3R - 258

REPORTS

DATE:
3/2006

Lodestar Services, Incorporated

April 14, 2006

Mr. Roger Anderson
New Mexico Oil Conservation Division
1220 South Francis Drive
Santa Fe, New Mexico 87505

RE: Annual Report for Giant's Bloomfield Crude Station

Dear Mr. Anderson:

Lodestar Services, Incorporated is pleased to submit the enclosed copy of *Annual Report, Bloomfield Crude Station, Bloomfield, New Mexico, March 2006* on behalf of Giant Industries Arizona, Inc.

Please call Mr. Bill Robertson of Giant at (505) 632-4001 or myself at (505) 334-2791 with any questions regarding this submittal.

Respectfully Submitted,
LODESTAR SERVICES, INCORPORATED

Martin Nee

Cc. Mr. Bill Robertson, Giant
David Kirby, Giant
Mr. Denny Foust, OCD Aztec

Annual Report
Bloomfield Crude Station
Bloomfield, New Mexico

March 2006

Prepared For

Giant Industries, Inc.
Bloomfield, New Mexico

Project 30003

Lodestar Services, Incorporated
PO Box 3861 Farmington, NM 87499-3861 Office (505) 334-2791

TABLE OF CONTENTS

INTRODUCTION 3

METHODOLOGY 4

BIOVENTING 4
GROUND WATER SAMPLING 5
PRODUCT MONITORING 5

RESULTS 7

BIOVENTING 7

TABLE 1 BIOVENT HEADSPACE RESULTS 7

TABLE 2 BIOVENT LABORATORY RESULTS 8

TABLE 3 RESULTS OF AIR MONITORING 10

TABLE 4 CONCENTRATIONS OF HYDROCARBONS IN THE SOIL GAS FROM MONITORING AND INJECTION POINT WELL CASINGS 11

GROUND WATER SAMPLING 11

TABLE 5: GROUND WATER ELEVATION DATA 12

TABLE 6: GROUND WATER ANALYTICAL RESULTS 12

TABLE 7: GROUND WATER GENERAL CHEMISTRY RESULTS 14

MONITORING OF MW-2 15

TABLE 8: PRODUCT RECOVERY DATA MW-2 15

CONCLUSIONS 17

BIOVENTING 17
GROUND WATER SAMPLING 17

RECOMMENDATIONS 19

FIGURE 1: SITE LOCATION MAP 20

FIGURE 2: SITE MAP 21

FIGURE 3 BIOVENTING LAYOUT MAP 22

FIGURE 4: GROUND WATER ELEVATION CONTOUR MAP JANUARY 2006 23

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LIST OF APPENDICES

APPENDIX A: ANALYTICAL LABORATORY REPORTS

APPENDIX B: COMPREHENSIVE SUMMARY OF GROUND WATER ANALYSES

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Introduction

The following annual report describes work completed at Giant Industries, Inc.'s (Giant's) former Crude Station in Bloomfield, New Mexico since the previous annual report submitted in March 2005. The report includes data collected through January 2006 including:

- Bioventing quarterly carbon dioxide and oxygen monitoring measurements during 2005.
- Bioventing soil sampling in October 2005
- Groundwater sampling results from all wells on January 26, 2006
- Headspace readings from all monitoring and injection points on January 24, 2006.
- Monitoring of MW-2 for product during 2005.

The former Bloomfield Crude Station is located on the southwest corner of Blanco Boulevard and Fifth Street in the city of Bloomfield, San Juan County, New Mexico. The site occupies approximately 5.5 acres within the N ½, NW ¼, NW ¼ of Section 22, Township 29 North, Range 11 West. A regional location map is shown in Figure 1.

A 55,000 barrel crude oil storage tank was previously located at the site within an earthen berm, which occupied approximately 100,000 square feet on the west side of the former crude station. Tank 967-D and berms were removed between late 1995 and early 1996. Approximately 12,924 cubic yards of hydrocarbon impacted soil were removed and treated at Giant's Bisti land-farm. The excavation was backfilled and graded. Currently, the site is an unoccupied, open space. A site map presented as Figure 2 shows the boundary of the former excavation. West of the former tank site is a City of Bloomfield Electrical Substation and two well sites (Jan Redding #1 and Cook #1E) owned and operated by Manana Gas. To the west of the electric substation and Manana well sites, a vacant lot exists. What appears to be a monument may indicate a previous well site that has been plugged and abandoned. Historical research of this area indicate that several oil and possibly gas wells, may have once been operational on this lot, such as Bishop #1, Bishop #3, Hare #1 and Kittell #1 (Figure 2).

The former crude station has been the focus of a subsurface investigation where activities have included numerous soil borings and sampling, installation of seven ground water monitoring wells, excavation and offsite land farming of hydrocarbon impacted soil, and ground water sampling. The area of focused investigation is where the former crude oil storage tank numbered 967-D was located. A more detailed historical account can be found in a report previously submitted to the New Mexico Oil Conservation Division (NMOCD) titled *Comprehensive Report for the Bloomfield Crude Station*, dated January 2000. A chronology of site operations and investigations is found in the Golden Environmental Management report *Monitoring Well Installation, Ground Water Sampling and Bioventing Pilot Test Bloomfield Crude Station, Bloomfield, New Mexico*, dated July 2001.

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Methodology

During the time period covered in this report, the existing bioventing system was utilized, as well as quarterly monitoring of MW-2 for the presence of product (free-phase crude oil). Bioventing continues as described in the *March 2004 Annual Report* and according to *Bioventing Plan, July 2002* submitted to the New Mexico Oil Conservation Division in July 2002. Soil was sampled from monitoring and injection points of the bioventing system to evaluate effectiveness. Ground water was sampled from monitoring wells to track progress over the entire site. Groundwater sampling at all monitoring wells followed accepted industry practices. MW-2 was checked for presence of free phase crude oil using an oil/water interface probe.

Bioventing

Bioventing is the process of supplying air to indigenous microorganisms to enhance natural mineralization of hydrocarbons to carbon dioxide and water. Following a successful bioventing pilot test on June 20, 2001 bioventing was initiated on February 17, 2003.

System installation during 2003 included hand boring three inch holes with a hand auger, collecting soil samples at three-foot intervals and screening the samples using headspace techniques. Eight soil samples with the highest headspace readings were submitted to Pinnacle Laboratories in Albuquerque, NM for benzene, toluene, ethylbenzene, xylenes (BTEX), and total petroleum hydrocarbon (TPH) analyses by United States Environmental Protection Agency (USEPA) methods 8021 and 8015, respectively. Samples were collected in one quart plastic bags and split for headspace and laboratory analysis. Samples for laboratory analyses were immediately placed in four ounce glass jars, sealed, labeled, stored on ice, and shipped to the laboratory under strict chain-of-custody procedures.

Following sampling, one foot of one-inch diameter polyvinyl chloride 0.01-inch slotted well screen was set in each hole at approximately twelve feet beneath ground surface at thirty nine locations. Eighteen points are used for monitoring subsurface gasses and twenty one points are used to inject air. Monitoring and Injection point locations are shown on Figure 3.

Injection air is supplied by a Gast™ oil-less rotary vane compressor that supplies approximately 90 standard cubic feet per minute air. The compressor is housed in an existing office building on-site and travels through 1-1/2 inch PVC pipe to each injection point. Valves are located on each injection and monitoring point. The air is injected where field screening and laboratory analyses indicate elevated concentrations of hydrocarbons in the subsurface. Operations and maintenance are performed routinely to ensure the system is operational.

The compressor operates from 0600 hours to 1800 hours Monday through Fridays. Subsurface airflow and oxygen/carbon dioxide concentrations are monitored quarterly. Oxygen and carbon dioxide are measured using a GEM 500 ™ gas monitor. Each point is evacuated until the gas reading is stable.

Comparative soil samples were collected using a hand powered auger following approximately eight months of system operations during October 2003, and then yearly during October 2004

and October 2005. Soil samples were collected using a hand powered auger approximately two feet horizontally from where initial eight soil samples were collected and at the same depth as the original. These samples were also screened in the field using headspace techniques and submitted for laboratory analysis for BTEX and TPH by USEPA methods 8021 and 8015, respectively.

Ground Water Sampling

On January 26, 2006 ground water samples and depth-to-ground water measurements were collected from monitoring wells MW-2 through MW-7. Each well was checked for the presence of free phase crude oil. Samples were collected from the six monitor wells. Giant abandoned monitoring well MW-1 during excavation of the tank pad. MW-7 was sampled at the request of the NMOCD, although Giant believes groundwater impact at this location is not related to their operations as discussed in previous reports.

Using the previous quarter's analytical results, sampling began at the cleanest well and progressed to those containing higher concentrations of contaminants. Prior to sampling, depth to ground water and total depth of each well were measured with a Keck oil/water interface probe. Presence of any free phase crude oil was also investigated using the interface probe. The interface probe was decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement. The volume of water in the wells was calculated, and a minimum of three casing volumes of water was purged from each well using a disposable bailer. As water was extracted, pH, electric conductivity and temperature were monitored. The wells were purged until these properties had stabilized, indicating that the purge water was representative of aquifer conditions. These data were recorded within a bound field notebook.

Once each monitoring well was purged, ground water samples were collected by filling two 40-milliliter (mL) glass vials. The pre-cleaned and pre-preserved vials were filled and capped with no air inside to prevent degradation of the sample. Samples were labeled with the time and date of collection, as well as the origin of the sample. They were immediately sealed and packed on ice. The samples were shipped to Pinnacle Laboratories, Inc. (Pinnacle) in Albuquerque, New Mexico in a sealed cooler via Commercial Bus Lines. Proper chain-of-custody procedures were followed with logs documenting the project name and number, sampling point, location, field ID number, date, time, sample type, number of containers, analyses required and sampler's signatures (Appendix A). Pinnacle analyzed the samples for benzene, toluene, ethylbenzene and total xylenes (BTEX) by USEPA Method 8021.

Two 500 milliliter plastic bottles were filled with ground water for analysis of major cations and anions, total dissolved solids (TDS) and an ion balance by various EPA methods. These samples were labeled, stored on ice and submitted to Pinnacle Laboratories. The samples were labeled with the project name, sampling location, field identification number, date, time, sample type, analysis required. Strict chain-of-custody procedures were followed.

Product Monitoring

Since free phase crude oil was intermittently present in MW-2 during 2004, the well was monitored on a quarterly basis in 2005 to ensure product did not return. Presence or absence of

product was determined by measuring depth to water in the well with an oil/water interface probe.

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Results

Bioventing

The results from headspace field screening using a PhotoVac photoionization detector (PID) during monitoring and injection point installation in October, 2002 were as follows:

Table 1 Biovent Headspace Results

Location	DEPTH (feet)	PID (ppm)	Location	DEPTH (feet)	PID (ppm)	Location	DEPTH (feet)	PID (ppm)
IP-1	6	57.5	IP-21	6	3.5	MP-12	6	6.2
IP-1	9	57.5	IP-21	9	0.2	MP-12	9	8.9
IP-1	12	594	IP-21	12	4.8	MP-12	12	700
IP-10	6	756	IP-22		no PIDs	MP-13	6	6
IP-10	9	724	IP-23	6	0.3	MP-13	9	4.9
IP-10	12	212	ip-23	9.5	1.3	MP-13	13	650
IP-11	6	262	IP-3	9	240	MP-14	6	1.5
IP-11	9	543	IP-3	12	738	MP-14	9	6.9
IP-11	12.5	59.2	IP-4	6	102	MP-14	12	1.8
IP-12	6	2.9	IP-4	9	415	MP-15	6	0.4
IP-12	9	5.1	IP-4	12	618	MP-16	6	4.2
IP-12	13	616	IP-5	6	1.8	mp-16	9	no PIDs
IP-13	6	5.6	IP-5	9	768	mp-16	10.5	no PIDs
IP-13	9	2	IP-5	13	20.3	MP-2	6	69
IP-13	12	7.5	IP-6	6	187	MP-2	9	697
IP-14	6	0	IP-6	9	1005	MP-2	12	793
IP-14	9	0	IP-6	13	200	MP-3	6	777
IP-14	13.5	25.7	IP-7	3	2.2	MP-3	9	146
IP-15		no PIDs	IP-7	6	19	MP-3	12	23.8
IP-16	6	1.6	IP-7	9	655	MP-4	6	410
IP-16	9	728	IP-7	12	676	MP-4	9	122
IP-16	13	675	IP-8	3	29.2	MP-4	12	632
IP-17		no PIDs	IP-8	6	106	MP-5	6	37.6
IP-18	3	24.2	IP-8	9	439	MP-5	9	757
IP-18	6	106	IP-8	13	76	MP-5	12	865
IP-18	9	439	IP-9	3	102	MP-6	3	2.6
IP-18	12	10.3	IP-9	6	503	MP-6	6	2.1
IP-18	13	76	IP-9	9	74	MP-6	12	616
IP-19		no PIDs	IP-9	12	627	MP-7	3	224
IP-2	6	13.5	MP-1	6	2.3	MP-7	6	872
IP-2	9	786	MP-1	9	602	MP-7	9	708
IP-2	12.5	562	MP-1	13	203	MP-7	11	70.7
IP-20	3	1.5	MP-10	6	49.1	MP-8	6	30.3
IP-20	6	1.2	MP-10	9	733	MP-8	9	772
IP-20	9	1	MP-10	12	738	MP-8	12	602
IP-20	12	0.7	MP-11	6	0	MP-12	6	6.2
IP-21	3	0.4	MP-11	9	0	MP-12	9	8.9
MP-9		no PIDs	MP-11	12	732	MP-12	12	700

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Headspace readings were recorded where there was physical evidence of impacted soil. The results of laboratory analyses from eight of the highest headspace reading locations are shown in Table 2. Also included in Table 2 are the results of sampling from the same locations collected during subsequent years at the same depth approximately two and three feet from the original samples. Laboratory analytical reports and chain-of-custody documentation are included in Appendix A.

Table 2 Biovent Laboratory Results

Location (Oct 02)	Depth (feet)	PID (ppm)	Lab TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)
NMOCD Standard			100	10				50
MP-11	12	732	1290	2.9	nd	5.8	36	44.7
IP-16	9	728	5690	0.85	0.78	7.7	58	67.33
MP-8	9	772	nd	nd	nd	nd	nd	0
IP-12	12	616	2470	nd	nd	2.1	16	18.1
IP-7	12	676	4720	2.9	nd	7.6	51	61.5
MP-3	6	777	750	2	0.3	3.2	23	28.5
MP-7	6	872	2830	2	3.3	8.6	56	69.9
IP-10	6	756	1470	0.42	0.14	0.11	1.1	1.77

Location (Oct 03)	Depth (feet)	PID (ppm)	Lab TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)
NMOCD Standard			100	10				50
MP-11	12	191	157	nd	nd	nd	nd	0
IP-16	9	110	2600	nd	nd	nd	nd	0
MP-8	9	149	nd	nd	nd	nd	nd	0
IP-12	12	190	720	nd	nd	nd	nd	0
IP-7	12	287	1299	nd	nd	nd	0.29	0.29
MP-3	6	314	400	nd	nd	nd	nd	0
MP-7	6	3964	4700	3.5	nd	10	89	102.5
IP-10	6	311	21	nd	nd	nd	nd	0

Location (Oct 04)	Depth (feet)	PID (ppm)	Lab TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)
NMOCD Standard			100	10				50
MP-11	12	0.0	nd	nd	nd	nd	nd	0
IP-16	9	0.0	540	nd	nd	nd	nd	0
MP-8	9	149	nd	nd	0.027	nd	nd	0.027
IP-12	12	253	nd	nd	nd	nd	nd	0
IP-7	12	123	139	nd	nd	nd	nd	0
MP-3	6	0.0	nd	nd	nd	nd	nd	0
MP-7	6	994	2330	3.5	nd	2.7	35	41.2

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IP-10	6	262	nd	nd	nd	nd	0.083	0.083

Location (Oct 05)	Depth (feet)	PID (ppm)	Lab TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)
NMOCD Standard			100	10				50
MP-11	12	7.49	nd	nd	nd	nd	nd	0
IP-16	9	0.0	52	nd	nd	nd	nd	0
MP-8	9	56.2	nd	nd	nd	nd	nd	0
IP-12	12	120	770	nd	nd	nd	nd	0
IP-7	12	6.2	55	nd	nd	nd	nd	0
MP-3	6	0.0	39	nd	nd	nd	nd	0
MP-7	6	443	2040	nd	nd	6.0	32	38.2
IP-10	6	30.3	nd	nd	nd	nd	nd	0

Yearly Comparison of Laboratory Results

		2002-2003		2003-2004		2004-2005	
Hole	Depth (feet)	% Change Lab TPH mg/kg	% Change Total BTEX mg/kg	% Change Lab TPH mg/kg	% Change Total BTEX mg/kg	% Change Lab TPH mg/kg	% Change Total BTEX mg/kg
MP-11	12	-88%	-100%	-100%	nc	nc	nc
IP-16	9	-54%	-100%	-79%	nc	-90%	nc
MP-8	9	nc	nc	nc	nc	nc	nc
IP-12	12	-71%	-100%	-100%	nc	100%	nc
IP-7	12	-72%	-99.5%	-89%	-100%	-60%	nc
MP-3	6	-47%	-100%	-100%	nc	100%	nc
MP-7	6	66%	47%	-50%	-60%	-12%	-7%
IP-10	6	-99%	-100%	-100%	nc	nc	nc
Ave.		-52%	-79%	-88.0%	-79.9%	7.6%	-7%

nc: no change; nd: not detected; wells with no change in values were not used in average change calculations.

As shown on the above Table 2, Laboratory reports indicate a consistent decrease of the BTEX constituents since bioventing operations began. BTEX was not detected in 7 of 8 samples. In MP-7, BTEX concentration was below NMOCD's *Guidelines for Remediation of Leaks, Spills and Releases*.

TPH levels in the monitoring wells have generally decreased during bioventing operations. During 2004 three locations were above NMOCD standards for TPH. Results for 2005 sampling indicate two samples over standards. Increased TPH concentrations were detected in samples from IP-12 and MP-3 during 2005. Both of these wells reported no concentration of TPH during 2004 sampling. MP-3 concentrations of TPH are below NMOCD guidelines. IP-12 contains 770 mg/kg. The concentrations of TPH in MP-7 decreased in 2005 but remained over standards at 2040 mg/kg.

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The results of carbon dioxide and oxygen measurements during bioventing are shown in the following table. The pump used to inject air into the subsurface failed and was being repaired during the scheduled fourth quarter 2005 monitoring event. No readings were obtained for that time period.

Table 3 Results of Air Monitoring

Monitoring Point	Oxygen Percentage at Monitoring Points				Carbon Dioxide Percentage at Monitoring Points			
	Pretest	2003 ave.	2004 ave.	2005 ave.	Pretest	2003 ave.	2004 ave.	2005 ave.
IP10	17.20	3.15	12.38	4.8	1.8	6.52	10.95	4.87
IP11	20.90	9.51	8.63	13.5	0	1.03	11.90	4.47
IP13	20.90	8.62	18.95	18.3	0.2	1.74	1.38	2.07
IP14	19.90	5.77	4.50	3.4	1	6.84	10.05	13.73
IP15	20.90	0.07	19.93	20.3	0.8	1.21	0.33	0.47
IP17	20.90	0.44	19.20	19.0	1	1.10	1.25	2.13
IP19	20.90	9.27	16.20	18.1	0.4	1.24	3.50	2.37
IP20	20.50	5.88	7.18	13.5	0.6	6.36	8.40	5.80
IP21	20.90	8.33	18.10	19.7	1.4	1.20	2.20	4.10
IP22	20.90	0.14	17.50	18.3	0.4	0.94	1.85	2.33
IP23	20.90	0.69	19.33	18.7	0.6	0.66	0.77	2.03
IP8	20.20	3.25	4.80	0.03	0.8	13.43	10.58	3.50
MP14	19.20	14.20	8.30	14.1	1	3.34	7.98	5.33
MP15	20.90	18.40	14.88	14.2	0.6	1.82	3.68	3.43
MP16	20.90	20.11	18.95	19.5	0.06	0.97	1.40	1.43
MP4	19.00	1.94	6.15	2.0	1.2	12.05	14.45	6.33
MP7	18.60	6.56	7.85	14.2	1.4	5.60	8.25	4.2
MP9	20.50	13.13	18.88	19.3	1	1.89	0.98	1.5
Average	20.23	13.86	13.43	13.90	0.79	3.77	5.55	3.53

Data from 2003 includes data from 2/03,3/03,10/03 and 1/04. Data from 2004 includes quarterly data from 4/04,7/04,10/04 and 1/05. Data from 2005 includes data from 4/05, 7/05 and 10/05.

Measurements at individual monitoring points are shown on the Bioventing Data tables in Appendix B. Air monitoring points were, for the most part, installed away from the injection points that were installed in the areas of highest hydrocarbon concentrations. Because these points were away from hydrocarbons and hence biologic activity, initial oxygen concentrations were typically higher and carbon dioxide concentrations typically lower than readings in areas of higher hydrocarbon concentrations. The average oxygen concentration at all monitoring points decreased slightly in 2004, but returned to 2003 levels during 2005. Average concentration of carbon dioxide increased in 2004 and returned to 2003 levels during 2005.

As recommended in the 2004 Annual Report, the bioventing system was shut down and concentrations of hydrocarbons in the soil gas at all monitoring and injection points were measured using headspace analysis with a PID. The soil gas measurements were collected in January, one week after it was discovered that the pump had malfunctioned and quit working.

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Results are shown in Table 4. Values are zero or so low they are insignificant, at most locations. The highest readings are 155 at MP-4, 104 at IP-8 and 50 at MP-7.

Table 4 Concentrations of Hydrocarbons in the Soil Gas from Monitoring and Injection Point Well Casings

Monitoring or Injection Point	Headspace Reading (ppm)	
IP1	0	Injection Point
IP2	0	Injection Point
IP3	1.0	Injection Point
IP4	2.6	Injection Point
IP5	0	Injection Point
IP6	0	Injection Point
IP7	0	Injection Point
IP8	104	Monitoring Point
IP9	0	Monitoring Point
IP10	0	Monitoring Point
IP11	2.7	Monitoring Point
IP12	0	Injection Point
IP13	0	Monitoring Point
IP14	0	Monitoring Point
IP15	0	Monitoring Point
IP16	1.4	Injection Point
IP17	0	Monitoring Point
IP18	0	Injection Point
IP19	0	Monitoring Point
IP20	0	Monitoring Point
IP21	0	Monitoring Point
IP22	0	Monitoring Point
IP23	0	Monitoring Point
MP1	0	Injection Point
MP2	0	Injection Point
MP3	3.9	Injection Point
MP4	155	Monitoring Point
MP5	0	Injection Point
MP6	0	Injection Point
MP7	50	Monitoring Point
MP8	0	Injection Point
MP9	0	Monitoring Point
MP10	0	Injection Point
MP11	0	Injection Point
MP12	0	Injection Point
MP13	0	Injection Point
MP14	0	Monitoring Point
MP15	0	Monitoring Point
MP16	0	Monitoring Point

Ground Water Sampling

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Depth-to-water measurements taken during January 2006 are shown in Table 5. During January 2006, water depth ranged from 21.95 feet beneath the top of the well casing (BTOC) in MW-7 to 14.07 feet BTOC in MW-3. Product was found in MW-2 during January 2004 through August 2004 and absent September 2004 to date. Free phase crude oil has never been found in any of the other wells. Ground water elevations were calculated, and inferred ground water elevation contour map is presented as Figure 4. Based on the contours, ground water movement appears to be to the southwest and the hydraulic gradient is 0.016 feet per feet.

Table 5: Ground Water Elevation Data

Well Number	Casing Elevation (ft)	Date	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Groundwater Elevation (ft)
MW-2	5485.33	1/26/06	14.67	np	np	5470.66
MW-3	5488.61	1/26/06	14.07	np	np	5474.54
MW-4	5486.18	1/26/06	14.79	np	np	5471.39
MW-5	5481.61	1/26/06	15.21	np	np	5466.40
MW-6	5486.18	1/26/06	16.88	np	np	5469.30
MW-7	5491.86	1/26/06	21.95	np	np	5469.88

Notes:
Measuring points are marked by a notch in top of well casing
na: not applicable
np: indicates there was no free phase product present
Groundwater Elevation = (Surveyed Well Casing Elevation) - (Depth to Water)
Water level elevation is given in feet above mean sea level
* MW-1 was abandoned by Giant in 2000

Laboratory analytical results for BTEX are presented in Table 6. Complete reports from Pinnacle Laboratories are included in Appendix A. During January 2006, BTEX was not detected in the groundwater from MW-3, MW-4 and MW-5. Only trace amounts of ethylbenzene and xylenes were found in MW-6. The concentrations of benzene in MW-2 and MW-7 were over New Mexico Water Quality Control Commission (NMWQCC) standards at 250 µg/L and 1400 µg/L, respectively. Both wells showed decreased concentrations of benzene compared to 2004 levels. Toluene was not detected in these wells. Ethylbenzene concentrations were 410 µg/L in MW-2 and 280 µg/L in MW-7, beneath NMWQCC standards. Xylenes in MW-2 and MW-7 were over NMWQCC standards at 790 µg/L and 1500 µg/L, respectively.

