Giant Refining Company
Route 3, Box 7
Gallup, NM 87301

August 29, 2005

Wayne Price, Senior Environmental Engr.
Oil Conservation Division
1220 S. Saint Francis
Santa Fe, NM 87505

Denny Foust, Environmental Geologist
Oil Conservation Division
1000 Rio Bravo Rd
Aztec, NM 887410

Hope Monzeglio
Environmental Specialist
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, BLDG 1
Santa Fe NM 87505

RECEIVED
SEP 2005
NMED Hazardous
Waste Bureau

RE: 2004 OCD Annual Groundwater Report, Discharge Permit GW-032

Dear Wayne and Hope:

Giant Refining is pleased to submit the 2004 Annual Groundwater Report for our Ciniza Refinery. This report is being submitted to comply with Discharge Permit-032 annual groundwater reporting requirements.

If you have any questions please contact James Romero of my staff at (505) 722-0227 or feel free to contact me at (505) 722-0217.

Sincerely,

Ed Riege, Environmental Superintendent
Giant Refining, Ciniza Refinery
Gallup, NM

cc: Ed Rios w/o report

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OIL CONSERVATION DIVISION 2004 ANNUAL GROUNDWATER REPORT

Giant Refining Company – Ciniza Refinery

McKinley County, New Mexico

Submitted to:
State of New Mexico
Oil Conservation Division
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

State of New Mexico
Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East Bldg 1

State of New Mexico
Oil Conservation Division, District 3
1000 Rio Bravo Rd
Aztec, NM 87410

Submitted by:

Giant Refining Company
Route 3 Box 7
Gallup, New Mexico 87301

Section 1.0 Facility Description

The Ciniza Refinery is located within a rural and sparsely populated section of McKinley County. The setting is a high desert plain on the western slope of the continental divide. The nearest population centers are the Pilot (formerly Giant) Travel Center refueling plaza, the Interstate 40 highway corridor, and a small cluster of residential homes located on the south side of Interstate 40 approximately 2 miles southwest of the refinery. The surrounding land is comprised primarily of public lands and is used for cattle and sheep grazing at a density of less than six cattle or 30 sheep per section. McKinley County is predominantly rural, as are the adjoining portions of neighboring counties.

The refinery primarily receives crude oil via two 6 inch diameter pipelines; Bisti Pipeline comes down from the Four Corners Area and enters the refinery property from the north and Hospah Pipeline comes in from the northeast and is an interconnection with a main interstate pipeline. In addition, the refinery also receives natural gasoline feedstocks via a 4 inch diameter pipeline that comes in from the west along the Interstate 40 corridor. These feedstocks are then stored in tanks until refined into products. The refinery has an overall capacity to process up to 32,000 barrels per day of crude oil and natural gasoline feedstocks.

The refinery incorporates various processing units that convert crude oil and natural gasoline into finished products. These units are briefly described as follows.

- The distillation unit separates crude oil into various fractions; including gas, naphtha, light oil, heavy oil, and residuum.

- The fluidized catalytic cracking unit breaks up long-chain hydrocarbon molecules into smaller molecules, and essentially converts heavier oils into naphtha and lighter oils.

- The alkylation unit combines specific types of hydrocarbon molecules into a high octane gasoline blending component.

- The reforming unit combines low octane naphtha molecules to form high octane naphtha.

- The hydrotreating unit removes undesirable sulfur and nitrogen compounds from intermediate feedstocks, and also saturates these feedstocks with hydrogen.

- The isomerization unit converts low octane hydrocarbon molecules into high octane molecules.

- The treater units remove impurities from various intermediate and blending feedstocks in order to produce finished products that comply with sales specifications.

- The sulfur recovery unit converts and recovers various sulfur compounds from other processing units and then produces a solid elemental sulfur byproduct.

As a result of these processing steps, the refinery produces a wide range of petroleum products including propane, butane, unleaded gasoline, jet fuel, diesel, kerosene, and residual fuel.
In addition to the aforementioned processing units, various other equipment and systems support the operation of the refinery and are briefly described as follows.

Storage tanks are used throughout the refinery to hold and store crude oil, natural gasoline, intermediate feedstocks, finished products, chemicals, and water. These tanks are all located aboveground and range in size from 80,000 barrels to less than a 1,000 barrels. A grouping of tanks is commonly referred to as a “tank farm.”

Pumps, valves, and piping systems are used throughout the refinery to transfer various liquids among tankage and processing units.

A railroad spur track and a railcar loading rack are used to transfer feedstocks and products from refinery tankage both into and out of railcars.

Several tank truck loading racks are used at the refinery to load out finished products and also may receive crude oil, other feedstocks, additives, and chemicals.

A pipeline connects the refinery to the Pilot (formerly Giant) Travel Center and is used to supply gasoline and diesel fuel to the refueling plaza.

A firefighting training facility is used to conduct employee firefighting training.

The process wastewater system is a network of curbing, paving, catch basins, and underground piping that collects rainwater and other effluent from various processing areas within the refinery and then conveys this wastewater to the API separator.

The API separator is a large concrete containment structure that utilizes gravity and residence time to separate wastewater into three components; a sludge layer that sinks to the bottom, a scum layer that floats to the top, and a clarified effluent remaining in the middle. The clarified effluent then flows onward to the stripper columns.

At the stripper columns, ambient air is blown upwards through a falling cascade of clarified wastewater and, as a result, dissolved gases and light hydrocarbons are disengaged and vented. Effluent from the stripper columns flows onward to the aeration basins.

At the aeration basins, the clarified and stripped wastewater is further mixed with ambient air in order to oxidize any remaining constituents and increase the dissolved oxygen concentration in the water in order to enhance microbial activity. Effluent from the aeration basins flows onward to the evaporation ponds.

At the evaporation ponds, wastewater is converted into vapor via solar and mechanical wind-effect evaporation. Liquid wastewater is not discharged from the refinery.

The storm water system is a network of valves, gates, berms, embankments, culverts, trenches, ditches, natural arroyos, and retention ponds that collect, convey, control, treat, and release storm water that falls within or passes through refinery property.

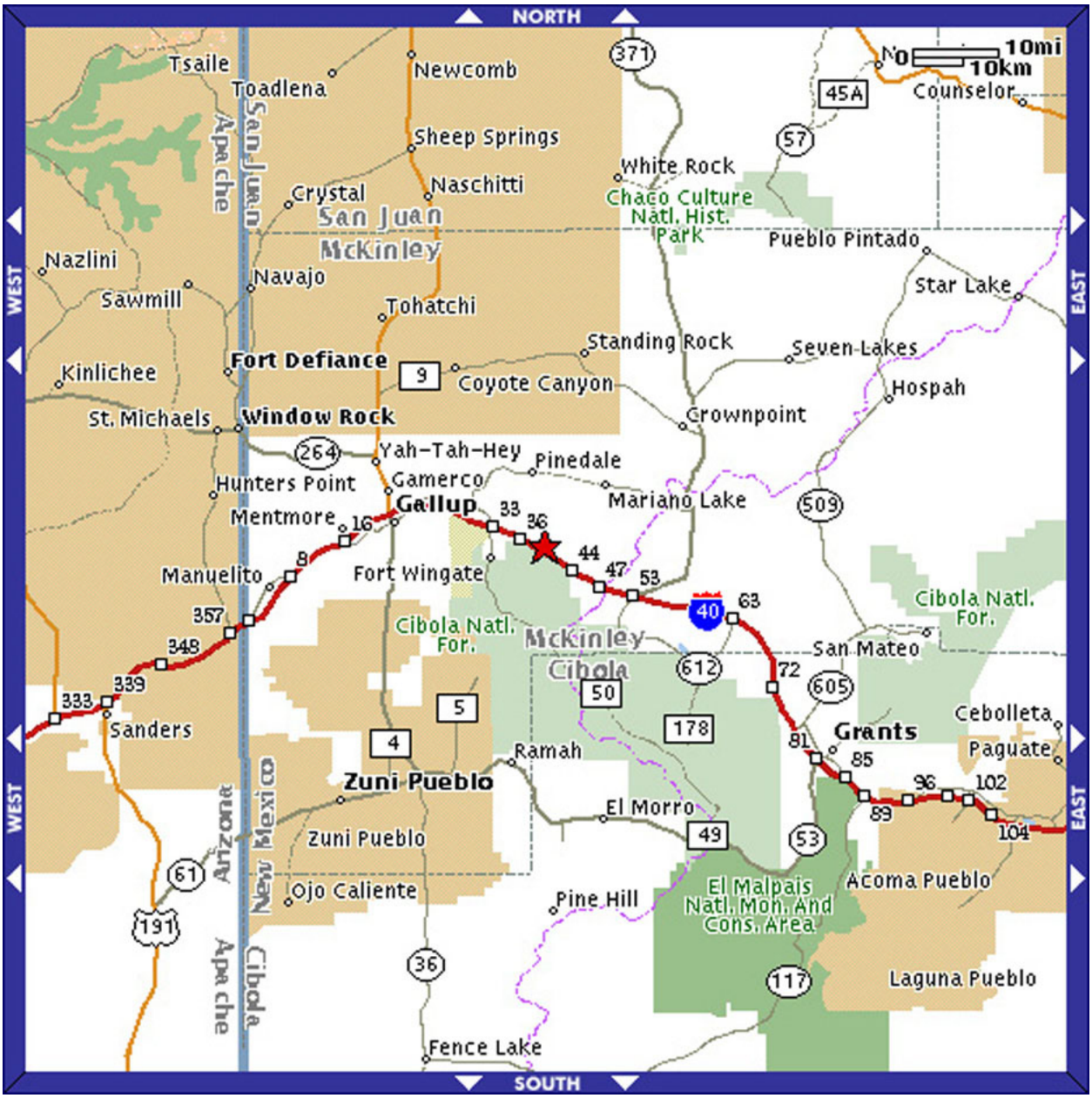
Section 2.0 Name of Operator or Legally Responsible Party or Local Representative

Owner:	Giant Industries Arizona, Inc. 23733 North Scottsdale Road Scottsdale, Arizona 85255	(parent corporation)
Operator:	Giant Refining Company Route 3, Box 7 Gallup, New Mexico 87301	(postal address)
	Giant Refining Company I-40, Exit 39 Jamestown, New Mexico 87347	(physical address)
Key Contact:	Ed Rios, General Manager	
Telephone:	(505) 722-3833	

Section 3.0 Location of the Discharge Plan Facility

The Ciniza Refinery is generally located within the west-central region of the State of New Mexico, approximately 17 miles east-southeast of the City of Gallup in McKinley County. It is more specifically located immediately north of Interstate 40 at Exit 39, and approximately one mile northeast of the Pilot (formerly Giant) Travel Plaza.

Regional Map

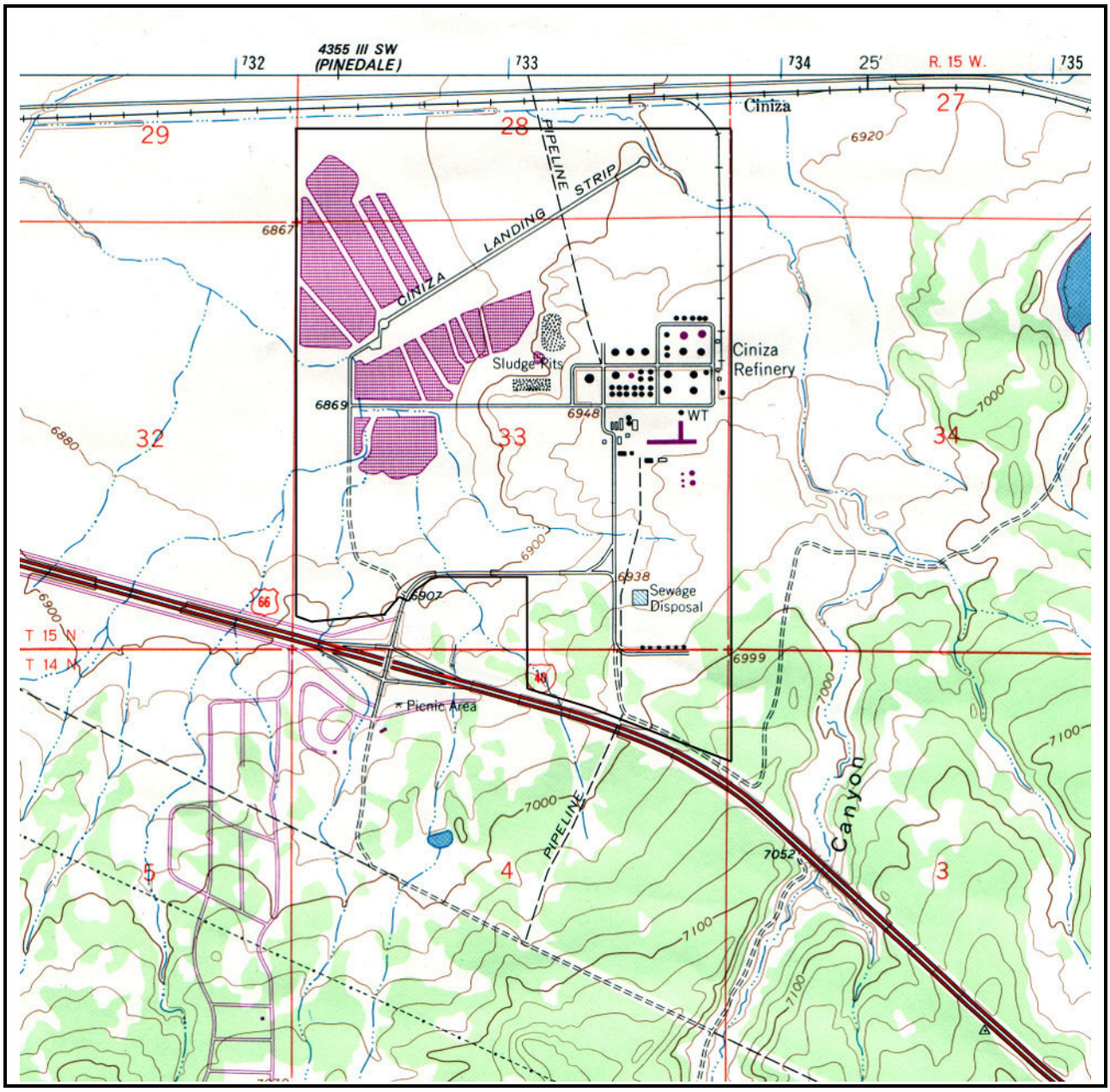


The plant site is nominally located at latitude 35° 29’ 30” and longitude 108° 24’ 40”.

Section 4.0 A detailed map of the plant site

The refinery is situated on an 810 acre irregular shaped tract of land that is substantially located within the lower one quarter of Section 28 and throughout Section 33 of Township 15 North, Range 15 West of the New Mexico Prime Meridian. A small component of the property lies within the northeastern one quarter of Section 4 of Township 14 North, Range 15 West.

Locality Map
USGS Topographical Map - Ciniza Quadrangle (Revised 1980)



Section 5.0 Site Characteristics

The Ciniza Refinery is located within a rural and sparsely populated section of McKinley County. The setting is a high desert plain on the western flank of the continental divide. The surrounding land is comprised primarily of public lands and is used for cattle and sheep grazing at a density of less than six cattle or 30 sheep per section. Surface vegetation predominantly consists of native grasses, shrubs, cacti, and small trees. Average rainfall is less than 7 inches per year.

Local topography consists of a gradually inclined downslope from high ground in the southeast to a lowland fluvial plain in the northwest. The highest point on refinery property is located at the southeast corner boundary (elevation approximately 7,040 feet) and the lowest point is located at the northwest corner boundary (elevation approximately 6,860 feet). The refinery processing facility is located on a flat man-made terrace at an elevation of approximately 6,950 feet.

Surface water in this region predominantly consists of the man-made evaporation ponds and aeration basins located within the refinery, a cattle watering pond (Jon Myer's Pond) located east of the refinery, two small unnamed spring fed ponds located south of the refinery, and the South Fork of the Puerco River and its tributary arroyos. The various ponds and basins typically contain water consistently throughout the year. The South Fork of the Puerco River and its tributaries are intermittent and generally contain water only during and immediately after the occurrence of precipitation.

The 810 acre refinery property site is located on a layered geologic formation. Surface soils generally consist of fluvial and alluvial deposits; primarily clay and silt with minor inter-bedded sand layers. Below this surface layer is the Chinle Formation, which consists of very low permeability claystones and siltstones that comprise the shales of this formation. As such, the Chinle Formation effectively serves as an aquiclude. Inter-bedded within the Chinle Formation is the Sonsela Sandstone bed, which represents the uppermost potential aquifer in the region.

The Sonsela Sandstone bed lies within and parallels the dip of the Chinle Formation. As such, its high point is located southeast of the refinery and it slopes downward to the northwest as it passes under the refinery. Due to the confinement of the Chinle Formation aquiclude, the Sonsela Sandstone bed acts as a water-bearing reservoir and is artesian at its lower extremis. Artesian conditions exist throughout the central and western portions of the refinery property.

Groundwater flow within the Chinle Formation is extremely slow and typically averages less than 10^{-10} centimeters per second (less than 0.01 feet per year). Groundwater flow within the surface soil layer above the Chinle Formation is highly variable due to the presence of complex and irregular stratigraphy; including sand stringers, cobble beds, and dense clay layers. As such, hydraulic conductivity may range from less than 10^{-2} centimeters per second in the gravelly sands immediately overlying the Chinle Formation up to 10^{-8} centimeters per second in the clay soil layers located near the surface.

Shallow groundwater located under refinery property generally flows along the upper contact of the Chinle Formation. The prevailing flow direction is from the southeast and toward the northwest; however, a subsurface ridge has been identified and is thought to deflect some flow in a northeasterly direction in the vicinity of the refinery tank farm.

Section 6.0 Groundwater Monitoring Plan

On July 23, 2003, a meeting was held at the Ciniza Refinery that included representatives of the refinery, OCD, and NMED. At this meeting, a detailed discussion of the groundwater monitoring plan took place and a consensus agreement was reached in regard to proposed modification of the existing plan. As such, the following changes were made in this application.

1. In the third quarter of 2004, the following existing wells that were technically inadequate or potentially hazardous to groundwater quality were plugged and abandoned: OW-2, 3, 7, 9, and 24, and also SMW-1, 3, and 5. The general procedure for closure was to use a 6% bentonite (montmorillonite clay), and cement slurry as the closing agent. Slurry was injected at the bottom of the wells to displace the water. A minimum of three (3) well volumes of slurry was pressure injected into the well. Slurry weight was approximately thirteen (13) pound per gallon. Once injection was completed the surface finish was demolished and removed from the well location. This concrete will be used for pond rip-rap. The steel protective casing was cut and removed from the concrete and taken to the scrap metal recycling storage area. The well site was re-graded to natural conditions. A closure report indicating slurry volumes and any work performed at the well locations will be placed in the well file. Precision Engineering, Inc. will change databases and electronic files to reflect the well closures and the dates of the closure. Copies of the updated maps have been provided to OCD and NMED.

   OW-16, 17, 25, and 26 were previously plugged and closed and have now been replaced by RW-5 and 6. In addition, OW-20 has been closed and will not be replaced.

2. New groundwater monitoring well installation.

   New groundwater monitoring wells were installed in October and November 2003, and June and July 2004. There are three new sites for these wells located near the northwest corner boundary of the refinery. One site is located generally west of Evaporation Pond Number 8. One is located generally northwest of Evaporation Pond Number 11. One site is located generally north of Evaporation Pond Number 12.

   At each of the three sites, a dedicated well was drilled, installed, sealed, and screened solely within the Sonsela Sandstone Bed artesian reservoir (BW-1-C, BW-2-C, and BW-3-C). These wells shall be used for the purpose of detecting a potential impact to the Sonsela Aquifer.

   At each of the three sites, a dedicated well was drilled, installed, sealed, and screened solely within the alluvial layer that exists immediately above and upon the surface of the Chinle Formation (BW-1-B, BW-2-B, and BW-3-B, **Well B-1-B was dry**). This potential groundwater source is known to be intermittent and variable; these wells shall be used to detect potential contamination within the shallow groundwater layer that exists intermittently above the Chinle Formation aquiclude.

At each of the three sites, an additional dedicated well was drilled and installed because drilling activity indicated the potential presence of an intermediate water-bearing strata (e.g. sand lens) located above the Chinle Formation (BW-1-A, BW-2-A, and BW-3-A; **BW-1-A and BW-3-A were dry**.). These wells were installed because it appears likely that a distinct water-bearing layer had been identified and that it could be reliably sampled.

3. A new well (GWM-1)was installed downgradient of the aeration basins in order to monitor for the presence of shallow groundwater and was used to detect potential leakage from the aeration basins. The location of this well was determined in the field after mutual consultation by representatives of the refinery, OCD, and the drilling contractor.

4. The new groundwater monitoring wells described in Item 2 above, plus OW-11, 12, 13, 14, 29, and 30, and MW-1, 4, and 5, and SMW-2 and 4 shall be routinely measured, sampled, and analyzed so as to provide the information necessary to detect an adverse groundwater impact and allow for a timely and effective response.

The observation, measurement, sampling frequency, and type of analysis shall be as follows.

Well ID	Frequency	Measurement[4] / Analysis
OW-1	Quarterly	Visual check for artesian flow conditions
OW-10	Quarterly	Level measurement of the Sonsela Aquifer water table
GWM-1	Quarterly	Check for indication of aeration basin leakage
		General chemistry / VOC / SVOC / BTEX / MTBE / metals
OW-11	Annual	General chemistry / VOC / SVOC / BTEX / MTBE / metals
OW-12	Annual	BTEX / MTBE
OW-13[2]	Annual	BTEX / MTBE
OW-14	Annual	BTEX / MTBE
OW-29	Annual	BTEX / MTBE
OW-30	Annual	BTEX / MTBE
BW-1-A[3]	Annual	General chemistry / VOC / SVOC / BTEX / MTBE / metals
BW-1-B[3]	Annual	General chemistry / VOC / SVOC / BTEX / MTBE / metals
BW-1-C[3]	Annual	General chemistry / VOC / SVOC / BTEX / MTBE / metals
BW-2-A[3]	Annual	General chemistry / VOC / SVOC / BTEX / MTBE / metals
BW-2-B[3]	Annual	General chemistry / VOC / SVOC / BTEX / MTBE / metals
BW-2-C[3]	Annual	General chemistry / VOC / SVOC / BTEX / MTBE / metals
BW-3-A[3]	Annual	General chemistry / VOC / SVOC / BTEX / MTBE / metals
BW-3-B[3]	Annual	General chemistry / VOC / SVOC / BTEX / MTBE / metals
BW-3-C[3]	Annual	General chemistry / VOC / SVOC / BTEX / MTBE / metals
MW-1	Annual	General chemistry / RCRA list constituents[5]
MW-4	Annual	General chemistry / RCRA list constituents[5]
MW-5	Annual	General chemistry / RCRA list constituents[5]
SMW-2	Annual	General chemistry / RCRA list constituents[5]
SMW-4	Annual	General chemistry / RCRA list constituents[5]
RW-1	Annual	Measurement of product layer thickness, if present
RW-2	Annual	Measurement of product layer thickness, if present

RW-5	Annual	Measurement of product layer thickness, if present
RW-6	Annual	Measurement of product layer thickness, if present
#2 (Process)	2004 then every 3 yr	SOCs, VOCs, Heavy Metals, Cyanide, Nitrates
#3 (Drinking/ Process)	Every 3 years starting with 2006	SOCs, VOCs, Heavy Metals, Cyanide, Nitrates
#4 (Process)	Every 3 years starting with 2004	SOCs, VOCs, Heavy Metals, Cyanide, Nitrates

[1] This is the new well installed downgradient of the aeration basins.

[2] When OW-14 is cleaned up, then monitoring of OW-13 shall be discontinued.

[3] These are the new wells installed at the northwest corner boundary of the refinery. BW-1-A BW-1-B,and BW-3-A were dry at the time of drilling.

[4] To the extent practicable, water table depth shall be measured at each well annually.

[5] Frequency of sampling shall be per RCRA post closure schedule.

5. In addition to groundwater monitoring, surface water monitoring shall also be conducted as follows.

   On an annual basis, a grab sample of the inlet water to Pond #2 shall be collected and analyzed for BOD, COD, TDS, BTEX, and MTBE.

   On an annual basis, a grab sample of evaporation pond water shall be collected and analyzed for general chemistry parameters. The evaporation pond selected for sampling shall be the pond, considered by refinery personnel, to most likely contain the highest salinity or TDS. In addition, the selected pond shall be alternated from year-to-year in order to provide a broader indication of analysis.

6. Waste water from Pilot Travel Center and Truck Stop Facility.
   Grab samples shall be collected quarterly from the sampling and metering station (triangular notch weir) on the Pilot incoming line. The samples will be analyzed for hazardous characteristics (TCLP) by EPA Method 1311 and B.O.D.

7. Well #4 used for industrial purposes was sampled August 12, 2004 and will be sampled every three years (next in 2007) according to the table in item 4. Industrial Well #2 will be sampled in 2004 and will be sampled every three years beginning in 2008. Well #2, a potable well, is scheduled for sampling in 2006 to meet SDWS, and every three years thereafter.

