NM - 22

MONITORING REPORTS

PHASE I

YEAR(S):

MAY 2001

PHASE I AND PHASE II INVESTIGATION REPORT
& REMEDIAL WORK PLAN

FOR THE

GOODWIN TREATING PLANT

WEST OF

HOBBS, NEW MEXICO

RECEIVED
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Environmental Bureau
Oil Conservation Division

May 2001

Prepared For

NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
SANTA FE, NEW MEXICO

Project 62800404

4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262

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1.0 INTRODUCTION

Philip Environmental Services Corporation (PSC) was retained to conduct an environmental investigation for the State of New Mexico Energy, Minerals and Natural Resources Department-Oil Conservation Division (EMNRD-OCD) at the Goodwin Treating Plant facility located in Lea County, west of Hobbs New Mexico. The field investigation was initiated by PSC on March 27, 2001, and completed on March 29, 2001. This investigation has been completed to assist in determining requirements for upcoming remedial activities, which will be completed by PSC as approved by the ENMRD-OCD.

PSC has completed a remedial investigation which includes advancing a soil boring and conversion into a monitoring well, water sampling/testing and submittal of the Phase I and II reports. This investigation also included a Naturally Occurring Radioactive Materials (NORM) survey of all of the storage tanks and treaters in addition to a survey of the soils located at the site. The findings and conclusions of these investigations are discussed herein.

PSC has also included a proposed remedial work plan for review and approval by the EMNRD-OCD.

2.0 PHASE I AND PHASE II INVESTIGATION

On March 27, 2001, PSC initiated a subsurface investigation at the Goodwin Treating Plant to determine the extent of contamination within the emergency overflow pit. The results of this investigation are outlined as follows.

2.1 INVESTIGATION OF THE EXTENT OF CONTAMINATION EMERGENCY OVERFLOW PIT

On March 27, 2001, PSC had planned advancing a subsurface boring in the center of the emergency overflow pit located at the Goodwin Treating Plant. However, upon mobilization to the site, the subcontracted driller (Eades Drilling & Pump Service) refused to place the drill rig in the pit to initiate drilling activities due to suspicions that the drilling rig could get stuck. Don Fernald with PSC decided to check the stability of the bottom of the pit by driving a Jeep Cherokee™ into the pit. The Jeep got stuck in the center of the pit and had to be pulled out by another four-wheel drive vehicle. Therefore, it was determined not feasible to drill a boring in the center of the pit. Don Fernald of PSC then discussed the situation with Ms. Martyne Kieling with the EMNRD-OCD to determine the best alternative area to investigate subsurface soils and place a monitoring well. Ms. Kieling indicated that the best place would be in a down-gradient location close to the emergency overflow pit. Therefore, the subsurface investigation was initiated in an area adjacent, down gradient and to the southeast of the emergency overflow pit.

Sampling was initiated at a depth of 10 feet below ground surface (bgs) with samples being obtained every 10 feet for inspection, field testing and sample retrieval. An Ingersoll-Rand, TH-60 air rotary drilling rig was utilized to advance subsurface samples for inspection. A two-foot long, four-inch diameter, split-spoon, sampling device was used to retrieve the soil samples. A portion of each sample was placed into a four-ounce jar, labeled and placed on ice for potential laboratory analysis. Another portion of each sample was placed into a one-quart Ziplock® baggie and placed in a vehicle for heating and subsequent field testing with a ToxiRay™ photo-ionization detector (PID). The PID was calibrated in the field prior to use.

The initial sample obtained at a depth of 10 to 12 feet bgs consisted of a moderate to very pale orange-pink caliche. PID measurements from this sample were the highest at 87.5 ppm from any samples obtained from the boring converted to a monitoring well. Additional samples were collected every ten feet to a depth of 54 feet bgs. Sample recovery with the split-spoon sampler was mixed due encountering some very hard layers of caliche and sandstone. Alternating layers of hard layers of caliche and sandstone were encountered throughout the drilling. The subsurface strata was very dry to a depth of approximately 45 feet bgs at which depth moisture content was evident and noted to be increasing.

The split-spoon sampling device was unable to retrieve a sample at a depth of 50 to 52 feet bgs, so an additional sample was collected at a depth of 52 to 54 feet bgs. Sample retrieval beyond this depth was not attempted or feasible due to the moisture content in the soil, which would continue to clog the air rotary drilling equipment. Depth to groundwater at this time was anticipated to be approximately 45 feet bgs. Due to the nature of air rotary-drilling methods which uses air pressure down hole to remove drill cuttings, the air often displaces the surrounding groundwater. Therefore, actual groundwater depth is not always clear at the time of drilling and must be determined after recovery of groundwater to the borehole location. Due to this factor, PSC decided to modify the monitoring well construction by increasing the amount of slotted-screen from 15 to 20 feet in order to ensure placement of the screen of the monitoring well within the groundwater interface.

Drill cuttings from the soil boring or monitoring well location were thin spread at the site due to little or no hydrocarbon contaminants being present. Soil samples that were collected were labeled and placed on ice for delivery to Pinnacle Laboratories (Pinnacle) in Albuquerque, New Mexico for testing of TPH, BTEX and chlorides.

The initial scope of work called for a sample to be obtained from the center of the pit, at a depth of three to five feet bgs. PSC used a shovel and excavated a hole in the center of the pit to obtain a soil sample from this area. At a depth of approximately 9-inches below the bottom of the center of the pit, a black, highly oil saturated soil was encountered. The hole was excavated to a depth of approximately 5-feet bgs with a pointed shovel. The soil was completely saturated with oil to this depth. The hole was left open, and inspected approximately one-hour later and found to contain approximately one-foot of an oily liquid. A sample obtained from this location was submitted to Pinnacle for analysis but was not tested due to the obvious condition of the sample being highly saturated with hydrocarbons. Other samples submitted for laboratory analysis include a sample from the highest PID reading (10-12' bgs) and one bottom hole sample (52-54' bgs).

The following is a summary of the soil samples tested in the field and submitted for laboratory analysis of BTEX and TPH using EPA Methods 8015, diesel range organics (DRO) and 8021.

Table I – Soil Boring Sample Interval and Analytical Results

	Soil Sampling Interval and Analytical Results (Mg/Kg)				
Parameter	**10 – 12'**	**52 – 54'**	**Duplicate**	**Pit, 3-5'**	**Background**
*PID	87.4 ppm	4.3 ppm	N/A	>2,000	N/A
Benzene	<0.025	<0.025	<0.025	N/A	<0.025
Toluene	<0.025	<0.025	<0.025	N/A	<0.025
Ethylbenzene	<0.025	<0.025	<0.025	N/A	<0.025
Total Xylenes	<0.025	<0.025	<0.025	N/A	<0.025
C6 – C10	<10	<10	<10	N/A	<10
C10 – C22	<10	<10	<10	N/A	<10
C22 – C36	<10	<10	<10	N/A	<10

*PID - Field test results using a photo-ionization device (PID).

The background sample was obtained in an area approximately 81' southwest of the Goodwin Treating Plant fence.

These analytical results did not indicate the presence of elevated levels of hydrocarbons in the soil boring advanced to the southeast of the emergency overflow pit.

Additional soil samples were obtained from each sample interval and tested for chlorides using EPA Method 300.0. The following are the results of chloride testing of the soil from the boring.

Table II – Soil Boring Samples and Chloride Concentrations

Sample Interval Depth	Mg/Kg of Chlorides
10 – 12'	1,480
20 – 22'	214
30 – 32'	843
40 – 42'	1,180
52 – 54'	720
Background (81' SW of Site)	43

Chloride levels are elevated in the soils sampled in the boring in comparison to the background sample obtained 81 feet southwest of the Goodwin Treating Plant site.

Record of subsurface exploration field boring logs are located in appendix A. Copies of the laboratory analysis of the soils are located in Appendix B.

2.2 MONITOR WELL COMPLETION

A monitoring well was installed on March 27, 2001 in the location of the soil boring at a depth of 63 feet below ground surface (bgs). The well was completed using 20 feet of 0.01 inch slotted two-inch diameter schedule 40 PVC well screen at a depth of 43 to 63 feet bgs. The screen was placed in an approximate position of the groundwater interface where fifteen feet of well screen is above the water table and five feet is below the water table. The annulus around the well screen was backfilled with clean, 12-20 grade, silica sand-pack to a depth of 2-3 feet, above the top of the screen. A 2-3 feet thick bentonite seal was placed immediately above the sand-pack and quenched with water. The remaining well consists of solid, schedule 40 PVC that was placed from 43 feet bgs to approximately 2.5 feet above the ground surface. The remainder of the well annulas was grouted to the surface with bentonite. The monitoring well was completed with a concrete pad and locking well cover.

A copy of the monitoring well installation record is located in Appendix C.

2.3 GROUNDWATER SAMPLING AND TEST RESULTS

On March 28, 2001, Don Fernald with PSC developed and sampled the groundwater monitoring well, installed southeast of the emergency overflow pit. The total depth of the monitoring well was measured at 63.125 feet bgs. Groundwater was measured at 58.54 feet bgs. Prior to sampling, the monitoring well was developed by removing greater than three well volumes of water or approximately 25 gallons of water. Water samples obtained were labeled, documented on chain of custody forms and placed in a cooler with ice. Soil and groundwater samples obtained from the boring and monitoring well were submitted to Pinnacle Laboratories in Albuquerque, New Mexico on March 29, 2001. Groundwater samples obtained from the monitoring well were analyzed for concentrations of BTEX, polycyclic aromatic hydrocarbons (PAH), total dissolved solids (TDS), major cations/anions and New Mexico Water Quality Control Commission (WQCC) metals. Analytical results of the groundwater samples obtained from the monitoring well did not reveal the presence of elevated levels of BTEX, PAH or WQCC metals above current EPA, NMED levels. However, several other constituents were found to be above the NMED groundwater standards. The constituents are listed as follows:

Table III - Groundwater Quality Standards Exceeded for MW-1

Parameter	MW-1/62800404-01	MW-1/62800404-DUP	NMED Standard
Chloride	921 ppm	858 ppm	250 ppm
TDS	1,970 ppm	1,950 ppm	1,000 ppm
Manganese	0.242 ppm	0.221 ppm	0.2 ppm

Both samples obtained from monitoring well, MW-1 appear to have a close correlation. The iron tests on sample MW-1/62800404-01 was re-tested by the laboratory due to a quality control problem within the laboratory. The results of the re-test for iron are included in Appendix D.

NMED water quality standards have been exceeded (>1,000 ppm) for the Total Dissolved Solids identified in the monitoring well. Concentrations of Calcium were high in addition to the conductivity of the groundwater.

A copy of the laboratory reports for the groundwater analysis from the monitoring well, MW-1 at the Goodwin Treating Plant site are located in Appendix D.

3.0 NORM SURVEY

PSC performed a NORM survey of the tanks, vessels, treaters and soil at the Goodwin Treating Plant site on March 27th, 28th, and 29th, 2001. The NORM surveys were performed using a Ludlum™ Model 3 survey meter fitted with a Ludlum™ Model 44-2 scintillation probe. The survey meter was capable of measuring one microroentgen per hour (μR/hr) to 5,000 μR/hr. In addition, a Ludlum™ Model three, fitted with a Model 44-9 pancake probe (rate meter) was used to conduct contamination surveys for fixed and loose alpha/beta particles. Any increase in the count rate was documented on the NORM Survey Log. The rate meter was also used to scan field personnel and equipment for contamination at the end of each day.

The survey was conducted by a certified NORM surveyor, from PSC. Certificates of Training for the NORM surveyor, and instrument calibration certificates are presented in Appendix E.

Prior to surveying, daily operational checks were performed on meters to ensure they were functioning properly. In addition, background radiation was determined at the site using the survey meter. Background levels were measured in an area of no known NORM contamination by holding the survey meter at waist height, to ensure only natural background radiation was being measured. Background radiation for an area located 81 feet to the southwest of the Goodwin Treating Plant was 16 μR/hr as measured in the field. A soil sample of the background area was obtained and laboratory results of the background sample indicated levels of 1.05 +/- 0.17 picoCuries per gram (pCi/g).

3.1 TANKS AND TREATER VESSELS

As a part of this investigation, PSC performed NORM surveys of the storage tanks and treaters located at the Goodwin Treating Plant. Each of the tanks and treaters on the site was accessed through man-ways or other openings. The internal content of each vessel was surveyed with the meter positioned approximately one cm away from the vessel contents (tank bottoms, liquids or sludge). A representative sample of liquid-sludge-solid material was obtained from each vessel. Each sample collected was placed in an open container and removed to an area of background activity and scanned using a survey meter. Many of the vessels exhibited radiation levels greater than 50 μR/hr. However, when the sample was isolated from the vessel in an area of normal background activity levels, previously referenced, samples most often exhibited lower radiation levels. Due to these differences, PSC discussed the field results with OCD and it was determined to send additional samples of tank materials to the laboratory. PSC submitted samples from selected tanks with readings lower than 50 μR/hr to a laboratory for analysis of Radium 226 using US EPA Method 901.1 to ensure proper determination of NORM levels from the selected vessels.

The site survey readings and laboratory analytical results were noted on NORM Survey Logs and Site Plans, which are presented in Appendix E.

The following is a listing of the tanks located at the Goodwin Treating Plant along with the field test results compared to the laboratory results:

Table IV – NORM Field and Laboratory Test Results for Tanks and Vessels

Tank / Material	Remote Reading µR/hr.	Lab Result pCi/g
South Treater / Sludge	15	Not submitted
North Treater / Sludge	15	Not submitted
1 / Empty	N/A	N/A
101 / Sludge	20	Not submitted
102 / Sludge	20	Not submitted
103 / Sludge	15	Not submitted
104 / Sludge	25	Not submitted
105 / Sludge	N/A	Not submitted
106 / Sludge	23	Not submitted
107 / Sludge	22	Not submitted
108 / Sludge	16	Not submitted
109 / Sludge	16	Not submitted
110 / Sludge	25	Not submitted
111 / Sludge	25	**30.8 +/- 0.86**
111 / Redwood	60	1.18 +/- .022
112 / Sludge	290	**48.6 +/- 1.24**
112 / Redwood	60	1.95 +/- 0.27
113 / Sludge	20	2.29 +/- 0.34
114 / Sludge	Not Recorded	**32.9 +/- 1.23**
115 / Sludge	25	Not submitted
116 / Sludge	25	15.5 +/- 0.68
117 / Sludge	25	Not submitted
118 / Sludge	22	**33.8 +/- 1.16**
120 / Empty	N/A	N/A
121 / Sludge	20	27.5 +/- 0.73
122 / Empty	N/A	N/A
123 / Empty	N/A	N/A

Based on laboratory analysis, four of the tanks located at the Goodwin Treating Plant require treatment or disposal of the tank contents as NORM. These tanks are listed as follows:

Table V – Estimated amount of NORM in Tanks at the Goodwin Treating Plant Site

Tank Identification	Estimated Amount of Tank Contents
Tank 111 – 500 bbl Redwood	60 Cubic Yards
Tank 112 – 500 bbl Redwood	33 Cubic Yards
Tank 114 – 750 bbl Redwood	150 Cubic Yards
Tank 118 – 750 bbl Redwood	150 Cubic Yards
Total Estimated Amount of NORM from Tanks	**393 Cubic Yards**

Note: 1 bbl = 5.614 cubic feet
27 cubic feet = 1 cubic yard
393 cubic yards = 1,890 bbls (approximate)

Previous information provided to PSC by the EMNRD-OCD indicated that these tanks have a capacity of 500 barrels (bbls) each. Based on PSC's observations, the actual size of each of these tanks may vary from approximately 500 to 750 bbls. The amount of materials present is also different from information provided by the EMNRD-OCD in the AMEC report provided during the pre-bid site walk.

Samples of redwood tanks were obtained for analysis due to the high readings from the survey meter. Laboratory analysis has indicated that the Redwood material is not regulated NORM.

In comparing the field test results using the survey meter with the laboratory analysis, PSC did not see a direct correlation between field test and laboratory analytical results.

NORM Laboratory analytical reports are located in Appendix G.

3.2 SITE SOIL SURVEY

In addition to the NORM survey of the tanks and treaters at the Goodwin Treating Plant site, the EMNRD-OCD requested that PSC complete a NORM survey of soils located on the site. Due to spills or leaks on the site and the presence of hydrocarbon-impacted surface soils, associated NORM contaminants to soils are a concern.

PSC conducted a NORM survey of the Goodwin Treating Plant site soils on March 27 and 28th, 2001.

The site was transected by walking and randomly checking for gamma readings at a spacing of approximately 20 feet. Dose rates were continuously measured while transecting the site. At a distance of approximately 10 feet, more detailed measurements were taken by stopping and moving the scintillation probe in a two foot diameter area. NORM readings were obtained at a height of one centimeter above the ground surface

using a survey meter. Surface soils exhibiting gamma readings greater than 50 µR/hr were marked with flag, sampled and submitted to the laboratory for Radium–226 analysis. A hand auger was used to obtain additional soil samples at advancing depths in six-inch intervals if gamma readings were equal to or exceeded 50 µR/hr. To minimize costs, the surface sample and the deepest sample from the areas exhibiting greater than 50 µR/hr was submitted for analysis. A field map is attached in Appendix H showing locations of various gamma readings and soil sample locations. The following is a listing of locations that exceeded 50 µR/hr, that were sampled and submitted for laboratory analysis.

Table VI – NORM Soil Survey Results for the Goodwin Treating Plant Site

Sample ID/Location	Depth (Inches)	Dose Rate (µR/hr)	Laboratory Analytical Result (pCi/g)
North Treater – 1 – Surface	S	**110**	**42.3 +/- 0.96**
North Treater – 1 – 6"	6"	40	Not submitted for analysis
Northwest Soil Pile – 1 – Surface	S	**110**	15.3 +/- 0.41
Northwest Soil Pile – 1 – 6"	6"	**180**	Not submitted for analysis
Northwest Soil Pile – 1 – 12"	12"	**130**	Not submitted for analysis
Northwest Soil Pile – 1 – 18"	18"	**90**	Not submitted for analysis
Northwest Soil Pile – 1 – 30"	30"	**80**	Not submitted for analysis
Northwest Soil Pile – 1 – 36"	36"	**70**	Not submitted for analysis
Northwest Soil Pile – 1 – 42"	42"	**50**	5.43 +/- 0.32
West Central Soil Pile – 1 – Surface	S	**60**	1.51 +/- 0.18
West Central Soil Pile – 1 – 12"	12"	20	0.40 +/- 0.09
106 – 1 – S (near Tank 106)	S	**90**	1.87 +/- 0.19
106 – 1 – 6" (near Tank 106)	6"	30	0.78 +/- 0.11
113 – 1 – S (near Tank 113)	S	**70**	7.45 +/- 0.30
113 – 1 – S (near Tank 113)	6"	40	5.42 +/- 0.20
114 – 1 – S (near Tank 114)	S	**70**	1.42 +/- 0.18
114 – 1 – 12" (near Tank 114)	12"	43	1.86 +/- 0.16
Tank 111 Redwood (Redwood)	N/A	**100**	1.18 +/- 0.22
Tank 112 Redwood (Redwood)	N/A	**100**	1.96 +/- 0.27
Emergency Overflow Pit	54"	N/A	7.43 +/- 0.26
115 – 1 - Surface (near Tank 115)	S	**75**	1.74 +/- 0.16
115 – 1 – 24" (near Tank 115)	24"	45	1.56 +/- 0.15
116 – 1 – Surface (near Tank 116)	S	**60**	5.71 +/- 0.39
116 – 1 – 6" (near Tank 116)	6"	**55**	Not submitted for analysis
116 – 1 – 12" (near Tank 116)	12"	**55**	Not submitted for analysis
116 – 1 – 18" (near Tank 116)	18"	**64**	Not submitted for analysis
116 – 1 – 24" (near Tank 116)	24"	36	2.33 +/- 0.19
117 – 1 – Surface (near Tank 117)	S	**50**	2.97 +/- 0.17
117 – 1 – 6" (near Tank 117)	6"	**60**	Not submitted for analysis

Sample ID/Location	Depth (Inches)	Dose Rate (µR/hr)	Laboratory Analytical Result (pCi/g)
117 – 1 – 12" (near Tank 117)	12"	45	3.37 +/- 0.20
118 – 1 – Surface (near Tank 118)	S	**65**	15.2 +/- 0.65
118 – 1 – 6" (near Tank 118)	6"	**170**	Not submitted for analysis
118 – 1 – 12" (near Tank 118)	12"	**130**	Not submitted for analysis
118 – 1 – 18" (near Tank 118)	18"	**90**	Not submitted for analysis
118 – 1 – 24" (near Tank 118)	24"	45	1.90 +/- 0.19
118 – 1 – Duplicate -24" (near Tank 118)	24"	45	2.89 +/- 0.16
Blank Background Sample 81' SW of Fence	S	16	1.05 +/- 0.17

S – Surface Soil Sample
N/A – Not applicable or not recorded

The NORM soil survey revealed that 10 areas exceeded the 50 µR/hr using the survey meter. The 50 µR/hr was exceeded in these areas at the surface, ranging to areas of 42-inches bgs. These soil samples were submitted for analytical testing for Radium –226 using EPA Method 901.1. Only one of the samples exceeded 30 pCi/g, which was obtained from soil adjacent to the north treater.

4.0 PROPOSED REMEDIAL ACTIVITIES

Based on the results of the remedial investigation, PSC proposes the following procedure for implementing the remedial activities at the Goodwin Treating Plant.

4.1 EXCAVATION, TRANSPORTATION AND DISPOSAL OF HYDROCARBON IMPACTED SOILS

PSC recommends that the hydrocarbon impacted soils located at the Goodwin Treating Plant site be the first priority for remediation since they have the greatest potential for impacting the environment (soil and groundwater). PSC will initiate the New Mexico "One Call" service to identify and mark any subsurface utility lines within the project area. PSC will mobilize personnel and equipment to remove the hydrocarbon-impacted soils in excess of 1,000 ppm TPH, or that exhibit gross hydrocarbon impacts at depths to eight feet bgs. Beyond eight feet bgs soils over 100 ppm TPH, 50 ppm BTEX and 10 ppm Benzene will be excavated for removal from the Goodwin Treating Plant site.

A PID will be used as the field-screening device to assist in determining hydrocarbon impacted areas. Field testing of soils will be performed by obtaining a representative soil sample, placing the soil in a Ziplock® bag, sealing the bag, mixing the soil in the bag and heating in the sun. The PID will be inserted into the bag after heating has been completed for a minimum of five minutes. PID readings over 100 ppm will be assumed to exceed the clean-up criteria established for the site. Duplicate samples of PID readings less than 100 ppm will be submitted to a laboratory for analysis of TPH to determine if clean-up objectives have been met, field headspace readings will be used in lieu of BTEX analysis. The PID will be calibrated daily to ensure accurate readings. Field testing results will be documented on daily field forms and maps throughout the duration of remediation activities. PSC will also complete an ENNRD-OCD Pit Remediation and Closure Report for the emergency overflow pit.

Any excavation walls over four feet in depth may be sloped back, if needed, in accordance with OSHA standards, allowing access for inspection of the soils within the excavation. The hydrocarbon-impacted soils will be directly loaded into belly dumps/end dumps for transport to an EMNRD-OCD approved waste management facility for remedial landfarming. Highly saturated soils may require mixing with other dry soil on site or imported backfill to stabilize the hydrocarbon-impacted soils to allow for transport. PSC will document the transport to the landfarm facility on bill of lading forms. The volume of each truck will be determined by the capacity of the truck (i.e. Tandem Dump Trucks – 10 cubic yards, End Dumps – 18 to 20 Cubic Yards). Volume load of each truck will be determined by PSC, the transporter and an EMNRD-OCD representative (if present). Bill of Lading (Manifests) will be signed by an EMNRD-OCD representative or by PSC after written permission has been granted by the EMNRD-OCD.

Clean backfill soil will be transported from the landfarm to the Goodwin Treating Plant simultaneously with the excavation and transport of the hydrocarbon impacted soils. Volume of backfill soil transported to the Goodwin Treating Plant site will be documented in a similar fashion to the hydrocarbon impacted soils transported off-site. The clean backfill soil will be stockpiled in areas adjacent to the excavation to allow for backfilling after verification sampling and testing has been completed. Backfilling will be completed using a front-end loader. Compaction will be accomplished by wheel rolling with the loader. Areas that are backfilled will be capped with an extra amount of soil to allow for settling and accommodate runoff of precipitation from these areas.

The EMNRD's original scope of this phase of the project indicated that approximately 1,450 cubic yards of hydrocarbon impacted soils would be required for excavation and remediation. Based on PSC's investigation of the emergency overflow pit, it appears as though this estimate will be exceeded. Additionally, highly saturated soils will most likely be encountered and will require stabilization by mixing with dry, non-hydrocarbon-impacted soils.

4.2 Removal and Disposal of Liquids from Tanks

PSC will utilize liquid vacuum trucks to remove the flowable liquids from the tanks located at the Goodwin Treating Plant. Liquids will be transported to an EMNRD-OCD approved facility for recycling/disposal. Care will be exercised during this process to avoid spills of petroleum products onto the ground surface. Each load will be documented with a bill of lading as to the amount of liquids transported to the recycling facility and date of transport. PSC will also complete an ENNRD-OCD Form C-117 A, for tank cleaning, sediment oil removal, transportation of miscellaneous hydrocarbons and disposal permit for each vessel or tank at the Goodwin Treating Plant site.

4.3 Removal of Solids from Tanks, Vessels and Treaters

PSC will manually dismantle the tanks to allow for removal of solids located within the tanks/vessels. Once the top or walls of the tanks have been removed, solids can be accessed with the excavator bucket and allow for removal without performing confined-space entry excursions. Residuals may be removed from the tank by scraping and knocking them off with the excavator bucket. A hot pressure washer may be used to assist in the removal of solids/sludges from the tanks. Water will be captured for disposal with other tank liquids. Tank materials that may be classified as sludge may be stabilized with existing hydrocarbon impacted soils located onsite to allow for transport by conventional belly dumps and end dump trucks. Tank solids will be loaded for transport to an EMNRD-OCD approved waste management facility for remedial landfarming.

4.4 Removal of NORM Regulated Materials

Tank 111, 112, 114 and 118 have been identified by PSC through sampling and laboratory analysis as being greater than 30 pCi/g of Radium 226. Therefore, the contents of these

tanks are not exempt and require remediation/disposal as NORM regulated material, until proven otherwise. PSC understands that the EMNRD-OCD may perform additional sampling and testing of the materials within these tanks. PSC will perform the removal of the solids from Tanks 111, 112, 114 and 118 by partially dismantling each tank and allowing for access of the contents with the excavator bucket. The tank walls of each vessel may require additional cleaning and the use of a pressure washer to remove residual materials. Wash water will be collected for disposal as generated through the cleaning of each tank.

The areas around each tank will be secured with caution tape to prevent entry by personnel who are not equipped with personnel protective equipment (PPE). Additional health and safety procedures will include air monitoring for airborne Radium 226 and dosimetry monitoring of PSC crews during the entire project. PSC will provide a Radiation Safety Officer who will oversee all work related to onsite activities. Additional details regarding PSC's health and safety requirements will be detailed in a site specific health and safety plan prepared by PSC. NORM regulated solids will be placed into approved roll-off containers for disposal at an EMNRD-OCD approved waste management facility (Lotus LLC) unless otherwise instructed by the EMNRD-OCD.

4.5 Removal of Tanks, Vessels, Treaters, Pipes and other Related Equipment

The removal of the tanks, vessels, treaters, pipes, and other related equipment located on site will be completed by PSC. Materials that can be recycled will be sent to a salvage yard for processing. Materials to be transported off-site for recycling or disposal will be surveyed for NORM prior to release from the site.

PSC will remove the electrical power pole and transformer from the site if required by the EMNRD-OCD. Materials that cannot be recycled will be sent to an EMNRD-OCD approved waste management facility for disposal. During the removal of tanks, vessels and treaters, PSC will obtain soil samples from areas around and under the tanks and test them in the field with a PID to determine if hydrocarbon impacts to soil have occurred. These soils will also be surveyed for NORM to determine activity levels. Soil samples requiring laboratory verification will be submitted to a laboratory and tested for BTEX and TPH to determine concentrations of respective hydrocarbons.

4.6 Backfilling of Excavations

PSC will conduct back-hauling of clean soil in conjunction with the removal of hydrocarbon impacted soils. Clean soil will be either stockpiled onsite for subsequent backfilling or placed directly into the excavation after the excavation has been sampled and test results indicate that hydrocarbon impacted soils have been removed to levels acceptable to the EMNRD-OCD. After completion of backfilling, PSC will compact the soils by wheel rolling the soil with a loader or equivalent and contour the area to allow for drainage of precipitation.

4.7 SUBMITTAL OF THE PHASE 3 REPORT

PSC will prepare and submit to the EMNRD-OCD, a Phase 3 Report that details the Remedial Activities at the Goodwin Treating Plant. The report will also include documentation regarding the transport and disposal of materials from the site, health and safety documentation, analytical test results, NORM surveys and site activities.

