 102 %

Dilution Factor = 1

Results for QC: Blank Spike / Blank Spike Dup

Date extracted: NA	Date analyzed: 11/25/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: BS/BS 11/25
Site	
Project Manager: George Robinson	
Matrix: Aqueous	Units: PPM (mg/L)

Test: EPA 8015 Modified

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Gasoline	<0.05	0.50	0.47	94	0.48	96	2

Results for QC: Blank Spike / Blank Spike Dup

Date extracted: NA	Date analyzed: 12/1/97
Client: Cypress Engineering	
Project Name: TW Thoreau Station	HEAL #: BS/BS 12/1
Site	
Project Manager: George Robinson	
Matrix: Aqueous	Units: PPM (mg/L)

Test: EPA 8015 Modified

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Gasoline	<0.05	0.50	0.50	100	0.48	96	4

CHAIN-OF-CUSTODY RECORD

Client: Cypress Engineering
Address:

Project Name: TCE Thorne in
Station Sub

Project #: 16300

Katy Fwy Ste. 210
Houston, TX 77094

ANALYSIS REQUEST

				Air Bubbles or Headspace (Y or N)
				8270 (Semi-VOA)
				8260 (VOA)
				8080 Pesticides / PCBs
				Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)
				Cations (Na, K, Ca, Mg)
				RCRA 8 Metals
				8310 (PNA or PAH)
				EDC (Method 8010)
				EDB (Method 504)
				8010/8020 Volatiles
				TPH (Method 418.1)
				TPH Method 8015 MOD (Gas/Diesel)
				BTEX + MTBE + TPH (Gasoline Only)
				BTEX + MTBE (602/8020)

Date: 11/24/97	Time: Relinquished By: (Signature)	Received By: (Signature)
Date: 11/24/97	Time: Relinquished By: (Signature)	Received By: (Signature)
Date: 11/24/97	Time: Relinquished By: (Signature)	Received By: (Signature)
Date: 11/24/97	Time: Relinquished By: (Signature)	Received By: (Signature)
Date: 11/24/97	Time: Relinquished By: (Signature)	Received By: (Signature)
Date: 11/24/97	Time: Relinquished By: (Signature)	Received By: (Signature)
Date: 11/24/97	Time: Relinquished By: (Signature)	Received By: (Signature)
Date: 11/24/97	Time: Relinquished By: (Signature)	Received By: (Signature)
Date: 11/24/97	Time: Relinquished By: (Signature)	Received By: (Signature)
Date: 11/24/97	Time: Relinquished By: (Signature)	Received By: (Signature)

Remarks:

11/25

Zach Gossman



CORE LABORATORIES

CORE LABORATORIES
ANALYTICAL REPORT

Job Number: 975681
Prepared For:

CYPRESS ENGINEERING SERVICES
GEORGE ROBINSON
16300 KATY FREEWAY
HOUSTON, TX 77094

Date: 12/04/97

Signature

12/4/97

Date:

Name: M. Jean Waits

CORE LABORATORIES
P O BOX 34766
HOUSTON, TX 77234-4282

Title: Supervising Chemist

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CORE LABORATORIES

LABORATORY TESTS RESULTS
12/04/97

JOB NUMBER: 975681

CUSTOMER: CYPRESS ENGINEERING SERVICES

ATTN: GEORGE ROBINSON

CLIENT I.D.....:
DATE SAMPLED....: 11/26/97
TIME SAMPLED....: 00:00
WORK DESCRIPTION...: TW Station 5 SVE Cylinder # 1324