8 Giant proposes to conduct a perimeter search of the refinery property on a bimonthly basis starting in December 2004. The inspection will focus on hydrocarbon staining or any release that could result in contamination leaving the property boundary. Giant has prepared an inspection checklist to be completed and signed by the environmental employee conducting the inspection. Completed inspection sheets will be maintained onsite.

SECTION 7.0 Permit Condition 16Ai (Monitoring and Remediation activities)

Monitoring

In the third quarter of 2004, the following existing wells that were technically inadequate or potentially hazardous to groundwater quality were plugged and abandoned: OW-2, 3, 7, 9, and 24, and also SMW-1, 3, and 5. The general procedure for closure was to use a 6% bentonite (montmorillonite clay), and cement slurry as the closing agent. Slurry was injected at the bottom of the wells to displace the water. A minimum of three (3) well volumes of slurry was pressure injected into the well. Slurry weight was approximately thirteen (13) pound per gallon. Once injection was completed the surface finish was demolished and removed from the well location. This concrete will be used for pond rip-rap. The steel protective casing was cut and removed from the concrete and taken to the scrap metal recycling storage area. The well site was re-graded to natural conditions. A closure report indicating slurry volumes and any work performed at the well locations will be placed in the well file. Precision Engineering, Inc. will change databases and electronic files to reflect the well closures and the dates of the closure. Copies of the updated maps have been provided to OCD and NMED.

OW-16, 17, 25, and 26 were previously plugged and closed and have now been replaced by RW-5 and 6. In addition, OW-20 has been closed and will not be replaced.

In 2004 new groundwater monitoring wells were installed BW-1A, BW-1-B, BW-2A, BW- 2B, BW-3B, BW-1C, BW-2C, and BW3C. Moreover, a new GWM-1 was installed down gradient of the aeration basins in order to monitor and detect potential leakage from the aeration basins.

In 2004, the following wells were routinely measured, sampled, and analyzed: OW-11, 12, 13, 14, 29, 30, GWM-1, BW-1A, BW-1-B, BW-2A, BW- 2B, BW-3B, BW-1C, BW-2C, and BW-3C to provide the information necessary to detect an adverse groundwater impact and allow for a timely and effective response. MW-1, MW-4, MW-5, SMW-2, SMW-4 were not sampled in 2004. Frequency of sampling for these wells shall be per RCRA post closure plan.

For test results, conclusions and recommendations please refer to section 8 Groundwater Testing

Remediation

RR Rack Lagoon

Clean up and closure work began on the railroad rack lagoon on November 11,12,15, and 16. Fuh's Trucking removed contaminated soil from the lagoon and placed it on the OCD Non Haz LTA. Giant worked with NMED on a sampling and analysis plan approved by both parties. Samples were taken and indicated that further cleanup is needed at E-1-Wall S and W-1-Wall N.

Winter weather set in and the following will be completed in 2005. Giant will excavate soil to dimensions of 25 ft long x 8 ft wide x 12 to 14 ft deep. After soil removal four samples will be collected from these two areas with two samples collected from the bottom of the excavation floor and two samples from the side walls.

Giant will also remove the old inlet concrete pipe and underlying soils based upon field screening and visual observation. Samples will be collected from the bottom of the excavation from undisturbed soil every 50 feet.
Once the cleanup is deemed complete by NMED and OCD then guidelines will be followed for a Voluntary Action Measure Report.

Old API Oil Water Separator

The old API Separator was removed from service on October 6, 2004 and the start up of the new API Separator was on this same date. The old separator was placed into storm water service only in mid December. All residual material was removed with vacuum trucks. The API Separator sludge (463,160 lbs) was sent offsite for recycling at the Norco refinery in October 2004. All sections of the separator were steam cleaned and sand blasted in preparation for inspection and repair. Further cleaning of the all separator bays and stained soils on the outside of the bays resulted in 4500 pounds of K051 waste, which was a combination of sludge, soil and sand. This material was sent offsite for hazardous waste disposal by RINCHEM. The following equipment was operated during closure activities: vacuum trucks, air monitor, air compressor, back hoe, jack hammer, sand blaster, welders, and hand tools. The old 8 inch outlet line was replaced with a 24 inch pipe which routes effluent to Aeration lagoon #1. The pipe skimmer seal between the bays was replaced. The inlet piping was replaced and hooked up to the storm water drainage system. The concrete was patched in numerous places in both bays. The weir wall downstream of the pipe skimmer was rebuilt on both bays. (pictures of the clean up work are attached)

SECTION 8.0 Summary of Groundwater Testing

BACKGROUND: Ground water sampling occurred between July and December 2004.

OW-11

OW-11 was visually inspected on a quarterly basis and grab samples taken on December 8, 2004. Sample was analyzed for RCRA Metals, VOC, SVOC, BTEX, MTBE and general chemistry. Lab results showed numbers below the New Mexico Water Quality Standards (NMWQS) for Benzene, Toluene, Ethylbenzene, Xylene, MTBE, and RCRA Metals. However, general chemistry results showed exceedence for Fluoride, Sulfate, and TDS.

RECOMMENDATION: *Giant Ciniza will continue to visually inspect quarterly and test annually for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry*

OW-12

OW-12 was sampled on December 8, 2004 and analyzed for BTEX and MTBE. Lab analysis showed numbers below the NMWQS (Non-Detect) for Benzene, Toluene, Ethybenzene, Xylene, and MTBE.

RECOMMENDATION: *Giant Ciniza will continue to monitor this well on an annual basis for BTEX and MTBE*

OW-13

OW-13 was sampled on December 8, 2004 and analyzed for BTEX and MTBE. Lab analysis showed numbers below the NMWQS (Non-Detect) for Benzene, Toluene, Ethybenzene, Xylene, and MTBE.

RECOMMENDATION: *Giant Ciniza will continue to monitor this well on an annual basis for BTEX and MTBE*

OW-14

OW-14 was sampled on December 9, 2004 and analyzed for BTEX and MTBE. Lab analysis showed numbers below the NMWQS for Toluene, Ethylbenzene, Xylene, and MTBE. However, lab results showed an exceedence of NMWQS and MCL's for Benzene.

RECOMMENDATION: *Giant Ciniza will continue to monitor this well on a semi-annual basis for BTEX and MTBE. This well has been known to contain contaminanst. Wells 12,13,29, and 30 were installed to monitor if contaminants from OW-14 were migrating. Data from the additional wells have not shown any signs of contaminants*

OW-29

OW-29 was sampled on December 8, 2004 and analyzed for BTEX and MTBE. Lab analysis showed numbers below the NMWQS (Non-Detect) for Benzene, Toluene, Ethylbenzene, Xylene, and MTBE.

RECOMMENDATION: *Giant Ciniza will continue to monitor this well on an annual basis for BTEX and MTBE*

OW-30

OW-30 was sampled on December 8, 2004 and analyzed for BTEX and MTBE. Lab analysis showed numbers below the NMWQS (Non-Detect) for Benzene, Toluene, Ethylbenzene, Xylene, and MTBE.

RECOMMENDATION: *Giant Ciniza will continue to monitor this well on an annual basis for BTEX and MTBE*

BW-1A

BW-1A is a dry well and therefore not sampled

RECOMMENDATION: *Giant Ciniza will continue to visually inspect this well for any liquids. If liquids are observed, documentation will occur and sampled. All samples will be analyzed for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry*

BW-1B

BW-1A is a dry well and therefore not sampled

RECOMMENDATION: *Giant Ciniza will continue to visually inspect this well for any liquids. If liquids appear, samples will be analyzed for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry.*

BW-2A

BW-2A was sampled on August 4, 2004 and analyzed for VOC, SVOC, BTEX, MTBE, RCRA Metals, and General Chemistry. Lab results showed numbers below NMWQS for all parameters except for TDS which slightly exceeded for TDS

RECOMMENDATION: *Giant Ciniza will continue to monitor this well on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry*

BW-2B

BW-2B was sampled on August 4, 2004 and analyzed for VOC, SVOC, BTEX, MTBE, RCRA Metals and General Chemistry. Lab resulted showed numbers below the NMWQS for most parameters. However, this well did exceed NMWQS for Fluoride, Selenium and TDS.

RECOMMENDATION: *Giant Ciniza will continue to monitor this well on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry. All future lab reports will be compared to past data to determine if levels of Selenium are increasing or remaining static*

BW-3B

BW-3B was sampled on August 4, 2004 and analyzed for VOC, SVOC, BTEX, MTBE, RCRA Metals, and General Chemistry. Lab results showed numbers below the NMWQS for all parameters with the exception of TDS.

RECOMMENDATION: *Giant Ciniza will continue to monitor this well on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry*

BW-1C

BW-1-C was sampled on August 4, 2004 and analyzed for VOC, SVOC, BTEX, MTBE, RCRA Metals, and General Chemistry. Lab results showed numbers below the NMWQS for all parameters with the exception of Fluoride.

RECOMMENDATION: *Giant Ciniza will continue to monitor this well on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry*

BW-2C

BW-2C was sampled on August 4, 2004 and analyzed for VOC, SVOC, BTEX, MTBE, RCRA Metals, and General Chemistry. Lab results showed numbers below the NMWQS for all parameters with the exception of Fluoride.

RECOMMENDATION: Giant Ciniza will continue to monitor this well on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry. The fluoride levels are attributed to naturally occurring

BW-3C

BW-3C was sampled on August 4, 2004 and analyzed for VOC, SVOC, BTEX, MTBE, RCRA Metals, and General Chemistry. Lab results showed numbers below the NMWQS for all parameters. The results did show an exceedence of the MCL's for benzene and the well was re-sampled on October 28, 2004 and was Non-Detect for benzene.

RECOMMENDATION: *Giant Ciniza will continue to monitor this well on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry*

GWM-1

GWM-1 was sampled on July 28, 2004 and December 9, 2004 and analyzed for VOC, SVOC, BTEX, MTBE, RCRA Metals, and General Chemistry. Lab results showed numbers below NMWQS for all parameters.

RECOMMENDATION: *Giant Ciniza will continue to monitor this well on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry. Based on 2005 lab data, discussions with NMED and NMOCD are ongoing and sampling maybe changed*

POND #2

POND #2 was sampled on November 19, 2004 and analyzed for BTEX, MTBE, RCRA Metals, BOD, COD, and TDS. Lab results showed numbers below NMWQS on all parameters with the exception of Benzene, and TDS

RECOMMENDATION: *Giant Ciniza will continue to monitor on an annual basis for BTEX, MTBE, RCRA Metals, BOD, COD, and TDS. Moreover, in 2005 Giant will monitor above this point (pond 1) for any contaminants. A Hazardous Waste determination has been prepared and discussions with OCD and NMED are underway.*

PW #2

Well #2 was sampled on December 9, 2004 and analyzed for SOCs, VOCs, Heavy Metals, Cyanide, and Nitrates. Lab results showed numbers below the NMWQS on all parameters.

RECOMMENDATION: *Giant Ciniza will continue to monitor this well according to the discharge plan for VOC, SVOC, Metals, Cyanide, and Nitrates. The next scheduled sampling will take place in 2008*

PW #4

Well #4 was sampled on August 4, 2004 and analyzed for SOCs, VOCs, Heavy Metals, Cyanide, and Nitrates. Lab results showed numbers below the NMWQS on all parameters.

RECOMMENDATION: *Giant Ciniza will continue to monitor this well according to the discharge plan for VOC, SVOC, Metals, Cyanide, and Nitrates and is scheduled for sampling in 2007*

PW #3

Well #3 was not scheduled for sampling in 2004

RECOMMENDATION: *Giant Ciniza will monitor this well according to the discharge plan. Sampling will be conducted every 3 years beginning in 2006*

OW-1 and OW-10

These wells will be visually checked on a quarterly basis starting the 4th quarter of 2004. Since the Discharge Plan Renewal was approved in the 4th quarter only one sample point was taken in 2004. OW-1 remains dry and OW-10 is at 2.95 feet.

RECOMMENDATION: *Giant Ciniza will continue to visually inspect these wells for artesian flow quarterly*

MW-4, MW-5, SMW-2 AND SMW-4

Per the Discharge Plan Renewal Application frequency of sampling shall be per RCRA post closure plan. No sampling was required in 2004

RECOMMENDATION: *Giant Ciniza will sample in 2005 (see RCRA post closure permit application, Figure E-1 "Post-Closure Sampling Schedule"*

Section 9.0 Permit Condition 16A ii (summary tables)

VOLATILES 8260B								
	mg/L	DATE SAMPLED	PW Well #2	PW Well #4		WQCC 20 NMAC 6.2.3103	MCL'S	EPA sug. # MTBE
EPA METHOD 8260B VOLATILES	Benzene	04-Aug-04		<0.001		0.01	0.005	
		09-Dec-04	<0.001					
	Toluene	04-Aug-04		<0.001		0.75	1	
		09-Dec-04	<0.001					
	EthylBen	04-Aug-04		<0.001		0.75	0.7	
		09-Dec-04	<0.001					
	Xylene	04-Aug-04		<0.001		0.62	10	
		19-Nov-04	0.005					
	MTBE							

VOLATILES 8021B												
	mg/L	DATE SAMPLED	OW #12	OW 13	OW 14	OW 29	OW 30	POND #2	GWM 1	WQCC 20 NMAC 6.2.3103	MCL'S	EPA sug. # MTBE
EPA METHOD 8021B VOLATILES	Benzene	08-Dec-04	<0.0005	<0.0005		<0.0005	<0.0005			0.01	0.005	
		09-Dec-04			0.23				0.0044			
		19-Nov-04						0.024				
		28-Jul-04							<0.001			
		22-Oct-03	<0.0005									
		23-Oct-03					<0.0005					
	Toluene	08-Dec-04	<0.0005	<0.0005	0.0025	<0.0005	<0.0005		0.0032	0.75	1	
		19-Nov-04						0.072				
		28-Jul-04							<0.001			
		22-Oct-03	<0.0005									
		23-Oct-03					<0.0005					
	EthylBen	08-Dec-04	<0.0005	<0.0005	0.0029	<0.0005	<0.0005		0.0021	0.75	0.7	
		19-Nov-04						0.02				
		28-Jul-04							0.0015			
		22-Oct-03	<0.0005									
		23-Oct-03					<0.0005					
	Xylene	08-Dec-04	<0.0005	<0.0005	0.003	<0.0005	<0.0005		0.0024	0.62	10	
		19-Nov-04						0.11				
		28-Jul-04							0.0034			
		22-Oct-03	<0.0005									
		23-Oct-03					<0.0005					
	MTBE	08-Dec-04	<0.0025	<0.0025	0.065	0.0025	0.0025		0.048			0.2
		19-Nov-04						0.11				
		22-Oct-03	<0.0025									
		23-Oct-03					<0.0027					

VOLATILES 8260B														
	mg/L	DATE SAMPLED	OW 11	BW 1A	BW 1B	BW 2A	BW 2B	BW 3B	BW 1C	BW 2C	BW 3C	WQCC 20 NMAC 6.2.3103	MCL'S	EPA sug. # MTBE
EPA METHOD 8260B VOLATILES	Benzene	08-Dec-04	<0.001									0.01	0.005	
		04-Aug-04		DRY	DRY	<0.001	<0.001	<0.001	<0.001	<0.01	0.0052			
		28-Oct-04								<0.001	<0.001			
		06-Nov-03	<0.001											
	Toluene	08-Dec-04	<0.001									0.75	1	
		04-Aug-04		DRY	DRY	<0.001	<0.001	<0.001	<0.001	<0.01	0.001			
		28-Oct-04								<0.001	<0.001			
		06-Nov-03	<0.001											
	EthylBen	08-Dec-04	<0.001									0.75	0.7	
		04-Aug-04		DRY	DRY	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001			
		28-Oct-04												
		06-Nov-03	<0.001											
	Xylene	08-Dec-04	<0.001									0.62	10	
		04-Aug-04		DRY	DRY	<0.001	<0.001	<0.001	<0.001	<0.01	0.0015			
		06-Nov-03	<0.001							<0.001	<0.001			
	MTBE	08-Dec-04	<0.001											0.2
		04-Aug-04		DRY	DRY	<0.001	<0.001	<0.001	<0.001	<0.01	0.001			
		06-Nov-03	<0.001											

GENERAL CHEMISTRY

EPA Method 300.0	mg/L	DATE SAMPLED	OW 11	BW 1A	BW 1B	BW 2A	BW 2B	BW 3B	BW 1C	BW 2C	BW 3C	POND #2	WELL #2	WELL #4	WQCC 20 NMAC 6.2.3103	MCL'S
	Fluoride	08-Dec-04	2.3												1.6	4
		04-Aug-04		DRY	DRY	1.2	1.7	1.4	2	2.2	0.95		0.21			
		06-Nov-03	2.3													
		09-Dec-04												0.18		
	Chloride	08-Dec-04	80												250	250
		04-Aug-04		DRY	DRY	40	32	35	38	46	25					
		06-Nov-03	88													
		09-Dec-04												16		
	Nitrite	08-Dec-04	<.50													1
		04-Aug-04		DRY	DRY	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10					
		06-Nov-03	<0.10													
		09-Dec-04												<0.10		
	Bromide	08-Dec-04	<0.10													
		04-Aug-04		DRY	DRY	0.4	1.3	0.49	0.32	0.78	1.2					
		06-Nov-03	<0.10													
	Nitrogen	08-Dec-04	<0.50												10	
		04-Aug-04		DRY	DRY	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		0.12			
		06-Nov-03	0.65													
		09-Dec-04												<0.10		
	P	08-Dec-04	<0.50													
		04-Aug-04		DRY	DRY	0.57	<0.50	1.2	<0.50	<0.50	<0.50					
		06-Nov-03	<0.50													
		09-Dec-04												<0.50		
	Sulfate	08-Dec-04	1100												600	
		04-Aug-04		DRY	DRY	9.6	140	63	210	230	440					
		06-Nov-03	1000													
		09-Dec-04												170		

EPA METHOD 160.1	TDS	08-Dec-04	1900												1000	500
		04-Aug-04		DRY	DRY	1100	1500	1000	970	970	940	3800				
		06-Nov-03	1800													
	pH	08-Dec-04	8.48												6.5 - 8.5	BETWEEN 6 AND 9
		04-Aug-04		DRY	DRY	8.4	8.35	8.5	9.36	8.84	8.87					
		06-Nov-03	8.45													
	SP COND	04-Aug-04		DRY	DRY	1447	2280	1534	1280	1401	1380					
	Temp F			DRY	DRY	63	62	61	62	62	62					
	Depth to water			DRY	DRY	32.1'	29.7'	32.9	18.8"	27.5'	63.2'					

EPA METHOD 6010C

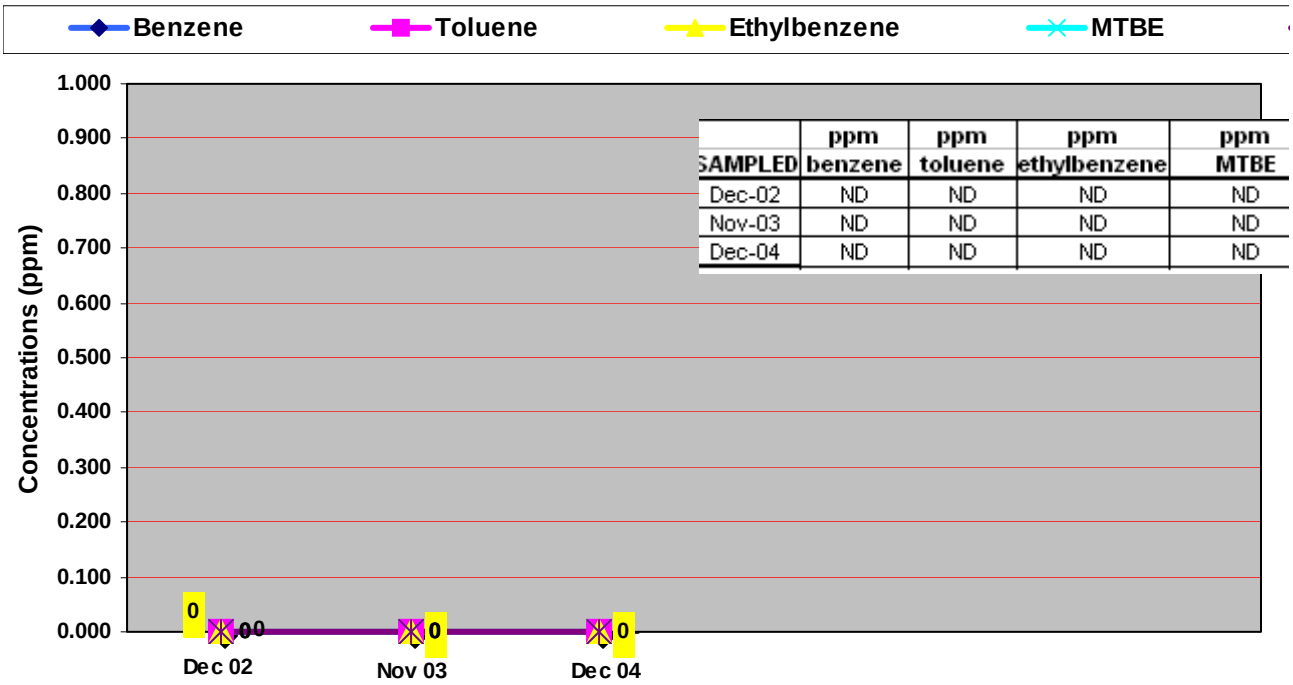
DISSOLVED METALS

mg/L	DATE SAMPLED	OW 11	BW 1A	BW 1B	BW 2A	BW 2B	BW 3B	BW 1C	BW 2C	BW 3C	POND #2	WELL #2	WELL #4	MCL'S
Arsenic	08-Dec-04	<0.020												0.05
	04-Aug-04		DRY	DRY	<0.020	<0..020	<0.020	<0.020	<0.020	<0.020			<0.020	
	19-Nov-04										<0.020			
	09-Dec-04											<0.020		
Barium	08-Dec-04	<0.020												2
	04-Aug-04		DRY	DRY	0.12	0.066	0.13	<0.0020	0.047	0.051			0.014	
	19-Nov-04										0.14			
	09-Dec-04											0.02		
Cadmium	08-Dec-04	0.002												0.005
	04-Aug-04		DRY	DRY	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020			<0.0020	
	19-Nov-04										<0.0020			
	09-Dec-04											<0.0020		
Calcium	08-Dec-04	9.6												
	04-Aug-04		DRY	DRY	6.7	14	11	3.8	5.6	45				
Cr	08-Dec-04	<0.0060												0.1
	04-Aug-04		DRY	DRY	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060			<0.0060	
	19-Nov-04										0.012			
	09-Dec-04											<0.0060		
Lead	08-Dec-04	<0.0050												0.015
	04-Aug-04		DRY	DRY	0.0059	0.0064	0.006	<0.0050	<0.0050	<0.0050			<0.0050	
	19-Nov-04										0.0075			
	09-Dec-04											<0.0050		
Mg	08-Dec-04	1.1												
	04-Aug-04		DRY	DRY	2.5	3.2	3.1	<1.0	1.5	9.8				
K	08-Dec-04	1.9												
	04-Aug-04		DRY	DRY	<1.0	4.7	1.3	2	2	5.3				

BOD PILOT TRAVEL CENTER AND TRUCK STOP			
	Date of Analysis	Results	Detection Limit
EPA 405.1	17-Sep-04	995	5
	10-Dec-04	400	5