APPENDIX A - RECORD OF SUBSURFACE EXPLORATION

THE REPRODUCTION OF

THE

FOLLOWING

DOCUMENT (S)

CANNOT BE IMPROVED

DUE TO

THE CONDITION OF

THE ORIGINAL

RECORD OF SUBSURFACE EXPLORATION

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name: Goodwin - OCD / W. of Hobbs, NM
Project Number: 62800404 Phase
Project Location: Goodwin Treating Plant / Hobbs

Elevation:
Borehole Location: SE of overflow pit
GWL Depth: ~45-50' bgs
Logged By: Don Fernald
Drilled By: Fred Root
Date/Time Started: 3/27/01 - 9:30 AM
Date/Time Completed: 3/27/01

Well Logged By: Don Fernald
Personnel On-Site: PSC / EADES
Contractors On-Site: EADES DRILLING
Client Personnel On-Site: NONE

Drilling Method: AIR - Rotary
Air Monitoring Method: PID

Depth (Feet)		Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	PID Air Monitoring Units: ~~NDU~~ Benzene ~~125~~		Drilling Conditions ~~& Blow Counts~~
0–10				Sampling initiated @ 10' bgs.			
10–20		24"	23"	[illegible] orange-pink caliche, with some very pale orange-pink [illegible] @ 17' [illegible]	87.4		
20–30		24"	3"	Poor recovery due to [illegible]. Very pale orange-gray [illegible] [illegible]. @ ~23' - broke through hard layer. @ ~27' - encountered another hard layer	7.9		
30–40		24"	0	No sample recovery due to hard rock			

Comments:

Geologist Signature [signature]

RECORD OF SUBSURFACE EXPLORATION

Borehole # B-1
Well # MW-1
Page 2 of 2

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name Goodwin - OCD
Project Number 62800404 Phase
Project Location 7 mile West of Hobbs, NM

Elevation
Borehole Location SE of overflow pit
GWL Depth ~45-50' bgs
Logged By Don Fernald
Drilled By Fred Root
Date/Time Started 3/27/01
Date/Time Completed 3/27/01

Well Logged By Don Fernald
Personnel On-Site PSC/EADES
Contractors On-Site EADES DRILLING
Client Personnel On-Site NONE

Drilling Method AIR - Rotary
Air Monitoring Method PID

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	Air Monitoring Units: NDU Benzene	Drilling Conditions ~~& Blow Counts~~
40	24"	16"	Moderate orange-pink silty [illegible]	2.1	
45			Moisture evident in cuttings at		
50	24"	0	No sample recovery ([illegible]		
	24"	17"	[illegible] (moist)	4.3	
55					
60					
65			Terminated drilling @ 63' bgs to convert to monitoring well. Used 20' of 0.010" screen with a 4.5" end cap. See monitoring well installation record.		
70					
75					
80					

Comments:

Geologist Signature Don Fernald

APPENDIX B - SOIL SAMPLE LABORATORY RESULTS

PINNACLE LABORATORIES

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

Pinnacle Lab ID number **103096**
April 06, 2001

PHILIP SERVICE CORPORATION
4000 MONROE ROAD
FARMINGTON, NM 87401

Project Name GOODWIN TREATING PLANT
Project Number 62800404

Attention: DON FERNALD

On 03/29/01 Pinnacle Laboratories, Inc., (ADHS License No. AZ0592 pending), 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.

On 04/06/01, at the request of the client, all analysis for sample "04/PIT3-5"' were cancelled.

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

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

PINNACLE LABORATORIES

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

CLIENT	: PHILIP SERVICE CORPORATION	PINNACLE ID	: 103096
PROJECT #	: 62800404	DATE RECEIVED	: 03/29/01
PROJECT NAME	: GOODWIN TREATING PLANT	REPORT DATE	: 04/06/01

PINNACLE ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
103096 - 01	01/10'-12'	NON-AQ	03/27/01
103096 - 02	02/52'-54'	NON-AQ	03/27/01
103096 - 03	03/DUPLICATE	NON-AQ	03/27/01
103096 - 04	04/PIT 3-5'	NON-AQ	03/28/01
103096 - 05	05/BACKGROUND	NON-AQ	03/28/01

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS

EST : EPA 8021 MODIFIED
CLIENT : PHILIP SERVICE CORPORATION PINNACLE I.D.: 103096
OJECT # : 62800404
ROJECT NAME : GOODWIN TREATING PLANT

AMPLE #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
1	01/10'-12'	NON-AQ	03/27/01	04/04/01	04/04/01	1
2	02/52'-54'	NON-AQ	03/27/01	04/04/01	04/04/01	1
	03/ DUPLICATE	NON-AQ	03/27/01	04/04/01	04/04/01	1

ARAMETER	DET. LIMIT	UNITS	01/10'-12'	02/52'-54'	03/ DUPLICATE
NZENE	0.025	MG/KG	< 0.025	< 0.025	< 0.025
OLUENE	0.025	MG/KG	< 0.025	< 0.025	< 0.025
THYLBENZENE	0.025	MG/KG	< 0.025	< 0.025	< 0.025
TAL XYLENES	0.025	MG/KG	< 0.025	< 0.025	< 0.025

URROGATE:
OMOFLUOROBENZENE (%) 98 100 97
URROGATE LIMITS (65 - 120)

HEMIST NOTES:
A

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS

EST : EPA 8021 MODIFIED
CLIENT : PHILIP SERVICE CORPORATION PINNACLE I.D.: 103096
OJECT # : 62800404
ROJECT NAME : GOODWIN TREATING PLANT

AMPLE #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
5	05/ BACKGROUND	NON-AQ	03/28/01	04/04/01	04/04/01	1

ARAMETER	DET. LIMIT	UNITS	05/ BACKGROUND
NZENE	0.025	MG/KG	< 0.025
OLUENE	0.025	MG/KG	< 0.025
THYLBENZENE	0.025	MG/KG	< 0.025
TAL XYLENES	0.025	MG/KG	< 0.025

RROGATE:
OMOFLUOROBENZENE (%) 100
URROGATE LIMITS (65 - 120)

EMIST NOTES:

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

EST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 103096
ANK I. D.	: 040401	DATE EXTRACTED	: 04/04/01
ENT	: PHILIP SERVICE CORPORATION	DATE ANALYZED	: 04/04/01
ROJECT #	: 62800404	SAMPLE MATRIX	: NON-AQ
OJECT NAME	: GOODWIN TREATING PLANT		

RAMETER	UNITS	
ENZENE	MG/KG	<0.025
LUENE	MG/KG	<0.025
HYLBENZENE	MG/KG	<0.025
OTAL XYLENES	MG/KG	<0.025

RROGATE:
ROMOFLUOROBENZENE (%) 99
RROGATE LIMITS: (80 - 120)
EMIST NOTES:
/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
MSMSD

TEST	: EPA 8021 MODIFIED		
SMSD #	: 103096-01	PINNACLE I.D.	: 103096
IENT	: PHILIP SERVICE CORPORATION	DATE EXTRACTED	: 04/04/01
PROJECT #	: 62800404	DATE ANALYZED	: 04/04/01
PROJECT NAME	: GOODWIN TREATING PLANT	SAMPLE MATRIX	: NON-AQ
		UNITS	: MG/KG

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
ENZENE	<0.025	1.00	0.90	90	0.87	87	3	(68 - 120)	20
OLUENE	<0.025	1.00	0.97	97	0.93	93	4	(64 - 120)	20
ETHYLBENZENE	<0.025	1.00	1.00	100	0.96	96	4	(49 - 127)	20
OTAL XYLENES	<0.025	3.00	2.74	91	2.62	87	4	(58 - 120)	20

CHEMIST NOTES:
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 : PHILIP SERVICE CORPORATION PINNACLE I.D.: 103096
PROJECT # : 62800404
PROJECT NAME : GOODWIN TREATING PLANT

SAMPLE #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
	01/10'-12'	NON-AQ	03/27/01	04/04/01	04/04/01	1
02	02/52'-54'	NON-AQ	03/27/01	04/04/01	04/04/01	1
	03/ DUPLICATE	NON-AQ	03/27/01	04/04/01	04/04/01	1

PARAMETER	DET. LIMIT	UNITS	01/10'-12'	02/52'-54'	03/ DUPLICATE
FUEL HYDROCARBONS, C6-C10	10	MG/KG	< 10	< 10	< 10
FUEL HYDROCARBONS, C10-C22	10	MG/KG	< 10	< 10	< 10
FUEL HYDROCARBONS, C22-C36	10	MG/KG	< 10	< 10	< 10
CALCULATED SUM:					
SURROGATE:					
O-TERPHENYL (%)			85	88	89
SURROGATE LIMITS	(66 - 151)				

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 : PHILIP SERVICE CORPORATION PINNACLE I.D.: 103096
PROJECT # : 62800404
PROJECT NAME : GOODWIN TREATING PLANT

SAMPLE #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
	05/ BACKGROUND	NON-AQ	03/28/01	04/04/01	04/04/01	1

PARAMETER	DET. LIMIT	UNITS	05/ BACKGROUND
FUEL HYDROCARBONS, C6-C10	10	MG/KG	< 10
FUEL HYDROCARBONS, C10-C22	10	MG/KG	< 10
FUEL HYDROCARBONS, C22-C36	10	MG/KG	< 10
CALCULATED SUM:			
SURROGATE:			
P-TERPHENYL (%)			84
SURROGATE LIMITS	(66 - 151)		

CHEMIST NOTES:
NA

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8015 MODIFIED (DIRECT INJECT)		
BLANK I.D.	: 040401	PINNACLE I.D.	: 103096
CLIENT	: PHILIP SERVICE CORPORATION	DATE EXTRACTED	: 04/04/01
PROJECT #	: 62800404	DATE ANALYZED	: 04/04/01
PROJECT NAME	: GOODWIN TREATING PLANT	SAMPLE MATRIX	: NON-AQ

PARAMETER	UNITS	
DIESEL HYDROCARBONS, C6-C10	MG/KG	< 10
DIESEL HYDROCARBONS, C10-C22	MG/KG	< 10
DIESEL HYDROCARBONS, C22-C36	MG/KG	< 10
SURROGATE:		
O-TERPHENYL (%)		85
SURROGATE LIMITS	(80 - 151)	

CHEMIST NOTES:
NA

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8015 MODIFIED (DIRECT INJECT)		
MSD #	: 103096-01	PINNACLE I.D.	: 103096
ENT	: PHILIP SERVICE CORPORATION	DATE EXTRACTED	: 04/04/01
PROJECT #	: 62800404	DATE ANALYZED	: 04/04/01
PROJECT NAME	: GOODWIN TREATING PLANT	SAMPLE MATRIX	: NON-AQ
		UNITS	: MG/KG

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
EL HYDROCARBONS	<10	200	185	93	185	93	0	(56 - 148)	20

CHEMIST NOTES:

N/A

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

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

1030 96

PHILIP ENVIRONMENTAL

Chain of Custody Record

4000 Monroe Road
Farmington, NM 87401
(505) 326-2262 Phone
(505) 326-2388 FAX

COC Serial No. C 2822

Project Name Goodwin Treating Plant
Project Number 62800404 Phase . Task
Samplers Don Fernald
Laboratory Name
Location

Sample Number (and depth)	Date	Time	Matrix	Total Number of Bottles	Type of Analysis and Bottle: DRO TPH - BTEX 8015 / 8021	Comments
01 / 10'-12'	3/27/01	10:00 AM	soil	1	✓ -01	
02 / 52'-54'	3/27/01	1:45 PM	soil	1	✓ -02	
03 / Duplicate	3/27/01	—	Soil	1	✓ -03	
04 / Pit 3-5'	3/28/01		sludge	1	-04	Hold - will call
05 / Background	3/28/01		soil	1	✓ -05	

Relinquished by:

Signature	Date	Time
[signature]	3/29/01	8:25 AM.

Received By:

Signature	Date	Time
[signature]	3-29-01	8:26

Samples Iced: ☑ Yes ☐ No

Preservatives (ONLY for Water Samples)

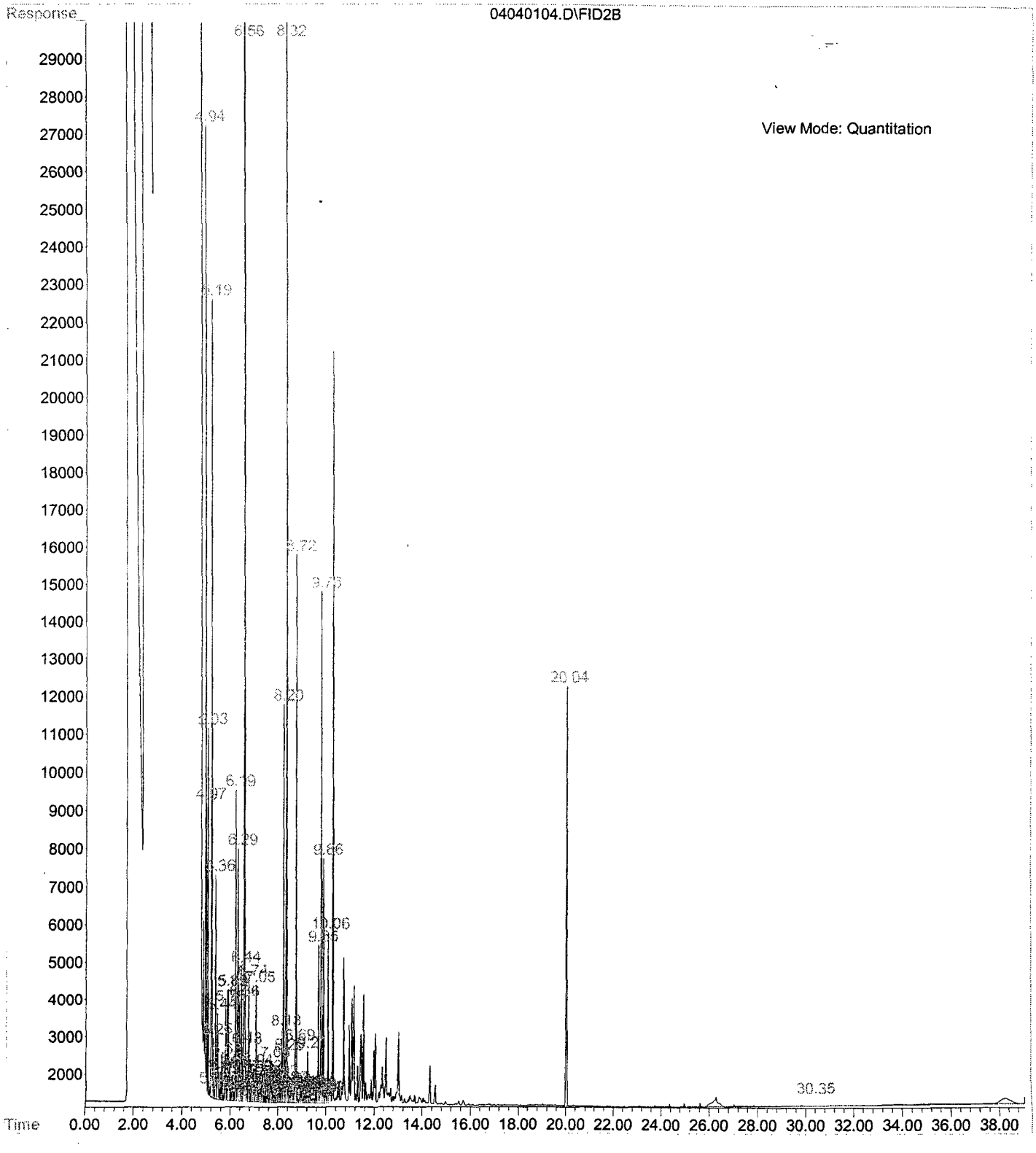
- ☐ Cyanide ..... Sodium hyroxide (NaOH)
- ☐ Volatile Organic Analysis ..... Hydrochloric acid (HCl)
- ☐ Metals ..... Nitric acid (HNO_3)
- ☐ TPH (418.1) ..... Sulfuric acid (H_2SO_4)
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____

Carrier: Airbill No.

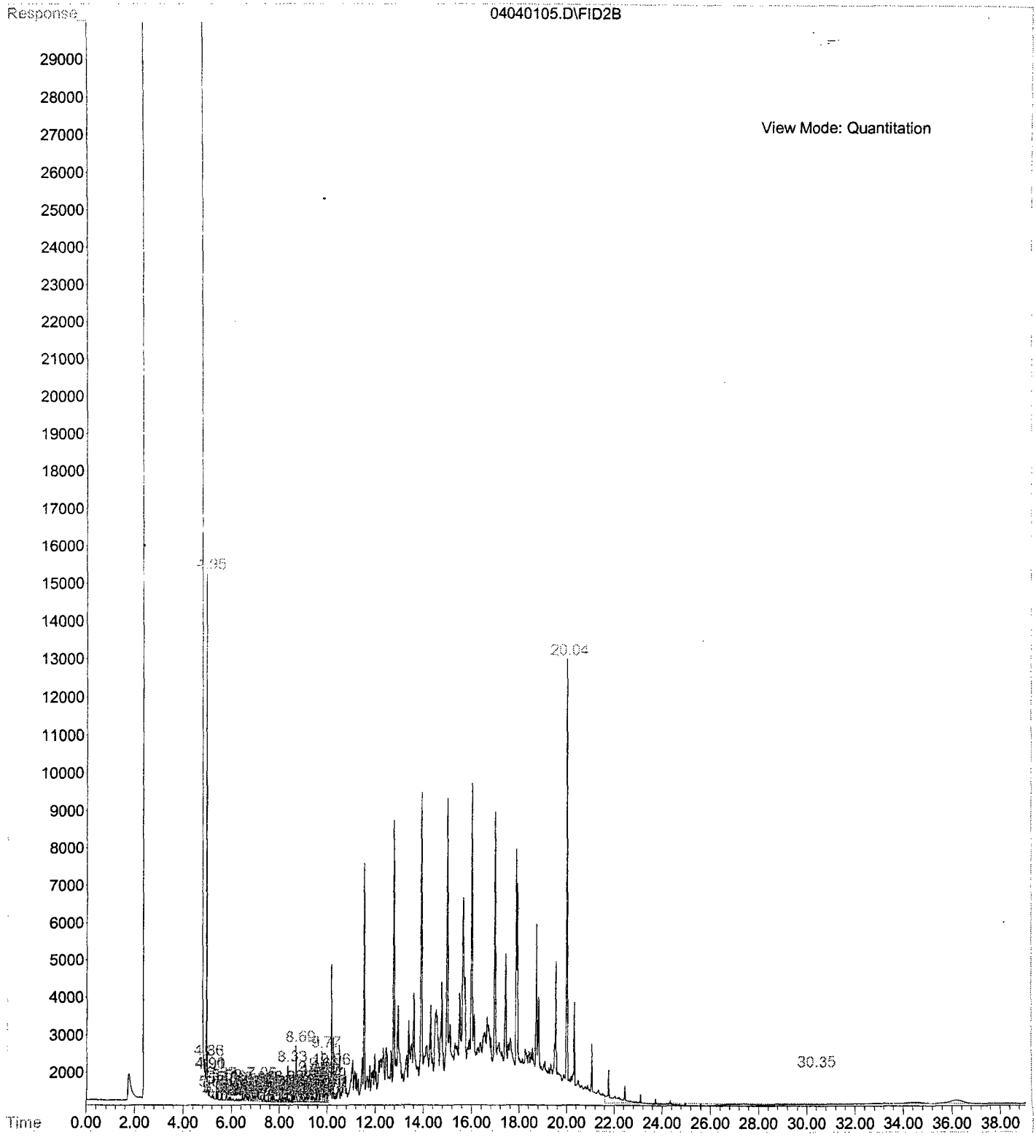
Shipping and Lab Notes:

PE-176 4/95

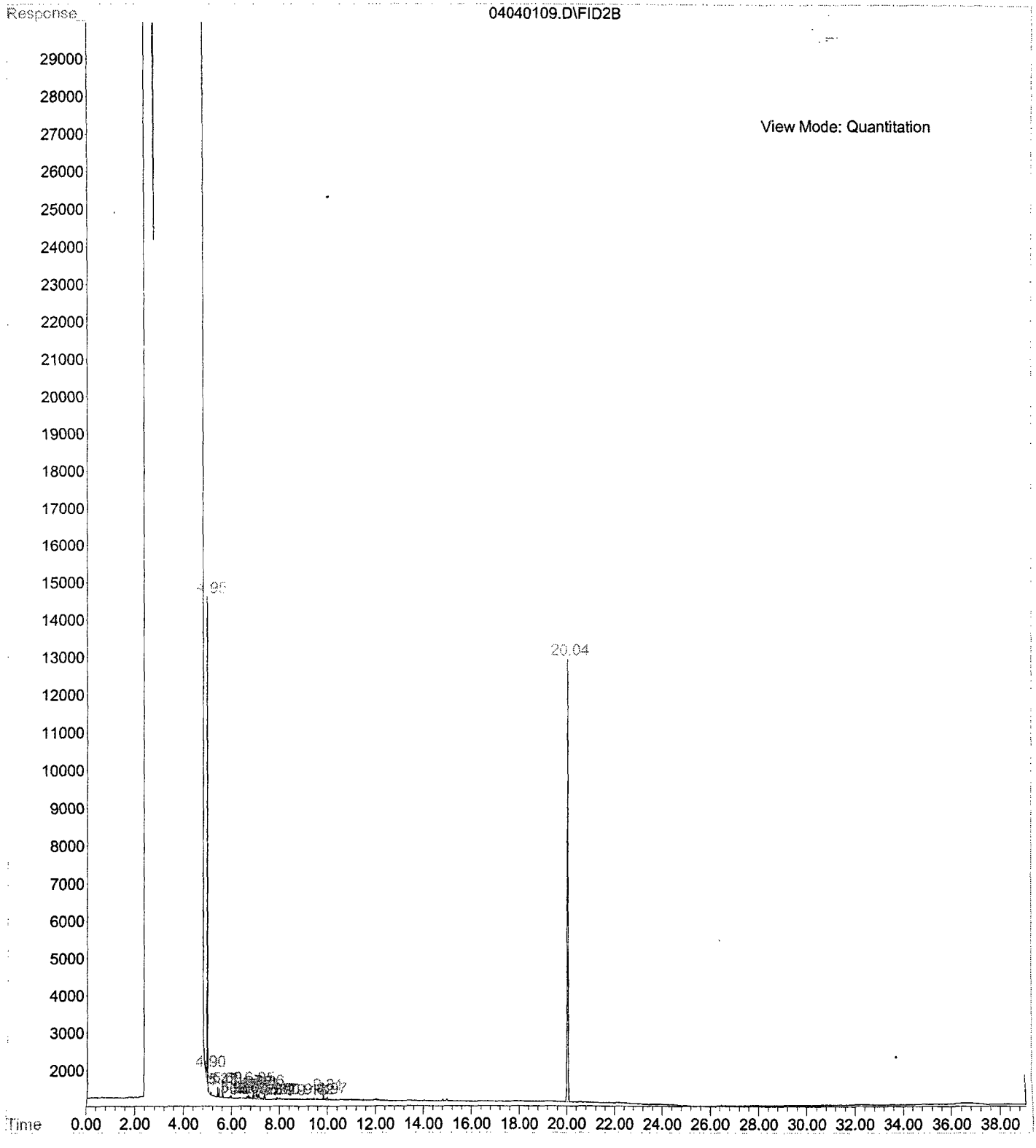
File : C:\HPCHEM\2\DATA\040401\04040104.D
Operator : CFF
Acquired : 4 Apr 2001 10:10 using AcqMethod NM1108FR.M
Instrument : FID-1
Sample Name: gas ccv gc4-30-4
Misc Info :
Vial Number: 4



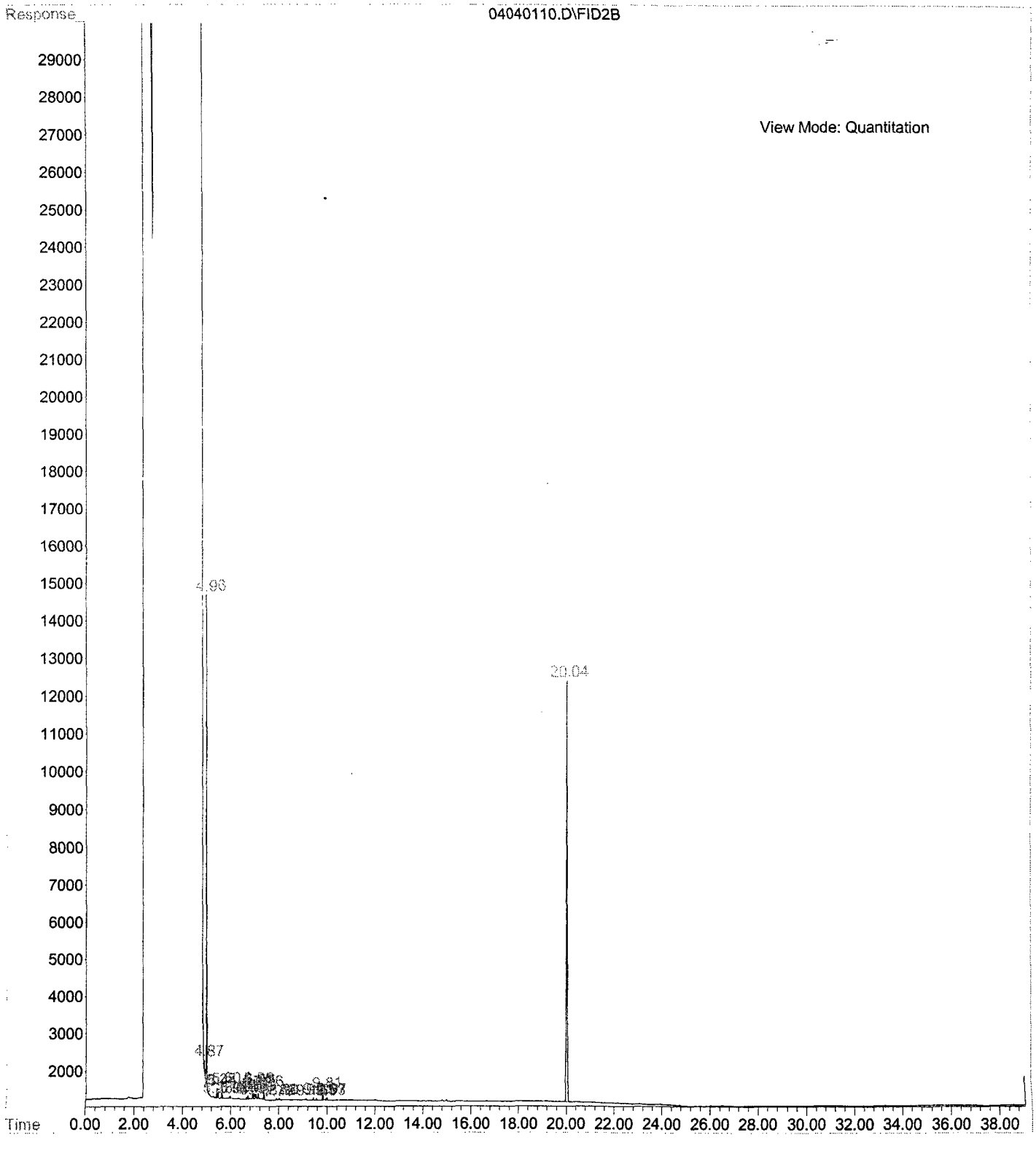
File : C:\HPCHEM\2\DATA\040401\04040105.D
Operator : CFF
Acquired : 4 Apr 2001 11:03 using AcqMethod NM1108FR.M
Instrument : FID-1
Sample Name: dsl ccv gc4-30-6
Misc Info :
Vial Number: 5