LABORATORY I.D...: 975681-0002
DATE RECEIVED....: 11/26/97
TIME RECEIVED....: 10:01
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Extended Refinery Gas Analysis		*1		UOP 539, GPA 2286	12/04/97	TSH
Hydrogen	<0.10	0.10	Mol %			
Oxygen	19.13	0.01	Mol %			
Nitrogen	79.10	0.01	Mol %			
Carbon Monoxide	1.74	0.01	Mol %			
Carbon Dioxide	<0.01	0.01	Mol %			
Hydrogen Sulfide	<0.01	0.01	Mol %			
Methane	<0.001	0.001	Mol %			
Ethylene	<0.001	0.001	Mol %			
Ethane	<0.001	0.001	Mol %			
Propylene	<0.001	0.001	Mol %			
Propane	<0.001	0.001	Mol %			
Isobutane	<0.001	0.001	Mol %			
C4 Olefins	<0.001	0.001	Mol %			
n-Butane	0.002	0.001	Mol %			
Isopentane	0.002	0.001	Mol %			
n-Pentane	0.002	0.001	Mol %			
Hexanes Plus	0.03	0.01	Mol %			
Total	100.00	0.01	Mol %			
Relative Density	1.00400	0				
Gross Heating Value (Dry/Real)	1.7	0	BTU/CF 14.696			
Pentenes	<0.001	0.001	Mol %			
2,2-Dimethylbutane	<0.001	0.001	Mol %			
2-Methyl Pentane	<0.001	0.001	Mol %			
3-Methyl Pentane	<0.001	0.001	Mol %			
n-Hexane	0.001	0.001	Mol %			
Hexenes	<0.001	0.001	Mol %			
Methylcyclopentane	<0.001	0.001	Mol %			
Benzene	<0.001	0.001	Mol %			
Cyclohexane	<0.001	0.001	Mol %			
2-Methyl Hexane	<0.001	0.001	Mol %			
3-Methylhexane	0.001	0.001	Mol %			
Dimethylcyclopentanes	<0.001	0.001	Mol %			
n-Heptane	0.001	0.001	Mol %			
C7 Olefins	<0.001	0.001	Mol %			
Methylcyclohexane	0.002	0.001	Mol %			
Trimethylcyclopentanes	<0.001	0.001	Mol %			
Toluene	0.001	0.001	Mol %			
2-Methylheptane	0.002	0.001	Mol %			
3-Methylheptane	0.001	0.001	Mol %			
Dimethylcyclohexanes	0.003	0.001	Mol %			
2,2,4 Trimethylpentane	<0.001	0.001	Mol %			
n-Octane	0.006	0.001	Mol %			
Ethyl Benzene	<0.001	0.001	Mol %			

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HOUSTON, TX 77234-4282
(713) 943-9776

PAGE:1

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CORE LABORATORIES

LABORATORY TESTS RESULTS 12/04/97

JOB NUMBER: 975681

CUSTOMER: CYPRESS ENGINEERING SERVICES

ATTN: GEORGE ROBINSON

CLIENT I.D.....:
DATE SAMPLED....: 11/26/97
TIME SAMPLED....: 00:00
WORK DESCRIPTION...: TW Station 5 SVE Cylinder # 1324

LABORATORY I.D....: 975681-0002
DATE RECEIVED....: 11/26/97
TIME RECEIVED....: 10:01
REMARKS.....:

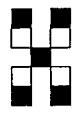
TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Xylenes	0.001	0.001	Mol %			
C9 Paraffins	0.004	0.001	Mol %			
n-Nonane	0.001	0.001	Mol %			
Decanes Plus	<0.001	0.001	Mol %			
Total	0.026	0.001	Mol %			

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PAGE:2

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Hall Environmental Analysis Laboratory

Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite A
Albuquerque, NM 87109
(505)345-3975

9/4/97

Enron Operations Corporation
Cypress Engineering Services
P.O. Box 1188
Houston, Texas 77251

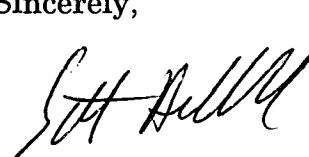
Dear Mr. George Robinson,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,

