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of New Mexico
Alvarado Square MS 0408
Albuquerque, NM 87158

February 14, 2000

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Mr. Carl Will
Hazardous and Radioactive
Materials Bureau
New Mexico Environment Department
2044 A Galisteo, P.O. Box 26110
Santa Fe, NM 87502

RE: *Treatment Effectiveness Report, Fourth Quarter 1999*, Public Service Company of New Mexico Person Generating Station Groundwater Treatment System, NMT 360010342

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Toni K. Ristau
Director, Environmental Services

Enclosed please find three copies of the subject report submitted pursuant to requirements contained in the Person Station Corrective Action Directive issued in September 1991.

If you have any questions, please contact me at (505) 241-2014.

Sincerely,

John Hale
Environmental Engineer

Enclosure NOT Found

Enclosures

Public Service Company of New Mexico
Person Generating Station
Groundwater Treatment System

Treatment Effectiveness Report
Fourth Quarter 1999

February 10, 2000

Report Prepared Pursuant to Requirements Contained in:

The Person Generating Station Corrective Action Directive (NMT 360010342)
and
The New Mexico Environment Department Discharge Plan, DP-1006

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Executive Summary

Contour maps of the three primary contaminants of concern, PCE, DCE, and TCA, are shown in Figures 10, 11, and 12, respectively. These contour maps indicate the areal extent of the groundwater plume and the associated contaminant concentrations within the plume. The contour maps are prepared twice per year using data from the spring and fall sampling events.

Figure 10 indicates that the areal extent of the PCE plume has decreased since last April. Figure 11 and Figure 12 indicate a similar trend in plume size reduction.

In an effort to enhance the overall treatment system effectiveness by increasing system pumping rates, two new extraction wells were completed during the fourth quarter. However, only one of these wells was operational during this quarter.

I. Introduction

This report is prepared pursuant to requirements contained in the Person Generating Station Corrective Action Directive (NMT360010342) issued by the New Mexico Environment Department (NMED) Hazardous and Radioactive Materials Bureau, and requirements contained in Discharge Plan DP-1006 issued by the NMED Groundwater Protection and Remediation Bureau.

This report contains information on sampling results and operational activities at the Person Generating Station Groundwater Treatment System (GTS). The GTS is designed to extract volatile organic compound (VOC) contaminated groundwater, treat through an air stripper and granular activated carbon filter, and discharge the treated water to an irrigation pond at the UNM Championship Golf Course.

Figure 1 is a site map of the Person Generating Station vicinity and shows well locations and the location of the pipeline system. Note that Figure 1 does not show the locations of the recently installed extraction wells, EW-2 and EW-3.

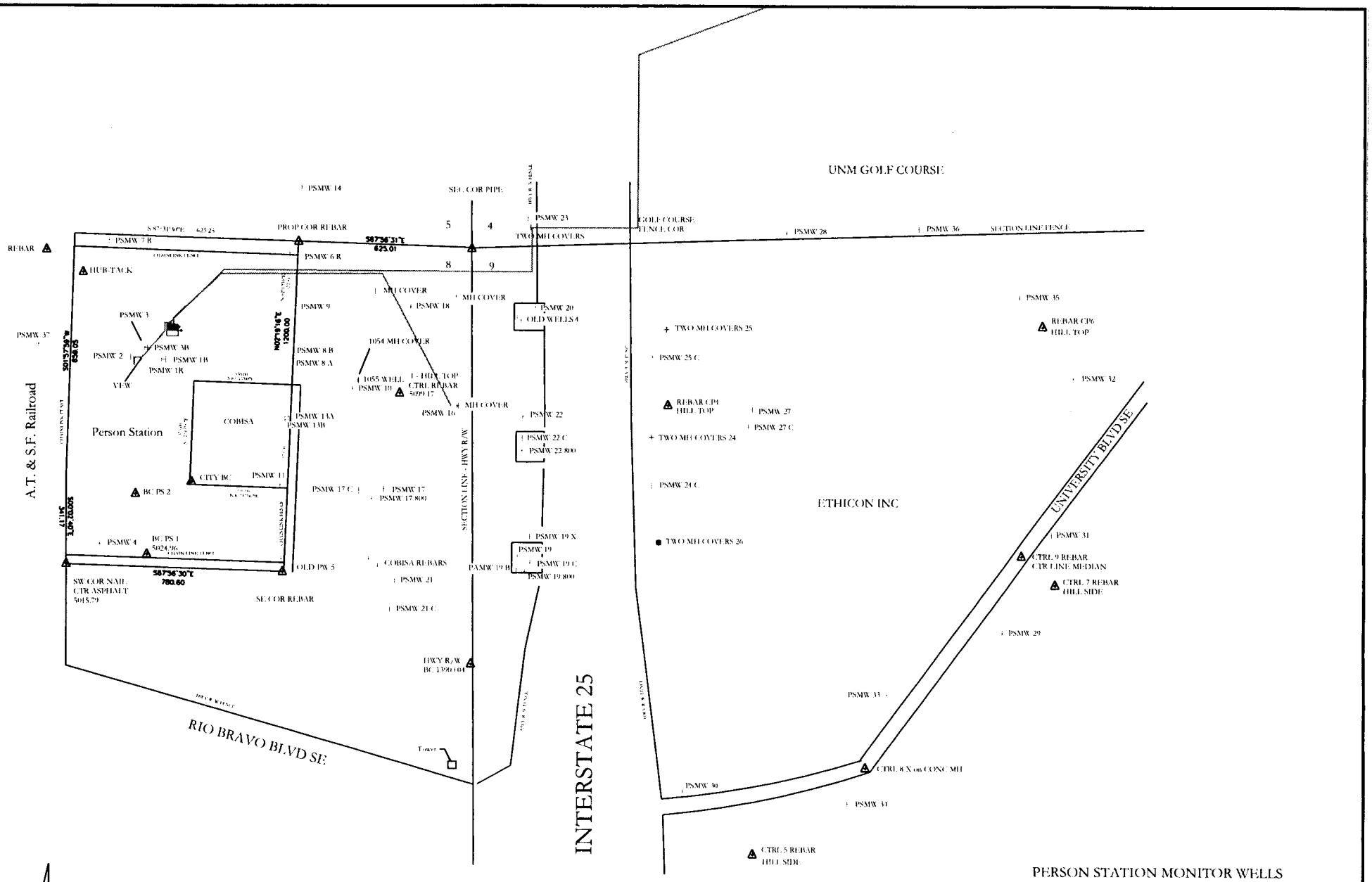


Exhibit A

1" = 500'

PERSON STATION MONITOR WELLS
at Person Station and Ethicon

WITHIN SEC. 8 & 9, T.9 N., R.3 E., N.M.P.M.
BERNALILLO COUNTY, NEW MEXICO

PUBLIC SERVICE CO. OF NEW MEXICO
ALBUQUERQUE, NEW MEXICO

DWN BY: J.P.C. DATE: OCTOBER 11, 1999
OKD BY: SCALE SHOWN

Modified by J. Evaskovich 2/4/00

II. Operational History

The GTS was started on Friday, January 27, 1995, with treated effluent being sent to the UNM Championship Golf Course.

During 1995, the GTS encountered periodic minor problems as well as a more serious problem with mineralization of the system components downstream from the air stripper. The GTS was kept off-line for most of the first quarter of 1996 while the mineralization problem was studied. After evaluation of various treatment methods, an acid treatment system was selected as the most feasible solution to the mineralization problem.

Installation of the acid treatment system began in early May 1996. In early April, construction activities were initiated to convert monitor wells PSMW-24, PSMW-25, and PSMW-26 (PSMW-24, 25, and 26) to extraction wells. The GTS resumed regular operation in mid-June 1996.

The Person Generating Station Discharge Plan, DP-1006, was amended and approved by the Groundwater Protection and Remediation Bureau in mid-June 1997. As part of the amended plan, the existing plan requirement for the sulfuric acid treatment system was replaced. Previously, acid addition to the effluent was restricted to 35 mg/l. The new requirement specifies adjustment of the acid treatment system to maintain an effluent pH range of 6.0 to 9.0. A pH probe and chart recorder were installed on the effluent discharge tank for daily monitoring of pH, and effluent samples are collected monthly for total sulfate analysis.

In an effort to enhance the GTS effectiveness by increasing system pumping rates, two new extraction wells were completed during October 1999. The new wells are designated EW-2 and EW-3. EW-2 is located approximately 34 feet north of PSMW-10. EW-3 is located approximately 39 feet north of PSMW-22. Only EW-3 was operational during the fourth quarter. EW-2 will be brought on line in January 2000.

III. Groundwater Treatment Effectiveness

Figures 2, 3, 4, and 6 show graphs of concentration of total chlorinated VOCs as measured at wells PSMW-16, VEW, EW-1, and EW-3 over the operational period of the GTS. Figure 5 shows a graph of concentration of total chlorinated VOCs in the combined influent from wells PSMW-24, 25, and 26 over the operational period of the GTS. More detailed data for these wells are shown in Tables 1, 2, 3, 4, and 5.

Total Chlorinated VOCs dropped at EW-1 and in the combined influent from PSMW-24, 25, and 26 during this quarter.

At PSMW-16 and EW-3, total chlorinated VOCs have increased during the fourth quarter.

At the VEW, total chlorinated VOCs fluctuated slightly during this quarter.

Laboratory reports for this quarter are contained in Appendix A.