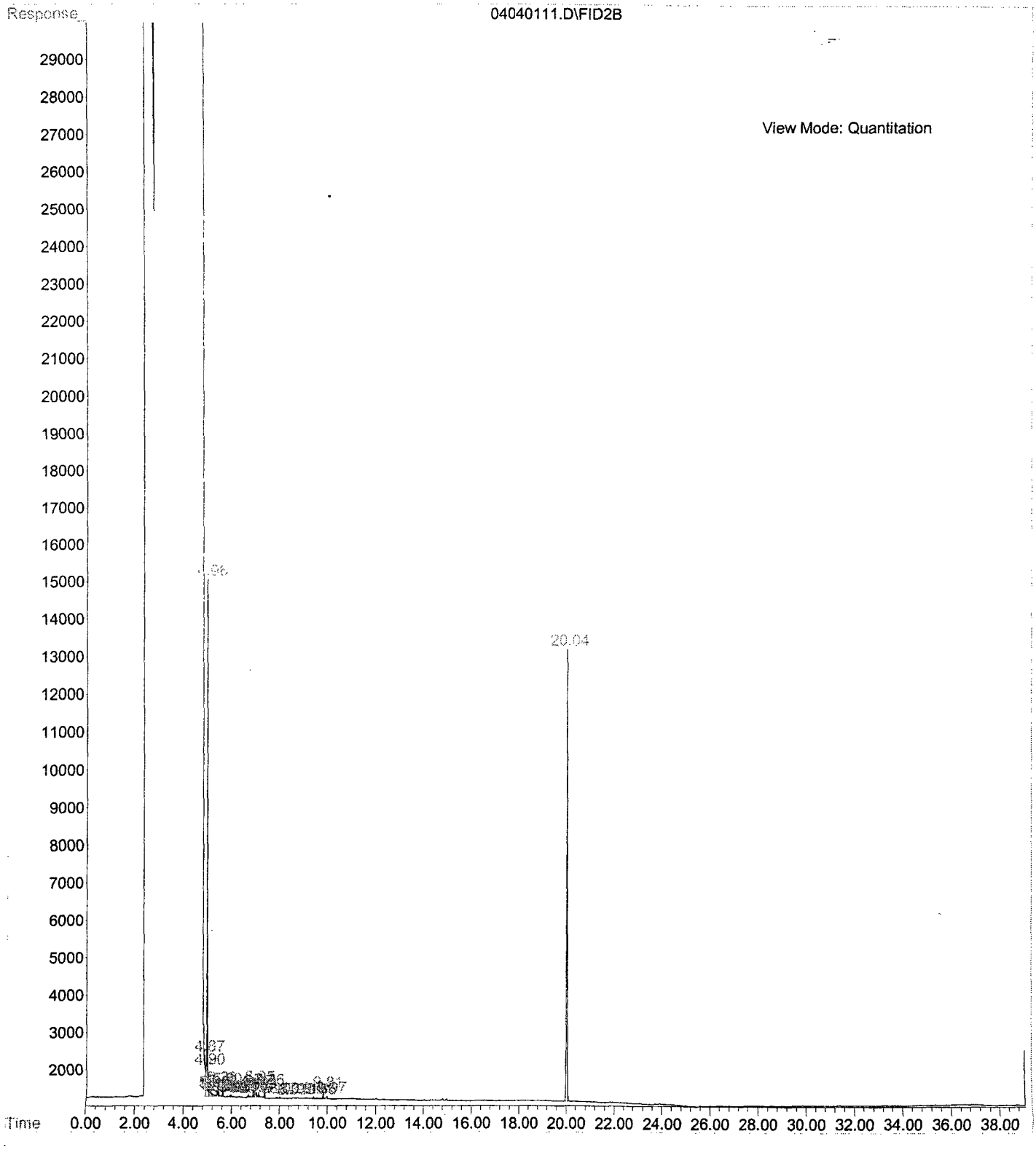
File : C:\HPCHEM\2\DATA\040401\04040109.D
Operator : CFF
Acquired : 4 Apr 2001 14:34 using AcqMethod NM1108FR.M
Instrument : FID-1
Sample Name: 103096-01
Misc Info :
Vial Number: 9



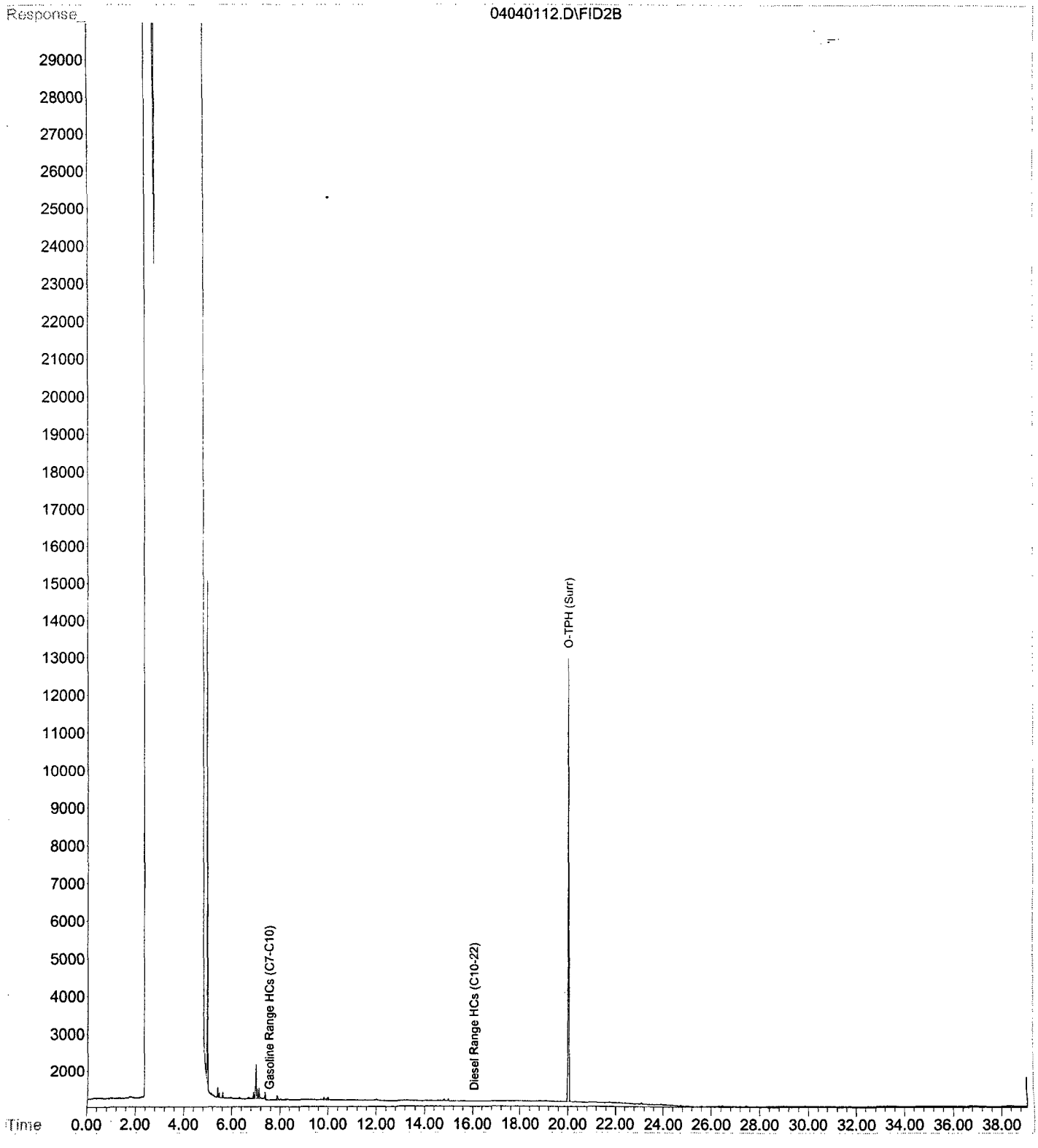
File : C:\HPCHEM\2\DATA\040401\04040110.D
Operator : CFF
Acquired : 4 Apr 2001 15:27 using AcqMethod NM1108FR.M
Instrument : FID-1
Sample Name: 103096-02
Misc Info :
Vial Number: 10



File : C:\HPCHEM\2\DATA\040401\04040111.D
Operator : CFF
Acquired : 4 Apr 2001 16:21 using AcqMethod NM1108FR.M
Instrument : FID-1
Sample Name: 103096-03
Misc Info :
Vial Number: 11



File : C:\HPCHEM\2\DATA\040401\04040112.D
Operator : CFF
Acquired : 4 Apr 2001 17:14 using AcqMethod NM1108FR.M
Instrument : FID-1
Sample Name: 103096-05
Misc Info :
Vial Number: 12



PINNACLE LABORATORIES

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

PL I.D. **103095**

May 2, 2001

Philip Services Corp.
4000 Monroe Road
Farmington, NM 87401

Project Name/Number: GOODWIN TREATING PLANT 62800404

Attention: Don Fernald

On **03/29/01**, Pinnacle Laboratories Inc., (ADHS License No. AZ0592 pending), received a request to analyze **non-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.

All analyses were performed by EnviroTest Laboratories, LLC. Casper, WY.

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

H. Mitchell Rubenstein, Ph.D.
General Manager

MR:jt

Enclosure

PINNACLE LABORATORIES

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

CLIENT	: PHILIP SERVICES CORP.	DATE RECEIVED	: 03/29/01
PROJECT #	: 62800404		
PROJECT NAME	: GOODWIN TREATING PLANT	REPORT DATE	: 05/02/01

PL ID: 103095

	PINNACLE ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	103095-01	01/10-12'	NON-AQ	03/27/01
02	103095-02	02/20-22'	NON-AQ	03/27/01
03	103095-03	03/30-32'	NON-AQ	03/27/01
04	103095-04	04/40-42'	NON-AQ	03/27/01
05	103095-05	05/52-54'	NON-AQ	03/27/01
06	103095-06	06/BACKGROUND	NON-AQ	03/28/01

---TOTALS---

MATRIX	#SAMPLES
NON-AQ	6

Enviro-Test Laboratories LLC.

Chemical Analysis Report

PINNACLE LABORATORIES, INC
Attn: PROJECT MANAGER
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107

Date: 01 MAY 2001

Lab Work Order #: L2684
Project P.O. #: 103095
Project Reference:
Comments:

Date Received: 30 MAR 2001

APPROVED BY: _____
Dave Demorest
Project Manager

Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260'
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030€

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

PO No.: 103095
WO NO.: L2684

Sample ID: 01 / 10-12' / 103095-01
Job Name:
Sampled By: CLIENT

Date Collected: 27-MAR-01
Lab Sample ID: L2684-1
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Chloride (Cl)	1480	mg/kg	5		26-APR-01	ML

Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 01-MAY-01
Page: 3 of 8
PO No.: 103095
WO NO.: L2684

Sample ID: 02 / 20-22' / 103095-02
Job Name:
Sampled By: CLIENT

Date Collected: 27-MAR-01
Lab Sample ID: L2684-2
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Chloride (Cl)	214	mg/kg	5		26-APR-01	ML

Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

PO No.: 103095
WO NO.: L2684

Sample ID: 03 / 30-32' / 103095-03
Job Name:
Sampled By: CLIENT

Date Collected: 27-MAR-01
Lab Sample ID: L2684-3
Matrix: SOIL

Test Description	Result	Units of Measure	D.L	Prep Date	Analyzed	By
Misc						
Chloride (Cl)	843	mg/kg	5		26-APR-01	ML

Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Sample ID: 04 / 40-42' / 103095-04
Job Name:
Sampled By: CLIENT

Date Collected: 27-MAR-01
Lab Sample ID: L2684-4
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Chloride (Cl)	1180	mg/kg	5		26-APR-01	ML

Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260'
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030(

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 01-MAY-01
Page: 6 of 8
PO No.: 103095
WO NO.: L2684

Sample ID: 05 / 52-54' / 103095-05
Job Name:
Sampled By: CLIENT

Date Collected: 27-MAR-01
Lab Sample ID: L2684-5
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Chloride (Cl)	720	mg/kg	5		26-APR-01	ML

Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 01-MAY-01
Page: 7 of 8
PO No.: 103095
WO NO.: L2684

Sample ID: 06 / BACKGROUND / 103095-06
Job Name:
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2684-6
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Chloride (Cl)	43	mg/kg	5		26-APR-01	ML

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Toll Free 1(800)666-030€

Methodology Reference

ETL Test Code	Matrix	Test Description	Methodology Reference
CL-CA	Soil	Chloride (Cl)	SM 4500 Cl B-Titrimetric

ENVIRO-TEST QC REPORT

Workorder #: L2684

QC Type: BLANK

Lab QC Number:		Result	Qualifier	Units	Limit	Analyzed
WG8745-2						
CL-CA	Chloride (Cl)	<5		mg/kg	5	26-APR-01

QC Type: DUP

Lab QC Number:		RPD	Qualifier	Limit %	Analyzed
WG8745-6					
CL-CA	Chloride (Cl)	2.3		0-20	26-APR-01

QC Type: LCS

Lab QC Number:		% Recovery	Qualifier	Limit %	Analyzed
WG8745-1					
CL-CA	Chloride (Cl)	98		90-110	26-APR-01

QC Type: MS

Lab QC Number:		% Recovery	Qualifier	Limit %	Analyzed
WG8745-3					
CL-CA	Chloride (Cl)	98		75-125	26-APR-01

QC Type: CCV

Lab QC Number:		% Recovery	Qualifier	Limit %	Analyzed
WG8745-5					
CL-CA	Chloride (Cl)	103		80-120	26-APR-01

ENVIRO-TEST QC REPORT

Workorder #: L2684

Legend:

QC Type	Description
BLANK	Laboratory Blank
BS	Blank Spike
BSD	Blank Spike Duplicate
CCB	Continuing Calibration Blank
CCC	Continuing Calibration Check
CCV	Cont. Cal. Verification
DUP	Duplicate
ICB	Instrument Blank
ICV	Instument Calibration Verification
INST BLK	Instrument Blank
LCS	Laboratory Control Spike
LCSD	Lab Control Spike Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SPCC	System Performance Check Compound
SRM	Standard Reference Material
SSS	Second source std

Qualifier:

RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
A	Method blank exceeds detection limit. Blank correction applied, where appropriate.
B	Method blank result exceeds detection limit, however, it is less that 5% of sample concentration. Blank correction not applied.
C	Method blank result exceeds detection limit, however, it is less than 5% of the regulatory limit for the analyte of interest. Blank correction not applied.
D	Duplicate result exceeds limit due to increased variability for low level samples.
E	Matrix spike limit exceeded due to high sample background.
F	Silver recovery low, likely due to elevated choride levels in sample.
G	Outlier - No assignable cause for nonconformity has been determined.

103095

Chain of Custody Record

PHILIP ENVIRONMENTAL

4000 Monroe Road
Farmington, NM 87401
(505) 326-2262 Phone
(505) 326-2388 FAX

COC Serial No. C 2823

Project Name: Goodwin Treating Plant
Project Number: 62800404 Phase . Task
Samplers: Don Fernald
Laboratory Name: Pinnacle Labs
Laboratory Location: ABQ, NM

Sample Number (and depth)	Date	Time	Matrix	Total Number of Bottles	Type of Analysis and Bottle: Chlorides	Comments
01 / 10-12'	3/26/01		Soil	1	✓ -01	
02 / 20-22'	3/27/01		Soil	1	✓ -02	
03 / 30-32'	3/27/01		Soil	1	✓ -03	Cuttings
04 / 40-42'	3/27/01		Soil	1	✓ -04	
05 / 52'-54'	3/27/01		Soil	1	✓ -05	
06 / Background	3/28/01		Soil	1	✓ -06	75' East of Fence

Relinquished by:

Signature	Date	Time
[signature]	3/29/01	8:15

Received By:

Signature	Date	Time
[signature]	3-29-01	8:14

Samples Iced: ☐ Yes ☑ No

Preservatives (ONLY for Water Samples)

- ☐ Cyanide ..... Sodium hyroxide (NaOH)
- ☐ Volatile Organic Analysis ..... Hydrochloric acid (HCl)
- ☐ Metals ..... Nitric acid (HNO_3)
- ☐ TPH (418.1) ..... Sulfuric acid (H_2SO_4)
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____

Carrier:

Airbill No.

Shipping and Lab Notes:

APPENDIX C - MONITORING WELL INSTALLATION RECORD

MONITORING WELL INSTALLATION RECORD

Borehole # B-1
Well # MW-1
Page 1 of 1

Philip Services Corporation
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

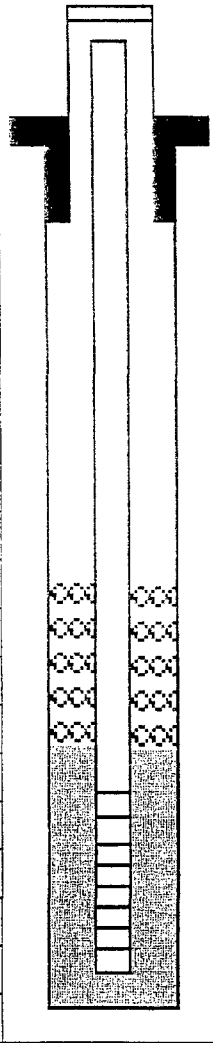
Project Name Goodwin - OCD
Project Number 62800404 Cost Code
Project Location 7 miles west of Hobbs NM

Elevation
Well Location L: S: T: R:
GWL Depth
Installed By Eades Drilling

Date/Time Started 3/27/01 - 1:45 PM
Date/Time Completed 3/27/01 - 3:10 P.M.

On-Site Geologist Don Fernald
Personnel On-Site B. Hare, M Stalhe, D. Motta
Contractors On-Site EADES DRILLING
Client Personnel On-Site NONE

Depths in Reference to Ground Surface		
Item	Material	Depth (feet)
Top of Protective Casing	Metal	+2.5
Bottom of Protective Casing	"	-6"
Top of Permanent Borehole Casing	2" sch 40 PVC	+2.5'
Bottom of Permanent Borehole Casing	"	63'
Top of Concrete	Concrete	3.5"
Bottom of Concrete	"	0"
Top of Grout	used	0"
Bottom of Grout	bentonite	
Top of Well Riser	(sch 40	+2.5'
Bottom of Well Riser	2" PVC)	43'
Top of Well Screen	(0.010" slotted	43'
Bottom of Well Screen	sch 40 2" PVC)	63'
Top of Peltonite Seal	(3/4" bentonite	0'
Bottom of Peltonite Seal	chips)	41'
Top of Gravel Pack	(12-20	41'
Bottom of Gravel Pack	silica sand)	63'
Top of Natural Cave-In	/	63'
Bottom of Natural Cave-In	/	63'
Top of Groundwater		
Total Depth of Borehole		63'



Top of Protective Casing ~2.5
Top of Riser ~2.5'
Ground Surface 0'
Top of Seal 43'
Top of Gravel Pack 41'
Top of Screen 43'
Bottom of Screen 63'
Bottom of Borehole 63'

Comments: Well set to depth of 63' bgs w/ 20' of screen to ensure groundwater interface @ screened interval.

Geologist Signature

APPENDIX D - GROUNDWATER LABORATORY RESULTS

PINNACLE LABORATORIES

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

PL I.D. **103097**

May 7, 2001

Philips Services Corp.
4000 Monroe Rd
Farmington, NM 87401

Project Name/Number: GOODWIN 62800404

Attention: Don Fernald

On **03/29/01**, Pinnacle Laboratories Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

This report is being reissued in part to include results for Mercury. Original report was issued on May 2, 2001. We apologize for the inconvenience.

All analyses were performed by EnviroTest Laboratories, LLC, Casper, WY.

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

H. Mitchell Rubenstein, Ph.D.
General Manager

MR:jt

Enclosure

PINNACLE LABORATORIES

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

CLIENT	: PHILIPS SERVICES CORP.	DATE RECEIVED	: 03/29/01
PROJECT #	: 62800404		
PROJECT NAME	: GOODWIN	REPORT DATE	: 05/07/01

PL ID: 103097

	PINNACLE ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	103097-01	MW-1/62800404-01	AQUEOUS	03/28/01
02	103097-02	MW-1/62800404-02 DUP	AQUEOUS	03/28/01
03	103097-03	MW-1/62800404-03 BLANK	AQUEOUS	03/28/01
04	103097-04	TRIP BLANK	AQUEOUS	03/21/01

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	4

Enviro-Test Laboratories LLC.

Chemical Analysis Report

PINNACLE LABORATORIES, INC

Attn: PROJECT MANAGER

2709D PAN AMERICAN FREEWAY NE

ALBUQUERQUE NM 87107

Date: 03 MAY 2001

Lab Work Order #: L2683

Project P.O. #: 103097

Project Reference:

Date Received: 30 MAR 2001

Comments: AMENDED REPORT

APPROVED BY: Debra Phillabaum for

Dave Demorest

Project Manager

E-T-L Enviro • Test LABORATORIES LLC.
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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 03-MAY-01
Page: 2 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-01 / 103097-01
Job Name:
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2683-1
Matrix: WATER

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Calcium (Ca)	155	mg/L	0.2		06-APR-01	GC
Magnesium (Mg)	27.7	mg/L	0.04		06-APR-01	GC
Potassium (K)	10.5	mg/L	0.1		06-APR-01	GC
Sodium (Na)	514	mg/L	0.08		06-APR-01	GC
Alkalinity, Total	248	mg/L	5		30-MAR-01	ML
Aluminum (Al)	3.86	mg/L	0.0001		11-APR-01	GC/ML
Antimony (Sb)	0.00037	mg/L	0.00005		11-APR-01	GC/ML
Arsenic (As)	0.0112	mg/L	0.00004		11-APR-01	GC/ML
Barium (Ba)	0.367	mg/L	0.00003		11-APR-01	GC/ML
Beryllium (Be)	0.0011	mg/L	0.0001		11-APR-01	GC/ML
Boron (B)	0.342	mg/L	0.002		11-APR-01	GC/ML
Cadmium (Cd)	0.00033	mg/L	0.00004		11-APR-01	GC/ML
Calcium (Ca)	819	mg/L	0.005		11-APR-01	GC/ML
Chromium (Cr)	0.0248	mg/L	0.0001		11-APR-01	GC/ML
Cobalt (Co)	0.00900	mg/L	0.00003		11-APR-01	GC/ML
Copper (Cu)	0.00940	mg/L	0.00009		11-APR-01	GC/ML
Iron (Fe)	1.88	mg/L	0.005		11-APR-01	GC/ML
Lead (Pb)	0.0124	mg/L	0.00004		11-APR-01	GC/ML
Magnesium (Mg)	33.0	mg/L	0.0006		11-APR-01	GC/ML
Manganese (Mn)	0.242	mg/L	0.00004		11-APR-01	GC/ML
Mercury (Hg)-Total	<0.0002	mg/L	0.0002	02-MAY-01	03-MAY-01	FT
Molybdenum (Mo)	0.00160	mg/L	0.00008		11-APR-01	GC/ML
Nickel (Ni)	0.00834	mg/L	0.00007		11-APR-01	GC/ML
Potassium (K)	9.09	mg/L	0.002		11-APR-01	GC/ML
Selenium (Se)	0.0042	mg/L	0.0001		11-APR-01	GC/M

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 03-MAY-01
Page: 3 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-01 / 103097-01
Job Name:
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2683-1
Matrix: WATER

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Silicon (Si)	26.4	mg/L	0.002		11-APR-01	GC/ML
Silver (Ag)	<0.00006	mg/L	0.00006		11-APR-01	GC/ML
Sodium (Na)	693	mg/L	0.0008		11-APR-01	GC/ML
Thallium (Tl)	0.00006	mg/L	0.00004		11-APR-01	GC/ML
Vanadium (V)	0.0952	mg/L	0.00005		11-APR-01	GC/ML
Zinc (Zn)	0.0294	mg/L	0.0003		11-APR-01	GC/ML
Anion-Cation Balance	0.4	%	0.1		01-MAY-01	JPM
Bicarbonate (as CaCO3)	248	mg/L	2		30-MAR-01	ML
Carbonate (as CaCO3)	<2	mg/L	2		30-MAR-01	ML
Chloride (Cl)	921	mg/L	0.1		12-APR-01	AEP
Conductivity (EC)	3620	umho/cm	1		04-APR-01	ML
Fluoride (F)	0.80	mg/L	0.05		16-APR-01	AEP
Sulfate (SO4)	69.3	mg/L	0.2		12-APR-01	AEP
Total Dissolved Solids	1970	mg/L	5		10-APR-01	AEP
pH	7.38	pH	0.01		30-MAR-01	ML
Modified 8270 SIMS						
naphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
2-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
1-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluorene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
phenanthrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
chrysene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(b)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(k)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Indeno(1,2,3-c,d)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Dibenzo(a,h)Anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 03-MAY-01
Page: 4 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-01 / 103097-01
Job Name:
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2683-1
Matrix: WATER

Test Description		Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc							
Modified 8270 SIMS							
	Benzo(g,h,i)Perylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Surrogate:	Nitrobenzene d5(Surr.)	78	%	44-114	06-APR-01	08-APR-01	PR
Surrogate:	2-Fluorobiphenyl (surr)	107	%	43-127	06-APR-01	08-APR-01	PR
Surrogate:	P-Terphenyl D14 (Surr)	95	%	78-137	06-APR-01	08-APR-01	PR

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 03-MAY-01
Page: 5 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-02 DUP / 103097-02
Job Name:
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2683-2
Matrix: WATER

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Calcium (Ca)	148	mg/L	0.2		06-APR-01	GC
Magnesium (Mg)	26.3	mg/L	0.04		06-APR-01	GC
Potassium (K)	10.4	mg/L	0.1		06-APR-01	GC
Sodium (Na)	494	mg/L	0.08		06-APR-01	GC
Alkalinity, Total	262	mg/L	5		30-MAR-01	ML
Aluminum (Al)	1.11	mg/L	0.0001		11-APR-01	GC/ML
Antimony (Sb)	0.00114	mg/L	0.00005		11-APR-01	GC/ML
Arsenic (As)	0.0112	mg/L	0.00004		11-APR-01	GC/ML
Barium (Ba)	0.243	mg/L	0.00003		11-APR-01	GC/ML
Beryllium (Be)	0.0006	mg/L	0.0001		11-APR-01	GC/ML
Boron (B)	0.323	mg/L	0.002		11-APR-01	GC/ML
Cadmium (Cd)	0.00040	mg/L	0.00004		11-APR-01	GC/ML
Calcium (Ca)	922	mg/L	0.005		11-APR-01	GC/ML
Chromium (Cr)	0.0054	mg/L	0.0001		11-APR-01	GC/ML
Cobalt (Co)	0.00852	mg/L	0.00003		11-APR-01	GC/ML
Copper (Cu)	0.00663	mg/L	0.00009		11-APR-01	GC/ML
Iron (Fe)	0.268	mg/L	0.005		11-APR-01	GC/ML
Lead (Pb)	0.00780	mg/L	0.00004		11-APR-01	GC/ML
Magnesium (Mg)	27.9	mg/L	0.0006		11-APR-01	GC/ML
Manganese (Mn)	0.221	mg/L	0.00004		11-APR-01	GC/ML
Mercury (Hg)-Total	<0.0002	mg/L	0.0002	02-MAY-01	03-MAY-01	FT
Molybdenum (Mo)	0.00436	mg/L	0.00008		11-APR-01	GC/ML
Nickel (Ni)	0.00816	mg/L	0.00007		11-APR-01	GC/ML
Potassium (K)	9.40	mg/L	0.002		11-APR-01	GC/ML
Selenium (Se)	0.0047	mg/L	0.0001		11-APR-01	GC/M

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Sample ID: MW-1 / 62800404-02 DUP / 103097-02
Job Name:
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2683-2
Matrix: WATER

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Silicon (Si)	15.1	mg/L	0.002		11-APR-01	GC/ML
Silver (Ag)	0.00304	mg/L	0.00006		11-APR-01	GC/ML
Sodium (Na)	660	mg/L	0.0008		11-APR-01	GC/ML
Thallium (Tl)	<0.00004	mg/L	0.00004		11-APR-01	GC/ML
Vanadium (V)	0.0358	mg/L	0.00005		11-APR-01	GC/ML
Zinc (Zn)	0.0190	mg/L	0.0003		11-APR-01	GC/ML
Anion-Cation Balance	0.5	%	0.1		01-MAY-01	JPM
Bicarbonate (as CaCO3)	262	mg/L	2		30-MAR-01	ML
Carbonate (as CaCO3)	<2	mg/L	2		30-MAR-01	ML
Chloride (Cl)	858	mg/L	0.1		12-APR-01	AEP
Conductivity (EC)	3330	umho/cm	1		04-APR-01	ML
Fluoride (F)	0.94	mg/L	0.05		16-APR-01	AEP
Sulfate (SO4)	73.5	mg/L	0.2		12-APR-01	AEP
Total Dissolved Solids	1950	mg/L	5		10-APR-01	AEP
pH	7.30	pH	0.01		30-MAR-01	ML
Modified 8270 SIMS						
naphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
2-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
1-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluorene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
phenanthrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
chrysene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(b)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(k)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Indeno(1,2,3-c,d)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Dibenzo(a,h)Anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 03-MAY-01
Page: 7 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-02 DUP / 103097-02
Job Name:
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2683-2
Matrix: WATER

Test Description		Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc							
Modified 8270 SIMS							
	Benzo(g,h,i)Perylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Surrogate:	Nitrobenzene d5(Surr.)	86	%	44-114	06-APR-01	08-APR-01	PR
Surrogate:	2-Fluorobiphenyl (surr)	94	%	43-127	06-APR-01	08-APR-01	PR
Surrogate:	P-Terphenyl D14 (Surr)	91	%	78-137	06-APR-01	08-APR-01	PR