 9/4/97

Scott Hallenbeck, Lab Manager

Project: 9708054/ENRON - Thoreau

Results for sample: 5-2B

Date collected: 8/21/97	Date received: 8/21/97
Date extracted: NA	Date analyzed: 8/22/97
Client: Enron Operations Corp.	
Project Name: ENRON - Thoreau	HEAL #: 9708054-1
Project Manager: George Robinson	Sampled by: Sandy Sharp
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	490	µg/L

BFB (Surrogate) Recovery = 107 %

Dilution Factor = 10

Hydrocarbon Ranges

<C5	1.4 %
C5-C6	13.5 %
C6-C7	34.0%
C7-C8	41.7 %
C8-C9	7.1 %
C9-C10	1.3 %
C10-C11	0.6 %
C11-C12	0.4 %
C12-C14	0.0 %
C14+	0.0 %

Results for sample: 5-04B

Date collected: 8/21/97	Date received: 8/21/97
Date extracted: NA	Date analyzed: 8/22/97
Client: Enron Operations Corp.	
Project Name: ENRON - Thoreau	HEAL #: 9708054-2
Project Manager: George Robinson	Sampled by: Sandy Sharp
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	530	µg/L

BFB (Surrogate) Recovery = 119 %

Dilution Factor = 10

Hydrocarbon Ranges

<C5	0.0 %
C5-C6	0.1 %
C6-C7	1.6 %
C7-C8	9.0 %
C8-C9	39.8 %
C9-C10	38.1%
C10-C11	8.2 %
C11-C12	2.8 %
C12-C14	0.4 %
C14+	0.0 %

Results for sample: 5-34B

Date collected: 8/21/97	Date received: 8/21/97
Date extracted: NA	Date analyzed: 8/22/97
Client: Enron Operations Corp.	
Project Name: ENRON - Thoreau	HEAL #: 9708054-3
Project Manager: George Robinson	Sampled by: Sandy Sharp
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	7,700	µg/L

BFB (Surrogate) Recovery = ** %

Dilution Factor = 50

** Surrogate not recoverable due to matrix interference.

Hydrocarbon Ranges

<C5	0.2 %
C5-C6	1.4 %
C6-C7	6.5 %
C7-C8	26.6 %
C8-C9	23.8 %
C9-C10	26.7 %
C10-C11	11.3 %
C11-C12	3.0 %
C12-C14	0.5 %
C14+	0.0 %

Results for sample: SVE-1

Date collected: 8/21/97	Date received: 8/21/97
Date extracted: NA	Date analyzed: 8/22/97
Client: Enron Operations Corp.	
Project Name: ENRON - Thoreau	HEAL #: 9708054-4
Project Manager: George Robinson	Sampled by: Sandy Sharp
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	47	µg/L

BFB (Surrogate) Recovery = 107 %
Dilution Factor = 1

Hydrocarbon Ranges

<C5	0.1 %
C5-C6	0.2 %
C6-C7	0.6 %
C7-C8	4.2 %
C8-C9	14.8 %
C9-C10	30.6 %
C10-C11	23.9 %
C11-C12	16.6 %
C12-C14	8.9 %
C14+	0.1 %

Results for sample: 5-05B

Date collected: 8/21/97	Date received: 8/21/97
Date extracted: NA	Date analyzed: 8/22/97
Client: Enron Operations Corp.	
Project Name: ENRON - Thoreau	HEAL #: 9708054-5
Project Manager: George Robinson	Sampled by: Sandy Sharp
Matrix: Air	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	44	µg/L

BFB (Surrogate) Recovery = 114 %

Dilution Factor = 1

Hydrocarbon Ranges

<C5	0.1 %
C5-C6	0.2 %
C6-C7	0.6 %
C7-C8	4.2 %
C8-C9	14.2 %
C9-C10	31.4 %
C10-C11	23.9 %
C11-C12	16.5 %
C12-C14	8.8 %
C14+	0.1 %

Results for QC: Reagent Blank

Date extracted: NA	Date analyzed: 8/22/97
Client: Enron Operations Corp.	
Project Name: ENRON - Thoreau	HEAL #: RB 8/22
Project Manager: George Robinson	Sampled by: NA
Matrix: Aqueous	