Table 6: Ground Water Analytical Results

NMWQCC Standards		Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
		10	750	750	620
MW-2	Sep-94	640	600	82	690
	Apr-95	220	280	53	430
	Sep-99	NSP	NSP	NSP	NSP
	Dec-99	NSP	NSP	NSP	NSP
	May-01	NSP	NSP	NSP	NSP
	May-02	NSP	NSP	NSP	NSP

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NMWQCC Standards		Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
		10	750	750	620
	Jan-03	1700	ND	650	3200
	Jan-04	1100	ND	340	1800
	Jan-05	430	ND	360	1000
	Jan-06	250	ND	410	790
MW-3	Sep-94	ND	ND	ND	ND
	Apr-95	ND	ND	ND	ND
	Sep-99	ND	ND	ND	ND
	Dec-99	ND	ND	ND	ND
	May-01	ND	ND	ND	ND
	May-02	ND	ND	ND	ND
	Jan-03	ND	ND	ND	ND
	Jan-04	ND	ND	ND	ND
	Jan-05	ND	ND	ND	ND
	Jan-06	ND	ND	ND	ND
MW-4	Sep-94	2.1	ND	ND	1.2
	Apr-95	ND	ND	ND	ND
	Sep-99	ND	ND	ND	ND
	Dec-99	ND	ND	ND	ND
	May-01	ND	ND	ND	ND
	May-02	ND	ND	ND	ND
	Jan-03	ND	ND	ND	ND
	Jan-04	ND	ND	ND	ND
	Jan-05	ND	ND	ND	ND
	Jan-06	ND	ND	ND	ND
MW-5	Sep-94	NS	NS	NS	NS
	Apr-95	ND	ND	ND	ND
	Sep-99	ND	ND	ND	ND
	Dec-99	ND	ND	ND	ND
	May-01	ND	ND	ND	ND
	May-02	ND	ND	ND	ND
	Jan-03	ND	ND	ND	ND
	Jan-04	ND	ND	ND	1.1
	Jan-05	ND	ND	ND	ND
	Jan-06	ND	ND	ND	ND
MW-6	May-01	12	15	13	83
	May-02	ND	ND	0.53	1.4
	Oct -02	ND	ND	ND	3.2
	Jan-03	6.0	20	87	350
	Jul-03	ND	2.7	3.2	16
	Sept-03	0.8	3.7	4.0	24
	Jan-04	0.9	1.6	2.9	16
	Jan-05	ND	ND	ND	ND
	Jan-06	ND	ND	14	32
MW-7	May-01	2,400	ND	380	2,800
	June-02	2,000	ND	140	1,100
	Oct-02	1100	ND	79	490
	Jan-03	3200	ND	400	3100
	Jan-04	3300	ND	460	3300

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NMWQCC Standards		Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
		10	750	750	620
	Jan-05	1600	ND	220	1500
	Jan-06	1400	ND	280	1500

The results of general chemistry analyses for January 2006 are shown in Table 7. Results indicate high conductivity in all of the samples, ranging from 1800 microhms per centimeter (µmhos/cm) to 8000 µmhos/cm. Total dissolved solids (TDS) are also high, with levels between 1200 milligram per liter (mg/L) in MW-7 and 4500 mg/L in MW-6. All of the samples have concentrations greater than the New Mexico Water Quality Control Commission (NMWQCC) domestic water supply standard for TDS of 1000 mg/L. These results indicate a poor quality for potable use. The samples from wells MW-3, MW-4, MW-5, and MW-6 exceed the NMWQCC domestic water standard for sulfate at 2200 mg/L, 2500 mg/L, 1200 mg/L, and 2600 mg/L, respectively. The standard for sulfate is 600 mg/L. The sample taken from MW-5 contained 1000 mg/L of chloride. The standard for chloride is 250 mg/L. The elevated levels of these parameters are indicators of the typically poor quality of shallow ground water at the site. The complete laboratory analytical reports are included in Appendix A. Historical general chemistry of ground water sampled at the Bloomfield Crude Station is included in Appendix B.

Table 7: Ground Water General Chemistry Results

Analyte	Units	Date	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	NMWQCC Standard
Lab pH	s.u.	1/26/06	7.4	7.5	7.4	7.1	7.2	7.4	6-9
Conductivity	µmhos/cm	1/26/06	3400	5100	5400	8000	7000	1800	
TDS	mg/L	1/26/06	**2000**	**3600**	**3700**	**4300**	**4500**	**1200**	1000
Alkalinity as CaCO3	mg/L	1/26/06	1400	580	450	990	800	750	No Std.
Bicarbonate as CaCO3	mg/L	1/26/06	1400	580	450	990	800	750	No Std.
Carbonate as CO3	mg/L	1/26/06	4.3	1.5	5.9	<1	3.6	3.2	No Std.
Hydroxide	mg/L	1/26/06	<1	<1	<1	<1	<1	<1	No Std.
Chloride	mg/L	1/26/06	130	37	31	**1000**	82	16	250
Sulfate	mg/L	1/26/06	150	**2200**	**2500**	**1200**	**2600**	310	600
Calcium	mg/L	1/26/06	150	450	410	630	440	220	No Std.
Magnesium	mg/L	1/26/06	18	47	47	58	68	23	No Std.
Potassium	mg/L	1/26/06	2.4	3.7	7	12	24	3.3	No Std.
Sodium	mg/L	1/26/06	610	680	790	920	1200	170	No Std.
Iron	mg/L	1/26/06	4	4.4	3.8	11	87	49	No Std.
Manganese	mg/L	1/26/06	1.3	0.38	5.4	58	11	2.9	No Std.
Nitrate/Nitrite	mg/L	1/26/06	<0.10	0.36	<0.10	<0.10	<0.10	<0.10	10
Notes: s.u. = standard units									

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Analyte	Units	Date	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	NMWQCC Standard
µmhos/cm - microhms per centimeter mg/L = milligrams per liter NMWQCC = New Mexico Water Quality Control Commission Standard No Std. = No Standard									

Monitoring of MW-2

MW-2 was free of product during 2005. Product has not been found in MW-2 since August, 2004. A comprehensive summary of product monitoring and recovery is presented in Table 8.

Table 8: Product Recovery Data MW-2

Date	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed (gal) (includes purge water)
May 4, 1995	NA	NA	NA	9
Sept 30, 1999	15.00	17.48	2.47	2.75
Nov 16, 1999	14.65	17.00	2.35	2.0
Dec 14, 1999	14.66	16.76	2.10	5.0
May 11, 2001	14.69	16.77	1.96	2.5
May 21, 2001	15.10	15.65	0.55	0
May 23, 2001	15.13	15.69	0.56	0
July 3, 2001	15.48	16.32	0.84	0
July 9, 2001	15.54	16.43	0.89	1.1
May 13, 2002	14.70	15.51	0.81	1.4
May 22, 2002	14.64	15.29	0.65	1.2
May 30, 2002	14.70	15.14	0.44	1.1
June 5, 2002	14.76	15.00	0.24	1.1
June 13, 2002	14.75	14.91	0.15	0.6
June 19, 2002	14.70	14.78	0.08	0.6
June 26, 2002	14.68	14.73	0.05	0.3
July 5, 2002	14.63	14.69	0.05	0.2
July 12, 2002	14.56	14.61	0.05	0.2
July 18, 2002	14.53	14.59	0.06	0.2
July 25, 2002	14.51	14.56	0.05	0.2
July 31, 2002	14.43	14.47	0.04	0.1
August 16, 2002	14.25	14.32	0.06	0.2
September 6, 2002	14.18	14.30	0.12	0.1
September 19, 2002	14.22	14.38	0.16	0.2
October 21, 2002	-	13.87	0.00	0
January 30, 2003	-	12.53	0.00	0
March 26, 2003	-	13.75	0.00	0
May 16, 2003	-	14.30	0.00	0
July 27, 2003	14.06	14.08	0.02	2.0
August 18, 2003	-	14.07	0.00	0
September 15, 2003	-	14.08	0.00	0
January 20, 2004	14.2	14.24	0.04	2.5
April 29, 2004	15.04	15.1	0.06	2
May 27, 2004	15.38	15.51	0.13	2

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Date	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Volume Removed (gal) (includes purge water)
June 24, 2004	15.6	15.65	0.05	2
July 26, 2004	15.50	15.54	0.04	1
August 25, 2004	15.12	15.13	0.01	1
September 30, 2004	-	14.72	0	1
October 19, 2004	-	14.58	0	-
November 16, 2004	-	14.4	0	0.5
December 14, 2004	-	14.38	0	-
January 13, 2005	-	14.52	0	-
April 27, 2005	-		0	-
July 28, 2005	-	15.12	0	-
October 25, 2005	-	13.82	0	-
January 26, 2006	-	14.67	0	-
Total Gallons of Product and Purge Water Removed Since 1995				44.05

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Conclusions

Bioventing

Based on the decrease in concentrations of TPH and BTEX following almost three years of operations, bioventing is effectively reducing the concentrations of hydrocarbons in the subsurface. Prior to bioventing in 2002 seven of eight soil samples were over NMOCD standards for TPH, none for benzene and four were over for total BTEX. One year later following eight months of bioventing, six samples were over NMOCD standards for TPH, none for benzene and one was over standards for total BTEX. Two years later following twenty months of bioventing, three of eight samples were over NMOCD standards for TPH, none for benzene and no samples were over standards for total BTEX. Slightly less than three years after bioventing operations began, two of eight samples were over NMOCD standards for TPH, none for benzene and none for total BTEX.

At most of the injection and monitoring points, TPH concentrations show a similar decreasing trend. However, during 2005, IP-12 and MP-3 both recorded increased levels of TPH. MP-3 levels are below NMOCD standards, but comparative samples in the vicinity or IP-12 showed a significant increase from 0 to 770 mg/kg. TPH concentrations have not increased over time but an area previously not sampled and higher in concentration that the original was sampled during 2005.

The concentrations of oxygen and carbon dioxide recorded through January 2006 indicate decreasing biologic activity at the site. The decrease of oxygen in 2004 and then an increase in 2005 indicate less oxygen was consumed in 2005 during the hydrocarbon mineralization process because less hydrocarbon mass was available. Similarly, the peak carbon dioxide concentrations in 2004 and following decrease in 2005 is due to a decreased mass of hydrocarbon available for mineralization due to biologic activity.

Well casing gas analysis at all injection and monitoring points indicates little to no presence of hydrocarbons. Most values are zero, with MP-4, MP-7 and IP-8 being the only locations with significant readings. The low headspace readings are further evidence that the bioventing system is effectively reducing hydrocarbon impact on the site.

Ground Water Sampling

Laboratory analyses of ground water samples from MW-3, MW-4 and MW-5 did not identify any BTEX constituents. Last year marked the first time BTEX was not detected in the ground water sample from MW-6; however, the analysis from a sample collected in January 2006 recorded slight levels of ethylbenzene and xylenes. Both concentrations were well under NMOCD standards and do not indicate a significant change in water quality.

Concentrations of BTEX in samples from MW-2 and MW-7 continue to decrease. The reduction in the concentrations of BTEX in the ground water and the continued absence of product in MW-2 is further evidence that all of the product has been removed from the site. The ground water from MW-7 contains concentrations of benzene, and xylenes that are above NMWQCC standards, but are not related to Giant's activities at the site due to the well's proximity to former

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oil and gas wells and it's offsite cross-gradient location. Even so, current activities at the site may be contributing to the decline in BTEX concentrations at the well.

Except for MW-7, the NMWQCC domestic use standards for total dissolved solids in ground water are exceeded at all monitoring wells including up-gradient well MW-3, indicating that the ground water is not suitable for domestic use. That the ground water from MW-7 is significantly lower in TDS indicates the source of the ground water at MW-7 may not be the same source of the water beneath the Crude Station.

The potentiometric surface elevation did not show an overall increase or decrease since last year. The general direction and flow gradient also remain static. Ground water flow is to the southwest at 0.016 ft/ft.

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Recommendations

After compiling the most recent analytical results and comparing these with historical results, the following remedial action and monitoring plan is recommended:

- Continue bioventing at the site to reduce the hydrocarbon concentrations in soil to below NMWQCC standards. Increase airflows where necessary to enhance degradation.
- Collect soil samples during October 2006 to monitor progress of remediation.
- Also during October 2006, turn off the bioventing system for one week and measure the concentrations of hydrocarbons in the soil gas at all monitoring and injection points.
- Begin air sparging at MW-2, and monitor for BTEX on a quarterly basis. Once standards have been achieved suspend sparging and continue sampling.
- Conduct annual ground water sampling for BTEX at all monitoring wells during January 2007.
- Reconfigure the bioventing system to inject air at monitoring points where soil samples or gas monitoring indicate hydrocarbons remain (MP-3, IP-8, and MP-4).
- Meet with NMOCD during the second quarter of 2006 to discuss final site closure.
- Prepare an annual report in March 2007.

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Figure 1: Site Location Map

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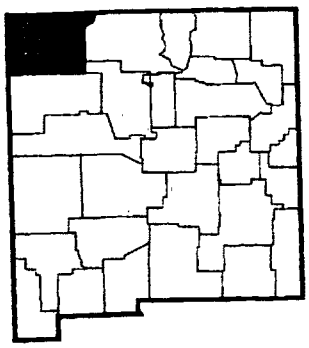
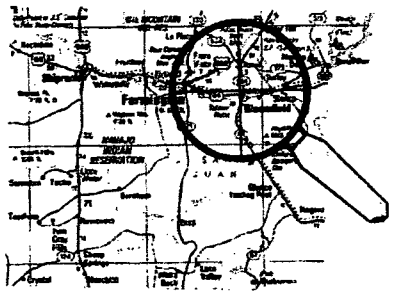
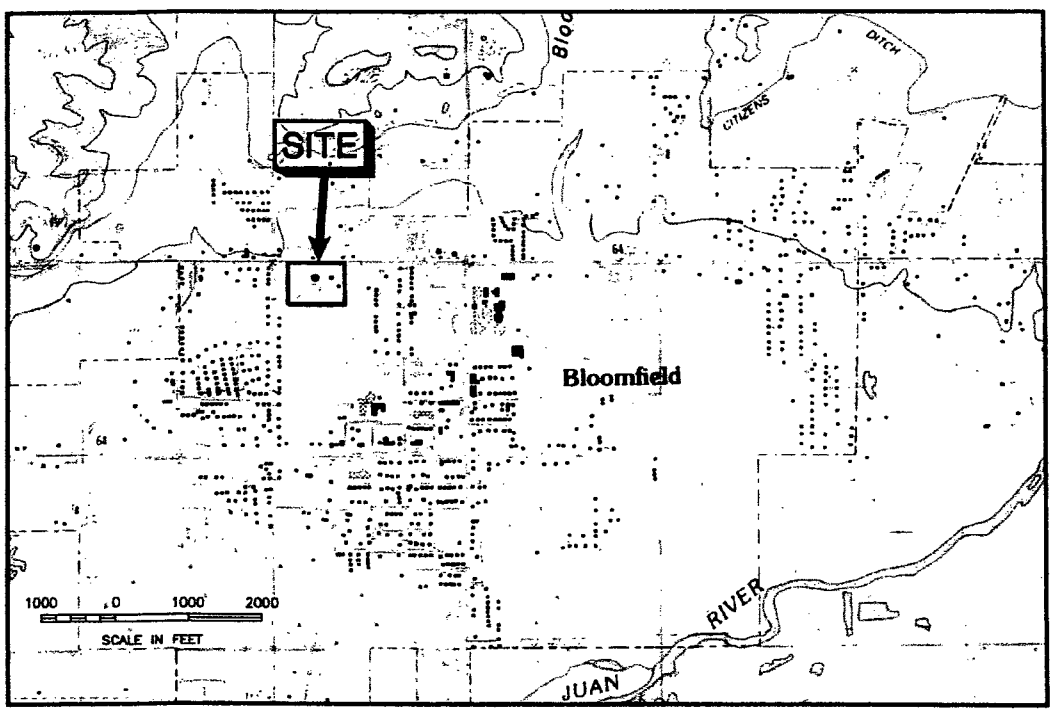
NEW MEXICO



SAN JUAN COUNTY



AREA IN DETAIL



Modified from U.S. Geological Survey Quadrangle of Bloomfield, New Mexico, Provisional Edition 1985.

Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	Giant Industries Arizona, Inc. Bloomfield, New Mexico Site Location Map	DRWN BY: AA CHKD BY: MN APPVD BY: MN DATE: 03/27/06	Figure 1

Figure 2: Site Map

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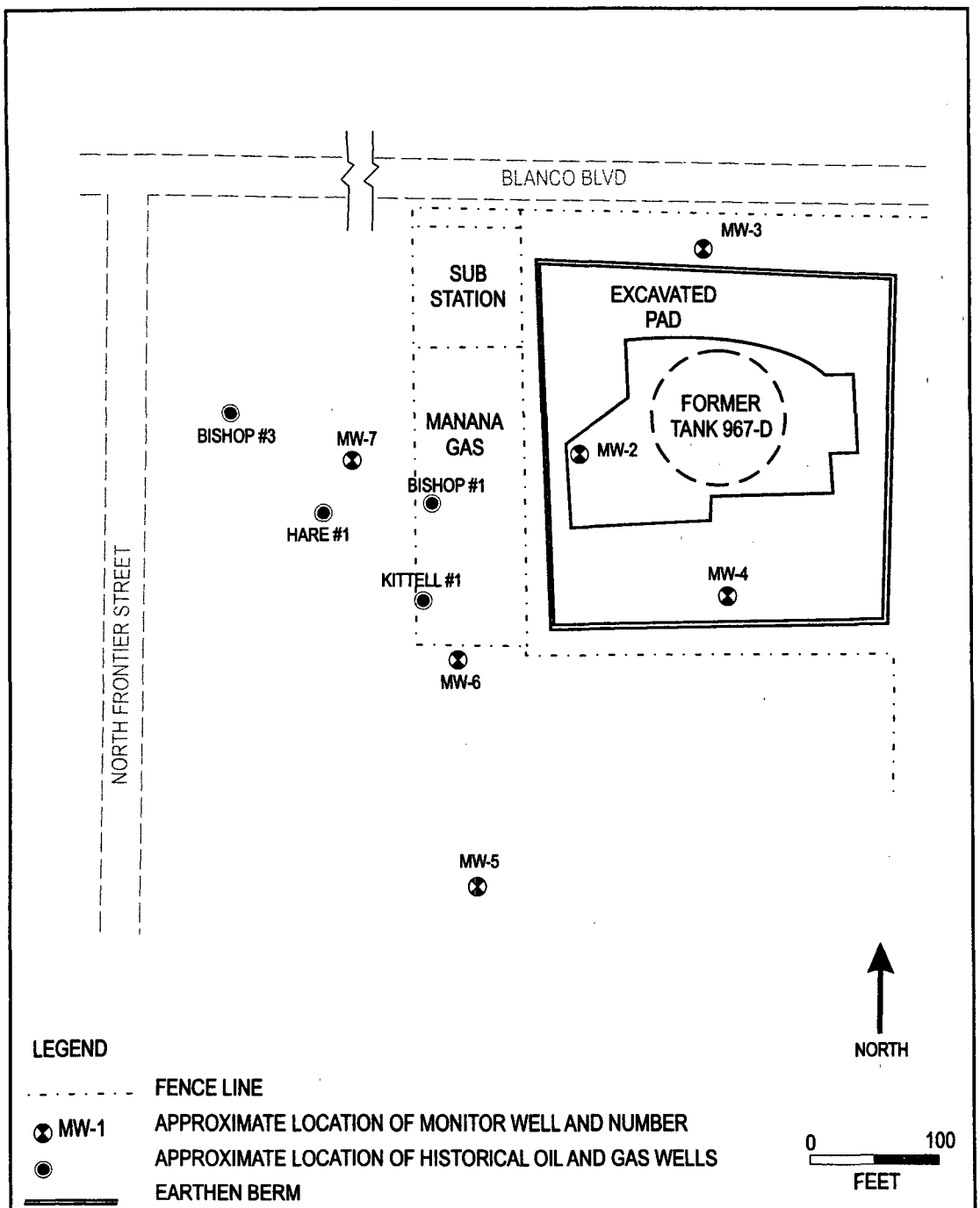

Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	Giant Industries Arizona, Inc. Bloomfield, New Mexico Site Map	DRWN BY: AA CHKD BY: MN APPVD BY: MN DATE: 03/27/06	Figure 2

Figure 3 Bioventing Layout Map

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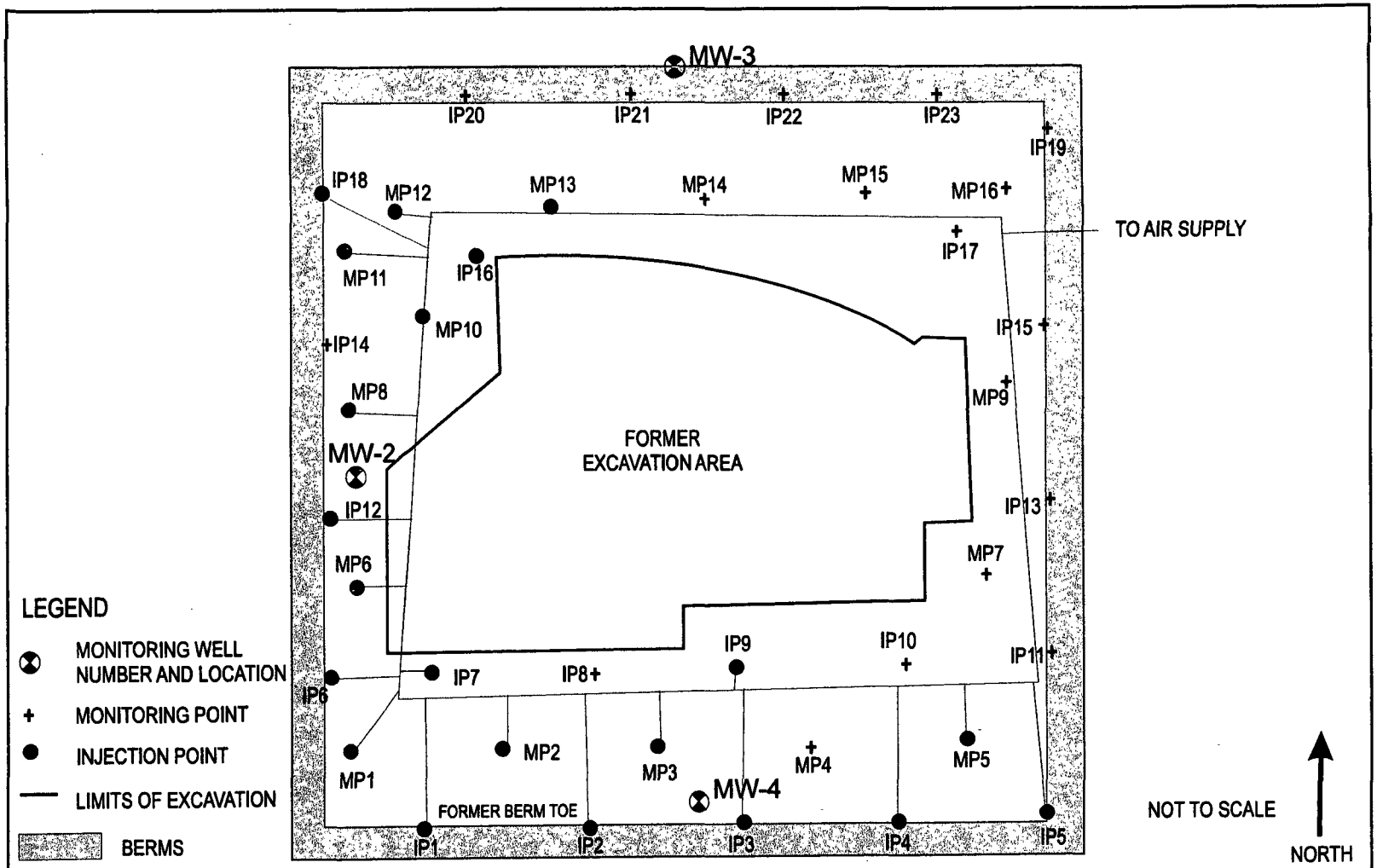

Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	Giant Industries Arizona, Inc. Bloomfield, New Mexico Biovent Pilot Test	DRWN BY: AA CHKD BY: MN APPVD BY: MN DATE: 03/27/06	Figure 3

Figure 4: Ground Water Elevation Contour Map January 2006

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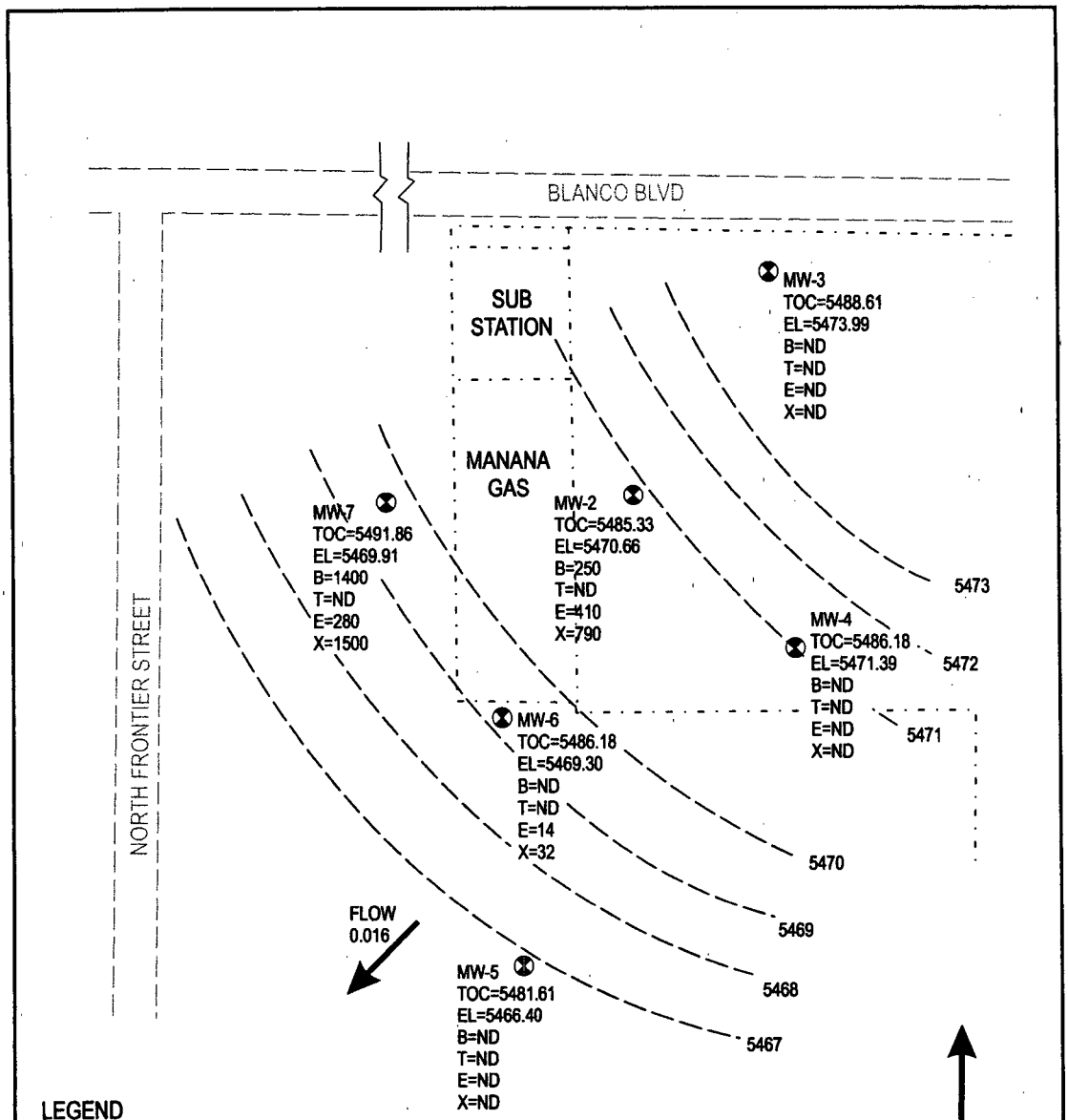

LEGEND

. . . . .	FENCE LINE
⊗ MW-1	APPROXIMATE LOCATION OF MONITOR WELL AND NUMBER
⌒	POTENTIOMETRIC SURFACE OF GROUND WATER
TOC	TOP OF CASING ELEVATION
EL	GROUND WATER ELEVATION
B	BENZENE IN ug/L
T	TOLUENE IN ug/L
E	ETHYLBENZENE IN ug/L
X	TOTAL XYLENES IN ug/L

Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	Giant Industries Arizona, Inc. Bloomfield, New Mexico Ground Water Gradient Map	DRWN BY: AA CHKD BY: MN APPVD BY: MN DATE: 03/27/06	Figure 4

Appendix A

Analytical Laboratory Reports

Lodestar Services, Incorporated
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PINNACLE
LABORATORIES

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

Pinnacle Lab ID number **510419**
November 14, 2005

LODESTAR
26 CR 3500
FLORA VISTA, NM 87415

GIANT INDUSTRIES
111 COUNTY RD 4990
BLOOMFIELD, NM 87413

Project Name CRUDE STATION
Project Number (NONE)

Attention: MARTIN NEE/TIM KINNEY

On 10/26/05 Pinnacle Laboratories Inc., (ADHS License No. AZ0643), received a request to analyze **non-aq** 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.