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 03-MAY-01

PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-03 BLANK / 103097-03
Job Name:
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2683-3
Matrix: WATER QC SAMPLE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Calcium (Ca)	<0.01	mg/L	0.01		06-APR-01	GC
Magnesium (Mg)	<0.002	mg/L	0.002		06-APR-01	GC
Potassium (K)	0.044	mg/L	0.007		06-APR-01	GC
Sodium (Na)	<0.004	mg/L	0.004		06-APR-01	GC
Alkalinity, Total	<5	mg/L	5		30-MAR-01	ML
Aluminum (Al)	0.168	mg/L	0.0001		11-APR-01	GC/ML
Antimony (Sb)	0.00014	mg/L	0.00005		11-APR-01	GC/ML
Arsenic (As)	<0.00004	mg/L	0.00004		11-APR-01	GC/ML
Barium (Ba)	0.00194	mg/L	0.00003		11-APR-01	GC/ML
Beryllium (Be)	<0.0001	mg/L	0.0001		11-APR-01	GC/ML
Boron (B)	<0.002	mg/L	0.002		11-APR-01	GC/ML
Cadmium (Cd)	0.00010	mg/L	0.00004		11-APR-01	GC/ML
Calcium (Ca)	<0.005	mg/L	0.005		11-APR-01	GC/ML
Chromium (Cr)	<0.0001	mg/L	0.0001		11-APR-01	GC/ML
Cobalt (Co)	0.00007	mg/L	0.00003		11-APR-01	GC/ML
Copper (Cu)	0.00140	mg/L	0.00009		11-APR-01	GC/ML
Iron (Fe)	0.131	mg/L	0.005		11-APR-01	GC/ML
Lead (Pb)	0.00075	mg/L	0.00004		11-APR-01	GC/ML
Magnesium (Mg)	0.0287	mg/L	0.0006		11-APR-01	GC/ML
Manganese (Mn)	0.00117	mg/L	0.00004		11-APR-01	GC/ML
Mercury (Hg)-Total	<0.0002	mg/L	0.0002	02-MAY-01	03-MAY-01	FT
Molybdenum (Mo)	<0.00008	mg/L	0.00008		11-APR-01	GC/ML
Nickel (Ni)	<0.00007	mg/L	0.00007		11-APR-01	GC/ML
Potassium (K)	<0.002	mg/L	0.002		11-APR-01	GC/ML
Selenium (Se)	<0.0001	mg/L	0.0001		11-APR-01	GC/M

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Sample ID: MW-1 / 62800404-03 BLANK / 103097-03
Job Name:
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2683-3
Matrix: WATER QC SAMPLE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Silicon (Si)	0.085	mg/L	0.002		11-APR-01	GC/ML
Silver (Ag)	0.00716	mg/L	0.00006		11-APR-01	GC/ML
Sodium (Na)	0.504	mg/L	0.0008		11-APR-01	GC/ML
Thallium (Tl)	<0.00004	mg/L	0.00004		11-APR-01	GC/ML
Vanadium (V)	<0.00005	mg/L	0.00005		11-APR-01	GC/ML
Zinc (Zn)	<0.0003	mg/L	0.0003		11-APR-01	GC/ML
Anion-Cation Balance	34.0	%	0.1		01-MAY-01	JPM
Bicarbonate (as CaCO3)	2	mg/L	2		30-MAR-01	ML
Carbonate (as CaCO3)	<2	mg/L	2		30-MAR-01	ML
Chloride (Cl)	<0.1	mg/L	0.1		12-APR-01	AEP
Conductivity (EC)	3	umho/cm	1		04-APR-01	ML
Fluoride (F)	<0.05	mg/L	0.05		16-APR-01	AEP
Sulfate (SO4)	<0.2	mg/L	0.2		12-APR-01	AEP
Total Dissolved Solids	<5.00	mg/L	5		10-APR-01	AEP
pH	6.07	pH	0.01		30-MAR-01	ML
Modified 8270 SIMS						
naphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
2-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
1-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluorene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
phenanthrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
chrysene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(b)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(k)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Indeno(1,2,3-c,d)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Dibenzo(a,h)Anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 03-MAY-01
Page: 10 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-03 BLANK / 103097-03
Job Name:
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2683-3
Matrix: WATER QC SAMPLE

Test Description		Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc							
Modified 8270 SIMS							
	Benzo(g,h,i)Perylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Surrogate:	Nitrobenzene d5(Surr.)	99	%	44-114	06-APR-01	08-APR-01	PR
Surrogate:	2-Fluorobiphenyl (surr)	104	%	43-127	06-APR-01	08-APR-01	PR
Surrogate:	P-Terphenyl D14 (Surr)	94	%	78-137	06-APR-01	08-APR-01	PR

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Methodology Reference

ETL Test Code	Matrix	Test Description	Methodology Reference
8270-SIMS-CA	Water	Modified 8270 SIMS	EPA 8270C Modified for S.I.M.
AG-TOT-LOW-CA	Water	Silver (Ag)-Total	SM 3125-ICP-MS
AL-TOT-LOW-CA	Water	Aluminum (Al)-Total	SM 3125-ICP-MS
ALK-CO3-CA	Water	Carbonate (as CaCO3)	SM 2320 B-Pot. Titration
ALK-HCO3-CA	Water	Bicarbonate (as CaCO3)	SM 2320 B-Pot. Titration
ALK-TOT-CA	Water	Alkalinity, Total	SM 2320 B-Pot. Titration
AS-TOT-LOW-CA	Water	Arsenic (As)-Total	SM 3125-ICP-MS
B-TOT-LOW-CA	Water	Boron (B)-Total	SM 3125-ICP-MS
BA-TOT-LOW-CA	Water	Barium (Ba)-Total	SM 3125-ICP-MS
BAL-PCNT-CALC-CA	Water	Anion-Cation Balance	SM 1030 F-Calculation
BE-TOT-LOW-CA	Water	Beryllium (Be)-Total	SM 3125-ICP-MS
CA-DIS-LOW-CA	Water	Calcium (Ca)-Dissolved	SM 3125-ICP-MS
CA-TOT-LOW-CA	Water	Calcium (Ca)-Total	SM 3125-ICP-MS
CD-TOT-LOW-CA	Water	Cadmium (Cd)-Total	SM 3125-ICP-MS
CL-IC-CA	Water	Chloride by IC	EPA 300.1
CO-TOT-LOW-CA	Water	Cobalt (Co)-Total	SM 3125-ICP-MS
CR-TOT-LOW-CA	Water	Chromium (Cr)-Total	SM 3125-ICP-MS
CU-TOT-LOW-CA	Water	Copper (Cu)-Total	SM 3125-ICP-MS
EC-CA	Water	Conductivity (EC)	SM 2510 B-electrode
F-IC-CA	Water	Fluoride by IC	EPA 300.1
FE-TOT-LOW-CA	Water	Iron (Fe)-Total	SM 3125-ICP-MS
HG-TOT-HYD-CA	Water	Mercury (Hg)-Total	SM 3112 B-AAS Cold Vapor
HG-TOT-LOW-CA	Water	Mercury, (Hg)-Total	SM 3125-ICP-MS
K-DIS-LOW-CA	Water	Potassium (K)-Dissolved	SM 3125-ICP-MS
K-TOT-LOW-CA	Water	Potassium (K)-Total	SM 3125-ICP-MS
MG-DIS-LOW-CA	Water	Magnesium (Mg)-Dissolved	SM 3125-ICP-MS
MG-TOT-LOW-CA	Water	Magnesium (Mg)-Total	SM 3125-ICP-MS
MN-TOT-LOW-CA	Water	Manganese (Mn)-Total	SM 3125-ICP-MS
MO-TOT-LOW-CA	Water	Molybdenum (Mo)-Total	SM 3125-ICP-MS
NA-DIS-LOW-CA	Water	Sodium (Na)-Dissolved	SM 3125-ICP-MS
NA-TOT-LOW-CA	Water	Sodium (Na)-Total	SM 3125-ICP-MS

NI-TOT-LOW-CA	Water	Nickel (Ni)-Total	SM 3125-ICP-MS
PB-TOT-LOW-CA	Water	Lead (Pb),-Total	SM 3125-ICP-MS
PH-CA	Water	pH	SM 4500 H-Electrode
SB-TOT-LOW-CA	Water	Antimony (Sb)-Total	SM 3125-ICP-MS
SE-TOT-LOW-CA	Water	Selenium (Se)-Total	SM 3125-ICP-MS
SI-TOT-CA	Water	Silicon (Si)-Total	SM 3120 B-ICP-OES
SO4-IC-CA	Water	Sulfate by IC	EPA 300.1
SOLIDS-TDS-CA	Water	Total Dissolved Solids	SM 2540 C
TL-TOT-LOW-CA	Water	Thallium (Tl)-Total	SM 3125-ICP-MS
V-TOT-LOW-CA	Water	Vanadium (V)-Total	SM 3125-ICP-MS
ZN-TOT-LOW-CA	Water	Zinc (Zn)-Total	SM 3125-ICP-MS

ENVIRO-TEST QC REPORT

Workorder #: L2683

QC Type: BLANK

Lab QC Number:		Result	Qualifier	Units	Limit	Analyzed
WG8468-3						
ALK-TOT-CA	Alkalinity, Total	<5		mg/L	5	30-MAR-01
WG8511-2						
EC-CA	Conductivity (EC)	<1		umho/cm	1	04-APR-01
WG8522-1						
CA-DIS-LOW-CA	Calcium (Ca)	<0.01		mg/L	0.01	06-APR-01
CA-TOT-LOW-CA	Calcium (Ca)	<0.005		mg/L	0.005	06-APR-01
K-DIS-LOW-CA	Potassium (K)	0.047		mg/L	0.007	06-APR-01
K-TOT-LOW-CA	Potassium (K)	0.047		mg/L	0.002	06-APR-01
MG-DIS-LOW-CA	Magnesium (Mg)	<0.002		mg/L	0.002	06-APR-01
MG-TOT-LOW-CA	Magnesium (Mg)	0.0010		mg/L	0.0006	06-APR-01
NA-DIS-LOW-CA	Sodium (Na)	<0.004		mg/L	0.004	06-APR-01
NA-TOT-LOW-CA	Sodium (Na)	<0.0008		mg/L	0.0008	06-APR-01
WG8543-1						
AG-TOT-LOW-CA	Silver (Ag)	0.00070		mg/L	0.00006	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	<0.0001		mg/L	0.0001	11-APR-01
AS-TOT-LOW-CA	Arsenic (As)	0.00011		mg/L	0.00004	11-APR-01
B-TOT-LOW-CA	Boron (B)	<0.002		mg/L	0.002	11-APR-01
BA-TOT-LOW-CA	Barium (Ba)	<0.00003		mg/L	0.00003	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	<0.0001		mg/L	0.0001	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	<0.00004		mg/L	0.00004	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	<0.00003		mg/L	0.00003	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	0.0042		mg/L	0.0001	11-APR-01
CU-TOT-LOW-CA	Copper (Cu)	<0.00009		mg/L	0.00009	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	0.045		mg/L	0.005	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	<0.00004		mg/L	0.00004	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	<0.00008		mg/L	0.00008	11-APR-01
NI-TOT-LOW-CA	Nickel (Ni)	<0.00007		mg/L	0.00007	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	<0.00004		mg/L	0.00004	11-APR-01
SB-TOT-LOW-CA	Antimony (Sb)	0.00012		mg/L	0.00005	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	<0.0001		mg/L	0.0001	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	<0.00004		mg/L	0.00004	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	0.00149		mg/L	0.00005	11-APR-01
ZN-TOT-LOW-CA	Zinc (Zn)	<0.0003		mg/L	0.0003	11-APR-01
WG8554-1						
AG-TOT-LOW-CA	Silver (Ag)	0.00117		mg/L	0.00006	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	0.0058		mg/L	0.0001	11-APR-01

ENVIRO-TEST QC REPORT

Workorder #: L2683

AS-TOT-LOW-CA	Arsenic (As)	<0.00004	mg/L	0.00004	11-APR-01
B-TOT-LOW-CA	Boron (B)	<0.002	mg/L	0.002	11-APR-01
BA-TOT-LOW-CA	Barium (Ba)	0.00026	mg/L	0.00003	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	<0.0001	mg/L	0.0001	11-APR-01
CA-TOT-LOW-CA	Calcium (Ca)	<0.005	mg/L	0.005	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	0.00052	mg/L	0.00004	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	<0.00003	mg/L	0.00003	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	<0.0001	mg/L	0.0001	11-APR-01
CU-TOT-LOW-CA	Copper (Cu)	<0.00009	mg/L	0.00009	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	0.009	mg/L	0.005	11-APR-01
K-TOT-LOW-CA	Potassium (K)	<0.002	mg/L	0.002	11-APR-01
MG-TOT-LOW-CA	Magnesium (Mg)	0.0090	mg/L	0.0006	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	<0.00004	mg/L	0.00004	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	<0.00008	mg/L	0.00008	11-APR-01
NA-TOT-LOW-CA	Sodium (Na)	0.0789	mg/L	0.0008	11-APR-01
NI-TOT-LOW-CA	Nickel (Ni)	0.00049	mg/L	0.00007	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	0.00047	mg/L	0.00004	11-APR-01
SB-TOT-LOW-CA	Antimony (Sb)	0.00009	mg/L	0.00005	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	<0.0001	mg/L	0.0001	11-APR-01
SI-TOT-CA	Silicon (Si)	0.014	mg/L	0.002	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	<0.00004	mg/L	0.00004	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	<0.00005	mg/L	0.00005	11-APR-01
ZN-TOT-LOW-CA	Zinc (Zn)	0.0004	mg/L	0.0003	11-APR-01
WG8572-1					
8270-SIMS-CA	naphthalene	<0.4	ug/L	0.4	08-APR-01
	2-methylnaphthalene	<0.4	ug/L	0.4	08-APR-01
	1-methylnaphthalene	<0.4	ug/L	0.4	08-APR-01
	acenaphthylene	<0.4	ug/L	0.4	08-APR-01
	acenaphthene	<0.4	ug/L	0.4	08-APR-01
	fluorene	<0.4	ug/L	0.4	08-APR-01
	phenanthrene	<0.4	ug/L	0.4	08-APR-01
	anthracene	<0.4	ug/L	0.4	08-APR-01
	fluoranthene	<0.4	ug/L	0.4	08-APR-01
	pyrene	<0.4	ug/L	0.4	08-APR-01
	Benzo(a)anthracene	<0.4	ug/L	0.4	08-APR-01
	chrysene	<0.4	ug/L	0.4	08-APR-01
	Benzo(b)fluoranthene	<0.4	ug/L	0.4	08-APR-01
	Benzo(k)fluoranthene	<0.4	ug/L	0.4	08-APR-01

ENVIRO-TEST QC REPORT

Workorder #: L2683

	Benzo(a)pyrene	<0.4	ug/L	0.4	08-APR-01
	Indeno(1,2,3-c,d)pyrene	<0.4	ug/L	0.4	08-APR-01
	Dibenzo(a,h)Anthracene	<0.4	ug/L	0.4	08-APR-01
	Benzo(g,h,i)Perylene	<0.4	ug/L	0.4	08-APR-01
WG8597-1					
CL-IC-CA	Chloride (Cl)	<0.1	mg/L	0.1	12-APR-01
WG8599-1					
SO4-IC-CA	Sulfate (SO4)	<0.2	mg/L	0.2	12-APR-01
WG8600-1					
F-IC-CA	Fluoride (F)	<0.05	mg/L	0.05	16-APR-01
WG8605-1					
SOLIDS-TDS-CA	Total Dissolved Solids	<5.00	mg/L	5	10-APR-01
WG8807-1					
HG-TOT-HYD-CA	Mercury (Hg)-Total	<0.0002	mg/L	0.0002	03-MAY-01

QC Type: DUP

Lab QC Number:		RPD	Qualifier	Limit %	Analyzed
WG8468-4					
ALK-TOT-CA	Alkalinity, Total	0	RPD-NA	0-20	30-MAR-01
WG8469-2					
PH-CA	pH	1.7		0-20	30-MAR-01
WG8511-3					
EC-CA	Conductivity (EC)	0.5		0-20	04-APR-01
WG8511-6					
EC-CA	Conductivity (EC)	3.7	RPD-NA	0-20	04-APR-01
WG8522-3					
CA-DIS-LOW-CA	Calcium (Ca)	2.7		0-20	06-APR-01
K-DIS-LOW-CA	Potassium (K)	1		0-20	06-APR-01
MG-DIS-LOW-CA	Magnesium (Mg)	1.5		0-20	06-APR-01
NA-DIS-LOW-CA	Sodium (Na)	1.6		0-20	06-APR-01
WG8543-3					
AG-TOT-LOW-CA	Silver (Ag)	9.0		0-20	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	1.9		0-20	11-APR-01
AS-TOT-LOW-CA	Arsenic (As)	0.3		0-20	11-APR-01
B-TOT-LOW-CA	Boron (B)	8.1		0-20	11-APR-01

ENVIRO-TEST QC REPORT

Workorder #: L2683

BA-TOT-LOW-CA	Barium (Ba)	2.7		0-20	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	4.7		0-20	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	0.8		0-20	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	5.8		0-20	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	0.5		0-20	11-APR-01
CU-TOT-LOW-CA	Copper (Cu)	0.4		0-20	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	1.3		0-20	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	6.4		0-20	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	1.6		0-20	11-APR-01
NI-TOT-LOW-CA	Nickel (Ni)	0		0-20	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	2.3		0-20	11-APR-01
SB-TOT-LOW-CA	Antimony (Sb)	2.4		0-20	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	4.8		0-20	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	5.5		0-20	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	5.6		0-20	11-APR-01
ZN-TOT-LOW-CA	Zinc (Zn)	1.8		0-20	11-APR-01
WG8554-3					
AG-TOT-LOW-CA	Silver (Ag)	12	RPD-NA	0-20	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	3.3		0-20	11-APR-01
AS-TOT-LOW-CA	Arsenic (As)	0		0-20	11-APR-01
B-TOT-LOW-CA	Boron (B)	10		0-20	11-APR-01
BA-TOT-LOW-CA	Barium (Ba)	2.7		0-20	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	4.7		0-20	11-APR-01
CA-TOT-LOW-CA	Calcium (Ca)	18		0-20	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	61		0-20	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	0.1		0-20	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	1.6		0-20	11-APR-01
CU-TOT-LOW-CA	Copper (Cu)	1.3		0-20	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	5.7		0-20	11-APR-01
K-TOT-LOW-CA	Potassium (K)	2.2		0-20	11-APR-01
MG-TOT-LOW-CA	Magnesium (Mg)	0.6		0-20	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	0.4		0-20	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	3.7		0-20	11-APR-01
NI-TOT-LOW-CA	Nickel (Ni)	7.4		0-20	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	2.4		0-20	11-APR-01

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SB-TOT-LOW-CA	Antimony (Sb)	29		0-20	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	23		0-20	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	20	RPD-NA	0-20	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	1.8		0-20	11-APR-01
ZN-TOT-LOW-CA	Zinc (Zn)	17		0-20	11-APR-01
WG8600-3					
F-IC-CA	Fluoride (F)	11		0-20	16-APR-01

QC Type: LCS

Lab QC Number:		% Recovery	Qualifier	Limit %	Analyzed
WG8468-2					
ALK-TOT-CA	Alkalinity, Total	99		80-120	30-MAR-01
WG8522-2					
CA-DIS-LOW-CA	Calcium (Ca)	103		80-120	06-APR-01
CA-TOT-LOW-CA	Calcium (Ca)	103		80-120	06-APR-01
K-DIS-LOW-CA	Potassium (K)	103		80-120	06-APR-01
K-TOT-LOW-CA	Potassium (K)	103		80-120	06-APR-01
MG-DIS-LOW-CA	Magnesium (Mg)	93		80-120	06-APR-01
MG-TOT-LOW-CA	Magnesium (Mg)	93		80-120	06-APR-01
NA-DIS-LOW-CA	Sodium (Na)	92		80-120	06-APR-01
NA-TOT-LOW-CA	Sodium (Na)	92		80-120	06-APR-01
WG8543-2					
AG-TOT-LOW-CA	Silver (Ag)	92		80-120	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	93		80-120	11-APR-01
AS-TOT-LOW-CA	Arsenic (As)	104		80-120	11-APR-01
B-TOT-LOW-CA	Boron (B)	104		80-120	11-APR-01
BA-TOT-LOW-CA	Barium (Ba)	96		80-120	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	96		80-120	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	102		80-120	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	104		80-120	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	109		80-120	11-APR-01
CU-TOT-LOW-CA	Copper (Cu)	103		80-120	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	100		80-120	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	104		80-120	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	100		80-120	11-APR-01

ENVIRO-TEST QC REPORT

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NI-TOT-LOW-CA	Nickel (Ni)	105	80-120	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	102	80-120	11-APR-01
SB-TOT-LOW-CA	Antimony (Sb)	103	80-120	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	105	80-120	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	111	80-120	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	104	80-120	11-APR-01
ZN-TOT-LOW-CA	Zinc (Zn)	107	80-120	11-APR-01
WG8554-2				
AG-TOT-LOW-CA	Silver (Ag)	98	80-120	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	110	80-120	11-APR-01
AS-TOT-LOW-CA	Arsenic (As)	98	80-120	11-APR-01
B-TOT-LOW-CA	Boron (B)	122	80-120	11-APR-01
BA-TOT-LOW-CA	Barium (Ba)	99	80-120	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	104	80-120	11-APR-01
CA-TOT-LOW-CA	Calcium (Ca)	95	80-120	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	97	80-120	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	99	80-120	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	104	80-120	11-APR-01
CU-TOT-LOW-CA	Copper (Cu)	100	80-120	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	98	80-120	11-APR-01
K-TOT-LOW-CA	Potassium (K)	103	80-120	11-APR-01
MG-TOT-LOW-CA	Magnesium (Mg)	97	80-120	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	100	80-120	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	100	80-120	11-APR-01
NA-TOT-LOW-CA	Sodium (Na)	104	80-120	11-APR-01
NI-TOT-LOW-CA	Nickel (Ni)	100	80-120	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	103	80-120	11-APR-01
SB-TOT-LOW-CA	Antimony (Sb)	101	80-120	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	99	80-120	11-APR-01
SI-TOT-CA	Silicon (Si)	94	80-120	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	102	80-120	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	100	80-120	11-APR-01
ZN-TOT-LOW-CA	Zinc (Zn)	99	80-120	11-APR-01
WG8572-3				
8270-SIMS-CA	naphthalene	48	N/A	08-APR-01

	2-methylnaphthalene	51	N/A	08-APR-01
	1-methylnaphthalene	61	N/A	08-APR-01
	acenaphthylene	65	N/A	08-APR-01
	acenaphthene	63	N/A	08-APR-01
	fluorene	69	N/A	08-APR-01
	phenanthrene	78	N/A	08-APR-01
	anthracene	84	N/A	08-APR-01
	fluoranthene	85	N/A	08-APR-01
	pyrene	90	N/A	08-APR-01
	Benzo(a)anthracene	51	N/A	08-APR-01
	chrysene	81	N/A	08-APR-01
	Benzo(b)fluoranthene	70	N/A	08-APR-01
	Benzo(k)fluoranthene	80	N/A	08-APR-01
	Benzo(a)pyrene	63	N/A	08-APR-01
	Indeno(1,2,3-c,d)pyrene	87	N/A	08-APR-01
	Dibenzo(a,h)Anthracene	94	N/A	08-APR-01
	Benzo(g,h,i)Perylene	91	N/A	08-APR-01
WG8597-2				
CL-IC-CA	Chloride (Cl)	101	90-110	12-APR-01
WG8599-2				
SO4-IC-CA	Sulfate (SO4)	92	90-110	12-APR-01
WG8600-2				
F-IC-CA	Fluoride (F)	91	90-110	16-APR-01
WG8605-2				
SOLIDS-TDS-CA	Total Dissolved Solids	94	80-120	10-APR-01
WG8807-2				
HG-TOT-HYD-CA	Mercury (Hg)-Total	101	90-110	03-MAY-01

QC Type: MS

Lab QC Number:		% Recovery	Qualifier	Limit %	Analyzed
WG8522-4					
CA-DIS-LOW-CA	Calcium (Ca)	104		75-125	06-APR-01
CA-TOT-LOW-CA	Calcium (Ca)	104		75-125	06-APR-01
K-DIS-LOW-CA	Potassium (K)	106		75-125	06-APR-01
K-TOT-LOW-CA	Potassium (K)	106		75-125	06-APR-01
MG-DIS-LOW-CA	Magnesium (Mg)	95		75-125	06-APR-01

MG-TOT-LOW-CA	Magnesium (Mg)	95	75-125	06-APR-01
NA-DIS-LOW-CA	Sodium (Na)	78	75-125	06-APR-01
NA-TOT-LOW-CA	Sodium (Na)	78	75-125	06-APR-01
WG8543-4				
AG-TOT-LOW-CA	Silver (Ag)	82	75-125	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	93	75-125	11-APR-01
AS-TOT-LOW-CA	Arsenic (As)	98	75-125	11-APR-01
B-TOT-LOW-CA	Boron (B)	112	75-125	11-APR-01
BA-TOT-LOW-CA	Barium (Ba)	112	75-125	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	76	75-125	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	99	75-125	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	97	75-125	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	101	75-125	11-APR-01
CU-TOT-LOW-CA	Copper (Cu)	93	75-125	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	98	75-125	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	95	75-125	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	102	75-125	11-APR-01
NI-TOT-LOW-CA	Nickel (Ni)	85	75-125	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	95	75-125	11-APR-01
SB-TOT-LOW-CA	Antimony (Sb)	97	75-125	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	104	75-125	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	103	75-125	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	119	75-125	11-APR-01
ZN-TOT-LOW-CA	Zinc (Zn)	98	75-125	11-APR-01
WG8554-4				
AG-TOT-LOW-CA	Silver (Ag)	57	75-125	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	23	75-125	11-APR-01
AS-TOT-LOW-CA	Arsenic (As)	81	75-125	11-APR-01
B-TOT-LOW-CA	Boron (B)	119	75-125	11-APR-01
BA-TOT-LOW-CA	Barium (Ba)	92	75-125	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	99	75-125	11-APR-01
CA-TOT-LOW-CA	Calcium (Ca)	42	75-125	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	93	75-125	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	81	75-125	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	90	75-125	11-APR-01

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CU-TOT-LOW-CA	Copper (Cu)	78	75-125	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	106	75-125	11-APR-01
K-TOT-LOW-CA	Potassium (K)	110	75-125	11-APR-01
MG-TOT-LOW-CA	Magnesium (Mg)	73	75-125	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	76	75-125	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	107	75-125	11-APR-01
NI-TOT-LOW-CA	Nickel (Ni)	83	75-125	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	87	75-125	11-APR-01
SB-TOT-LOW-CA	Antimony (Sb)	86	75-125	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	82	75-125	11-APR-01
SI-TOT-CA	Silicon (Si)	76	75-125	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	88	75-125	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	85	75-125	11-APR-01
ZN-TOT-LOW-CA	Zinc (Zn)	114	75-125	11-APR-01
WG8572-4				
8270-SIMS-CA	naphthalene	38	N/A	08-APR-01
	2-methylnaphthalene	46	N/A	08-APR-01
	1-methylnaphthalene	44	N/A	08-APR-01
	acenaphthylene	48	N/A	08-APR-01
	acenaphthene	47	N/A	08-APR-01
	fluorene	52	N/A	08-APR-01
	phenanthrene	61	N/A	08-APR-01
	anthracene	59	N/A	08-APR-01
	fluoranthene	71	N/A	08-APR-01
	pyrene	59	N/A	08-APR-01
	Benzo(a)anthracene	74	N/A	08-APR-01
	chrysene	75	N/A	08-APR-01
	Benzo(b)fluoranthene	82	N/A	08-APR-01
	Benzo(k)fluoranthene	96	N/A	08-APR-01
	Benzo(a)pyrene	61	N/A	08-APR-01
	Indeno(1,2,3-c,d)pyrene	88	N/A	08-APR-01
	Dibenzo(a,h)Anthracene	98	N/A	08-APR-01
	Benzo(g,h,i)Perylene	92	N/A	08-APR-01
WG8597-4				
CL-IC-CA	Chloride (Cl)	92	75-125	12-APR-01
WG8599-4				
SO4-IC-CA	Sulfate (SO4)	116	75-125	12-APR-01

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WG8600-4					
F-IC-CA	Fluoride (F)	89		75-125	16-APR-01
WG8807-3					
HG-TOT-HYD-CA	Mercury (Hg)-Total	101		75-125	03-MAY-01

QC Type: MSD

Lab QC Number:		RPD	Qualifier	Limit %	Analyzed
WG8572-5					
8270-SIMS-CA	naphthalene	6.2		0-20	08-APR-01
	2-methylnaphthalene	28		0-20	08-APR-01
	1-methylnaphthalene	13		0-20	08-APR-01
	acenaphthylene	14		0-20	08-APR-01
	acenaphthene	22		0-20	08-APR-01
	fluorene	11		0-20	08-APR-01
	phenanthrene	1.7		0-20	08-APR-01
	anthracene	1.7		0-20	08-APR-01
	fluoranthene	10		0-20	08-APR-01
	pyrene	21		0-20	08-APR-01
	Benzo(a)anthracene	16		0-20	08-APR-01
	chrysene	18		0-20	08-APR-01
	Benzo(b)fluoranthene	1.2		0-20	08-APR-01
	Benzo(k)fluoranthene	7.3		0-20	08-APR-01
	Benzo(a)pyrene	9.5		0-20	08-APR-01
	Indeno(1,2,3-c,d)pyrene	0.57		0-20	08-APR-01
	Dibenzo(a,h)Anthracene	6.3		0-20	08-APR-01
	Benzo(g,h,i)Perylene	4.4		0-20	08-APR-01
WG8807-4					
HG-TOT-HYD-CA	Mercury (Hg)-Total	2.0		0-20	03-MAY-01

QC Type: CCV

Lab QC Number:		% Recovery	Qualifier	Limit %	Analyzed
WG8468-5					
ALK-TOT-CA	Alkalinity, Total	99		90-110	30-MAR-01
WG8469-3					
PH-CA	pH	99		90-110	30-MAR-01
WG8511-4					
EC-CA	Conductivity (EC)	100		90-110	04-APR-01

WG8511-7				
EC-CA	Conductivity (EC)	100	90-110	04-APR-01
WG8597-5				
CL-IC-CA	Chloride (Cl)	92	90-110	12-APR-01
WG8599-5				
SO4-IC-CA	Sulfate (SO4)	91	90-110	12-APR-01
WG8600-5				
F-IC-CA	Fluoride (F)	92	80-120	16-APR-01
WG8807-5				
HG-TOT-HYD-CA	Mercury (Hg)-Total	99	80-120	03-MAY-01

QC Type: ICV

Lab QC Number:		% Recovery	Qualifier	Limit %	Analyzed
WG8468-1					
ALK-TOT-CA	Alkalinity, Total	100		90-110	30-MAR-01
WG8469-1					
PH-CA	pH	100		90-110	30-MAR-01
WG8511-1					
EC-CA	Conductivity (EC)	103		90-110	04-APR-01
WG8572-2					
8270-SIMS-CA	naphthalene	101		70-130	08-APR-01
	2-methylnaphthalene	115		70-130	08-APR-01
	1-methylnaphthalene	93		70-130	08-APR-01
	acenaphthylene	112		70-130	08-APR-01
	acenaphthene	113		70-130	08-APR-01
	fluorene	127		70-130	08-APR-01
	phenanthrene	128		70-130	08-APR-01
	anthracene	111		70-130	08-APR-01
	fluoranthene	117		70-130	08-APR-01
	pyrene	99		70-130	08-APR-01
	Benzo(a)anthracene	89		70-130	08-APR-01
	chrysene	113		70-130	08-APR-01
	Benzo(b)fluoranthene	83		70-130	08-APR-01
	Benzo(k)fluoranthene	89		70-130	08-APR-01
	Benzo(a)pyrene	107		70-130	08-APR-01
	Indeno(1,2,3-c,d)pyrene	119		70-130	08-APR-01
	Dibenzo(a,h)Anthracene	109		70-130	08-APR-01
	Benzo(g,h,i)Perylene	115		70-130	08-APR-01

ENVIRO-TEST QC REPORT

Workorder #: L2683

Legend:

QC Type	Description
BLANK	Laboratory Blank
BS	Blank Spike
BSD	Blank Spike Duplicate
CCB	Continuing Calibration Blank
CCC	Continuing Calibration Check
CCV	Cont. Cal. Verification
DUP	Duplicate
ICB	Instrument Blank
ICV	Instument Calibration Verification
INST BLK	Instrument Blank
LCS	Laboratory Control Spike
LCSD	Lab Control Spike Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SPCC	System Performance Check Compound
SRM	Standard Reference Material
SSS	Second source std

Qualifier:

RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
A	Method blank exceeds detection limit. Blank correction applied, where appropriate.
B	Method blank result exceeds detection limit, however, it is less that 5% of sample concentration. Blank correction not applied.
C	Method blank result exceeds detection limit, however, it is less than 5% of the regulatory limit for the analyte of interest. Blank correction not applied.
D	Duplicate result exceeds limit due to increased variability for low level samples.
E	Matrix spike limit exceeded due to high sample background.
F	Silver recovery low, likely due to elevated choride levels in sample.
G	Outlier - No assignable cause for nonconformity has been determined.