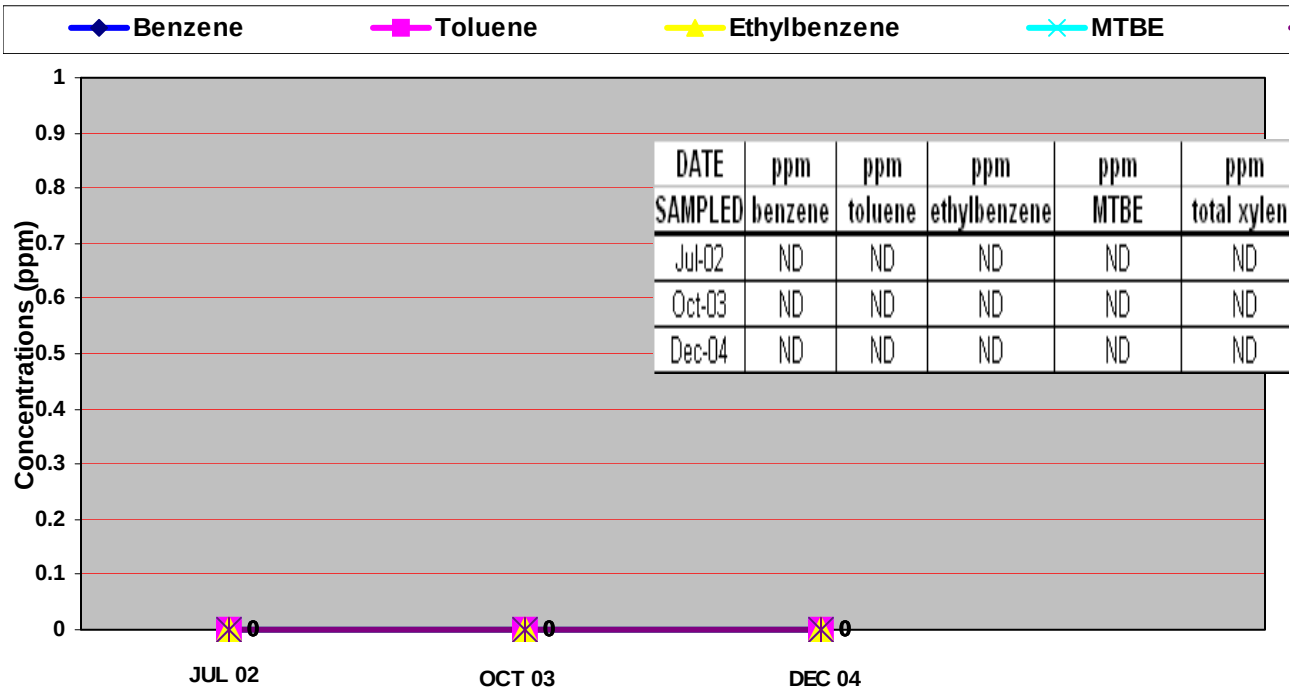
DISSOLVED METALS															
EPA METHOD 6010C	mg/L	Date Sampled	OW 11	BW1A	BW1B	BW2A	BW2B	BW3B	BW1C	BW2C	BW3C	POND 2	WELL #2	WELL #4	M
	Se	08-Dec-04	0.005												
		04-Aug-04		DRY	DRY	<0.050	0.069	<0.050	<0.050	<0.050	<0.050			<0.050	
		19-Nov-04										<0.050			
		09-Dec-04											<0.050		
	Silver	08-Dec-04	<0.0050												
		04-Aug-04		DRY	DRY	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050			<0.0050	
		19-Nov-04										<0.0050			
		09-Dec-04											<0.0050		
	Sodium	08-Dec-04	620												
		04-Aug-04		DRY	DRY	220	540	340	200	300	230				
	Uranium	08-Dec-04													
		04-Aug-04		DRY	DRY	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10			<0.10	
		09-Dec-04											<0.10		

OW-11



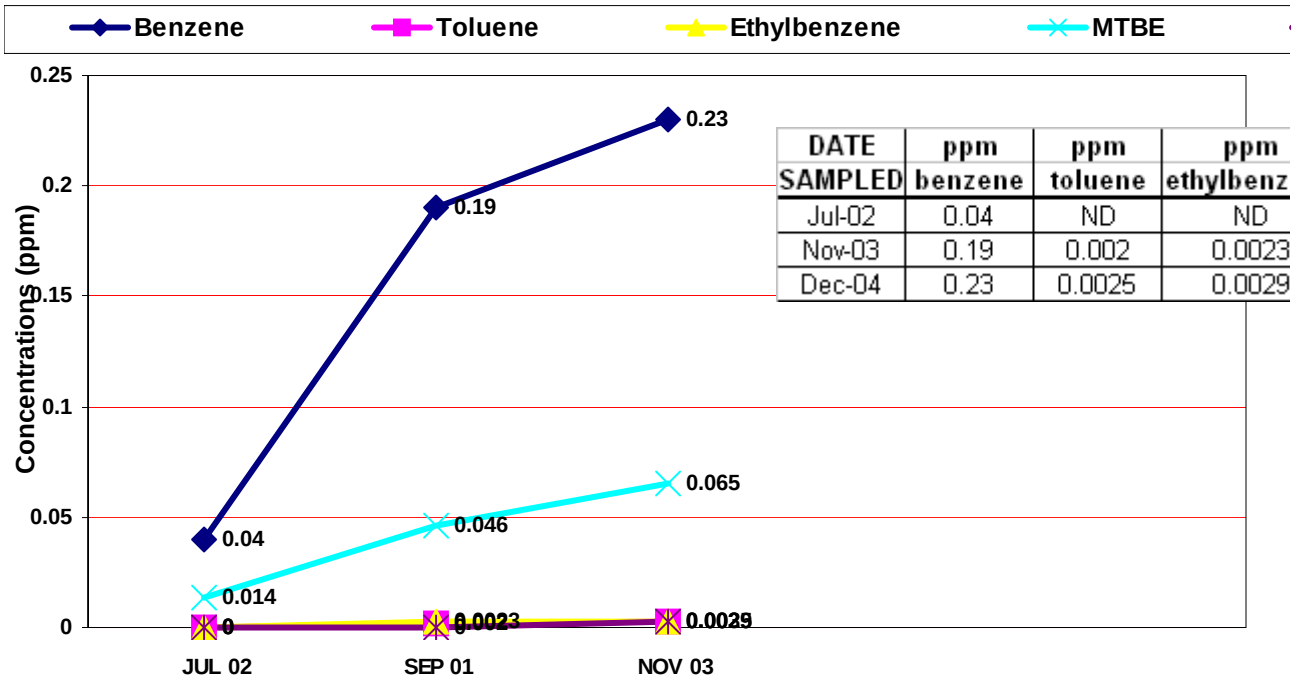
SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE
Dec-02	ND	ND	ND	ND
Nov-03	ND	ND	ND	ND
Dec-04	ND	ND	ND	ND

OW-12



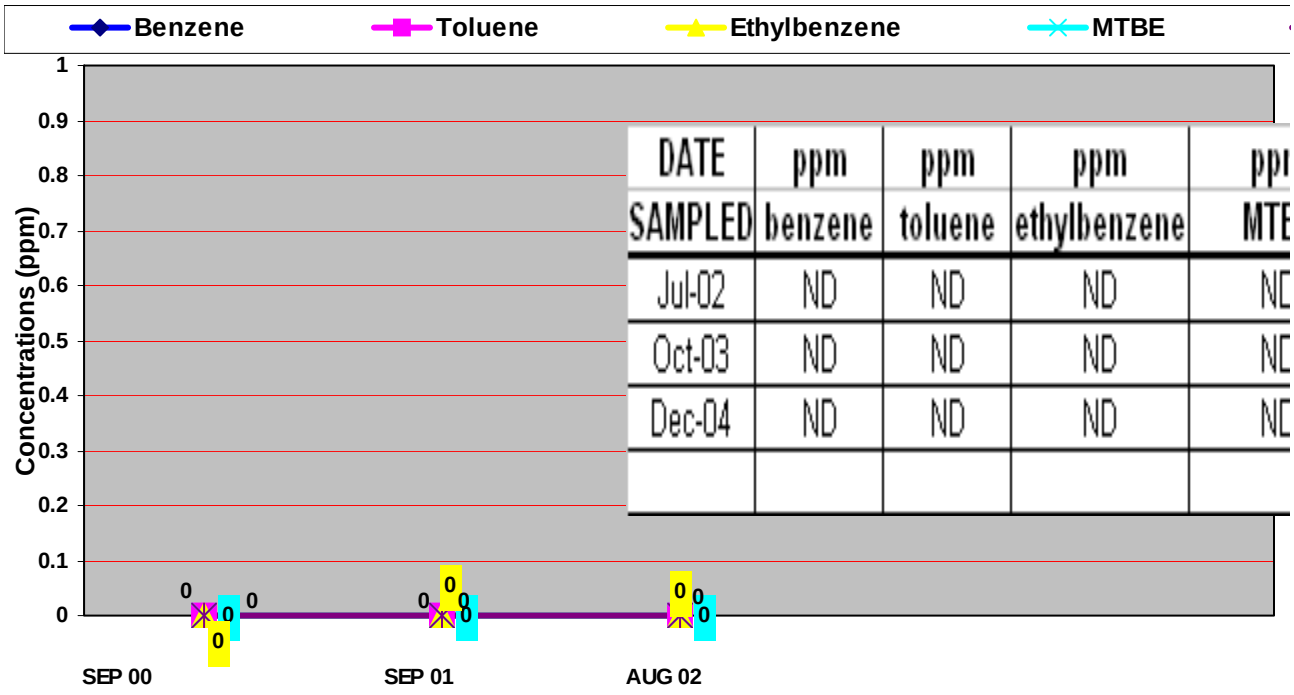
DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylen
Jul-02	ND	ND	ND	ND	ND
Oct-03	ND	ND	ND	ND	ND
Dec-04	ND	ND	ND	ND	ND

OW - 14



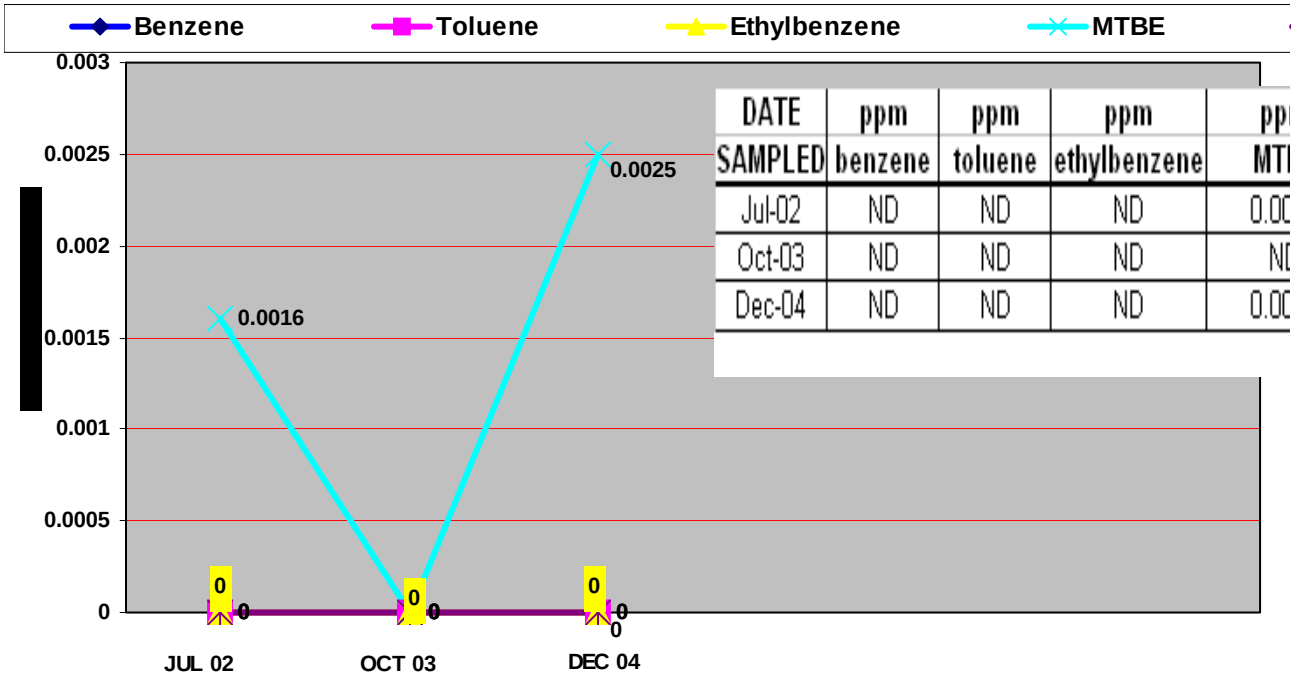
DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenz
Jul-02	0.04	ND	ND
Nov-03	0.19	0.002	0.0023
Dec-04	0.23	0.0025	0.0029

OW-13



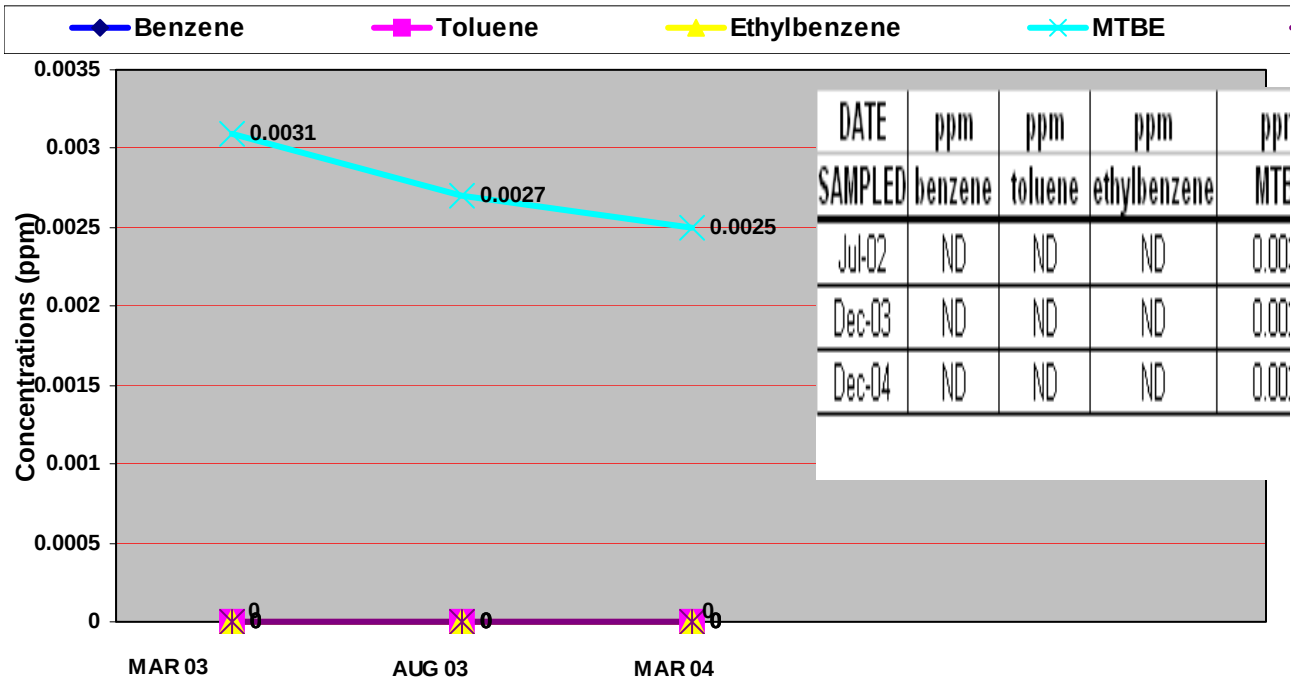
DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE
Jul-02	ND	ND	ND	ND
Oct-03	ND	ND	ND	ND
Dec-04	ND	ND	ND	ND

OW-29



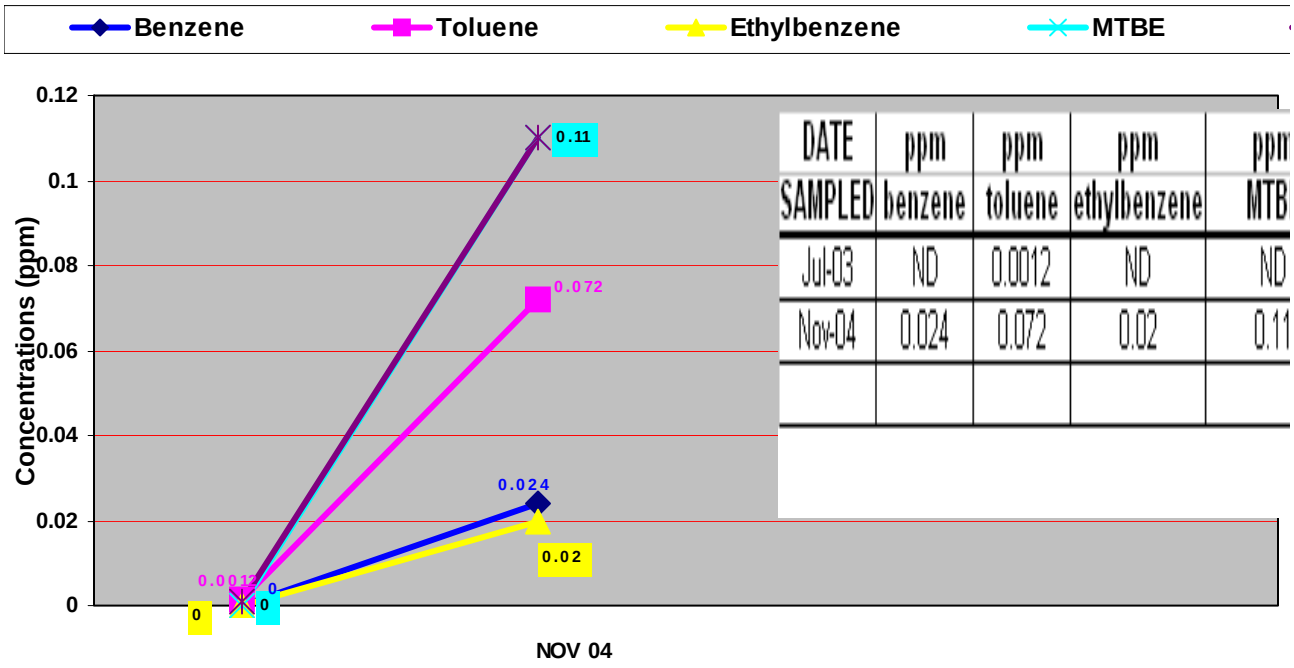
DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	pp MT
Jul-02	ND	ND	ND	0.0
Oct-03	ND	ND	ND	N
Dec-04	ND	ND	ND	0.0

OW-30



DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTE
Jul-02	ND	ND	ND	0.00
Dec-03	ND	ND	ND	0.00
Dec-04	ND	ND	ND	0.00

POND #2



DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTB
Jul-03	ND	0.0012	ND	ND
Nov-04	0.024	0.072	0.02	0.11

Section 10.0 Permit Condition 16Aiii (potentiometric elevation map)

Section 11.0 Permit Condition 16A iv (plots of water table elevation)

Section 12.0 Permit Condition 16A v (annual product thickness map)

Section 13.0 Permit Condition 16A vi (volume of product recovered)

GIANT CINIZA REFINERY
GROUNDWATER DISCHARGE PERMIT GW-032
RECOVERY WELL INSPECTIONS

Permit Requirement: GW-032

Condition Permit ID # : OCD Sect. 9, Item 4

Monitoring Required: Measurement of product layer thickness and bailing of product.

Equipment Identification: RW-1, RW-2, RW-5, RW-6

Date/Time of Measurement	Quarter	Well #	Depth to Product (inches)	Depth to Water (feet)	Product Level Thickness (feet)	Volume of Product Bailed (gallons)
9-10-04 1030 hrs	3rd	RW-1	32'5.25"	35'4.5"	2'10.6"	10 gallons
9-10-04 0900 hrs	3rd	RW-2	No Product	27'9½"	No Product	0 gallons
9-13-04 1300 hrs	3rd	RW-5	32'11"	33'11.5"	1'0.5"	4 gallons
9-10-04 1400 hrs.	3rd	RW-6	33'1.5"	34'4"	1'2.5"	4 gallons

Name and Title of person who performed measurement: Stephen C. Morris Env. Coordinator

Signature: Stephen C. Morris

CC: Ed Riege

Section 14.0 Permit Condition 17B (Temporary land farm analysis)

Section 15.0 Permit Condition 19A (Examples Weekly pond Inspections)

CINIZA REFINERY
OCD DISCHARGE PLAN GW-032
WEEKLY POND INSPECTION

DATE: 12/29/04

INSPECTED BY: Dennis Gee

POND #	FREEBOARD	DIKE CONDITION	IMMEDIATE ACTION NEEDED?
1	OK	OK	none
2	OK	OK	
3	OK	OK	
4	OK	OK	
5	OK	OK	
6a	OK	OK	
6b	OK	OK	
7	OK	OK	
8	OK	OK	
9a	OK	OK	
9b	OK	OK	
9c	OK	OK	
9d	OK	OK	
11	OK	OK	
12a	OK	OK	
12b	OK	OK	

COMMENTS:

Check all ponds weekly for dike condition and freeboards. Check also for unusual flow from or into the ponds.

J:\Forms\Environmental\Wkly Pond-INSP.DOC

CINIZA REFINERY
OCD DISCHARGE PLAN GW-032
WEEKLY POND INSPECTION

DATE: 8/3/04

INSPECTED BY: Darren R. Gee

POND #	FREEBOARD	DIKE CONDITION	IMMEDIATE ACTION NEEDED?
1	OK	OK	none
2	OK	OK	
3	OK	OK	
4	OK	OK	
5	OK	OK	
6a	OK	OK	
6b	OK	OK	
7	OK	OK	
8	OK	OK	
9a	OK	OK	
9b	OK	OK	
9c	OK	OK	
9d	OK	OK	
11	OK	OK	
12a	OK	OK	
12b	OK	OK	

COMMENTS: _____

Check all ponds weekly for dike condition and freeboards. Check also for unusual flow from or into the ponds.

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Section 16.0 Permit Condition 21

Permit Condition 21. Annual Report

F. Summary of discovery of new groundwater contamination.

Giant does not believe there were any new discoveries of groundwater contamination. Newly installed monitor well BW-3C was sampled for the first time in August 2004. Analyses indicated benzene at .0052 ppm, toluene at .001 ppm, and xylene at .0015. Resampling in October indicated non-detect at <.001 ppm for BTX. Newly installed BW-2C indicated a 1.5 ppm for acetone in the August sampling, but upon resampling a nondetect <.01 ppm was found. Giant believes these contaminants were probably due to drilling, sampling or lab contamination.

Permit Condition 21. Annual Report

E. Summary of all leaks, spills and releases and corrective actions taken.

2/3/04 – The charge pump on Tank 581 (light cycle oil) leaked and sprayed 11 gallons into the earthen spill containment. The spill containment was cleaned up and the seal was replaced.

2/11/04 – The sewer drain line at tank 567 leaked 20 gallons of gasoline into the earthen spill containment surrounding this tank. The spill was cleaned up and repairs were made.

4/8/04 – An explosion in alkylation unit resulted in a fire that consumed 100,000 pounds of alkylate and LPGs that had been released. No contaminants left the site.

9/28/04 –The acid soluble oil basin which contains light cycle oil overflowed onto the ground surface. The oil was washed down into the pit which then reports to the oil water separator and the remaining soil was cleaned up.

11/6/04 – Tank 105 containing slop oil and water overflowed onto the earthen spill containment. The spill containment was cleaned up. Giant is investigating the installation of a level controller for this tank.