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, Pinnacle Laboratories, Inc.

MR: jt

Enclosure

PINNACLE LABORATORIES

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

CLIENT	: LODESTAR	PINNACLE ID	: 510419
PROJECT #	: (NONE)	DATE RECEIVED	: 10/26/05
PROJECT NAME	: CRUDE STATION	REPORT DATE	: 11/14/05

PINNACLE ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
510419 - 01	MP-11	NON-AQ	10/25/05
510419 - 02	MP-8	NON-AQ	10/25/05
510419 - 03	MP-3	NON-AQ	10/25/05
510419 - 04	IP-12	NON-AQ	10/25/05
510419 - 05	IP-7	NON-AQ	10/25/05
510419 - 06	IP-10	NON-AQ	10/25/05
510419 - 07	MP-7	NON-AQ	10/25/05
510419 - 08	IP-16	NON-AQ	10/25/05

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021B
CLIENT : LODESTAR
PROJECT # : (NONE)
PROJECT NAME : CRUDE STATION

PINNACLE I.D. : 510419
ANALYST : BP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MP-11	NON-AQ	10/25/05	10/28/05	10/29/05	1
02	MP-8	NON-AQ	10/25/05	10/28/05	10/29/05	1
03	MP-3	NON-AQ	10/25/05	10/28/05	10/29/05	1

PARAMETER	DET. LIMIT	UNITS	MP-11	MP-8	MP-3
BENZENE	0.025	MG/KG	< 0.025	< 0.025	< 0.025
TOLUENE	0.025	MG/KG	< 0.025	< 0.025	< 0.025
ETHYLBENZENE	0.025	MG/KG	< 0.025	< 0.025	< 0.025
TOTAL XYLENES	0.050	MG/KG	< 0.050	< 0.050	< 0.050
SURROGATE:					
BROMOFLUOROBENZENE (%)			85	92	87
SURROGATE LIMITS	(65 - 120)				

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 : EPA 8021B
CLIENT : LODESTAR
PROJECT # : (NONE)
PROJECT NAME : CRUDE STATION

PINNACLE I.D. : 510419
ANALYST : BP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	IP-12	NON-AQ	10/25/05	10/28/05	10/29/05	1
05	IP-7	NON-AQ	10/25/05	10/28/05	10/29/05	1
06	IP-10	NON-AQ	10/25/05	10/28/05	10/29/05	1

PARAMETER	DET. LIMIT	UNITS	IP-12 ✓	IP-7 ✓	IP-10 ✓
BENZENE	0.025	MG/KG	< 0.025	< 0.025	< 0.025
TOLUENE	0.025	MG/KG	< 0.025	< 0.025	< 0.025
ETHYLBENZENE	0.025	MG/KG	< 0.025	< 0.025	< 0.025
TOTAL XYLENES	0.050	MG/KG	< 0.050	< 0.050	< 0.050
SURROGATE:					
BROMOFLUOROBENZENE (%)			89	84	86
SURROGATE LIMITS	(65 - 120)				

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021B
CLIENT : LODESTAR
PROJECT # : (NONE)
PROJECT NAME : CRUDE STATION

PINNACLE I.D. : 510419
ANALYST : BP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR	
07	MP-7	NON-AQ	10/25/05	10/28/05	10/29/05	5	D1
08	IP-16	NON-AQ	10/25/05	10/28/05	10/29/05	1	

PARAMETER	DET. LIMIT	UNITS	MP-7	IP-16
BENZENE	0.025	MG/KG	< 0.13	< 0.025
TOLUENE	0.025	MG/KG	< 0.13	< 0.025
ETHYLBENZENE	**0.025**	**MG/KG**	**6.0**	< 0.025
TOTAL XYLENES	**0.050**	**MG/KG**	**32**	< 0.050
SURROGATE:				
BROMOFLUOROBENZENE (%)			**S3**	88
SURROGATE LIMITS	(65 - 120)			

CHEMIST NOTES:
D1 = Dilution due to matrix interference.
S3 = Surrogate was diluted out.

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS
EXTRACTION BLANK

TEST	: EPA 8021B	PINNACLE I.D.	: 510419
BLANK I.D.	: 102805	DATE EXTRACTED	: 10/28/05
CLIENT	: LODESTAR	DATE ANALYZED	: 10/29/05
PROJECT #	: (NONE)	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: CRUDE STATION	ANALYST	: bp

PARAMETER	UNITS	
BENZENE	MG/KG	<0.025
TOLUENE	MG/KG	<0.025
ETHYLBENZENE	MG/KG	<0.025
TOTAL XYLENES	MG/KG	<0.050

SURROGATE:
BROMOFLUOROBENZENE (%) 94
SURROGATE LIMITS (80 - 120)

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 QUALITY CONTROL
LCS/LCSD

TEST	: EPA 8021B	PINNACLE I.D.	: 510419
BATCH #	: 102805	DATE EXTRACTED	: 10/28/05
CLIENT	: LODESTAR	DATE ANALYZED	: 10/29/05
PROJECT #	: (NONE)	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: CRUDE STATION	UNITS	: MG/KG

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.025	1.00	1.02	102	1.03	103	1	(68 - 120)	20
TOLUENE	<0.025	1.00	1.01	101	1.01	101	0	(64 - 120)	20
ETHYLBENZENE	<0.025	1.00	1.00	100	1.01	101	1	(49 - 127)	20
TOTAL XYLENES	<0.050	3.00	2.99	100	3.08	103	3	(58 - 120)	20

CHEMIST NOTES:
N/A

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

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

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY QUALITY CONTROL
MS/MSD

TEST	: EPA 8021B	PINNACLE I.D.	: 510419
MSMSD #	: 510419-04	DATE EXTRACTED	: 10/28/05
CLIENT	: LODESTAR	DATE ANALYZED	: 10/29/05
PROJECT #	: (NONE)	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: CRUDE STATION	UNITS	: MG/KG

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.025	1.00	1.02	102	0.920	92	10	(68 - 120)	20
TOLUENE	<0.025	1.00	1.01	101	0.912	91	10	(64 - 120)	20
ETHYLBENZENE	<0.025	1.00	1.02	102	0.918	92	11	(49 - 127)	20
TOTAL XYLENES	<0.050	3.00	3.04	101	2.74	91	10	(58 - 120)	20

CHEMIST NOTES:
N/A

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

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

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8015 MODIFIED (DIRECT INJECT)
CLIENT : LODESTAR — PINNACLE I.D. : 510419
PROJECT # : (NONE) — ANALYST : DSR
PROJECT NAME : CRUDE STATION

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MP-11	NON-AQ	10/25/05	11/01/05	11/02/05	1
02	MP-8	NON-AQ	10/25/05	11/01/05	11/02/05	1
03	MP-3	NON-AQ	10/25/05	11/01/05	11/02/05	1

PARAMETER	DET. LIMIT	UNITS	MP-11	MP-8	MP-3
FUEL HYDROCARBONS, C6-C10	10	MG/KG	< 10	< 10	< 10
FUEL HYDROCARBONS, C10-C22	10	MG/KG	< 10	< 10	**13**
FUEL HYDROCARBONS, C22-C36	10	MG/KG	< 10	< 10	**26**
CALCULATED SUM:					**39**
SURROGATE:					
O-TERPHENYL (%)			87	86	80
SURROGATE LIMITS	(70-130)				

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8015 MODIFIED (DIRECT INJECT)
CLIENT : LODESTAR — PINNACLE I.D. : 510419
PROJECT # : (NONE) — ANALYST : DSR
PROJECT NAME : CRUDE STATION

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	IP-12	NON-AQ	10/25/05	11/01/05	11/02/05	1
05	IP-7	NON-AQ	10/25/05	11/01/05	11/02/05	1
06	IP-10	NON-AQ	10/25/05	11/01/05	11/02/05	1

PARAMETER	DET. LIMIT	UNITS	IP-12	IP-7	IP-10
FUEL HYDROCARBONS, C6-C10	10	MG/KG	< 10	< 10	< 10
FUEL HYDROCARBONS, C10-C22	**10**	**MG/KG**	**320**	**19**	< 10
FUEL HYDROCARBONS, C22-C36	**10**	**MG/KG**	**450**	**36**	< 10
CALCULATED SUM:			**770**	**55**	
SURROGATE:					
O-TERPHENYL (%)			92	90	91
SURROGATE LIMITS	(70-130)				

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 : EPA 8015 MODIFIED (DIRECT INJECT)
CLIENT : LODESTAR — PINNACLE I.D. : 510419
PROJECT # : (NONE) — ANALYST : DSR
PROJECT NAME : CRUDE STATION

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	MP-7	NON-AQ	10/25/05	11/01/05	11/02/05	1
08	IP-16	NON-AQ	10/25/05	11/01/05	11/02/05	1

PARAMETER	DET. LIMIT	UNITS	MP-7	IP-16
FUEL HYDROCARBONS, C6-C10	10	MG/KG	**560**	< 10
FUEL HYDROCARBONS, C10-C22	10	MG/KG	**960**	**16**
FUEL HYDROCARBONS, C22-C36	10	MG/KG	**520**	**36**
CALCULATED SUM:			**2040**	**52**
SURROGATE:				
O-TERPHENYL (%)			101	88
SURROGATE LIMITS	(70-130)			

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
EXTRACTION BLANK

TEST	: EPA 8015 MODIFIED (DIRECT INJECT)	PINNACLE I.D.	: 510419
BLANK I.D.	: 110105	DATE EXTRACTED	: 11/01/05
CLIENT	: LODESTAR	DATE ANALYZED	: 11/02/05
PROJECT #	: (NONE)	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: CRUDE STATION	ANALYST	: DSR

PARAMETER	UNITS	
FUEL HYDROCARBONS, C6-C10	MG/KG	< 10
FUEL HYDROCARBONS, C10-C22	MG/KG	< 10
FUEL HYDROCARBONS, C22-C36	MG/KG	< 10

SURROGATE:
O-TERPHENYL (%) 88
SURROGATE LIMITS (70-130)

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 QUALITY CONTROL
LCS/LCSD

TEST	: EPA 8015 MODIFIED (DIRECT INJECT)	PINNACLE I.D.	: 510419
LCS/LCSD #	: 110105	DATE EXTRACTED	: 11/01/05
CLIENT	: LODESTAR	DATE ANALYZED	: 11/02/05
PROJECT #	: (NONE)	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: CRUDE STATION	UNITS	: MG/KG

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
FUEL HYDROCARBONS	<10	200	198	99	205	103	3	(70-130)	20

CHEMIST NOTES:
N/A

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

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

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY QUALITY CONTROL
MS/MSD

TEST	: EPA 8015 MODIFIED (DIRECT INJECT)	PINNACLE I.D.	: 510419
MSMSD #	: *511002-01*	*DATE EXTRACTED*	: *11/01/05*
CLIENT	: LODESTAR	DATE ANALYZED	: 11/02/05
PROJECT #	: (NONE)	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: CRUDE STATION	UNITS	: MG/KG

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
FUEL HYDROCARBONS	<10	200	199	100	199	100	0	(70-130)	20

CHEMIST NOTES:
N/A

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

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

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 102605 PAGE: 1 OF 1

PLI Accession #: 510419

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:	Martin Nee
COMPANY:	Ladder Services
ADDRESS:	2609 E 3500 Flora Vista NM 87415
PHONE:	505 334 6791
FAX:	
BILL TO:	Tim Kinney
COMPANY:	Giant
ADDRESS:	111 CR 4990 Bloomfield NM 87413

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	8015 GRO DRO	(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 ☐PBMS	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 (Method1311)	Metals:		NUMBER OF CONTAINERS
MP-11	10/25/05	1115	Soil	-01			X		X																						1
MP-8	10/25/05	1150	Soil	-02			X		X																						1
MP-3	10/25/05	1225	Soil	-03			X		X																						1
IP-12	10/25/05	1245	Soil	-04			X		X																						1
IP-7	10/25/05	1325	Soil	-05			X		X																						1
IP-10	10/25/05	1350	Soil	-06			X		X																						1
MP-7	10/25/05	1415	Soil	-07			X		X																						1
IP-16	10/25/05	1500	Soil	-08			X		X																						1

ANALYSIS REQUEST

WEEKEND ANALYSES MAY RESULT IN AN ADDITIONAL SURCHARGE - PLEASE INQUIRE.

PROJECT INFORMATION	
PROJ. NO.:	
PROJ. NAME:	Crude Station
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO CONTAINERS	8
CUSTODY SEALS	Y/N/(N/A)
RECEIVED INTACT	Y
BLUE ICE/ICE	ICE

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐24hr* ☐48hr* ☐72hr* ☐1 WEEK (NORMAL) ☒

*NOT AVAILABLE ON ALL ANALYSES

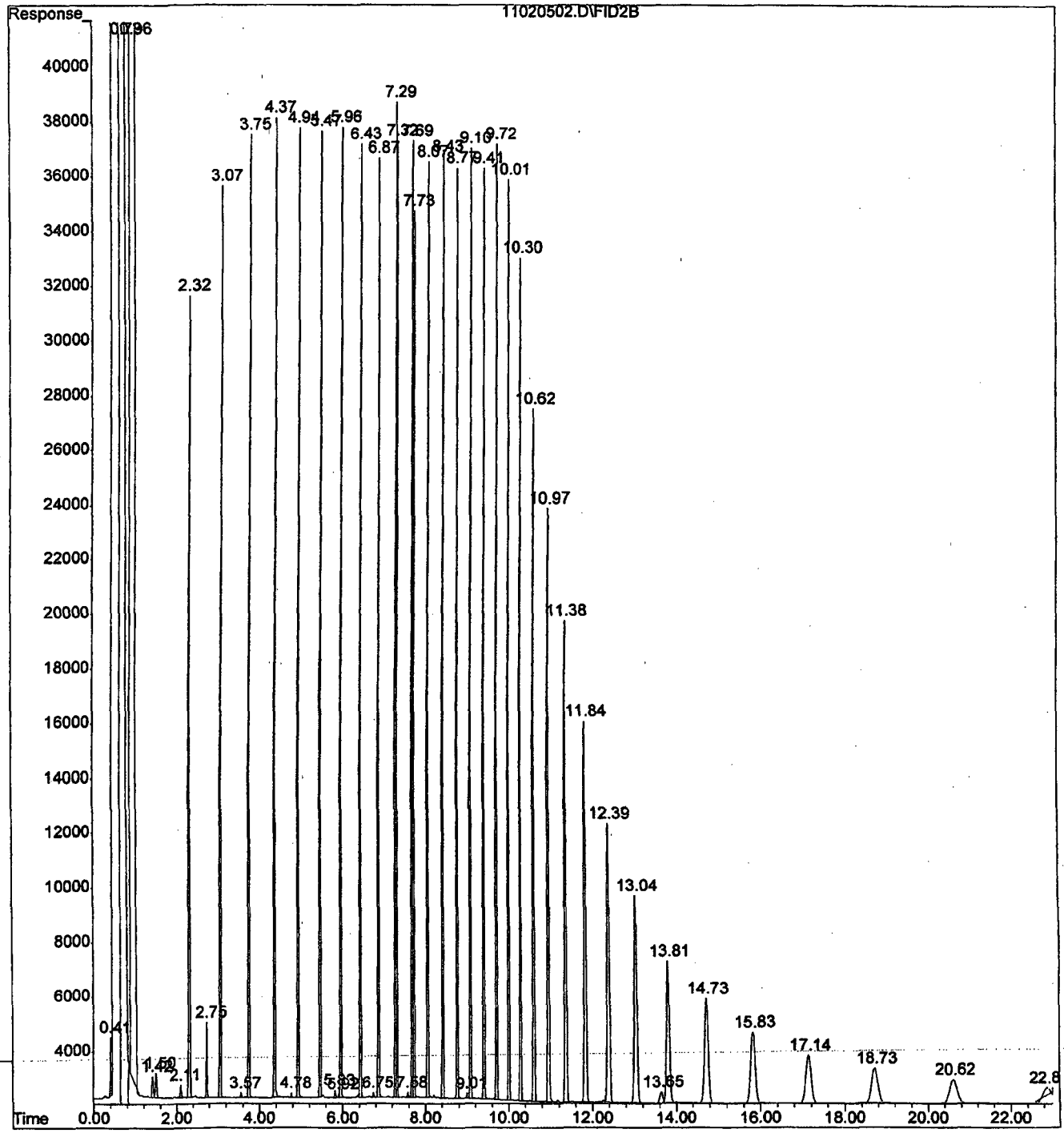
CERTIFICATION REQUIRED ☐ NM ☐ SDWA ☐ AZ ☐ OTHER

METHANOL PRESERVATION ☐ METALS ☐ TOTAL ☐ DISSOLVED

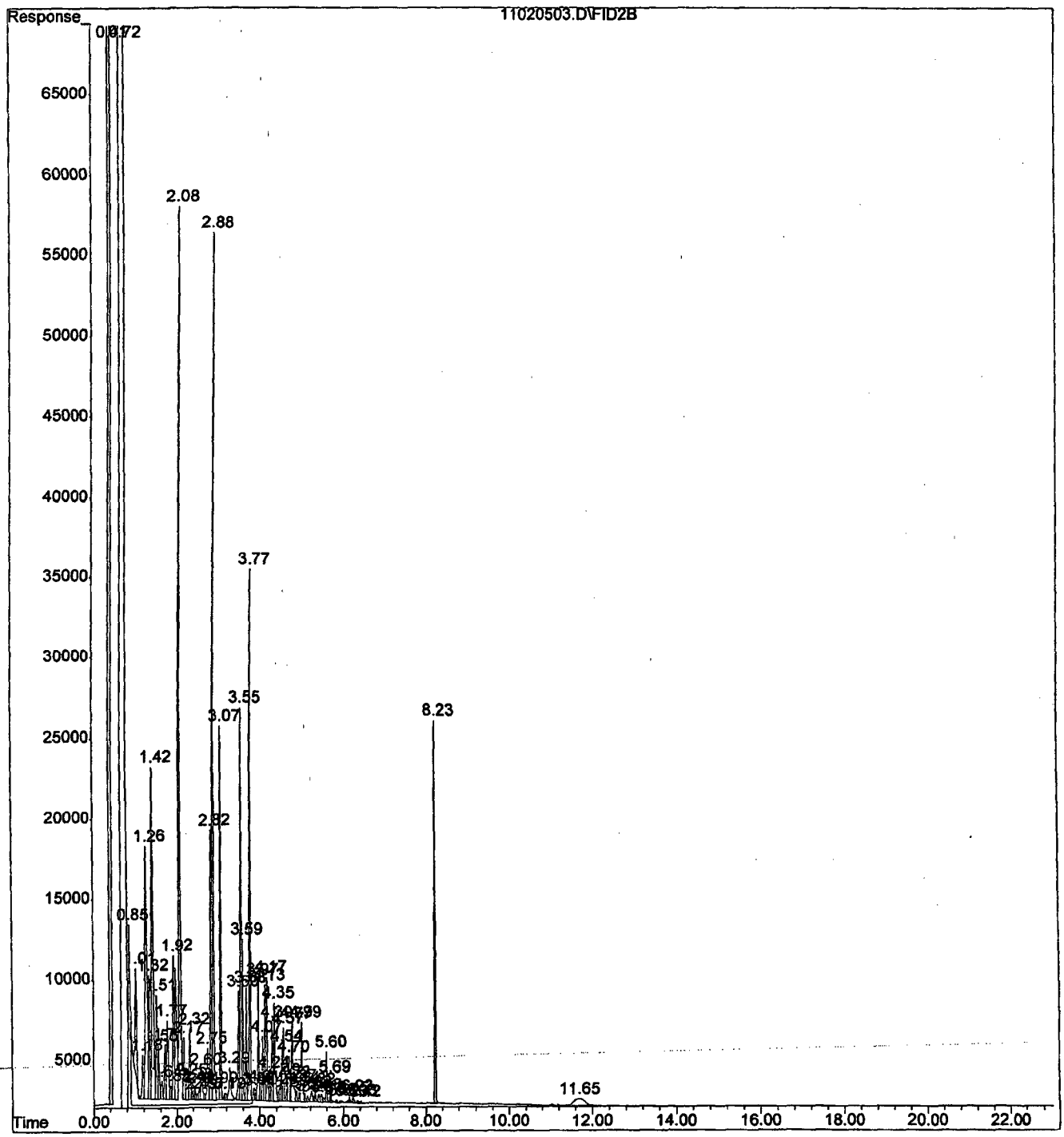
COMMENTS:

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Time: 1100	Signature: Time:
Printed Name: MJ Nee Date: 102605	Printed Name: Date:
Company: LSI	Company:
See Reverse side (Force Majeure)	
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2**
Signature: Time:	Signature: Time: 1654
Printed Name: Date:	Printed Name: Date: 102605
Company:	Pinnacle Laboratories Inc.