PINNACLE LABORATORIES

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 3/29/01 PAGE: 1 OF 1

PLI Accession #: 103097

SHADED AREAS ARE FOR LAB USE ONLY.

PROJECT MANAGER: Don Fernald

COMPANY: PSC
ADDRESS: 4000 Monroe Rd
Farmington NM 87401
PHONE: 505-326-2262
FAX: 505-326-2388
BILL TO: PSC
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject		(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline) MTBE	8021 (BTEX) ☒ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐		8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081/8082)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310/8270-SIMS)	General Chemistry:	TDS Anions	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals: SEE QUOTE, + Major Anions		NUMBER OF CONTAINERS
MW-1/62800404-01	3/28/01	1:15	WATER	01						✓														✓		✓					✓		7
MW-1/62800404-02 Dup	3/28/01	1:15	WATER	02						✓														✓		✓					✓		7
MW-1/62800404-03 BLANK	3/28/01	1:15	WATER	03						✓														✓		✓					✓		7
Trip Blank	3/21/01	1415	AQ	04						✓																							1

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT INFORMATION

PROJ. NO.: 62800404
PROJ. NAME: Goodwin
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	22
CUSTODY SEALS	Y/N/(NA)
RECEIVED INTACT	yes
BLUE ICE/(ICE)	2.8°c

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

Run QC on blank

RELINQUISHED BY: 1.
Signature: [signature] Time: 9:30
Printed Name: Don Fernald Date: 3/29/01
Company: PSC
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: [signature] Time: 0935
Printed Name: Francine Tarino Date: 3/29/01
Pinnacle Laboratories Inc.

PINNACLE LABORATORIES

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

Pinnacle Lab ID number **103097**
May 02, 2001

PHILIP SERVICE CORPORATION
4000 MONROE ROAD
FARMINGTON, NM 87401

Project Name GOODWIN
Project Number 62800404

Attention: DON FERNALD

On 03/29/01 Pinnacle Laboratories, Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

Due to a laboratory oversight, analyses for Mercury was not performed at this time. Results for Mercury will be reported at a later date. We apologize for this inconvenience. There will be no charge for Mercury.

All analyses were performed by EnviroTest Laboratories, LLC. Casper, WY.

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

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

PINNACLE LABORATORIES

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

CLIENT	: PHILIP SERVICE CORPORATION	PINNACLE ID	: 103097
PROJECT #	: 62800404	DATE RECEIVED	: 03/29/01
PROJECT NAME	: GOODWIN	REPORT DATE	: 05/02/01

PINNACLE ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
103097 - 01	MW-1/62800404-01	AQUEOUS	03/28/01
103097 - 02	MW-1/62800404-02 DUP	AQUEOUS	03/28/01
103097 - 03	MW-1/62800404-03 BLANK	AQUEOUS	03/28/01
103097 - 04	TRIP BLANK	AQUEOUS	03/21/01

PINNACLE LABORATORIES

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GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : PHILIP SERVICE CORPORATION PINNACLE I.D.: 103097
PROJECT # : 62800404
PROJECT NAME : GOODWIN

SAMPLE #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-1/62800404-01	AQUEOUS	03/28/01	NA	03/29/01	1
02	MW-1/62800404-02 DUP	AQUEOUS	03/28/01	NA	03/29/01	1
	MW-1/62800404-03 BLANK	AQUEOUS	03/28/01	NA	03/29/01	1

PARAMETER	DET. LIMIT	UNITS	MW-1/62800404-01	MW-1/62800404-02 DUP	MW-1/62800404-03 BLANK
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	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 0.5
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5	< 2.5	< 2.5
SURROGATE:					
BROMOFLUOROBENZENE (%)			94	95	97
SURROGATE LIMITS	(80 - 120)				

CHEMIST NOTES:
N/A

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GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : PHILIP SERVICE CORPORATION PINNACLE I.D.: 103097
PROJECT # : 62800404
PROJECT NAME : GOODWIN

SAMPLE #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	TRIP BLANK	AQUEOUS	03/21/01	NA	03/29/01	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	0.5	UG/L	< 0.5
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5

SURROGATE:
BROMOFLUOROBENZENE (%) 95
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A

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GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 103097
BLANK I. D.	: 032901	DATE EXTRACTED	: NA
CLIENT	: PHILIP SERVICE CORPORATION	DATE ANALYZED	: 03/29/01
PROJECT #	: 62800404	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: GOODWIN		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5

SURROGATE:		
BROMOFLUOROBENZENE (%)		95
SURROGATE LIMITS:	(80 - 120)	

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GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSD #	: 103097-03	PINNACLE I.D.	: 103097
ENT	: PHILIP SERVICE CORPORATION	DATE EXTRACTED	: NA
ROJECT #	: 62800404	DATE ANALYZED	: 03/29/01
ROJECT NAME	: GOODWIN	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
NZENE	<0.5	20.0	16.2	81	16.8	84	4	(80 - 120)	20
LUENE	<0.5	20.0	20.1	101	19.2	96	5	(80 - 120)	20
THYLBENZENE	<0.5	20.0	20.8	104	19.9	100	4	(80 - 120)	20
TAL XYLENES	<0.5	60.0	57.1	95	54.4	91	5	(80 - 120)	20

HEMIST NOTES:
/A

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

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

Enviro-Test Laboratories LLC.

Chemical Analysis Report

PINNACLE LABORATORIES, INC
Attn: PROJECT MANAGER
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107

Date: 01 MAY 2001

Lab Work Order #: L2683
Project P.O. #: 103097
Project Reference:
Comments:

Date Received: 30 MAR 2001

APPROVED BY: _____
Dave Demorest
Project Manager

Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Sample ID: MW-1 / 62800404-01 / 103097-01
Job Name:
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2683-1
Matrix: WATER

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Calcium (Ca)	155	mg/L	0.2		06-APR-01	GC
Magnesium (Mg)	27.7	mg/L	0.04		06-APR-01	GC
Potassium (K)	10.5	mg/L	0.1		06-APR-01	GC
Sodium (Na)	514	mg/L	0.08		06-APR-01	GC
Alkalinity, Total	248	mg/L	5		30-MAR-01	ML
Aluminum (Al)	3.86	mg/L	0.0001		11-APR-01	GC/ML
Antimony (Sb)	0.00037	mg/L	0.00005		11-APR-01	GC/ML
Arsenic (As)	0.0112	mg/L	0.00004		11-APR-01	GC/ML
Barium (Ba)	0.367	mg/L	0.00003		11-APR-01	GC/ML
Beryllium (Be)	0.0011	mg/L	0.0001		11-APR-01	GC/ML
Boron (B)	0.342	mg/L	0.002		11-APR-01	GC/ML
Cadmium (Cd)	0.00033	mg/L	0.00004		11-APR-01	GC/ML
Calcium (Ca)	819	mg/L	0.005		11-APR-01	GC/ML
Chromium (Cr)	0.0248	mg/L	0.0001		11-APR-01	GC/ML
Cobalt (Co)	0.00900	mg/L	0.00003		11-APR-01	GC/ML
Copper (Cu)	0.00940	mg/L	0.00009		11-APR-01	GC/ML
Iron (Fe)	1.88	mg/L	0.005		11-APR-01	GC/ML
Lead (Pb)	0.0124	mg/L	0.00004		11-APR-01	GC/ML
Magnesium (Mg)	33.0	mg/L	0.0006		11-APR-01	GC/ML
Manganese (Mn)	0.242	mg/L	0.00004		11-APR-01	GC/ML
Molybdenum (Mo)	0.00160	mg/L	0.00008		11-APR-01	GC/ML
Nickel (Ni)	0.00834	mg/L	0.00007		11-APR-01	GC/ML
Potassium (K)	9.09	mg/L	0.002		11-APR-01	GC/ML
Selenium (Se)	0.0042	mg/L	0.0001		11-APR-01	GC/ML

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Sample ID: MW-1 / 62800404-01 / 103097-01
Job Name:
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2683-1
Matrix: WATER

Test Description	Result	Units or Measure	D.L.	Prep Date	Analyzed	By
Misc						
Silicon (Si)	26.4	mg/L	0.002		11-APR-01	GC/ML
Silver (Ag)	<0.00006	mg/L	0.00006		11-APR-01	GC/ML
Sodium (Na)	693	mg/L	0.0008		11-APR-01	GC/ML
Thallium (Tl)	0.00006	mg/L	0.00004		11-APR-01	GC/ML
Vanadium (V)	0.0952	mg/L	0.00005		11-APR-01	GC/ML
Zinc (Zn)	0.0294	mg/L	0.0003		11-APR-01	GC/ML
Anion-Cation Balance	0.4	%	0.1		01-MAY-01	JPM
Bicarbonate (as CaCO3)	248	mg/L	2		30-MAR-01	ML
Carbonate (as CaCO3)	<2	mg/L	2		30-MAR-01	ML
Chloride (Cl)	921	mg/L	0.1		12-APR-01	AEP
Conductivity (EC)	3620	umho/cm	1		04-APR-01	ML
Fluoride (F)	0.80	mg/L	0.05		16-APR-01	AEP
Sulfate (SO4)	69.3	mg/L	0.2		12-APR-01	AEP
Total Dissolved Solids	1970	mg/L	5		10-APR-01	AEP
pH	7.38	pH	0.01		30-MAR-01	ML
Modified 8270 SIMS						
naphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
2-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
1-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluorene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
phenanthrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
chrysene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(b)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(k)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Indeno(1,2,3-c,d)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Dibenzo(a,h)Anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(g,h,i)Perylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 01-MAY-01

PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-01 / 103097-01
Job Name:
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2683-1
Matrix: WATER

Test Description	Result	Units of Measure	D-L	Prep Date	Analyzed	By
Misc						
Modified 8270 SIMS						
Surrogate: Nitrobenzene d5(Surr.)	78	%	44-114	06-APR-01	08-APR-01	PR
Surrogate: 2-Fluorobiphenyl (surr)	107	%	43-127	06-APR-01	08-APR-01	PR
Surrogate: P-Terphenyl D14 (Surr)	95	%	78-137	06-APR-01	08-APR-01	PR

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 01-MAY-01
Page: 5 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-02 DUP / 103097-02
Job Name:
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2683-2
Matrix: WATER

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Calcium (Ca)	148	mg/L	0.2		06-APR-01	GC
Magnesium (Mg)	26.3	mg/L	0.04		06-APR-01	GC
Potassium (K)	10.4	mg/L	0.1		06-APR-01	GC
Sodium (Na)	494	mg/L	0.08		06-APR-01	GC
Alkalinity, Total	262	mg/L	5		30-MAR-01	ML
Aluminum (Al)	1.11	mg/L	0.0001		11-APR-01	GC/ML
Antimony (Sb)	0.00114	mg/L	0.00005		11-APR-01	GC/ML
Arsenic (As)	0.0112	mg/L	0.00004		11-APR-01	GC/ML
Barium (Ba)	0.243	mg/L	0.00003		11-APR-01	GC/ML
Beryllium (Be)	0.0006	mg/L	0.0001		11-APR-01	GC/ML
Boron (B)	0.323	mg/L	0.002		11-APR-01	GC/ML
Cadmium (Cd)	0.00040	mg/L	0.00004		11-APR-01	GC/ML
Calcium (Ca)	922	mg/L	0.005		11-APR-01	GC/ML
Chromium (Cr)	0.0054	mg/L	0.0001		11-APR-01	GC/ML
Cobalt (Co)	0.00852	mg/L	0.00003		11-APR-01	GC/ML
Copper (Cu)	0.00663	mg/L	0.00009		11-APR-01	GC/ML
Iron (Fe)	0.268	mg/L	0.005		11-APR-01	GC/ML
Lead (Pb)	0.00780	mg/L	0.00004		11-APR-01	GC/ML
Magnesium (Mg)	27.9	mg/L	0.0006		11-APR-01	GC/ML
Manganese (Mn)	0.221	mg/L	0.00004		11-APR-01	GC/ML
Molybdenum (Mo)	0.00436	mg/L	0.00008		11-APR-01	GC/ML
Nickel (Ni)	0.00816	mg/L	0.00007		11-APR-01	GC/ML
Potassium (K)	9.40	mg/L	0.002		11-APR-01	GC/ML
Selenium (Se)	0.0047	mg/L	0.0001		11-APR-01	GC/ML

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Sample ID: MW-1 / 62800404-02 DUP / 103097-02
Job Name:
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2683-2
Matrix: WATER

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Silicon (Si)	15.1	mg/L	0.002		11-APR-01	GC/ML
Silver (Ag)	0.00304	mg/L	0.00006		11-APR-01	GC/ML
Sodium (Na)	660	mg/L	0.0008		11-APR-01	GC/ML
Thallium (Tl)	<0.00004	mg/L	0.00004		11-APR-01	GC/ML
Vanadium (V)	0.0358	mg/L	0.00005		11-APR-01	GC/ML
Zinc (Zn)	0.0190	mg/L	0.0003		11-APR-01	GC/ML
Anion-Cation Balance	0.5	%	0.1		01-MAY-01	JPM
Bicarbonate (as CaCO3)	262	mg/L	2		30-MAR-01	ML
Carbonate (as CaCO3)	<2	mg/L	2		30-MAR-01	ML
Chloride (Cl)	858	mg/L	0.1		12-APR-01	AEP
Conductivity (EC)	3330	umho/cm	1		04-APR-01	ML
Fluoride (F)	0.94	mg/L	0.05		16-APR-01	AEP
Sulfate (SO4)	73.5	mg/L	0.2		12-APR-01	AEP
Total Dissolved Solids	1950	mg/L	5		10-APR-01	AEP
pH	7.30	pH	0.01		30-MAR-01	ML
Modified 8270 SIMS						
naphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
2-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
1-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluorene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
phenanthrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
chrysene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(b)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(k)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Indeno(1,2,3-c,d)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Dibenzo(a,h)Anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(g,h,i)Perylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Sample ID: MW-1 / 62800404-02 DUP / 103097-02
Job Name:
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2683-2
Matrix: WATER

Test Description	Result	Units of Measure	DL	Prep Date	Analyzed	By
Misc						
Modified 8270 SIMS						
Surrogate: Nitrobenzene d5(Surr.)	86	%	44-114	06-APR-01	08-APR-01	PR
Surrogate: 2-Fluorobiphenyl (surr)	94	%	43-127	06-APR-01	08-APR-01	PR
Surrogate: P-Terphenyl D14 (Surr)	91	%	78-137	06-APR-01	08-APR-01	PR

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 01-MAY-01
Page: 8 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-03 BLANK / 103097-03
Job Name:
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2683-3
Matrix: WATER QC SAMPLE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Calcium (Ca)	<0.01	mg/L	0.01		06-APR-01	GC
Magnesium (Mg)	<0.002	mg/L	0.002		06-APR-01	GC
Potassium (K)	0.044	mg/L	0.007		06-APR-01	GC
Sodium (Na)	<0.004	mg/L	0.004		06-APR-01	GC
Alkalinity, Total	<5	mg/L	5		30-MAR-01	ML
Aluminum (Al)	0.168	mg/L	0.0001		11-APR-01	GC/ML
Antimony (Sb)	0.00014	mg/L	0.00005		11-APR-01	GC/ML
Arsenic (As)	<0.00004	mg/L	0.00004		11-APR-01	GC/ML
Barium (Ba)	0.00194	mg/L	0.00003		11-APR-01	GC/ML
Beryllium (Be)	<0.0001	mg/L	0.0001		11-APR-01	GC/ML
Boron (B)	<0.002	mg/L	0.002		11-APR-01	GC/ML
Cadmium (Cd)	0.00010	mg/L	0.00004		11-APR-01	GC/ML
Calcium (Ca)	<0.005	mg/L	0.005		11-APR-01	GC/ML
Chromium (Cr)	<0.0001	mg/L	0.0001		11-APR-01	GC/ML
Cobalt (Co)	0.00007	mg/L	0.00003		11-APR-01	GC/ML
Copper (Cu)	0.00140	mg/L	0.00009		11-APR-01	GC/ML
Iron (Fe)	0.131	mg/L	0.005		11-APR-01	GC/ML
Lead (Pb)	0.00075	mg/L	0.00004		11-APR-01	GC/ML
Magnesium (Mg)	0.0287	mg/L	0.0006		11-APR-01	GC/ML
Manganese (Mn)	0.00117	mg/L	0.00004		11-APR-01	GC/ML
Molybdenum (Mo)	<0.00008	mg/L	0.00008		11-APR-01	GC/ML
Nickel (Ni)	<0.00007	mg/L	0.00007		11-APR-01	GC/ML
Potassium (K)	<0.002	mg/L	0.002		11-APR-01	GC/ML
Selenium (Se)	<0.0001	mg/L	0.0001		11-APR-01	GC/ML

Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260'
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030€

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 01-MAY-01
Page: 9 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-03 BLANK / 103097-03
Job Name:
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2683-3
Matrix: WATER QC SAMPLE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Silicon (Si)	0.085	mg/L	0.002		11-APR-01	GC/ML
Silver (Ag)	0.00716	mg/L	0.00006		11-APR-01	GC/ML
Sodium (Na)	0.504	mg/L	0.0008		11-APR-01	GC/ML
Thallium (Tl)	<0.00004	mg/L	0.00004		11-APR-01	GC/ML
Vanadium (V)	<0.00005	mg/L	0.00005		11-APR-01	GC/ML
Zinc (Zn)	<0.0003	mg/L	0.0003		11-APR-01	GC/ML
Anion-Cation Balance	34.0	%	0.1		01-MAY-01	JPM
Bicarbonate (as CaCO3)	2	mg/L	2		30-MAR-01	ML
Carbonate (as CaCO3)	<2	mg/L	2		30-MAR-01	ML
Chloride (Cl)	<0.1	mg/L	0.1		12-APR-01	AEP
Conductivity (EC)	3	umho/cm	1		04-APR-01	ML
Fluoride (F)	<0.05	mg/L	0.05		16-APR-01	AEP
Sulfate (SO4)	<0.2	mg/L	0.2		12-APR-01	AEP
Total Dissolved Solids	<5.00	mg/L	5		10-APR-01	AEP
pH	6.07	pH	0.01		30-MAR-01	ML
Modified 8270 SIMS						
naphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
2-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
1-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluorene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
phenanthrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
chrysene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(b)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(k)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Indeno(1,2,3-c,d)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Dibenzo(a,h)Anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(g,h,i)Perylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR

Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260'
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Toll Free 1(800)666-030(

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 01-MAY-01
Page: 10 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-03 BLANK / 103097-03
Job Name:
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2683-3
Matrix: WATER QC SAMPLE

Test Description		Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc							
Modified 8270 SIMS							
Surrogate:	Nitrobenzene d5(Surr.)	99	%	44-114	06-APR-01	08-APR-01	PR
Surrogate:	2-Fluorobiphenyl (surr)	104	%	43-127	06-APR-01	08-APR-01	PR
Surrogate:	P-Terphenyl D14 (Surr)	94	%	78-137	06-APR-01	08-APR-01	PR

Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Methodology Reference

ETL Test Code	Matrix	Test Description	Methodology Reference
8270-SIMS-CA	Water	Modified 8270 SIMS	EPA 8270C Modified for S.I.M.
AG-TOT-LOW-CA	Water	Silver (Ag)-Total	SM 3125-ICP-MS
AL-TOT-LOW-CA	Water	Aluminum (Al)-Total	SM 3125-ICP-MS
ALK-CO3-CA	Water	Carbonate (as CaCO3)	SM 2320 B-Pot. Titration
ALK-HCO3-CA	Water	Bicarbonate (as CaCO3)	SM 2320 B-Pot. Titration
ALK-TOT-CA	Water	Alkalinity, Total	SM 2320 B-Pot. Titration
AS-TOT-LOW-CA	Water	Arsenic (As)-Total	SM 3125-ICP-MS
B-TOT-LOW-CA	Water	Boron (B)-Total	SM 3125-ICP-MS
BA-TOT-LOW-CA	Water	Barium (Ba)-Total	SM 3125-ICP-MS
BAL-PCNT-CALC-CA	Water	Anion-Cation Balance	SM 1030 F-Calculation
BE-TOT-LOW-CA	Water	Beryllium (Be)-Total	SM 3125-ICP-MS
CA-DIS-LOW-CA	Water	Calcium (Ca)-Dissolved	SM 3125-ICP-MS
CA-TOT-LOW-CA	Water	Calcium (Ca)-Total	SM 3125-ICP-MS
CD-TOT-LOW-CA	Water	Cadmium (Cd)-Total	SM 3125-ICP-MS
CL-IC-CA	Water	Chloride by IC	EPA 300.1
CO-TOT-LOW-CA	Water	Cobalt (Co)-Total	SM 3125-ICP-MS
CR-TOT-LOW-CA	Water	Chromium (Cr)-Total	SM 3125-ICP-MS
CU-TOT-LOW-CA	Water	Copper (Cu)-Total	SM 3125-ICP-MS
EC-CA	Water	Conductivity (EC)	SM 2510 B-electrode
F-IC-CA	Water	Fluoride by IC	EPA 300.1
FE-TOT-LOW-CA	Water	Iron (Fe)-Total	SM 3125-ICP-MS
K-DIS-LOW-CA	Water	Potassium (K)-Dissolved	SM 3125-ICP-MS
K-TOT-LOW-CA	Water	Potassium (K)-Total	SM 3125-ICP-MS
MG-DIS-LOW-CA	Water	Magnesium (Mg)-Dissolved	SM 3125-ICP-MS
MG-TOT-LOW-CA	Water	Magnesium (Mg)-Total	SM 3125-ICP-MS
MN-TOT-LOW-CA	Water	Manganese (Mn)-Total	SM 3125-ICP-MS
MO-TOT-LOW-CA	Water	Molybdenum (Mo)-Total	SM 3125-ICP-MS
NA-DIS-LOW-CA	Water	Sodium (Na)-Dissolved	SM 3125-ICP-MS
NA-TOT-LOW-CA	Water	Sodium (Na)-Total	SM 3125-ICP-MS
NI-TOT-LOW-CA	Water	Nickel (Ni)-Total	SM 3125-ICP-MS
PB-TOT-LOW-CA	Water	Lead (Pb),-Total	SM 3125-ICP-MS

PH-CA	Water	pH	SM 4500 H-Electrode
SB-TOT-LOW-CA	Water	Antimony (Sb)-Total	SM 3125-ICP-MS
SE-TOT-LOW-CA	Water	Selenium (Se)-Total	SM 3125-ICP-MS
SI-TOT-CA	Water	Silicon (Si)-Total	SM 3120 B-ICP-OES
SO4-IC-CA	Water	Sulfate by IC	EPA 300.1
SOLIDS-TDS-CA	Water	Total Dissolved Solids	SM 2540 C
TL-TOT-LOW-CA	Water	Thallium (Tl)-Total	SM 3125-ICP-MS
V-TOT-LOW-CA	Water	Vanadium (V)-Total	SM 3125-ICP-MS
ZN-TOT-LOW-CA	Water	Zinc (Zn)-Total	SM 3125-ICP-MS

ENVIRO-TEST QC REPORT

Workorder #: L2683

QC Type: BLANK

Lab QC Number:		Result	Qualifier	Units	Limit	Analyzed
WG8468-3						
ALK-TOT-CA	Alkalinity, Total	<5		mg/L	5	30-MAR-01
WG8511-2						
EC-CA	Conductivity (EC)	<1		umho/cm	1	04-APR-01
WG8522-1						
CA-DIS-LOW-CA	Calcium (Ca)	<0.01		mg/L	0.01	06-APR-01
CA-TOT-LOW-CA	Calcium (Ca)	<0.005		mg/L	0.005	06-APR-01
K-DIS-LOW-CA	Potassium (K)	0.047		mg/L	0.007	06-APR-01
K-TOT-LOW-CA	Potassium (K)	0.047		mg/L	0.002	06-APR-01
MG-DIS-LOW-CA	Magnesium (Mg)	<0.002		mg/L	0.002	06-APR-01
MG-TOT-LOW-CA	Magnesium (Mg)	0.0010		mg/L	0.0006	06-APR-01
NA-DIS-LOW-CA	Sodium (Na)	<0.004		mg/L	0.004	06-APR-01
NA-TOT-LOW-CA	Sodium (Na)	<0.0008		mg/L	0.0008	06-APR-01
WG8543-1						
AG-TOT-LOW-CA	Silver (Ag)	0.00070		mg/L	0.00006	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	<0.0001		mg/L	0.0001	11-APR-01
AS-TOT-LOW-CA	Arsenic (As)	0.00011		mg/L	0.00004	11-APR-01
B-TOT-LOW-CA	Boron (B)	<0.002		mg/L	0.002	11-APR-01
BA-TOT-LOW-CA	Barium (Ba)	<0.00003		mg/L	0.00003	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	<0.0001		mg/L	0.0001	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	<0.00004		mg/L	0.00004	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	<0.00003		mg/L	0.00003	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	0.0042		mg/L	0.0001	11-APR-01
CU-TOT-LOW-CA	Copper (Cu)	<0.00009		mg/L	0.00009	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	0.045		mg/L	0.005	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	<0.00004		mg/L	0.00004	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	<0.00008		mg/L	0.00008	11-APR-01
NI-TOT-LOW-CA	Nickel (Ni)	<0.00007		mg/L	0.00007	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	<0.00004		mg/L	0.00004	11-APR-01
SB-TOT-LOW-CA	Antimony (Sb)	0.00012		mg/L	0.00005	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	<0.0001		mg/L	0.0001	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	<0.00004		mg/L	0.00004	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	0.00149		mg/L	0.00005	11-APR-01
ZN-TOT-LOW-CA	Zinc (Zn)	<0.0003		mg/L	0.0003	11-APR-01
WG8554-1						
AG-TOT-LOW-CA	Silver (Ag)	0.00117		mg/L	0.00006	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	0.0058		mg/L	0.0001	11-APR-01