Test: EPA 8015 Modified

<u>Compound</u>	<u>Amount</u>	<u>Units</u>
Gasoline Range	<0.05	PPM (mg/L)

BFB (Surrogate) Recovery = 106 %

Dilution Factor = 1

Results for QC: Blank Spike / Blank Spike Dup

Date extracted: NA	Date analyzed: 8/25/97
Client: Enron Operations Corp.	
Project Name: ENRON - Thoreau	HEAL #: BS/BSD 8/25
Project Manager: George Robinson	
Matrix: Aqueous	Units: PPM (mg/L)

Test: EPA 8015 Modified

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Gasoline	<0.05	0.50	0.54	108	0.53	106	2



CORE LABORATORIES

THOREAU

CORE LABORATORIES
ANALYTICAL REPORT

Job Number: 973858
Prepared For:

CYPRESS ENGINEERING SERVICES
GEORGE ROBINSON
16300 KATY FREEWAY
HOUSTON, TX 77094

Date: 08/28/97

Signature

8/28/97

Date:

Name: M. Jean Waits

CORE LABORATORIES
P O BOX 34766
HOUSTON, TX 77234-4282

Title: Supervising Chemist





CORE LABORATORIES

LABORATORY TESTS RESULTS
08/28/97

JOB NUMBER: 973858

CUSTOMER: CYPRESS ENGINEERING SERVICES

ATTN: GEORGE ROBINSON

CLIENT I.D.....
DATE SAMPLED....: / /
TIME SAMPLED....: :
WORK DESCRIPTION...: Cylinder #1030LABORATORY I.D....: 973858-0001
DATE RECEIVED....: 08/25/97
TIME RECEIVED....: 08:18
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Extended Refinery Gas Analysis		*1				
Hydrogen	<0.10	0.10	Mol %			
Oxygen	20.67	0.01	Mol %			
Nitrogen	78.14	0.01	Mol %			
Carbon Monoxide	<0.01	0.01	Mol %			
Carbon Dioxide	1.11	0.01	Mol %			
Hydrogen Sulfide	<0.01	0.01	Mol %			
Methane	<0.001	0.001	Mol %			
Ethylene	<0.001	0.001	Mol %			
Ethane	<0.001	0.001	Mol %			
Propylene	<0.001	0.001	Mol %			
Propane	<0.001	0.001	Mol %			
Isobutane	<0.001	0.001	Mol %			
C4 Olefins	<0.001	0.001	Mol %			
n-Butane	<0.001	0.001	Mol %			
Isopentane	<0.001	0.001	Mol %			
n-Pentane	<0.001	0.001	Mol %			
Hexanes Plus	0.08	0.01	Mol %			
Total	100.00	0.01	Mol %			
Relative Density	1.00407	0				
Gross Heating Value (Dry/Real)	4.6	0	BTU/CF 14.696			
Pentenes	<0.001	0.001	Mol %			
2,2-Dimethylbutane	<0.001	0.001	Mol %			
2-Methyl Pentane	0.001	0.001	Mol %			
3-Methyl Pentane	0.001	0.001	Mol %			
n-Hexane	0.001	0.001	Mol %			
Hexenes	<0.001	0.001	Mol %			
Methylcyclopentane	0.001	0.001	Mol %			
Benzene	0.001	0.001	Mol %			
Cyclohexane	0.001	0.001	Mol %			
2-Methyl Hexane	0.002	0.001	Mol %			
3-Methylhexane	0.002	0.001	Mol %			
Dimethylcyclopentanes	0.003	0.001	Mol %			
n-Heptane	0.002	0.001	Mol %			
C7 Olefins	<0.001	0.001	Mol %			
Methylcyclohexane	0.005	0.001	Mol %			
Trimethylcyclopentanes	<0.001	0.001	Mol %			
Toluene	0.006	0.001	Mol %			
2-Methylheptane	0.004	0.001	Mol %			
3-Methylheptane	<0.001	0.001	Mol %			
Dimethylcyclohexanes	0.004	0.001	Mol %			
2,2,4 Trimethylpentane	<0.001	0.001	Mol %			
n-Octane	0.005	0.001	Mol %			
Ethyl Benzene	0.001	0.001	Mol %			