2004 WASTE WATER SUMMARY

	TRAVEL CENTER TO PONDS			TOTAL FLOW TO PONDS			RAIN GAUGE INCHES	FREEBOARD AT PONDS											
								6	12B	2	9	12A	3	7	4	8	5	11	
DATE	TEMP	60 DEGREE V NOTCH "INCHES"	FLOW GPM	TEMP	90 DEGREE V NOTCH "INCHES"	FLOW GPM		in.	feet	feet	feet	feet	feet	feet	feet	feet	feet	feet	Comments
12/29/04	38	2	7.16	34	5	123	-	24	1	1.25	BM	2	2.25	BM	2.5	BM	BM	2.92	
12/29/04	40	2	7.16	38	5	123	0.2	24	1	1.25	BM	2.25	2.25	BM	2.5	BM	BM	2.92	
12/22/04	38	2	7.16	34	5	123	-	24	1	1.25	BM	2.25	2	BM	2.33	BM	2.83	2.92	
12/21/04	36	2	7.16	32	5	123	-	24	1	1.25	BM	2.25	2	BM	2.33	BM	2.83	2.92	
12/20/04	36	2	7.16	32	5	123	0	24	1	1.25	BM	2.25	2	BM	2.33	BM	2.83	2.92	
12/16/04	38	2	7.16	34	5	123	0	24	1	1.25	BM	2.33	1.83	BM	2	BM	2.5	2.33	
12/15/04	36	2	7.16	34	5	123	0	24	1	1.25	BM	2.33	1.83	BM	2	BM	2.5	2.33	
12/14/04	36	2	7.16	34	5	123	0	24	1	1.25	BM	2.33	1.83	BM	2	BM	2.5	2.33	
12/13/04	38	2	7.16	34	5	123	0	24	1	1.25	BM	2.33	1.83	BM	2	BM	2.5	2.33	
12/7/04	36	2	7.16	34	5	123	0	24	1.25	1.25	BM	BM	1.67	BM	1.83	BM	2.5	2.5	
12/6/04	40	2	7.16	36	6	193	Trace	24	1.25	1.25	BM	BM	1.67	BM	1.83	BM	2.5	2.5	
12/2/04	38	2	7.16	34	5	123	0	24	1.33	1.25	BM	2.5	1.5	BM	1.75	BM	2.33	2.83	
11/29/04	36	2	7.16	34	5	123	0.3	24	1.33	1.25	BM	2.5	1.5	BM	1.75	BM	2.33	2.83	
11/24/04	40	2	7.16	38	5	123	0	24	1.33	1.25	BM	2.5	1.5	BM	1.75	BM	2.33	2.83	
11/23/04	40	2	7.16	38	5	123	Trace	24	1.33	1.25	BM	2.5	1.5	BM	1.75	BM	2.33	2.83	
11/22/04	42	2	7.16	40	5	123	0.1	24	1.33	1.25	BM	2.5	1.5	BM	1.75	BM	2.33	2.83	
11/18/04	44	2	7.16	40	5	123	0	24	1	1.25	BM	2.5	1.5	BM	1.75	BM	2.75	2.83	
11/17/04	40	2	7.16	38	5	123	0	24	1	1.25	BM	2.5	1.75	BM	2	BM	2.83	2.83	
11/16/04	42	2	7.16	38	5	123	0	24	1	1.25	BM	2.5	1.75	BM	2	BM	2.83	2.83	
11/15/04	44	2	7.16	40	5	123	0.1	24	1	1.25	BM	2.5	1.75	DRY	2	BM	2.83	2.83	
11/11/04	40	2	7.16	38	5	123	0	24	1	1.25	BM	2.5	1.75	DRY	2	BM	2.83	2.83	
11/10/04	44	2	7.16	40	5	123	0	24	1	1.25	BM	2.5	2	DRY	2	BM	2.83	3	
11/9/04	42	2	7.16	40	6	193	0.31	24	1	1.25	BM	2.5	2	DRY	2	BM	2.83	3	
11/8/04	46	2	7.16	44	5	123	0	24	1	1.25	BM	2.5	2	DRY	2	BM	2.83	3	
11/4/04	40	2	7.16	38	5	123	0	24	1	1.25	BM	2.5	2	DRY	2	BM	2.83	3	
11/3/04	40	2	7.16	38	5	123	0	24	1	1.25	BM	2.5	2	DRY	2	BM	2.83	3	
11/2/04	40	2	7.16	38	5	123	0	24	1	1.25	BM	2.5	2	DRY	2	BM	2.83	3	
11/1/04	44	2	7.16	40	5	123	0.4	24	1	1.25	BM	2.5	2	DRY	2	BM	2.83	3	
10/28/04	48	2	7.16	46	5	123	0	24	1	1.25	BM	BM	1.83	DRY	1.92	BM	2.67	BM	
10/27/04	48	2	7.16	44	5	123	0	24	1.25	1.25	BM	BM	1.83	DRY	1.92	BM	2.67	BM	
10/26/04	48	2	7.16	44	5	123	0	24	1.17	1.25	BM	3	1.83	DRY	1.92	BM	2.67	3.25	
10/25/04	48	2	7.16	46	5	123	0	24	1.25	1.25	BM	BM	1.83	DRY	1.92	BM	2.67	BM	
10/21/04	48	2	7.16	44	5	123	0	24	1.25	1.25	BM	BM	1.75	DRY	1.83	BM	2.5	BM	
10/20/04	48	2	7.16	44	5	123	0	24	1.25	1.25	BM	BM	1.75	DRY	1.83	BM	2.5	BM	

2004 WASTE WATER SUMMARY

	TRAVEL CENTER TO PONDS			TOTAL FLOW TO PONDS			RAIN GAUGE INCHES	FREEBOARD AT PONDS											
								6	12B	2	9	12A	3	7	4	8	5	11	
DATE	TEMP	60 DEGREE V NOTCH "INCHES"	FLOW GPM	TEMP	90 DEGREE V NOTCH "INCHES"	FLOW GPM		in.	feet	feet	feet	feet	feet	feet	feet	feet	feet	feet	Comments
10/19/04	46	2	7.16	42	5	123	0	24	1.5	1.25	BM	BM	1.5	DRY	1.58	BM	2.5	BM	
10/18/04	46	2	7.16	42	5	123	0	24	1.5	1.25	BM	BM	1.5	DRY	1.58	BM	2.5	BM	
10/14/04	-	-	-	40	5	123	0.1	24	1.5	1.25	BM	BM	1.42	DRY	1.58	BM	2.5	BM	
10/13/04	44	2	7.16	40	5	123	0	24	1.5	1.25	BM	BM	1.42	DRY	1.58	BM	2.5	BM	
10/12/04	-	-	-	44	5	123	0.1	24	1.5	1.25	BM	BM	1.5	DRY	1.67	BM	BM	BM	
10/11/04	48	2	7.16	46	5	123	0.15	24	1.5	1.25	BM	BM	1.5	DRY	1.67	BM	BM	BM	
10/7/04	48	2	7.16	46	5	123	0	24	1.25	1.25	BM	2.33	2	DRY	2.67	BM	BM	BM	
10/6/04	48	2	7.16	44	5	123	0	24	1	1.25	BM	2.33	2.67	DRY	2.83	BM	BM	BM	
10/5/04	50	2	7.16	48	5	123	-	24	1	1.25	BM	2.33	2.67	DRY	2.83	BM	BM	BM	
10/4/04	50	2	7.16	48	5.5	156	0.2	24	1	1.25	BM	2.33	2.67	DRY	2.83	BM	BM	BM	
9/30/04	50	2	7.16	48	5.5	156	0.5	24	1	1.25	BM	2.5	2.67	DRY	2.67	BM	BM	BM	
9/29/04	52	2	7.16	48	5	123	0.1	24	1	1.25	BM	2.5	2.67	DRY	2.67	BM	BM	BM	
9/28/04	52	2	7.16	48	5	123	0	24	1	1.25	BM	2.5	2.67	DRY	2.67	BM	BM	BM	
9/27/04	52	2	7.16	50	5	123	0.5	24	1	1.25	BM	2.5	2.67	DRY	2.67	BM	BM	BM	
9/23/04	54	1	1.27	50	4.5	94.2	0	24	1	1.25	BM	2.5	2.67	DRY	2.67	BM	BM	BM	
9/22/04	54	2	7.16	50	4.5	94.2	0	24	1	1.25	BM	2.5	2.67	DRY	2.67	BM	BM	BM	
9/21/04	54	2	7.16	50	4.5	94.2	-	24	1	1.25	BM	2.5	2.67	DRY	2.67	BM	BM	BM	
9/20/04	53	1	1.27	50	4.5	94.2	0.2	24	1	1.25	BM	2.5	2.67	DRY	2.67	BM	BM	BM	
9/16/04	56	2	7.16	52	5	123	0	18	1	1.25	BM	2.33	2.5	DRY	2.67	BM	2.83	BM	
9/15/04	56	2	7.16	52	5.5	156	0	18	1	1.25	BM	2.33	2.5	DRY	2.67	BM	2.83	BM	
9/14/04	56	2	7.16	52	5	123	0	18	1	1.25	BM	2.33	2.5	DRY	2.67	BM	2.83	BM	
9/13/04	58	2	7.16	54	5	123	0	18	1	1.25	BM	2.33	2.5	DRY	2.67	BM	2.83	BM	
9/10/04	54	2	7.16	52	5.5	156	0	18	1	1.25	BM	BM	2	DRY	2	BM	2.67	BM	
9/9/04	54	2	7.16	50	5.5	156	0	18	1	1.25	BM	BM	2	DRY	2	BM	2.67	BM	
9/8/2004	56	2	7.16	52	5.5	156	0	18	1	1.25	BM	BM	2	DRY	2	BM	2.67	BM	
9/7/2004	56	2	7.16	53	6	193	0.3	18	1.17	1.25	BM	BM	2	DRY	2	BM	2.67	BM	
9/2/2004	56	2	7.16	54	4.5	94.2	-	18	1.17	1.25	BM	BM	2	DRY	2	BM	2.67	BM	
9/1/2004	54	2	7.16	50	4.5	94.2	0	14	1.33	1.25	BM	BM	1.83	DRY	1.92	BM	2.5	BM	
8/31/04	54	2	7.16	52	5	123	-	14	1.33	1.25	BM	BM	1.83	BM	1.92	BM	2.5	BM	
8/30/04	52	1	1.27	50	4.5	94.2	0	14	1.17	1.25	BM	BM	1.75	BM	1.83	BM	2.5	BM	
8/27/04	54	1	1.27	50	4.5	94.2	0	12	1.17	1.25	BM	BM	1.58	BM	1.75	BM	2.5	BM	
8/26/04	54	1	1.27	52	4.5	94.2	0	12	1.17	1.25	BM	BM	1.58	BM	1.75	BM	2.5	BM	
8/25/04	54	2	7.16	52	4.5	94.2	0.2	12	1.17	1.25	BM	BM	1.58	BM	1.75	BM	2.5	BM	
8/24/04	58	2	7.16	56	5	123	0	12	1.17	1.25	BM	BM	1.58	BM	1.75	BM	2.5	BM	

2004 WASTE WATER SUMMARY

	TRAVEL CENTER TO PONDS			TOTAL FLOW TO PONDS			RAIN GAUGE INCHES	FREEBOARD AT PONDS											
								6	12B	2	9	12A	3	7	4	8	5	11	
DATE	TEMP	60 DEGREE V NOTCH "INCHES"	FLOW GPM	TEMP	90 DEGREE V NOTCH "INCHES"	FLOW GPM		in.	feet	feet	feet	feet	feet	feet	feet	feet	feet	feet	Comments
8/23/04	60	1	1.27	56	5	123	**trace**	12	1.17	1.25	BM	BM	1.58	BM	1.75	BM	2.5	BM	
8/20/04	50	2	7.16	46	4.5	94.2	0.4	10	1.17	1.5	BM	BM	1.58	BM	1.75	BM	2.17	BM	
8/19/04	52	2	7.16	46	4.5	94.2	0	10	1.25	1.5	BM	BM	1.58	BM	1.75	BM	2.25	BM	
8/18/04	56	2	7.16	52	4.5	94.2	0	10	1.25	1.33	BM	BM	1.67	BM	1.83	BM	2.25	BM	
8/17/04	56	2	7.16	52	4.5	94.2	0	10	1.17	1.33	BM	BM	1.83	BM	1.92	BM	2.42	BM	
8/16/04	56	1	1.27	52	4.5	94.2	0.2	10	1.17	1.33	BM	BM	1.83	BM	1.92	BM	2.42	BM	
8/12/04	52	1	1.27	48	4.5	94.2	0	10	1.33	1.25	BM	BM	1.75	BM	1.83	BM	BM	BM	
8/11/04	54	1	1.27	48	4.5	94.2	0	10	1.25	1.25	BM	BM	1.75	BM	1.83	BM	2.33	BM	
8/10/04	54	0	0	48	4.5	94.2	0	10	1.25	1.25	BM	BM	1.75	BM	1.83	BM	2.33	BM	
8/9/04	52	0	0	48	4.5	94.2	0.1	10	1.25	1.25	BM	BM	1.75	BM	1.83	BM	2.33	BM	
7/29/04	52	2	7.16	50	4.5	94.2	0.01	12	1	1.25	BM	BM	1.75	BM	1.83	BM	2.42	BM	
7/28/04	52	1	1.27	48	4.5	94.2	0	12	1	1.25	BM	BM	1.75	BM	1.83	BM	2.42	BM	
7/27/04	50	0	0	48	4.5	94.2	0.02	10	1	1.25	BM	BM	1.67	BM	1.83	BM	2.42	BM	
7/26/04	50	1	1.27	48	5	123	1.5	10	1	1.25	BM	BM	1.67	BM	1.83	BM	2.42	BM	
7/22/04	54	0	0	50	4.5	94.2	0	10	1.25	1.5	BM	BM	1.67	BM	1.83	BM	2.25	BM	
7/21/04	54	1	1.27	50	4.5	94.2	0	10	1.25	1.5	BM	BM	1.67	BM	1.83	BM	2.25	BM	
7/20/04	54	2	7.16	50	4.5	94.2	0	10	1.25	1.5	BM	BM	1.67	BM	1.83	BM	2.25	BM	
7/19/04	52	2	7.16	48	4.5	94.2	0.2	10	1.25	1.5	BM	BM	1.67	BM	1.83	BM	2.25	BM	
7/8/2004	52	-	-	48	4.5	94.2	-	6	1.5	1.5	BM	BM	1.5	BM	1.67	BM	BM	BM	
7/7/2004	-	-	-	-	-	-	0	6	1.5	1.5	BM	BM	1.5	BM	1.67	BM	BM	BM	
7/6/2004	52	-	-	46	4.5	94.2	-	6	1.5	1.5	BM	BM	1.6	BM	1.67	BM	BM	BM	
7/1/2004	-	-	-	48	4.5	94.2	-	10	1.5	1.5	BM	BM	1.5	BM	1.66	BM	BM	BM	
6/30/2004	-	-	-	48	4.5	94.2	1	10	1.5	1.5	BM	BM	1.5	BM	1.75	BM	2.33	BM	
6/29/2004	-	-	-	48	4.5	94.2	**trace**	10	1.5	1.5	BM	BM	2.33	BM	2.33	BM	2.5	BM	
6/28/2004	-	-	-	48	4.5	94.2	-	10	1.5	1.5	BM	BM	2.33	BM	2.44	BM	2.5	BM	
6/24/2004	-	-	-	50	4.5	94.2	-	10	1.42	1.5	BM	2.5	2.5	BM	2.5	BM	BM	BM	
6/23/2004	-	-	-	50	4.5	94.2	-	10	1.42	1.5	BM	2.5	2.5	BM	2.5	BM	BM	BM	
6/22/2004	-	-	-	48	4.5	94.2	-	10	1.33	1.5	BM	2.5	2.5	BM	2.67	BM	BM	BM	
6/21/2004	-	-	-	50	4.5	94.2	0	10	1.33	1.5	BM	2.5	2.5	BM	2.67	BM	BM	BM	
6/17/2004	-	-	-	48	4.5	94.2	0	10	1.25	1.5	BM	2.5	2.67	BM	2.83	BM	BM	BM	
6/16/2004	-	-	-	50	4.5	94.2	0	10	1.25	1.5	BM	2.5	2.67	BM	2.83	BM	BM	BM	
6/15/2004	-	-	-	-	-	-	-	10	1.25	1.5	BM	2.5	2.67	BM	2.83	BM	BM	BM	
6/14/2004	-	-	-	48	4.5	94.2	-	10	1.25	1.5	BM	2.5	2.67	BM	2.83	BM	BM	BM	
6/10/2004	-	-	-	48	4.5	94.2	-	8	1.25	1.5	BM	2.5	2.5	BM	2.5	BM	BM	BM	

2004 WASTE WATER SUMMARY

	TRAVEL CENTER TO PONDS			TOTAL FLOW TO PONDS			RAIN GAUGE INCHES	FREEBOARD AT PONDS											
								6	12B	2	9	12A	3	7	4	8	5	11	
DATE	TEMP	60 DEGREE V NOTCH "INCHES"	FLOW GPM	TEMP	90 DEGREE V NOTCH "INCHES"	FLOW GPM		in.	feet	feet	feet	feet	feet	feet	feet	feet	feet	feet	Comments
6/9/2004	-	-	-	48	4.5	94.2	-	8	1.25	1.5	BM	2.5	2.5	BM	2.5	BM	BM	BM	
6/8/2004	-	-	-	48	4.5	94.2	-	8	1.25	1.5	BM	2.5	2.5	BM	2.5	BM	BM	BM	
6/7/2004	-	-	-	48	4.5	94.2	-	8	1.25	1.5	BM	2.5	2.5	BM	2.5	BM	BM	BM	
6/3/2004	-	-	-	48	4.5	94.2	0	8	1.25	1.5	BM	2.5	2.5	BM	2.5	BM	BM	BM	
6/2/2004	-	-	-	46	4.5	94.2	0	8	1.25	1.5	BM	2.5	2.5	BM	2.5	BM	BM	BM	
6/1/2004	-	-	-	46	4.5	94.2	0	8	1.25	1.5	BM	2.5	2.5	BM	2.5	BM	BM	BM	
5/27/2004	-	-	-	46	4.5	94.2	0	8	1.25	1.5	BM	BM	2.25	BM	2.25	BM	3	BM	
5/26/2004	-	-	-	44	4.5	94.2	0	6	1.25	1.5	BM	BM	2	BM	2	BM	3	BM	
5/25/2004	-	-	-	46	4.5	94.2	0	6	1.25	1.5	BM	BM	2	BM	2	BM	2	BM	
5/24/2004	-	-	-	44	4.5	94.2	0	6	1.25	1.5	BM	BM	2	BM	2	BM	3	BM	
5/20/2004	-	-	-	44	4.5	94.2	0	6	1.25	1.5	BM	BM	1.83	BM	1.83	BM	2.67	BM	
5/19/2004	-	-	-	46	4.5	94.2	0	6	1.25	1.5	BM	BM	1.83	BM	1.83	BM	2.67	BM	
5/18/2004	-	-	-	48	4.5	94.2	0	6	1.25	1.5	BM	BM	1.83	BM	1.83	BM	2.67	BM	
5/17/2004	-	-	-	48	4.5	94.2	0	6	1.25	1.5	BM	BM	1.83	BM	1.83	BM	2.67	BM	
5/6/2004	-	-	-	40	4.5	94.2	0	6	1.5	1.5	BM	BM	1.67	BM	1.83	BM	2.5	BM	
5/5/2004	-	-	-	36	4.5	94.2	0	6	1.5	1.5	BM	BM	1.67	BM	1.83	BM	2.5	BM	
5/4/2004	-	-	-	36	4.5	94.2	0	6	1.5	1.5	BM	BM	1.67	BM	1.83	BM	2.5	BM	
5/3/2004	-	-	-	34	4.5	94.2	0	6	1.5	1.5	BM	BM	1.67	BM	1.83	BM	2.5	BM	
4/29/2004	-	-	-	34	4.5	94.2	0	6	1.5	1.5	BM	BM	1.67	BM	1.83	BM	2.5	BM	
4/28/2004	36	0	0	34	4.5	94.2	0	6	1.5	1.5	BM	BM	1.67	BM	1.83	BM	2.5	BM	
4/27/2004	36	1	1.27	32	4.5	94.2	0	6	1.5	1.5	BM	BM	1.67	BM	1.83	BM	2.5	BM	
4/26/2004	34	0	0	32	4.5	94.2	0	6	1.5	1.5	BM	BM	1.67	BM	1.83	BM	2.5	BM	
4/15/2004	36	2	7.16	32	4.5	94.2	-	6	1.5	1.5	BM	BM	1.67	BM	1.83	BM	2.5	BM	
4/14/2004	36	1	1.27	32	4.5	94.2	-	6	1.5	1.5	BM	BM	1.67	BM	1.83	BM	2.5	BM	
4/13/2004	34	1	1.27	32	4.5	94.2	-	6	1.5	1.5	BM	BM	1.67	BM	1.83	BM	2.5	BM	
4/12/2004	34	0	0	32	4.5	94.2	-	6	1.5	1.5	BM	BM	1.67	BM	1.83	BM	2.5	BM	
4/8/2004	36	2	7.16	34	4.5	94.2	0	6	1.5	1.5	BM	2.83	1.67	3	1.75	BM	2.5	3	
4/7/2004	36	1	1.27	34	4.5	94.2	0	6	1.5	1.55	BM	2.83	1.67	3	1.75	BM	2.5	3	
4/6/2004	36	2	7.16	34	4.5	94.2	0	6	1.5	1.5	BM	2.83	1.67	3	1.75	BM	2.5	3	
4/5/2004	36	1	1.27	34	4.5	94.2	2	-	-	-	-	-	-	-	-	-	-	-	TOO MUDDY
4/1/2004	36	1	1.27	34	4.5	94.2	0	6	1.5	1.5	BM	2.83	1.67	3	1.75	BM	2.5	3	
3/31/2004	36	2	7.16	32	4.5	94.2	0	6	1.5	1.5	BM	2.83	1.5	3	1.75	BM	2.5	3	
3/30/2004	34	0	0	32	4.5	94.2	0	6	1.5	1.5	BM	2.83	1.5	3	1.75	BM	2.5	3	
3/29/2004	34	1	1.27	32	4.5	94.2	0	6	1.5	1.5	BM	2.83	1.5	3	1.75	BM	2.5	3	

2004 WASTE WATER SUMMARY

	TRAVEL CENTER TO PONDS			TOTAL FLOW TO PONDS			RAIN GAUGE INCHES	FREEBOARD AT PONDS											
								6	12B	2	9	12A	3	7	4	8	5	11	
DATE	TEMP	60 DEGREE V NOTCH "INCHES"	FLOW GPM	TEMP	90 DEGREE V NOTCH "INCHES"	FLOW GPM		in.	feet	feet	feet	feet	feet	feet	feet	feet	feet	feet	Comments
3/28/2004	34	2	7.16	36	4.5	94.2	0	6	1.5	1.5	BM	2.83	1.67	3	1.75	BM	2.5	3	
3/25/2004	34	2	7.16	36	4..5	94.2	0	6	1.5	1.5	BM	2.83	1.67	3	1.75	BM	2.5	3	
3/24/2004	34	1	1.27	32	5	123	0.1	6	1.5	1.5	-	BM	1.67	3	1.83	BM	2.5	3	
3/23/2004	38	1	1.27	36	4.5	94.2	0	6	1.5	1.5	BM	2.83	1.67	3	1.75	BM	2.5	3	
3/22/2004	38	0	0	36	4.5	94.2	0	6	1.5	1.5	BM	2.83	1.67	3	1.75	BM	2.5	3	
3/18/2004	36	2	7.16	34	4.5	94.2	0	6	1.16	1.5	BM	2.83	1.5	3	1.67	BM	2.5	3	
3/17/2004	36	1	1.27	32	4.5	94.2	0	6	1.16	1.5	BM	2.83	1.5	3	1.67	BM	2.5	3	
3/16/2004	36	2	7.16	32	4.5	94.2	0	6	1.16	1.5	BM	2.83	1.5	3	1.67	BM	2.5	3	
3/15/2004	36	2	7.16	32	4.5	94.2	0	6	1.25	1.5	BM	2.83	1.5	3	1.67	BM	2.5	3	
3/11/2004	-	-	-	34	5	123	0	6	1.67	1.5	BM	2.83	1.5	3	1.83	BM	2.25	2.67	
3/10/2004	-	-	-	34	4.5	94.2	0	6	1.67	1.5	BM	2.83	1.5	3	1.83	BM	2.25	2.67	
3/9/2004	-	-	-	34	4.5	94.2	0	6	1.67	1.5	BM	2.83	1.5	3	1.83	BM	2.25	2.67	
3/8/2004	-	-	-	34	4.5	94.2	0.2	6	1.67	1.5	BM	2.83	1.5	3	1.83	BM	2.25	2.67	
3/4/2004	-	-	-	32	5	123	-	6	1.67	1.5	BM	2.83	1.5	3	1.83	BM	2.25	2.67	
3/3/2004	-	-	-	32	5	123	0	6	1.67	1.5	BM	2.83	1.5	3	1.88	BM	2.25	2.67	
3/2/2004	36	1	1.27	32	4.5	94.2	0	6	1.67	1.5	BM	2.83	1.5	3	1.83	BM	2.25	2.67	
3/1/2004	36	1	1.27	32	5	123	0.5	6	1.67	1.5	BM	2.83	1.5	3	1.83	BM	2.25	2.67	
2/25/2004	34	1	1.27	30	4.5	94.2	0	6	1.5	1.5	3	2.83	1.5	3	1.83	BM	2.5	2.67	
2/24/2004	34	0	0	32	4.5	94.2	0.3	6	1.5	1.5	3	2.83	1.5	3	1.83	BM	2.5	2.67	
2/19/2004	36	1	1.27	32	5	123	0	6	1	1.5	3	2.67	2	3	2	BM	2.83	2.5	
2/18/2004	34	2	7.16	32	4.5	94.2	0	6	1	1.5	3	2.67	2	3	2	BM	2.83	2.5	
2/17/2004	34	1	1.27	32	4.5	94.2	0	6	1	1.5	3	2.67	2	3	2	BM	2.83	2.5	
2/12/2004	32	0	0	30	4.5	94.2	0	6	1	1.5	3	2.67	2	3	2	BM	2.83	2.5	
2/11/2004	32	0	0	30	4.5	94.2	0	6	1	1.5	3	2.67	2	3	2	BM	2.83	2.5	
2/10/2004	30	1	1.27	30	4.5	94.2	0	6	1	1.5	3	2.67	2	3	2	BM	2.83	2.5	
2/9/2004	30	2	7.16	30	4.5	94.2	0	6	1	1.5	3	2.67	2	3	2	BM	2.83	2.5	
2/3/2004	34	2	7.16	30	4.5	94.2	0	6	0.75	1.5	3	2.67	2	3	2	BM	2.83	3	
2/2/2004	32	2	7.16	30	4.5	94.2	0.1	6	0.75	1.5	3	2.67	2	3	2	BM	2.83	3	
1/29/2004	32	1	1.27	30	4.5	94.2	0	6	1	1.5	3	2.67	2	3	2	BM	2.83	3	
1/28/2004	32	2	7.16	30	5	123	0	6	1	1.5	3	2.67	2	3	2	BM	2.67	3	
1/27/2004	32	2	7.16	30	5	123	0.4	6	1	1.5	3	2.67	2	3	2	BM	2.67	3	
1/26/2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NO READINGS -SNOW WORK
1/22/2004	34	0	0	32	4.5	94.2	0	4	1	1.5	3	2.67	1.67	3	1.83	BM	2.67	3	
1/21/2004	32	1	1.27	30	4.5	94.2	0	4	1	1.5	3	2.67	1.67	3	1.83	BM	2.67	3	

2004 WASTE WATER SUMMARY

	TRAVEL CENTER TO PONDS			TOTAL FLOW TO PONDS			RAIN GAUGE INCHES	FREEBOARD AT PONDS											
								6	12B	2	9	12A	3	7	4	8	5	11	
DATE	TEMP	60 DEGREE V NOTCH "INCHES"	FLOW GPM	TEMP	90 DEGREE V NOTCH "INCHES"	FLOW GPM		in.	feet	feet	feet	feet	feet	feet	feet	feet	feet	feet	Comments
1/20/2004	32	2	7.16	30	4.5	94.2	0.3	4	1	1.5	3	2.67	1.67	3	1.83	BM	2.67	3	
1/19/2004	32	2	7.16	30	4	70.2	0	4	1	1.5	3	2.67	1.67	3	1.83	BM	2.67	3	
1/15/2004	32	2	7.16	30	4.5	94.2	0	4	1	1.5	3	2.67	1.67	3	1.83	BM	2.5	3	
1/14/2004	32	1	1.27	30	4.5	94.2	0	4	1	1.5	3	2.67	1.67	3	1.83	BM	2.5	3	
1/13/2004	34	2	7.16	32	4.5	94.2	0	4	1	1.5	3	2.67	1.67	3	1.83	BM	2.5	3	
1/12/2004	34	1	1.27	32	4.5	94.2	0	4	1	1.5	3	2.67	1.67	3	1.67	BM	2.5	3	
1/8/2004	36	3	0	34	4.5	94.2	0	4	1	1.5	3	2.67	1.67	3	1.67	BM	2.5	3	
1/7/2004	-	-	-	-	-	-	0	4	1	1.5	3	2.67	1.67	3	1.67	BM	2.5	3	
1/6/2004	34	1	1.27	32	4.5	94.2	0	4	1	1.5	3	2.67	1.67	3	1.67	BM	2.5	3	
1/5/2004	34	2	7.16	32	4.5	94.2	**trace**	4	1.16	1.5	3	2.67	1.67	3	1.83	BM	2.5	3	

*** BM denotes Below Marker (Marker ~ 3 Feet)**

	AVG 43.04	**AVG 1.57**	**AVG 4.98**	**AVG 40.89**	**AVG 4.73**	**AVG 107.51**	**TOTAL 11.09**	**AVG 12.80**	**AVG 1.23**	**AVG 1.39**	**AVG 3.00**	**AVG 2.59**	**AVG 1.88**	**AVG 3.00**	**AVG 2.01**	**AVG BM**	**AVG 2.56**	**AVG 2.84**	

Permit Condition 21. Annual Report

G. Summary and copies of all EPA/NMED RCRA activity:

February- On February 11, the NMED conducted a hazardous waste Compliance Evaluation Inspection. Two violations were noted:

1. Failure to close 2 fiber drums of universal waste lamps.
2. Failure to maintain a satellite drum of paint waste under control of operator.