AS-TOT-LOW-CA	Arsenic (As)	<0.00004	mg/L	0.00004	11-APR-01
B-TOT-LOW-CA	Boron (B)	<0.002	mg/L	0.002	11-APR-01
BA-TOT-LOW-CA	Barium (Ba)	0.00026	mg/L	0.00003	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	<0.0001	mg/L	0.0001	11-APR-01
CA-TOT-LOW-CA	Calcium (Ca)	<0.005	mg/L	0.005	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	0.00052	mg/L	0.00004	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	<0.00003	mg/L	0.00003	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	<0.0001	mg/L	0.0001	11-APR-01
CU-TOT-LOW-CA	Copper (Cu)	<0.00009	mg/L	0.00009	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	0.009	mg/L	0.005	11-APR-01
K-TOT-LOW-CA	Potassium (K)	<0.002	mg/L	0.002	11-APR-01
MG-TOT-LOW-CA	Magnesium (Mg)	0.0090	mg/L	0.0006	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	<0.00004	mg/L	0.00004	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	<0.00008	mg/L	0.00008	11-APR-01
NA-TOT-LOW-CA	Sodium (Na)	0.0789	mg/L	0.0008	11-APR-01
NI-TOT-LOW-CA	Nickel (Ni)	0.00049	mg/L	0.00007	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	0.00047	mg/L	0.00004	11-APR-01
SB-TOT-LOW-CA	Antimony (Sb)	0.00009	mg/L	0.00005	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	<0.0001	mg/L	0.0001	11-APR-01
SI-TOT-CA	Silicon (Si)	0.014	mg/L	0.002	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	<0.00004	mg/L	0.00004	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	<0.00005	mg/L	0.00005	11-APR-01
ZN-TOT-LOW-CA	Zinc (Zn)	0.0004	mg/L	0.0003	11-APR-01
WG8572-1					
8270-SIMS-CA	naphthalene	<0.4	ug/L	0.4	08-APR-01
	2-methylnaphthalene	<0.4	ug/L	0.4	08-APR-01
	1-methylnaphthalene	<0.4	ug/L	0.4	08-APR-01
	acenaphthylene	<0.4	ug/L	0.4	08-APR-01
	acenaphthene	<0.4	ug/L	0.4	08-APR-01
	fluorene	<0.4	ug/L	0.4	08-APR-01
	phenanthrene	<0.4	ug/L	0.4	08-APR-01
	anthracene	<0.4	ug/L	0.4	08-APR-01
	fluoranthene	<0.4	ug/L	0.4	08-APR-01
	pyrene	<0.4	ug/L	0.4	08-APR-01
	Benzo(a)anthracene	<0.4	ug/L	0.4	08-APR-01
	chrysene	<0.4	ug/L	0.4	08-APR-01
	Benzo(b)fluoranthene	<0.4	ug/L	0.4	08-APR-01
	Benzo(k)fluoranthene	<0.4	ug/L	0.4	08-APR-01

	Benzo(a)pyrene	<0.4	ug/L	0.4	08-APR-01
	Indeno(1,2,3-c,d)pyrene	<0.4	ug/L	0.4	08-APR-01
	Dibenzo(a,h)Anthracene	<0.4	ug/L	0.4	08-APR-01
	Benzo(g,h,i)Perylene	<0.4	ug/L	0.4	08-APR-01
WG8597-1					
CL-IC-CA	Chloride (Cl)	<0.1	mg/L	0.1	12-APR-01
WG8599-1					
SO4-IC-CA	Sulfate (SO4)	<0.2	mg/L	0.2	12-APR-01
WG8600-1					
F-IC-CA	Fluoride (F)	<0.05	mg/L	0.05	16-APR-01
WG8605-1					
SOLIDS-TDS-CA	Total Dissolved Solids	<5.00	mg/L	5	10-APR-01

QC Type: DUP

Lab QC Number:		RPD	Qualifier	Limit %	Analyzed
WG8468-4					
ALK-TOT-CA	Alkalinity, Total	0	RPD-NA	0-20	30-MAR-01
WG8469-2					
PH-CA	pH	1.7		0-20	30-MAR-01
WG8511-3					
EC-CA	Conductivity (EC)	0.5		0-20	04-APR-01
WG8511-6					
EC-CA	Conductivity (EC)	3.7	RPD-NA	0-20	04-APR-01
WG8522-3					
CA-DIS-LOW-CA	Calcium (Ca)	2.7		0-20	06-APR-01
K-DIS-LOW-CA	Potassium (K)	1		0-20	06-APR-01
MG-DIS-LOW-CA	Magnesium (Mg)	1.5		0-20	06-APR-01
NA-DIS-LOW-CA	Sodium (Na)	1.6		0-20	06-APR-01
WG8543-3					
AG-TOT-LOW-CA	Silver (Ag)	9.0		0-20	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	1.9		0-20	11-APR-01
AS-TOT-LOW-CA	Arsenic (As)	0.3		0-20	11-APR-01
B-TOT-LOW-CA	Boron (B)	8.1		0-20	11-APR-01
BA-TOT-LOW-CA	Barium (Ba)	2.7		0-20	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	4.7		0-20	11-APR-01

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 3/29/01 PAGE: 1 OF 1

PLI Accession #: 103097

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Don Fernald

COMPANY: PSC
ADDRESS: 4000 Monroe Rd
Farmington NM 87401
PHONE: 505-326-5262
FAX: 505-326-2388

BILL TO: PSC
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline) MTBE	8021 (BTEX) ☒ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081/8082)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310/8270-SIMS)	General Chemistry: TDS Anions	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals: SEE QUOTE, +Major Cations	NUMBER OF CONTAINERS
MW-1/62800404-01	3/28/01	1:15	WATER	01					✓													✓	✓					✓	7
MW-1/62800404-02 Dup	3/28/01	1:15	WATER	02					✓													✓	✓					✓	7
MW-1/62800404-03 BLANK	3/28/01	1:15	WATER	03					✓													✓	✓					✓	7
Trip Blank	3/21/01	1415	AQ	04					✓																				1

PROJECT INFORMATION

PROJ. NO.: 62800404
PROJ. NAME: Goodwin
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	22
CUSTODY SEALS	Y / N (NA)
RECEIVED INTACT	YES
BLUE ICE / ICE	2.8°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

Run QC on blank

RELINQUISHED BY: 1.

Signature: [signature] Time: 9:30
Printed Name: Don Fernald Date: 3/29/01
Company: PSC
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: 0935
Printed Name: Francine Tanno Date: 3/29/01
Pinnacle Laboratories Inc.

Enviro-Test Laboratories LLC.

Chemical Analysis Report

PINNACLE LABORATORIES, INC

Attn: PROJECT MANAGER

2709D PAN AMERICAN FREEWAY NE

ALBUQUERQUE NM 87107

Date: 22 MAY 2001

* Amended report for water sample re-tested for Iron

Lab Work Order #: L2683

Project P.O. #: 103097

Project Reference:

Comments:

Date Received: 30 MAR 2001

APPROVED BY: _____

Dave Demorest

Project Manager

ETL Enviro • Test LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107

ATTN: PROJECT MANAGER

Report Date: 22-MAY-01
Page: 3 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-01 / 103097-01
Job Name:
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2683-1
Matrix: WATER

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
lisc						
Silicon (Si)	26.4	mg/L	0.002		11-APR-01	L GC/ML
Silver (Ag)	<0.00006	mg/L	0.00006		11-APR-01	GC/ML
Sodium (Na)	693	mg/L	0.0008		11-APR-01	GC/ML
Thallium (Tl)	0.00006	mg/L	0.00004		11-APR-01	GC/ML
Vanadium (V)	0.0952	mg/L	0.00005		11-APR-01	GC/ML
Zinc (Zn)	0.0294	mg/L	0.0003		11-APR-01	GC/ML
Anion-Cation Balance	0.4	%	0.1		01-MAY-01	JPM
Bicarbonate (as CaCO3)	248	mg/L	2		30-MAR-01	ML
Carbonate (as CaCO3)	<2	mg/L	2		30-MAR-01	ML
Chloride (Cl)	921	mg/L	0.1		12-APR-01	AEP
Conductivity (EC)	3620	umho/cm	1		04-APR-01	ML
Fluoride (F)	0.80	mg/L	0.05		16-APR-01	AEP
Sulfate (SO4)	69.3	mg/L	0.2		12-APR-01	AEP
Total Dissolved Solids	1970	mg/L	5		10-APR-01	AEP
pH	7.38	pH	0.01		30-MAR-01	ML
Modified 8270 SIMS						
naphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
2-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
1-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluorene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
phenanthrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
chrysene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(b)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(k)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Indeno(1,2,3-c,d)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Dibenzo(a,h)Anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-01 / 103097-01
Job Name:
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2683-1
Matrix: WATER

Test Description		Result	Units of Measure	D.L.	Prep Date	Analyzed	By
isc							
Modified 8270 SIMS							
	Benzo(g,h,i)Perylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Surrogate:	Nitrobenzene d5(Surr.)	78	%	44-114	06-APR-01	08-APR-01	PR
Surrogate:	2-Fluorobiphenyl (surr)	107	%	43-127	06-APR-01	08-APR-01	PR
Surrogate:	P-Terphenyl D14 (Surr)	95	%	78-137	06-APR-01	08-APR-01	PR

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 22-MAY-01
Page: 5 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-02 DUP / 103097-02
Job Name:
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2683-2
Matrix: WATER

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
isc						
Calcium (Ca)	148	mg/L	0.2		06-APR-01	GC
Magnesium (Mg)	26.3	mg/L	0.04		06-APR-01	GC
Potassium (K)	10.4	mg/L	0.1		06-APR-01	GC
Sodium (Na)	494	mg/L	0.08		06-APR-01	GC
Alkalinity, Total	262	mg/L	5		30-MAR-01	ML
Aluminum (Al)	1.11	mg/L	0.0001		11-APR-01	GC/ML
Antimony (Sb)	0.00114	mg/L	0.00005		11-APR-01	GC/ML
Arsenic (As)	0.0112	mg/L	0.00004		11-APR-01	GC/ML
Barium (Ba)	0.243	mg/L	0.00003		11-APR-01	GC/ML
Beryllium (Be)	0.0006	mg/L	0.0001		11-APR-01	GC/ML
Boron (B)	0.323	mg/L	0.002		11-APR-01	GC/ML
Cadmium (Cd)	0.00040	mg/L	0.00004		11-APR-01	GC/ML
Calcium (Ca)	922	mg/L	0.005		11-APR-01	GC/ML
Chromium (Cr)	0.0054	mg/L	0.0001		11-APR-01	GC/ML
Cobalt (Co)	0.00852	mg/L	0.00003		11-APR-01	GC/ML
Copper (Cu)	0.00663	mg/L	0.00009		11-APR-01	GC/ML
Iron (Fe)	0.268	mg/L	0.005		11-APR-01	GC/ML
Lead (Pb)	0.00780	mg/L	0.00004		11-APR-01	GC/ML
Magnesium (Mg)	27.9	mg/L	0.0006		11-APR-01	GC/ML
Manganese (Mn)	0.221	mg/L	0.00004		11-APR-01	GC/ML
Mercury (Hg)-Total	<0.0002	mg/L	0.0002	02-MAY-01	03-MAY-01	FT
Molybdenum (Mo)	0.00436	mg/L	0.00008		11-APR-01	GC/ML
Nickel (Ni)	0.00816	mg/L	0.00007		11-APR-01	GC/ML
Potassium (K)	9.40	mg/L	0.002		11-APR-01	GC/ML
Selenium (Se)	0.0047	mg/L	0.0001		11-APR-01	GC/M

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 22-MAY-01
Page: 6 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-02 DUP / 103097-02
Job Name:
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2683-2
Matrix: WATER

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Silicon (Si)	15.1	mg/L	0.002		11-APR-01	GC/ML
Silver (Ag)	0.00304	mg/L	0.00006		11-APR-01	GC/ML
Sodium (Na)	660	mg/L	0.0008		11-APR-01	GC/ML
Thallium (Tl)	<0.00004	mg/L	0.00004		11-APR-01	GC/ML
Vanadium (V)	0.0358	mg/L	0.00005		11-APR-01	GC/ML
Zinc (Zn)	0.0190	mg/L	0.0003		11-APR-01	GC/ML
Anion-Cation Balance	0.5	%	0.1		01-MAY-01	JPM
Bicarbonate (as CaCO3)	262	mg/L	2		30-MAR-01	ML
Carbonate (as CaCO3)	<2	mg/L	2		30-MAR-01	ML
Chloride (Cl)	858	mg/L	0.1		12-APR-01	AEP
Conductivity (EC)	3330	umho/cm	1		04-APR-01	ML
Fluoride (F)	0.94	mg/L	0.05		16-APR-01	AEP
Sulfate (SO4)	73.5	mg/L	0.2		12-APR-01	AEP
Total Dissolved Solids	1950	mg/L	5		10-APR-01	AEP
pH	7.30	pH	0.01		30-MAR-01	ML
Modified 8270 SIMS						
naphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
2-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
1-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluorene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
phenanthrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
chrysene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(b)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(k)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Indeno(1,2,3-c,d)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Dibenzo(a,h)Anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 22-MAY-01
Page: 7 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-02 DUP / 103097-02
Job Name:
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2683-2
Matrix: WATER

Test Description		Result	Units of Measure	D.L.	Prep Date	Analyzed	By
lisc							
Modified 8270 SIMS							
	Benzo(g,h,i)Perylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Surrogate:	Nitrobenzene d5(Surr.)	86	%	44-114	06-APR-01	08-APR-01	PR
Surrogate:	2-Fluorobiphenyl (surr)	94	%	43-127	06-APR-01	08-APR-01	PR
Surrogate:	P-Terphenyl D14 (Surr)	91	%	78-137	06-APR-01	08-APR-01	PR

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107

ATTN: PROJECT MANAGER

Report Date: 22-MAY-01
Page: 8 of 12
PO No.: 103097
WO NO.: L2683

Sample ID: MW-1 / 62800404-03 BLANK / 103097-03
Job Name:
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2683-3
Matrix: WATER QC SAMPLE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
isc						
Calcium (Ca)	<0.01	mg/L	0.01		06-APR-01	GC
Magnesium (Mg)	<0.002	mg/L	0.002		06-APR-01	GC
Potassium (K)	0.044	mg/L	0.007		06-APR-01	GC
Sodium (Na)	<0.004	mg/L	0.004		06-APR-01	GC
Alkalinity, Total	<5	mg/L	5		30-MAR-01	ML
Aluminum (Al)	0.168	mg/L	0.0001		11-APR-01	GC/ML
Antimony (Sb)	0.00014	mg/L	0.00005		11-APR-01	GC/ML
Arsenic (As)	<0.00004	mg/L	0.00004		11-APR-01	GC/ML
Barium (Ba)	0.00194	mg/L	0.00003		11-APR-01	GC/ML
Beryllium (Be)	<0.0001	mg/L	0.0001		11-APR-01	GC/ML
Boron (B)	<0.002	mg/L	0.002		11-APR-01	GC/ML
Cadmium (Cd)	0.00010	mg/L	0.00004		11-APR-01	GC/ML
Calcium (Ca)	<0.005	mg/L	0.005		11-APR-01	GC/ML
Chromium (Cr)	<0.0001	mg/L	0.0001		11-APR-01	GC/ML
Cobalt (Co)	0.00007	mg/L	0.00003		11-APR-01	GC/ML
Copper (Cu)	0.00140	mg/L	0.00009		11-APR-01	GC/ML
Iron (Fe)	0.131	mg/L	0.005		11-APR-01	GC/ML
Lead (Pb)	0.00075	mg/L	0.00004		11-APR-01	GC/ML
Magnesium (Mg)	0.0287	mg/L	0.0006		11-APR-01	GC/ML
Manganese (Mn)	0.00117	mg/L	0.00004		11-APR-01	GC/ML
Mercury (Hg)-Total	<0.0002	mg/L	0.0002	02-MAY-01	03-MAY-01	FT
Molybdenum (Mo)	<0.00008	mg/L	0.00008		11-APR-01	GC/ML
Nickel (Ni)	<0.00007	mg/L	0.00007		11-APR-01	GC/ML
Potassium (K)	<0.002	mg/L	0.002		11-APR-01	GC/ML
Selenium (Se)	<0.0001	mg/L	0.0001		11-APR-01	GC/M

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Sample ID: MW-1 / 62800404-03 BLANK / 103097-03
Job Name:
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2683-3
Matrix: WATER QC SAMPLE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Silicon (Si)	0.085	mg/L	0.002		11-APR-01	GC/ML
Silver (Ag)	0.00716	mg/L	0.00006		11-APR-01	GC/ML
Sodium (Na)	0.504	mg/L	0.0008		11-APR-01	GC/ML
Thallium (Tl)	<0.00004	mg/L	0.00004		11-APR-01	GC/ML
Vanadium (V)	<0.00005	mg/L	0.00005		11-APR-01	GC/ML
Zinc (Zn)	<0.0003	mg/L	0.0003		11-APR-01	GC/ML
Anion-Cation Balance	34.0	%	0.1		01-MAY-01	JPM
Bicarbonate (as CaCO3)	2	mg/L	2		30-MAR-01	ML
Carbonate (as CaCO3)	<2	mg/L	2		30-MAR-01	ML
Chloride (Cl)	<0.1	mg/L	0.1		12-APR-01	AEP
Conductivity (EC)	3	umho/cm	1		04-APR-01	ML
Fluoride (F)	<0.05	mg/L	0.05		16-APR-01	AEP
Sulfate (SO4)	<0.2	mg/L	0.2		12-APR-01	AEP
Total Dissolved Solids	<5.00	mg/L	5		10-APR-01	AEP
pH	6.07	pH	0.01		30-MAR-01	ML
Modified 8270 SIMS						
naphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
2-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
1-methylnaphthalene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthylene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
acenaphthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluorene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
phenanthrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
chrysene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(b)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(k)fluoranthene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Benzo(a)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Indeno(1,2,3-c,d)pyrene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR
Dibenzo(a,h)Anthracene	<0.4	ug/L	0.4	06-APR-01	08-APR-01	PR

Methodology Reference

TL Test Code	Matrix	Test Description	Methodology Reference
70-SIMS-CA	Water	Modified 8270 SIMS	EPA 8270C Modified for S.I.M.
G-TOT-LOW-CA	Water	Silver (Ag)-Total	SM 3125-ICP-MS
-TOT-LOW-CA	Water	Aluminum (Al)-Total	SM 3125-ICP-MS
K-CO3-CA	Water	Carbonate (as CaCO3)	SM 2320 B-Pot. Titration
K-HCO3-CA	Water	Bicarbonate (as CaCO3)	SM 2320 B-Pot. Titration
K-TOT-CA	Water	Alkalinity, Total	SM 2320 B-Pot. Titration
S-TOT-LOW-CA	Water	Arsenic (As)-Total	SM 3125-ICP-MS
TOT-LOW-CA	Water	Boron (B)-Total	SM 3125-ICP-MS
A-TOT-LOW-CA	Water	Barium (Ba)-Total	SM 3125-ICP-MS
AL-PCNT-CALC-CA	Water	Anion-Cation Balance	SM 1030 F-Calculation
E-TOT-LOW-CA	Water	Beryllium (Be)-Total	SM 3125-ICP-MS
A-DIS-LOW-CA	Water	Calcium (Ca)-Dissolved	SM 3125-ICP-MS
A-TOT-LOW-CA	Water	Calcium (Ca)-Total	SM 3125-ICP-MS
D-TOT-LOW-CA	Water	Cadmium (Cd)-Total	SM 3125-ICP-MS
L-IC-CA	Water	Chloride by IC	EPA 300.1
O-TOT-LOW-CA	Water	Cobalt (Co)-Total	SM 3125-ICP-MS
R-TOT-LOW-CA	Water	Chromium (Cr)-Total	SM 3125-ICP-MS
U-TOT-LOW-CA	Water	Copper (Cu)-Total	SM 3125-ICP-MS
C-CA	Water	Conductivity (EC)	SM 2510 B-electrode
IC-CA	Water	Fluoride by IC	EPA 300.1
E-TOT-LOW-CA	Water	Iron (Fe)-Total	SM 3125-ICP-MS
G-TOT-HYD-CA	Water	Mercury (Hg)-Total	SM 3112 B-AAS Cold Vapor
G-TOT-LOW-CA	Water	Mercury, (Hg)-Total	SM 3125-ICP-MS
DIS-LOW-CA	Water	Potassium (K)-Dissolved	SM 3125-ICP-MS
TOT-LOW-CA	Water	Potassium (K)-Total	SM 3125-ICP-MS
G-DIS-LOW-CA	Water	Magnesium (Mg)-Dissolved	SM 3125-ICP-MS
G-TOT-LOW-CA	Water	Magnesium (Mg)-Total	SM 3125-ICP-MS
N-TOT-LOW-CA	Water	Manganese (Mn)-Total	SM 3125-ICP-MS
O-TOT-LOW-CA	Water	Molybdenum (Mo)-Total	SM 3125-ICP-MS
A-DIS-LOW-CA	Water	Sodium (Na)-Dissolved	SM 3125-ICP-MS
A-TOT-LOW-CA	Water	Sodium (Na)-Total	SM 3125-ICP-MS

-TOT-LOW-CA	Water	Nickel (Ni)-Total	SM 3125-ICP-MS
3-TOT-LOW-CA	Water	Lead (Pb),-Total	SM 3125-ICP-MS
H-CA	Water	pH	SM 4500 H-Electrode
B-TOT-LOW-CA	Water	Antimony (Sb)-Total	SM 3125-ICP-MS
E-TOT-LOW-CA	Water	Selenium (Se)-Total	SM 3125-ICP-MS
-TOT-CA	Water	Silicon (Si)-Total	SM 3120 B-ICP-OES
O4-IC-CA	Water	Sulfate by IC	EPA 300.1
OLIDS-TDS-CA	Water	Total Dissolved Solids	SM 2540 C
-TOT-LOW-CA	Water	Thallium (Tl)-Total	SM 3125-ICP-MS
TOT-LOW-CA	Water	Vanadium (V)-Total	SM 3125-ICP-MS
N-TOT-LOW-CA	Water	Zinc (Zn)-Total	SM 3125-ICP-MS

Workorder #: L2683

AS-TOT-LOW-CA	Arsenic (As)	<0.00004	mg/L	0.00004	11-APR-01
B-TOT-LOW-CA	Boron (B)	<0.002	mg/L	0.002	11-APR-01
BA-TOT-LOW-CA	Barium (Ba)	0.00026	mg/L	0.00003	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	<0.0001	mg/L	0.0001	11-APR-01
CA-TOT-LOW-CA	Calcium (Ca)	<0.005	mg/L	0.005	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	0.00052	mg/L	0.00004	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	<0.00003	mg/L	0.00003	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	<0.0001	mg/L	0.0001	11-APR-01
CU-TOT-LOW-CA	Copper (Cu)	<0.00009	mg/L	0.00009	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	0.009	mg/L	0.005	11-APR-01
K-TOT-LOW-CA	Potassium (K)	<0.002	mg/L	0.002	11-APR-01
MG-TOT-LOW-CA	Magnesium (Mg)	0.0090	mg/L	0.0006	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	<0.00004	mg/L	0.00004	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	<0.00008	mg/L	0.00008	11-APR-01
NA-TOT-LOW-CA	Sodium (Na)	0.0789	mg/L	0.0008	11-APR-01
NI-TOT-LOW-CA	Nickel (Ni)	0.00049	mg/L	0.00007	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	0.00047	mg/L	0.00004	11-APR-01
SB-TOT-LOW-CA	Antimony (Sb)	0.00009	mg/L	0.00005	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	<0.0001	mg/L	0.0001	11-APR-01
SI-TOT-CA	Silicon (Si)	0.014	mg/L	0.002	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	<0.00004	mg/L	0.00004	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	<0.00005	mg/L	0.00005	11-APR-01
ZN-TOT-LOW-CA	Zinc (Zn)	0.0004	mg/L	0.0003	11-APR-01
38572-1					
8270-SIMS-CA	naphthalene	<0.4	ug/L	0.4	08-APR-01
	2-methylnaphthalene	<0.4	ug/L	0.4	08-APR-01
	1-methylnaphthalene	<0.4	ug/L	0.4	08-APR-01
	acenaphthylene	<0.4	ug/L	0.4	08-APR-01
	acenaphthene	<0.4	ug/L	0.4	08-APR-01
	fluorene	<0.4	ug/L	0.4	08-APR-01
	phenanthrene	<0.4	ug/L	0.4	08-APR-01
	anthracene	<0.4	ug/L	0.4	08-APR-01
	fluoranthene	<0.4	ug/L	0.4	08-APR-01
	pyrene	<0.4	ug/L	0.4	08-APR-01
	Benzo(a)anthracene	<0.4	ug/L	0.4	08-APR-01
	chrysene	<0.4	ug/L	0.4	08-APR-01
	Benzo(b)fluoranthene	<0.4	ug/L	0.4	08-APR-01
	Benzo(k)fluoranthene	<0.4	ug/L	0.4	08-APR-01

Workorder #: L2683

	Benzo(a)pyrene	<0.4	ug/L	0.4	08-APR-01
	Indeno(1,2,3-c,d)pyrene	<0.4	ug/L	0.4	08-APR-01
	Dibenzo(a,h)Anthracene	<0.4	ug/L	0.4	08-APR-01
	Benzo(g,h,i)Perylene	<0.4	ug/L	0.4	08-APR-01
38597-1					
CL-IC-CA	Chloride (Cl)	<0.1	mg/L	0.1	12-APR-01
38599-1					
SO4-IC-CA	Sulfate (SO4)	<0.2	mg/L	0.2	12-APR-01
38600-1					
F-IC-CA	Fluoride (F)	<0.05	mg/L	0.05	16-APR-01
38605-1					
SOLIDS-TDS-CA	Total Dissolved Solids	<5.00	mg/L	5	10-APR-01
38807-1					
HG-TOT-HYD-CA	Mercury (Hg)-Total	<0.0002	mg/L	0.0002	03-MAY-01

Type: DUP

Lab QC Number:		RPD	Qualifier	Limit %	Analyzed
G8468-4					
ALK-TOT-CA	Alkalinity, Total	0	RPD-NA	0-20	30-MAR-01
G8469-2					
PH-CA	pH	1.7		0-20	30-MAR-01
G8511-3					
EC-CA	Conductivity (EC)	0.5		0-20	04-APR-01
G8511-6					
EC-CA	Conductivity (EC)	3.7	RPD-NA	0-20	04-APR-01
G8522-3					
CA-DIS-LOW-CA	Calcium (Ca)	2.7		0-20	06-APR-01
K-DIS-LOW-CA	Potassium (K)	1		0-20	06-APR-01
MG-DIS-LOW-CA	Magnesium (Mg)	1.5		0-20	06-APR-01
NA-DIS-LOW-CA	Sodium (Na)	1.6		0-20	06-APR-01
G8543-3					
AG-TOT-LOW-CA	Silver (Ag)	9.0		0-20	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	1.9		0-20	11-APR-01
AS-TOT-LOW-CA	Arsenic (As)	0.3		0-20	11-APR-01
B-TOT-LOW-CA	Boron (B)	8.1		0-20	11-APR-01

Workorder #: L2683

BA-TOT-LOW-CA	Barium (Ba)	2.7	0-20	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	4.7	0-20	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	0.8	0-20	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	5.8	0-20	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	0.5	0-20	11-APR-01
CU-TOT-LOW-CA	Copper (Cu)	0.4	0-20	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	1.3	0-20	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	6.4	0-20	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	1.6	0-20	11-APR-01
NI-TOT-LOW-CA	Nickel (Ni)	0	0-20	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	2.3	0-20	11-APR-01
SB-TOT-LOW-CA	Antimony (Sb)	2.4	0-20	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	4.8	0-20	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	5.5	0-20	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	5.6	0-20	11-APR-01
ZN-TOT-LOW-CA	Zinc (Zn)	1.8	0-20	11-APR-01
G8600-3				
F-IC-CA	Fluoride (F)	11	0-20	16-APR-01

Type: LCS

Lab QC Number:		% Recovery	Qualifier	Limit %	Analyzed
G8468-2					
ALK-TOT-CA	Alkalinity, Total	99		80-120	30-MAR-01
G8522-2					
CA-DIS-LOW-CA	Calcium (Ca)	103		80-120	06-APR-01
CA-TOT-LOW-CA	Calcium (Ca)	103		80-120	06-APR-01
K-DIS-LOW-CA	Potassium (K)	103		80-120	06-APR-01
K-TOT-LOW-CA	Potassium (K)	103		80-120	06-APR-01
MG-DIS-LOW-CA	Magnesium (Mg)	93		80-120	06-APR-01
MG-TOT-LOW-CA	Magnesium (Mg)	93		80-120	06-APR-01
NA-DIS-LOW-CA	Sodium (Na)	92		80-120	06-APR-01
NA-TOT-LOW-CA	Sodium (Na)	92		80-120	06-APR-01
G8543-2					
AG-TOT-LOW-CA	Silver (Ag)	92		80-120	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	93		80-120	11-APR-01