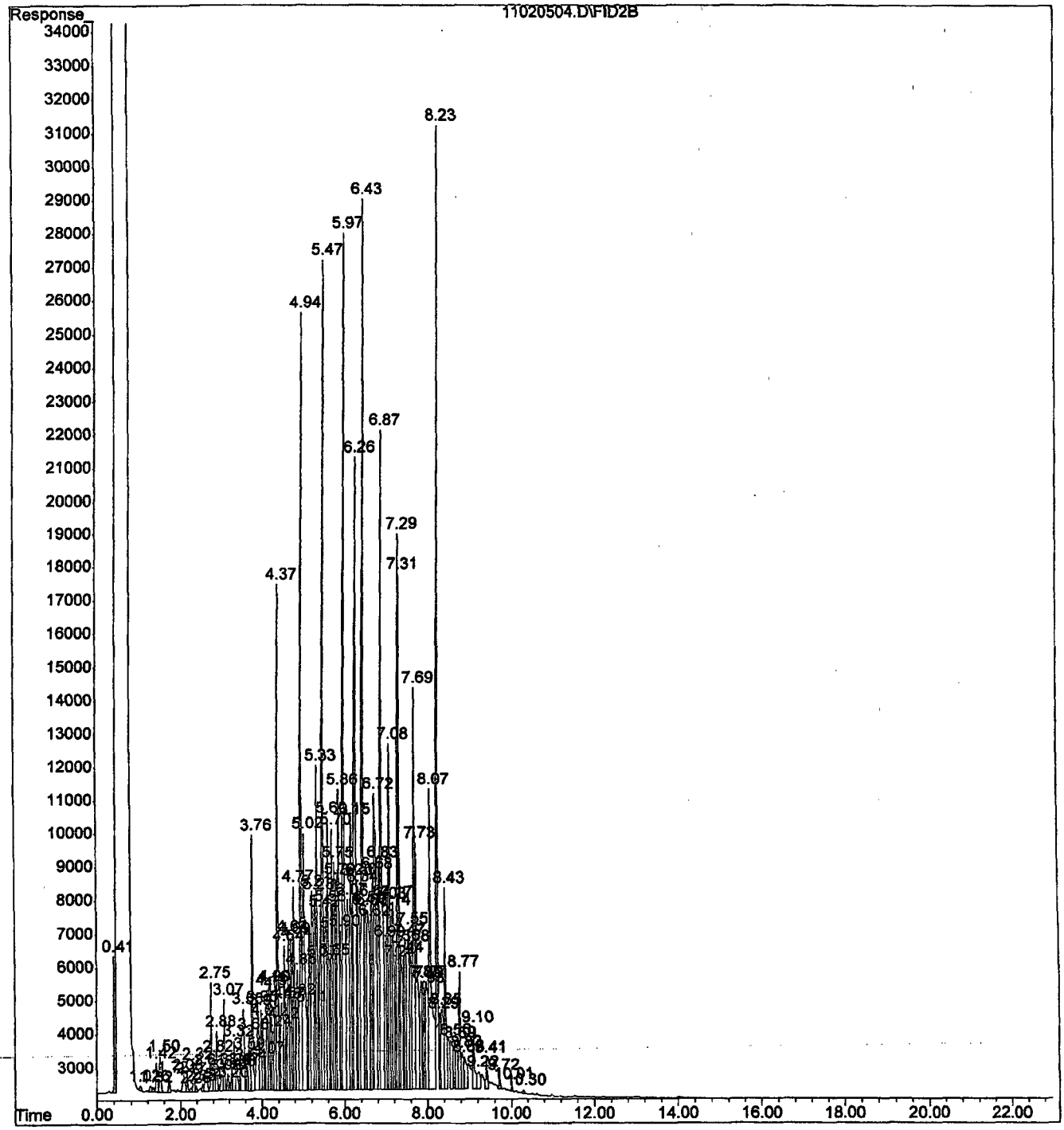
File : C:\HPCHEM\2\DATA\110205F\11020502.D
Operator : DSR
Acquired : 2 Nov 2005 10:27 using AcqMethod TPH0705.M
Instrument : FID-1
Sample Name: RT
Misc Info : GC5-28-17
Vial Number: 2



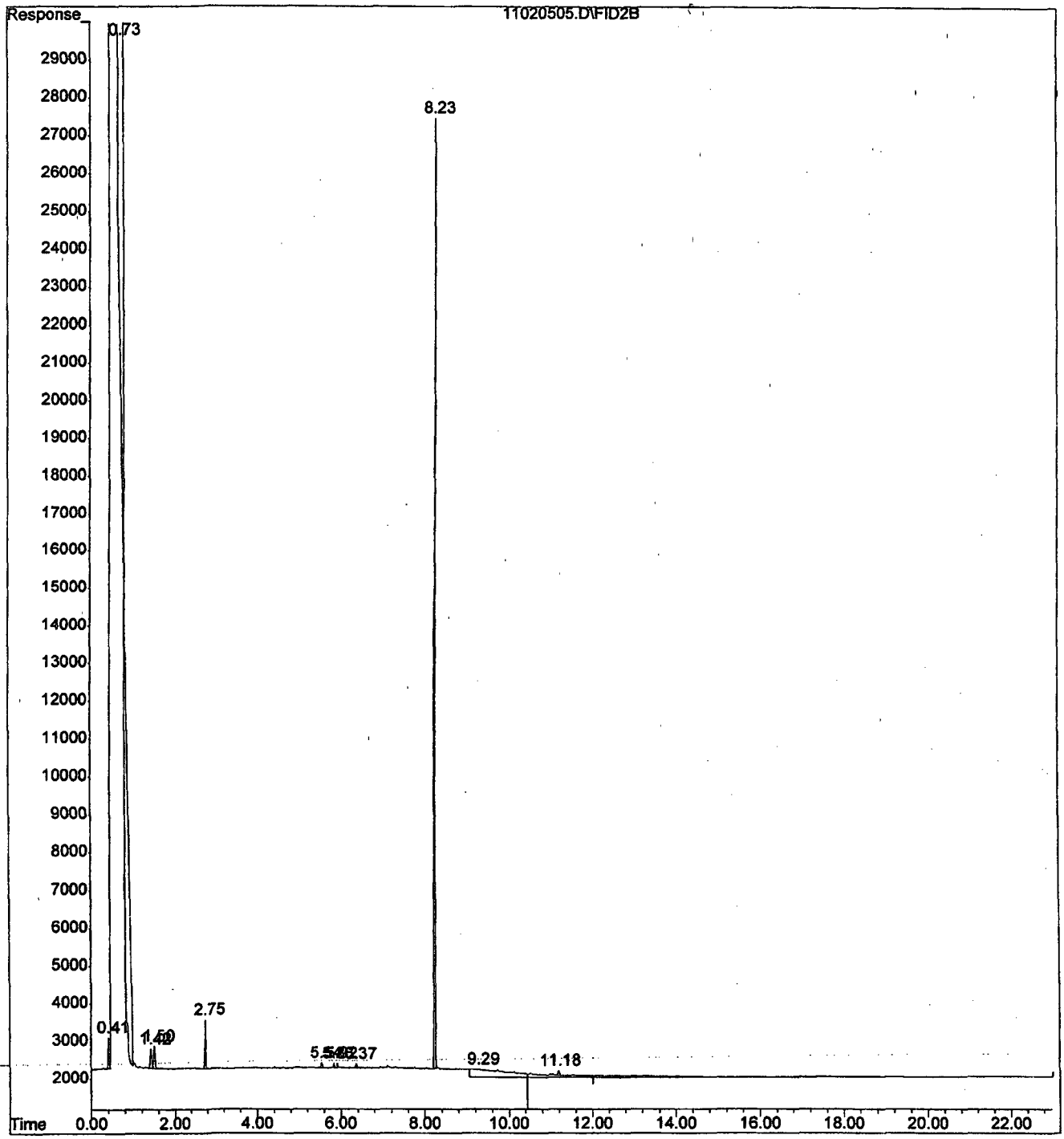
File : C:\HPCHEM\2\DATA\110205F\11020503.D
Operator : DSR
Acquired : 2 Nov 2005 10:58 using AcqMethod TPH0705.M
Instrument : FID-1
Sample Name: GRO CCV 200PPM
Misc Info : GC5-31-01
Vial Number: 3



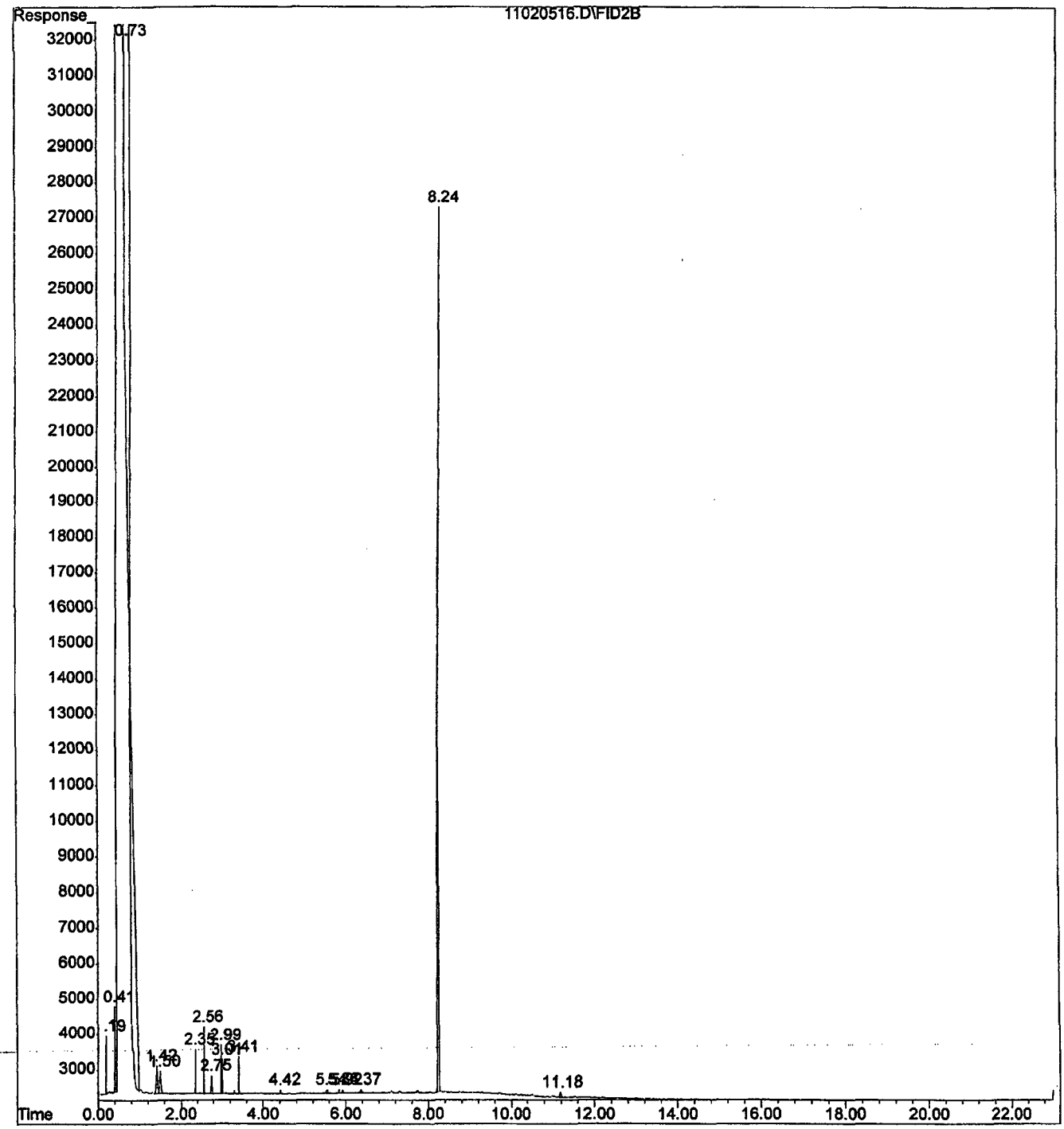
File : C:\HPCHEM\2\DATA\110205F\11020504.D
Operator : DSR
Acquired : 2 Nov 2005 11:29 using AcqMethod TPH0705.M
Instrument : FID-1
Sample Name: DRO CCV 200PPM
Misc Info : GC5-31-04
Vial Number: 4



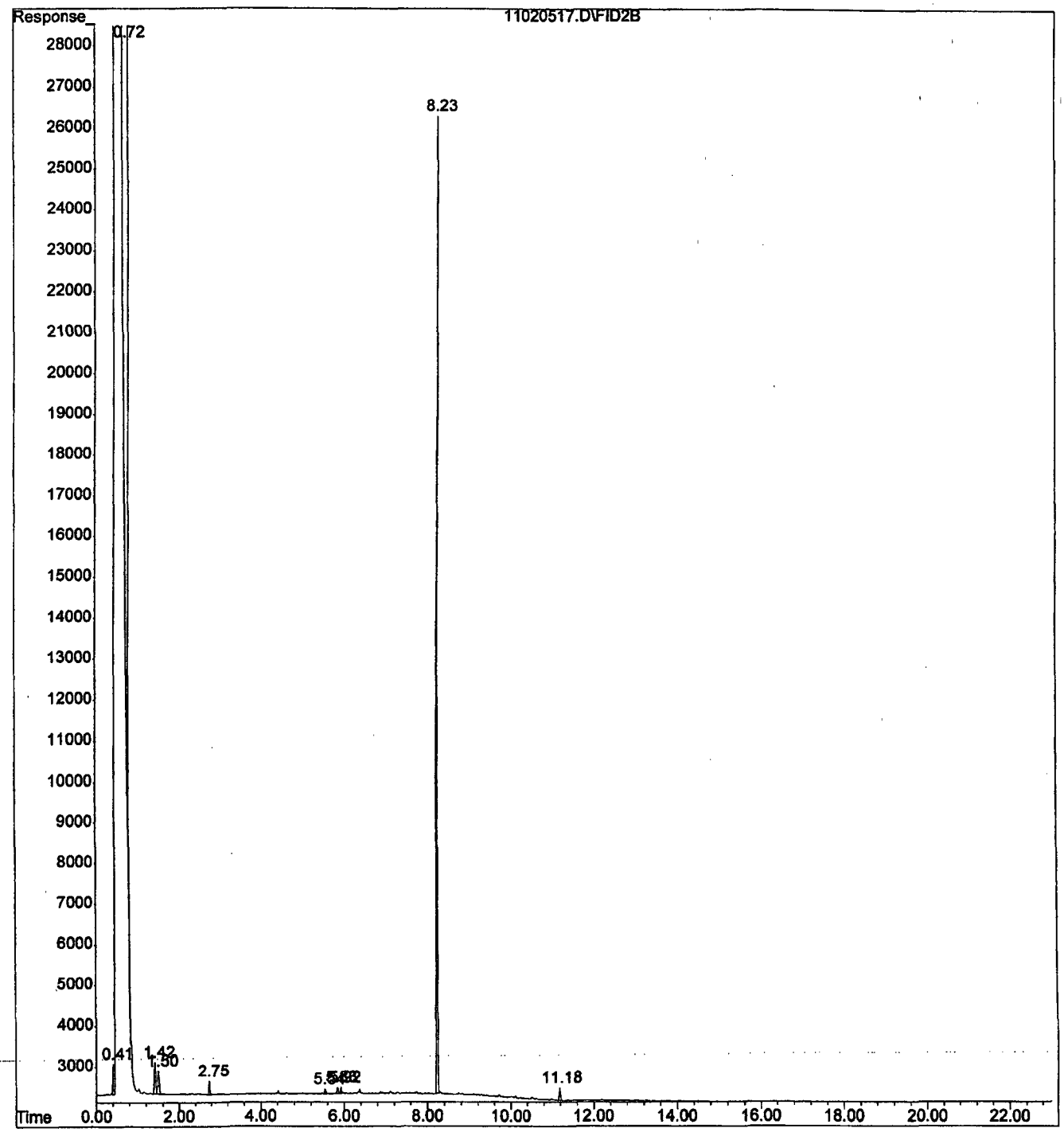
File : C:\HPCHEM\2\DATA\110205F\11020505.D
Operator : DSR
Acquired : 2 Nov 2005 12:01 using AcqMethod TPH0705.M
Instrument : FID-1
Sample Name: SRB 110105
Misc Info : 10G/10ML 11/01
Vial Number: 5



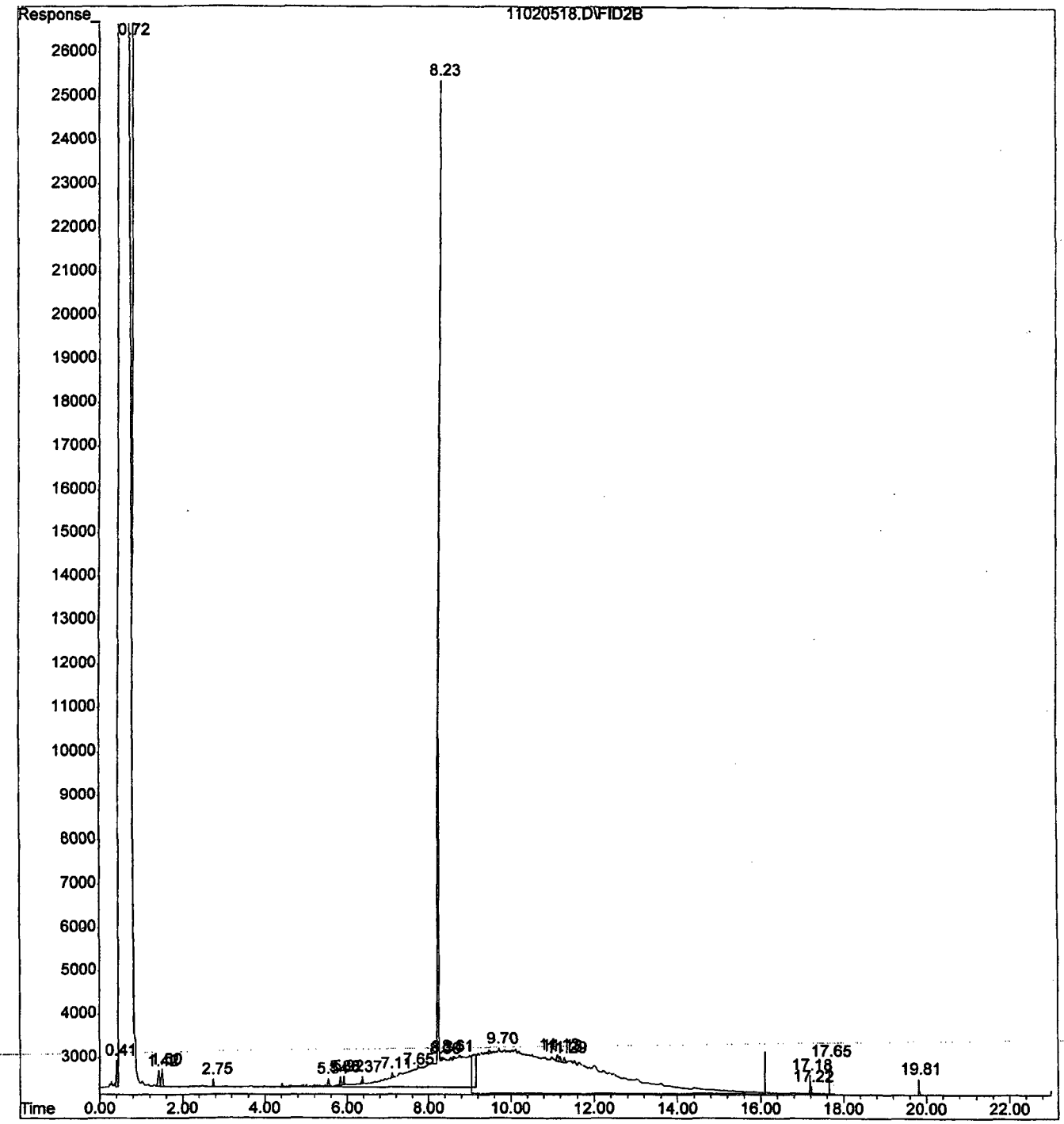
File : C:\HPCHEM\2\DATA\110205F\11020516.D
Operator : DSR
Acquired : 2 Nov 2005 17:47 using AcqMethod TPH0705.M
Instrument : FID-1
Sample Name: 510419-01
Misc Info : 10G/10ML 11/01
Vial Number: 15



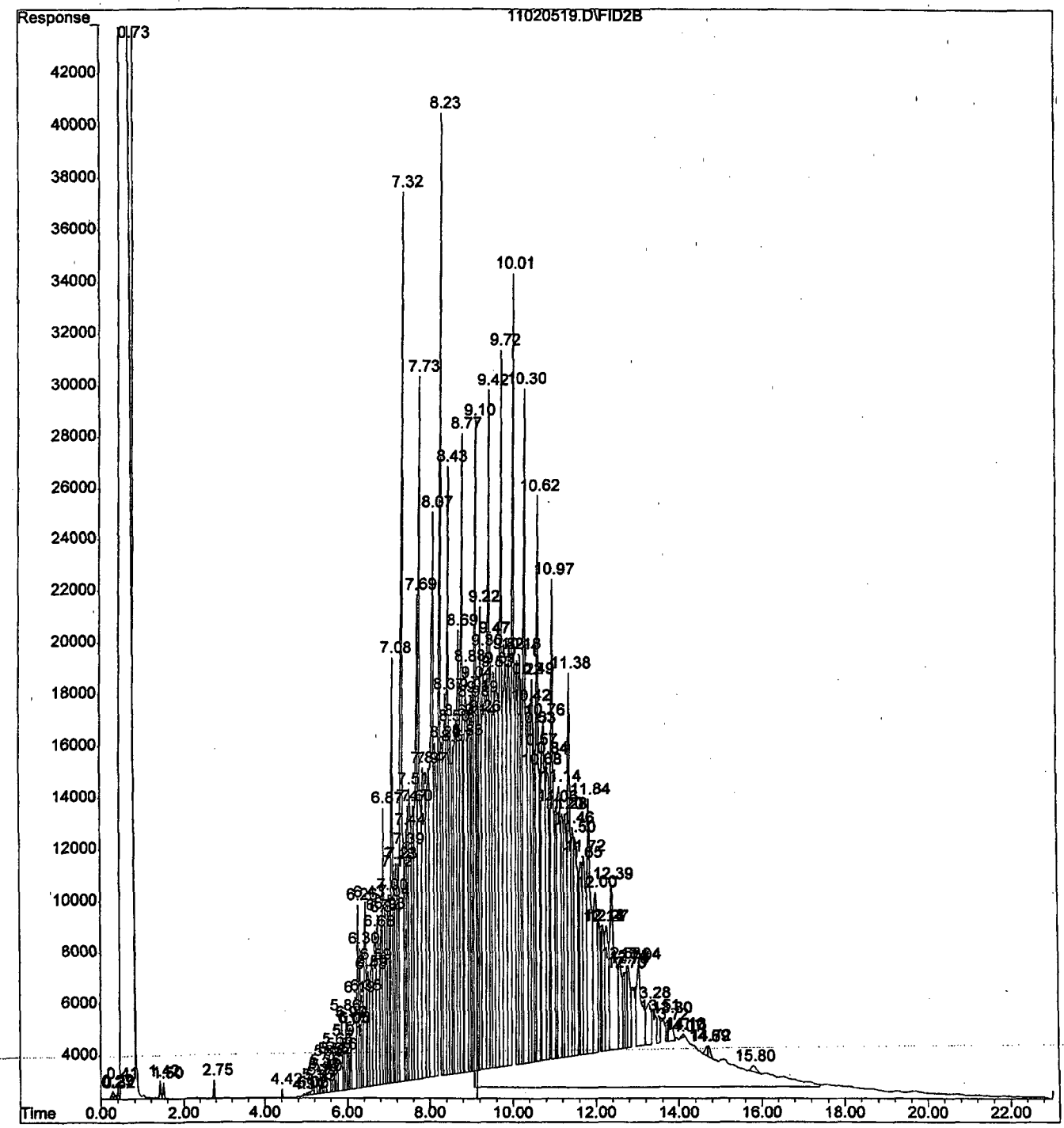
File : C:\HPCHEM\2\DATA\110205F\11020517.D
Operator : DSR
Acquired : 2 Nov 2005 18:19 using AcqMethod TPH0705.M
Instrument : FID-1
Sample Name: 510419-02
Misc Info : 10G/10ML 11/01
Vial Number: 16



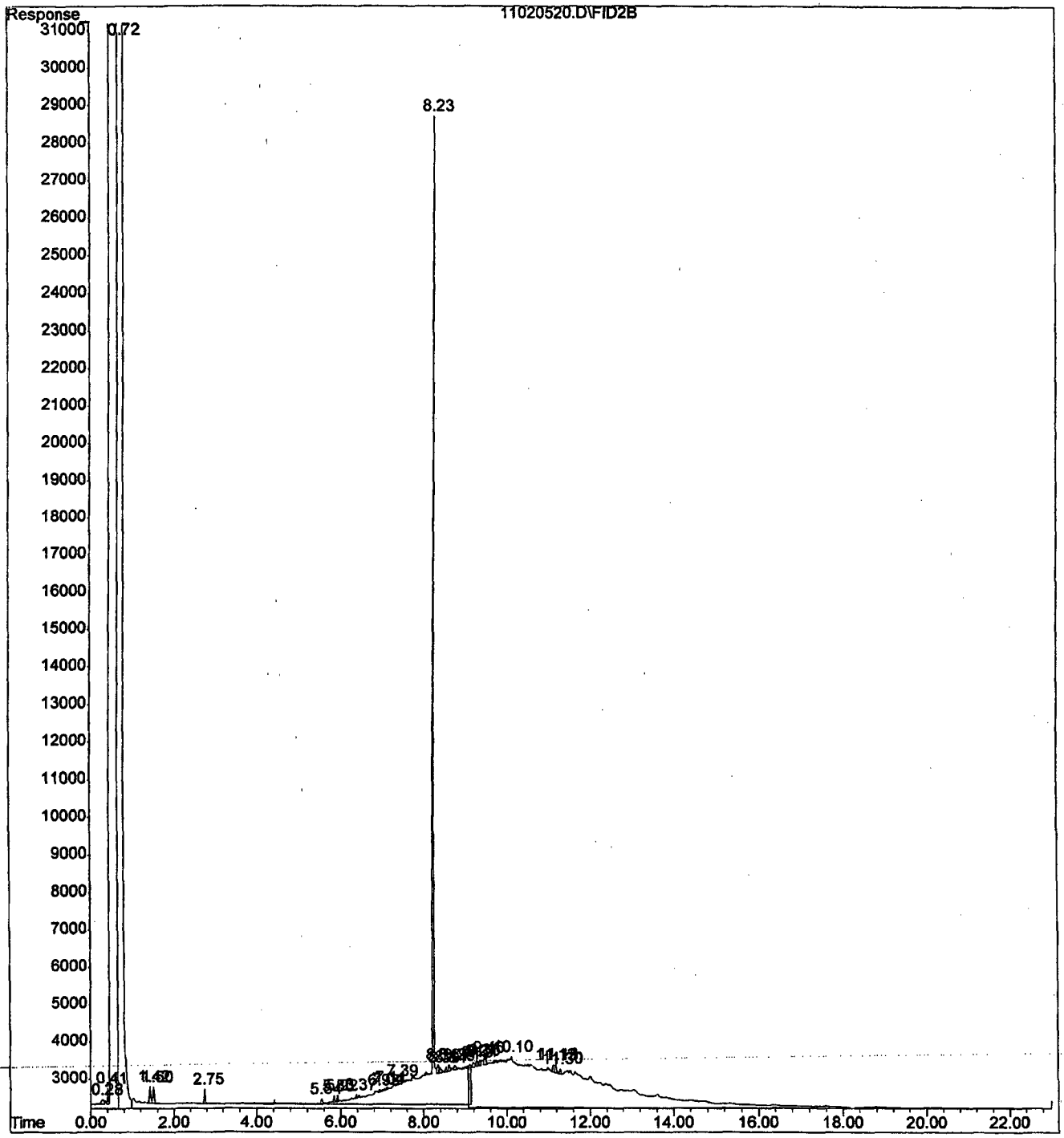
File : C:\HPCHEM\2\DATA\110205F\11020518.D
Operator : DSR
Acquired : 2 Nov 2005 18:50 using AcqMethod TPH0705.M
Instrument : FID-1
Sample Name: 510419-03
Misc Info : 10G/10ML 11/01
Vial Number: 17