NMED determined that these violations have been adequately addressed and no further action is required .

The following items are attached:

- ✓ Copy of inspection report and correspondence regarding the above inspection.
- ✓ 2004 Land Treatment Unit Inspection Summary
- ✓ 2004 Annual Hazardous Waste Fee Report
- ✓ Hazardous Waste Bureau GPS/GIS Survey
- ✓ 2004 Annual Unit Audit

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Telephone (505) 428-2500
Fax (505) 428-2567
www.nmenv.state.nm.us

BILL RICHARDSON
GOVERNOR

RON CURRY
SECRETARY

DERRITH WATCHMAN-MOORE
DEPUTY SECRETARY

Inspection Report

Facility: Giant Refining Co. (Ciniza) Location: 12 miles East of Gallup New Mexico

EPA ID #: NMD 000333211 Mailing Address: Route 3 Box 7 Gallup, New Mexico

Ownership: Giant Industries Arizona Inc.

Authorized Agent: c/o Giant Refining Co. Facility Contact: Dorinda Montoya

Time of Entry 10:20 am Date 2/11/01 Access: Granted / Denied _____

Facility Representative _____ Title _____

Reason(s) for Denial of Access (if applicable) _____

Facility Representative Signature

Inspector Signature

Entry Conference:

Present Credentials to Facility Representative ✓
Cite Statutory Authority to Enter Site (NMSA § 74-4-4.3) ✓
Cite Statutory Authority to Conduct Inspection, Obtain Samples and Take Photographs (NMSA § 74-4-4.3) ✓
Specify Reasons for, and Nature of the Inspection ✓
Specify Objectives and Procedures for Inspection ✓
Schedule Exit Conference ✓

Participants:

Name	Signature	Title	Phone #
Tilford Abeita		Giant Industries	863-2523
Arnold Valentine		Navajo DOV	871-7207
Walt Vollmer		RCRA Inspector	722-2506
Ed Riege		Env Superintendent	505 722 0217
Matt Davis		GM	
Dorinda Montoya		Prod. Manager	722-1227
Stanley Morris		Env. Coordinator	722-1252
Mike Peterson			722-2322

This Compliance Evaluation Inspection (CEI)
was conducted based on:

EPA ID [illegible]
Facility Name [illegible] Co.
Date [illegible]

FY: [illegible] Grant Requirements [illegible]
Follow up to Previous CEI _____
Facility was Last Inspected on: _____

Citizen Complaint _____
Observation by Inspector _____

Checklists Completed: CESQG, SQG, <90 Day, Transporter, LDR, Tanks, and Containers.

History, Size, and Nature of Business: The [illegible] was built in 1969 and [illegible] owned by [illegible] Petroleum Company. It was then [illegible] by Gulf Oil Company in 1974. Gulf [illegible] to [illegible] it in 1982.

Gulf primary products included [illegible] diesel fuel, [illegible] lubricant and [illegible]. Used motor oil is made on which is needed on site. The facility is located in the Kirby Bluff approximately 12 miles East of [illegible] just North of [illegible] and 99 Transitional.

Waste Streams Generated:

Waste Code	Description of Process	Location
~~[illegible]~~ N/A	28 [illegible] drums [illegible] relocate [illegible] is always [illegible] and maintenance [illegible]	[illegible] shop
n/a	Combustible warehouse [illegible] (used oil & Hydraulic oil product storage).	Combustible warehouse
n/a	The pipe racks shop is used for welding pipe [illegible]	Pipe racks at [illegible]
D008 & D009	Crane house used to store tools, equipment, the [illegible] and equipment, the overall waste storage also includes [illegible] batteries & [illegible] batteries	Lock warehouse
K171	Spent hydro. [illegible] catalyst is ~~[illegible]~~ transported for disposal by Dickson Co.	Drum [illegible] Overhead & the [illegible]

EPA ID [illegible]
Facility Name [illegible]
Date [illegible]

Waste Streams Generated:

Waste Code	Description of Process	Location
F037	Sludge / solids removal from process sewer and sumps which is transported for disposal by Rinchem Company.	Process sewer & sumps
D002	Acidic Residue from Process Equipment cleaning & sludge which is transported for disposal by Rinchem Co.	Sulfuric Acid Tank
D002	Caustic residue from ~~[illegible]~~ equipment cleaning & sludge removal is transported for disposal by Rinchem Company	KOH Treatment
K051	Residue from API separator cleanout which is ~~[illegible]~~ transported for disposal by Rinchem Company	API Separator
D001 AND D018	~~Sludge /~~ Cleanout of sludge / liquids from tank 570	Gasoline Tank 570
D001 AND D002	Spent Activated Carbon from ASO Pit Vent utilized for odor control which is transported for disposal by Rinchem Co.	Acid Soluble Oils Pit
D001 D005	Waste paint related material is transported for disposal by [illegible]	[illegible]

EPA ID NMD000535211
Facility Name Navajo Refinery
Date 6/11/94

Waste Streams Generated:

Waste Code	Description of Process	Location
	Aeration Basin is designated as a SWMU #1 and the unit is in use. The A.B. also treats waste-water at the Refinery	located @ the west end of the facility
	The Evaporation Pond is identified as SWMU #2 which is in use. The Ponds evaporate waste-water @ the Refinery	located at the west end of the facility
	Rail Road Rack Lagoon is identified as SWMU #8 which is ongoing remediation TRACE organic and inorganic contaminants are present	located @ the north end of the facility
	Contact waste-water Collection System is identified as SWMU #12. The stormwater collection system is in use throughout the facility	throughout the facility
	The Drainage Ditch between API Evaporation Ponds & Neutralization Tank Evaporation Ponds is in use. The Drainage Ditch is identified as SWMU #13	Near Neutralization Ponds

EPA ID [illegible]
Facility Name [illegible]
Date [illegible]

Waste Streams Generated:

Waste Code	Description of Process	Location
	Land treatment unit is undergoing post closure care which identified as SWMU #9.	[illegible] 200 ft west of Ginza tank farm
	API separator receives waste-water from the refinery drainage system consisting of a network of tank farm sumps and sewer lines within the process areas. Oil is separated and recovered for processing	Landfill [illegible] the refinery drainage system west end of the Ginza Tank Farm

Compliance Evaluation Inspection, Better Business Practices

Facility Giant - Cinizo EPA # NMD000333211 DATE 2-11-04

Pollution Prevention & Waste Minimization Suggestions

Questions, Concerns, Comments
1) Extremely well organized waste determination records, manifests, inspection rounds, training plan & records, + other misc. hazardous waste management records.
2 Staff very helpful & informative.
3 Main warehouse universal waste area well organized.
4. Excellent aerosol cans management program.

EPA ID [illegible]
Facility Name [illegible]
Date [illegible]

Results of Inspection: [illegible]

The Following Potential Violations Were Noted:

Potential Violation	Specifics: (location, quantities, documents, photos, etc.)	Regulatory Citation
1) Failure to close 2 containers of spent Fluorescent Bulbs. located at the main back warehouse		273.13 (d)(1)
2) Failure to maintain SAP under the control of the operator generating aerosol cans were located at the environmental storage area		262.34 (c)(1)

Exit Conference:

EPA ID [illegible]
Facility Name [illegible]
Date [illegible]

Time of Exit: [illegible]

Discussion/Explanation of Potential Violations

✓

Explain Review Process by NMED/HWB Management

✓

NMED Anticipated Timetable for Notice of Violation Letter

✓

Explain Enforcement Policy and Procedures (incl. pos. penalties)

✓

Explain Availability of On Site Technical Assistance

Participants:

Name	Signature	Title	Phone #
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

_____ I have been advised that at the time of inspection, no potential violations of 20 NMAC 4.1 were identified. I also understand that I remain obligated to comply with all applicable laws and regulations.

✓ I have been advised of the potential violations identified during the inspection. I understand that in accordance with §74-4-10 NMSA 1978 (Repl. Pamp. 2000), NMED may: (1) issue a notice of violation requesting voluntary compliance within a specified time period; (2) issue a compliance order requiring compliance immediately or within a specified time period or assessing a civil penalty for any past or current violations of up to $10,000 per day of noncompliance with each violation or both; or (3) commence a civil action in district court for appropriate relief, including a temporary or permanent injunction. Any such order issued may include a suspension or revocation of any permit issued by NMED.

Facility Representative

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Telephone (505) 428-2500
Fax (505) 428-2567
www.nmenv.state.nm.us

BILL RICHARDSON
GOVERNOR

RON CURRY
SECRETARY

DERRITH WATCHMAN-MOORE
DEPUTY SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUIRED

April 5, 2004

Matt Davis
General Manager
Giant Refining Co., Ciniza Refining
Route 3, Box 7
Gallup, NM 87301

SUBJECT: NOTICE OF VIOLATION AND RESOLUTION
GIANT REFINING CO., CINIZA REFINING, EPA ID# NMD000333211

Dear Mr. Davis:

On February 11, 2004, the New Mexico Environment Department (NMED) conducted a hazardous waste Compliance Evaluation Inspection at Giant Refining Co., Ciniza Refining (Ciniza Refinery), located 17 miles east of Gallup at I-40 Exit 39, Jamestown. Based on that inspection and review of the information obtained, NMED has determined that your facility is a Large Quantity Generator and has violated the New Mexico Hazardous Waste Management Regulations (20.4.1 NMAC) as specified below.

The following violations were noted:

1. Ciniza Refinery failed to close 2 fiber drums of universal waste lamps. Two fiber drums of spent fluorescent bulbs located at the universal waste accumulation area of the main warehouse were not closed. This is a violation of 20.4.1.1000 NMAC, incorporating 40 CFR § 273.13(d)(1).

2. Ciniza Refinery failed to maintain a satellite accumulation area under the control of the operator. One 55-gallon black metal drum of spent paint related waste from spent aerosol cans located at the southeast corner of the facility was not under the control of the operator. This is a violation of 20.4.1.300 NMAC, incorporating 40 CFR § 262.34(c)(1).

In accordance with 74-4-10 NMSA 1978, NMED may: (1) issue a Compliance Order requiring compliance immediately or within a specified time period, or assess a civil penalty for any past or current violations of up to $10,000 per day of non-compliance with each violation, or both; or (2) commence a civil action in District Court for appropriate relief, including a temporary or permanent injunction. Any such order may include a suspension or revocation of any permit issued by NMED.

The NMED has reviewed your response to the Inspection Report dated February 17, 2004. Based on a review of that response, NMED has determined that the violations cited in this Notice of Violation have already been adequately addressed and no further action is required.

This letter does not relieve Ciniza Refinery of its obligation to comply with any other applicable laws and regulations.

If you have any questions regarding this letter, please contact Robert Atencio of my staff at (505) 428-2523. Please address your written response to the attention of Robert Atencio at the address in the letterhead.

Sincerely,

Sandra Y. Martin
Acting Chief
Hazardous Waste Bureau

SYM:ra

cc: Barry S. Birch, Acting Manager, Compliance & Technical Assistance Program
Anna Maestas, Environmental Supervisor
Robert Atencio, Environmental Specialist
Tom Skibitski, General Manager, District I
Hope Monzeglio, HWB

file: Library #2401
hwbsoc05/enforcement/Atencio

2004 Land Treatment Unit Inspection

Date of Inspection	Inspector's Name	Findings
01/08/04	Kurt Kirlin	OK
01/15/04	Kurt Kirlin	OK
01/22/04	Lynn Miles	OK
01/29/04	Lynn Miles	OK
02/04/04	Lynn Miles	OK
02/11/04	Lynn Miles	OK
02/18/04	Lynn Miles	OK
02/25/04	Lynn Miles	OK
03/03/04	Lynn Miles	OK
03/04/04	Kent McKinney	OK
03/10/04	Lynn Miles	OK
03/11/04	Kent McKinney	OK
03/17/04	Lynn Miles	OK
03/18/05	Kent McKinney	OK
03/24/05	Lynn Miles	OK
03/25/05	Kent McKinney	OK
03/31/05	Lynn Miles	OK
04/01/04	Kent McKinney	OK
04/07/04	Lynn Miles	OK
04/08/04	Kent McKinney	OK
04/14/04	Lynn Miles	OK
04/15/04	Kent McKinney	OK
04/21/05	Lynn Miles	OK
04/28/04	Lynn Miles	OK
04/29/04	Kent McKinney	OK
05/05/04	Lynn Miles	OK
05/06/04	Kent McKinney	OK
05/12/04	Lynn Miles	OK
05/19/05	Dorinda Mancini	OK
05/20/04	Kent McKinney	OK
05/26/05	Lynn Miles	OK
05/27/04	Kent McKinney	OK
06/02/04	Dorinda Mancini	OK
06/03/04	Kent McKinney	OK
06/09/04	Dorinda Mancini	OK
06/10/04	Kent McKinney	OK
06/16/04	Dorinda Mancini	OK
06/17/04	Kent McKinney	OK
06/23/04	Dorinda Mancini	OK
06/25/04	Kent McKinney	OK
06/30/04	Dorinda Mancini	OK
07/01/04	Kent McKinney	OK

2004 Land Treatment Unit Inspection

07/07/04	Dorinda Mancini	OK
07/08/04	Kent McKinney	OK
07/14/04	Darren Joe	OK
07/22/04	Kent McKinney	OK
07/22/04	Darren Joe	OK
07/28/04	Darren Joe	OK
07/29/04	Kent McKinney	OK
08/03/04	Darren Joe	OK
08/11/04	Darren Joe	OK
08/12/04	Kent McKinney	OK
08/18/04	Darren Joe	OK
08/19/04	Kent McKinney	OK
08/25/04	Darren Joe	OK
08/26/04	Kent McKinney	OK
09/01/04	Darren Joe	OK
09/08/04	Darren Joe	OK
09/09/04	Kent McKinney	OK
09/15/04	Darren Joe	OK
09/16/04	Kent McKinney	OK
09/22/04	Darren Joe	OK
09/23/04	Kent McKinney	OK
09/29/04	Darren Joe	OK
09/30/04	Kent McKinney	OK
10/06/04	Darren Joe	OK
10/07/04	Kent McKinney	OK
10/13/04	Darren Joe	OK
10/14/04	Kent McKinney	OK
10/20/04	Darren Joe	OK
10/21/04	Kent McKinney	OK
10/27/04	Darren Joe	OK
10/28/04	Kent McKinney	OK
11/03/04	Darren Joe	OK
11/04/04	Kent McKinney	OK
11/10/04	Darren Joe	OK
11/11/04	Kent McKinney	OK
11/17/04	Darren Joe	OK
11/18/04	Kent McKinney	OK
11/24/04	Darren Joe	OK
12/01/04	Darren Joe	OK
12/02/04	Kent McKinney	OK
12/08/04	Darren Joe	OK
12/15/04	Darren Joe	OK
12/22/04	Darren Joe	OK
12/29/04	Darren Joe	OK

NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS WASTE BUREAU

2004 ANNUAL HAZARDOUS WASTE FEE REPORT

Note: Complete and return this report with your invoice and payment

SECTION I: FACILITY INFORMATION AND IDENTIFICATION

Facility Name: Giant Refing Company - Ciniza Refinery

EPA Identification Number: NMD000333211 **Phone:** 505-722-0217

Facility Address: Interstate 40, Exit 39, 17 miles east of Gallup, Jamestown NM 87347

Mailing Address: Route 3, Box 7 Gallup, NM 87301

Facility Contact: Ed Riege

Title: Environmental Superintendent

Reporting Date: 15-Jul-05

The New Mexico Hazardous Waste Generation Fee is comprised of two parts: a Business Fee and a Generation Fee. The Business Fee is determined by your generator status and the Generation Fee is determined by the amount of non-recycled hazardous waste, which is generated by the facility. It is important to note that your generator status is determined by adding the recycled and non-recycled hazardous waste generated by your facility each month.

Detailed regulations covering the annual hazardous waste fees are defined at 20.4.3 NMAC.

revised 6/8/2005

SECTION II: ANNUAL GENERATION CALCULATIONS

To calculate the annual waste generation amounts, use the schedule below. Enter the total pounds of hazardous waste generated per month and then subtract the pounds of recycled hazardous waste per month. The difference is the amount of non-recycled hazardous waste generated.

Calendar Year: 2004

Month	Total Hazardous Waste (lb)	-	Recycled (lb)	=	Non-Recycled (lb)
January	3600	-	3600	=	0
February		-		=	
March	15214	-	0	=	15214
April	2200	-	2200	=	0
May		-		=	
June		-		=	
July	1089	-	0	=	1089
August		-		=	
September		-		=	
October	64119	-	54680	=	9439
November	35240	-	35240	=	0
December	19005	-	0	=	19005
Annual Totals	140467	-	95720	=	44747

SECTION III: GENERATION STATUS DETERMINATION

Determine your generator status using the largest amount of total hazardous waste generated during any one calendar month (from first column in Section II).

GENERATOR STATUS:

* **If you generate 220 lbs (100 kg) or less of hazardous waste (recycled and non-recycled) in any one month, you are a Conditionally Exempt Small Quantity Generator (CESQG).**
* **If you generate more than 220 lbs (100 kg) but less than 2,206 lbs (1,000 kg) of hazardous waste (recycled and non-recycled) in any one month, you are a Small Quantity Generator (SQG).**
* **If you generate more than 2,205 lbs (1,000 kg) of hazardous waste (recycled and non-recycled) in any one month, you are a Large Quantity Generator (LQG).**

NOTE: IF YOU ARE A CESQG, YOU DO NOT OWE ANY FEES. PLEASE COMPLETE THE CERTIFICATION SECTION OF THIS FORM AND RETURN TO OUR OFFICE.

SECTION IV: BUSINESS FEES

Based on the generator status determined from Section III, check the appropriate category for this facility and pay the appropriate Business Fee.

Conditional Exempt Small Quantity Generator	.....	no fees due
Small Quantity Generator	.....	$ 200.00
Large Quantity Generator	....X....	$2,500.00

SECTION V: ANNUAL GENERATION FEES

1. **Conditionally Exempt Small Quantity Generators** do not owe any annual generator fees.

2. **Small Quantity Generators** shall pay the following fees based on **the average monthly amount of non-recycled hazardous waste generated.**

   Annual total non-recycled hazardous waste from Section II divided by twelve equals monthly average

   _____ lb / 12 = _____ pounds per month

1 - 500 pounds/month	.....	$ 35.00
501 - 1,000 pounds/month	.....	$ 100.00
1,001 - 2,205 pounds/month	.....	$ 250.00

   If < 2,206 pounds/month, enter appropriate fee $ _____

3. **Large Quantity Generators** at a site shall pay the following fees **for non-recycled hazardous waste generated for the reporting year**, if both hazardous waste and hazardous wastewater were generated at the site, the generator must determine the amounts for each to calculate the fee. Use the following fee schedules for these calculations.

   a. $ 0.01 per pound of non-recycled hazardous waste generated at the site.

   44747 pounds for the reporting year X $ 0.01 = $ 447.47

   and

   b. $ 0.01 per ton of wastewater designated a hazardous waste solely because it exhibits a hazardous characteristic.

   _____ tons for reporting year X $ 0.01 = $ _____

Total LQG annual fee (a + b) = $ 447.47

SECTION VI: PAST DUE FEES

Fees owed for previous years are calculated the same as above and are then multiplied by 1%. The **sum** of the annual business fee (Section IV) and the generation fee (Section V) are **multiplied** by the number of months that the fee is past due:

Business Fee + Generation X 1% X Number of months past due = Late Fee

Example: ($200 + $35) X 0.01 X 10 Months = $23.50

This late fee is added to the business fee, the generation fee, and the administration charge of $100 to determine the total past due fee owed for that year:

Business Fee + Generation + Late Fee + $100 = Total Past Due Fee

Example: $200.00 + $35.00 + $23.50 + $100.00 = $358.50

If you are paying past due fees for multiple years, you pay the administration charge one time only. The fees for each year are due on August 1st of the following year.

Example: Fees for 2003 were due on August 1, 2004. Please calculate past due fees and enter them below:

2001 Fees	$ _____
2002 Fees	$ _____
2003 Fees	$ _____
Administrative Fee	$ 100.00
Total Past Due Fees Owed	$ _____

SECTION VII: CAP FEES

CAP Fees: The aggregate amount of annual generation and business fees to be paid per person [as defined at 20.4.3.107(B)(12) NMAC] for any year based on this Part (20.4.3 NMAC) shall be limited to:

One facility	$35,000.00
Two facilities	$50,000.00
Three or more facilities	$65,000.00

If your facility generates non-recycled hazardous waste in amounts which will result in a total fee greater than the amounts given in the above table, you only pay the CAP Fee indicated. These CAP Fees does not apply to late fees.

SECTION VIII: TOTAL FEES DUE

Total Fees (Business Fees, Generation Fees) Owed for Current Calendar Year	2947.47
Total Past Due Fees Owed (if applicable)	
TOTAL FEES	$2,947.47

SECTION IX: CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents. I hereby certify that either based on my personal knowledge or my inquiry of those individuals immediately responsible for obtaining the information, the submitted information is true, accurate and complete. I hereby acknowledge that any person who knowingly omits information from or makes any false statement or representation in a fee report may be subject to criminal penalties under the Act.

Ed Rios	General Manager
Name (printed or typed)	Title
	7/15/2005
Signature	Date

This report must be completed and returned to the address listed below. Make your cashiers check or money order for the full amount due payable to the NMED Hazardous Waste Fund and mail it to:

NMED - Hazardous Waste Bureau
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, New Mexico 87505

State of New Mexico Environment Department
Hazardous Waste Bureau
ınual Hazardous Waste Fees

Report #: NMD000333211-2401-CY2004

Facility Mailing Address:
GIANT REFINING CO. - CINIZA REFINERY
ROUTE 3, BOX 7
GALLUP, NM 87301

Facility Location Address:
INTERSTATE 40, EXIT 39 - 17 MILES EAST OF
JAMESTOWN, NM 87347

Please provide current Owner information below.
Owner Name: Giant Industries Arizona, Inc,
Address: 23722 N. Scottsdale Rd
Scottsdale AZ 85255

This is the NMED annual notice for hazardous generation and business fees applicable to all facilities classified as Small Quantity Generators (SQG), Large Quantity Generator (LQG), Treatment, Storage, or Disposal (TSD) including Closure and Post-Closure Care. The fee regulations are promulgated pursuant to the provisions of New Mexico Hazardous Waste Act, Chapter 74, Article 4, NMSA (as amended). **Fees are due AUGUST 1, 2005 for waste generated during calendar year 2004.**

If you have any questions or concerns please contact Charlotte Duran at (505) 428-2508.