Workorder #: L2683

AS-TOT-LOW-CA	Arsenic (As)	104	80-120	11-APR-01
B-TOT-LOW-CA	Boron (B)	104	80-120	11-APR-01
BA-TOT-LOW-CA	Barium (Ba)	96	80-120	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	96	80-120	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	102	80-120	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	104	80-120	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	109	80-120	11-APR-01
CU-TOT-LOW-CA	Copper (Cu)	103	80-120	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	100	80-120	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	104	80-120	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	100	80-120	11-APR-01
NI-TOT-LOW-CA	Nickel (Ni)	105	80-120	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	102	80-120	11-APR-01
SB-TOT-LOW-CA	Antimony (Sb)	103	80-120	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	105	80-120	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	111	80-120	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	104	80-120	11-APR-01
ZN-TOT-LOW-CA	Zinc (Zn)	107	80-120	11-APR-01
G8554-2				
AG-TOT-LOW-CA	Silver (Ag)	98	80-120	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	110	80-120	11-APR-01
AS-TOT-LOW-CA	Arsenic (As)	98	80-120	11-APR-01
B-TOT-LOW-CA	Boron (B)	122	80-120	11-APR-01
BA-TOT-LOW-CA	Barium (Ba)	99	80-120	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	104	80-120	11-APR-01
CA-TOT-LOW-CA	Calcium (Ca)	95	80-120	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	97	80-120	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	99	80-120	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	104	80-120	11-APR-01
CU-TOT-LOW-CA	Copper (Cu)	100	80-120	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	98	80-120	11-APR-01
K-TOT-LOW-CA	Potassium (K)	103	80-120	11-APR-01
MG-TOT-LOW-CA	Magnesium (Mg)	97	80-120	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	100	80-120	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	100	80-120	11-APR-01

Workorder #: L2683

NA-TOT-LOW-CA	Sodium (Na)	104	80-120	11-APR-01
NI-TOT-LOW-CA	Nickel (Ni)	100	80-120	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	103	80-120	11-APR-01
SB-TOT-LOW-CA	Antimony (Sb)	101	80-120	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	99	80-120	11-APR-01
SI-TOT-CA	Silicon (Si)	94	80-120	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	102	80-120	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	100	80-120	11-APR-01
ZN-TOT-LOW-CA	Zinc (Zn)	99	80-120	11-APR-01
G8572-3				
8270-SIMS-CA	naphthalene	48	N/A	08-APR-01
	2-methylnaphthalene	51	N/A	08-APR-01
	1-methylnaphthalene	61	N/A	08-APR-01
	acenaphthylene	65	N/A	08-APR-01
	acenaphthene	63	N/A	08-APR-01
	fluorene	69	N/A	08-APR-01
	phenanthrene	78	N/A	08-APR-01
	anthracene	84	N/A	08-APR-01
	fluoranthene	85	N/A	08-APR-01
	pyrene	90	N/A	08-APR-01
	Benzo(a)anthracene	51	N/A	08-APR-01
	chrysene	81	N/A	08-APR-01
	Benzo(b)fluoranthene	70	N/A	08-APR-01
	Benzo(k)fluoranthene	80	N/A	08-APR-01
	Benzo(a)pyrene	63	N/A	08-APR-01
	Indeno(1,2,3-c,d)pyrene	87	N/A	08-APR-01
	Dibenzo(a,h)Anthracene	94	N/A	08-APR-01
	Benzo(g,h,i)Perylene	91	N/A	08-APR-01
G8597-2				
CL-IC-CA	Chloride (Cl)	101	90-110	12-APR-01
G8599-2				
SO4-IC-CA	Sulfate (SO4)	92	90-110	12-APR-01
G8600-2				
F-IC-CA	Fluoride (F)	91	90-110	16-APR-01
G8605-2				
SOLIDS-TDS-CA	Total Dissolved Solids	94	80-120	10-APR-01
G8807-2				

Workorder #: L2683

HG-TOT-HYD-CA	Mercury (Hg)-Total	101	90-110	03-MAY-01

C Type: MS

Lab QC Number:		% Recovery	Qualifier	Limit %	Analyzed
G8522-4					
CA-DIS-LOW-CA	Calcium (Ca)	104		75-125	06-APR-01
CA-TOT-LOW-CA	Calcium (Ca)	104		75-125	06-APR-01
K-DIS-LOW-CA	Potassium (K)	106		75-125	06-APR-01
K-TOT-LOW-CA	Potassium (K)	106		75-125	06-APR-01
MG-DIS-LOW-CA	Magnesium (Mg)	95		75-125	06-APR-01
MG-TOT-LOW-CA	Magnesium (Mg)	95		75-125	06-APR-01
NA-DIS-LOW-CA	Sodium (Na)	78		75-125	06-APR-01
NA-TOT-LOW-CA	Sodium (Na)	78		75-125	06-APR-01
G8543-4					
AG-TOT-LOW-CA	Silver (Ag)	82		75-125	11-APR-01
AL-TOT-LOW-CA	Aluminum (Al)	93		75-125	11-APR-01
AS-TOT-LOW-CA	Arsenic (As)	98		75-125	11-APR-01
B-TOT-LOW-CA	Boron (B)	112		75-125	11-APR-01
BA-TOT-LOW-CA	Barium (Ba)	112		75-125	11-APR-01
BE-TOT-LOW-CA	Beryllium (Be)	76		75-125	11-APR-01
CD-TOT-LOW-CA	Cadmium (Cd)	99		75-125	11-APR-01
CO-TOT-LOW-CA	Cobalt (Co)	97		75-125	11-APR-01
CR-TOT-LOW-CA	Chromium (Cr)	101		75-125	11-APR-01
CU-TOT-LOW-CA	Copper (Cu)	93		75-125	11-APR-01
FE-TOT-LOW-CA	Iron (Fe)	98		75-125	11-APR-01
MN-TOT-LOW-CA	Manganese (Mn)	95		75-125	11-APR-01
MO-TOT-LOW-CA	Molybdenum (Mo)	102		75-125	11-APR-01
NI-TOT-LOW-CA	Nickel (Ni)	85		75-125	11-APR-01
PB-TOT-LOW-CA	Lead (Pb)	95		75-125	11-APR-01
SB-TOT-LOW-CA	Antimony (Sb)	97		75-125	11-APR-01
SE-TOT-LOW-CA	Selenium (Se)	104		75-125	11-APR-01
TL-TOT-LOW-CA	Thallium (Tl)	103		75-125	11-APR-01
V-TOT-LOW-CA	Vanadium (V)	119		75-125	11-APR-01

Workorder #: L2683

ZN-TOT-LOW-CA	Zinc (Zn)	98		75-125	11-APR-01
G8554-4					
SI-TOT-CA	Silicon (Si)	76		75-125	11-APR-01
G8572-4					
8270-SIMS-CA	naphthalene	38		N/A	08-APR-01
	2-methylnaphthalene	46		N/A	08-APR-01
	1-methylnaphthalene	44		N/A	08-APR-01
	acenaphthylene	48		N/A	08-APR-01
	acenaphthene	47		N/A	08-APR-01
	fluorene	52		N/A	08-APR-01
	phenanthrene	61		N/A	08-APR-01
	anthracene	59		N/A	08-APR-01
	fluoranthene	71		N/A	08-APR-01
	pyrene	59		N/A	08-APR-01
	Benzo(a)anthracene	74		N/A	08-APR-01
	chrysene	75		N/A	08-APR-01
	Benzo(b)fluoranthene	82		N/A	08-APR-01
	Benzo(k)fluoranthene	96		N/A	08-APR-01
	Benzo(a)pyrene	61		N/A	08-APR-01
	Indeno(1,2,3-c,d)pyrene	88		N/A	08-APR-01
	Dibenzo(a,h)Anthracene	98		N/A	08-APR-01
	Benzo(g,h,i)Perylene	92		N/A	08-APR-01
G8597-4					
CL-IC-CA	Chloride (Cl)	92		75-125	12-APR-01
G8599-4					
SO4-IC-CA	Sulfate (SO4)	116		75-125	12-APR-01
G8600-4					
F-IC-CA	Fluoride (F)	89		75-125	16-APR-01
G8807-3					
HG-TOT-HYD-CA	Mercury (Hg)-Total	101		75-125	03-MAY-01

C Type: MSD

Lab QC Number:	**RPD**	**Qualifier**	**Limit %**	**Analyzed**

G8572-5				
8270-SIMS-CA	naphthalene	6.2	0-20	08-APR-01
	2-methylnaphthalene	28	0-20	08-APR-01
	1-methylnaphthalene	13	0-20	08-APR-01
	acenaphthylene	14	0-20	08-APR-01
	acenaphthene	22	0-20	08-APR-01
	fluorene	11	0-20	08-APR-01
	phenanthrene	1.7	0-20	08-APR-01
	anthracene	1.7	0-20	08-APR-01
	fluoranthene	10	0-20	08-APR-01
	pyrene	21	0-20	08-APR-01
	Benzo(a)anthracene	16	0-20	08-APR-01
	chrysene	18	0-20	08-APR-01
	Benzo(b)fluoranthene	1.2	0-20	08-APR-01
	Benzo(k)fluoranthene	7.3	0-20	08-APR-01
	Benzo(a)pyrene	9.5	0-20	08-APR-01
	Indeno(1,2,3-c,d)pyrene	0.57	0-20	08-APR-01
	Dibenzo(a,h)Anthracene	6.3	0-20	08-APR-01
	Benzo(g,h,i)Perylene	4.4	0-20	08-APR-01
G8807-4				
HG-TOT-HYD-CA	Mercury (Hg)-Total	2.0	0-20	03-MAY-01

C Type: CCV

Lab QC Number:		% Recovery	Qualifier	Limit %	Analyzed
G8468-5					
ALK-TOT-CA	Alkalinity, Total	99		90-110	30-MAR-01
G8469-3					
PH-CA	pH	99		90-110	30-MAR-01
G8511-4					
EC-CA	Conductivity (EC)	100		90-110	04-APR-01
G8511-7					
EC-CA	Conductivity (EC)	100		90-110	04-APR-01
G8597-5					
CL-IC-CA	Chloride (Cl)	92		90-110	12-APR-01
G8599-5					
SO4-IC-CA	Sulfate (SO4)	91		90-110	12-APR-01
G8600-5					

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F-IC-CA	Fluoride (F)	92	80-120	16-APR-01
G8807-5				
HG-TOT-HYD-CA	Mercury (Hg)-Total	99	80-120	03-MAY-01

C Type: ICV

Lab QC Number:		% Recovery	Qualifier	Limit %	Analyzed
G8468-1					
ALK-TOT-CA	Alkalinity, Total	100		90-110	30-MAR-01
G8469-1					
PH-CA	pH	100		90-110	30-MAR-01
G8511-1					
EC-CA	Conductivity (EC)	103		90-110	04-APR-01
G8572-2					
8270-SIMS-CA	naphthalene	101		70-130	08-APR-01
	2-methylnaphthalene	115		70-130	08-APR-01
	1-methylnaphthalene	93		70-130	08-APR-01
	acenaphthylene	112		70-130	08-APR-01
	acenaphthene	113		70-130	08-APR-01
	fluorene	127		70-130	08-APR-01
	phenanthrene	128		70-130	08-APR-01
	anthracene	111		70-130	08-APR-01
	fluoranthene	117		70-130	08-APR-01
	pyrene	99		70-130	08-APR-01
	Benzo(a)anthracene	89		70-130	08-APR-01
	chrysene	113		70-130	08-APR-01
	Benzo(b)fluoranthene	83		70-130	08-APR-01
	Benzo(k)fluoranthene	89		70-130	08-APR-01
	Benzo(a)pyrene	107		70-130	08-APR-01
	Indeno(1,2,3-c,d)pyrene	119		70-130	08-APR-01
	Dibenzo(a,h)Anthracene	109		70-130	08-APR-01
	Benzo(g,h,i)Perylene	115		70-130	08-APR-01

Workorder #: L2683

egend:	QC Type	Description
	BLANK	Laboratory Blank
	BS	Blank Spike
	BSD	Blank Spike Duplicate
	CCB	Continuing Calibration Blank
	CCC	Continuing Calibration Check
	CCV	Continuing Calibration Verification
	DUP	Duplicate
	ICB	Instrument Blank
	ICV	Instrument Calibration Verification
	INST BLK	Instrument Blank
	LCS	Laboratory Control Spike
	LCSD	Lab Control Spike Duplicate
	MS	Matrix Spike
	MSD	Matrix Spike Duplicate
	SPCC	System Performance Check Compound
	SRM	Standard Reference Material
	SSS	Second Source Standard

ualifier:

RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
A	Method blank exceeds detection limit. Blank correction applied, where appropriate.
B	Method blank result exceeds detection limit, however, it is less that 5% of sample concentration. Blank correction not applied.
C	Method blank result exceeds detection limit, however, it is less than 5% of the regulatory limit for the *analyte of interest. Blank correction not applied.*
D	Duplicate result exceeds limit due to increased variability for low level samples.
E	Matrix spike limit exceeded due to high sample background.
F	Silver recovery low, likely due to elevated choride levels in sample.
G	Outlier - No assignable cause for nonconformity has been determined.

APPENDIX E - NORM SURVEY CERTIFICATION & INSTRUMENT CALIBRATION RECORDS

Certificate of Registration

Phillip Services Corporation	4000 Monroe Road		
Name	Street Address		
Phillip Services Corporation	Farmington	NM	87401
Organization	City	State/Province	Zip/Postal Code

Registration Number(s)	Radiological Service Specialty(s) For Which Certification Is Issued	Expiration Date(s)
605 - 6N	Radiation Safety Consulting for Oil and Gas NORM	Mar 31, 2006

Radiation safety services and consultation regarding naturally occurring radioactive material (NORM) in the oil and gas industries. These services will be provided in New Mexico to both public and private concerns, and to licensees and registrants of the New Mexico Radiation Protection Program. The registrant is responsible for ensuring that all personnel performing service under this registration possess adequate credentials to discharge their duties. At a minimum, the following training is required:

1. Fundamentals of radiation safety including--
   a) Characteristics of alpha, beta, and gamma radiation;
   b) Units of radiation dose and quantity of radioactivity;
   c) External and internal radiation exposure hazards encountered during mitigation of oil and gas NORM; and,
   d) Proper methods of minimizing external and internal dose from NORM contaminants.
2. Proper performance of operational fundamentals including--
   a) Methods for controlling and mitigating NORM contaminants;
   b) Techniques for use of personal protective equipment;
   c) Techniques for monitoring of radiation and contamination;
   d) Use and operation, and limitations of, the specific radiation survey instruments and personnel monitoring equipment used by the registrant; and,
   e) Regulatory requirements for handling and disposal of NORM waste.

The Radiation Safety Officer for this registration is Bruce L. Hare, who will be continuously responsible for the proper implementation of the radiation protection program. The RSO shall conduct a review of the radiation protection program at intervals not to exceed 12 months in accordance with Subpart 4, §401.C. of the NMRPR.

The registrant shall notify this Department in writing before making any changes which would render the information contained in this certificate to be inaccurate. This certificate is not valid after the expiration date, and is not transferable on change of ownership, control, location, or scope of activity.

In accordance with Subpart 2 of the New Mexico Radiation Protection Regulations (20NMAC3.1), the above named person or organization is registered with the New Mexico Radiation Protection Program as having the necessary training and knowledge to provide radiological services in the specialty(s) indicated above. The registrant shall not perform services which are not specifically indicated by this certificate and its provisions, and is responsible for applying for timely renewal of registrations as they expire individually. (Registration does not imply approval by the State or this Agency.)

3/15/2001

Stanley A. Fitch (Date)
Radiation Protection Program
New Mexico Environment Department

POST OR FILE.
This certificate and its provisions must be available for inspection.

Certificate of Completion

This certifies that

Mike E. Stahle

has satisfactorily completed an eight hour course of instruction in

NORM Surveying and Control

The course of instruction included both a written and practical examination.

Course Date: February 27, 1995 *Location:* Farmington, NM

Growth Energy Services

5215 Essen Lane • Suite 7 • Baton Rouge • Louisiana • 70809

LITHO IN U.S.A.

Scientific and Industrial Instruments

POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CERTIFICATE OF CALIBRATION

CUSTOMER PHILIP ENVIRONMENTAL ORDER NO. 249402/248634

Mfg. Ludlum Measurements, Inc. Model 3 Serial No. 110254

Mfg. Ludlum Measurements, Inc. Model 44-2 Serial No. PR 110346

Cal. Date 21-Jun-00 Cal Due Date 21-Jun-01 Cal. Interval 1 Year Meterface 202-666

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 71 °F RH 45 % Alt 701.8 mm Hg

☐ New Instrument Instrument Received ☐ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☑ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☐ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC

☐ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☑ Calibrated in accordance with LMI SOP 14.9 rev 12/19/89.

Instrument Volt Set 900 V Input Sens. 42 mV Det. Oper. 900 V at 42 mV Threshold Dial Ratio ____ = ____ m

☐ HV Readout (2 points) Ref./Inst. ____ / ____ V Ref./Inst. ____ / ____ V

COMMENTS:

Cs-137 ≈ 1 µCi check source SN 2705 reads ≈ 35µR/hr @ X10 with top of probe, 44-2, placed flat against holder with door open. (350 µR/hr)
Calibrated with 10' cable.

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 100	4000 uR/hr		40
X 100	1000 uR/hr		10
X 10	400 uR/hr = 67800 CPM		40
X 10	100 uR/hr	N/A	11
X 1	6780 cpm		40
X 1	1700 cpm		10
X 0.1	678 cpm		40
X 0.1	170 cpm		10

*Uncertainty within ± 10% C.F. within ± 20% X 1, 0.1 Range(s) Calibrated Electronically

Digital Readout	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	Log Scale	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☑ M565 ☐ 510S ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ Neutron Am-241 Be S/N T-30

☐ Alpha S/N ____ ☐ Beta S/N ____ ☐ Other ____

☑ m 500 S/N 50800 ☐ Oscilloscope S/N ____ ☑ Multimeter S/N 75460209

Calibrated By: Domingo Garza Date 21 Jun 00

Reviewed By: Rhonda Ham Date 22 Jun 00

FORM C22A 12/29/1999

☐ Passed Dielectric (Hi-Pot) and Continuity Test

APPENDIX F - NORM SURVEY LOGS

NORM SURVEY FORM

Date: 3/28/01

Project Name: Goodwin Treating Plant

Project Manager: Don Fernald

Client Company: EMNRD-OCD

Project No: 62800404

Phase.Task 0280-03

Site Location: Goodwin Treating Plant

Site Address: 10 miles west of Hobbs, NM

Survey performed by: Bruce Hare / Mike Stahle

Background Reading: 16 µR/hr

Exposure rate instrument: Model 3 Ludlum 1010254
TYPE, PROBE TYPE, SERIAL NUMBER

Calibration due date: 6/21/01

Calibration check/response reading: 335 µR/hr

Battery check performed satisfactory? Yes

Count rate instrument: N/A
TYPE, PROBE TYPE, SERIAL NUMBER

Calibration due date: N/A

Calibration check/response reading: N/A cpm

Battery check Battery check performed satisfactory? N/A

Sample ID/Location	Depth (Inches)	Dose Rate (uR/hr)	Laboratory Analytical Result (PCi/g)
NT – 1 – S	S	110	42.3 +/- 0.96
NT – 1 – 6"	6"	40	Not submitted for analysis
N.W.S.P. – 1 – S	S	110	15.3 +/- 0.41
N.W.S.P. – 1 – 6"	6"	180	Not submitted for analysis
N.W.S.P. – 1 – 12"	12"	130	Not submitted for analysis
N.W.S.P. – 1 – 18"	18"	90	Not submitted for analysis
N.W.S.P. – 1 – 30"	30"	80	Not submitted for analysis
N.W.S.P. – 1 – 36"	36"	70	Not submitted for analysis
N.W.S.P. – 1 – 42"	42"	50	5.43 +/- 0.32
W.C.S.P. – 1 – S	S	60	1.51 +/- 0.18
W.C.S.P. – 1 – 12"	12"	20	0.40 +/- 0.09
106 – 1 – S (Tank 106)	S	90	1.87 +/- 0.19
106 – 1 – 6" (Tank 106)	6"	30	0.78 +/- 0.11
113 – 1 – S (Tank 113)	S	70	7.45 +/- 0.30
113 – 1 – S (Tank 113)	6"	40	5.42 +/- 0.20

NT – North Treater
N.W.S.P. – Northwest Soil Pile (near north treater)
W.C.S.P. – West Center Sample Point

NORM SURVEY FORM

Date: 3/28/01

Project Name: Goodwin Treating Plant

Project Manager: Don Fernald

Client Company: EMNRD-OCD

Project No: 62800404

Phase.Task 0280-03

Site Location: Goodwin Treating Plant

Site Address: 10 miles west of Hobbs, NM

Survey performed by: Bruce Hare / Mike Stahle

Background Reading: 16 µR/hr

Exposure rate instrument: Model 3 Ludlum 1010254
TYPE, PROBE TYPE, SERIAL NUMBER

Calibration due date: 6/21/01

Calibration check/response reading: 335 µR/hr

Battery check performed satisfactory? Yes

Count rate instrument: N/A
TYPE, PROBE TYPE, SERIAL NUMBER

Calibration due date: N/A

Calibration check/response reading: N/A cpm

Battery check Battery check performed satisfactory? N/A

Sample ID/Location	Depth (Inches)	Dose Rate (uR/hr)	Laboratory Analytical Result (PCi/g)
114 – 1 – S (Tank 114)	S	70	1.42 +/- 0.18
114 – 1 – 12" (Tank 114)	12"	43	1.86 +/- 0.16
Tank 112 Sludge	N/A	290	48.6 +/- 1.24
Tank 111 Redwood	N/A	100	1.18 +/- 0.22
Tank 112 Redwood	N/A	100	1.96 +/- 0.27
Emergency Overflow Pit	54"		7.43 +/- 0.26

NORM SURVEY FORM

Date: 3/29/01

Project Name: Goodwin Treating Plant

Project Manager: Don Fernald

Client Company: EMNRD-OCD

Project No: 62800404

Phase.Task 0280-03

Site Location: Goodwin Treating Plant

Site Address: 10 miles west of Hobbs, NM

Survey performed by: Bruce Hare / Mike Stahle

Background Reading: 16 µR/hr

Exposure rate instrument: Model 3 Ludlum 1010254
TYPE, PROBE TYPE, SERIAL NUMBER

Calibration due date: 6/21/01

Calibration check/response reading: 335 µR/hr

Battery check performed satisfactory? Yes

Count rate instrument: N/A
TYPE, PROBE TYPE, SERIAL NUMBER

Calibration due date: N/A

Calibration check/response reading: N/A cpm

Battery check Battery check performed satisfactory? N/A

Sample ID/Location	Depth (Inches)	Dose Rate (uR/hr)	Laboratory Analytical Result (PCi/g)
115 – 1 - S Tank 115	S	75	1.74 +/- 0.16
115 – 1 – 24" Tank 115	24"	45	1.56 +/- 0.15
116 – 1 – S Tank 116	S	60	5.71 +/- 0.39
116 – 1 – 6" Tank 116	6"	55	Not submitted for laboratory analysis
116 – 1 – 12" Tank 116	12"	55	Not submitted for laboratory analysis
116 – 1 – 18" Tank 116	18"	64	Not submitted for laboratory analysis
116 – 1 – 24" Tank 116	24"	36	2.33 +/- 0.19
117 – 1 – S Tank 117	S	50	2.97 +/- 0.17
117 – 1 – 6" Tank 117	6"	60	Not submitted for laboratory analysis
117 – 1 – 12" Tank 117	12"	45	3.37 +/- 0.20
118 – 1 – S Tank 118	S	65	15.2 +/- 0.65
118 – 1 – 6" Tank 118	6"	170	Not submitted for laboratory analysis
118 – 1 – 12" Tank 118	12"	130	Not submitted for laboratory analysis
118 – 1 – 18" Tank 118	18"	90	Not submitted for laboratory analysis
118 – 1 – 24" Tank 118	24"	45	1.90 +/- 0.19
118 – 1 – D -24" Tank 118	24"	45	2.89 +/- 0.16
Blank Background 81 SW of Fence	S	16	1.05 +/- 0.17

NORM SURVEY FORM

Date: 3/29/01

Project Name: Goodwin Treating Plant

Project Manager: Don Fernald

Client Company: EMNRD-OCD

Project No: 62800404

Phase.Task 0280-03

Site Location: Goodwin Treating Plant

Site Address: 10 miles west of Hobbs, NM

Survey performed by: Bruce Hare / Mike Stahle

Background Reading: 16 µR/hr

Exposure rate instrument: Model 3 Ludlum 1010254
TYPE, PROBE TYPE, SERIAL NUMBER

Calibration due date: 6/21/01

Calibration check/response reading: 335 µR/hr

Battery check performed satisfactory? Yes

Count rate instrument: N/A
TYPE, PROBE TYPE, SERIAL NUMBER

Calibration due date: N/A

Calibration check/response reading: N/A cpm

Battery check Battery check performed satisfactory? N/A

Sample ID/Location	Depth (Inches)	Dose Rate (uR/hr)	Laboratory Analytical Result (PCi/g)
Tank 121 (inside tank)	N/A	20	27.5 +/- 0.73
Tank 111 (inside tank)	N/A	25	30.8 +/- 0.86
Tank 113 (inside tank)	N/A	20	2.29 +/- 0.34
Tank 114 (inside tank)	N/A	-	32.9 +/- 1.23
Tank 116 (inside tank)	N/A	25	15.5 +/- 0.68
Tank 118 (inside tank)	N/A	22	33.8 +/- 1.16

APPENDIX G - LABORATORY RESULTS FOR NORM TESTING

PINNACLE LABORATORIES

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

PL I.D. **103103**

April 11, 2001

Philip Services Corp.
4000 Monroe Road
Farmington, NM 87401

Project Name/Number: GOODWIN TREATING PLANT 62800404

Attention: Don Fernald

On **03/30/01**, Pinnacle Laboratories Inc., (ADHS License No. AZ0592 pending), received a request to analyze **non-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.

All analyses were performed by EnviroTest Laboratories, LLC. Casper, WY.

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

H. Mitchell Rubenstein, Ph.D.
General Manager

MR:jt

Enclosure

PINNACLE LABORATORIES

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

CLIENT	: PHILIP SERVICES CORP.	DATE RECEIVED	: 03/30/01
PROJECT #	: 62800404		
PROJECT NAME	: GOODWIN TREATING PLANT	REPORT DATE	: 04/11/01

PL ID: 103103

	PINNACLE ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	103103-01	N.T.-1-S	NON-AQ	03/28/01
02	103103-02	N.T.-1-6"	NON-AQ	03/28/01
03	103103-03	N.W.S.P.-1-S	NON-AQ	03/28/01
04	103103-04	N.W.S.P.-1-42"	NON-AQ	03/28/01
05	103103-05	W.C.S.P.-1-S	NON-AQ	03/28/01
06	103103-06	W.C.S.P.-1-12"	NON-AQ	03/28/01
07	103103-07	106-1-S	NON-AQ	03/28/01
08	103103-08	106-1-6"	NON-AQ	03/28/01
09	103103-09	113-1-S	NON-AQ	03/28/01
10	103103-10	113-1-6"	NON-AQ	03/28/01
11	103103-11	114-1-S	NON-AQ	03/28/01
12	103103-12	114-1-12"	NON-AQ	03/28/01
13	103103-13	TANK 112	NON-AQ	03/28/01
14	103103-14	TANK 111	NON-AQ	03/28/01
15	103103-15	TANK 112 REDWOOD	NON-AQ	03/28/01
16	103103-16	115-1-S	NON-AQ	03/29/01
17	103103-17	115-1-24"	NON-AQ	03/29/01
18	103103-18	116-1-S	NON-AQ	03/29/01
19	103103-19	116-1-24"	NON-AQ	03/29/01
20	103103-20	117-1-S	NON-AQ	03/29/01
21	103103-21	117-1-12"	NON-AQ	03/29/01
22	103103-22	118-1-S	NON-AQ	03/29/01
23	103103-23	118-1-24"	NON-AQ	03/29/01
24	103103-24	118-1-D-24"	NON-AQ	03/29/01
25	103103-25	BLANK	NON-AQ	03/29/01
26	103103-26	TANK 111	NON-AQ	03/29/01
27	103103-27	TANK 113	NON-AQ	03/29/01
28	103103-28	TANK 114	NON-AQ	03/29/01
29	103103-29	TANK 116	NON-AQ	03/29/01
30	103103-30	TANK 118	NON-AQ	03/29/01
31	103103-31	OVERFLOW PIT	NON-AQ	03/29/01

Enviro-Test Laboratories LLC.