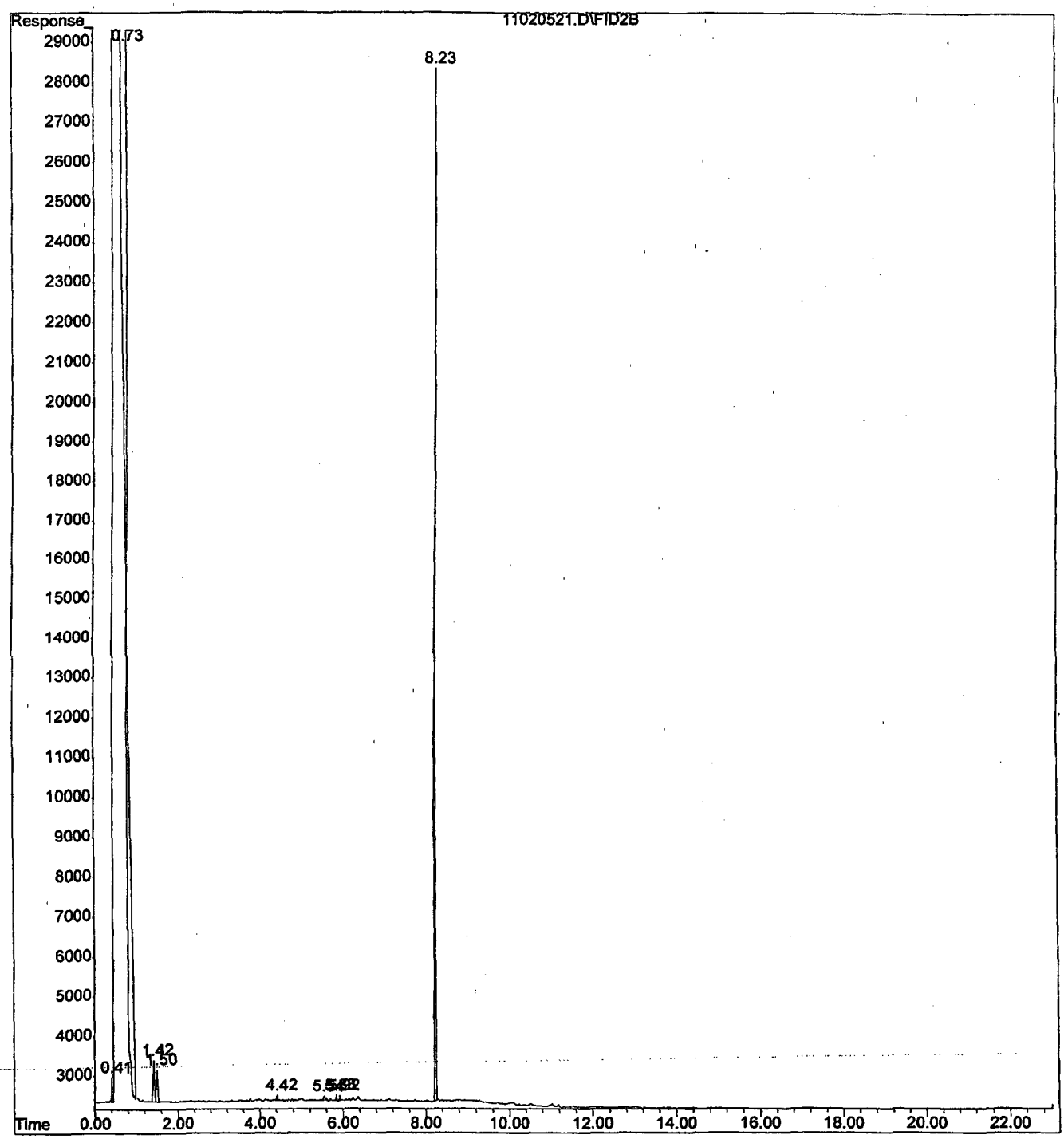
File : C:\HPCHEM\2\DATA\110205F\11020519.D
Operator : DSR
Acquired : 2 Nov 2005 19:21 using AcqMethod TPH0705.M
Instrument : FID-1
Sample Name: 510419-04
Misc Info : 10G/10ML 11/01
Vial Number: 18



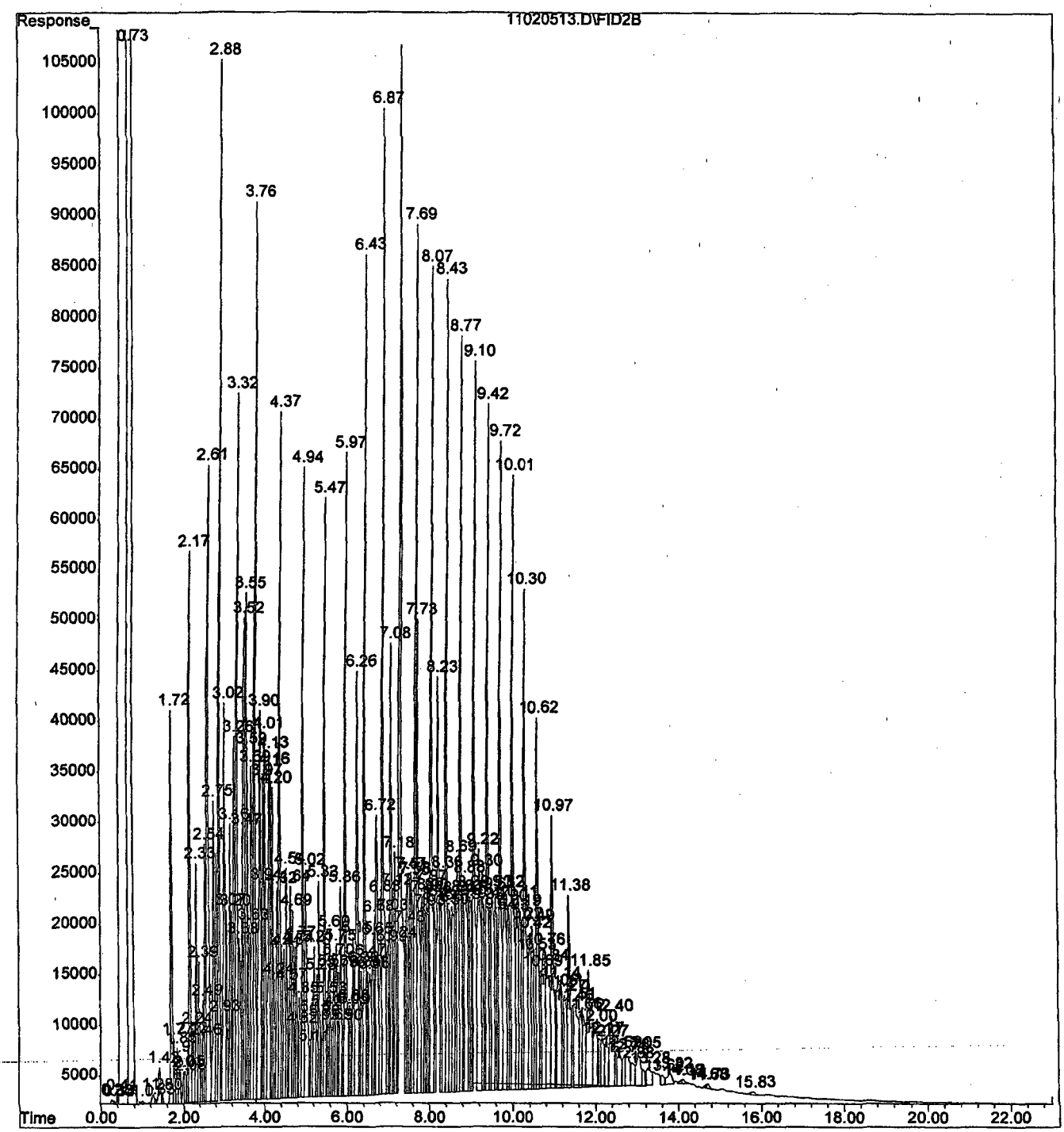
File : C:\HPCHEM\2\DATA\110205F\11020520.D
Operator : DSR
Acquired : 2 Nov 2005 19:53 using AcqMethod TPH0705.M
Instrument : FID-1
Sample Name: 510419-05
Misc Info : 10G/10ML 11/01
Vial Number: 19



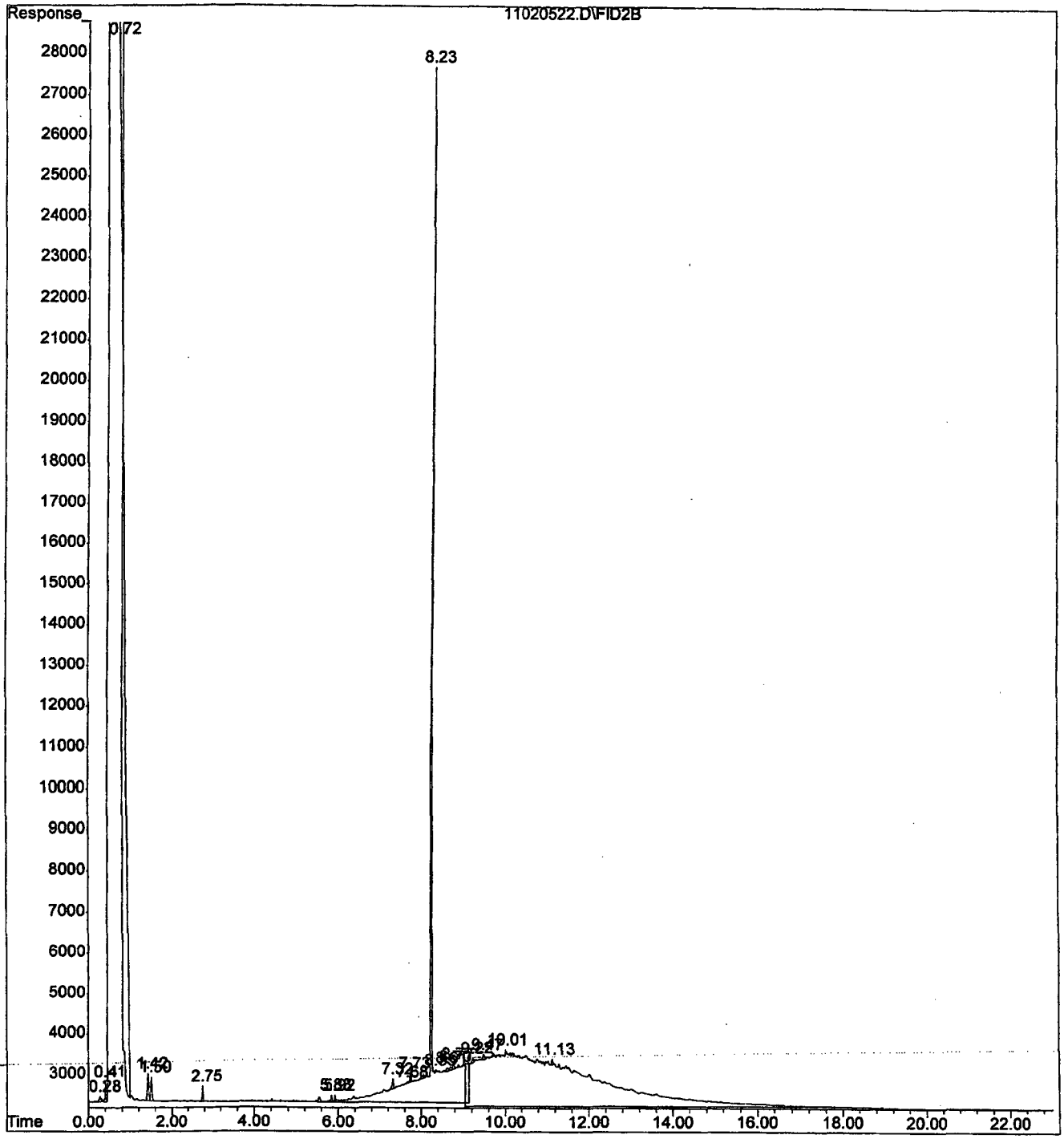
File : C:\HPCHEM\2\DATA\110205F\11020521.D
Operator : DSR
Acquired : 2 Nov 2005 20:24 using AcqMethod TPH0705.M
Instrument : FID-1
Sample Name: 510419-06
Misc Info : 10G/10ML 11/01
Vial Number: 20



File : C:\HPCHEM\2\DATA\110205F\11020513.D
Operator : DSR
Acquired : 2 Nov 2005 16:11 using AcqMethod TPH0705.M
Instrument : FID-1
Sample Name: 510419-07
Misc Info : 10G/10ML 11/01
Vial Number: 13



File : C:\HPCHEM\2\DATA\110205F\11020522.D
Operator : DSR
Acquired : 2 Nov 2005 20:56 using AcqMethod TPH0705.M
Instrument : FID-1
Sample Name: 510419-08
Misc Info : 10G/10ML 11/01
Vial Number: 21



PINNACLE LABORATORIES

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 10/26/05 PAGE: 1 OF 1

PLI Accession #:

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PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Martin Nee

COMPANY: Larson Services

ADDRESS: 206 CR 3500
Elora Vista NM 87415

PHONE: 505 334 2791

FAX:

BILL TO: Tim Kinney

COMPANY: Giant

ADDRESS: 111 CR 4990
Bloomfield NM 87413

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	8015 GRO DRO	(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 ☐PBMS	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 (Method1311)	Metals:		NUMBER OF CONTAINERS
MP-11	10/25/05	1115	Soil				X		X																						
MP-8	10/25/05	1150	Soil				X		X																						
MP-3	10/25/05	1225	Soil				X		X																						
IP-12	10/25/05	1245	Soil				X		X																						
IP-7	10/25/05	1325	Soil				X		X																						
IP-10	10/25/05	1350	Soil				X		X																						
MP-7	10/25/05	1415	Soil				X		X																						
IP-16	10/25/05	1500	Soil				X		X																						

WEEKEND ANALYSES MAY RESULT IN AN ADDITIONAL SURCHARGE - PLEASE INQUIRE.

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

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐24hr* ☐48hr* ☐72hr* ☐ 1 WEEK (NORMAL) ☒
*NOT AVAILABLE ON ALL ANALYSES

CERTIFICATION REQUIRED ☐ NM ☐ SDWA ☐ AZ ☐ OTHER

METHANOL PRESERVATION ☐ | METALS ☐ TOTAL ☐ DISSOLVED

COMMENTS:

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Time: 1100	Signature: Time:
Printed Name: Martin Nee Date: 10/26/05	Printed Name: Date:
Company: LSI	Company:
See Reverse side (Force Majeure)	
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:
Company:	Pinnacle Laboratories Inc.

PINNACLE LABS
Environmental Testing

Pinnacle Lab ID number **601294**
February 20, 2006

LODESTAR
26 CR 3500
FLORA VISTA, NM 87415

GIANT INDUSTRIES
111 COUNTY RD. 4990
BLOOMFIELD, NM 87413

Project Name BLOOMFIELD CRUDE STATION
Project Number (NONE)

Attention: MARTIN NEE/BILL ROBERTSON

On 01/27/06 Pinnacle Laboratories Inc., (ADHS License No. AZ0643), 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 and pH Method 150.1 were performed by Pinnacle Laboratories, Inc., Albuquerque, NM.

All other samples performed by Severn Trent Laboratories, Pensacola, FL.

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, Pinnacle Laboratories, Inc.

MR: jt

Enclosure

2709-D Pan American Fwy, NE Albuquerque, NM 87107 505.344.3777 505.344.4413 FAX 877.PIN.1998 TOLL FREE
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PINNACLE LABS
Environmental Testing

CLIENT	: LODESTAR	PINNACLE ID	: 601294
PROJECT #	: (NONE)	DATE RECEIVED	: 01/27/06
PROJECT NAME	: BLOOMFIELD CRUDE STATION	REPORT DATE	: 02/20/06

PINNACLE ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
601294 - 01	MW-5	AQUEOUS	01/26/06
601294 - 02	MW-6	AQUEOUS	01/26/06
601294 - 03	MW-3	AQUEOUS	01/26/06
601294 - 04	MW-4	AQUEOUS	01/26/06
601294 - 05	MW-2	AQUEOUS	01/26/06
601294 - 06	MW-7	AQUEOUS	01/26/06
601294 - 07	TRIP BLANK	AQUEOUS	01/13/06

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PINNACLE LABS
Environmental Testing

GENERAL CHEMISTRY RESULTS

CLIENT	: GIANT INDUSTRIES	PINNACLE I.D.	: 601294
PROJECT #	: (NONE)	DATE RECEIVED	: 01/27/06
PROJECT NAME	: BLOOMFIELD CRUDE STATION	ANALYST	: BP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE ANALYZED
01	MW-5	AQUEOUS	01/26/06	01/30/06
02	MW-6	AQUEOUS	01/26/06	01/30/06
03	MW-3	AQUEOUS	01/26/06	01/30/06

PARAMETER	UNITS	MW-5	MW-6	MW-3
PH (150.1)	UNITS	7.1	7.2	7.5

CHEMIST NOTES:
N/A

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PINNACLE LABS
Environmental Testing

GENERAL CHEMISTRY RESULTS

CLIENT	: GIANT INDUSTRIES	PINNACLE I.D.	: 601294
PROJECT #	: (NONE)	DATE RECEIVED	: 01/27/06
PROJECT NAME	: BLOOMFIELD CRUDE STATION	ANALYST	: BP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE ANALYZED
04	MW-4	AQUEOUS	01/26/06	01/30/06
05	MW-2	AQUEOUS	01/26/06	01/30/06
06	MW-7	AQUEOUS	01/26/06	01/30/06

PARAMETER	UNITS	MW-4	MW-2	MW-7
PH (150.1)	UNITS	7.4	7.4	7.4

CHEMIST NOTES:
N/A

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PINNACLE LABS
Environmental Testing

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT	: GIANT INDUSTRIES	PINNACLE I.D.	: 601294
PROJECT #	: (NONE)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: BLOOMFIELD CRUDE STATION	DATE ANALYZED	: 01/30/06

PARAMETER	UNITS	PINNACLE I.D.	SAMPLE RESULT	DUP. RESULT	% RPD
PH	UNITS	601294-01	7.07	7.05	0

CHEMIST NOTES:
N/A

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

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

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PINNACLE LABS
Environmental Testing

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021B
CLIENT : LODESTAR
PROJECT # : (NONE)
PROJECT NAME : BLOOMFIELD CRUDE STATION

PINNACLE I.D. : 601294
ANALYST : BP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-4	AQUEOUS	01/26/06	NA	01/30/06	1
05	MW-2	AQUEOUS	01/26/06	NA	01/30/06	50
06	MW-7	AQUEOUS	01/26/06	NA	01/30/06	10

PARAMETER	DET. LIMIT	UNITS	MW-4	MW-2	MW-7
BENZENE	**0.5**	**UG/L**	< 0.5	**250**	**1400**
TOLUENE	0.5	UG/L	< 0.5	< 25	< 5.0
ETHYLBENZENE	**0.5**	**UG/L**	< 0.5	**410**	**280**
TOTAL XYLENES	**2.0**	**UG/L**	< 2.0	**790**	**1500**
SURROGATE:					
BROMOFLUOROBENZENE (%)			97	97	98
SURROGATE LIMITS	(80 - 120)				

CHEMIST NOTES:
N/A

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PINNACLE LABS
Environmental Testing

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021B
CLIENT : LODESTAR
PROJECT # : (NONE)
PROJECT NAME : BLOOMFIELD CRUDE STATION

PINNACLE I.D. : 601294
ANALYST : BP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-5	AQUEOUS	01/26/06	NA	01/30/06	1
02	MW-6	AQUEOUS	01/26/06	NA	01/30/06	1
03	MW-3	AQUEOUS	01/26/06	NA	01/30/06	1

PARAMETER	DET. LIMIT	UNITS	MW-5	MW-6	MW-3
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	**0.5**	**UG/L**	< 0.5	**14**	< 0.5
TOTAL XYLENES	**2.0**	**UG/L**	< 2.0	**32**	< 2.0
SURROGATE:					
BROMOFLUOROBENZENE (%)			100	99	99
SURROGATE LIMITS	(80 - 120)				

CHEMIST NOTES:
N/A

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PINNACLE LABS
Environmental Testing

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021B
CLIENT : LODESTAR
PROJECT # : (NONE)
PROJECT NAME : BLOOMFIELD CRUDE STATION

PINNACLE I.D. : 601294
ANALYST : BP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	TRIP BLANK	AQUEOUS	01/13/06	NA	01/30/06	1

PARAMETER	DET. LIMIT	UNITS	TRIP BLANK
BENZENE	0.5	UG/L	< 0.5
TOLUENE	0.5	UG/L	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5
TOTAL XYLENES	2.0	UG/L	< 2.0

SURROGATE:
BROMOFLUOROBENZENE (%) 100
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A

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PINNACLE LABS
Environmental Testing

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021B	PINNACLE I.D.	: 601294
BLANK I. D.	: 013006A	DATE EXTRACTED	: N/A
CLIENT	: LODESTAR	DATE ANALYZED	: 01/30/06
PROJECT #	: (NONE)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: BLOOMFIELD CRUDE STATION	ANALYST	: BP

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<2.0
SURROGATE:		
BROMOFLUOROBENZENE (%)		99
SURROGATE LIMITS:	(80 - 120)	

CHEMIST NOTES:
N/A

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PINNACLE LABS
Environmental Testing

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021B	PINNACLE I.D.	: 601294
BLANK I. D.	: 013006B	DATE EXTRACTED	: N/A
CLIENT	: LODESTAR	DATE ANALYZED	: 01/30/06
PROJECT #	: (NONE)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: BLOOMFIELD CRUDE STATION	ANALYST	: BP

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<2.0

SURROGATE:
BROMOFLUOROBENZENE (%) 100
SURROGATE LIMITS: (80 - 120)
CHEMIST NOTES:
N/A

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PINNACLE LABS
Environmental Testing

GAS CHROMATOGRAPHY QUALITY CONTROL
LCS/LCSD

TEST	: EPA 8021B	PINNACLE I.D.	: 601294
BATCH #	: 013006	DATE EXTRACTED	: N/A
CLIENT	: LODESTAR	DATE ANALYZED	: 01/30/06
PROJECT #	: (NONE)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: BLOOMFIELD CRUDE STATION	UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	20.0	20.9	105	21.3	107	2	(80 - 120)	20
TOLUENE	<0.5	20.0	20.0	100	20.4	102	2	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	20.3	102	20.7	104	2	(80 - 120)	20
TOTAL XYLENES	<2.0	60.0	60.6	101	61.7	103	2	(80 - 120)	20

CHEMIST NOTES:
N/A

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

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

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SEVERN TRENT STL®

ANALYTICAL REPORT

Job Number: 400-8719-1

SDG Number: GI-Bloomfield Crude Station

Job Description: 601294

For:

Pinnacle Laboratories
2709-D Pan American Freeway Northeast
Albuquerque, NM 87107

Attention: Jacinta Tenorio

Marty Edwards
Project Manager I
medwards@stl-inc.com
02/08/2006

SEVERN TRENT STL®

METHOD SUMMARY

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Inductively Coupled Plasma - Atomic Emission Spectrometry	STL-PEN	SW846 6010B	
Acid Digestion of Aqueous Samples and Extracts	STL-PEN		SW846 3010A
Conductivity, Specific Conductance	STL-PEN	MCAWW 120.1	
Total Dissolved Solids	STL-PEN	MCAWW 160.1	
Alkalinity - Titrimetric, pH 4.5	STL-PEN	MCAWW 310.1	
Chloride (Colorimetric, Automated Ferricyanide)	STL-PEN	MCAWW 325.2	
Nitrogen, Nitrate-Nitrite (Colorimetric, Automated, Cadmium Reduction)	STL-PEN	MCAWW 353.2	
Sulfate (Turbidimetric)	STL-PEN	MCAWW 375.4	

LAB REFERENCES:

STL-PEN = STL-Pensacola

METHOD REFERENCES:

MCAWW - "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SEVERN TRENT STL®

METHOD / ANALYST SUMMARY

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Method	Analyst	Analyst ID
SW846 6010B	St. Pere, Gary	GS
MCAWW 120.1	Taber, Sharon	ST
MCAWW 160.1	Taber, Sharon	ST
MCAWW 310.1	Gimlin, Wendy	WG
MCAWW 325.2	Goldman, Mary	MG
MCAWW 353.2	Khramova, Galina	GK
MCAWW 375.4	Gimlin, Wendy	WG