Figure 2
Total VOCs at PSMW-16

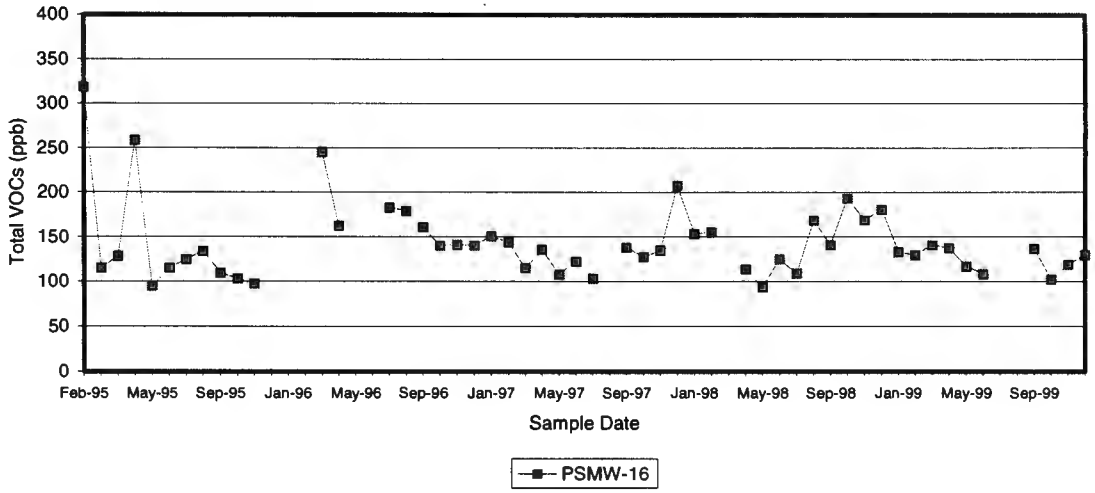


Figure 3
Total VOCs at the VEW

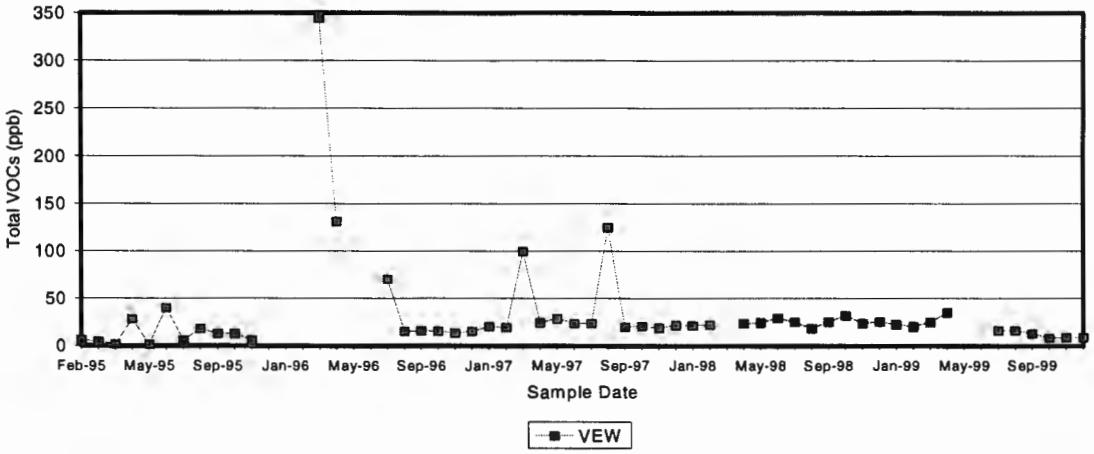


Figure 4
Total VOCs at EW-1

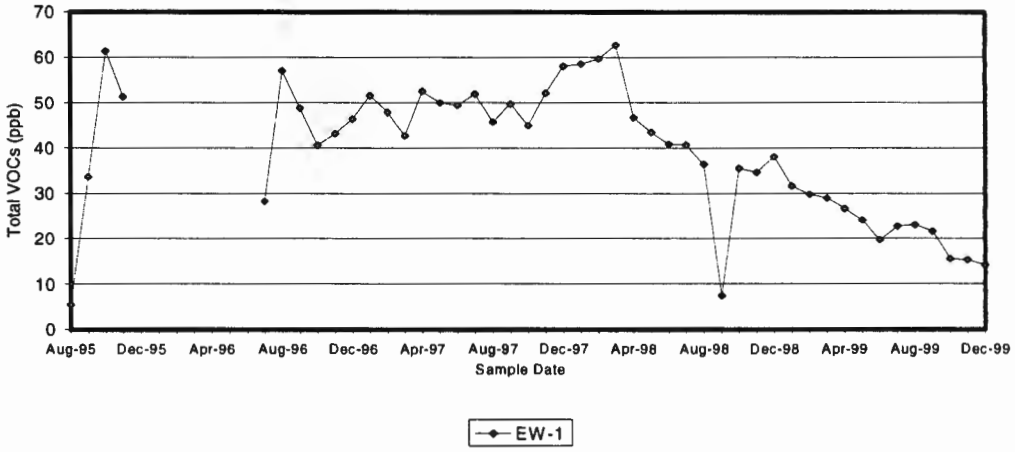


Figure 5
Total VOCs at PSMW-24,25,26

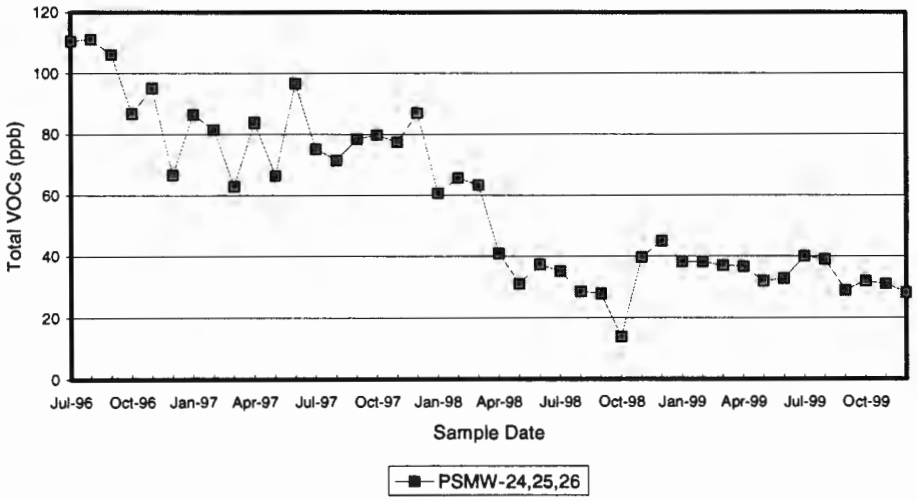


Figure 6
Total VOCs at EW-3

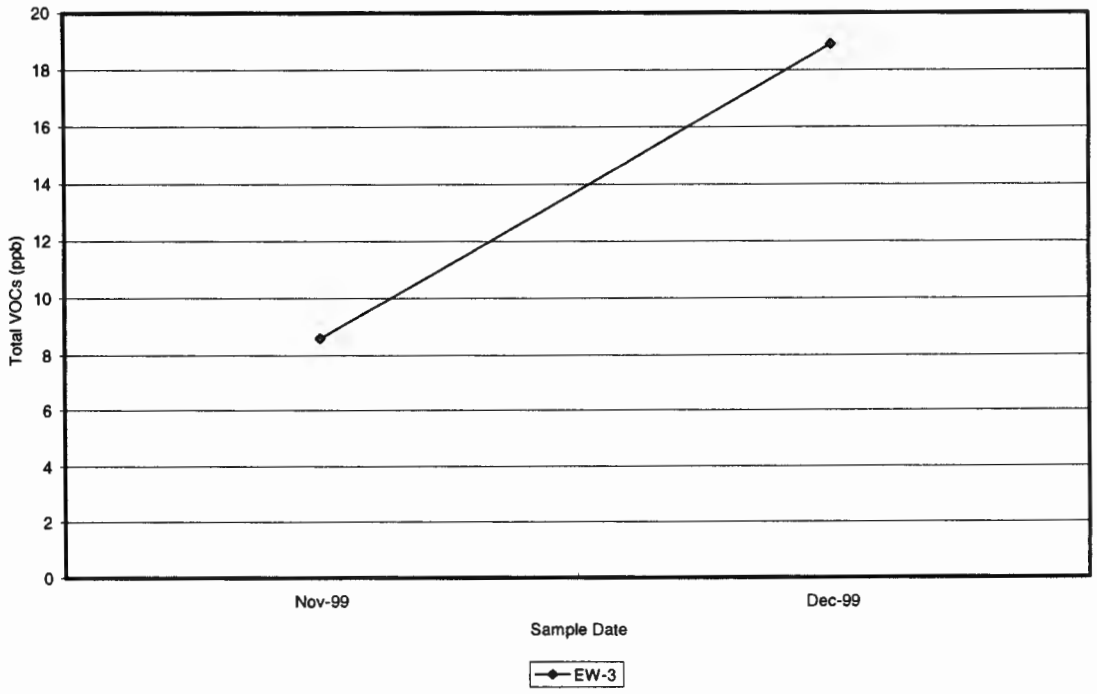


Table 1
Influent Concentrations at PSMW-16

Date	Laboratory Report No.	PCE (ppb)	DCE (ppb)	Total VOCs (ppb)
2/1/95	502304	200	110	318.4
2/15/95	502376	69	39	115.0
3/8/95	503317	78	46	128.3
4/10/95	504341	170	81	258.6
5/18/95	505371	62	30	94.6
6/21/95	506396	76	36	114.8
7/12/95	507327	75	41	124.3
8/17/95	508405	83	45	134.0
9/13/95	509339	69	35	109.2
10/11/95	510335	66	32	102.8
11/22/95	511367	58	35	97.5
3/20/96	603347	180	63	245.3
4/17/96	604367	110	46	162.5
7/18/96	607334	120	54	182.9
8/15/96	608331	120	51	179.1
9/18/96	609338	110	43	160.9
10/16/96	610361	97	37	140.0
11/19/96	611331	94	42	141.0
12/17/96	612331	96	39	140.0
1/16/97	701336	99	46	150.7
2/13/97	702332	100	40	143.7
3/19/97	703344	88	23	114.6
4/17/97	704355	93	38	135.8
5/15/97	705347	71	32	107.6
6/18/97	706353	83	36	122.6
7/23/97	707360	67	34	103.1
9/15/97	709332	100	34	137.9
10/15/97	710358	92	31	127.2
11/19/97	711335	95	34	134.5
12/16/97	712318	140	68	208
1/15/98	801334	110	37	153.1
2/11/98	802336	110	38	155.3
NS	-	-	-	-
4/8/98	804337	78	30	114.4
5/20/98	805379	67	23	93.4
6/16/98	806353	89	30	124.6
7/1/98	807300	76	29	108.8
8/13/98	808040	120	41	168.5
9/16/98	809042	110	26	140.7
10/7/98	810021	120	68	193.4
11/17/98	811049	100	64	169
12/9/98	812045	110	66	180.7
1/7/99	901010	100	28	132.8
2/4/99	902014	100	26	129.3
3/3/99	903010	100	36	140.5
4/21/99	904091	100	32	137.0
5/14/99	905048	87	25	116.7
6/9/99	906040	79	25	108.3
NS	-	-	-	-
NS	-	-	-	-
9/2/99	909005	99	32	136.8
10/11/99	910036	75	23	102
11/10/99	911035	80	33	118.6
12/8/99	912027	87	36	129.5

NS: Not Sampled

Table 2
Influent Concentrations at VEW

Date	Laboratory Report No.	PCE (ppb)	DCE (ppb)	Total VOCs (ppb)
2/1/95	502304	5.3	0.8	6.1
2/15/95	502376	4	0.5	4.5
3/8/95	503317	1.5	0.3	1.8
4/10/95	504341	21	5.8	28.1
5/18/95	505371	1.4	<0.2	1.4
6/21/95	506396	25	9.4	39.8
7/12/95	507327	3.5	1.0	5.8
8/17/95	508405	6.4	1.1	17.7
9/13/95	509405	9.7	1.9	12.9
10/11/95	510335	9.3	1.8	12.5
11/22/95	511367	4.6	1.1	6.0
3/20/96	603347	270	72	344.3
4/17/96	604367	94	24	131.2
7/18/96	607334	47	14	70.6
8/15/96	608331	5.0	2.1	15.2
9/18/96	609338	3.1	2.1	15.8
10/16/96	610361	3.2	2.1	15.3
11/19/96	611331	0.8	1.8	13.6
12/17/96	612331	<0.5	2.0	15.0
1/16/97	701336	0.9	3.2	20.2
2/13/97	702332	1.0	2.4	19.2
3/19/97	703344	68	17	99.5
4/17/97	704355	2.8	3.4	24.4
5/15/97	705347	6.1	5.3	28.5
6/18/97	706353	3.8	4.2	23.5
7/23/97	707360	2.9	4.0	23.6
8/13/97	708339	57	50	124.8
9/15/97	709332	1.7	3.4	19.8
10/15/97	710358	3.2	3.1	20.5
11/19/97	711335	1.3	3.2	18.7
12/16/97	712318	1	4.8	21.7
1/15/98	801334	2.5	3.6	21.3
2/11/98	802336	2.9	3.7	22
NS	-	-	-	-
4/8/98	804337	6.4	5.0	23.7
5/20/98	805379	8.4	5.4	24.3
6/16/98	806353	11	6.2	29.1
7/1/98	807300	7.6	4.6	25.0
8/13/98	808040	5.6	3.8	18.2
9/16/98	809042	8.9	5.6	25.3
10/7/98	810021	10	9.4	31.7
11/17/98	811049	6.9	5.2	23.7
12/9/98	812045	7.9	5.6	25.4
1/7/99	901010	7.7	4.3	22.5
2/4/99	902014	7.0	4.0	20.0
3/3/99	903010	7.9	6.2	24.7
4/21/99	904091	17.0	8.9	34.8
NS	-	-	-	-
NS	-	-	-	-
7/6/99	907015	5.5	3.0	16.3
8/5/99	908021	5.4	3.2	16.3
9/2/99	909005	2.5	2.6	13.0
10/11/99	910036	0.7	0.9	8.3
11/10/99	911035	<0.5	1	8.7
12/8/99	912027	0.8	1.1	8.8

NS: Not Sampled

Table 3
Influent Concentrations at EW-1

Date	Laboratory Report No.	PCE (ppb)	DCE(ppb)	Total VOCs (ppb)
8/17/95	508405	3.5	0.9	5.4
9/13/95	509339	25	6.1	33.6
10/11/95	510335	49	8.8	61.4
11/22/95	511367	38	9.5	51.3
7/18/96	607334	20	5.7	28.2
8/15/96	608331	45	8.4	57.0
9/18/96	609338	37	7.8	48.8
10/16/96	610361	29	7.3	40.6
11/19/96	611331	32	7.0	43.2
12/17/96	612331	33	7.7	46.4
1/16/97	701336	36	9.2	51.6
2/13/97	702332	32	7.7	47.9
3/19/97	703344	29	5.7	42.7
4/17/97	704355	31	8.4	52.5
5/15/97	705347	27	9.7	50
6/18/97	706353	23	8.6	49.4
7/23/97	707360	25	9.5	51.9
8/13/97	708339	20	6.8	45.8
9/15/97	709332	21	8.5	49.7
10/15/97	710358	18	6.5	45
11/19/97	711335	20	9.7	52.1
12/16/97	712318	21	12	58
1/15/98	801334	20	11	58.5
2/11/98	802336	21	11	59.7
3/11/98	803324	20	16	62.7
4/8/98	804337	16	9.7	46.8
5/20/98	805379	16	9	43.5
6/16/98	806353	13	7.9	40.8
7/1/98	807300	12	7.7	40.7
8/13/98	808040	8.5	7	36.4
9/16/98	809042	3.2	2.7	7.4
10/7/98	810021	9.5	7.7	35.5
11/17/98	811049	10	7.5	34.6
12/9/98	812045	12	8.4	38.1
1/7/99	901010	10	5.8	31.6
2/4/99	902014	10	5.7	29.8
3/3/99	903010	8.2	6.9	28.9
4/21/99	904091	8.3	5.5	26.6
5/14/99	905048	7.1	4.6	24.1
6/9/99	906040	5.5	3.5	19.7
7/6/99	907015	6.1	4.1	22.7
8/5/99	908021	6.2	4.3	23.0
9/2/99	909005	5.5	4.6	21.6
10/11/99	910036	5	2.3	15.5
11/10/99	911035	4	2.4	15.3
12/8/99	912027	3.7	2.5	14.1

NS: Not Sampled

Table 4
Combined Influent Concentrations at PSMW-24, 25, and 26

Date	Laboratory Report No.	PCE (ppb)	DCE (ppb)	Total VOCs (ppb)
7/18/96	607334	49	55	110.6
8/15/96	608331	47	50	111.3
9/18/96	609338	58	44	106.3
10/16/96	610361	41	40	86.8
11/19/96	611331	46	44	95.2
12/17/96	612331	33	30	66.7
1/16/97	701336	41	41	86.5
2/13/97	702332	41	37	81.5
3/19/97	703344	37	23	63.0
4/17/97	704355	42	37	83.8
5/15/97	705347	33	30	66.4
6/18/97	706353	39	55	96.6
7/23/97	707360	37	36	75.2
8/13/97	708339	39	30	71.5
9/15/97	709332	42	34	78.4
10/15/97	710358	48	29	79.8
11/19/97	711335	41	34	77.5
12/16/97	712318	40	47	87
1/15/98	801334	33	25	60.6
2/11/98	802336	36	27	65.7
3/11/98	803324	30	31	63.4
4/8/98	804337	21	18	41
5/20/98	805379	18	12	31.1
6/16/98	806353	21	15	37.3
7/1/98	807300	18	16	35.2
8/13/98	808040	14	13	28.6
9/16/98	809042	6.5	4.4	27.9
10/7/98	810021	5	7.3	13.9
11/17/98	811049	22	17	39.7
12/9/98	812045	25	19	45
1/7/99	901010	22	15	38.2
2/4/99	902014	23	14	38.2
3/3/99	903010	20	16	37.1
4/21/99	904091	20	15	36.8
5/14/99	905048	18	14	32
6/9/99	906040	18	14	32.8
7/6/99	907015	22	18	40
8/5/99	908021	22	17	39
9/2/99	909005	17	12	29
10/11/99	910036	19	13	32
11/10/99	911035	18	13	31
12/8/99	912027	16	12	28.3

NS: Not Sampled

Table 5
Influent Concentrations at EW-3

Date	Laboratory Report No.	PCE (ppb)	DCE (ppb)	Total VOCs (ppb)
11/10/99	911035	5.1	2.9	8.6
12/8/99	912027	12	6.3	18.9

IV. Operational Activities

Operational activities during the fourth quarter included installation of two new extraction wells, and the associated piping and instrumentation. In addition, both of the GTS treatment trains (east and west) were put into operation to handle the increased influent flow rate from EW-3.

When EW-2 becomes operational next quarter, additional adjustments to the GTS may be necessary to obtain the maximum system influent flow rates.

V. Influent and Effluent Flow Volumes

Flow totalizing meters are present on each influent well line and on the effluent flow line. Table 6 below details flow volumes from each influent well and the effluent line. Differences between total influent and total effluent volumes may be attributed to water loss (evaporation) out the stack in the air stripper system and to differences, inaccuracies, and operational problems with the flow meters.