Chemical Analysis Report

PINNACLE LABORATORIES, INC
Attn: PROJECT MANAGER
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107

Date: 10 APR 2001

Lab Work Order #: L2711
Project P.O. #: 103103
Project Reference: GOODWIN TREATING PLANT
Comments:

Date Received: 03 APR 2001

APPROVED BY: _____
Dave Demorest
Project Manager

ETL Enviro • Test LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 2 of 22
PO No.: 103103
WO NO.: L2711

Sample ID: N.T.-1-S / 103103-01
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2711-1
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	42.3 +/- 0.96	pCi/g	0.27	04-APR-01	06-APR-01	DF

Enviro • Test
LABORATORIES LLC
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 3 of 22
PO No.: 103103
WO NO.: L2711

Sample ID: N.W.S.P.-1-S / 103103-03
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2711-2
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	15.3 +/- 0.41	pCi/g	0.25	04-APR-01	06-APR-01	DF

Enviro • Test
LABORATORIES LLC.
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Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030(

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Sample ID: N.W.S.P.-1-42" / 103103-04
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2711-3
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	5.43 +/- 0.32	pCi/g	0.14	04-APR-01	06-APR-01	DF

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LABORATORIES LLC.
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Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 5 of 22
PO No.: 103103
WO NO.: L2711

Sample ID: W.C.S.P-1-S / 103103-05
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2711-4
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	1.51 +/- 0.18	pCi/g	0.15	04-APR-01	06-APR-01	DF

ETL Enviro • Test LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 6 of 22
PO No.: 103103
WO NO.: L2711

Sample ID: W.C.S.P.-1-12" / 103103-06
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2711-5
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	0.40 +/- 0.09	pCi/g	0.09	04-APR-01	06-APR-01	DF

ETL Enviro • Test LABORATORIES LLC
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Sample ID: 106-1-S / 103103-07
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2711-6
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	1.87 +/- 0.19	pCi/g	0.17	04-APR-01	06-APR-01	DF

ETL Enviro • Test LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030€

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 8 of 22
PO No.: 103103
WO NO.: L2711

Sample ID: 106-1-6" / 103103-08
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2711-7
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	0.78 +/- 0.11	pCi/g	0.1	04-APR-01	06-APR-01	DF

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Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Sample ID: 113-1-S / 103103-09
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2711-8
Matrix: SOIL

Test Description	Result	Units of Measure	D.L	Prep Date	Analyzed	By
Misc						
Radium-226	7.45 +/- 0.30	pCi/g	0.2	04-APR-01	06-APR-01	DF

ETL Enviro • Test LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-0306

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 10 of 22
PO No.: 103103
WO NO.: L2711

Sample ID: 113-1-6" / 103103-10
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2711-9
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	5.42 +/- 0.20	pCi/g	0.12	04-APR-01	06-APR-01	DF

Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 11 of 22
PO No.: 103103
WO NO.: L2711

Sample ID: 114-1-S / 103103-11
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2711-10
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	1.42 +/- 0.18	pCi/g	0.17	04-APR-01	06-APR-01	DF

ETL Enviro • Test LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 12 of 22
PO No.: 103103
WO NO.: L2711

Sample ID: 114-1-12" / 103103-12
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2711-11
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	1.86 +/- 0.16	pCi/g	0.12	04-APR-01	06-APR-01	DF

Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030(

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 13 of 22
PO No.: 103103
WO NO.: L2711

Sample ID: TANK 112 / 103103-13
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2711-12
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	48.6 +/- 1.24	pCi/g	0.38	04-APR-01	06-APR-01	DF

Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

PO No.: 103103
WO NO.: L2711

Sample ID: TANK 111 / 103103-14
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 28-MAR-01
Lab Sample ID: L2711-13
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	1.18 +/- 0.22	pCi/g	0.26	04-APR-01	06-APR-01	DF

Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 15 of 22
PO No.: 103103
WO NO.: L2711

Sample ID: TANK 112 REDWOOD / 103103-15
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT

Date Collected: 28-MAR-01
Lab Sample ID: L2711-14
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	1.95 +/- 0.27	pCi/g	0.27	04-APR-01	06-APR-01	DF

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 16 of 22
PO No.: 103103
WO NO.: L2711

Sample ID: 115-1-S / 103103-16
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT

Date Collected: 29-MAR-01
Lab Sample ID: L2711-15
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	1.74 +/- 0.16	pCi/g	0.13	04-APR-01	06-APR-01	DF

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 17 of 22
PO No.: 103103
WO NO.: L2711

Sample ID: 115-1-24" / 103103-17
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT

Date Collected: 29-MAR-01
Lab Sample ID: L2711-16
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	1.56 +/- 0.15	pCi/g	0.18	04-APR-01	06-APR-01	DF

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 18 of 22
PO No.: 103103
WO NO.: L2711

Sample ID: 116-1-S / 103103-18
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 29-MAR-01
Lab Sample ID: L2711-17
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	5.71 +/- 0.39	pCi/g	0.16	04-APR-01	06-APR-01	DF

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 19 **of** 22
PO No.: 103103
WO NO.: L2711

Sample ID: 116-1-24" / 103103-19
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 29-MAR-01
Lab Sample ID: L2711-18
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	2.33 +/- 0.19	pCi/g	0.16	04-APR-01	06-APR-01	DF

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 20 of 22
PO No.: 103103
WO NO.: L2711

Sample ID: 117-1-S / 103103-20
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 29-MAR-01
Lab Sample ID: L2711-19
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	2.97 +/- 0.17	pCi/g	0.12	04-APR-01	06-APR-01	DF

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Toll Free 1(800)666-030

Chemical Analysis Report

[redacted] LABORATORIES, INC
[redacted] N AMERICAN FREEWAY NE
[redacted] UERQUE NM 87107
[redacted] PROJECT MANAGER

Report Date: 10-APR-01
Page: 21 of 22
PO No.: 103103
WO NO.: L2711

[redacted]mple ID: 117-1-12" / 103103-21
[redacted]b Name: GOODWIN TREATING PLANT
[redacted]d By: CLIENT

Date Collected: 29-MAR-01
Lab Sample ID: L2711-20
Matrix: SOIL

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Radium-226	3.37 +/- 0.20	pCi/g	0.16	04-APR-01	06-APR-01	DF

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420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030[illegible]

Enviro-Test Laboratories LLC.

Chemical Analysis Report

PINNACLE LABORATORIES, INC
Attn: PROJECT MANAGER
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107

Date: 10 APR 2001

Lab Work Order #: L2712
Project P.O. #: 103103
Project Reference: GOODWIN TREATING PLANT
Comments:

Date Received: 03 APR 2001

APPROVED BY: _____
Dave Demorest
Project Manager

ETL Enviro • Test
LABORATORIES LLC.
420 West Street Casper, Wyoming 8260
Phone: (307) 235-5741 Fax:(307) 266-1676
Toll Free 1(800)666-030

Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 2 of 13
PO No.: 103103
WO NO.: L2712

Sample ID: 118-1-S / 103103-22
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 29-MAR-01
Lab Sample ID: L2712-1
Matrix: SLUDGE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	15.2 +/- 0.65	pCi/g	0.18		08-APR-01	DF

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 3 of 13
PO No.: 103103
WO NO.: L2712

Sample ID: 118-1-24" / 103103-23
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT

Date Collected: 29-MAR-01
Lab Sample ID: L2712-2
Matrix: SLUDGE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	1.90 +/- 0.19	pCi/g	0.17		08-APR-01	DF

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 4 of 13
PO No.: 103103
WO NO.: L2712

Sample ID: 118-1-D-24" / 103103-24
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 29-MAR-01
Lab Sample ID: L2712-3
Matrix: SLUDGE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	2.89 +/- 0.16	pCi/g	0.12		08-APR-01	DF

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 5 of 13
PO No.: 103103
WO NO.: L2712

Sample ID: BLANK / 103103-25
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT

Date Collected: 29-MAR-01
Lab Sample ID: L2712-4
Matrix: SLUDGE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	1.05 +/- 0.17	pCi/g	0.16		08-APR-01	DF

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 6 of 13
PO No.: 103103
WO NO.: L2712

Sample ID: TANK 121 / 103103-26
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 29-MAR-01
Lab Sample ID: L2712-5
Matrix: SLUDGE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	27.5 +/- 0.73	pCi/g	0.37		08-APR-01	DF

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 7 of 13
PO No.: 103103
WO NO.: L2712

Sample ID: TANK 111 / 103103-27
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 29-MAR-01
Lab Sample ID: L2712-6
Matrix: SLUDGE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	30.8 +/- 0.86	pCi/g	0.27		08-APR-01	DF

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 8 **of** 13
PO No.: 103103
WO NO.: L2712

Sample ID: TANK 113 / 103103-28
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT

Date Collected: 29-MAR-01
Lab Sample ID: L2712-7
Matrix: SLUDGE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	2.29 +/- 0.34	pCi/g	0.33		08-APR-01	DF

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 9 of 13
PO No.: 103103
WO NO.: L2712

Sample ID: TANK 114 / 103103-29
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 29-MAR-01
Lab Sample ID: L2712-8
Matrix: SLUDGE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	32.9 +/- 1.23	pCi/g	0.41		08-APR-01	DF

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 10 of 13
PO No.: 103103
WO NO.: L2712

Sample ID: TANK 116 / 103103-30
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 29-MAR-01
Lab Sample ID: L2712-9
Matrix: SLUDGE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	15.5 +/- 0.68	pCi/g	0.23		08-APR-01	DF

E T L Enviro • Test
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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 11 of 13
PO No.: 103103
WO NO.: L2712

Sample ID: TANK 118 / 103103-31
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT
Date Collected: 29-MAR-01
Lab Sample ID: L2712-10
Matrix: SLUDGE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	33.8 +/- 1.16	pCi/g	0.41		08-APR-01	DF

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Chemical Analysis Report

PINNACLE LABORATORIES, INC
2709D PAN AMERICAN FREEWAY NE
ALBUQUERQUE NM 87107
ATTN: PROJECT MANAGER

Report Date: 10-APR-01
Page: 12 of 13
PO No.: 103103
WO NO.: L2712

Sample ID: OVERFLOW PIT / 103103-32
Job Name: GOODWIN TREATING PLANT
Sampled By: CLIENT

Date Collected: 29-MAR-01
Lab Sample ID: L2712-11
Matrix: SLUDGE

Test Description	Result	Units of Measure	D.L.	Prep Date	Analyzed	By
Misc						
Radium-226	7.43 +/- 0.26	pCi/g	0.16		08-APR-01	DF

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Methodology Reference

ETL Test Code	Matrix	Test Description	Methodology Reference
GAMMA-NORM-CA	Soil	Gamma Spectroscopy	Mod.EPA.901.1

ENVIRO-TEST QC REPORT

Workorder #: L2711

QC Type: DUP

Lab QC Number:		RPD	Qualifier	Limit %	Analyzed
WG8547-1					
GAMMA-NORM-CA	Radium-226	5.2		0-20	06-APR-01

ENVIRO-TEST QC REPORT

Workorder #: L2711

Legend:	QC Type	Description
	BLANK	Laboratory Blank
	BS	Blank Spike
	BSD	Blank Spike Duplicate
	CCB	Continuing Calibration Blank
	CCC	Continuing Calibration Check
	CCV	Cont. Cal. Verification
	DUP	Duplicate
	ICB	Instrument Blank
	ICV	Instument Calibration Verification
	INST BLK	Instrument Blank
	LCS	Laboratory Control Spike
	LCSD	Lab Control Spike Duplicate
	MS	Matrix Spike
	MSD	Matrix Spike Duplicate
	SPCC	System Performance Check Compound
	SRM	Standard Reference Material
	SSS	Second source std

Qualifier:

RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
A	Method blank exceeds detection limit. Blank correction applied, where appropriate.
B	Method blank result exceeds detection limit, however, it is less that 5% of sample concentration. Blank correction not applied.
C	Method blank result exceeds detection limit, however, it is less than 5% of the regulatory limit for the analyte of interest. Blank correction not applied.
D	Duplicate result exceeds limit due to increased variability for low level samples.
E	Matrix spike limit exceeded due to high sample background.
F	Silver recovery low, likely due to elevated choride levels in sample.
G	Outlier - No assignable cause for nonconformity has been determined.

ENVIRO-TEST QC REPORT

Workorder #: L2712

QC Type: DUP

Lab QC Number:		RPD	Qualifier	Limit %	Analyzed
WG8555-1					
GAMMA-NORM-CA	Radium-226	23		0-20	08-APR-01

ENVIRO-TEST QC REPORT

Workorder #: L2712

Legend:	QC Type	Description
	BLANK	Laboratory Blank
	BS	Blank Spike
	BSD	Blank Spike Duplicate
	CCB	Continuing Calibration Blank
	CCC	Continuing Calibration Check
	CCV	Cont. Cal. Verification
	DUP	Duplicate
	ICB	Instrument Blank
	ICV	Instument Calibration Verification
	INST BLK	Instrument Blank
	LCS	Laboratory Control Spike
	LCSD	Lab Control Spike Duplicate
	MS	Matrix Spike
	MSD	Matrix Spike Duplicate
	SPCC	System Performance Check Compound
	SRM	Standard Reference Material
	SSS	Second source std

Qualifier:

RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
A	Method blank exceeds detection limit. Blank correction applied, where appropriate.
B	Method blank result exceeds detection limit, however, it is less that 5% of sample concentration. Blank correction not applied.
C	Method blank result exceeds detection limit, however, it is less than 5% of the regulatory limit for the analyte of interest. Blank correction not applied.
D	Duplicate result exceeds limit due to increased variability for low level samples.
E	Matrix spike limit exceeded due to high sample background.
F	Silver recovery low, likely due to elevated choride levels in sample.
G	Outlier - No assignable cause for nonconformity has been determined.

Pinnacle Laboratories, Inc. **Interlab Chain of Custody** Date: 4/2 Page: 1 of 4

Network Project Manager: Jacinta A. Tenorio

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

Need 5 day TAT due 4/10.

RUSH!

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
N.T.-1-S/103103-01	3/28		Sludge	
N.W.S.P.-1-S/103103-03				
N.W.S.P.-1-42"/103103-04				
W.C.S.P.-1-S/103103-05				
W.C.S.P.-1-12"/103103-06				
106-1-S/103103-07				
106-1-6"/103103-08				
113-1-S/103103-09				
113-1-6"/103103-10				
114-1-S/103103-11				

ANALYSIS REQUEST

	Metals (8) RCRA	RCRA TCLP METALS	Metals-13 PP List	Metals-TAL (23 METALS)		TOX	TOC	Gen Chemistry:		Oil and Grease	Volatile Organics GC/MS (8260)	BOD	COD	PESTICIDES/PCB (608/8082)	Herbicides (615/8151)	PNA (8310)/8270 SIMS	8240 (TCLP 1311) ZHE		Base/Neutral Acid Compounds GC/MS (625/8270)	URANIUM (ICP-MS)	RADIUM 226	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS
N.T.-1-S/103103-01																					X	X		
N.W.S.P.-1-S/103103-03																					X	X		
N.W.S.P.-1-42"/103103-04																					X	X		
W.C.S.P.-1-S/103103-05																					X	X		
W.C.S.P.-1-12"/103103-06																					X	X		
106-1-S/103103-07																					X	X		
106-1-6"/103103-08																					X	X		
113-1-S/103103-09																					X	X		
113-1-6"/103103-10																					X	X		
114-1-S/103103-11																					X	X		

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT #:	103103	Total Number of Containers	
PROJ. NAME:	PHIL	Chain of Custody Seals	
QC LEVEL:	(STD) IV	Received Intact?	
QC REQUIRED:	MS MSD BLANK	Received Good Cond./Cold	
TAT:	STANDARD (RUSH!!)	LAB NUMBER:	

DUE DATE:	4/10
RUSH SURCHARGE:	—
CLIENT DISCOUNT:	—
SPECIAL CERTIFICATION REQUIRED:	YES (NO)

COMMENTS: **RUSH!**

SAMPLES SENT TO:	
PENSACOLA - STL-FL	
ESL - OR	
STL - CT	
ATEL - AZ	
ATEL - MARION	
ATEL - MELMORE	
BARRINGER	
ENVIRO TEST LABS	X
WCAS	
WOHL	

RELINQUISED BY: 1.	RELINQUISED BY: 2
Signature: Francine Timio — Time: 1700	Signature: — Time:
Printed Name: Francine Timio — Date: 4/2/01	Printed Name: — Date:
Pinnacle Laboratories, Inc.	Company
RECEIVED BY: 1.	**RECEIVED BY: 2**
Signature: — Time:	Signature: — Time:
Printed Name: — Date:	Printed Name: — Date:
Company	Company

Pinnacle Laboratories, Inc. | **Interlab Chain of Custody** | Date: 4/2 | Page: 2 of 4

Network Project Manager: Jacinta A. Tenorio

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

See previous page.

RUSH!

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals (8) RCRA	RCRA TCLP METALS	Metals-13 PP List	Metals-TAL (23 METALS)		TOX	TOC	Gen Chemistry:		Oil and Grease	Volatile Organics GC/MS (8260)	BOD	COD	PESTICIDES/PCB (608/8082)	Herbicides (615/8151)	PNA (8310)/8270 SIMS	8240 (TCLP 1311) ZHE		Base/Neutral Acid Compounds GC/MS (625/8270)	URANIUM (ICP-MS)	RADIUM 226	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS
114-1-12" / 103103-12	3/28		sludge																						X			
TANK 112 / 103103-13			↓																						X			
TANK 111 / 103103-14			NAQ																						X			
TANK 112 REDWOOD / 103103-15	↓		↓																						X			
115-1-S / 103103-16	3/29		sludge																						X			
115-1-24" / 103103-17																									X			
116-1-S / 103103-18																									X			
116-1-24" / 103103-19																									X			
117-1-S / 103103-20																									X			
117-1-12" / 103103-21	↓		↓																						X			

PROJECT INFORMATION		SAMPLE RECEIPT		SAMPLES SENT TO:	
PROJECT #:	103103	Total Number of Containers		PENSACOLA - STL-FL	
PROJ. NAME:	PHL	Chain of Custody Seals		ESL - OR	
QC LEVEL:	(STD) IV	Received Intact?		STL - CT	
QC REQUIRED:	MS MSD BLANK	Received Good Cond./Cold		ATEL - AZ	
TAT:	STANDARD (RUSH!!)	LAB NUMBER:		ATEL - MARION	
				ATEL - MELMORE	
DUE DATE:	4/10	COMMENTS:		BARRINGER	
RUSH SURCHARGE:	—			ENVIRO TEST LABS	X
CLIENT DISCOUNT:	—			WCAS	
SPECIAL CERTIFICATION REQUIRED: YES (NO)				WOHL	

RUSH!

RELINQUISED BY: 1.	RELINQUISED BY: 2.
Signature: Francine Tonno Time: 1700	Signature: Time:
Printed Name: Francine Tonno Date: 4/2/01	Printed Name: Date:
Pinnacle Laboratories, Inc.	Company
RECEIVED BY: 1.	**RECEIVED BY: 2**
Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:
Company	Company

Pinnacle Laboratories, Inc. — **Interlab Chain of Custody** — Date: 4/2 Page: 3 of 4

Network Project Manager: Jacinta A. Tenorio

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

See previous page

RUSH!

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals (8) RCRA	RCRA TCLP METALS	Metals-13 PP List	Metals-TAL (23 METALS)		TOX	TOC	Gen Chemistry:		Oil and Grease	Volatile Organics GC/MS (8260)	BOD	COD	PESTICIDES/PCB (608/8082)	Herbicides (615/8151)	PNA (8310)/8270 SIMS	8240 (TCLP 1311) ZHE		Base/Neutral Acid Compounds GC/MS (625/8270)	URANIUM (ICP-MS)	RADIUM 226	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS
118-1-S / 103103-22	3/29		Sludge																						X			
118-1-24" / 103103-23																									X			
118-1-D-24" / 103103-24																									X			
BLANK / 103103-25																									X			
TANK 121 / 103103-26																									X			
TANK 111 / 103103-27																									X			
TANK 113 / 103103-28																									X			
TANK 114 / 103103-29																									X			
TANK 116 / 103103-30																									X			
TANK 118 / 103103-31	↓		↓																						X			

PROJECT INFORMATION			SAMPLE RECEIPT	
PROJECT #:	103103		Total Number of Containers	
PROJ. NAME:	PHIL		Chain of Custody Seals	
QC LEVEL:	(STD)	IV	Received Intact?	
QC REQUIRED:	(MS)	MSD BLANK	Received Good Cond./Cold	
TAT:	STANDARD	(RUSH!!)	LAB NUMBER:	

DUE DATE:	4/10
RUSH SURCHARGE:	—
CLIENT DISCOUNT:	—
SPECIAL CERTIFICATION REQUIRED:	YES (NO)

COMMENTS:

RUSH!

SAMPLES SENT TO:	
PENSACOLA - STL-FL	
ESL - OR	
STL - CT	
ATEL - AZ	
ATEL - MARION	
ATEL - MELMORE	
BARRINGER	
ENVIRO TEST LABS	X
WCAS	
WOHL	

RELINQUISED BY: 1	RELINQUISED BY: 2
Signature: Francine Trivio Time: 1700	Signature: Time:
Printed Name: Francine Trivio Date: 4/2/01	Printed Name: Date:
Pinnacle Laboratories, Inc.	Company
RECEIVED BY: 1	**RECEIVED BY: 2**
Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:
Company	Company

Pinnacle Laboratories, Inc.

Interlab Chain of Custody

Date: 4/2 Page: 4 of 4

Network Project Manager: Jacinta A. Tenorio

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

see previous page

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals (8) RCRA	RCRA TCLP METALS	Metals-13 PP List	Metals-TAL (23 METALS)		TOX	TOC	Gen Chemistry:		Oil and Grease	Volatile Organics GC/MS (8260)	BOD	COD	PESTICIDES/PCB (608/8082)	Herbicides (615/8151)	PNA (8310)/8270 SIMS	8240 (TCLP 1311) ZHE		Base/Neutral Acid Compounds GC/MS (625/8270)	URANIUM (ICP-MS)	RADIUM 226	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS
OVERFLOW PIT/103103-32	3/29		Sludge																						X			

PROJECT INFORMATION		SAMPLE RECEIPT		SAMPLES SENT TO:		RELINQUISED BY: 1	RELINQUISED BY: 2
PROJECT #:	103103	Total Number of Containers		PENSACOLA - STL-FL		Signature: Time: 1700	Signature: Time:
PROJ. NAME:	PHIL	Chain of Custody Seals		ESL - OR		Printed Name: Date: 4/2/01	Printed Name: Date:
QC LEVEL:	(STD) IV	Received Intact?		STL - CT		Francine Tenorio	
QC REQUIRED:	MS MSD BLANK	Received Good Cond./Cold		ATEL - AZ		Pinnacle Laboratories, Inc.	Company
TAT:	STANDARD (RUSH!!)	LAB NUMBER:		ATEL - MARION		RECEIVED BY: 1	RECEIVED BY: 2
				ATEL - MELMORE			
DUE DATE:	4/10	COMMENTS:		BARRINGER		Signature: Time:	Signature: Time:
RUSH SURCHARGE:	—			ENVIRO TEST LABS	X		
CLIENT DISCOUNT:	—			WCAS		Printed Name: Date:	Printed Name: Date:
SPECIAL CERTIFICATION REQUIRED:	YES (NO)			WOHL		Company	Company

PHILIP ENVIRONMENTAL

Chain of Custody Record

4000 Monroe Road
Farmington, NM 87401

(505) 326-2262 Phone
(505) 326-2388 FAX

103103

COC Serial No. C 2875

Project Name Goodwin Treating Plant

Project Number 62800404 Phase . Task

Samplers Bruce Hare / mike Stahle

Laboratory Name Pinnacle Lab

Location Alb. New Mexico

Sample Number (and depth)	Date	Time	Matrix	Total Number of Bottles	Type of Analysis and Bottle: Radium 226	Lab ID #	Comments
N.T.-1-S	3/28		sludge	1	X	01	
~~N.T.-1-6"~~	~~3/28~~			~~1~~	~~X~~	~~02~~	DID NOT RECIEVE. B.H.
N.W.S.P.-1-S	3/28			1	X	03	
N.W.S.P.-1-42"	3/28			1	X	04	
W.C.S.P.-1-S	3/28			1	X	05	
W.C.S.P.-1-12"	3/28			1	X	06	
106-1-S	3/28			1	X	07	
106-1-6"	3/28			1	X	08	
113-1-S	3/28			1	X	09	
113-1-6"	3/28		sludge	1	X	10	
					X		

Relinquished by:

Signature	Date	Time
Bruce Hare	3-30-01	1:51 PM

Received By:

Signature	Date	Time
Jeanne Jinn	3/30/01	1351

Samples Iced: ☐ Yes ☒ No

Preservatives (ONLY for Water Samples)

- ☐ Cyanide ..... Sodium hyroxide (NaOH)
- ☐ Volatile Organic Analysis ..... Hydrochloric acid (HCl)
- ☐ Metals ..... Nitric acid (HNO_3)
- ☐ TPH (418.1) ..... Sulfuric acid (H_2SO_4)
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____

Carrier:

Airbill No.

Shipping and Lab Notes:

Recd @ 14°C

PE-176 4/95

PHILIP ENVIRONMENTAL

Chain of Custody Record

103103

4000 Monroe Road
Farmington, NM 87401
(505) 326-2262 Phone
(505) 326-2388 FAX

COC Serial No. C 2876

Project Name Goodwin Treating Plant

Project Number 62800404 Phase . Task

Samplers Bruce Hare / Mike Stahle

Laboratory Name Pinnacle Lab

Location Alb. New Mexico

Sample Number (and depth)	Date	Time	Matrix	Total Number of Bottles	Type of Analysis and Bottle: Radium 226	Lab ID #	Comments
114-1-5	3/28		sludge	1	x	~~11~~	
114-1-12"	3/28		sludge	1	x	12	
Tank 112	3/28		Sludge	1	X	13	
Tank 111	3/28		Redwood	1	X	14	
Tank 112	3/28		Redwood	1	X	15	
115-1-5	3/29		sludge	1	X	16	
115-1-24"	3/29		sludge	1	X	17	
116-1-5	3/29		sludge	1	X	18	
116-1-24"	3/29		sludge	1	X	19	
117-1-5	3/29		Sludge	1	X	20	
117-1-12"	3/29		Sludge	1	X	21	

Relinquished by:

Signature	Date	Time
Bruce Hare	3-30-01	1:50 PM

Received By:

Signature	Date	Time
Jeanine Jaramillo	3/30/01	1351

Samples Iced: ☐ Yes ☒ No

Preservatives (ONLY for Water Samples)

- ☐ Cyanide ..... Sodium hyroxide (NaOH)
- ☐ Volatile Organic Analysis ..... Hydrochloric acid (HCl)
- ☐ Metals ..... Nitric acid (HNO_3)
- ☐ TPH (418.1) ..... Sulfuric acid (H_2SO_4)
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____

Carrier: Airbill No.

Shipping and Lab Notes:

Rec'd @ 14°C

103103

Chain of Custody Record

PHILIP ENVIRONMENTAL

4000 Monroe Road
Farmington, NM 87401
(505) 326-2262 Phone
(505) 326-2388 FAX

COC Serial No. C 2878

Project Name Goodwin TREATING P/ANT

Project Number 62800404 Phase . Task

Samplers Bruce Hare / Mike Stalk

Laboratory Name Pinnacle Lab

Location Alb. N. Mexico

Sample Number (and depth)	Date	Time	Matrix	Total Number of Bottles	Type of Analysis and Bottle: RADIUM 226	Lab ID#	Comments
118-1-S	3/29		sludge	1	X	22	
118-1-24"	3/29		sludge	1	X	23	
118-1-D-24"	3/29		sludge	1	X	24	
Blank	3/29		soil	1	X	25	
Tank 121	3/29		sludge	1	X	26	
Tank 111	3/29		sludge	1	X	27	
Tank 113	3/29		sludge	1	X	28	
Tank 114	3/29		sludge	1	X	29	
Tank 116	3/29		sludge	1	X	30	
Tank 118	3/29		sludge	1	X	31	
Overflow Pit	3/29		Sludge	1	X	32	

Relinquished by:

Signature	Date	Time
Bruce Hare	3-30-01	1:50 PM

Received By:

Signature	Date	Time
Francine Jaramillo	3/30/01	1351

Samples Iced: ☐ Yes ☒ No

Preservatives (ONLY for Water Samples)

- ☐ Cyanide ..... Sodium hyroxide (NaOH)
- ☐ Volatile Organic Analysis ..... Hydrochloric acid (HCl)
- ☐ Metals ..... Nitric acid (HNO_3)
- ☐ TPH (418.1) ..... Sulfuric acid (H_2SO_4)
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____

Carrier: Airbill No.

Shipping and Lab Notes:

Rec'd @ 14°c

PE-176 4/95

APPENDIX H - NORM SOIL SURVEY FIELD MAP

Exhibit 1 NORM SOIL SAMPLE POINTS
Week of 3/24/01 to 3/24/01