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CORE LABORATORIES

LABORATORY TESTS RESULTS
08/28/97

JOB NUMBER: 973858

CUSTOMER: CYPRESS ENGINEERING SERVICES

ATTN: GEORGE ROBINSON

CLIENT I.D.....:
DATE SAMPLED....: / /
TIME SAMPLED....: :
WORK DESCRIPTION...: Cylinder #1030

LABORATORY I.D....: 973858-0001
DATE RECEIVED....: 08/25/97
TIME RECEIVED....: 08:18
REMARKS.....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Xylenes	0.009	0.001	Mol %			
C9 Paraffins	0.005	0.001	Mol %			
n-Nonane	0.005	0.001	Mol %			
Decanes Plus	0.017	0.001	Mol %			
Total	0.076	0.001	Mol %			

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Report of Ground Water Remediation Activities

**Transwestern Pipeline Company
Thoreau Compressor Station**

Attachment #7

**Laboratory Reports for
Other Non-Routine Sampling Events**



Hall Environmental Analysis Laboratory
4901 Hawkins N.E. Suite A
Albuquerque, NM 87109
(505) 345-3975

1/30/98

Cypress Engineering
16300 Katy Freeway, #210
Houston, TX 77094

Dear Mr. George Robinson,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,

A handwritten signature of "Scott Hallenbeck" followed by the date "1/30/98" written vertically.

Scott Hallenbeck, Lab Manager

Project: 9801014/TW Thoreau

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering **Date Collected:** 1/6/98
Project: TW Thoreau **Date Received:** 1/8/98
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
 Units: PPB (μ g/l)

Sample Name:	5-48B	5-06C	5-01C
Lab Code:	9801014-1	9801014-2	9801014-3
Date Analyzed:	1/8/98	1/8/98	1/8/98

EPA Method 8020

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	1,600	1.9	2.0
Toluene	0.5	7,600	nd	nd
Ethylbenzene	0.5	440	nd	nd
Total Xylenes	0.5	4,100	3.1	nd
BFB (Surrogate) Recovery		104	100	98
Dilution Factor		10	1	1

Sample Name:	Filtered	Reagent
Lab Code:	Purge	Blank
Date Analyzed:	9801014-4	9801014-5
	1/8/98	1/8/98
		RB 1/8
		1/8/98

EPA Method 8020

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Benzene	0.5	nd	nd	nd
Toluene	0.5	nd	nd	nd
Ethylbenzene	0.5	nd	nd	nd
Total Xylenes	0.5	2.0	nd	nd
BFB (Surrogate) Recovery		109	103	100
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering
Project: TW Thoreau
Sample Matrix: Aqueous, Wipes

Date Collected: 1/6,7/98
Date Received: 1/8/98
Date Extracted: 1/13,20/98

Polychlorinated Biphenyls
 Units: PPB (μ g/L)

Sample Name:	5-06C	5-01C	Filtered
Lab Code:	9801014-2	9801014-3	Purge
Date Analyzed:	1/22/98	1/22/98	9801014-4
			1/22/98

EPA Method 8080

<u>Compound</u>	<u>MDL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Arochlor 1016	1.0	nd	nd	nd
Arochlor 1221	5.0	220	38	nd
Arochlor 1232	1.0	nd	nd	nd
Arochlor 1242	1.0	nd	nd	nd
Arochlor 1248	1.0	nd	nd	nd
Arochlor 1254	1.0	nd	nd	nd
Arochlor 1260	1.0	nd	nd	nd
% Decachlorobiphenyl:		97	93	91
Dilution Factor		1	1	1