Table 6
Influent and Effluent Flow Volumes

Source	Meter Number	Start Reading	End Reading	Volume (Gallons)
Flow Volumes for October 1999:				
Influent (VEW)	Badger Meter No. 94976130	4,053,227	4,149,388	96,161
Influent (PSMW-16)	Hayes Meter No. 29408700	6,574,097	6,682,431	108,334
Influent (EW-1)	Hayes Meter No. 29408732	5,997,743	6,130,238	132,495
Influent (PSMW-24)	Fisher Porter Meter No. 960307112	5,947,610	6,124,150	176,540
Influent (PSMW-25)	Fisher Porter Meter No. 960307112	2,023,350	2,091,270	67,920
Influent (PSMW-26)	Fisher Porter Meter No. 960307112	2,590,330	2,593,800	3,470
Monitor Well Sample Purge				967
Effluent (to Golf Course)	Fisher Porter Meter No. 960307112	1,659,896	2,193,388	533,492
Flow Volumes for November 1999:				
Influent (VEW)	Badger Meter No. 94976130	4,149,388	4,221,371	71,983
Influent (PSMW-16)	Hayes Meter No. 29408700	6,682,431	6,766,896	84,465
Influent (EW-1)	Hayes Meter No. 29408732	6,130,238	6,236,117	105,879
Influent (EW-3)	NA	0	578,265	578,265
Influent (PSMW-24)	Fisher Porter Meter No. 960307112	6,124,150	6,260,020	135,870
Influent (PSMW-25)	Fisher Porter Meter No. 960307112	2,091,270	2,142,430	51,160
Influent (PSMW-26)	Fisher Porter Meter No. 960307112	2,593,800	2,607,800	14,000
Effluent (to Golf Course)	Fisher Porter Meter No. 960307112	2,193,388	3,249,979	1,056,591
Flow Volumes for December 1999:				
Influent (VEW)	Badger Meter No. 94976130	4,221,371	4,312,523	91,152
Influent (PSMW-16)	Hayes Meter No. 29408700	6,766,896	6,874,591	107,695
Influent (EW-1)	Hayes Meter No. 29408732	6,236,117	6,370,928	134,811
Influent (EW-3) New Meter	Badger Meter No. 15796517	0	476,552	476,552
Influent (EW-3) Old Meter	NA	578,265	991,190	412,925
Influent (PSMW-24)	Fisher Porter Meter No. 960307112	6,260,020	6,361,170	101,150
Influent (PSMW-25)	Fisher Porter Meter No. 960307112	2,142,430	2,209,630	67,200
Influent (PSMW-26)	Fisher Porter Meter No. 960307112	2,607,800	2,627,180	19,380
Effluent (to Golf Course)	Fisher Porter Meter No.960307112	3,249,979	4,890,147	1,640,168
Quarterly Total for Influent (VEW+PSMW-16+EW-1+PSMW-24+PSMW-25+PSMW-26+Monitor Well Sample Purge)				3,083,374
Quarterly Total for Effluent:				3,230,251
Annual Totals				
Annual Cumulative Influent Total for 1999:				7,728,540
Annual Cumulative Effluent Total for 1999:				7,770,822

VI. Laboratory Analysis

A. Influent and Effluent Sampling for Chlorinated VOCs (8021 Analysis)

During the fourth quarter, influent and effluent sampling was conducted pursuant to the routine schedule outlined in DP-1006, i.e., once each month. Chlorinated VOC analysis of GTS influent and effluent (after GAC unit) is shown graphically in Figure 7. More detailed data are shown in Table 6 below.

As noted above, the addition of EW-3 required the operation of both treatment trains (east and west) to handle the increased influent flow rate. Currently, the influent flow rate is directed equally through both treatment trains. Figures 8 and 9 graphically show the chlorinated VOC concentrations of the influent and effluent with the dual treatment train configuration.

Laboratory analytical data reports are contained in Appendix A. Influent and effluent sampling results indicate that the GTS has consistently removed chlorinated VOC contaminants in the 20 to 200 ppb range to levels below laboratory detection limits in the effluent sent to the golf course. Laboratory analysis of the water at a point after the air stripper and before the granular activated carbon treatment also show that at these influent concentrations and a flow rate of approximately 15 to 25 gpm, the air stripper alone is capable of treating the groundwater to concentrations consistently below or near laboratory detection limits for chlorinated VOCs.

Figure 7
Total VOCs GTS Influent vs. Effluent

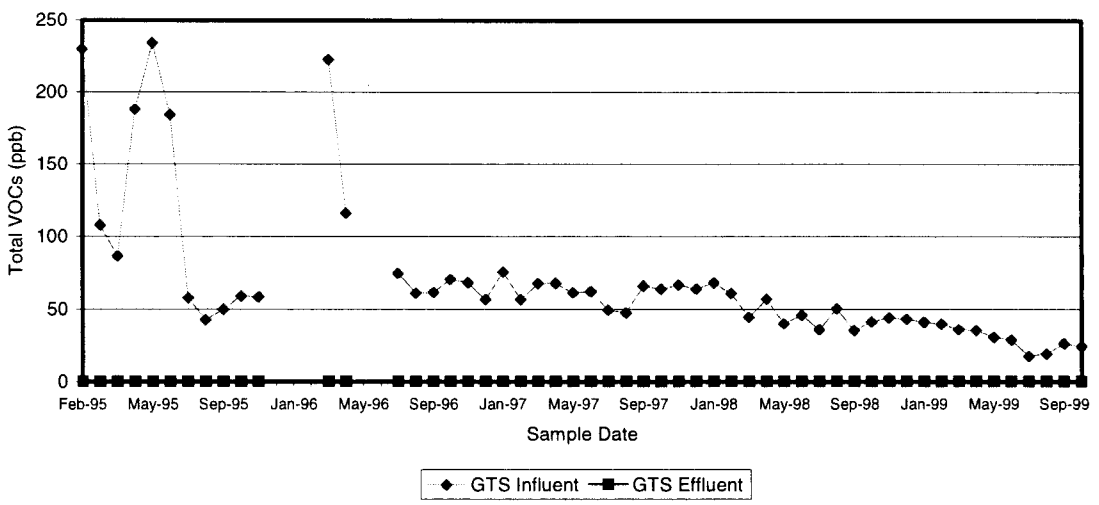


Figure 8
Total VOCs GTS Influent vs. Effluent - East

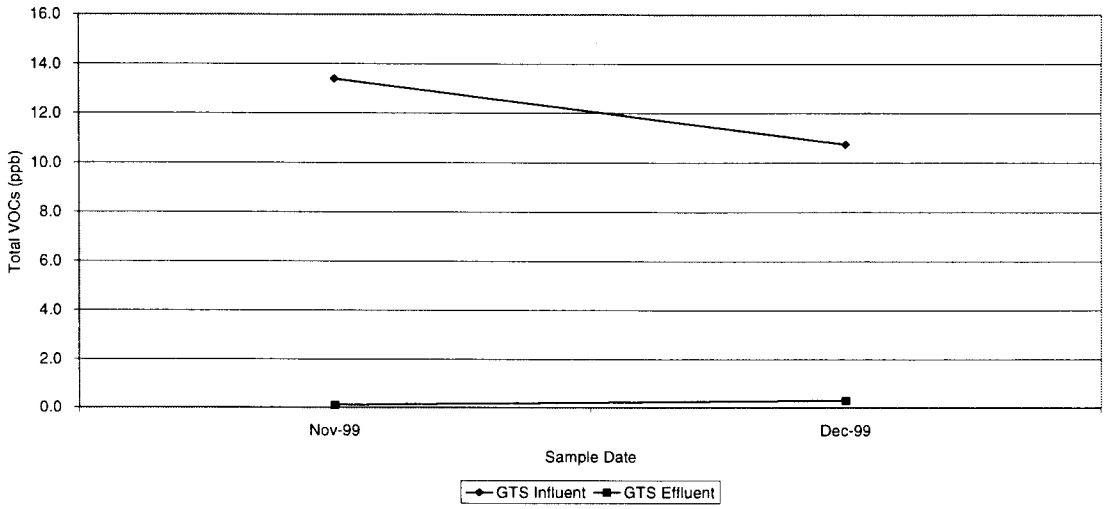


Figure 9
Total VOCs GTS Influent vs. Effluent - West

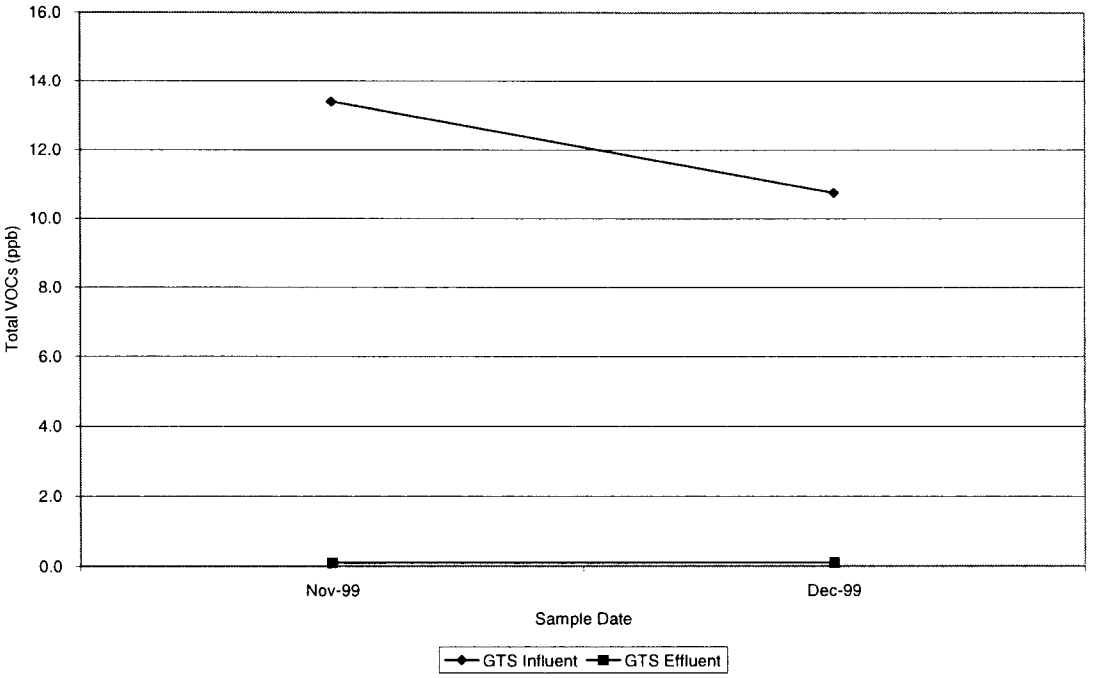


Table 7
Influent and Effluent VOC Concentrations

Sampling Date: 10/11/99	Lab Report Number: 910036		
VOC Compound	Influent (ppb)	Effluent After Air Stripper (ppb)	Effluent After GAC Unit (ppb)
1,1-Dichloroethane	2	< 0.3	< 0.3
1,1-Dichloroethene	5.9	< 0.2	< 0.2
Cis-1,2-Dichloroethene	0.2	< 0.2	< 0.2
Tetrachloroethene	15	< 0.5	< 0.5
1,1,1-Trichloroethane	1.0	< 1.0	< 1.0
TOTAL VOC'S	24.1	BDL	BDL

Sampling Date: 11/10/99	Lab Report Number: 911035				
VOC Compound	Influent (ppb)	Effluent After East Air Stripper (ppb)	Effluent After West Air Stripper (ppb)	Effluent After East GAC Unit (ppb)	Effluent After West GAC Unit (ppb)
1,1-Dichloroethane	2.2	< 0.3	< 0.3	< 0.3	< 0.3
1,1-Dichloroethene	7.6	0.4	0.3	< 0.2	< 0.2
Tetrachloroethene	17	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0
TOTAL VOC'S	26.8	0.4	0.3	BDL	BDL

Sampling Date: 12/8/99	Lab Report Number: 912027				
VOC Compound	Influent (ppb)	Effluent After East Air Stripper (ppb)	Effluent After West Air Stripper (ppb)	Effluent After East GAC Unit (ppb)	Effluent After West GAC Unit (ppb)
1,1-Dichloroethane	1.5	< 0.3	< 0.3	< 0.3	< 0.3
1,1-Dichloroethene	6	0.5	0.4	0.3	0.3
Tetrachloroethene	14	<0.5	< 0.5	< 0.5	< 0.5
TOTAL VOC'S	21.5	0.5	0.4	0.3	BDL

B. Effluent Sulfate Analysis and pH Monitoring

The June 1997 amendment to DP-1006 requires monthly sulfate analysis and daily pH monitoring of the GTS effluent. Table 8 presents the results of the fourth quarter sulfate analysis using EPA Method 375.4. The monthly minimum, maximum, and average pH readings for this quarter are shown in Table 9.