SEVERN TRENT STL®

SAMPLE SUMMARY

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
400-8719-1	MW-5/601294-01	Water	01/26/2006 0851	01/28/2006 1100
400-8719-2	MW-6/601294-02	Water	01/26/2006 0932	01/28/2006 1100
400-8719-3	MW-3/601294-03	Water	01/26/2006 1027	01/28/2006 1100
400-8719-4	MW-4/601294-04	Water	01/26/2006 1136	01/28/2006 1100
400-8719-5	MW-2/601294-05	Water	01/26/2006 1208	01/28/2006 1100
400-8719-6	MW-7/601294-06	Water	01/26/2006 1308	01/28/2006 1100

SEVERN TRENT STL®

SAMPLE RESULTS

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

General Chemistry

Client Sample ID: MW-2/601294-05

Lab Sample ID: 400-8719-5
Client Matrix: Water

Date Sampled: 01/26/2006 1208
Date Received: 01/28/2006 1100

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity, Total	1400		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Bicarbonate Alkalinity as CaCO3	1400		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Hydroxide Alkalinity	<1.0		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Carbonate Alkalinity as CaCO3	4.3		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			

Analyte	Result	Qual	Units	RL	Dil	Method
Specific Conductance	3400		umhos/cm	1.0	1.0	120.1
	Anly Batch: 400-20745		Date Analyzed 02/01/2006 0820			
Total Dissolved Solids	2000		mg/L	5.0	1.0	160.1
	Anly Batch: 400-20738		Date Analyzed 01/30/2006 1355			
Chloride	130		mg/L	20	10	325.2
	Anly Batch: 400-20801		Date Analyzed 02/03/2006 1013			
Nitrogen, Nitrate Nitrite	<1.0		mg/L	1.0	10	353.2
	Anly Batch: 400-20463		Date Analyzed 01/30/2006 1421			
Sulfate	150		mg/L	50	10	375.4
	Anly Batch: 400-20988		Date Analyzed 02/07/2006 1125			

Client Sample ID: MW-7/601294-06

Lab Sample ID: 400-8719-6
Client Matrix: Water

Date Sampled: 01/26/2006 1308
Date Received: 01/28/2006 1100

SEVERN TRENT STL®

Analytical Data

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Client Sample ID: MW-2/601294-05

Lab Sample ID: 400-8719-5
Client Matrix: Water

Date Sampled: 01/26/2006 1208
Date Received: 01/28/2006 1100

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 01/31/2006 1604
Date Prepared: 01/30/2006 1037

Analysis Batch: 400-20581
Prep Batch: 400-20440

Instrument ID: ICP-AES
Lab File ID: N/A
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (mg/L)	Qualifier	RL
Calcium	150		0.50
Iron	4.0		0.10
Potassium	2.4		1.0
Magnesium	18		0.50
Manganese	1.3		0.010
Hardness as calcium carbonate	440		3.3

Method: 6010B
Preparation: 3010A
Dilution: 20
Date Analyzed: 02/01/2006 1616
Date Prepared: 01/30/2006 1037

Analysis Batch: 400-20662
Prep Batch: 400-20440

Instrument ID: ICP-AES
Lab File ID: N/A
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (mg/L)	Qualifier	RL
Sodium	610		20

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

General Chemistry

Client Sample ID: MW-3/601294-03

Lab Sample ID: 400-8719-3
Client Matrix: Water

Date Sampled: 01/26/2006 1027
Date Received: 01/28/2006 1100

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity, Total	580		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Bicarbonate Alkalinity as CaCO3	580		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Hydroxide Alkalinity	<1.0		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Carbonate Alkalinity as CaCO3	1.5		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			

Analyte	Result	Qual	Units	RL	Dil	Method
Specific Conductance	5100		umhos/cm	1.0	1.0	120.1
	Anly Batch: 400-20745		Date Analyzed 02/01/2006 0820			
Total Dissolved Solids	3600		mg/L	5.0	1.0	160.1
	Anly Batch: 400-20738		Date Analyzed 01/30/2006 1355			
Chloride	37		mg/L	2.0	1.0	325.2
	Anly Batch: 400-20801		Date Analyzed 02/03/2006 1013			
Nitrogen, Nitrate Nitrite	0.36		mg/L	0.10	1.0	353.2
	Anly Batch: 400-20463		Date Analyzed 01/30/2006 1421			
Sulfate	2200		mg/L	400	80	375.4
	Anly Batch: 400-20988		Date Analyzed 02/07/2006 1125			

Client Sample ID: MW-4/601294-04

Lab Sample ID: 400-8719-4
Client Matrix: Water

Date Sampled: 01/26/2006 1136
Date Received: 01/28/2006 1100

SEVERN TRENT STL®

Analytical Data

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Client Sample ID: MW-3/601294-03

Lab Sample ID: 400-8719-3
Client Matrix: Water

Date Sampled: 01/26/2006 1027
Date Received: 01/28/2006 1100

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method: 6010B
Preparation: 3010A
Dilution: 1.0
Date Analyzed: 01/31/2006 1556
Date Prepared: 01/30/2006 1037

Analysis Batch: 400-20581
Prep Batch: 400-20440

Instrument ID: ICP-AES
Lab File ID: N/A
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (mg/L)	Qualifier	RL
Calcium	450		0.50
Iron	4.4		0.10
Potassium	3.7		1.0
Magnesium	47		0.50
Manganese	0.38		0.010
Hardness as calcium carbonate	1300		3.3

Method: 6010B
Preparation: 3010A
Dilution: 20
Date Analyzed: 02/01/2006 1601
Date Prepared: 01/30/2006 1037

Analysis Batch: 400-20662
Prep Batch: 400-20440

Instrument ID: ICP-AES
Lab File ID: N/A
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result (mg/L)	Qualifier	RL
Sodium	680		20

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

General Chemistry

Client Sample ID: MW-4/601294-04

Lab Sample ID: 400-8719-4
Client Matrix: Water

Date Sampled: 01/26/2006 1136
Date Received: 01/28/2006 1100

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity, Total	450		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Bicarbonate Alkalinity as CaCO3	450		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Hydroxide Alkalinity	<1.0		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Carbonate Alkalinity as CaCO3	5.9		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			

Analyte	Result	Qual	Units	RL	Dil	Method
Specific Conductance	5400		umhos/cm	1.0	1.0	120.1
	Anly Batch: 400-20745		Date Analyzed 02/01/2006 0820			
Total Dissolved Solids	3700		mg/L	5.0	1.0	160.1
	Anly Batch: 400-20738		Date Analyzed 01/30/2006 1355			
Chloride	31		mg/L	2.0	1.0	325.2
	Anly Batch: 400-20801		Date Analyzed 02/03/2006 1013			
Nitrogen, Nitrate Nitrite	<1.0		mg/L	1.0	10	353.2
	Anly Batch: 400-20463		Date Analyzed 01/30/2006 1421			
Sulfate	2500		mg/L	400	80	375.4
	Anly Batch: 400-20988		Date Analyzed 02/07/2006 1125			

Client Sample ID: MW-2/601294-05

Lab Sample ID: 400-8719-5
Client Matrix: Water

Date Sampled: 01/26/2006 1208
Date Received: 01/28/2006 1100

SEVERN TRENT STL®

Analytical Data

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Client Sample ID: MW-4/601294-04

Lab Sample ID: 400-8719-4
Client Matrix: Water

Date Sampled: 01/26/2006 1136
Date Received: 01/28/2006 1100

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method:	6010B	Analysis Batch: 400-20581	Instrument ID: ICP-AES
Preparation:	3010A	Prep Batch: 400-20440	Lab File ID: N/A
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	01/31/2006 1600		Final Weight/Volume: 50 mL
Date Prepared:	01/30/2006 1037		

Analyte	Result (mg/L)	Qualifier	RL
Calcium	410		0.50
Iron	3.8		0.10
Potassium	7.0		1.0
Magnesium	47		0.50
Manganese	5.4		0.010
Hardness as calcium carbonate	1200		3.3

Method:	6010B	Analysis Batch: 400-20662	Instrument ID: ICP-AES
Preparation:	3010A	Prep Batch: 400-20440	Lab File ID: N/A
Dilution:	20		Initial Weight/Volume: 50 mL
Date Analyzed:	02/01/2006 1611		Final Weight/Volume: 50 mL
Date Prepared:	01/30/2006 1037		

Analyte	Result (mg/L)	Qualifier	RL
Sodium	790		20

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

General Chemistry

Client Sample ID: MW-5/601294-01

Lab Sample ID: 400-8719-1
Client Matrix: Water

Date Sampled: 01/26/2006 0851
Date Received: 01/28/2006 1100

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity, Total	990		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Bicarbonate Alkalinity as CaCO3	990		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Hydroxide Alkalinity	<1.0		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Carbonate Alkalinity as CaCO3	<1.0		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			

Analyte	Result	Qual	Units	RL	Dil	Method
Specific Conductance	8000		umhos/cm	1.0	1.0	120.1
	Anly Batch: 400-20745		Date Analyzed 02/01/2006 0820			
Total Dissolved Solids	4300		mg/L	5.0	1.0	160.1
	Anly Batch: 400-20738		Date Analyzed 01/30/2006 1355			
Chloride	1000		mg/L	40	20	325.2
	Anly Batch: 400-20801		Date Analyzed 02/03/2006 1013			
Nitrogen, Nitrate Nitrite	<1.0		mg/L	1.0	10	353.2
	Anly Batch: 400-20463		Date Analyzed 01/30/2006 1421			
Sulfate	1200		mg/L	400	80	375.4
	Anly Batch: 400-20988		Date Analyzed 02/07/2006 1125			

Client Sample ID: MW-6/601294-02

Lab Sample ID: 400-8719-2
Client Matrix: Water

Date Sampled: 01/26/2006 0932
Date Received: 01/28/2006 1100

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Analytical Data

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Client Sample ID: MW-5/601294-01

Lab Sample ID: 400-8719-1
Client Matrix: Water

Date Sampled: 01/26/2006 0851
Date Received: 01/28/2006 1100

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method:	6010B	Analysis Batch: 400-20581		Instrument ID:	ICP-AES
Preparation:	3010A	Prep Batch: 400-20440		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	01/31/2006 1538			Final Weight/Volume:	50 mL
Date Prepared:	01/30/2006 1037				

Analyte	Result (mg/L)	Qualifier	RL
Iron	11		0.10
Potassium	12		1.0
Magnesium	58		0.50
Manganese	11		0.010

Method:	6010B	Analysis Batch: 400-20662		Instrument ID:	ICP-AES
Preparation:	3010A	Prep Batch: 400-20440		Lab File ID:	N/A
Dilution:	20			Initial Weight/Volume:	50 mL
Date Analyzed:	02/01/2006 1545			Final Weight/Volume:	50 mL
Date Prepared:	01/30/2006 1037				

Analyte	Result (mg/L)	Qualifier	RL
Calcium	630		10
Sodium	920		20
Hardness as calcium carbonate	1800		66

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

General Chemistry

Client Sample ID: MW-6/601294-02

Lab Sample ID: 400-8719-2
Client Matrix: Water

Date Sampled: 01/26/2006 0932
Date Received: 01/28/2006 1100

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity, Total	800		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Bicarbonate Alkalinity as CaCO3	800		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Hydroxide Alkalinity	<1.0		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Carbonate Alkalinity as CaCO3	3.6		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			

Analyte	Result	Qual	Units	RL	Dil	Method
Specific Conductance	7000		umhos/cm	1.0	1.0	120.1
	Anly Batch: 400-20745		Date Analyzed 02/01/2006 0820			
Total Dissolved Solids	4500		mg/L	5.0	1.0	160.1
	Anly Batch: 400-20738		Date Analyzed 01/30/2006 1355			
Chloride	82		mg/L	2.0	1.0	325.2
	Anly Batch: 400-20801		Date Analyzed 02/03/2006 1013			
Nitrogen, Nitrate Nitrite	<0.10		mg/L	0.10	1.0	353.2
	Anly Batch: 400-20463		Date Analyzed 01/30/2006 1421			
Sulfate	2600		mg/L	400	80	375.4
	Anly Batch: 400-20988		Date Analyzed 02/07/2006 1125			

Client Sample ID: MW-3/601294-03

Lab Sample ID: 400-8719-3
Client Matrix: Water

Date Sampled: 01/26/2006 1027
Date Received: 01/28/2006 1100

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Analytical Data

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Client Sample ID: MW-6/601294-02

Lab Sample ID: 400-8719-2
Client Matrix: Water

Date Sampled: 01/26/2006 0932
Date Received: 01/28/2006 1100

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method:	6010B	Analysis Batch: 400-20581		Instrument ID:	ICP-AES
Preparation:	3010A	Prep Batch: 400-20440		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	01/31/2006 1551			Final Weight/Volume:	50 mL
Date Prepared:	01/30/2006 1037				

Analyte	Result (mg/L)	Qualifier	RL
Calcium	440		0.50
Iron	87		0.10
Magnesium	68		0.50
Manganese	11		0.010
Hardness as calcium carbonate	1400		3.3

Method:	6010B	Analysis Batch: 400-20662		Instrument ID:	ICP-AES
Preparation:	3010A	Prep Batch: 400-20440		Lab File ID:	N/A
Dilution:	5.0			Initial Weight/Volume:	50 mL
Date Analyzed:	02/01/2006 1550			Final Weight/Volume:	50 mL
Date Prepared:	01/30/2006 1037				

Analyte	Result (mg/L)	Qualifier	RL
Potassium	24		5.0

Method:	6010B	Analysis Batch: 400-20662		Instrument ID:	ICP-AES
Preparation:	3010A	Prep Batch: 400-20440		Lab File ID:	N/A
Dilution:	20			Initial Weight/Volume:	50 mL
Date Analyzed:	02/01/2006 1556			Final Weight/Volume:	50 mL
Date Prepared:	01/30/2006 1037				

Analyte	Result (mg/L)	Qualifier	RL
Sodium	1200		20

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

General Chemistry

Client Sample ID: MW-7/601294-06

Lab Sample ID: 400-8719-6
Client Matrix: Water

Date Sampled: 01/26/2006 1308
Date Received: 01/28/2006 1100

Analyte	Result	Qual	Units	RL	Dil	Method
Alkalinity, Total	750		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Bicarbonate Alkalinity as CaCO3	750		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Hydroxide Alkalinity	<1.0		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			
Carbonate Alkalinity as CaCO3	3.2		mg/L	1.0	1.0	310.1
	Anly Batch: 400-20481		Date Analyzed 01/31/2006 1020			

Analyte	Result	Qual	Units	RL	Dil	Method
Specific Conductance	1800		umhos/cm	1.0	1.0	120.1
	Anly Batch: 400-20745		Date Analyzed 02/01/2006 0820			
Total Dissolved Solids	1200		mg/L	5.0	1.0	160.1
	Anly Batch: 400-20738		Date Analyzed 01/30/2006 1355			
Chloride	16		mg/L	2.0	1.0	325.2
	Anly Batch: 400-20801		Date Analyzed 02/03/2006 1013			
Nitrogen, Nitrate Nitrite	<1.0		mg/L	1.0	10	353.2
	Anly Batch: 400-20463		Date Analyzed 01/30/2006 1421			
Sulfate	310		mg/L	50	10	375.4
	Anly Batch: 400-20988		Date Analyzed 02/07/2006 1125			

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Analytical Data

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Client Sample ID: MW-7/601294-06

Lab Sample ID: 400-8719-6
Client Matrix: Water

Date Sampled: 01/26/2006 1308
Date Received: 01/28/2006 1100

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry

Method:	6010B	Analysis Batch: 400-20581		Instrument ID:	ICP-AES
Preparation:	3010A	Prep Batch: 400-20440		Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	50 mL
Date Analyzed:	01/31/2006 1609			Final Weight/Volume:	50 mL
Date Prepared:	01/30/2006 1037				

Analyte	Result (mg/L)	Qualifier	RL
Calcium	220		0.50
Iron	49		0.10
Potassium	3.3		1.0
Magnesium	23		0.50
Manganese	2.9		0.010
Hardness as calcium carbonate	660		3.3

Method:	6010B	Analysis Batch: 400-20662		Instrument ID:	ICP-AES
Preparation:	3010A	Prep Batch: 400-20440		Lab File ID:	N/A
Dilution:	5.0			Initial Weight/Volume:	50 mL
Date Analyzed:	02/01/2006 1621			Final Weight/Volume:	50 mL
Date Prepared:	01/30/2006 1037				

Analyte	Result (mg/L)	Qualifier	RL
Sodium	170		5.0

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QUALITY CONTROL RESULTS

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

QC Association Summary

Lab Sample ID	Client Sample ID	Client Matrix	Method	Prep Batch
Metals				
Prep Batch: 400-20440				
LCS 400-20440/25-A	Lab Control Spike	Water	3010A	
MB 400-20440/24-A	Method Blank	Water	3010A	
400-8650-A-1-B MS	Matrix Spike	Water	3010A	
400-8650-A-1-C MSD	Matrix Spike Duplicate	Water	3010A	
400-8719-1	MW-5/601294-01	Water	3010A	
400-8719-2	MW-6/601294-02	Water	3010A	
400-8719-3	MW-3/601294-03	Water	3010A	
400-8719-4	MW-4/601294-04	Water	3010A	
400-8719-5	MW-2/601294-05	Water	3010A	
400-8719-6	MW-7/601294-06	Water	3010A	
Analysis Batch:400-20581				
LCS 400-20440/25-A	Lab Control Spike	Water	6010B	400-20440
MB 400-20440/24-A	Method Blank	Water	6010B	400-20440
400-8650-A-1-B MS	Matrix Spike	Water	6010B	400-20440
400-8650-A-1-C MSD	Matrix Spike Duplicate	Water	6010B	400-20440
400-8719-1	MW-5/601294-01	Water	6010B	400-20440
400-8719-2	MW-6/601294-02	Water	6010B	400-20440
400-8719-3	MW-3/601294-03	Water	6010B	400-20440
400-8719-4	MW-4/601294-04	Water	6010B	400-20440
400-8719-5	MW-2/601294-05	Water	6010B	400-20440
400-8719-6	MW-7/601294-06	Water	6010B	400-20440
Analysis Batch:400-20662				
400-8719-1	MW-5/601294-01	Water	6010B	400-20440
400-8719-2	MW-6/601294-02	Water	6010B	400-20440
400-8719-3	MW-3/601294-03	Water	6010B	400-20440
400-8719-4	MW-4/601294-04	Water	6010B	400-20440
400-8719-5	MW-2/601294-05	Water	6010B	400-20440
400-8719-6	MW-7/601294-06	Water	6010B	400-20440

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Quality Control Results

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

QC Association Summary

Lab Sample ID	Client Sample ID	Client Matrix	Method	Prep Batch
General Chemistry				
Analysis Batch:400-20463				
LCS 400-20463/2	Lab Control Spike	Water	353.2	
MB 400-20463/1	Method Blank	Water	353.2	
400-8513-A-1 MS	Matrix Spike	Water	353.2	
400-8513-A-1 MSD	Matrix Spike Duplicate	Water	353.2	
400-8719-1	MW-5/601294-01	Water	353.2	
400-8719-2	MW-6/601294-02	Water	353.2	
400-8719-3	MW-3/601294-03	Water	353.2	
400-8719-3DU	Duplicate	Water	353.2	
400-8719-4	MW-4/601294-04	Water	353.2	
400-8719-5	MW-2/601294-05	Water	353.2	
400-8719-6	MW-7/601294-06	Water	353.2	
Analysis Batch:400-20481				
LCS 400-20481/2	Lab Control Spike	Water	310.1	
MB 400-20481/1	Method Blank	Water	310.1	
400-8513-A-1 MS	Matrix Spike	Water	310.1	
400-8513-A-1 MSD	Matrix Spike Duplicate	Water	310.1	
400-8613-A-4 DU	Duplicate	Water	310.1	
400-8719-1	MW-5/601294-01	Water	310.1	
400-8719-2	MW-6/601294-02	Water	310.1	
400-8719-3	MW-3/601294-03	Water	310.1	
400-8719-4	MW-4/601294-04	Water	310.1	
400-8719-5	MW-2/601294-05	Water	310.1	
400-8719-6	MW-7/601294-06	Water	310.1	
Analysis Batch:400-20738				
LCS 400-20738/2	Lab Control Spike	Water	160.1	
MB 400-20738/1	Method Blank	Water	160.1	
400-8706-A-1 DU	Duplicate	Water	160.1	
400-8719-1	MW-5/601294-01	Water	160.1	
400-8719-2	MW-6/601294-02	Water	160.1	
400-8719-3	MW-3/601294-03	Water	160.1	
400-8719-4	MW-4/601294-04	Water	160.1	
400-8719-5	MW-2/601294-05	Water	160.1	
400-8719-6	MW-7/601294-06	Water	160.1	
Analysis Batch:400-20745				
LCS 400-20745/2	Lab Control Spike	Water	120.1	
MB 400-20745/1	Method Blank	Water	120.1	
400-8719-1	MW-5/601294-01	Water	120.1	
400-8719-1DU	Duplicate	Water	120.1	
400-8719-2	MW-6/601294-02	Water	120.1	
400-8719-3	MW-3/601294-03	Water	120.1	
400-8719-4	MW-4/601294-04	Water	120.1	
400-8719-5	MW-2/601294-05	Water	120.1	
400-8719-6	MW-7/601294-06	Water	120.1	

Quality Control Results

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

QC Association Summary

Lab Sample ID	Client Sample ID	Client Matrix	Method	Prep Batch
General Chemistry				
Analysis Batch:400-20801				
LCS 400-20801/2	Lab Control Spike	Water	325.2	
MB 400-20801/1	Method Blank	Water	325.2	
400-8719-1	MW-5/601294-01	Water	325.2	
400-8719-1MS	Matrix Spike	Water	325.2	
400-8719-1MSD	Matrix Spike Duplicate	Water	325.2	
400-8719-2	MW-6/601294-02	Water	325.2	
400-8719-3	MW-3/601294-03	Water	325.2	
400-8719-4	MW-4/601294-04	Water	325.2	
400-8719-5	MW-2/601294-05	Water	325.2	
400-8719-6	MW-7/601294-06	Water	325.2	
Analysis Batch:400-20988				
LCS 400-20988/2	Lab Control Spike	Water	375.4	
MB 400-20988/1	Method Blank	Water	375.4	
400-8510-A-13 MS	Matrix Spike	Water	375.4	
400-8510-A-13 MSD	Matrix Spike Duplicate	Water	375.4	
400-8719-1	MW-5/601294-01	Water	375.4	
400-8719-2	MW-6/601294-02	Water	375.4	
400-8719-2DU	Duplicate	Water	375.4	
400-8719-3	MW-3/601294-03	Water	375.4	
400-8719-4	MW-4/601294-04	Water	375.4	
400-8719-5	MW-2/601294-05	Water	375.4	
400-8719-6	MW-7/601294-06	Water	375.4	

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Quality Control Results

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Method Blank - Batch: 400-20440

Method: 6010B
Preparation: 3010A

Lab Sample ID: MB 400-20440/24-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 01/31/2006 1406
Date Prepared: 01/30/2006 1037

Analysis Batch: 400-20581
Prep Batch: 400-20440
Units: mg/L

Instrument ID: ICP-AES
Lab File ID: N/A
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Calcium	<0.50		0.50
Iron	<0.10		0.10
Potassium	<1.0		1.0
Magnesium	<0.50		0.50
Manganese	<0.010		0.010
Sodium	<1.0		1.0
Hardness as calcium carbonate	<3.3		3.3

Laboratory Control Sample - Batch: 400-20440

Method: 6010B
Preparation: 3010A

Lab Sample ID: LCS 400-20440/25-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 01/31/2006 1410
Date Prepared: 01/30/2006 1037

Analysis Batch: 400-20581
Prep Batch: 400-20440
Units: mg/L

Instrument ID: ICP-AES
Lab File ID: N/A
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Calcium	10.0	11	108	80 - 120	
Iron	10.0	11	106	80 - 120	
Potassium	10.0	9.7	97	80 - 120	
Magnesium	10.0	11	105	80 - 120	
Manganese	1.00	1.1	107	80 - 120	
Sodium	10.0	9.8	98	80 - 120	

Calculations are performed before rounding to avoid round-off errors in calculated results.

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Quality Control Results

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 400-20440

Method: 6010B
Preparation: 3010A

MS Lab Sample ID:	400-8650-A-1-B MS	Analysis Batch: 400-20581	Instrument ID: ICP-AES
Client Matrix:	Water	Prep Batch: 400-20440	Lab File ID: N/A
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	01/31/2006 1423		Final Weight/Volume: 50 mL
Date Prepared:	01/30/2006 1037		

MSD Lab Sample ID:	400-8650-A-1-C MSD	Analysis Batch: 400-20581	Instrument ID: ICP-AES
Client Matrix:	Water	Prep Batch: 400-20440	Lab File ID: N/A
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	01/31/2006 1428		Final Weight/Volume: 50 mL
Date Prepared:	01/30/2006 1037		

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Calcium	106	108	75 - 125	1	20		
Iron	107	107	75 - 125	0	20		
Potassium	113	110	75 - 125	2	20		
Magnesium	106	107	75 - 125	0	20		
Manganese	108	108	75 - 125	0	20		
Sodium	127	124	75 - 125	0	20	4	4

Calculations are performed before rounding to avoid round-off errors in calculated results.