Units: μ g/wipes

Sample Name:	MW-01B	MW-01B	MW-06B
	Casing	Vault	Vault
Lab Code:	9801014-5	9801014-6	9801014-7
Date Analyzed:	1/23/98	1/23/98	1/23/98

EPA Method 8080

<u>Compound</u>	<u>MDL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Arochlor 1016	0.5	nd	nd	nd
Arochlor 1221	1.0	nd	nd	nd
Arochlor 1232	0.5	nd	nd	nd
Arochlor 1242	0.5	nd	nd	nd
Arochlor 1248	0.5	nd	nd	nd
Arochlor 1254	0.5	nd	nd	nd
Arochlor 1260	0.5	nd	nd	nd
% Decachlorobiphenyl:		97	90	90
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client : Cypress Engineering **Date Collected:** NA
Project: TW Thoreau **Date Received:** NA
Sample Matrix: Aqueous, Non-Aqueous **Date Extracted:** 1/13/20/98

Polychlorinated Biphenyls
Units: PPB (μ g/L)

Sample Name: Extraction
Lab Code: Blank
Date Analyzed: 1/22/98

EPA Method 8080

<u>Compound</u>	<u>MDL</u>	<u>Result</u>
Arochlor 1016	1.0	nd
Arochlor 1221	5.0	nd
Arochlor 1232	1.0	nd
Arochlor 1242	1.0	nd
Arochlor 1248	1.0	nd
Arochlor 1254	1.0	nd
Arochlor 1260	1.0	nd
% Decachlorobiphenyl:		94
Dilution Factor		1

Units: PPM (mg/kg)

Sample Name: Extraction
Lab Code: Blank
Date Analyzed: 1/20/98

EPA Method 8080

<u>Compound</u>	<u>MDL</u>	<u>Result</u>
Arochlor 1016	0.1	nd
Arochlor 1221	0.2	nd
Arochlor 1232	0.1	nd
Arochlor 1242	0.1	nd
Arochlor 1248	0.1	nd
Arochlor 1254	0.1	nd
Arochlor 1260	0.1	nd
% Decachlorobiphenyl:		95
Dilution Factor		1

Hall Environmental Analysis Laboratory, Inc.

Client: Cypress Engineering
Project: TW Thoreau
Sample Matrix: Aqueous

Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 1/8,13,20/98

Volatile Organic Compounds
 9801016-3 MS/MSD
 BS/BSD 1/13
 BS/BSD 1/20

Units: PPB ($\mu\text{g/l}$)

EPA Method 8020

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Matrix Spike</u>	<u>MS %</u>	<u>MS Dup</u>	<u>MSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	20.0	100	19.1	96	5
Toluene	<0.5	20.0	19.8	99	20.2	101	2
Ethylbenzene	<0.5	20.0	19.4	97	19.6	98	1
Total Xylenes	<0.5	60.0	57.5	96	58.5	98	2

Units: PPB ($\mu\text{g/l}$)

EPA Method 8080

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Arochlor 1260	1.0	5.0	5.4	108	5.1	102	6

Units: PPM (mg/kg)

EPA Method 8080

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Arochlor 1260	0.01	0.05	0.054	108	0.056	112	4

CHAIN-OF-CUSTODY RECORD

Client: Cypress Engineering
Address: 16300 Kathy Fury, #210
Phone #: 713-646-7327
Fax #: 713-646-7867

Project Name:

TW Theory

Project #: _____

Project Manager:

George Robinson

Sampler: Nancy Sharp

Samples Cold?: Yes No

Sample I.D. No.

Date Time Matrix Number/Volume Preservative HEAL No.