Calendar Year	2004
Total amount generated	140,467 lbs/tons (circle one)
How many lbs/tons were recycled?	95,720 lbs/tons (circle one)
Amount generated from spill cleanup	_____ lbs/tons (circle one)

FEE SUMMARY: (from Annual Hazardous Waste Fee Report)

Generation Fee Amount	$ 447.47
Business Fee Amount	$ 2500.00
Late Fee Amount	$ _____
CAP Fee Paid	$ _____
TOTAL AMOUNT DUE	$ 2947.47

Special Instructions:

- Please include your report # on your remittance check.
- Complete and return this invoice with your Annual Hazardous Waste Fee report.
- Retrieve your Hazardous Waste Fee Report at http://www.nmenv.state.nm.us/hwb/notifiers.html. If you are unable to retrieve this report, please contact Charlotte Duran at (505) 428-2508 for a hard copy.
- Submit your remittance and report to:

NMED/HWB
New Mexico Environment Dept/HWB
Attn: Charlotte Duran
2905 Rodeo Park Drive East
Santa Fe, NM 87505

GIANT INDUSTRIES, INC.

23733 N. Scottsdale Rd.
Scottsdale, AZ
85255-9999

480
585-8888

Page : 1 Check # : 217645
Vendor # : 76707 Check Date : 7/18/2005

Date	Invoice Number	Description	Gross	Discount	Net
7/18/2005	NM000333211-2401-CY2004		2,947.47	0.00	2,947.47

JUL 19 2005

Total: $2,947.47

THE FACE OF THIS CHECK IS PRINTED BLUE - THE BACK CONTAINS A SIMULATED WATERMARK

GIANT INDUSTRIES, INC.

23733 N. Scottsdale Rd.
Scottsdale, AZ
85255-9999

480
585-8888

Bank of America
Bank of America
North Carolina

Valid for 180 Days From Date of Issue

$ *********2,947.47
Amount

Date 7/18/2005

Check No. 217645

Pay *Two thousand nine hundred forty seven and 47/100 Dollars*

To the Order of
NMED / HRMB
Hazardous Waste Bureau
2905 Rodeo Park Dr E Bldg 1
PO Box 26110
Santa Fe NM 87502

Fredric L. Halliger

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Telephone (505) 428-2500
Fax (505) 428-2567
www.nmenv.state.nm.us

BILL RICHARDSON
GOVERNOR

RON CURRY
SECRETARY

DERRITH WATCHMAN-MOORE
DEPUTY SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

October 20, 2004

Ed Riege,
Environmental Superintendent
Giant Refining Company-Ciniza
Route 3 Box 7
Gallup, NM 87301

SUBJECT: HAZARDOUS WASTE BUREAU GPS/GIS SURVEY

Dear Mr. Riege:

The New Mexico Environment Department's Hazardous Waste Bureau (HWB) is conducting a survey of the Global Positioning System (GPS) and Geographic Information System (GIS) technologies currently being used by New Mexico's hazardous waste treatment, storage, and disposal facilities. The HWB anticipates constructing a database and GIS of New Mexico's hazardous waste treatment, storage, and disposal facilities. Please complete the enclosed survey and return it to Ms. Cheryl Frischkorn at the address listed above. Completion and submission of the enclosed survey by December 24, 2004 would be greatly appreciated. This survey will also be posted on the HWB Internet site located at http://www.nmenv.state.nm.us/hwb/. HWB will be compiling this information by January 14, 2005. If you have any questions regarding this survey, please contact Cheryl Frischkorn of my staff at cheryl_frischkorn@nmenv.state.nm.us or (505) 428-2550.

Sincerely,

James P. Bearzi
Chief
Hazardous Waste Bureau

JPB:caf

cc: J. Kieling, NMED HWB
C. Frischkorn, NMED HWB
H. Monzeglio, NMED HWB

File: Giant Refining Company-Ciniza Reading

Mailed 11-17-04

HAZARDOUS WASTE BUREAU GPS/GIS SURVEY

Facility Name Giant Refinery - Ciniza
Facility EPA ID NMD 0000 333211
GPS/GIS Contact Ed Riege

1) How are your regulated sites currently being surveyed? (CIRCLE ALL THAT APPLY)

a) traditional survey equipment (transit)
b) GPS (Global Positioning System)--- recreational grade
c) GPS---mapping grade
d) GPS---survey grade
e) other (please indicate)_____

2) What other surveying technologies have been used to locate regulated sites in the past? (CIRCLE ALL THAT APPLY)

a) traditional survey equipment (transit)
b) GPS---recreational grade
c) GPS---mapping grade
d) GPS---survey grade
e) other (please indicate)_____

3) If the facility is currently using GPS technology, indicate the equipment manufacturer and model of the receiver(s) being used.

Acquired with JENA MRB Aerial Camera

4) What coordinate system is currently being used by the facility? (CIRCLE ONE)

a) state plane coordinate system
b) latitude/longitude
c) Universal Transverse Mercator (UTM)
d) other (please indicate)_____

5) What horizontal datum is currently being used? (CIRCLE ONE)

a) NAD27
b) NAD83
c) WGS84
d) other (please indicate)_____

6) What is the estimated horizontal position accuracy for features currently being surveyed? (CIRCLE ONE)

a) > 10 meters
b) 5 to 10 meters
c) 1 to 5 meters
d) < 1 meter
e) other (please indicate)_____

7) Does the facility have standard operating procedure (SOPs) for the collection of geospatial data? If yes, please submit a copy with the completed survey. No

8) Does the facility currently utilize any geographical information systems (GIS)? If yes, please indicate software manufacturer and version used. No

9) (OPTIONAL) Please provide a general description of the GIS layers created and/or utilized by the facility (*e.g.*, SWMU layer, monitoring well layer, soil association layer, *etc*). Use additional sheets as needed.

10) What format or type of spatial data does your facility work with (*e.g.*, shape files, excel files, *etc.*) Excel files

11) Are personnel trained in collecting geospacial data using GPS technologies? Please describe training required. No

12) Please include any additional information that may be helpful to this survey.

New Mexico
Environment Department
Hazardous Waste Bureau

Giant Refining Company
Ciniza
Rt. 3 Box 7
Gallup, NM 87301
Attn: Randy Schmaltz

7/1/2005

Invoice # - HWB-GRC-C-AUA-2004

ANNUAL UNIT AUDIT -- CALENDAR YEAR 2004

Quantity	Item	Item Cost	Total Cost
14	Corrective Action	$250.00	$3,500.00
1	Post-Closure Care	$2,000.00	$2,000.00
		Total Fees	$5,500.00
		Adjustment	$0.00
		Pay This Amount	**$5,500.00**

208-2450

ok to pay
7-15-05

Make Checks Payable to: NMED/HWB

Mail Checks and Invoice to:

New Mexico Environment Department, HWB
Attn: Linda Montoya
2905 Rodeo Park Drive East, Bldg 1
Santa Fe, NM 87505

State of New Mexico Use Only:

Date Received: _____
Check Number: _____
Amount Received: _____

GIANT INDUSTRIES, INC.

22733 N. Scottsdale Rd
Scottsdale, AZ
85255-9969

480
585-8888

Page : 1 Check # : 217644
Vendor # : 76707 Check Date : 7/18/2005

Date	Invoice Number	Description	Gross	Discount	Net
7/1/2005	HWB-GRC-C-AUA-2004		5,500.00	0.00	5,500.00

JUL 19 2005

Total: $5,500.00

THE FACE OF THIS CHECK IS PRINTED BLUE - THE BACK CONTAINS A SIMULATED WATERMARK

GIANT INDUSTRIES, INC.

22733 N. Scottsdale Rd.
Scottsdale, AZ
85255-9969

480
585-8888

Bank of America
Bank of America
North Carolina

Valid for 180 Days From Date of Issue

Date 7/18/2005

Check No. 217644

$ *********5,500.00
Amount

Pay *Five thousand five hundred and 00/100 Dollars*

To the Order of NMED / HRMB
Hazardous Waste Bureau
2905 Rodeo Park Dr E. Bldg 1
PO Box 26110
Santa Fe NM 87502

Fredric L. Halliger

⑈00217644⑈ ⑆053107989⑆ 000480149594⑈

TABLE A
Giant Refining Company - Ciniza 2004 AUA
OPERATING, CLOSURE AND POST-CLOSURE CARE UNITS

Unit ID No.	Unit Type/Description	Process	Comments	Fee
LDF 1	Land Farm Not Clean Closed	Post-Closure		$2,000.00
			Total Annual Fee:	$2,000.00

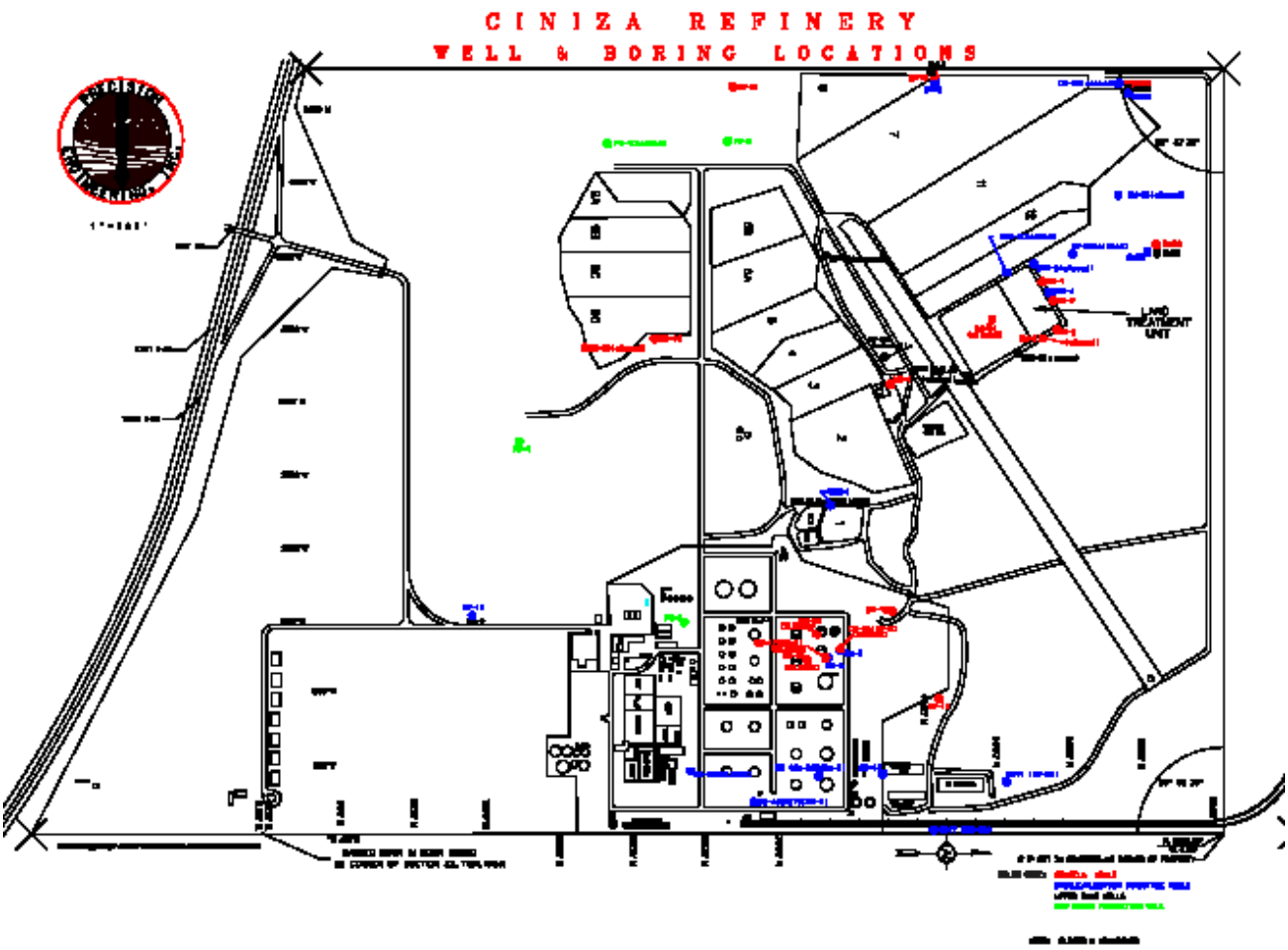
TABLE B
Giant Refining Company - Ciniza 2004 AUA
CORRECTIVE ACTION UNITS

Count	Unit ID No.	Unit Type/Description	Comments	Fee
1	SWMU 1	Aeration Basin		$250.00
2	SWMU 2	Evaporation Ponds		$250.00
3	SWMU 3	Empty Container Storage Area		$250.00
4	SWMU 4	Old Burn Pit		$250.00
5	SWMU 5	Landfill Areas		$250.00
6	SWMU 6	Tank Farm		$250.00
7	SWMU 7	Fire Training Area		$250.00
8	SWMU 8	Railroad Rack Lagoon		$250.00
9	SWMU 9	Drainage Ditch Near Inactive Landfarm		$250.00
10	SWMU 10	Sludge Pits		$250.00
11	SWMU 11	Secondary Oil Skimmer		$250.00
12	SWMU 12	Contact Wastewater Collection System		$250.00
13	SWMU 13	Drainage Ditch between N & S Evaporation		$250.00
14	SWMU 14	API Separator		$250.00
			Total Annual Fee:	$3,500.00

TABLE C
Giant Refining Company - Ciniza 2004 AUA
SUMMARY OF UNITS AND FEE ASSESSMENT

Number of Units	Unit Type	Fee
0	Storage	$0.00
0	Treatment	$0.00
0	Disposal	$0.00
1	Post Closure Care	$2,000.00
14	Corrective Action	$3,500.00
	Total Annual Fee:	$5,500.00

APPENDIX A Well and Boring Locations



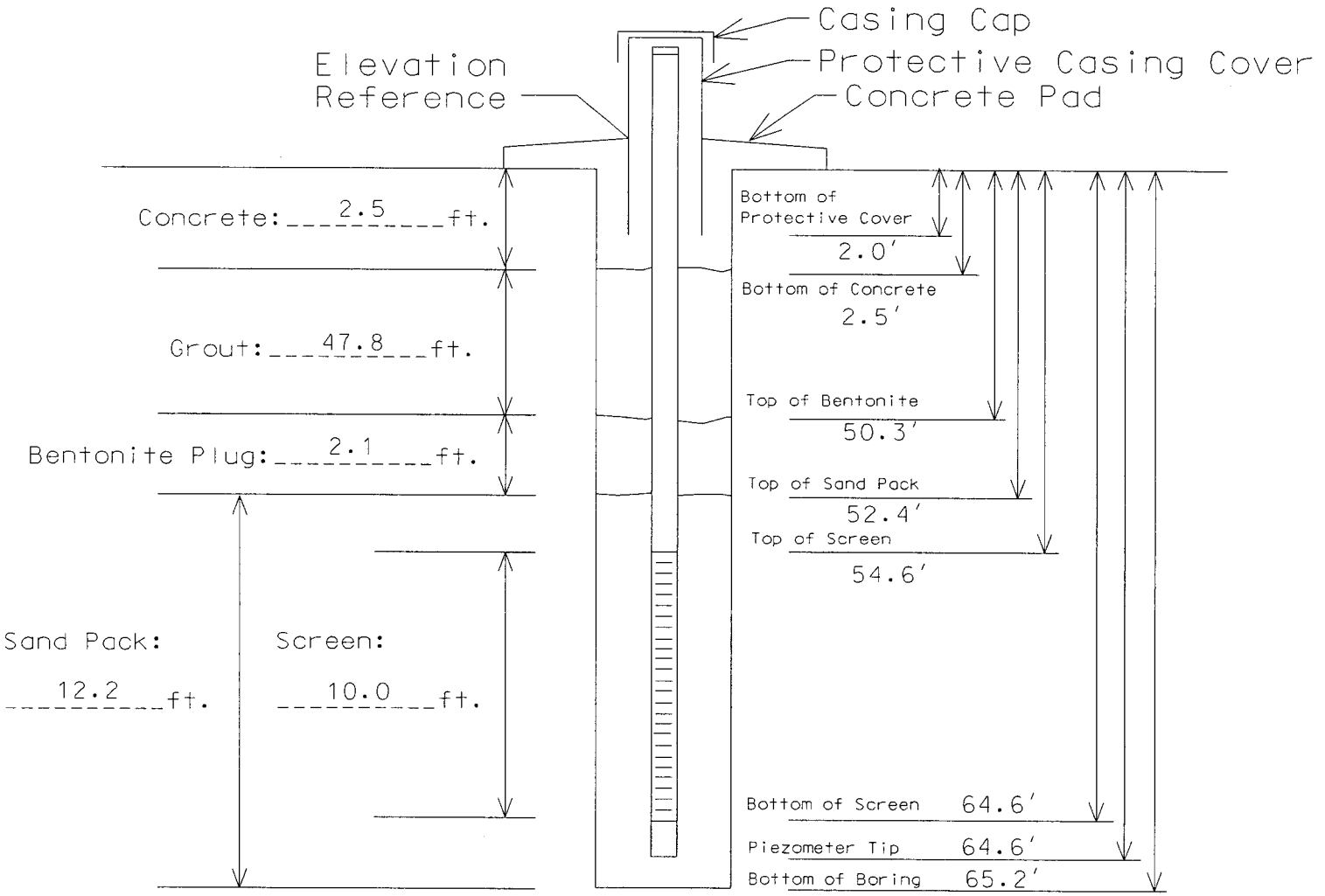
wells0805nobores.pdf

PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. BW-1



Boring Diameter: 8 5/8"

Sand Type: 20-40 Silica

Bollards, Type/Size: 3" Dia. Steel, Conc. Filled

Bentonite: 3/8" Chips

Screen Type/Size: 2" PVC Sch. 40, 0.010" Slotted

Cement/Grout: 6% Bentonite

Riser Type/Size: 2" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? Yes

Site Northing: TBS

Other: N/A

Bottom Cap Used? Yes

Site Easting: TBS

Project #: 03-118

Project Name: Ciniza Refinery - Boundry Wells

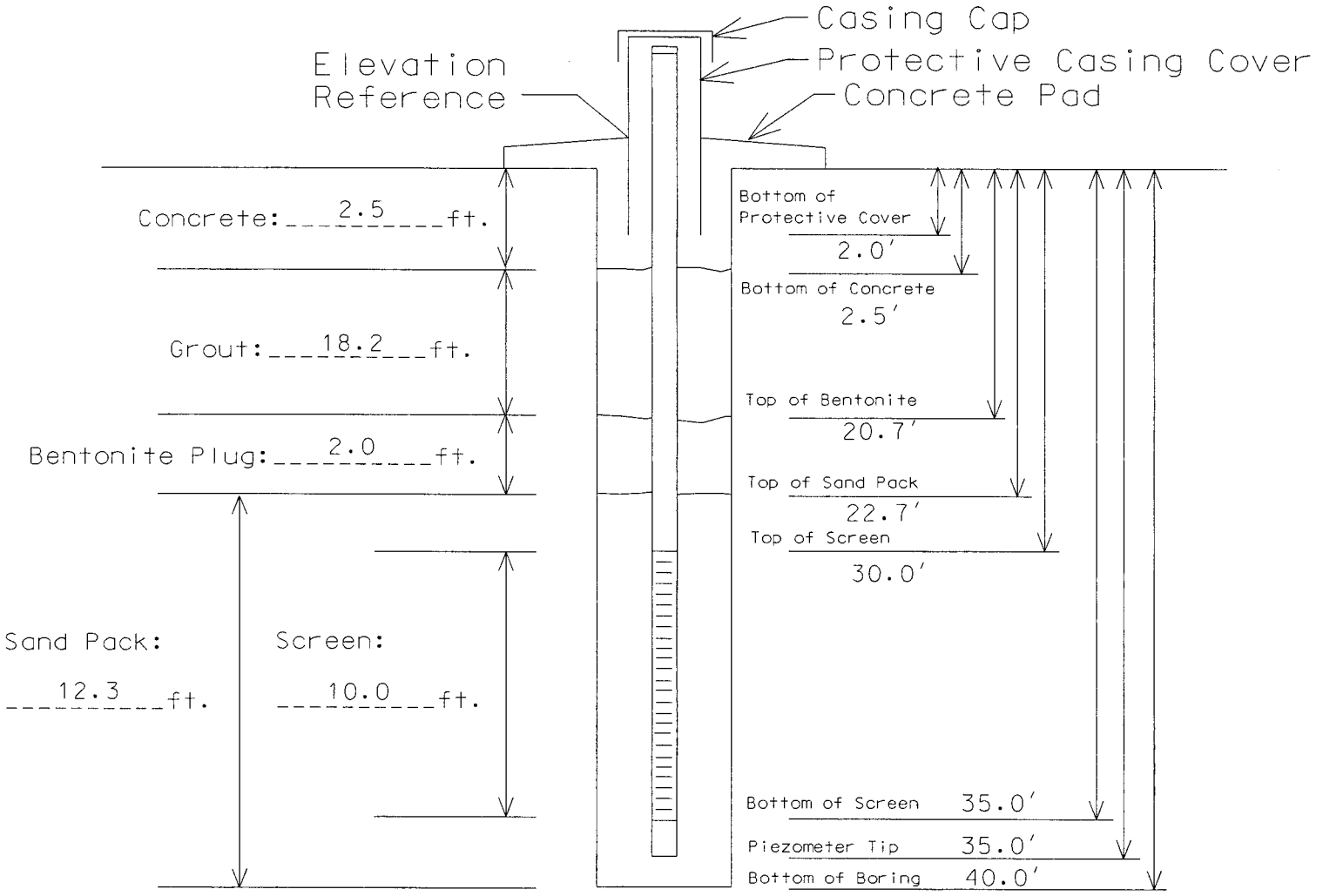
Elevation: TBS

PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. BW-1A



Boring Diameter: 8 5/8"

Sand Type: 20-40 Silica

Bollards, Type/Size: 3" Dia. Steel, Conc. Filled

Bentonite: 3/8" Chips

Screen Type/Size: 2" PVC Sch. 40, 0.010" Slotted

Cement/Grout: 6% Bentonite

Riser Type/Size: 2" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? Yes

Site Northing: TBS

Other: Backfilled w/ Bentonite 35'-37' Clay 37'-40'

Bottom Cap Used? Yes

Site Easting: TBS

Project #: 03-118

Project Name: Ciniza Refinery - Boundry Wells

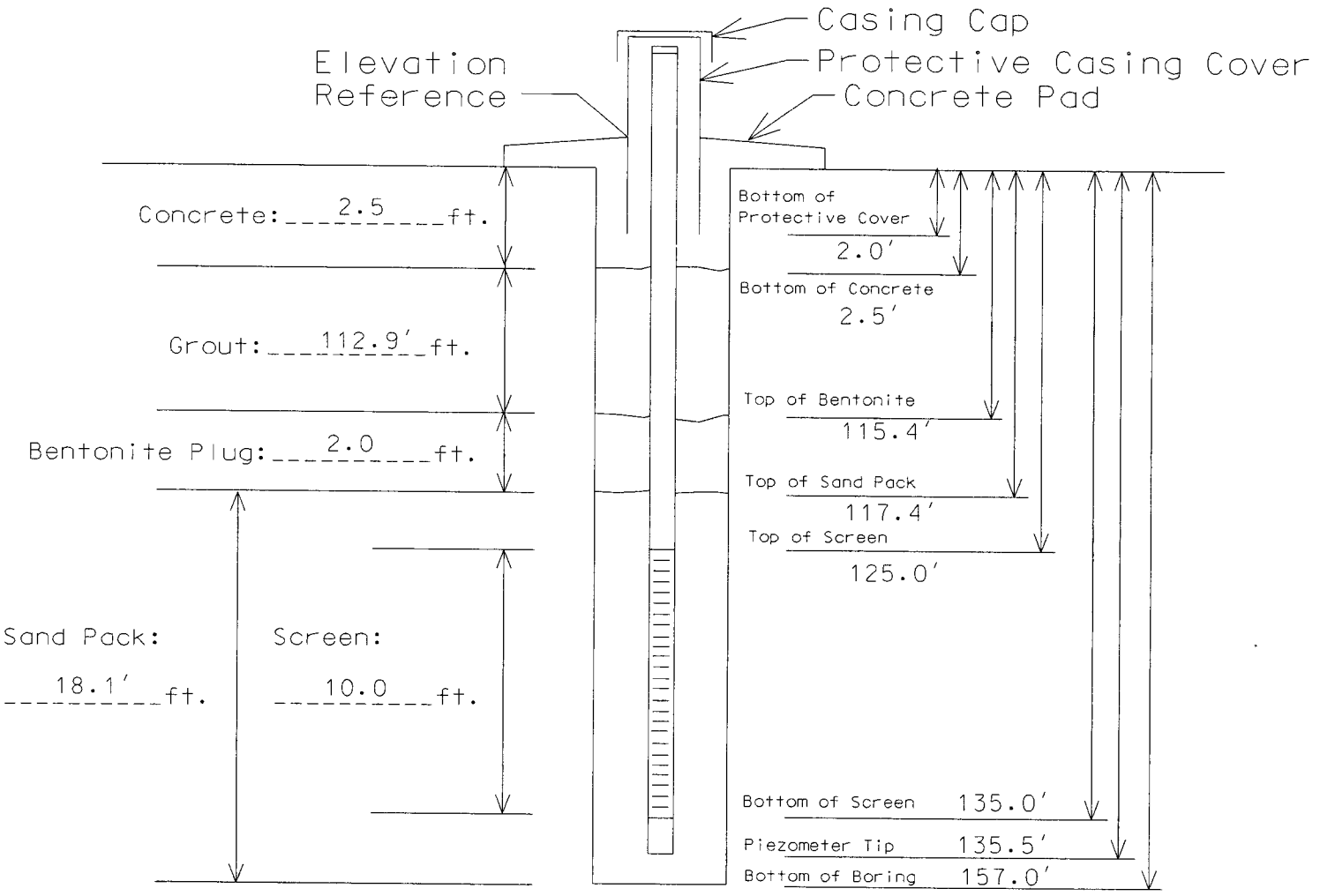
Elevation: TBS

PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. BW-1C



Boring Diameter: 8 5/8"