Table 8
GTS Effluent Sulfate Concentrations

Date	Lab Report Number	Sulfate (Mg/l)
10/11/99	910036	540
11/10/99	911035	110
12/8/99	912027	480

Table 9
Monthly pH Readings

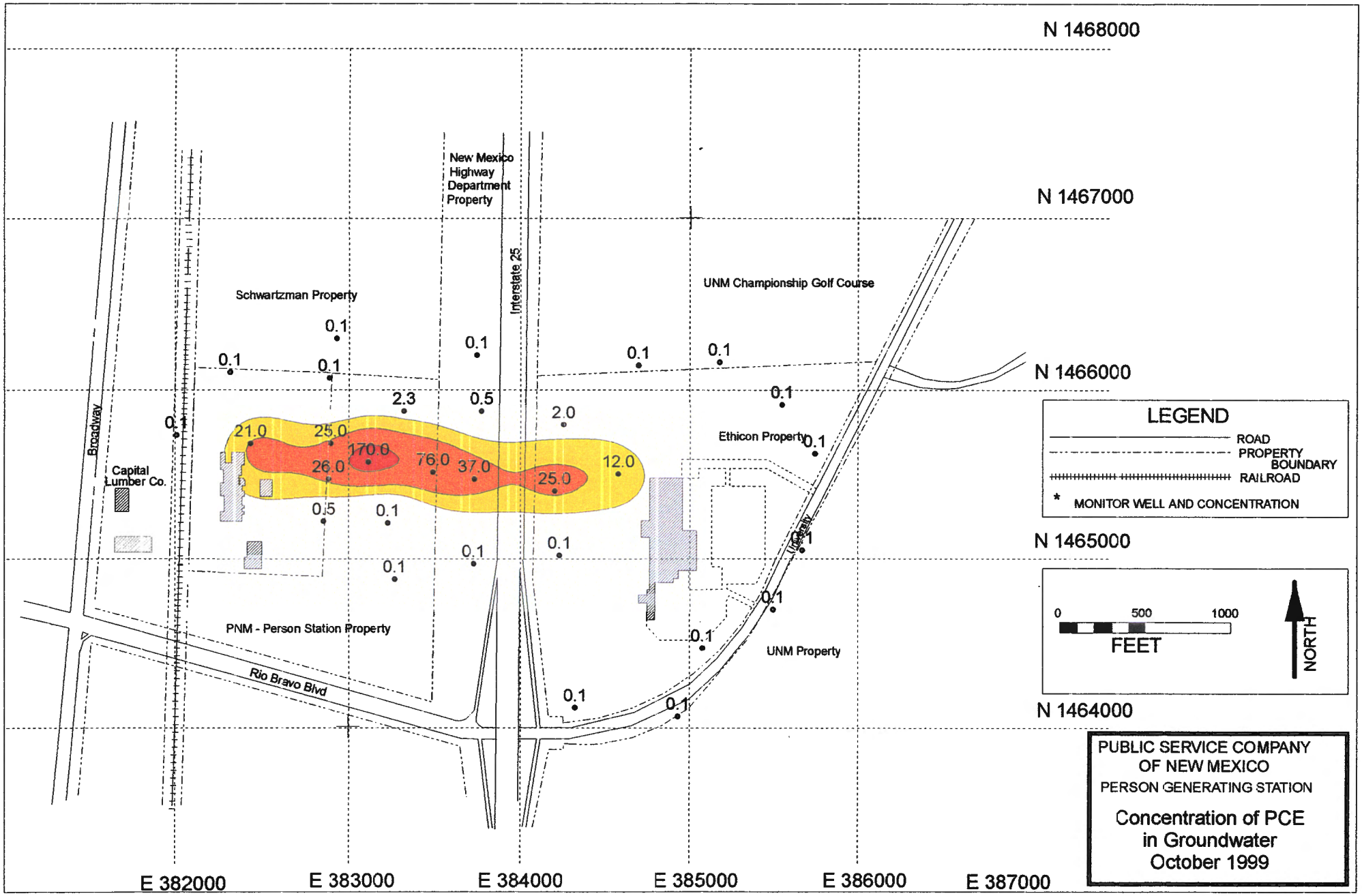
Date	Minimum pH	Maximum pH	Average pH
10/99	6.5	7.0	6.9
11/99	6.3	7.4	7.0
12/99	6.4	7.1	7.0

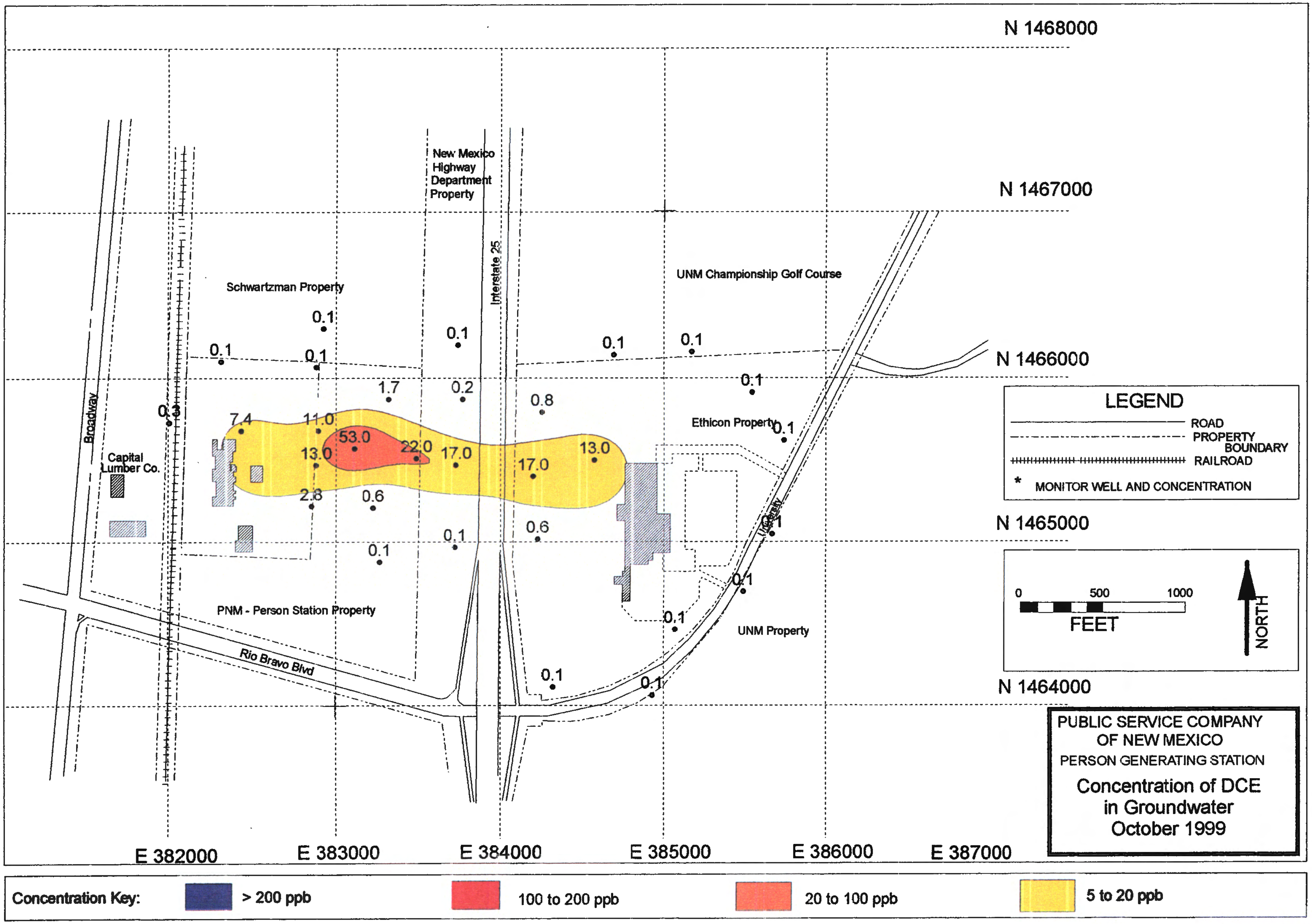
C. Golf Course Pond Sampling

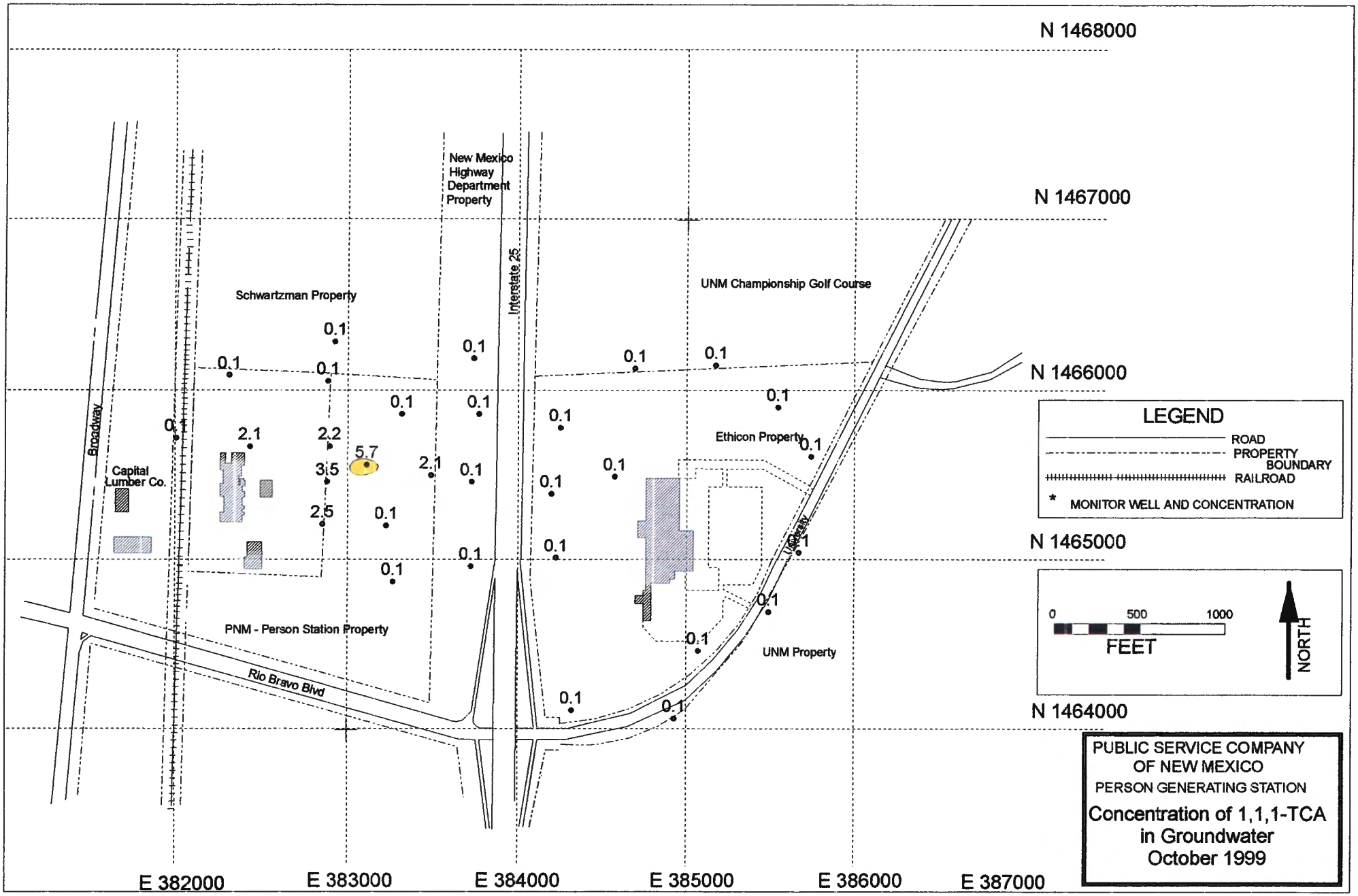
DP-1006 requires monthly sampling of the east and west ponds for 8021 (Halo) analysis during each month of operation. During the fourth quarter, the ponds were sampled three times pursuant to this requirement. No EPA Method 8021 (Halo) parameters were detected in the samples. Copies of the laboratory reports are contained in Appendix A.

VII. Groundwater Sampling

Under the RCRA permit, a network of groundwater monitoring wells are sampled on a twice per year schedule (normally in the spring and fall). Once sampling is complete and analytical results have been received, contour maps showing the areal extent and concentration of the contaminants in the groundwater are prepared. Contour maps for PCE, DCE, and TCA for the fall sampling event are shown in Figures 10, 11, and 12, respectively.


N 1468000
N 1467000
N 1466000
N 1465000
N 1464000
E 382000
E 383000
E 384000
E 385000
E 386000
E 387000
New Mexico Highway Department Property
Interstate 25
Schwartzman Property
UNM Championship Golf Course
Ethicon Property
Broadway
Capital Lumber Co.
PNM - Person Station Property
Rio Bravo Blvd
UNM Property
21.0
25.0
170.0
26.0
76.0
37.0
25.0
12.0
2.3
0.5
2.0
0.1
LEGEND
ROAD
PROPERTY BOUNDARY
RAILROAD
* MONITOR WELL AND CONCENTRATION
0
500
1000
FEET
NORTH
PUBLIC SERVICE COMPANY OF NEW MEXICO
PERSON GENERATING STATION
Concentration of PCE in Groundwater October 1999
Concentration Key:
> 200 ppb
100 to 200 ppb
20 to 100 ppb
5 to 20 ppb


N 1468000
N 1467000
N 1466000
N 1465000
N 1464000
E 382000
E 383000
E 384000
E 385000
E 386000
E 387000
New Mexico Highway Department Property
Interstate 25
Schwartzman Property
UNM Championship Golf Course
Ethicon Property
Broadway
Capital Lumber Co.
PNM - Person Station Property
Rio Bravo Blvd
UNM Property
0.1
0.1
0.1
0.1
0.1
0.1
0.1
0.3
7.4
11.0
53.0
13.0
22.0
17.0
17.0
13.0
1.7
0.2
0.8
2.8
0.6
0.6
LEGEND
ROAD
PROPERTY BOUNDARY
RAILROAD
* MONITOR WELL AND CONCENTRATION
0
500
1000
FEET
NORTH
PUBLIC SERVICE COMPANY OF NEW MEXICO
PERSON GENERATING STATION
Concentration of DCE in Groundwater October 1999
Concentration Key:
> 200 ppb
100 to 200 ppb
20 to 100 ppb
5 to 20 ppb



Concentration Key: > 200 ppb | 100 to 200 ppb | 20 to 100 ppb | 5 to 20 ppb

Appendix A. Laboratory Reports

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

Pinnacle Lab ID number **910036**
October 29, 1999

PUBLIC SERVICE COMPANY
ALVARADO SQUARE-ER16
ALBUQUERQUE, NM 87158

Project Name PERSON STATION
Project Number REMEDIATION

Attention: CHUCK ARATER

On 10/11/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

Sulfate analysis was performed at Environmental Services Laboratory, Portland, OR.