SEVERN TRENT STL®

Quality Control Results

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Method Blank - Batch: 400-20745

Method: 120.1
Preparation: N/A

Lab Sample ID: MB 400-20745/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 02/01/2006 0820
Date Prepared: N/A

Analysis Batch: 400-20745
Prep Batch: N/A
Units: umhos/cm

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Result	Qual	RL
Specific Conductance	<1.0		1.0

Laboratory Control Sample - Batch: 400-20745

Method: 120.1
Preparation: N/A

Lab Sample ID: LCS 400-20745/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 02/01/2006 0820
Date Prepared: N/A

Analysis Batch: 400-20745
Prep Batch: N/A
Units: umhos/cm

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 25 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Specific Conductance	147	150	101	98 - 102	

Matrix Duplicate - Batch: 400-20745

Method: 120.1
Preparation: N/A

Lab Sample ID: 400-8719-1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 02/01/2006 0820
Date Prepared: N/A

Analysis Batch: 400-20745
Prep Batch: N/A
Units: umhos/cm

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Specific Conductance	8000	8000	1	2	

Calculations are performed before rounding to avoid round-off errors in calculated results.

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Quality Control Results

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Method Blank - Batch: 400-20738

Method: 160.1
Preparation: N/A

Lab Sample ID: MB 400-20738/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 01/30/2006 1355
Date Prepared: N/A

Analysis Batch: 400-20738
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Result	Qual	RL
Total Dissolved Solids	<5.0		5.0

Laboratory Control Sample - Batch: 400-20738

Method: 160.1
Preparation: N/A

Lab Sample ID: LCS 400-20738/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 01/30/2006 1355
Date Prepared: N/A

Analysis Batch: 400-20738
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Total Dissolved Solids	293	260	90	68 - 120	

Matrix Duplicate - Batch: 400-20738

Method: 160.1
Preparation: N/A

Lab Sample ID: 400-8706-A-1 DU
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 01/30/2006 1355
Date Prepared: N/A

Analysis Batch: 400-20738
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Total Dissolved Solids	17000	17000	0	19	

Calculations are performed before rounding to avoid round-off errors in calculated results.

SEVERN TRENT STL®

Quality Control Results

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Method Blank - Batch: 400-20481

Method: 310.1
Preparation: N/A

Lab Sample ID: MB 400-20481/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 01/30/2006 1145
Date Prepared: N/A

Analysis Batch: 400-20481
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Result	Qual	RL
Alkalinity, Total	<1.0		1.0
Bicarbonate Alkalinity as CaCO3	N/A		1.0
Hydroxide Alkalinity	N/A		1.0
Carbonate Alkalinity as CaCO3	N/A		1.0

Laboratory Control Sample - Batch: 400-20481

Method: 310.1
Preparation: N/A

Lab Sample ID: LCS 400-20481/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 01/30/2006 1145
Date Prepared: N/A

Analysis Batch: 400-20481
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 100 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Alkalinity, Total	250	260	103	90 - 110	

Calculations are performed before rounding to avoid round-off errors in calculated results.

SEVERN TRENT STL®

Quality Control Results

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 400-20481

Method: 310.1
Preparation: N/A

MS Lab Sample ID:	400-8513-A-1 MS	Analysis Batch: 400-20481	Instrument ID: No Equipment Assigned
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: N/A
Dilution:	1.0		Initial Weight/Volume:
Date Analyzed:	01/30/2006 1145		Final Weight/Volume: 100 mL
Date Prepared:	N/A		

MSD Lab Sample ID:	400-8513-A-1 MSD	Analysis Batch: 400-20481	Instrument ID: No Equipment Assigned
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: N/A
Dilution:	1.0		Initial Weight/Volume:
Date Analyzed:	01/30/2006 1145		Final Weight/Volume: 100 mL
Date Prepared:	N/A		

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Alkalinity, Total	101	100	65 - 138	1	20		

Matrix Duplicate - Batch: 400-20481

Method: 310.1
Preparation: N/A

Lab Sample ID:	400-8613-A-4 DU	Analysis Batch: 400-20481	Instrument ID: No Equipment Assigned
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: N/A
Dilution:	1.0	Units: mg/L	Initial Weight/Volume:
Date Analyzed:	01/31/2006 1020		Final Weight/Volume:
Date Prepared:	N/A		

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Alkalinity, Total	27	27	0	25	
Bicarbonate Alkalinity as CaCO3		N/A			
Hydroxide Alkalinity		N/A			
Carbonate Alkalinity as CaCO3		N/A			

Calculations are performed before rounding to avoid round-off errors in calculated results.

SEVERN TRENT STL®

Quality Control Results

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Method Blank - Batch: 400-20801

Method: 325.2
Preparation: N/A

Lab Sample ID: MB 400-20801/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 02/03/2006 1013
Date Prepared: N/A

Analysis Batch: 400-20801
Prep Batch: N/A
Units: mg/L

Instrument ID: UV-VIS
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Result	Qual	RL
Chloride	<2.0		2.0

Laboratory Control Sample - Batch: 400-20801

Method: 325.2
Preparation: N/A

Lab Sample ID: LCS 400-20801/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 02/03/2006 1013
Date Prepared: N/A

Analysis Batch: 400-20801
Prep Batch: N/A
Units: mg/L

Instrument ID: UV-VIS
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 10 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride	50.0	50	100	90 - 110	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 400-20801

Method: 325.2
Preparation: N/A

MS Lab Sample ID: 400-8719-1
Client Matrix: Water
Dilution: 20
Date Analyzed: 02/03/2006 1013
Date Prepared: N/A

Analysis Batch: 400-20801
Prep Batch: N/A

Instrument ID: UV-VIS
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 10 mL

MSD Lab Sample ID: 400-8719-1
Client Matrix: Water
Dilution: 20
Date Analyzed: 02/03/2006 1013
Date Prepared: N/A

Analysis Batch: 400-20801
Prep Batch: N/A

Instrument ID: UV-VIS
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 10 mL

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chloride	-84	-86	81 - 131	0	20	4	4

Calculations are performed before rounding to avoid round-off errors in calculated results.

SEVERN TRENT STL®

Quality Control Results

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Method Blank - Batch: 400-20463

Method: 353.2
Preparation: N/A

Lab Sample ID: MB 400-20463/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 01/30/2006 1421
Date Prepared: N/A

Analysis Batch: 400-20463
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Result	Qual	RL
Nitrogen, Nitrate Nitrite	<0.10		0.10

Laboratory Control Sample - Batch: 400-20463

Method: 353.2
Preparation: N/A

Lab Sample ID: LCS 400-20463/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 01/30/2006 1421
Date Prepared: N/A

Analysis Batch: 400-20463
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 10.0 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrogen, Nitrate Nitrite	2.00	2.0	102	90 - 110	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 400-20463

Method: 353.2
Preparation: N/A

MS Lab Sample ID: 400-8513-A-1 MS
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 01/30/2006 1421
Date Prepared: N/A

Analysis Batch: 400-20463
Prep Batch: N/A

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 10.0 mL

MSD Lab Sample ID: 400-8513-A-1 MSD
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 01/30/2006 1421
Date Prepared: N/A

Analysis Batch: 400-20463
Prep Batch: N/A

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 10.0 mL

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Nitrogen, Nitrate Nitrite	96	98	67 - 126	2	6		

Calculations are performed before rounding to avoid round-off errors in calculated results.

SEVERN TRENT STL®

Quality Control Results

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Matrix Duplicate - Batch: 400-20463

Method: 353.2
Preparation: N/A

Lab Sample ID: 400-8719-3
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 01/30/2006 1421
Date Prepared: N/A

Analysis Batch: 400-20463
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrogen, Nitrate Nitrite	0.36	0.31	14	25	

Calculations are performed before rounding to avoid round-off errors in calculated results.

SEVERN TRENT STL®

Quality Control Results

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Method Blank - Batch: 400-20988

Method: 375.4
Preparation: N/A

Lab Sample ID: MB 400-20988/1
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 02/07/2006 1125
Date Prepared: N/A

Analysis Batch: 400-20988
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Result	Qual	RL
Sulfate	<5.0		5.0

Laboratory Control Sample - Batch: 400-20988

Method: 375.4
Preparation: N/A

Lab Sample ID: LCS 400-20988/2
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 02/07/2006 1125
Date Prepared: N/A

Analysis Batch: 400-20988
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 10 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Sulfate	20.0	20	102	90 - 110	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 400-20988

Method: 375.4
Preparation: N/A

MS Lab Sample ID: 400-8510-A-13 MS
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 02/07/2006 1125
Date Prepared: N/A

Analysis Batch: 400-20988
Prep Batch: N/A

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 10 mL

MSD Lab Sample ID: 400-8510-A-13 MSD
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 02/07/2006 1125
Date Prepared: N/A

Analysis Batch: 400-20988
Prep Batch: N/A

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume: 10 mL

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Sulfate	102	101	54 - 136	1	19		

Calculations are performed before rounding to avoid round-off errors in calculated results.

SEVERN TRENT STL®

Quality Control Results

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Matrix Duplicate - Batch: 400-20988

Method: 375.4
Preparation: N/A

Lab Sample ID: 400-8719-2
Client Matrix: Water
Dilution: 80
Date Analyzed: 02/07/2006 1125
Date Prepared: N/A

Analysis Batch: 400-20988
Prep Batch: N/A
Units: mg/L

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Sulfate	2600	2600	2	25	

Calculations are performed before rounding to avoid round-off errors in calculated results.

SEVERN TRENT STL®

DATA REPORTING QUALIFIERS

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Lab Section	Qualifier	Description
Metals		
	4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
General Chemistry		
	4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

400-8719

Pinnacle Laboratories, Inc.

Interlab Chain of Custody

Date: 1/27/06 Page: 1 of 1

SEVERN TRENT STL®

Network Project Manager: Jacinta Tenorio

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Albuquerque, NM 87107
(505) 344-3777 Fax (505) 344-4413

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals (8) RCRA	TCLP RCRA (8) Metals	Metals-13 PP List	Metals-TAL (23 Metals)	Dissolved Fe, Mn, Pb (6010)	Ca, Mg, K, Na, Fe, Mn (Hardness)	TOC	Gen Chemistry: EC, TDS, Cl, SO4	NO2/NO3 (Total)	Alk + Bicarb/Carb/OH	Volatile Organics GC/MS (8260)	BOD	COD	Pesticides/PCB (608/8081/8082)	Herbicides (615/8151)	PNA (8310)/8270 SIMS	8260 (TCLP 1311) ZHE		Base/Neutral Acid Compounds GC/MS (625/8270)	Uranium (ICP-MS)	Radium 226+228	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS
MW-5/601294-01	1/26/06	0851	GW							X		X	X	X														
MW-6/601294-02	"	0932	"							X		X	X	X														
MW-3/601294-03	"	1027	"							X		X	X	X														
MW-4/601294-04	"	1136	"							X		X	X	X														
MW-2/601294-05	"	1208	"							X		X	X	X														
MW-7/601294-06	"	1308	GW							X		X	X	X														

Page 54 of 55

PROJECT INFORMATION	SAMPLE RECEIPT	SAMPLES SENT TO:	RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
PROJECT #: 601294	Total Number of Containers	PENSACOLA - STL-FL X	Signature: Time: Francine Tanio 1700	Signature: Time:
PROJ. NAME: GI	Chain of Custody Seals	ESL - OR	Printed Name: Date: Francine Tanio 1/27/06	Printed Name: Date:
QC LEVEL: (STD.) IV	Received Intact?	ATEL - AZ	Pinnacle Laboratories, Inc.	Company
QC REQUIRED: MS MSD BLANK	Received Good Cond./Cold	ATEL - MARION	**RECEIVED BY: 1.**	**RECEIVED BY: 2.**
TAT: (STANDARD) RUSH!!	LAB NUMBER:	ATEL - MELMORE	Signature: Time: Raven Hedarin 1100	Signature: Time:
DUE DATE: 2/10	COMMENTS:	FCL	Printed Name: Date: Raven Hedarin 01-28-06	Printed Name: Date:
RUSH SURCHARGE: —		EHL	Company STL	Company
CLIENT DISCOUNT: —		GEL		
SPECIAL CERTIFICATION REQUIRED: YES (NO)		WCAS		
		WOHL		

3.8°C

SEVERN TRENT STL®

LOGIN SAMPLE RECEIPT CHECK LIST

Client: Pinnacle Laboratories

Job Number: 400-8719-1
Sdg Number: GI-Bloomfield Crude Station

Login Number: 8719

Question	T/F/NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	NA	
The cooler's custody seal, if present, is intact.	NA	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	3.8°C
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	NA	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

Cation-Anion Balance Worksheet

Accession Number: 601294-01

Anions	Result (mg/l)	Factor	Total (me/l)
Alkalinity	990		
Chloride	1000	0.02821	28.21000
Fluoride	0	0.05264	0.00000
Nitrate as N	0	0.01613	0.00000
Sulfate	1200	0.02082	24.98400
Carbonate	0	0.03333	0.00000
Bi-Carbonate	990	0.01639	16.22610
	Total Anions =		**69.4201**

Cations	Result (mg/l)	Factor	Total (me/l)
Calcium	630	0.04990	31.43700
Potassium	12	0.02558	0.30696
Magnesium	58	0.08229	4.77282
Sodium	920	0.04350	40.02000
Copper	0	0.03147	0.00000
Iron	11	0.05372	0.59092
Manganes	11	0.03640	0.40040
Zinc	0	0.03059	0.00000
	Total Cations =		**77.5281**

Anion/Cation Balance (% difference) =	5.5%		
Total Anions+Cations =	4436	mg/l	(calculated)
Total Dissolved Solids =	4300	mg/l	(measured)
TDS/ion sum ratio =	0.97		
Electrical Cond =	8000	umh/cm	(measured)
TDS/EC ratio =	0.538		

Cation-Anion Balance Worksheet

Accession Number: 601294-02

Anions	Result (mg/l)	Factor	Total (me/l)
Alkalinity	800		
Chloride	82	0.02821	2.31322
Fluoride	0	0.05264	0.00000
Nitrate as N	0	0.01613	0.00000
Sulfate	2600	0.02082	54.13200
Carbonate	0	0.03333	0.00000
Bi-Carbonate	800	0.01639	13.11200
	Total Anions =		**69.55722**

Cations	Result (mg/l)	Factor	Total (me/l)
Calcium	440	0.04990	21.95600
Potassium	24	0.02558	0.61392
Magnesium	68	0.08229	5.59572
Sodium	1200	0.04350	52.20000
Copper	0	0.03147	0.00000
Iron	87	0.05372	4.67364
Manganes	11	0.03640	0.40040
Zinc	0	0.03059	0.00000
	Total Cations =		**85.43968**

Anion/Cation Balance (% difference) =	10.2%		
Total Anions+Cations =	4992	mg/l	(calculated)
Total Dissolved Solids =	4500	mg/l	(measured)
TDS/ion sum ratio =	0.90		
Electrical Cond =	7000	umh/cm	(measured)
TDS/EC ratio =	0.643		

Cation-Anion Balance Worksheet

Accession Number: 601294-03

Anions	Result (mg/l)	Factor	Total (me/l)
Alkalinity	580		
Chloride	37	0.02821	1.04377
Fluoride	0	0.05264	0.00000
Nitrate as N	0.36	0.01613	0.00581
Sulfate	2200	0.02082	45.80400
Carbonate	1.5	0.03333	0.05000
Bi-Carbonate	580	0.01639	9.50620
	Total Anions =		**56.40977**

Cations	Result (mg/l)	Factor	Total (me/l)
Calcium	450	0.04990	22.45500
Potassium	3.7	0.02558	0.09465
Magnesium	47	0.08229	3.86763
Sodium	680	0.04350	29.58000
Copper	0	0.03147	0.00000
Iron	4.4	0.05372	0.23637
Manganes	0.38	0.03640	0.01383
Zinc	0	0.03059	0.00000
	Total Cations =		**56.24748**

Anion/Cation Balance (% difference) =	0.1%		
Total Anions+Cations =	3771	mg/l	(calculated)
Total Dissolved Solids =	3600	mg/l	(measured)
TDS/ion sum ratio =	0.95		
Electrical Cond =	5100	umh/cm	(measured)
TDS/EC ratio =	0.706		

Cation-Anion Balance Worksheet

Accession Number: 601294-04

Anions	Result (mg/l)	Factor	Total (me/l)
Alkalinity	450		
Chloride	31	0.02821	0.87451
Fluoride	0	0.05264	0.00000
Nitrate as N		0.01613	0.00000
Sulfate	2500	0.02082	52.05000
Carbonate	5.9	0.03333	0.19665
Bi-Carbonate	450	0.01639	7.37550
	Total Anions =		**60.49666**

Cations	Result (mg/l)	Factor	Total (me/l)
Calcium	410	0.04990	20.45900
Potassium	7	0.02558	0.17906
Magnesium	47	0.08229	3.86763
Sodium	790	0.04350	34.36500
Copper	0	0.03147	0.00000
Iron	3.8	0.05372	0.20414
Manganese	5.4	0.03640	0.19656
Zinc	0	0.03059	0.00000
	Total Cations =		**59.27139**

Anion/Cation Balance (% difference) =	1.0%		
Total Anions+Cations =	4064	mg/l	(calculated)
Total Dissolved Solids =	3700	mg/l	(measured)
TDS/ion sum ratio =	0.91		
Electrical Cond =	5400	umh/cm	(measured)
TDS/EC ratio =	0.685		

Cation-Anion Balance Worksheet

Accession Number: 601294-05

Anions	Result (mg/l)	Factor	Total (me/l)
Alkalinity	1400		
Chloride	130	0.02821	3.66730
Fluoride	0	0.05264	0.00000
Nitrate as N		0.01613	0.00000
Sulfate	150	0.02082	3.12300
Carbonate	4.3	0.03333	0.14332
Bi-Carbonate	1400	0.01639	22.94600
	Total Anions =		**29.87962**

Cations	Result (mg/l)	Factor	Total (me/l)
Calcium	150	0.04990	7.48500
Potassium	2.4	0.02558	0.06139
Magnesium	18	0.08229	1.48122
Sodium	610	0.04350	26.53500
Copper	0	0.03147	0.00000
Iron	4	0.05372	0.21488
Manganes	1.3	0.03640	0.04732
Zinc	0	0.03059	0.00000
	Total Cations =		**35.82481**

Anion/Cation Balance (% difference) =	9.0%	
Total Anions+Cations =	1906 mg/l	(calculated)
Total Dissolved Solids =	2000 mg/l	(measured)
TDS/ion sum ratio =	1.05	
Electrical Cond =	3400 umh/cm	(measured)
TDS/EC ratio =	0.588	

Cation-Anion Balance Worksheet

Accession Number: *601294-06*

Anions	Result (mg/l)	Factor	Total (me/l)
Alkalinity	750		
Chloride	16	0.02821	0.45136
Fluoride	0	0.05264	0.00000
Nitrate as N		0.01613	0.00000
Sulfate	310	0.02082	6.45420
Carbonate	3.2	0.03333	0.10666
Bi-Carbonate	750	0.01639	12.29250
	Total Anions =		**19.30472**

Cations	Result (mg/l)	Factor	Total (me/l)
Calcium	220	0.04990	10.97800
Potassium	3.3	0.02558	0.08441
Magnesium	23	0.08229	1.89267
Sodium	170	0.04350	7.39500
Copper	0	0.03147	0.00000
Iron	49	0.05372	2.63228
Manganese	2.9	0.03640	0.10556
Zinc	0	0.03059	0.00000
	Total Cations =		**23.08792**

Anion/Cation Balance (% difference) =	8.9%		
Total Anions+Cations =	1244	mg/l	(calculated)
Total Dissolved Solids =	1200	mg/l	(measured)
TDS/ion sum ratio =	0.96		
Electrical Cond =	1800	umh/cm	(measured)
TDS/EC ratio =	0.667		

Pinnacle Laboratories, Inc. 400-8119

Interlab Chain of Custody

Date: 1/27/06 Page: 1 of 1

Network Project Manager: Jacinta Tenorio

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ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals (8) RCRA	TCLP RCRA (8) Metals	Metals-13 PP List	Metals-TAL (23 Metals)	Dissolved Fe, Mn, Pb (6010)	Ca, Mg, K, Na, Fe, Mn Hardness	TOC	Gen Chemistry: EC, TDS, Cl, SO4	NO2/NO3 (Total)	Alk+Bicarb/Carb/OH	Volatile Organics GC/MS (8260)	BOD	COD	Pesticides/PCB (608/8081/8082)	Herbicides (615/8151)	PNA (8310)/8270 SIMS	8260 (TCLP 1311) ZHE		Base/Neutral Acid Compounds GC/MS (625/8270)	Uranium (ICP-MS)	Radium 226+228	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS
MW-5/601294-01	1/26/06	0851	GW							X		X	X	X														
MW-6/601294-02	↓	0932	↓							X		X	X	X														
MW-3/601294-03	↓	1027	↓							X		X	X	X														
MW-4/601294-04	↓	1136	↓							X		X	X	X														
MW-2/601294-05	↓	1208	↓							X		X	X	X														
MW-7/601294-06	↓	1308	GW							X		X	X	X														

PROJECT INFORMATION	SAMPLE RECEIPT		SAMPLES SENT TO:	
PROJECT #: 601294	Total Number of Containers		PENSACOLA - STL-FL	X
PROJ. NAME: GI	Chain of Custody Seals		ESL - OR	
QC LEVEL: (STD.) IV	Received Intact?		ATEL - AZ	
(QC REQUIRED) MS MSD BLANK	Received Good Cond./Cold		ATEL - MARION	
TAT: (STANDARD) RUSH!!	LAB NUMBER:		ATEL - MELMORE	
			FCL	
DUE DATE: 2/10	COMMENTS:		EHL	
RUSH SURCHARGE: —			GEL	
CLIENT DISCOUNT: —			WCAS	
SPECIAL CERTIFICATION REQUIRED: YES (NO)			WOHL	

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Francine Tenorio Time: 1700	Signature: Time:
Printed Name: Francine Tenorio Date: 1/27/06	Printed Name: Date:
Pinnacle Laboratories, Inc.	Company
RECEIVED BY: 1.	**RECEIVED BY: 2.**
Signature: Raven Hedarin Time: 1100	Signature: Time:
Printed Name: Raven Hedarin Date: 01-28-06	Printed Name: Date:
Company STL	Company

3.8°C

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 1-27-06 PAGE: 1 OF 1

PLI Accession #: 601294

SHADED AREAS ARE FOR LAB USE ONLY

PROJECT MANAGER: Martin Nee

COMPANY: Lodestar Services

ADDRESS: 26 CR 3500, Flora Vista, NM 87415

PHONE: 505 334 2791

FAX:

BILL TO: Bill Robertson

COMPANY: Giant Ind. Ariz, inc

ADDRESS: 111 CR 4990, Bloomfield NM 87413

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 ☐	NO_2 + NO_3 (Total)	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics ☐PBMS	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: EC, pH, TDS	Alk, BiCarb, Carb, HCO_3, CL, SO_4 1/27	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method1311)	Metals: Ca, Mg, K, Na, Fe, Mn	Hardness	NUMBER OF CONTAINERS
mw-5	12606	0851	WG	01					~~X~~	2						X									\	\					\	X	5
mw-6	12606	0932	WG	02					~~X~~	2						X									\	\					\	X	5
mw-3	12606	1027	WG	03					~~X~~	2						X									\	\					\	X	5
mw-4	12606	1136	WG	04					~~X~~	2						X									\	\					\	X	5
mw-2	12606	1208	WG	05					~~X~~	2						X									\	\					\	X	5
mw-7	12606	1308	WG	06					~~X~~	2						X									\	\					\	X	5
Trip blank	1/13/06	0900	WQ	07					~~X~~	~~X~~															~~X~~								1

WEEKEND ANALYSES MAY RESULT IN AN ADDITIONAL SURCHARGE - PLEASE INQUIRE.

PROJECT INFORMATION

PROJ. NO.:

PROJ. NAME: Bloomfield Crude Station

P.O. NO.:

SHIPPED VIA:

SAMPLE RECEIPT

NO CONTAINERS: 31

CUSTODY SEALS: Y/N/NA (NA circled)

RECEIVED INTACT: yes

BLUE ICE/ICE: 2°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐24hr* ☐48hr* ☐72hr* ☐ 1 WEEK (NORMAL) ☒

*NOT AVAILABLE ON ALL ANALYSES

CERTIFICATION REQUIRED ☐ NM ☐ SDWA ☐ AZ ☐ OTHER

METHANOL PRESERVATION ☐ METALS ☐ TOTAL ☐ DISSOLVED

COMMENTS: No MTBE + Nitrate/Nitrite & DO

Per Martin also analyze for SO4 & Hardness. 1/27/06

RELINQUISHED BY: 1.

Signature: [signature] Time: 1145

Printed Name: M Nee Date: 12606

Company: Lodestar

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: Francine Tamos Time: 1700

Printed Name: Francine Tamos Date: 1/27/06

Pinnacle Laboratories Inc.

PLEASE FILL THIS FORM IN COMPLETELY.

PINNACLE LABORATORIES

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 1-27-06 PAGE: 1 OF 1

PLI Accession #:

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Martin Nee

COMPANY: Lodestar Services

ADDRESS: 26 CR 3500
Flora Vista, NM 87415

PHONE: 505 334 2791

FAX:

BILL TO: Bill Robertson

COMPANY: Giant Ind. Ariz, Inc

ADDRESS: 111 CR 4990
Bloomfield NM 87413

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 ☐PBMS	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: Ec, pH, TDS Alk, BCarb, Carb, Hardness, Cl	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method1311)	Metals: Ca, Mg, K, Na, Fe, Mn	NUMBER OF CONTAINERS
mw-5	12606	0851	WG					8021	2														1	1				
mw-6	12606	0932	WG					8021	2														1	1				
mw-3	12606	1027	WG					8021	2														1	1				
mw-4	12606	1136	WG					8021	2														1	1				
mw-2	12606	1208	WG					8021	2														1	1				
mw-7	12606	1308	WG					8021	2														1	1				
Trip blank			WQ					8021	2																			

WEEKEND ANALYSES MAY RESULT IN AN ADDITIONAL SURCHARGE - PLEASE INQUIRE.