HgCl ₂	HCl
✓	9801014-1
✓	-2
✓	-3
✓	-4
✓	-5
✓	-6
✓	-7
✓	-8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

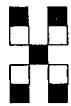
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109

505.345.3975
Fax 505.345.4107

ANALYSIS REQUEST

Air Bubbles or Headspace (Y or N)	
8270 (Semi-VOA)	
8260 (VOA)	
8080 PCBs / PCBs	
Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	X
Cations (Na, K, Ca, Mg)	X
RCRA 8 Metals	
8310 (PNA or PAH)	
EDC (Method 8010)	
EDB (Method 504)	
8010/8020 Volatiles	
TPH (Method 418.1)	
TPH Method 8015 MOD (Gas/Diesel)	
BTEX + MTBE + TPH (Gasoline Only)	
BTEX + MTBE (602/8020)	

Remarks: *[Signature]*
 Date: 1/8/98 Time: 12:30
 Relinquished By: (Signature) *[Signature]* Received By: (Signature) *[Signature]*
 Date: Time:
 Relinquished By: (Signature) *[Signature]* Received By: (Signature) *[Signature]*
 Date: Time:
 Relinquished By: (Signature) *[Signature]* Received By: (Signature) *[Signature]*



Hall Environmental Analysis Laboratory, Inc.

Hall Environmental Analysis Laboratory
4901 Hawkins N.E. Suite A
Albuquerque, NM 87109
(505) 345-3975

12/29/97

Daniel B. Stephens and Associates
6020 Academy NE
Suite 100
Albuquerque, NM 87109

Dear Mr. Bob Marley,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

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

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

Sincerely,

Scott Hallenbeck, Lab Manager

Project: 9712020/Enron-Thoreau

Hall Environmental Analysis Laboratory, Inc.

Client : Daniel B. Stephens & Associates **Date Collected:** 11/24/97
Project: Enron-Thoreau **Date Received:** 12/10/97
Sample Matrix: Non-Aqueous **Date Extracted:** 12/10/97

Volatile Organic Compounds
Units: PPM (mg/kg)

EPA Method 8020	Sample Name: Lab Code: Date Analyzed:	Soil Cuttings
<u>Compound</u>	<u>MRL</u>	<u>Result</u>
Benzene	0.05	nd
Toluene	0.05	nd
Ethylbenzene	0.05	nd
Total Xylenes	0.05	nd
BFB (Surrogate) Recovery		93
Dilution Factor		1

Hall Environmental Analysis Laboratory, Inc.

Client : Daniel B. Stephens & Associates **Date Collected:** 12/9/97
Project: Enron-Thoreau **Date Received:** 12/10/97
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
Units: PPB (μ g/l)

EPA Method 8020 <u>Compound</u>	Sample Name:	Filter Purge	5-06C	5-48B
		Water		
	Lab Code:	9712020-2	9712020-3	9712020-4
	Date Analyzed:	12/11/97	12/11/97	12/11/97
Benzene	0.5	nd	1.0	1,800
Toluene	0.5	nd	nd	7,700
Ethylbenzene	0.5	nd	nd	430
Total Xylenes	0.5	nd	5.7	4,700
BFB (Surrogate) Recovery		106	104	101
Dilution Factor		1	1	100

Hall Environmental Analysis Laboratory, Inc.

Client : Daniel B. Stephens & Associates **Date Collected:** 12/8/97
Project: Enron-Thoreau **Date Received:** 12/10/97
Sample Matrix: Aqueous **Date Extracted:** NA

Volatile Organic Compounds
Units: PPB (μ g/l)

EPA Method 8020	Sample Name: Lab Code: Date Analyzed:	Trip Blank 9712020-5 12/11/97	Reagent Blank 12/11/97
Compound	MRL	Result	Result
Benzene	0.5	nd	nd
Toluene	0.5	nd	nd
Ethylbenzene	0.5	nd	nd
Total Xylenes	0.5	nd	nd
BFB (Surrogate) Recovery		100	105
Dilution Factor		1	1

Hall Environmental Analysis Laboratory, Inc.