All other analyses were performed by Pinnacle Laboratories, Inc., Albuquerque, NM.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: PUBLIC SERVICE COMPANY	PINNACLE ID	: 910036
PROJECT #	: REMEDIATION	DATE RECEIVED	: 10/11/99
PROJECT NAME	: PERSON STATION	REPORT DATE	: 10/29/99

PIN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	GTS-INFLUENT	AQUEOUS	10/11/99
02	GTS-AIR STRIPPER EFFLUENT WEST	AQUEOUS	10/11/99
03	GTS GAC EFFLUENT WEST	AQUEOUS	10/11/99
04	UNM EAST RESERVOIR	AQUEOUS	10/11/99
05	UNM WEST RESERVOIR	AQUEOUS	10/11/99
06	VEW INFLUENT	AQUEOUS	10/11/99
07	PSMW-16 INFLUENT	AQUEOUS	10/11/99
08	EW-1 INFLUENT	AQUEOUS	10/11/99
09	PSMW-24,25,26 INFLUENT	AQUEOUS	10/11/99
10	SURGE TANK DISCHARGE	AQUEOUS	10/11/99
	TRIP BLANK	AQUEOUS	10/11/99

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : 8021 HALO
CLIENT : PUBLIC SERVICE COMPANY
PROJECT # : REMEDIATION
PROJECT NAME : PERSON STATION

PINNACLE I.D.: 910036

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	GTS-INFLUENT	AQUEOUS	10/11/99	NA	10/11/99	1
02	GTS-AIR STRIPPER EFFLUENT WEST	AQUEOUS	10/11/99	NA	10/11/99	1
03	GTS GAC EFFLUENT WEST	AQUEOUS	10/11/99	NA	10/11/99	1

PARAMETER	DET. LIMIT	UNITS	GTS-INFLUENT	GTS-AIR STRIPPER EFFLUENT WEST	GTS GAC EFFLUENT WEST
BROMODICHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
ARBON TETRACHLORIDE	0.2	UG/L	< 0.2	< 0.2	< 0.2
HLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
DIBROMOCHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHANE	0.3	**UG/L**	**2.0**	< 0.3	< 0.3
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.2	**UG/L**	**5.9**	< 0.2	< 0.2
cis-1,2-DICHLOROETHENE	0.2	**UG/L**	**0.2**	< 0.2	< 0.2
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
cis-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
METHYLENE CHLORIDE	2.0	UG/L	< 2.0	< 2.0	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TETRACHLOROETHENE	0.5	**UG/L**	**15**	< 0.5	< 0.5
1,1,1-TRICHLOROETHANE	1.0	**UG/L**	**1.0**	< 1.0	< 1.0
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
TRICHLOROETHENE	0.3	UG/L	< 0.3	< 0.3	< 0.3
TRICHLOROFLUOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			85	87	88
SURROGATE LIMITS	(73 - 117)				
TRIFLUOROTOLUENE (%)			NA	NA	NA
SURROGATE LIMITS	(69 - 117)				

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : 8021 HALO
CLIENT : PUBLIC SERVICE COMPANY
PROJECT # : REMEDIATION
PROJECT NAME : PERSON STATION

PINNACLE I.D.: 910036

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	UNM EAST RESERVOIR	AQUEOUS	10/11/99	NA	10/11/99	1
05	UNM WEST RESERVOIR	AQUEOUS	10/11/99	NA	10/11/99	1
06	VEW INFLUENT	AQUEOUS	10/11/99	NA	10/11/99	1

PARAMETER	DET. LIMIT	UNITS	UNM EAST RESERVOIR	UNM WEST RESERVOIR	VEW INFLUENT
BROMODICHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2	< 0.2	< 0.2
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
DIBROMOCHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHANE	0.3	**UG/L**	< 0.3	< 0.3	**5.2**
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.2	**UG/L**	< 0.2	< 0.2	**0.9**
cis-1,2-DICHLOROETHENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
cis-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
METHYLENE CHLORIDE	2.0	UG/L	< 2.0	< 2.0	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TETRACHLOROETHENE	0.5	**UG/L**	< 0.5	< 0.5	**0.7**
1,1,1-TRICHLOROETHANE	1.0	**UG/L**	< 1.0	< 1.0	**1.5**
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
TRICHLOROETHENE	0.3	UG/L	< 0.3	< 0.3	< 0.3
TRICHLOROFLUOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5

SURROGATE:				
BROMOCHLOROMETHANE (%)		90	92	89
SURROGATE LIMITS	(73 - 117)			
TRIFLUOROTOLUENE (%)		NA	NA	NA
SURROGATE LIMITS	(69 - 117)			

CHEMIST NOTES:

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : 8021 HALO
CLIENT : PUBLIC SERVICE COMPANY
PROJECT # : REMEDIATION
PROJECT NAME : PERSON STATION

PINNACLE I.D.: 910036

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	PSMW-16 INFLUENT	AQUEOUS	10/11/99	NA	10/11/99	1
08	EW-1 INFLUENT	AQUEOUS	10/11/99	NA	10/11/99	1
09	PSMW-24,25,26 INFLUENT	AQUEOUS	10/11/99	NA	10/11/99	1

PARAMETER	DET. LIMIT	UNITS	PSMW-16 INFLUENT	EW-1 INFLUENT	PSMW-24,25,26 INFLUENT
BROMODICHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2	< 0.2	< 0.2
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ILOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
DIBROMOCHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHANE	0.3	**UG/L**	**1.6**	**5.1**	< 0.3
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.2	**UG/L**	**23**	**2.3**	**13**
cis-1,2-DICHLOROETHENE	0.2	**UG/L**	**0.2**	< 0.2	< 0.2
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
cis-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
METHYLENE CHLORIDE	2.0	UG/L	< 2.0	< 2.0	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TETRACHLOROETHENE	0.5	**UG/L**	**75**	**5.0**	**19**
1,1,1-TRICHLOROETHANE	1.0	**UG/L**	**1.9**	**3.1**	< 1.0
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
TRICHLOROETHENE	0.3	**UG/L**	**0.3**	< 0.3	< 0.3
TRICHLOROFLUOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5
URROGATE:					
OMOCHLOROMETHANE (%)			78	79	84
SURROGATE LIMITS	(73 - 117)				
TRIFLUOROTOLUENE (%)			96	NA	NA
SURROGATE LIMITS	(69 - 117)				

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : 8021 HALO
CLIENT : PUBLIC SERVICE COMPANY
PROJECT # : REMEDIATION
PROJECT NAME : PERSON STATION

PINNACLE I.D.: 910036

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
11	TRIP BLANK	AQUEOUS	10/11/99	NA	10/11/99	1

PARAMETER	DET. LIMIT	UNITS	TRIP BLANK
BROMODICHLOROMETHANE	0.2	UG/L	< 0.2
BROMOFORM	0.5	UG/L	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2
CHLOROBENZENE	0.5	UG/L	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5
CHLOROFORM	0.5	UG/L	< 0.5
CHLOROMETHANE	1.0	UG/L	< 1.0
'BROMOCHLOROMETHANE	0.2	UG/L	< 0.2
.,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5
1,1-DICHLOROETHANE	0.3	UG/L	< 0.3
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5
1,1-DICHLOROETHENE	0.2	UG/L	< 0.2
cis-1,2-DICHLOROETHENE	0.2	UG/L	< 0.2
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2
cis-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2
METHYLENE CHLORIDE	2.0	UG/L	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5
TETRACHLOROETHENE	0.5	UG/L	< 0.5
1,1,1-TRICHLOROETHANE	1.0	UG/L	< 1.0
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2
TRICHLOROETHENE	0.3	UG/L	< 0.3
TRICHLOROFLUOROMETHANE	0.2	UG/L	< 0.2
VINYL CHLORIDE	0.5	UG/L	< 0.5

SURROGATE:

BROMOCHLOROMETHANE (%)		93
SURROGATE LIMITS	(73 - 117)	
TRIFLUOROTOLUENE (%)		NA
JRROGATE LIMITS	(69 - 117)	

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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Albuquerque, New Mexico 87107
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GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021		
BLANK I.D.	: 101199	PINNACLE I.D.	: 910036
CLIENT	: PUBLIC SERVICE COMPANY	DATE EXTRACTED	: NA
PROJECT #	: REMEDIATION	DATE ANALYZED	: 10/11/99
PROJECT NAME	: PERSON STATION	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
'BROMOCHLOROMETHANE	UG/L	<0.2
.,2-DIBROMOETHANE (EDB)	UG/L	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.3
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
cis-1,2-DICHLOROETHENE	UG/L	<0.2
trans-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
cis-1,3-DICHLOROPROPENE	UG/L	<0.2
trans-1,3-DICHLOROPROPENE	UG/L	<0.2
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.5
TETRACHLOROETHENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.3
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5

SURROGATE:		
BROMOCHLOROMETHANE (%)		88
SURROGATE LIMITS	(73 - 117)	
TRIFLUOROTOLUENE (%)		100
SURROGATE LIMITS	(69 - 117)	

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GAS CHROMATOGRAPHY - QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 910036-05	PINNACLE I.D.	: 910036
CLIENT	: PUBLIC SERVICE COMPANY	DATE EXTRACTED	: NA
PROJECT #	: REMEDIATION	DATE ANALYZED	: 10/11/99
PROJECT NAME	: PERSON STATION	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
CHLOROBENZENE	<0.5	10.0	9.8	98	10.5	105	7	(87 - 124)	20
1,1-DICHLOROETHENE	<0.2	10.0	8.7	87	8.2	82	6	(80 - 120)	20
TRICHLOROETHENE	<0.3	10.0	9.6	96	10.2	102	6	(89 - 127)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Environmental Services Laboratory, Inc. E S L

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 670-8520

October 19, 1999

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107
TEL: 505-344-3777
FAX (505) 344-4413

RE: 910036/PNM/Person Station Order No.: 9910046

Dear Kim McNeill,

Environmental Services Laboratory received 1 sample on 10/12/99 for the analyses presented in the following report.

The Samples were analyzed for the following tests:
Sulfate (Sulfate)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety, without the written approval from the Laboratory.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Kimberly Hill
Project Manager

Keith Hunter
Technical Review

Environmental Services Laboratory

Date: *19-Oct-99*

CLIENT:	Pinnacle Laboratories	**Client Sample ID:**	910036-01
Lab Order:	9910046	**Tag Number:**	
Project:	910036/PNM/Person Station	**Collection Date:**	10/11/99
Lab ID:	9910046-01A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SULFATE		**SULFATE**				Analyst: **sld**
Sulfate	540	310		mg/L	62.5	10/18/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Environmental Services Laboratory

Date: *19-Oct-99*

CLIENT: Pinnacle Laboratories
Work Order: 9910046
Project: 910036/PNM/Person Station

QC SUMMARY REPORT

Method Blank

Sample ID: **MBlank** Batch ID: **01 SULFATE** Test Code: **Sulfate** Units: **mg/L** Analysis Date **10/18/99** Prep Date:

Client ID: **9910046** Run ID: **HIT MAN_991018A** SeqNo: **25329**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5									

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

Environmental Services Laboratory

Date: *19-Oct-99*

CLIENT: Pinnacle Laboratories
Work Order: 9910046
Project: 910036/PNM/Person Station

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **9910064-01A DUP** Batch ID: **01 SULFATE** Test Code: **Sulfate** Units: **mg/L** Analysis Date **10/18/99** Prep Date:

Client ID: **9910046** Run ID: **HIT MAN_991018A** SeqNo: **25344**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate, Diss	ND	5	0	0	0.0%	80	120	0	0.0%	20	

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

Environmental Services Laboratory

Date: *19-Oct-99*

CLIENT: Pinnacle Laboratories
Work Order: 9910046
Project: 910036/PNM/Person Station

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS** Batch ID: **01 SULFATE** Test Code: **Sulfate** Units: **mg/L** Analysis Date **10/18/99** Prep Date:
Client ID: **9910046** Run ID: **HIT MAN_991018A** SeqNo: **25330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	11.2	5	12	0	93.3%	85	115	0			

Sample ID: **LCSD** Batch ID: **01 SULFATE** Test Code: **Sulfate** Units: **mg/L** Analysis Date **10/18/99** Prep Date:
Client ID: **9910046** Run ID: **HIT MAN_991018A** SeqNo: **25331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	11.6	5	12	0	96.7%	85	115	11.2	3.5%	20	

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

Pinnacle Laboratories, Inc.

Interlab Chain of Custody

Date: 10/11 Page: 1 of 1

Network Project Manager: Kimberly D. McNeill

Pinnacle Laboratories, Inc.
2709-D Pan American Freeway, NE
Albuquerque, New Mexico 87107
(505) 344-3777 Fax (505) 344-4413

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals (8) RCRA	RCRA TCLP METALS	Metals-13 PP List	Metals-TAL		TOX	TOC	Gen Chemistry : SO4		Oil and Grease	Volatile Organics GC/MS (8260)	BOD	COD	PESTICIDES/PCB (608/8080)	8270 BY GC/MS	PNA (8310)	8240 (TCLP 1311) ZHE	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	URANIUM	RADIUM 226+228	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS
910036-01	10/11	1030	AQ									X																

PROJECT INFORMATION	
PROJECT #:	910036
PROJ. NAME:	PNM
QC LEVEL:	STD. IV
QC REQUIRED:	MS MSD BLANK
TAT:	STANDARD RUSH!!
DUE DATE:	10/21
RUSH SURCHARGE:	—
CLIENT DISCOUNT:	—
SPECIAL CERTIFICATION REQUIRED:	YES NO

SAMPLE RECEIPT	
Total Number of Containers	
Chain of Custody Seals	
Received Intact?	
Received Good Cond./Cold	
LAB NUMBER:	9910046

COMMENTS:

SAMPLES SENT TO:	
PENSACOLA - STL-FL	
PORTLAND - ESL-OR	X
STL - CT	
STL- NEW JERSEY	
N. CREEK	
BARRINGER	
SEQUOIA	

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Francine Trino Time: 1700	Signature: Time:
Printed Name: Francine Trino Date: 10/11/99	Printed Name: Date:
Pinnacle Laboratories, Inc.	Company
RECEIVED BY: 1.	**RECEIVED BY: 2**
Signature: Kimberly Hill Time: 1930	Signature: Time:
Printed Name: Date: 10/12/99	Printed Name: Date:
Company	Company

American Environmental Network (NM), Inc.
Albuquerque • Phoenix • Pensacola • Portland • Pleasant Hills • Columbia

CHAIN OF CUSTODY

DATE: 10-11-99 PAGE: 2 OF 2

AEN LAB I.D. 910036

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: CHUCK ARATER

COMPANY: PUBLIC SERVICE COMPANY OF NEW MEXICO
ADDRESS: ALVARADO SQUARE - ER16
ALBUQUERQUE, NM 87158
PHONE: (505) 241-4744
FAX: (505) 241-2487
BILL TO: SAME
COMPANY:
ADDRESS: ATTN: CHUCK ARATER

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct/Inject		(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE(8020)	BTXE & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC &EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	S04	504.1 EDB / DBCP	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS		Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)		General Chemistry:			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
VEW INFLUENT	10-11-99	1049	W	06									X																				3
PSMW-16 INFLUENT	10-11-99	1052	W	07									X																				3
EW-1 INFLUENT	10-11-99	1050	W	08									X																				3
PSMW 24,25,26 INFLUENT	10-11-99	1053	W	09									X																				3
Surge TANK Discharge	10-11-99	1030	W	10										X																			1
TRIP BLANK	10/11/99	1005	W	11									X																				1

PROJECT INFORMATION	
PROJ. NO.:	REMEDIATION
PROJ. NAME:	PERSON STATION
P.O. NO.:	
SHIPPED VIA:	
SAMPLE RECEIPT	
NO. CONTAINERS	14
CUSTODY SEALS	Y/N/NA
RECEIVED INTACT	Y
BLUE ICE/ICE	Y/N

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☑

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS; FIXED FEE ☐ 4 copies Please

PLEASE PROVIDE DATA ON DISKETTE AS WELL AS EXTRA HARD COPY TO RON JOHNSON MS-0408

Direct from field

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: [signature] Time: 1215	Signature: Time:
Printed Name: CHUCK ARATER Date: 10-11-99	Printed Name: Date:
Company: PNM	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: [signature] Time: 1215
Printed Name: Date:	Printed Name: [signature] Date: 10/11/99
Company:	American Environmental Network (NM), Inc.