PROJECT INFORMATION

PROJ. NO.:

PROJ. NAME: Bloomfield Code Station

P.O. NO.:

SHIPPED VIA:

SAMPLE RECEIPT

NO CONTAINERS	
CUSTODY SEALS	Y/N/NA
RECEIVED INTACT	
BLUE ICE/ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐24hr* ☐48hr* ☐72hr* ☐ 1 WEEK (NORMAL) ☑
*NOT AVAILABLE ON ALL ANALYSES

CERTIFICATION REQUIRED ☐ NM ☐ SDWA ☐ AZ ☐ OTHER

METHANOL PRESERVATION ☐ METALS ☐ TOTAL ☐ DISSOLVED

COMMENTS: No MTBE
+ Nitrate/Nitrite & DO

RELINQUISHED BY: 1.

Signature: Time: 1145

Printed Name: Date: 1-27-06
M Nee 12606

Company: Lodestar
See Reverse side (Force Majeure)

RECEIVED BY: 1.

Signature: Time:

Printed Name: Date:

Company:

RELINQUISHED BY: 2.

Signature: Time:

Printed Name: Date:

Company:

RECEIVED BY: (LAB) 2.

Signature: Time:

Printed Name: Date:

Pinnacle Laboratories Inc.

Albuquerque, New Mexico 87107 • (505) 344-3777 • Fax (505) 344-4413 • E-mail: PIN_LAB@ATT.NET

DISTRIBUTION: White - PLI, Canary - Originator

Appendix B

Summary of Ground Water Analyses

Lodestar Services, Incorporated
PO Box 3861 Farmington, NM 87499-3861 Office (505) 334-2791

Summary of Ground Water Analytical Results for BTEX - September 1994 Through January 2006

NMWQCC Standards		Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
		10	750	750	620
MW-1*	Sep-94	NS	NS	NS	NS
	Apr-95	NS	NS	NS	NS
	Sep-99	NS	NS	NS	NS
	Dec-99	NS	NS	NS	NS
	May-01	NS	NS	NS	NS
	May-02	NS	NS	NS	NS
MW-2	Sep-94	**640**	600	82	**690**
	Apr-95	**220**	280	53	430
	Sep-99	NSP	NSP	NSP	NSP
	Dec-99	NSP	NSP	NSP	NSP
	May-01	NSP	NSP	NSP	NSP
	May-02	NSP	NSP	NSP	NSP
	Jan-03	**1700**	ND	650	**3200**
	Jan-04	**1100**	ND	340	**1800**
	Jan-05	**430**	ND	360	**1000**
	Jan-06	**250**	ND	410	**790**
MW-3	Sep-94	ND	ND	ND	ND
	Apr-95	ND	ND	ND	ND
	Sep-99	ND	ND	ND	ND
	Dec-99	ND	ND	ND	ND
	May-01	ND	ND	ND	ND
	May-02	ND	ND	ND	ND
	Jan-03	ND	ND	ND	ND
	Jan-04	ND	ND	ND	ND
	Jan-05	ND	ND	ND	ND
	Jan-06	ND	ND	ND	ND
MW-4	Sep-94	2.1	ND	ND	1.2
	Apr-95	ND	ND	ND	ND
	Sep-99	ND	ND	ND	ND
	Dec-99	ND	ND	ND	ND
	May-01	ND	ND	ND	ND
	May-02	ND	ND	ND	ND
	Jan-03	ND	ND	ND	ND
	Jan-04	ND	ND	ND	ND
	Jan-05	ND	ND	ND	ND
	Jan-06	ND	ND	ND	ND
MW-5	Sep-94	NS	NS	NS	NS
	Apr-95	ND	ND	ND	ND
	Sep-99	ND	ND	ND	ND
	Dec-99	ND	ND	ND	ND
	May-01	ND	ND	ND	ND
	May-02	ND	ND	ND	ND

NMWQCC Standards		Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
		10	750	750	620
	Jan-03	ND	ND	ND	ND
	Jan-04	ND	ND	ND	1.1
	Jan-05	ND	ND	ND	ND
	Jan-06	ND	ND	ND	ND
MW-6	May-01	12	15	13	83
	May-02	ND	ND	0.53	1.4
	Oct -02	ND	ND	ND	3.2
	Jan-03	6.0	20	87	350
	Jul-03	ND	2.7	3.2	16
	Sept-03	0.8	3.7	4.0	24
	Jan-04	0.9	1.6	2.9	16
	Jan-05	ND	ND	ND	ND
	Jan-06	ND	ND	14	32
MW-7	May-01	2,400	ND	380	2,800
	June-02	2,000	ND	140	1,100
	Oct-02	1100	ND	79	490
	Jan-03	3200	ND	400	3100
	Jan-04	3300	ND	460	3300
	Jan-05	1600	ND	220	1500
	Jan-06	1400	ND	280	1500

Notes:
µg/L = micrograms per liter
ND = not detected
NS = not sampled
NSP = not sampled due to product in well
*MW-1 was not screened within the aquifer
**MW-6 and MW-7 were installed in May 2001
NMWQCC = New Mexico Water Quality Control Commission

Summary of Ground Water Analytical Results for General Water Chemistry - 1994, 2001 ,2002, 2003, 2004, 2005 and 2006

NMWQCC Standards		Lab pH (su)	Conductivity (µmhos/cm)	TDS (mg/L)	Alkalinity ($CaCO_3$) (mg/L)	Hardness ($CaCO_3$) (mg/L)	Sodium Absorption Ratio	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)
		6-9	No Std	1,000	No Std	No Std	No Std	No Std	No Std	No Std	250	600	No Std	No Std	No Std	No Std
MW2	1994	6.6	4,920	3,049	957	NT	11.785	1,170	0	0	1,050	245	325	30	1.4	828
	2001	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP
	2002	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP
	2003	7	3230	3220	1520	416	NT	1850	<1	<1	51	369	133	20	1	660
	2004	7	3100	2000	1500	420	NT	1500	<1	<1	85	130	140	18	3	680
	2005	7.6	3000	2000	1300	430	NT	1300	7	<1	110	58	140	19	3.8	620
	2006	7.4	3400	2000	1400	440	NT	1400	4.3	<1	130	150	150	18	2.4	610
MW3	1994	7.1	4,250	3,413	521	NT	8.147	635	0	0	48	1,920	439	37	1.4	661
	2001	7.3	4,500	3,960	459	1,220	NT	559	<1	<1	78	2,250	423	40.4	2.5	711
	2002	7	4,440	3,820	358	1,290	NT	437	<1	<1	46	2,520	446	43	0.6	705
	2003	7	4320	3660	560	1230	NT	683	<1	<1	56	2330	428	39.4	1.6	671
	2004	7.3	4500	4000	560	1400	NT	560	1	<1	44	2300	320	44	3.6	780
	2005	7.4	4700	2000	560	1400	NT	560	1	<1	37	2100	450	47	3.9	690
	2006	7.5	5100	3600	580	1300	NT	580	1.5	<1	37	2200	450	47	3.7	680
MW4	1994	7.0	5,420	4,389	576	NT	10.883	703	0	0	175	2,470	439	53	3.5	907
	2001	7.1	5,090	4,630	490	1,460	NT	597	<1	<1	77	2,680	500	52.5	4.2	900
	2002	6.9	5,140	4,420	358	1,310	NT	437	<1	<1	47	2,930	449	47	2.6	873
	2003	7	4460	3850	400	1070	NT	488	<1	<1	40	2570	361	40.8	2.8	667
	2004	7.3	4500	3900	400	1200	NT	400	3	<1	27	2500	390	44	6.7	810
	2005	7.3	4900	4000	420	1300	NT	420	1	<1	30	2200	450	49	10	740
	2006	7.4	5400	3700	450	1200	NT	450	5.9	<1	31	2500	410	47	7	790
MW5	1994	6.9	6,000	4,410	775	NT	8.84	945	0	0	996	1,390	634	51	6.6	861
	2001	6.7	7,000	5,230	757	2,010	NT	923	<1	<1	1,320	1,230	700	63.2	5.6	924
	2002	6.5	6,880	4,810	567	1,880	NT	692	<1	<1	1,200	1,230	661	55.3	4.9	855

NMWQCC Standards		Lab pH (su)	Conductivity (µmhos/cm)	TDS (mg/L)	Alkalinity ($CaCO_3$) (mg/L)	Hardness ($CaCO_3$) (mg/L)	Sodium Absorption Ratio	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)
		6-9	No Std	1,000	No Std	No Std	No Std	No Std	No Std	No Std	250	600	No Std	No Std	No Std	No Std
	2003	6.6	6910	5080	830	1780	NT	1010	<1	<1	1090	1330	616	58.1	4.8	829
	2004	6.8	6700	4600	840	2000	NT	840	1	<1	1300	1400	690	57	11	1000
	2005	7.0	6800	4800	870	1900	NT	870	<1	<1	1100	1200	670	60	10	910
	2006	7.1	8000	4300	990	1800	NT	990	<1	<1	1000	1200	630	58	12	920
MW6	2001	6.9	5,470	4,580	740	1,550	NT	903	<1	<1	80	2,780	534	53.3	6.3	1,030
	2002	6.8	4,460	3,560	669	932	NT	816	<1	<1	55	1,900	319	33	2.5	830
	2003	7	3070	2180	1140	602	NT	1390	<1	<1	79	540	203	23.1	2.1	514
	2004	7.2	4100	3000	1000	1100	NT	1000	<1	<1	96	1400	390	63	29	870
	2005	7.2	4100	3000	1100	670	NT	1100	2	<1	93	940	220	28	6.7	670
	2006	7.2	7000	4500	800	1400	NT	800	3.6	<1	82	2600	440	68	24	1200
MW7	2001	6.7	2,160	1,710	600	843	NT	732	<1	<1	52	642	296	25.6	1.6	234
	2002	6.8	1,870	1,570	432	758	NT	527	<1	<1	20	700	258	27.8	2.2	151
	2003	6.7	1310	810	696	531	NT	849	<1	<1	35	57	152	36.8	1.0	126
	2004	6.8	1400	920	720	520	NT	720	<1	<1	13	120	170	23	7.0	170
	2005	7.0	1500	930	740	540	NT	740	1	<1	15	190	180	20	3.3	150
	2006	7.4	1800	1200	750	660	NT	750	3.2	<1	16	310	220	23	3.3	170

Notes: For Summary of Ground Water Analytical Results for General Water Chemistry - 1994, 2001 ,2002, 2003, 2004, and 2005

s.u. = standard units
µmhos/cm = micromhos per centimeter
mg/L = milligrams per liter
NMWQCC = New Mexico Water Quality Control Commission
No Std = no standard
NS = not sampled; MW-1 was not screened within the aquifer
NSP = no sample collected due to product in well
NT = Not Tested

Summary of Ground Water Analytical Results for Polynuclear Aromatic Hydrocarbons (EPA 610) - September 1994

Units: µg/L	MW-3	MW-2	MW-4
Naphthalene	<0.5	8.9	<0.50
Acenaphthylene	<1.0	<1.0	<1.0
Acenaphthene	<0.50	<0.50	<0.50
Fluorene	<0.10	1.2	<0.10
Phenanthrene	<0.05	1.8	<0.05
Anthracene	<0.05	<0.05	<0.05
Fluoranthene	<0.10	1.2	<0.10
Pyrene	<0.10	<0.10	<0.10
Benzo(a)Anthracene	<0.10	<0.10	<0.10
Chrysene	<0.10	0.17	<0.10
Benzo(b)Fluoranthene	>0.10	<0.10	<0.10
Benzo(k)Fluoranthene	<0.10	<0.10	<0.10
Benzo(a)Pyrene	<0.10	<0.10	<0.10
Dibenzo(a,h)Anthracene	<0.20	<0.20	<0.20
Benzo(g,h,I)Perylene	<0.10	<0.10	<0.10
Indeno(1,2,3-CD)Pyrene	<0.10	<0.10	<0.10
1-Methylnaphthalene	<0.30	5.9	<0.30
1-Methylnaphthalene	<0.30	5.8	<0.30

Notes:
µg/L = micrograms per liter

Summary of Ground Water Analytical Results for Priority Pollutant Metals - September 1994

Metal	NMWQCC Standards	MW-2	MW-3	MW-4
Silver (mg/L)	0.05	<0.01	<0.01	<0.01
Arsenic (mg/L)	0.1	<0.005	<0.005	<0.005
Beryllium (mg/L)	No Std	<0.004	<0.004	<0.004
Cadmium (mg/L)	0.01	<0.0005	<0.0005	<0.0005
Chromium (mg/L)	0.05	0.010	<0.01	<0.01
Copper (mg/L)	1	0.012	<0.01	<0.01
Mercury (mg/L)	0.002	<0.0002	<0.0002	<0.0002
Nickel (mg/L)	0.2	<0.02	<0.02	<0.02
Lead (mg/L)	<0.05	<0.002	<0.002	<0.002
Antimony (mg/L)	No Std	<0.05	<0.05	<0.05
Selenium (mg/L)	0.05	<0.005	<0.005	<0.005
Thallium (mg/L)	No Std	<0.005	<0.005	<0.005
Zinc (mg/L)	10	0.032	0.023	0.026

Notes:
mg/L = milligrams per liter
NMWQCC = New Mexico Water Quality Control Commission
No Std = no standard

Bioventing Data Table: Carbon Dioxide Concentrations at Monitoring Points

	2/10/03	2/17/03	2/17/03	2/18/03	2/19/03	2/21/03	2/24/03	2/25/03	3/5/03	3/19/03	10/21/03	1/20/04		
		1332 hours	1601 hours										Average Conentration During Operations	Percentage of Pretest Reading
IP10	1.8	5.8	5.4	7.6	6	5.6	7.8	7.8	5.4	8.8	11.5	0	6.52	362%
IP11	0	0	0	0	0	0	0	0	0	0	10	1.3	1.03	
IP13	0.2	0.2	2	1.8	1.4	2	1.8	1.8	2.9	2.6	0.4	2.2	1.74	868%
IP14	1	2.8	9.2	2.8	7.4	9.4	4.2	6.6	7.2	5.4	9.6	10.6	6.84	684%
IP15	0.8	0.2	2.4	1.2	0	0	0	0.8	0.6	0.8	1.8	5.5	1.21	151%
IP17	1	0.6	1	1	1.2	0.8	1	0.8	0.8	1.2	2.2	1.5	1.10	110%
IP19	0.4	1.4	1.8	1.2	1.6	1	1.8	1.6	1.6	0.2	0.8	0.6	1.24	309%
IP20	0.6	3.2	3.2	3.6	3.8	4.2	4.8	4.6	5.8	8	15.2	13.6	6.36	1061%
IP21	1.4	0.6	1	0.8	1	0.6	0.8	1	1.2	2	0.9	3.3	1.20	86%
IP22	0.4	1	1	1.2	0.8	0.2	0.8	1	1.2	1.6	0	1.5	0.94	234%
IP23	0.6	0.4	0.8	0.6	0.6	0.4	0.6	0.6	0.6	1	0.5	1.2	0.66	111%
IP8	0.8	10.8	14.2	13	14.4	13.4	6.2	14	14.6	15.8	17.1	14.2	13.43	1678%
MP14	1	3.6	3.6	3	3.4	3.4	2.2	2.8	3.2	4	1.1	6.4	3.34	334%
MP15	0.6	2	1.2	2.4	1.8	1.4	1.6	2	2.2	2.2	1.5	1.7	1.82	303%
MP16	0.06	0.8	1.4	1	1.2	0.8	1.2	1.2	1	1.4	0.4	0.3	0.97	1621%
MP4	1.2	10.4	11.4	10.4	11	11	10	10.6	10.2	12	20	15.5	12.05	1004%
MP7	1.4	4.4	7	7.8	8.2	5.6	5.4	4.4	7.2	8.4	3.2	0	5.60	400%
MP9	1	1.2	1.8	1.6	2	1.2	1.2	1.4	1.6	2	4	2.8	1.89	189%
Ave.	0.79	2.74	3.80	3.39	3.66	3.39	2.86	3.50	3.74	4.30	5.57	4.57	3.77	559%

System was started on 2/17/03 0900 hrs

Lodestar Services, Incorporated
PO Box 3861 Farmington, NM 87499-3861 Office (505) 334-2791

Bioventing Data Table: Carbon Dioxide Concentrations at Monitoring Points

	4/29/04	7/28/04	10/19/04	1/12/05	Average Concentration During 2004	Percentage of Pretest Reading	Percentage of 2003 Reading
IP10	7.6	15.9	12.9	7.4	10.95	608%	168%
IP11	1.3	15.0	23.3	8.0	11.90		1158%
IP13	1.4	0.3	2.5	1.3	1.38	688%	79%
IP14	12.5	4.3	7.0	16.4	10.05	1005%	147%
IP15	0.0	1.2	0.1	0.0	0.33	41%	27%
IP17	1.3	0.7	1.2	1.8	1.25	125%	114%
IP19	na	na	na	3.5	3.50	875%	283%
IP20	12.6	2.6	10.9	7.5	8.40	1400%	132%
IP21	2.8	1.9	2.7	1.4	2.20	157%	183%
IP22	1.8	1.9	2.0	1.7	1.85	463%	198%
IP23	0.6	1.2	0.5	na	0.77	128%	116%
IP8	9.5	0.2	17.1	15.5	10.58	1322%	79%
MP14	7.3	2.4	13.5	8.7	7.98	798%	239%
MP15	2.1	3.8	3.0	5.8	3.68	613%	202%
MP16	0.9	2.5	0.4	1.8	1.40	2333%	144%
MP4	12.8	2.6	26.9	15.5	14.45	1204%	120%
MP7	7.2	0.7	16.9	8.2	8.25	589%	147%
MP9	0.2	2.1	1.4	0.2	0.98	98%	52%
Ave.	**4.55**	**3.29**	**7.91**	**5.82**	5.55	732%	199%

Bioventing Data Table: Carbon Dioxide Concentrations at Monitoring Points

	4/27/05	7/28/05	10/25/05	Average Concentration During 2005	Percentage of Pretest Reading	Percentage of 2004 Reading
IP10	2.0	6.9	5.7	4.87	271%	41%
IP11	12.1	0.3	1.0	4.47		38%
IP13	3.0	0.2	3.0	2.07	1035%	150%
IP14	8.9	14.2	18.1	13.73	1373%	137%
IP15	0.6	0.0	0.8	0.47	59%	142%
IP17	1.7	0.4	4.3	2.13	213%	170%
IP19	2.8	1.7	2.6	2.37	593%	68%
IP20	5.5	5.0	6.9	5.80	967%	69%
IP21	1.5	0.7	1.9	4.10	293%	186%
IP22	2.8	0.1	4.1	2.33	583%	126%
IP23	2.1	0.1	3.9	2.03	338%	264%
IP8	10.3	0.1	0.1	3.50	438%	33%
MP14	7.8	2.9	5.3	5.33	533%	67%
MP15	4.9	0.7	4.7	3.43	572%	93%
MP16	0.8	0.5	3.0	1.43	2383%	102%
MP4	17.5	0.0	1.5	6.33	528%	44%
MP7	2.4	0.0	10.2	4.2	300%	51%
MP9	2.1	0.4	2.0	1.5	150%	153%
Ave.	**4.3**	**1.9**	**4.4**	3.53	609%	107%

Note: Due to pump failure, no readings are available for the fourth quarter of 2005.

Bioventing Data Table: Oxygen Concentrations in Monitoring Points

	2/10/03	2/17/03 1332 hrs	2/17/03 1601hrs	2/18/03	2/19/03	2/21/03	2/24/03	2/25/03	3/5/03	3/19/03	10/21/04	1/20/04	Average Conentration During Operations	Percentage of Pretest Reading
IP10	17.20	2.00	5.50	0.90	2.80	2.90	0.90	0.90	6.00	1.00	10.10	1.60	3.15	18%
IP11	20.90	20.90	20.90	20.90	20.90	20.90	20.90	20.90	20.00	20.90	9.20	18.20	19.51	93%
IP13	20.90	20.60	18.40	18.60	19.60	18.00	18.60	18.60	17.90	16.70	20.50	17.30	18.62	89%
IP14	19.90	15.70	1.70	14.70	5.60	0.90	10.40	6.50	3.10	3.30	0	1.60	5.77	29%
IP15	20.90	20.90	20.70	17.30	20.90	20.90	20.90	20.70	20.40	20.80	18.70	18.60	20.07	96%
IP17	20.90	20.60	20.80	20.30	20.60	20.90	20.90	20.80	20.70	20.40	19.60	19.20	20.44	98%
IP19	20.90	18.30	18.80	18.90	18.80	20.20	19.20	19.10	18.00	20.90	20.40	19.40	19.27	92%
IP20	20.50	14.00	14.00	13.30	10.40	2.20	3.20	3.00	2.20	0.90	0	1.50	5.88	29%
IP21	20.90	19.70	19.50	19.90	19.80	18.10	19.20	18.00	16.20	13.80	19.90	17.50	18.33	88%
IP22	20.90	19.60	20.80	19.90	20.40	20.90	20.90	20.30	19.80	19.10	21.10	18.70	20.14	96%
IP23	20.90	20.90	20.90	20.70	20.90	20.90	20.90	20.90	20.30	20.90	20.70	19.60	20.69	99%
IP8	20.20	4.60	2.10	4.00	2.90	3.30	11.50	1.80	2.00	2.20	0	1.40	3.25	16%
MP14	19.20	13.10	13.70	14.80	14.30	13.70	17.30	15.40	13.10	11.20	19.30	10.30	14.20	74%
MP15	20.90	17.90	18.10	19.90	18.50	19.70	20.30	18.80	17.60	18.50	19.30	13.80	18.40	88%
MP16	20.90	19.90	20.20	19.70	20.30	20.90	20.80	20.10	19.20	19.40	20.90	19.80	20.11	96%
MP4	19.00	1.10	1.00	3.40	2.60	1.80	3.00	1.70	3.10	3.40	0	0.20	1.94	10%
MP7	18.60	7.70	2.40	1.20	1.20	5.30	8.20	10.40	3.10	1.10	15.70	15.90	6.56	35%
MP9	20.50	19.40	19.30	19.00	18.90	19.90	20.60	19.30	18.80	18.40	16.00	17.70	13.13	64%
Ave.	20.23	15.38	14.38	14.86	14.41	13.97	15.43	14.29	13.42	12.94	13.97	12.91	13.86	67%

System was started on 2/17/03 0900 hrs

Lodestar Services, Incorporated
PO Box 3861 Farmington, NM 87499-3861 Office (505) 334-2791

Bioventing Data Table: Oxygen Concentrations in Monitoring Points

	4/29/2004	7/28/2004	10/19/04	1/12/2005	Average Conentration During 2004	Percentage of Pretest Reading	Percentage of 2003 Reading
IP10	11.40	11.30	15.20	11.60	12.38	72%	393%
IP11	18.60	5.40	-	10.50	8.63	41%	44%
IP13	19.70	20.30	17.30	18.50	18.95	91%	102%
IP14	-	18.00	-	-	4.50	23%	78%
IP15	20.20	18.90	20.10	20.50	19.93	95%	99%
IP17	19.40	19.70	19.30	18.40	19.20	92%	94%
IP19	na	na	na	16.2	16.20	78%	84%
IP20	2.20	14.30	4.10	8.10	7.18	35%	122%
IP21	18.10	17.20	18.20	18.90	18.10	87%	99%
IP22	17.90	14.70	17.70	19.70	17.50	84%	87%
IP23	19.60	19.30	19.10	na	19.33	93%	93%
IP8	0.50	18.50	-	0.20	4.80	24%	147%
MP14	4.80	16.10	4.20	8.10	8.30	43%	58%
MP15	17.90	14.90	14.70	12.00	14.88	71%	81%
MP16	19.70	18.00	19.70	18.40	18.95	91%	94%
MP4	1.90	19.40	-	3.30	6.15	32%	318%
MP7	6.60	19.20	-	5.60	7.85	42%	120%
MP9	19.90	17.60	17.80	20.20	18.88	92%	144%
Ave.	12.85	16.64	11.02	12.36	13.43	66%	125%

Bioventing Data Table: Oxygen Concentrations in Monitoring Points

	4/27/2005	7/28/2005	10/25/05	Average Conentration During 2005	Percentage of Pretest Reading	Percentage of 2004 Reading
IP10	0	14.4	0	4.8	28%	39%
IP11	0	20.6	19.9	13.5	65%	156%
IP13	16.7	20.4	17.7	18.3	88%	97%
IP14	7.8	2.4	0	3.4	17%	76%
IP15	20.2	21.1	19.7	20.3	97%	102%
IP17	19.3	20.6	17.2	19.0	91%	99%
IP19	16.9	19	18.4	18.1	87%	112%
IP20	13.0	15.0	12.5	13.5	66%	188%
IP21	19.9	20.5	18.8	19.7	94%	109%
IP22	16.6	20.9	16.8	18.3	88%	105%
IP23	17.9	20.9	17.3	18.7	89%	97%
IP8	0	0	0.1	0.03	0.1%	0.01%
MP14	13.2	17.8	11.3	14.1	73%	17%
MP15	10.8	19.6	12.1	14.2	68%	95%
MP16	19.9	20.7	18.0	19.5	93%	103%
MP4	0.7	5.2	0	2.0	105%	33%
MP7	19.6	16.9	6.2	14.2	76%	181%
MP9	18.5	20.4	19.1	19.3	94%	102%
Ave.	12.8	16.5	12.5	13.9	73%	95%

Note: Due to pump failure, no readings are available for the fourth quarter of 2005.