Sand Type: 20-40 Silica

Bollards, Type/Size: 3" Dia. Steel, Conc. Filled

Bentonite: 3/8" Chips

Screen Type/Size: 2" PVC Sch. 40, 0.010" Slotted

Cement/Grout: 6% Bentonite

Riser Type/Size: 2" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? Yes

Site Northing: TBS

Other: N/A

Bottom Cap Used? Yes

Site Easting: TBS

Project #: 03-118

Project Name: Ciniza Refinery - Boundry Wells

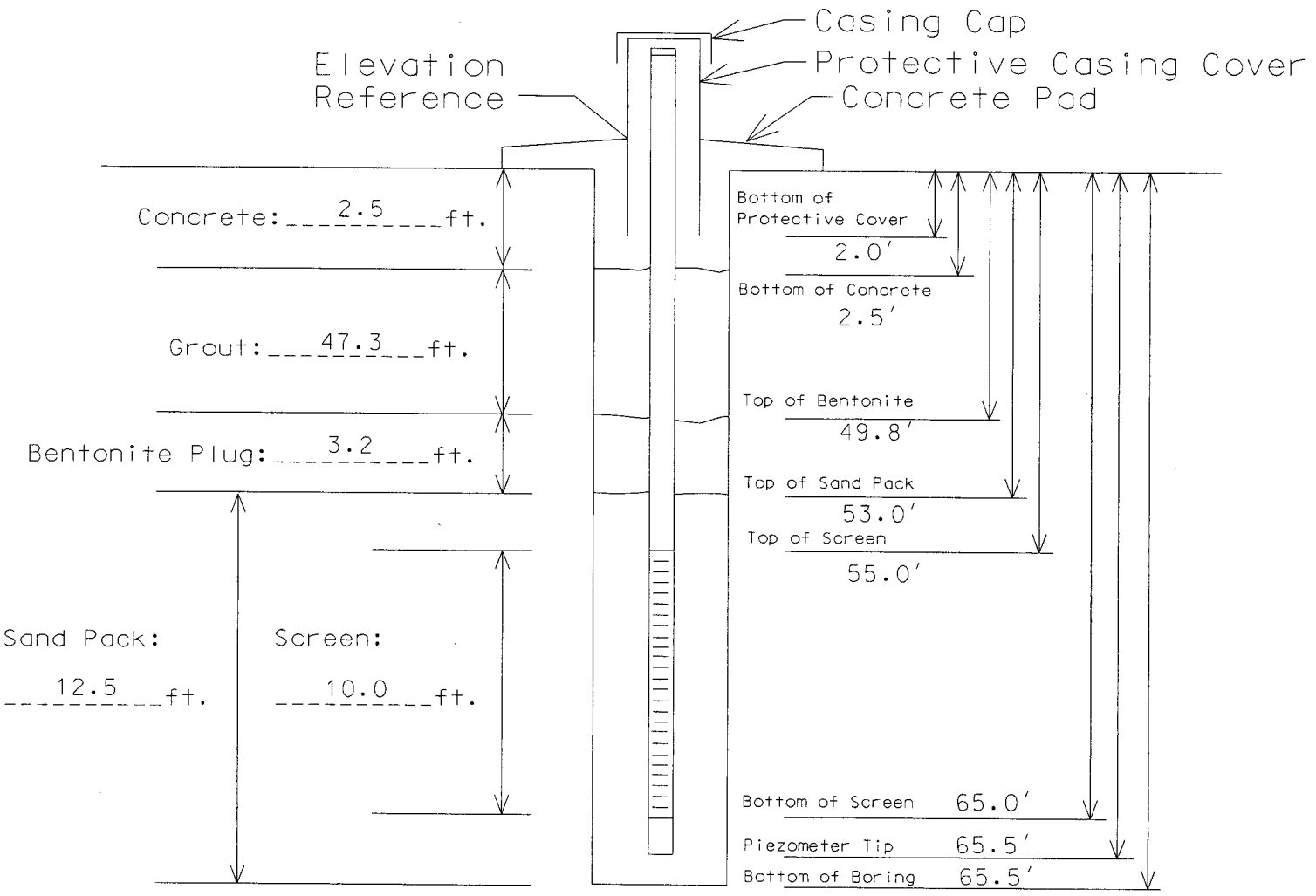
Elevation: TBS

PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. BW-2A



Boring Diameter: 8 5/8"

Sand Type: 10-20 Silica

Bollards, Type/Size: 3" Dia. Steel, Conc. Filled

Bentonite: 3/8" Chips

Screen Type/Size: 2" PVC Sch. 40, 0.010" Slotted

Cement/Grout: 6% Bentonite

Riser Type/Size: 2" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? Yes

Site Northing: TBS

Bottom Cap Used? Yes

Site Easting: TBS

Other: N/A

Project #: 03-118

Project Name: Ciniza Refinery - Boundry Wells

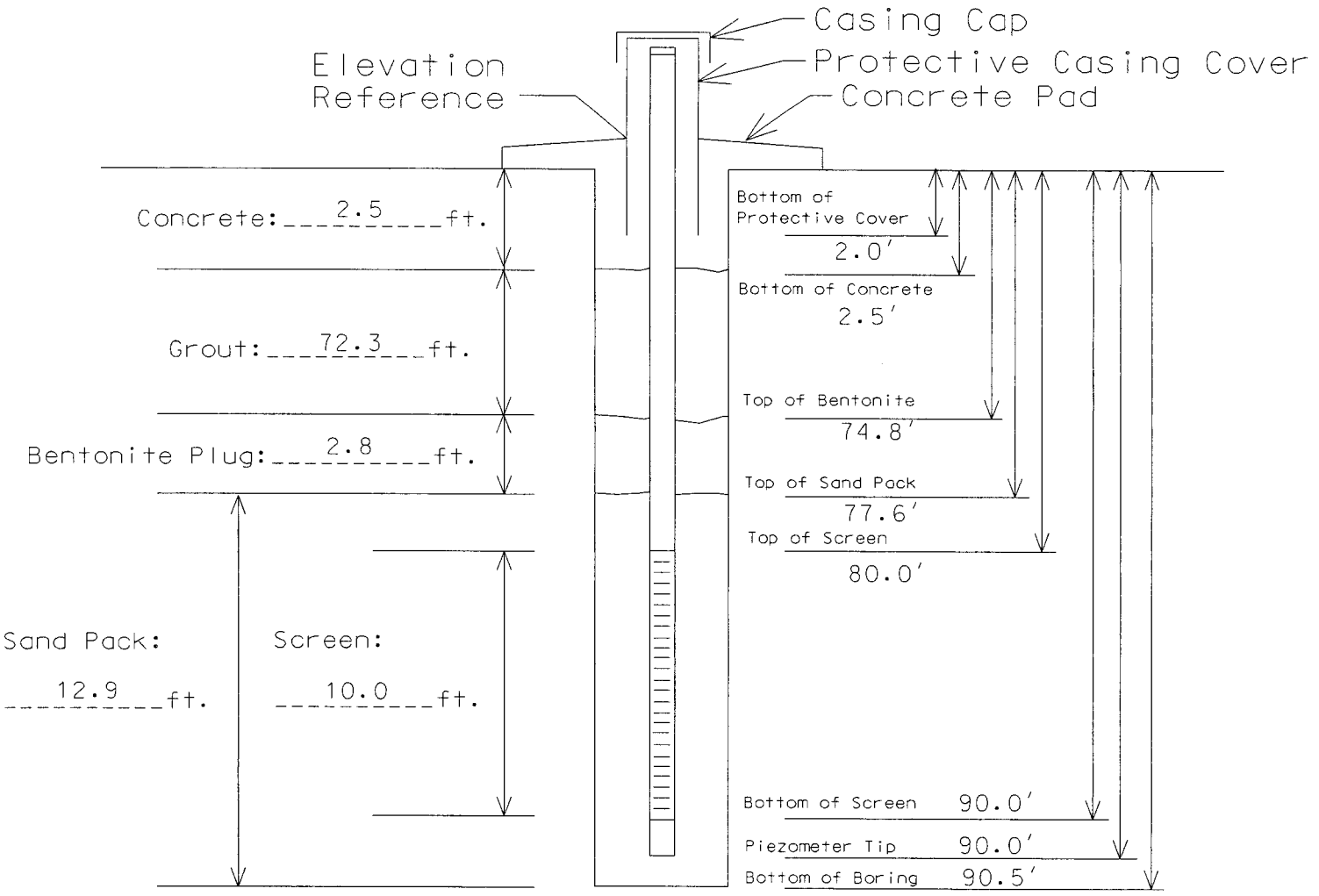
Elevation: TBS

PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. BW-2



Boring Diameter: 8 5/8"

Sand Type: 20-40 Silica

Bollards, Type/Size: 3" Dia. Steel, Conc. Filled

Bentonite: 3/8" Stabilized Pellets (TR-30)

Screen Type/Size: 2" PVC Sch. 40, 0.010" Slotted

Cement/Grout: 6% Bentonite

Riser Type/Size: 2" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? Yes

Site Northing: TBS

Bottom Cap Used? Yes

Site Easting: TBS

Other: N/A

Project #: 03-118

Project Name: Ciniza Refinery - Boundry Wells

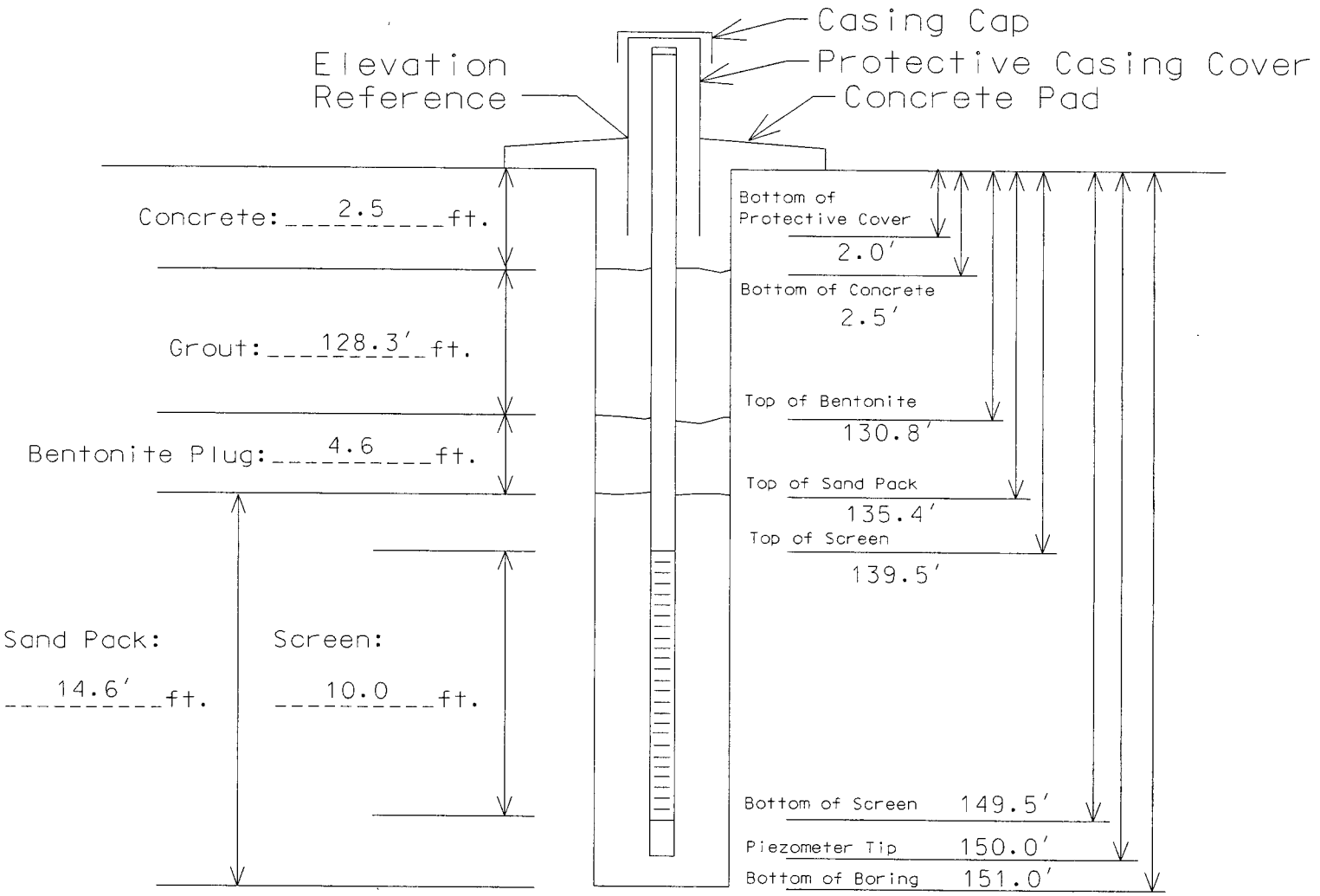
Elevation: TBS

PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. BW-2C



Boring Diameter: 8 5/8"

Sand Type: 20-40 Silica

Bollards, Type/Size: 3" Dia. Steel, Conc. Filled

Bentonite: 3/8" Chips

Screen Type/Size: 2" PVC Sch. 40, 0.010" Slotted

Cement/Grout: 6% Bentonite

Riser Type/Size: 2" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? Yes

Site Northing: TBS

Other: N/A

Bottom Cap Used? Yes

Site Easting: TBS

Project #: 03-118

Project Name: Ciniza Refinery - Boundry Wells

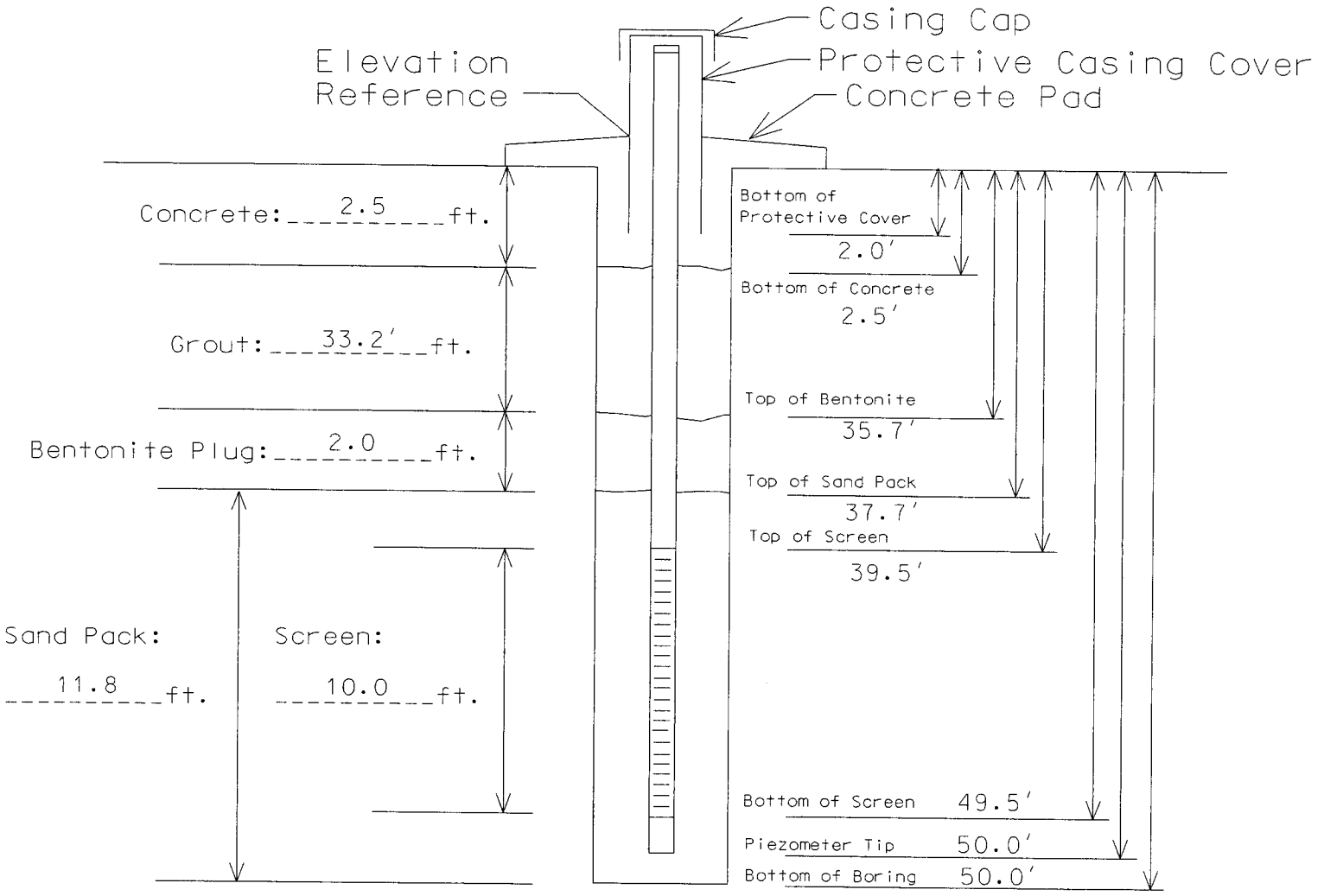
Elevation: TBS

PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. BW-3A



Boring Diameter: 8 5/8"

Sand Type: 20-40 Silica

Bollards, Type/Size: 3" Dia. Steel, Conc. Filled

Bentonite: 3/8" Chips

Screen Type/Size: 2" PVC Sch. 40, 0.010" Slotted

Cement/Grout: 6% Bentonite

Riser Type/Size: 2" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? Yes

Site Northing: TBS

Bottom Cap Used? Yes

Site Easting: TBS

Project #: 03-118

Project Name: Ciniza Refinery - Boundry Wells

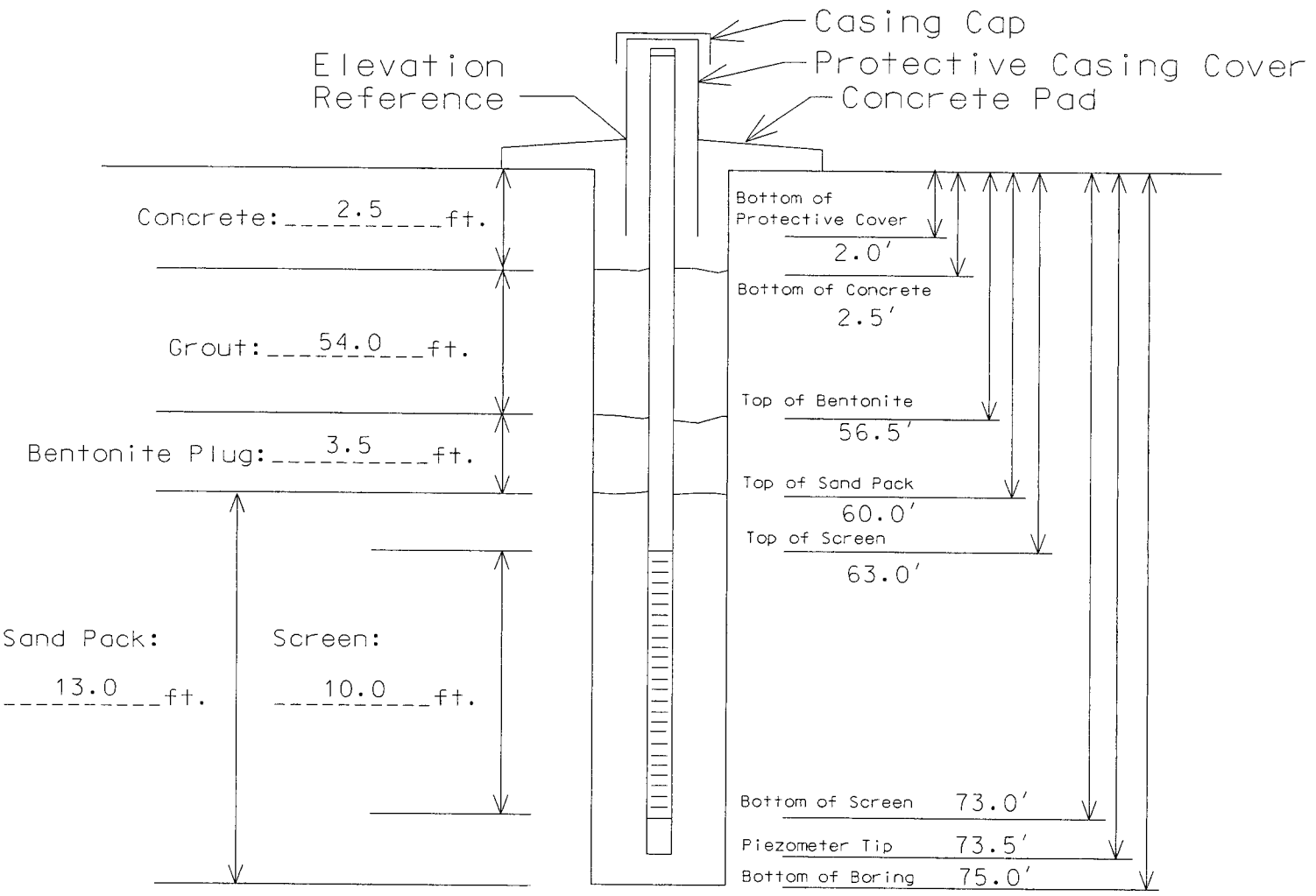
Elevation: TBS

PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. BW-3



Boring Diameter: 8 5/8"

Sand Type: 20-40 Silica

Bollards, Type/Size: 3" Dia. Steel, Conc. Filled

Bentonite: 3/8" Chips

Screen Type/Size: 2" PVC Sch. 40, 0.010" Slotted

Cement/Grout: 6% Bentonite

Riser Type/Size: 2" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? Yes

Site Northing: TBS

Other: Backfill w/3/8" Bentonite Chips to 73.0'

Bottom Cap Used? Yes

Site Easting: TBS

Project #: 03-118

Project Name: Ciniza Refinery - Boundry Wells

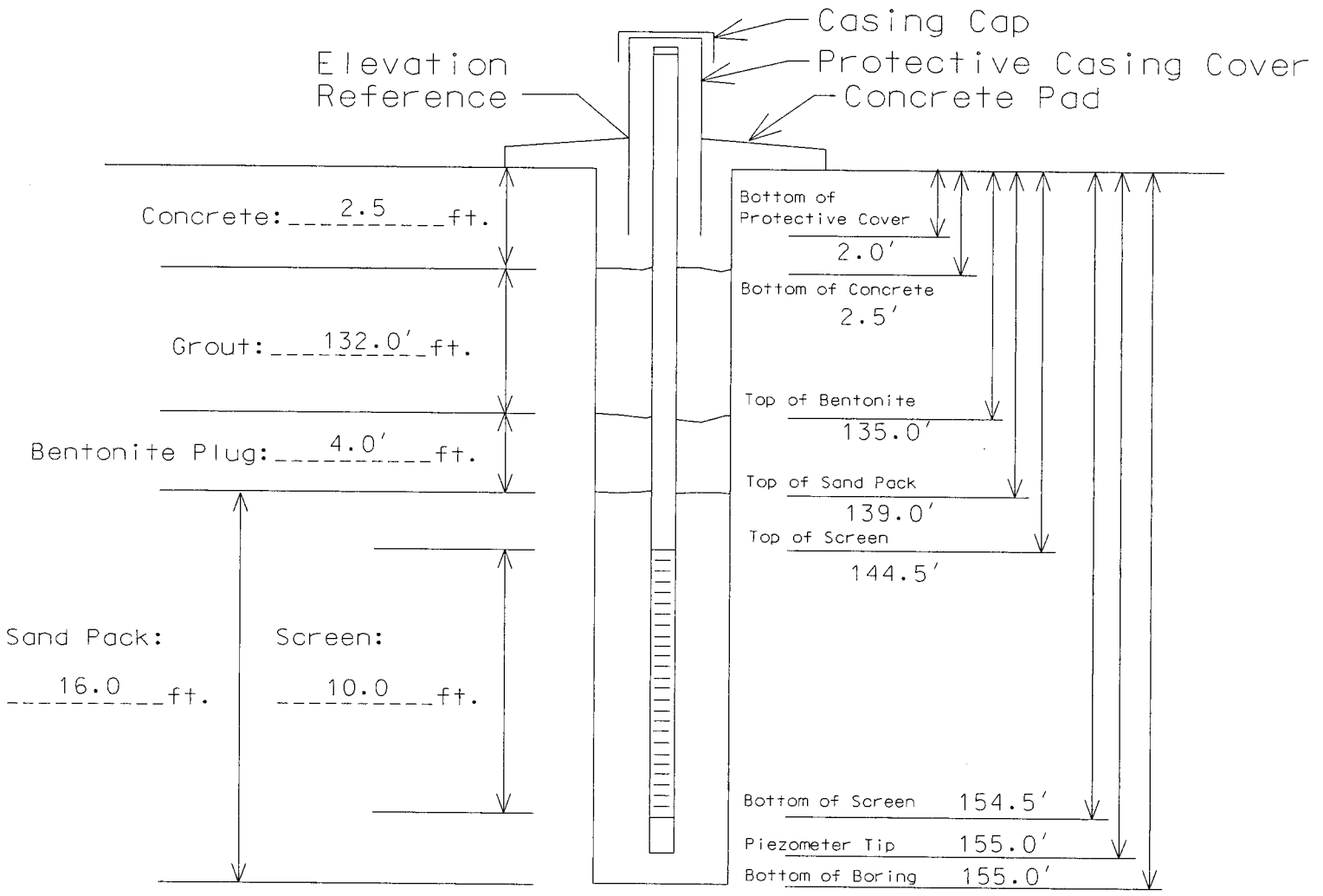
Elevation: TBS

PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. BW-3C



Boring Diameter: 8 5/8"