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

Pinnacle Lab ID number **911035**
November 18, 1999

PUBLIC SERVICE COMPANY
ALVARADO SQUARE-MS0408
ALBUQUERQUE, NM 87158

Project Name PERSON STATION
Project Number REMEDIATION

Attention: CHUCK ARATER

On 11/10/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

EPA method 8021 was performed by Pinnacle Laboratories, Inc., Albuquerque, NM.

All other parameters were performed by ESL (OR) Inc., Portland, OR.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: PUBLIC SERVICE COMPANY	PINNACLE ID	: 911035
PROJECT #	: REMEDIATION	DATE RECEIVED	: 11/10/99
PROJECT NAME	: PERSON STATION	REPORT DATE	: 11/18/99

PIN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	GTS-INFLUENT	AQUEOUS	11/10/99
02	GTS-AIR STRIPPER EFFLUENT EAST	AQUEOUS	11/10/99
03	GTS-AIR STRIPPER EFFLUENT WEST	AQUEOUS	11/10/99
04	GTS GAC EFFLUENT EAST	AQUEOUS	11/10/99
05	GTS GAC EFFLUENT WEST	AQUEOUS	11/10/99
06	UNM EAST RESERVOIR	AQUEOUS	11/10/99
07	UNM WEST RESERVOIR	AQUEOUS	11/10/99
08	VEW INFLUENT	AQUEOUS	11/10/99
09	PSMW-16 INFLUENT	AQUEOUS	11/10/99
10	EW-1 INFLUENT	AQUEOUS	11/10/99
	PSMW-24,25,26 INFLUENT	AQUEOUS	11/10/99
12	EW-3	AQUEOUS	11/10/99
13	SURGE TANK DISCHARGE	AQUEOUS	11/10/99
14	TRIP BLANK	AQUEOUS	11/10/99

PINNACLE LABORATORIES

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GAS CHROMATOGRAPHY RESULTS

TEST : 8021 HALO
CLIENT : PUBLIC SERVICE COMPANY
PROJECT # : REMEDIATION
PROJECT NAME : PERSON STATION

PINNACLE I.D.: 911035

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	GTS-INFLUENT	AQUEOUS	11/10/99	NA	11/16/99	1
02	GTS-AIR STRIPPER EFFLUENT EAST	AQUEOUS	11/10/99	NA	11/16/99	1
03	GTS-AIR STRIPPER EFFLUENT WEST	AQUEOUS	11/10/99	NA	11/16/99	1

PARAMETER	DET. LIMIT	UNITS	GTS-INFLUENT	GTS-AIR STRIPPER EFFLUENT EAST	GTS-AIR STRIPPER EFFLUENT WEST
BROMODICHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2	< 0.2	< 0.2
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
DIBROMOCHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHANE	0.3	**UG/L**	**2.2**	< 0.3	< 0.3
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.2	**UG/L**	**7.6**	**0.4**	**0.3**
cis-1,2-DICHLOROETHENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
cis-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
METHYLENE CHLORIDE	2.0	UG/L	< 2.0	< 2.0	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TETRACHLOROETHENE	0.5	**UG/L**	**17**	< 0.5	< 0.5
1,1,1-TRICHLOROETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
TRICHLOROETHENE	0.3	UG/L	< 0.3	< 0.3	< 0.3
TRICHLOROFLUOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			108	107	104
SURROGATE LIMITS	(71 - 126)				
TRIFLUOROTOLUENE (%)			NA	NA	NA
SURROGATE LIMITS	(72 - 130)				

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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GAS CHROMATOGRAPHY RESULTS

TEST : 8021 HALO
CLIENT : PUBLIC SERVICE COMPANY
PROJECT # : REMEDIATION
PROJECT NAME : PERSON STATION

PINNACLE I.D.: 911035

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	GTS GAC EFFLUENT EAST	AQUEOUS	11/10/99	NA	11/16/99	1
05	GTS GAC EFFLUENT WEST	AQUEOUS	11/10/99	NA	11/16/99	1
06	UNM EAST RESERVOIR	AQUEOUS	11/10/99	NA	11/16/99	1

PARAMETER	DET. LIMIT	UNITS	GTS GAC EFFLUENT EAST	GTS GAC EFFLUENT WEST	UNM EAST RESERVOIR
BROMODICHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2	< 0.2	< 0.2
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
DIBROMOCHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHANE	0.3	UG/L	< 0.3	< 0.3	< 0.3
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
cis-1,2-DICHLOROETHENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
cis-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
METHYLENE CHLORIDE	2.0	UG/L	< 2.0	< 2.0	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TETRACHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1,1-TRICHLOROETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
TRICHLOROETHENE	0.3	UG/L	< 0.3	< 0.3	< 0.3
TRICHLOROFLUOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			103	111	111
SURROGATE LIMITS	(71 - 126)				
TRIFLUOROTOLUENE (%)			NA	NA	NA
SURROGATE LIMITS	(72 - 130)				

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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GAS CHROMATOGRAPHY RESULTS

TEST : 8021 HALO
CLIENT : PUBLIC SERVICE COMPANY
PROJECT # : REMEDIATION
PROJECT NAME : PERSON STATION

PINNACLE I.D.: 911035

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	UNM WEST RESERVOIR	AQUEOUS	11/10/99	NA	11/16/99	1
08	VEW INFLUENT	AQUEOUS	11/10/99	NA	11/16/99	1
09	PSMW-16 INFLUENT	AQUEOUS	11/10/99	NA	11/16/99	1

PARAMETER	DET. LIMIT	UNITS	UNM WEST RESERVOIR	VEW INFLUENT	PSMW-16 INFLUENT
BROMODICHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2	< 0.2	< 0.2
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	**UG/L**	< 0.5	< 0.5	**1.1**
CHLOROMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
DIBROMOCHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHANE	0.3	**UG/L**	< 0.3	**6.3**	**1.9**
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.2	**UG/L**	< 0.2	**1.0**	**33**
cis-1,2-DICHLOROETHENE	0.2	**UG/L**	< 0.2	< 0.2	**0.2**
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
cis-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
METHYLENE CHLORIDE	2.0	UG/L	< 2.0	< 2.0	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TETRACHLOROETHENE	0.5	**UG/L**	< 0.5	< 0.5	**80**
1,1,1-TRICHLOROETHANE	1.0	**UG/L**	< 1.0	**1.4**	**2.4**
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
TRICHLOROETHENE	0.3	UG/L	< 0.3	< 0.3	< 0.3
TRICHLOROFLUOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			102	116	107
SURROGATE LIMITS	(71 - 126)				
TRIFLUOROTOLUENE (%)			NA	NA	106
SURROGATE LIMITS	(72 - 130)				

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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GAS CHROMATOGRAPHY RESULTS

TEST : 8021 HALO
CLIENT : PUBLIC SERVICE COMPANY
PROJECT # : REMEDIATION
PROJECT NAME : PERSON STATION

PINNACLE I.D.: 911035

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
10	EW-1 INFLUENT	AQUEOUS	11/10/99	NA	11/17/99	1
11	PSMW-24,25,26 INFLUENT	AQUEOUS	11/10/99	NA	11/17/99	1
12	EW-3	AQUEOUS	11/10/99	NA	11/17/99	1

PARAMETER	DET. LIMIT	UNITS	EW-1 INFLUENT	PSMW-24,25,26 INFLUENT	EW-3
BROMODICHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2	< 0.2	< 0.2
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
DIBROMOCHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHANE	0.3	**UG/L**	**5.8**	< 0.3	**0.6**
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.2	**UG/L**	**2.4**	**13**	**2.9**
cis-1,2-DICHLOROETHENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
cis-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
METHYLENE CHLORIDE	2.0	UG/L	< 2.0	< 2.0	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TETRACHLOROETHENE	0.5	**UG/L**	**4.0**	**18**	**5.1**
1,1,1-TRICHLOROETHANE	1.0	**UG/L**	**3.1**	< 1.0	< 1.0
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
TRICHLOROETHENE	0.3	UG/L	< 0.3	< 0.3	< 0.3
TRICHLOROFLUOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5

SURROGATE:				
BROMOCHLOROMETHANE (%)		106	105	104
SURROGATE LIMITS	(71 - 126)			
TRIFLUOROTOLUENE (%)		NA	NA	NA
SURROGATE LIMITS	(72 - 130)			

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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GAS CHROMATOGRAPHY RESULTS

TEST : 8021 HALO
CLIENT : PUBLIC SERVICE COMPANY
PROJECT # : REMEDIATION
PROJECT NAME : PERSON STATION

PINNACLE I.D.: 911035

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
14	TRIP BLANK	AQUEOUS	11/10/99	NA	11/17/99	1

PARAMETER	DET. LIMIT	UNITS	TRIP BLANK
BROMODICHLOROMETHANE	0.2	UG/L	< 0.2
BROMOFORM	0.5	UG/L	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2
CHLOROBENZENE	0.5	UG/L	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5
CHLOROFORM	0.5	UG/L	< 0.5
CHLOROMETHANE	1.0	UG/L	< 1.0
DIBROMOCHLOROMETHANE	0.2	UG/L	< 0.2
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5
1,1-DICHLOROETHANE	0.3	UG/L	< 0.3
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5
1,1-DICHLOROETHENE	0.2	UG/L	< 0.2
cis-1,2-DICHLOROETHENE	0.2	UG/L	< 0.2
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2
cis-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2
METHYLENE CHLORIDE	2.0	UG/L	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5
TETRACHLOROETHENE	0.5	UG/L	< 0.5
1,1,1-TRICHLOROETHANE	1.0	UG/L	< 1.0
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2
TRICHLOROETHENE	0.3	UG/L	< 0.3
TRICHLOROFLUOROMETHANE	0.2	UG/L	< 0.2
VINYL CHLORIDE	0.5	UG/L	< 0.5

SURROGATE:		
BROMOCHLOROMETHANE (%)		111
SURROGATE LIMITS	(71 - 126)	
TRIFLUOROTOLUENE (%)		NA
SURROGATE LIMITS	(72 - 130)	

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021		
BLANK I.D.	: 111699	PINNACLE I.D.	: 911035
CLIENT	: PUBLIC SERVICE COMPANY	DATE EXTRACTED	: NA
PROJECT #	: REMEDIATION	DATE ANALYZED	: 11/16/99
PROJECT NAME	: PERSON STATION	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.3
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
cis-1,2-DICHLOROETHENE	UG/L	<0.2
trans-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
cis-1,3-DICHLOROPROPENE	UG/L	<0.2
trans-1,3-DICHLOROPROPENE	UG/L	<0.2
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.5
TETRACHLOROETHENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.3
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5

SURROGATE:		
BROMOCHLOROMETHANE (%)		111
SURROGATE LIMITS	(71 - 126)	
TRIFLUOROTOLUENE (%)		105
SURROGATE LIMITS	(72 - 130)	

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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GAS CHROMATOGRAPHY - QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 911035-06	PINNACLE I.D.	: 911035
CLIENT	: PUBLIC SERVICE COMPANY	DATE EXTRACTED	: NA
PROJECT #	: REMEDIATION	DATE ANALYZED	: 11/17/99
PROJECT NAME	: PERSON STATION	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
CHLOROBENZENE	<0.5	10.0	10.5	105	10.5	105	0	(87 - 124)	20
1,1-DICHLOROETHENE	<0.2	10.0	8.3	83	8.1	81	2	(80 - 120)	20
TRICHLOROETHENE	<0.3	10.0	11.4	114	11.2	112	2	(89 - 127)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Environmental Services Laboratory, Inc.

E S L

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 670-8520

November 16, 1999

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107
TEL: 505-344-3777
FAX (505) 344-4413

RE: 911035/PNM/Person Station Order No.: 9911070

Dear Kim McNeill,

Environmental Services Laboratory received 1 sample on 11/11/99 for the analyses presented in the following report.

The Samples were analyzed for the following tests:
Sulfate (Sulfate)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety, without the written approval from the Laboratory.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Kimberly Hill
Project Manager

Keith Hunter
Technical Review

ANALYTICAL SERVICES FOR THE ENVIRONMENT

Environmental Services Laboratory

Date: *16-Nov-99*

CLIENT:	Pinnacle Laboratories	**Client Sample ID:**	911035-13
Lab Order:	9911070	**Tag Number:**	
Project:	911035/PNM/Person Station	**Collection Date:**	11/10/99
Lab ID:	9911070-01A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SULFATE		**SULFATE**				Analyst: **nmk**
Sulfate	110	25		mg/L	5	11/15/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Environmental Services Laboratory

Date: *16-Nov-99*

CLIENT: Pinnacle Laboratories
Work Order: 9911070
Project: 911035/PNM/Person Station

QC SUMMARY REPORT

Method Blank

Sample ID: **MBlank** Batch ID: **01 SULFATE** Test Code: **Sulfate** Units: **mg/L** Analysis Date **11/15/99** Prep Date:

Client ID: **9911070** Run ID: **HIT MAN_991115B** SeqNo: **28054**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5									

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

Environmental Services Laboratory

Date: *16-Nov-99*

CLIENT: Pinnacle Laboratories
Work Order: 9911070
Project: 911035/PNM/Person Station

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **9911069-01A DUP** Batch ID: **01 SULFATE** Test Code: **Sulfate** Units: **mg/L** Analysis Date **11/15/99** Prep Date:

Client ID: **9911070** Run ID: **HIT MAN_991115B** SeqNo: **28064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5	0	0	0.0%	80	120	0	0.0%	20	

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

Environmental Services Laboratory

Date: *16-Nov-99*

CLIENT: Pinnacle Laboratories
Work Order: 9911070
Project: 911035/PNM/Person Station

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **9911069-01A MS** Batch ID: **01 SULFATE** Test Code: **Sulfate** Units: **mg/L** Analysis Date **11/15/99** Prep Date:
Client ID: **9911070** Run ID: **HIT MAN_991115B** SeqNo: **28065**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	14	5	12	0	116.7%	75	125	0			

Sample ID: **9911069-01A MSD** Batch ID: **01 SULFATE** Test Code: **Sulfate** Units: **mg/L** Analysis Date **11/15/99** Prep Date:
Client ID: **9911070** Run ID: **HIT MAN_991115B** SeqNo: **28066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	14	5	12	0	116.7%	75	125	14	0.0%	20	

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

Environmental Services Laboratory

Date: *16-Nov-99*

CLIENT: Pinnacle Laboratories
Work Order: 9911070
Project: 911035/PNM/Person Station