Client: Daniel B. Stephens and Associates
Project: Enron - Thoreau
Sample Matrix: Aqueous

Date Collected: 12/9/97
Date Received: 12/10/97
Date Extracted: 12/12/97

Polychlorinated Biphenyls
EPA Method 8080
Units: PPB (μ g/L)

Sample Name:	Filter Water	Extraction	
	Purge	5-06C	Blank
Lab Code:	9710050-2	9710050-3	EB 12/12
Date Analyzed:	12/16/97	12/17, 19/97	12/16/97

<u>Compound</u>	<u>MRL</u>	<u>Result</u>	<u>Result</u>	<u>Result</u>
Arochlor 1016	0.5	nd	nd	nd
Arochlor 1221	0.5	nd	nd	nd
Arochlor 1232	0.5	nd	65	nd
Arochlor 1242	0.5	nd	nd	nd
Arochlor 1248	0.5	nd	nd	nd
Arochlor 1254	0.5	nd	nd	nd
Arochlor 1260	0.5	nd	nd	nd
% Decachlorobiphenyl:		96	94	85
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client: Daniel B. Stephens & Associates **Date Collected:** NA
Project: Enron-Thoreau **Date Received:** NA
Sample Matrix: Aqueous **Date Extracted:** 12/12/97
 Date Analyzed: 12/11,16/97

Volatile Organic Compounds
Units: PPB (μ g/l)
BS/BSD 12/11

EPA Method 8020

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Benzene	<0.5	20.0	20.2	101	20.2	101	0
Toluene	<0.5	20.0	20.2	101	20.2	101	0
Ethylbenzene	<0.5	20.0	20.6	103	20.5	103	0
Total Xylenes	<0.5	60.0	61.2	102	60.9	102	0

PCB's
Units: PPB (μ g/L)
BS/BSD 12/12

EPA Method 8080

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Blank Spike</u>	<u>BS %</u>	<u>BS Dup</u>	<u>BSD %</u>	<u>RPD</u>
Arochlor 1260	0.5	5.0	4.1	82	4.6	92	11

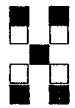
Hall Environmental Analysis Laboratory, Inc.

Client: Daniel B. Stephens & Associates **Date Collected:** NA
Project: Enron-Thoreau **Date Received:** NA
Sample Matrix: Aqueous **Date Extracted:** 12/10/97
 Date Analyzed: 12/10/97

Volatile Organic Compounds
Units: PPB (μ g/l)
9712017-3 MS/MSD

EPA Method 8020

<u>Compound</u>	<u>Sample Result</u>	<u>Amount Added</u>	<u>Matrix Spike</u>	<u>MS %</u>	<u>MS Dup</u>	<u>MSD %</u>	<u>RPD</u>
Benzene	<0.05	1.00	1.01	101	0.98	98	3
Toluene	<0.05	1.00	1.02	102	0.99	99	3
Ethylbenzene	<0.05	1.00	1.00	100	0.97	97	3
Total Xylenes	<0.05	3.00	3.01	100	2.91	97	3



Hall Environmental Analysis Laboratory

Client: Daniel B. Stephens & Assoc.
Address: 6020 Academy NE
 Suite 100
 Albuquerque, NM 87109

Report Date: 12/15/97

Analysis Date: 12/15/97 **Extraction Date** 12/12/97

Project: ENRON-Thoreau
Project Number: 6031.1
Project Manager: Bob Marley
Date Collected: 11/24/97
Date Received: 12/10/97
Sample Matrix: Soil

EPA Method - 418.1

Final volume of Freon-113 used (ml)	20
Sample weight (g)	10

HEAL ID	Client ID	Absorbance	Dilution	T P H (mg/kg)
9712020-1	Soil Cuttings	0.064	1	72

QA/QC

Ext Blk 12/12	N/A	0.000	1	<20
Sample ID: BS 12/9	Sample Amount <20	Spike 100	Recovery 93	% Recovery 93
Sample ID: 9712020-1 12/12	Sample Amount 72	Duplicate 74	RPD 2.8	

Sincerely:



Andy Freeman
Semi Volatiles Supervisor



 Scott Hallenbeck
 Laboratory Manager