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS** Batch ID: **01 SULFATE** Test Code: **Sulfate** Units: **mg/L** Analysis Date **11/15/99** Prep Date:

Client ID: **9911070** Run ID: **HIT MAN_991115B** SeqNo: **28055**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	12.7	5	13	0	97.7%	85	115	0			
Sulfate, Diss	12.7	5	13	0	97.7%	85	115	0			

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

Pinnacle Laboratories, Inc. **Interlab Chain of Custody** Date: 11/10 Page: 1 of 1

Network Project Manager: Kimberly D. McNeill

Pinnacle Laboratories, Inc.
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(505) 344-3777 Fax (505) 344-4413

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals (8) RCRA	RCRA TCLP METALS	Metals-13 PP List	Metals-TAL		TOX	TOC	Gen Chemistry : SO4		Oil and Grease	Volatile Organics GC/MS (8260)	BOD	COD	PESTICIDES/PCB (608/8080)	8270 BY GC/MS	PNA (8310)	8240 (TCLP 1311) ZHE	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	URANIUM	RADIUM 226+228	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS
911035-13	11/10	0923	AQ									X																

PROJECT INFORMATION	SAMPLE RECEIPT	SAMPLES SENT TO:	RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
PROJECT #: 911035	Total Number of Containers	PENSACOLA - STL-FL	Signature: Francine Trino Time: 1700	Signature: Time:
PROJ. NAME: PNM	Chain of Custody Seals	PORTLAND - ESL-OR X	Printed Name: Francine Trino Date: 11/10/99	Printed Name: Date:
QC LEVEL: STD IV	Received Intact?	STL - CT	Pinnacle Laboratories, Inc.	Company
QC REQUIRED: MS MSD BLANK	Received Good Cond./Cold	STL- NEW JERSEY	RECEIVED BY: 1.	RECEIVED BY: 2
TAT: STANDARD RUSH!!	LAB NUMBER: 9911070	N. CREEK	Signature: Time: 10A	Signature: Time:
DUE DATE: 11/22	COMMENTS:	BARRINGER	Printed Name: Date: 11/11/99	Printed Name: Date:
RUSH SURCHARGE: —		SEQUOIA	Company	Company
CLIENT DISCOUNT: —				
SPECIAL CERTIFICATION REQUIRED: YES NO				

American Environmental Network (NM), Inc.
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CHAIN OF CUSTODY

DATE 11-10-99 PAGE: 1 OF 2

AEN LAB I.D. 911035

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: CHUCK ARATER

COMPANY: PUBLIC SERVICE COMPANY OF NEW MEXICO
ADDRESS: ALVARADO SQUARE - ER16
ALBUQUERQUE, NM 87158
PHONE: (505) 241-4744
FAX: (505) 241-2487
BILL TO: SAME
COMPANY:
ADDRESS: ATTN: CHUCK ARATER

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct/Inject		(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE(8020)	BTXE & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC &EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)		504.1 EDB / DBCP	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS		Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)		General Chemistry:			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
GTS-INFLUENT	11-10-99	0954	W	01									X																				3
GTS-AIR STRIPPER EFFLUENT EAST	11-10-99	1215	W	02									X																				3
GTS-AIR STRIPPER EFFLUENT WEST	11-10-99	0952	W	03									X																				3
GTS GAC EFFLUENT EAST	11-10-99	1213	W	04									X																				3
GTS GAC EFFLUENT WEST	11-10-99	0950	W	05									X																				3
UNM EAST RESERVOIR	11-10-99	1246	W	06									X																				3
UNM WEST RESERVOIR	11-10-99	1252	W	07									X																				3
TRIP BLANK			W										X																				

PROJECT INFORMATION	
PROJ. NO.:	REMEDIATION
PROJ. NAME:	PERSON STATION
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS	21
CUSTODY SEALS	Y/N/NA
RECEIVED INTACT	YES
BLUE ICE/ICE	13°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☑

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS; FIXED FEE ☐ 4 copies please

PLEASE PROVIDE DATA ON DISKETTE AS WELL AS EXTRA HARD COPY TO RON JOHNSON MS-0408

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Chuck Arater Time: 1410	Signature: Time:
Printed Name: CHUCK ARATER Date: 11-10-99	Printed Name: Date:
Company: PNM	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Francine Tonno Time: 1410
Printed Name: Date:	Printed Name: Francine Tonno Date: 11/10/99
Company:	American Environmental Network (NM), Inc.

DISTRIBUTION: White, C -AEN Pink - ORIGINATOR

American Environmental Network (NM), Inc.
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CHAIN OF CUSTODY

DATE: 11-10-99 PAGE: 2 OF 2

AEN LAB I.D. 911035

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: CHUCK ARATER

COMPANY: PUBLIC SERVICE COMPANY OF NEW MEXICO
ADDRESS: ALVARADO SQUARE - ER16
ALBUQUERQUE, NM 87158
PHONE: (505) 241-4744
FAX: (505) 241-2487
BILL TO: SAME
COMPANY:
ADDRESS: ATTN: CHUCK ARATER

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct/Inject		(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE(8020)	BTXE & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC &EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	Total SO4	504.1 EDB / DBCP	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS		Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)		General Chemistry:			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
VEW INFLUENT	11-10-99	0955	W	08									X																				3
PSMW-16 INFLUENT	11-10-99	0957	W	09									X																				3
EW-1 INFLUENT	11-10-99	0956	W	10									X																				3
PSMW 24,25,26 INFLUENT	11-10-99	0959	W	11									X																				3
EW-3	11-10-99	1311	W	12									X																				3
														X																			
Surge Tk Discharge	11-12-99	0923	W	13										X																			1
TRIP BLANK	11-10-99		W	14									X																				1

PROJECT INFORMATION	
PROJ. NO.:	REMEDIATION
PROJ. NAME:	PERSON STATION
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS	17
CUSTODY SEALS	Y/N/NA
RECEIVED INTACT	YES
BLUE ICE/ICE	13°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☑

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS; FIXED FEE ☐ 4 copies please

PLEASE PROVIDE DATA ON DISKETTE AS WELL AS EXTRA HARD COPY TO RON JOHNSON MS-0408

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Chuck Arater Time: 1410	Signature: Time:
Printed Name: CHUCK ARATER Date: 11-10-99	Printed Name: Date:
Company: PNM	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Francine Junno Time: 1410
Printed Name: Date:	Printed Name: Francine Junno Date: 11/10/99
Company:	American Environmental Network (NM), Inc.

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

Pinnacle Lab ID number **912027**
December 17, 1999

PUBLIC SERVICE COMPANY
ALVARADO SQUARE-MS0408
ALBUQUERQUE, NM 87158

Project Name PERSON STATION
Project Number REMEDIATION

Attention: CHUCK ARATER

On 12/8/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

EPA method 8021 was performed by Pinnacle Laboratories, Inc., Albuquerque, NM.

All other parameters were performed by ESL (OR) Inc., Portland, OR.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: PUBLIC SERVICE COMPANY	PINNACLE ID	: 912027
PROJECT #	: REMEDIATION	DATE RECEIVED	: 12/8/99
PROJECT NAME	: PERSON STATION	REPORT DATE	: 12/16/99

PIN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	GTS-INFLUENT	AQUEOUS	12/8/99
02	GTS-AIR STRIPPER EFFLUENT EAST	AQUEOUS	12/8/99
03	GTS-AIR STRIPPER EFFLUENT WEST	AQUEOUS	12/8/99
04	GTS-GAC EFFLUENT EAST	AQUEOUS	12/8/99
05	GTS-GAC EFFLUENT WEST	AQUEOUS	12/8/99
06	UNM EAST RESERVOIR	AQUEOUS	12/8/99
07	UNM WEST RESERVOIR	AQUEOUS	12/8/99
08	TRIP BLANK	AQUEOUS	12/8/99
09	VEW INFLUENT	AQUEOUS	12/8/99
10	PSMW-16 INFLUENT	AQUEOUS	12/8/99
	EW-1 INFLUENT	AQUEOUS	12/8/99
12	PSMW-24,25,26 INFLUENT	AQUEOUS	12/8/99
13	EW-3	AQUEOUS	12/8/99
14	SURGE TANK DISCHARGE	AQUEOUS	12/8/99

PINNACLE LABORATORIES

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Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : 8021 HALO
CLIENT : PUBLIC SERVICE COMPANY
PROJECT # : REMEDIATION
PROJECT NAME : PERSON STATION

PINNACLE I.D.: 912027

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	GTS-INFLUENT	AQUEOUS	12/8/99	NA	12/9/99	1
02	GTS-AIR STRIPPER EFFLUENT EAST	AQUEOUS	12/8/99	NA	12/9/99	1
03	GTS-AIR STRIPPER EFFLUENT WEST	AQUEOUS	12/8/99	NA	12/9/99	1

PARAMETER	DET. LIMIT	UNITS	GTS-INFLUENT	GTS-AIR STRIPPER EFFLUENT EAST	GTS-AIR STRIPPER EFFLUENT WEST
BROMODICHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2	< 0.2	< 0.2
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
DIBROMOCHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1 3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
,-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHANE	0.3	**UG/L**	**1.5**	< 0.3	< 0.3
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.2	**UG/L**	**6.0**	**0.5**	**0.4**
cis-1,2-DICHLOROETHENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
cis-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
METHYLENE CHLORIDE	2.0	UG/L	< 2.0	< 2.0	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TETRACHLOROETHENE	0.5	**UG/L**	**14**	**0.9**	< 0.5
1,1,1-TRICHLOROETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
TRICHLOROETHENE	0.3	UG/L	< 0.3	< 0.3	< 0.3
TRICHLOROFLUOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5

SURROGATE:				
BROMOCHLOROMETHANE (%)		108	112	118
SURROGATE LIMITS	(71 - 126)			
TRIFLUOROTOLUENE(%)		NA	NA	NA
SURROGATE LIMITS	(72 - 130)			

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : 8021 HALO
CLIENT : PUBLIC SERVICE COMPANY
PROJECT # : REMEDIATION
PROJECT NAME : PERSON STATION

PINNACLE I.D.: 912027

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	GTS-GAC EFFLUENT EAST	AQUEOUS	12/8/99	NA	12/9/99	1
05	GTS-GAC EFFLUENT WEST	AQUEOUS	12/8/99	NA	12/9/99	1
06	UNM EAST RESERVOIR	AQUEOUS	12/8/99	NA	12/9/99	1

PARAMETER	DET. LIMIT	UNITS	GTS-GAC EFFLUENT EAST	GTS-GAC EFFLUENT WEST	UNM EAST RESERVOIR
BROMODICHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2	< 0.2	< 0.2
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
DIBROMOCHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1-DICHLOROETHANE	0.3	UG/L	< 0.3	< 0.3	< 0.3
ı,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.2	**UG/L**	**0.3**	< 0.2	< 0.2
cis-1,2-DICHLOROETHENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
cis-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
METHYLENE CHLORIDE	2.0	UG/L	< 2.0	< 2.0	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TETRACHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1,1-TRICHLOROETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
TRICHLOROETHENE	0.3	UG/L	< 0.3	< 0.3	< 0.3
TRICHLOROFLUOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5

SURROGATE:				
BROMOCHLOROMETHANE (%)		119	116	116
SURROGATE LIMITS	(71 - 126)			
TRIFLUOROTOLUENE(%)		NA	NA	NA
SURROGATE LIMITS	(72 - 130)			

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : 8021 HALO
CLIENT : PUBLIC SERVICE COMPANY
PROJECT # : REMEDIATION
PROJECT NAME : PERSON STATION

PINNACLE I.D.: 912027

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	UNM WEST RESERVOIR	AQUEOUS	12/8/99	NA	12/9/99	1
08	TRIP BLANK	AQUEOUS	12/8/99	NA	12/9/99	1
09	VEW INFLUENT	AQUEOUS	12/8/99	NA	12/10/99	1

PARAMETER	DET. LIMIT	UNITS	UNM WEST RESERVOIR	TRIP BLANK	VEW INFLUENT
BROMODICHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2	< 0.2	< 0.2
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
DIBROMOCHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHANE	0.3	**UG/L**	< 0.3	< 0.3	**5.6**
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.2	**UG/L**	< 0.2	< 0.2	**1.1**
cis-1,2-DICHLOROETHENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
cis-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
METHYLENE CHLORIDE	2.0	UG/L	< 2.0	< 2.0	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TETRACHLOROETHENE	0.5	**UG/L**	< 0.5	< 0.5	**0.8**
1,1,1-TRICHLOROETHANE	1.0	**UG/L**	< 1.0	< 1.0	**1.3**
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
TRICHLOROETHENE	0.3	UG/L	< 0.3	< 0.3	< 0.3
TRICHLOROFLUOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			107	113	120
SURROGATE LIMITS	(71 - 126)				
TRIFLUOROTOLUENE(%)			NA	NA	NA
SURROGATE LIMITS	(72 - 130)				

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : 8021 HALO
CLIENT : PUBLIC SERVICE COMPANY
PROJECT # : REMEDIATION
PROJECT NAME : PERSON STATION

PINNACLE I.D.: 912027

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
10	PSMW-16 INFLUENT	AQUEOUS	12/8/99	NA	12/10/99	1
11	EW-1 INFLUENT	AQUEOUS	12/8/99	NA	12/10/99	1
12	PSMW-24,25,26 INFLUENT	AQUEOUS	12/8/99	NA	12/10/99	1

PARAMETER	DET. LIMIT	UNITS	PSMW-16 INFLUENT	EW-1 INFLUENT	PSMW-24,25,26 INFLUENT
BROMODICHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
BROMOFORM	0.5	UG/L	< 0.5	< 0.5	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2	< 0.2	< 0.2
CHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
CHLOROFORM	0.5	**UG/L**	**1.3**	< 0.5	< 0.5
CHLOROMETHANE	1.0	UG/L	< 1.0	< 1.0	< 1.0
DIBROMOCHLOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2	< 0.2	< 0.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
1-DICHLOROETHANE	0.3	**UG/L**	**2.3**	**5.5**	**0.3**
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5	< 0.5	< 0.5
1,1-DICHLOROETHENE	0.2	**UG/L**	**36**	**2.5**	**12**
cis-1,2-DICHLOROETHENE	0.2	**UG/L**	**0.2**	< 0.2	< 0.2
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0	< 1.0	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
cis-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2	< 0.2	< 0.2
METHYLENE CHLORIDE	2.0	UG/L	< 2.0	< 2.0	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TETRACHLOROETHENE	0.5	**UG/L**	**87**	**3.7**	**16**
1,1,1-TRICHLOROETHANE	1.0	**UG/L**	**2.7**	**2.4**	< 1.0
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
TRICHLOROETHENE	0.3	UG/L	< 0.3	< 0.3	< 0.3
TRICHLOROFLUOROMETHANE	0.2	UG/L	< 0.2	< 0.2	< 0.2
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			116	109	113
SURROGATE LIMITS	(71 - 126)				
TRIFLUOROTOLUENE(%)			106	NA	NA
SURROGATE LIMITS	(72 - 130)				

CHEMIST NOTES:
N/A

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
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PINNACLE LABORATORIES

GAS CHROMATOGRAPHY RESULTS

TEST : 8021 HALO
CLIENT : PUBLIC SERVICE COMPANY
PROJECT # : REMEDIATION
PROJECT NAME : PERSON STATION

PINNACLE I.D.: 912027

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
13	EW-3	AQUEOUS	12/8/99	NA	12/10/99	1

PARAMETER	DET. LIMIT	UNITS	EW-3
BROMODICHLOROMETHANE	0.2	UG/L	< 0.2
BROMOFORM	0.5	UG/L	< 0.5
BROMOMETHANE	1.0	UG/L	< 1.0
CARBON TETRACHLORIDE	0.2	UG/L	< 0.2
CHLOROBENZENE	0.5	UG/L	< 0.5
CHLOROETHANE	0.5	UG/L	< 0.5
CHLOROFORM	0.5	UG/L	< 0.5
CHLOROMETHANE	1.0	UG/L	< 1.0
DIBROMOCHLOROMETHANE	0.2	UG/L	< 0.2
1,2-DIBROMOETHANE (EDB)	0.2	UG/L	< 0.2
1,2-DICHLOROBENZENE	0.5	UG/L	< 0.5
1,3-DICHLOROBENZENE	0.5	UG/L	< 0.5
1,4-DICHLOROBENZENE	0.5	UG/L	< 0.5
1,1-DICHLOROETHANE	0.3	**UG/L**	**0.6**
1,2-DICHLOROETHANE (EDC)	0.5	UG/L	< 0.5
1,1-DICHLOROETHENE	0.2	**UG/L**	**6.3**
cis-1,2-DICHLOROETHENE	0.2	UG/L	< 0.2
trans-1,2-DICHLOROETHENE	1.0	UG/L	< 1.0
1,2-DICHLOROPROPANE	0.2	UG/L	< 0.2
cis-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2
trans-1,3-DICHLOROPROPENE	0.2	UG/L	< 0.2
METHYLENE CHLORIDE	2.0	UG/L	< 2.0
1,1,2,2-TETRACHLOROETHANE	0.5	UG/L	< 0.5
TETRACHLOROETHENE	0.5	**UG/L**	**12**
1,1,1-TRICHLOROETHANE	1.0	UG/L	< 1.0
1,1,2-TRICHLOROETHANE	0.2	UG/L	< 0.2
TRICHLOROETHENE	0.3	UG/L	< 0.3
TRICHLOROFLUOROMETHANE	0.2	UG/L	< 0.2
VINYL CHLORIDE	0.5	UG/L	< 0.5

SURROGATE:		
BROMOCHLOROMETHANE (%)		110
SURROGATE LIMITS	(71 - 126)	
TRIFLUOROTOLUENE(%)		NA
SURROGATE LIMITS	(72 - 130)	

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
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GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021		
BLANK I.D.	: 120999	PINNACLE I.D.	: 912027
CLIENT	: PUBLIC SERVICE COMPANY	DATE EXTRACTED	: NA
PROJECT #	: REMEDIATION	DATE ANALYZED	: 12/9/99
PROJECT NAME	: PERSON STATION	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.3
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
cis-1,2-DICHLOROETHENE	UG/L	<0.2
trans-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
cis-1,3-DICHLOROPROPENE	UG/L	<0.2
trans-1,3-DICHLOROPROPENE	UG/L	<0.2
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.5
TETRACHLOROETHENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.3
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5

SURROGATE:		
BROMOCHLOROMETHANE (%)		112
SURROGATE LIMITS	(71 - 126)	
TRIFLUOROTOLUENE(%)		106
SURROGATE LIMITS	(72 - 130)	

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
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GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021		
BLANK I.D.	: 121099	PINNACLE I.D.	: 912027
CLIENT	: PUBLIC SERVICE COMPANY	DATE EXTRACTED	: NA
PROJECT #	: REMEDIATION	DATE ANALYZED	: 12/10/99
PROJECT NAME	: PERSON STATION	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.3
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
,1-DICHLOROETHENE	UG/L	<0.2
cis-1,2-DICHLOROETHENE	UG/L	<0.2
trans-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
cis-1,3-DICHLOROPROPENE	UG/L	<0.2
trans-1,3-DICHLOROPROPENE	UG/L	<0.2
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.5
TETRACHLOROETHENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.3
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5

SURROGATE:		
BROMOCHLOROMETHANE (%)		111
SURROGATE LIMITS	(71 - 126)	
TRIFLUOROTOLUENE(%)		105
SURROGATE LIMITS	(72 - 130)	

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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GAS CHROMATOGRAPHY - QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 912027-06	PINNACLE I.D.	: 912027
CLIENT	: PUBLIC SERVICE COMPANY	DATE EXTRACTED	: NA
PROJECT #	: REMEDIATION	DATE ANALYZED	: 12/9/99
PROJECT NAME	: PERSON STATION	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
CHLOROBENZENE	<0.5	10.0	10.1	101	11.3	113	11	(87 - 124)	20
1,1-DICHLOROETHENE	<0.2	10.0	8.7	87	9.3	93	7	(80 - 120)	20
TRICHLOROETHENE	<0.3	10.0	12.3	123	11.3	113	8	(89 - 127)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Environmental Services Laboratory, Inc. ESL

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 670-8520

December 16, 1999

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107
TEL: 505-344-3777
FAX (505) 344-4413

RE: 912027/PNM/Person Station Order No.: 9912061

Dear Kim McNeill,

Environmental Services Laboratory received 1 sample on 12/10/99 for the analyses presented in the following report.

The Samples were analyzed for the following tests:
Sulfate (Sulfate)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety, without the written approval from the Laboratory.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Kimberly Hill
Project Manager

Keith Hunter
Technical Review

Environmental Services Laboratory

Date: *16-Dec-99*

CLIENT:	Pinnacle Laboratories	**Client Sample ID:**	**912027-14**
Lab Order:	9912061	**Tag Number:**	
Project:	912027/PNM/Person Station	**Collection Date:**	12/8/99
Lab ID:	9912061-01A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
SULFATE		**SULFATE**				Analyst: **nmk**
Sulfate	480	250		mg/L	50	12/15/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Environmental Services Laboratory

Date: *16-Dec-99*

CLIENT: Pinnacle Laboratories
Work Order: 9912061
Project: 912027/PNM/Person Station

QC SUMMARY REPORT

Method Blank

Sample ID: **MBlank** Batch ID: **01 SULFATE** Test Code: **Sulfate** Units: **mg/L** Analysis Date **12/15/99** Prep Date:

Client ID: **9912061** Run ID: **HIT MAN_991215B** SeqNo: **30900**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	5									

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

Environmental Services Laboratory

Date: *16-Dec-99*

CLIENT: Pinnacle Laboratories
Work Order: 9912061
Project: 912027/PNM/Person Station

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **9912076-02A DUP** Batch ID: **01 SULFATE** Test Code: **Sulfate** Units: **mg/L** Analysis Date **12/15/99** Prep Date:

Client ID: **9912061** Run ID: **HIT MAN_991215B** SeqNo: **30906**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	114.5	25	0	0	0.0%	80	120	114	0.4%	20	

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

Environmental Services Laboratory

Date: *16-Dec-99*

CLIENT: Pinnacle Laboratories
Work Order: 9912061
Project: 912027/PNM/Person Station

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **9912076-02A MS** Batch ID: **01 SULFATE** Test Code: **Sulfate** Units: **mg/L** Analysis Date **12/15/99** Prep Date:
Client ID: **9912061** Run ID: **HIT MAN_991215B** SeqNo: **30907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	133	25	12	110	191.67%	75	125	0			MI

Sample ID: **9912076-02A MSD** Batch ID: **01 SULFATE** Test Code: **Sulfate** Units: **mg/L** Analysis Date **12/15/99** Prep Date:
Client ID: **9912061** Run ID: **HIT MAN_991215B** SeqNo: **30908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	129	25	12	110	158.33%	75	125	133	3.1%	20	MI

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

Environmental Services Laboratory

Date: *16-Dec-99*

CLIENT: Pinnacle Laboratories
Work Order: 9912061
Project: 912027/PNM/Person Station

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS** Batch ID: **01 SULFATE** Test Code: **Sulfate** Units: **mg/L** Analysis Date **12/15/99** Prep Date:

Client ID: **9912061** Run ID: **HIT MAN_991215B** SeqNo: **30901**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	11.9	5	12	0	99.2%	85	115	0			

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

Pinnacle Laboratories, Inc.

Interlab Chain of Custody

Date: 12/9 Page: 1 of 1

Network Project Manager: Kimberly D. McNeill

Pinnacle Laboratories, Inc.
2709-D Pan American Freeway, NE
Albuquerque, New Mexico 87107
(505) 344-3777 Fax (505) 344-4413

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals (8) RCRA	RCRA TCLP METALS	Metals-13 PP List	Metals-TAL		TOX	TOC	Gen Chemistry : SO4		Oil and Grease	Volatile Organics GC/MS (8260)	BOD	COD	PESTICIDES/PCB (608/8080)	8270 BY GC/MS	PNA (8310)	8240 (TCLP 1311) ZHE	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	URANIUM	RADIUM 226+228	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS
912027-14	12/8	1023	AQ									X																

PROJECT INFORMATION	SAMPLE RECEIPT	SAMPLES SENT TO:	RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
PROJECT #: 912027	Total Number of Containers	PENSACOLA - STL-FL	Signature: Time: Francine Torino 1700	Signature: Time:
PROJ. NAME: PNM	Chain of Custody Seals	PORTLAND - ESL-OR X	Printed Name: Date: Francine Torino 12/9/99	Printed Name: Date:
QC LEVEL: (STD) IV	Received Intact?	STL - CT	Pinnacle Laboratories, Inc.	Company
QC REQUIRED: MS MSD BLANK	Received Good Cond./Cold	STL- NEW JERSEY	RECEIVED BY: 1.	RECEIVED BY: 2
TAT: (STANDARD) RUSH!!	LAB NUMBER: 9912061	N. CREEK	Signature: Time: Kimberly Hi 10A	Signature: Time:
DUE DATE: 12/20	COMMENTS:	BARRINGER	Printed Name: Date: 12/10/99	Printed Name: Date:
RUSH SURCHARGE: —		SEQUOIA	Company	Company
CLIENT DISCOUNT: —				
SPECIAL CERTIFICATION REQUIRED: YE				

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 12-8-99 PAGE: 1 OF 2

PLI Accession #: 912027

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: CHUCK ARATER

COMPANY: PUBLIC SERVICE COMPANY OF NEW MEXICO
ADDRESS: ALVARADO SQUARE - ER16
ALBUQUERQUE, NM 87158
PHONE: (505) 241-4744
FAX: (505) 241-2487

BILL TO: SAME
COMPANY:
ADDRESS: ATTN: CHUCK ARATER

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject		(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline) MTBE	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐		8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081/8082)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310/8270-SIMS)	General Chemistry:		Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
GTS-INFLUENT	12/8/99	1036	W.	01									X																				3
GTS-AIR STRIPPER EFFLUENT EAST	12/8/99	1031	W.	02									X																				3
GTS-AIR STRIPPER EFFLUENT WEST	12/8/99	1034	W.	03									X																				3
GTS-GAC EFFLUENT EAST	12/8/99	1030	W.	04									X																				3
GTS-GAC EFFLUENT WEST	12/8/99	1029	W.	05									X																				3
UNM EAST RESERVIOR	12/8/99	1059	W.	06									X																				3
UNM WEST RESERVOIR	12/8/99	1105	W.	07									X																				3
TRIP BLANK	12/8/99		W.	08									X																				1

PROJECT INFORMATION

PROJ. NO.: Remediation
PROJ. NAME: Person Station
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	22
CUSTODY SEALS	Y/N/NA
RECEIVED INTACT	Y
BLUE ICE/ICE	14°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☑

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

4 copies Please

PLEASE PROVIDE DATA ON DISKETTE AS WELL AS EXTRA HARD COPY TO RON JOHNSON MS-0408

Direct from field

RELINQUISHED BY: 1.
Signature: [illegible] Time: 1140
Printed Name: CHUCK ARATER Date: 12-8-99
Company: PNM
See reverse side (Force Majeure)

RELINQUISHED BY: 2.
Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: 1.
Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: (LAB) 2.
Signature: [illegible] Time: 11:40
Printed Name: Cristy Froehlich Date: 12/8/99
Pinnacle Laboratories Inc.

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 12-8-99 PAGE: 2 OF 2

PLI Accession #: 912027

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: CHUCK ARATER

COMPANY: PUBLIC SERVICE COMPANY OF NEW MEXICO
ADDRESS: ALVARADO SQUARE - ER16
ALBUQUERQUE, NM 87158
PHONE: (505) 241-4744
FAX: (505) 241-2487

BILL TO: SAME
COMPANY:
ADDRESS: ATTN: CHUCK ARATER

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject		(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline) MTBE	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	Total Sulfate	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081/8082)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310/8270-SIMS)	General Chemistry:		Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
VEW INFLUENT	12/8/99	1037	W.	09									X																				3
PSMW-16 INFLUENT	12/8/99	1040	W.	10									X																				3
EW- 1 INFLUENT	12/8/99	1039	W.	11									X																				3
PSMW 24,25,26 INFLUENT	12/8/99	1041	W.	12									X																				3
EW-3	12/8/99	1042	W.	13									X																				3
EW-2																																	
Surge Tank Discharge	12/8/99	1023	W.	14												X																	1

PROJECT INFORMATION

PROJ. NO.: Remediation
PROJ. NAME: Person Station
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	16
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	Y
BLUE ICE/ICE	14°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☑

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

4 copies Please

PLEASE PROVIDE DATA ON DISKETTE AS WELL AS EXTRA HARD COPY TO RON JOHNSON MS-0408

Direct from field

RELINQUISHED BY: 1.
Signature: [illegible] Time: 1140
Printed Name: CHUCK ARATER Date: 12-8-99
Company: PNM
See reverse side (Force Majeure)

RELINQUISHED BY: 2.
Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: 1.
Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: (LAB) 2.
Signature: [illegible] Time: 11:40
Printed Name: C. Fritz Froehlich Date: 12/8/99
Pinnacle Laboratories Inc.