Sand Type: 20-40 Silica

Bollards, Type/Size: N/A

Bentonite: 3/8" Chips

Screen Type/Size: 2" PVC Sch. 40, 0.010" Slotted

Cement/Grout: 6% Bentonite

Riser Type/Size: 2" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? Yes

Site Northing: TBS

Other: N/A

Bottom Cap Used? Yes

Site Easting: TBS

Project #: 03-118

Project Name: Ciniza Refinery - Boundry Wells

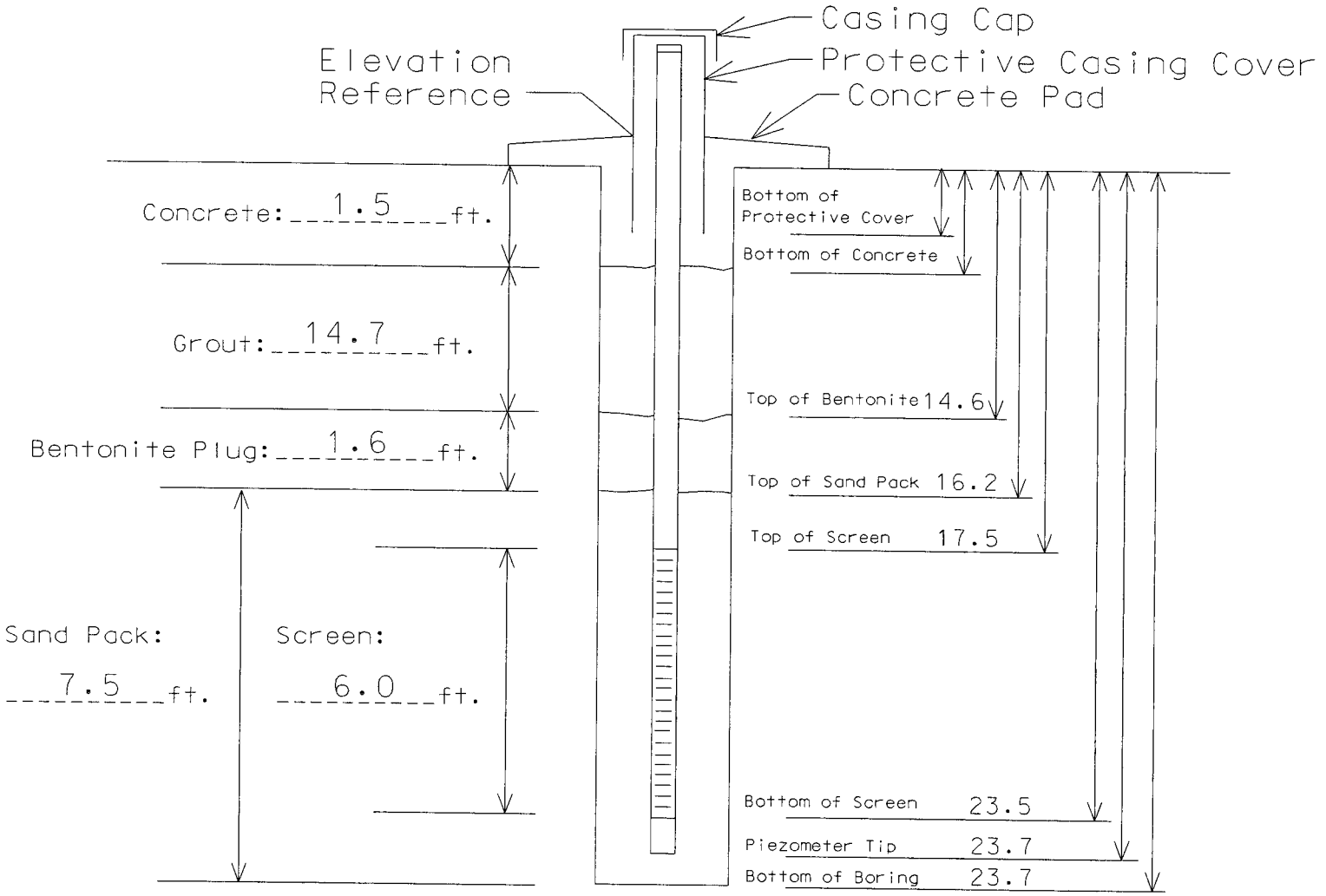
Elevation: TBS

PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. GWM-1



Boring Diameter: 8 5/8"

Sand Type: 20-40 SILICA

Bollards, Type/Size: NONE INSTALLED

Bentonite: 3/8" CHIPS

Screen Type/Size: 2", #10 SLOT, SCH 40 PVC

Cement/Grout: 6% BENTONITE/CEMENT

Riser Type/Size: 2", SCH 40 PVC

Water: NONE

Locking Expandable Casing Plug? YES

Site Northing: TBD

Other: ---

Bottom Cap Used? YES

Site Easting: TBD

Project #: 03-118

Project Name: POND 1 GROUNDWATER OBSERVATION

Elevation: TBD

Sheet: 1 OF 2
Bore Point: SW corner of Pond 1

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundry Wells

Water Elevation: Not Encountered
Boring No.: GWM-1

Log of Test Borings

Elevation: TBD
Date: 7/8/2004

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-1.5		o/o/o/o/ o/o/o/o/ o/o/o/o/		**Clay**, gravelly, red-brown, wet				
	1.5-20.0		//////////		**Clay**, red-brown, wet				
			//////////	2.5					
			//////////						
			//////////						
			//////////						
			//////////						
			//////////	5.0					
			//////////						
			//////////						
			//////////						
			//////////	7.5					
			//////////						
			//////////						
			//////////						
			//////////	10.0					
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////	15.0					
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////	20.0					
	20-21.5		//////////		**Clay**, black, wet,				
			//////////						
			//////////						

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** NS

C:\unzipped\Boundry Well Locations\[GWM-1.xls]Sheet1

Sheet: 2 OF 3
Bore Point: N. Ponds-see plan

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: Not Encountered
Boring No.: BW3A

Log of Test Borings

Elevation: Existing
Date: 6/15/2004

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-5.0		//////////	0.0	**Clay**, red-brown, firm, blocky, moist, roots from 0-2'				
			//////////	5.0					
	5.0-9.0		//////////		**Clay**, dark brown, firm, blocky, moist				
	9.0-9.3		//////////		**Clay**, red-brown, slightly silty, firm, moist				
	9.3-12.0		//////////	10.0	**Clay**, dark brown to red-brown, firm, blocky, moist				
	12.0-12.2		-----		**Silt**, clayey, light brown, crumbly, damp-dry				
	12.2-15.0		//////////	15.0	**Clay**, red-brown, firm, blocky, damp-moist				
	15.0-18.0		//////////		**Clay**, brown, hard, blocky, moist, 16.5 to 17.0' mottled dark and light brown, calcite nodules				
	18.0-20.0		*******	20.0	**Sand**, very fine, reddish-brown, loose, dry				
	20.0-24.3		*******		**Sand**, very fine, reddish, loose, dry, thin clay stringer, 2.5' recovered				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** KM/NS

C:\unzipped\Boundry Well Locations\[BW3A.xls]Sheet1

Sheet: 2 OF 3
Bore Point: N. Ponds-see plan

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: Not Encountered
Boring No.: BW3A

Log of Test Borings

Elevation: Existing
Date: 6/15/2004

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			////////// ////////// ////////// //////////	22.0	**Clay**, red-brown, firm, blocky, moist, roots from 0-2'				
	24.3-24.6		*- - -*		**Silt**, sandy, light brown, firm, dry				
	24.6-25.0		- - - - - - - - - - - -	25.0	**Silt**, light brown, hard, moist				
	25.0-27.0		*- - -* *- - -* *- - -*		**Silt**, sandy, light brown, loose, dry				
	27.0-30.0		/- - -/- - /- - -/- - /- - -/- - /- - -/- - /- - -/- - /- - -/- - /- - -/- -	30.0	**Silt**, some clay, mottled (silt is tan, clay is red-brown), hard, damp				
	30.0-35.0		//-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-//	35.0	**Clay**, silty, red-brown, mottled, hard, moist				
	35.0-37.0		//-//-//-// //-//-//-// //-//-//-//		**Clay**, silty, red-brown, mottled, hard, moist				
	37.0-40.0		////////// ////////// ////////// ////////// ////////// ////////// //////////	40.0	**Clay**, red-brown, hard, moist				
	40.0-41.0		//////////		**Clay**, red-brown, hard, moist, blocky				
	41.0-41.6		/- - -/- -		**Silt**, clayey, red-brown mottled, firm, moist				
	41.6-42.0		- - - - -		**Silt**, very fine sand, red-brown, soft, damp				
	42.0-43.0		******* ******* *******		**Sand**, very fine, some silt, tan grading to red-brown, loose, dry, siltier at bottom				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** KM/NS

C:\unzipped\Boundry Well Locations\[BW3A.xls]Sheet2

Sheet: 3 OF 3
Bore Point: N. Ponds-see plan

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: Not Encountered
Boring No.: BW3A

Log of Test Borings

Elevation: Existing
Date: 6/15/2004

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	43.0-45.0		////////// ////////// //////////	43.5	**Clay**, some silt, red-brown, mottled, firm, moist horizontal laminations, coarsing upward to sand				
	45.0-46.7		**_**_** **_**_** **_**_** **_**_**	45.0	**Sand**, very fine, silty, red-brown, loose, damp				
	46.7-47.3		- - - - - -		**Silt**, red-brown, firm, damp				
	47.3-48.3		//-//-//-// //-//-//-//		**Clay**, silty, red-brown mottled, blocky, firm, moist				
	48.3-50.0		////////// ////////// ////////// //////////	50.0	**Clay**, red-brown, small amount of grey mottling, hard, wet, limonite at 49.0'				
					T.D. 50.0				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger

LOGGED BY: KM/NS

C:\unzipped\Boundry Well Locations\[BW3A.xls]Sheet3

Sheet: 5 OF 8
Bore Point: N. Ponds-see plan

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 6.9' bgs
Boring No.: BW3C

Log of Test Borings

Elevation: Existing
Date: 7/20/2004

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			//////////	90.0					
	92.0-94.0		********		**Sand**, yellow-brown, hard, dry				
	94.0-105.0		//////////	95.0, 100.0, 105.0	**Mudstone/Siltstone**, yellow-brown, hard, dry				
	105-110.0		**/**/*/**		**Sandstone**, mudstone, silt, interbedded, dense, dry				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW3C.xls]Sheet5

Sheet: 6 OF 8
Bore Point: N. Ponds-see plan

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 6.9' bgs
Boring No.: BW3C

Log of Test Borings

Elevation: Existing
Date: 7/20/2004

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			//*/**						
			//*/**						
			//*/**						
			//*/**	110.0					
			//////////		**Mudstone/Siltstone**, smooth drilling but dense,				
			//////////		some fine sandy stringers encountered,				
			//////////		125-130' dark red-brown, not water bearing				
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////	115.0					
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////	120.0					
			//////////						
			//////////						
			//////////						
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			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////	125.0					
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			//////////						

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW3C.xls]Sheet6

Sheet: 7 OF 8
Bore Point: N. Ponds-see plan

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 6.9' bgs
Boring No.: BW3C

Log of Test Borings

Elevation: Existing
Date: 7/20/2004

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			//////////	130.0					
	130-155.0		*/-*/-*/-		**Mudstone/Siltstone/Sandstone**, interbedded, sandstone drills hard, white mudstone/Siltstone red-brown				
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-	135.0					
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-	140.0					
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-	145.0					
			/-/-*/-		**Sandstone**, weakly water bearing, white, hard, quartz				
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-	150.0					
			/-/-*/-						
			/-/-*/-						

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW3C.xls]Sheet7

Sheet: 8 OF 8
Bore Point: N. Ponds-see plan

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 6.9' bgs
Boring No.: BW3C

Log of Test Borings

Elevation: Existing
Date: 7/20/2004

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-						
			/-/-*/-	155.0					
					T.D. 155.0'				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW3C.xls]Sheet8

Sheet: 1 OF 2
Bore Point: 12' West of BW1

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: Not Encountered
Boring No.: BW1A

Log of Test Borings

Elevation: Existing
Date: 11/10/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-4.0	Continuous	//////////	2.5	**Clay**, firm, red-brown, moist				
	4.0-5.0		//////////	5.0	**Clay**, silty, firm-stiff, red-brown, wet				
	5.0-10.0		//////////	7.5 10.0	**Clay**, firm-stiff, red-brown, wet ("Fat Clay")				
	10.0-20.0		//////////	15.0 20.0	**Clay**, stiff, red-brown, wet ("Fat Clay")				
	20.0-24.5		//////////		**Clay**, hard, damp-moist, some slickensides, (shrink swell), brittle, slightly silty @ 21.0-21.3				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW1A.xls]Sheet1

Sheet: OF 2
Bore Point: 12' West of BW1

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: Not Encountered
Boring No.: BW1A

Log of Test Borings

Elevation: Existing
Date: 11/10/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			////////// ////////// ////////// ////////// //////////	22.0					
	24.5-24.7		********		**Sand**, very fine, silty, dry, loose, light red-brown				
	24.7-26.5		/*/*/*/*/*/ /*/*/*/*/*/ /*/*/*/*/*/	25.0	**Clay**, very sandy, silty hard, damp, red-brown crumbly				
	26.5-28.5		**-**-**- **-**-**- **-**-**- **-**-**-		**Sand**, very fine, silty, dry, slightly clayey, occasional < 1cm clay beds, loose-moderate dense, very light brown				
	28.5-30.5		//*//*//*// //*//*//*// //*//*//*// //*//*//*//	30.0	**Clay**, slightly sandy, silty, firm-stiff, very light red-brown, damp, occasional laminar salt bed, dry, very crumbly in hand				
	30.5-31.3		//*//*//*//		**Clay**, sandy, gradational with above dry, stiff-hard, very light brown				
	31.3-32.3		//*//*//*//						
	32.3-32.9		********		**Sand**, very fine, loose, silty, slightly clayey, moderate dense, very light brown, dry				
	32.9-33.2		//*//*//*//						
	33.2-35.0		//*//*//*// ********		**Clay**, slightly sandy, firm, dry, very light brown crumbles easily				
			******** //*//*//*//		**Sand**, very silty, dry, very light brown, moderate, dense				
			//*//*//*// //*//*//*//	35.0	**Clay**, slightly sandy, silty, hard, dry, crumbly, very light red-brown, graditional contacts				
	35.0-40.0		////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////	40.0	**Clay**, red-brown, "Fat", damp, crumbly in hand carves smooth vitrius surface with knife, hard, 2 lamini of very fine sand in 5' run				
					T.D. 40.0				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW1A.xls]Sheet2

Sheet: 1 OF 5
Bore Point: Offset BW1 5'

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 9' bgs
Boring No.: BW 1 C

Log of Test Borings

Elevation: TBD
Date: 11/10/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			////////// ////////// ////////// ////////// //////////	22.0					
	24.5-24.7		********		**Sand**, very fine, silty, dry, loose, light red-brown				
	24.7-26.5		/*/*/*/*/*/ /*/*/*/*/*/ /*/*/*/*/*/	25.0	**Clay**, very sandy, silty hard, damp, red-brown crumbly				
	26.5-28.5		**_**_**_ **_**_**_ **_**_**_ **_**_**_		**Sand**, very fine, silty, dry, slightly clayey, occasional < 1cm clay beds, loose-moderate dense, very light brown				
	28.5-30.5		//*//*//*// //*//*//*// //*//*//*// //*//*//*//	30.0	**Clay**, slightly sandy, silty, firm-stiff, very light red-brown, damp, occasional laminar salt bed, dry, very crumbly in hand				
	30.5-31.3		//*//*//*//		**Clay**, sandy, gradational with above dry, stiff-hard, very light brown				
	31.3-32.3		//*//*//*//						
	32.3-32.9		********		**Sand**, very fine, loose, silty, slightly clayey, moderate dense, very light brown, dry				
	32.9-33.2		//*//*//*//						
	33.2-35.0		//*//*//*// ********		**Clay**, slightly sandy, firm, dry, very light brown crumbles easily				
			******** //*//*//*//		**Sand**, very silty, dry, very light brown, moderate, dense				
			//*//*//*// //*//*//*//	35.0	**Clay**, slightly sandy, silty, hard, dry, crumbly, very light red-brown, graditional contacts				
	35.0-40.0		////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////	40.0	**Clay**, red-brown, "Fat", damp, crumbly in hand carves smooth vitrius surface with knife, hard, 2 lamini of very fine sand in 5' run				
	40.0-45.0		////////// ////////// ////////// ////////// ////////// //////////		**Same as above**, 1 sand laminae				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW1C.xls]Sheet2

Sheet: 1 OF 5
Bore Point: NW of Pond 11

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza Boundary Wells

Water Elevation: 28.5' bgs
Boring No.: BW2B

Log of Test Borings

Elevation: TBD
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0.0-5.0	Continuous	//////////	2.5 / 5.0	**Clay**, firm, red-brown, moist-wet, roots, white nodules				
	5.0-7.4		//////////		**Clay**, firm-stiff, red-brown, moist-wet				
	7.4-7.8		********	7.5	**Sand**, silty/clayey, red-brown, charcoal, moist				
	7.8-10.0		//////////	10.0	**Clay**, firm, red-brown, wet, mottled				
	10.0-11.0		//////////	11.0	**Clay**, firm, red-brown, wet				
	11.0-11.5		//-//-//-//		**Clay**, silty, pinkish-brown, wet,				
	11.5-14.2		//-//-//-//		**Clay**, firm, red-brown, wet,				
	14.2-15.0		//////////		**Clay**, silty, pinkish-brown, wet,				
	15.0-15.2		//-//-//-//	15.0	**Clay**, silty, pinkish-brown, wet,				
	15.2-17.7		//////////		**Clay**, firm, red-brown, wet, mottled				
	17.7-20.0		//////////	20.0	**Clay**, firm, dark brown, some red mottling, wet				
	20.0-24.4		//////////		**Clay**, firm, dark brown, wet				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2B.xls]Sheet1

Sheet: 2 OF 5
Bore Point: NW of Pond 11

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 28.5' bgs
Boring No.: BW2B

Log of Test Borings

Elevation: TBD
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			//////////	22.0					
			//////////						
			//////////						
			//////////						
			//////////						
	24.4-24.8		********		**Sand**, fine, red-brown, white grains, dry				
	24.8-25.0		********	25.0	**Silt**, pinkish-brown, dry				
			********						
			********						
	25.0-26.2		//////////		**Clay**, firm, silty, reddish brown w/ pinkish-brown				
	26.2-26.7		//////////		mottling, wet				
	26.7-27.3		********		**Sand**, very fine, pinkish-brown moist				
	27.3-29.0		- - - - - -		**Silt**, pinkish-brown, damp				
	29.0-30.0		//////////		**Clay**, firm, silty, pinkish- brown to reddish-brown,				
			//////////		mottled, damp, small carbonate nodules				
			//////////		**Clay**, reddish-brown, damp, small carbonate				
			//////////	30.0	nodules				
	30.0-31.2		- - - - - -		**Silt**, pinkish-brown, mottled, damp				
	31.2-34.3		//////////		**Clay**, firm, red-brown, moist				
			//////////		(32.5-32.6 grey mottled clay)				
			//////////						
			//////////						
			//////////						
			//////////						
	34.3-35.0		- - - - - -		**Silt**, pinkish-brown, dry				
			- - - - - -						
			- - - - - -	35.0					
	35.0-40.0		//-//-//-//		**Clay**, red-brown, firm, silty, mottled pinkish-brown				
			//-//-//-//		moist				
			//-//-//-//						
			//-//-//-//						
			//-//-//-//						
			//-//-//-//						
			//-//-//-//						
			//-//-//-//						
			//-//-//-//						
			//-//-//-//	40.0					
	40.0-40.9		//////////		**Clay**, red-brown, firm, moist				
	40.9-41.8		//////////		**Clay**, red-brown, soft, wet				
			//////////						
	41.8-42.9		//-//-//-//		**Sand**, very fine, silty, red-brown, thin clay stringers				
			//-//-//-//		black laminations, water bearing				
	42.9--43.5		//////////		**Clay**, red-brown, soft, wet				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2B.xls]Sheet2

Sheet: 3 OF 5
Bore Point: NW of Pond 11

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza Boundary Wells

Water Elevation: 28.5' bgs
Boring No.: BW2B

Log of Test Borings

Elevation: TBD
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	43.5-44.7		////////// //////////		**Clay**, red-brown, firm, wet				
	44.7-45.0		**/**/**/	45.0	**Sand**, clayey, red-brown, soft, wet				
	45.0-45.6		**/**/**/		**Sand**, clayey, red-brown, soft, water bearing				
	45.6-48.5		////////// ////////// ////////// ////////// //////////		**Clay**, red-brown, firm, wet				
	48.5-48.8		**/**/**/		**Sand**, clayey, red-brown, soft, wet				
	48.8-50.0		////////// ////////// //////////	50.0	**Clay**, red-brown, firm, wet, grey reduction spots				
	50.0-55.0		////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////	55.0	**Clay**, red-brown, firm, moist (2.0' of sample recovered)				
	55.0-60.0		//*//*//*// //*//*//*// //*//*//*// //*//*//*// //*//*//*// //*//*//*//		**Clay**, sandy, firm, brown, saturated (6" of sample recovered)				
	58.2-59.8		**/**/**/ **/**/**/ **/**/**/ **/**/**/	60.0	**Sand**, slightly clayey, mottled red-grey, dry, dense dense-very dense, pebbles of limestone, chert and sandstone				
	60.0-64.7		********* ********* ********* ********* ********* ********* *********		**Sand**, fine, brown, loose, water bearing, 1" clay stringer from 61.0 to 61.2' (1.2' of sample recovered)				
	64.7-65.0		////////// ////////// //////////		**Clay**, red-brown, firm, wet				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2B.xls]Sheet3

Sheet: 4 OF 5
Bore Point: NW of Pond 11

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza Boundary Wells

Water Elevation: 28.5' bgs
Boring No.: BW2B

Log of Test Borings

Elevation: TBD
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	65.0-70.0		////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////	65.0 70.0	**Clay**, dark brown, firm, some red-brown mottling, wet				
	70.0-75.0		////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////	75.0	**Clay**, dark brown, firm, wet				
	75.0-79.5		////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////		**Clay**, red brown, firm, wet				
	79.5-82.5		////////// ////////// ////////// ////////// ////////// ////////// //////////	80.0	**Clay**, red brown, firm, wet, grey reduction spots				
	82.5-84.5		**/**/**/ **/**/**/ **/**/**/ **/**/**/		**Sand**, clayey, red-brown, moderate dense, some gravels (sandstone and limestone), weakly water bearing				
	84.5-85.0		////////// ////////// ////////// //////////	85.0	**Petrified Forest Formation, Painted Desert Mem** **Mudstone**, weathered, red-brown, grey-green reduction spots, hard, moist-wet, blocky/crumbly				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2B.xls]Sheet4

Sheet: 5 OF 5
Bore Point: NW of Pond 11

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 28.5' bgs
Boring No.: BW2B

Log of Test Borings

Elevation: TBD
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	85.0-90.0		////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////	86.0 90.0	**Mudstone**, weathered, red-brown, grey-green reduction spots, hard, moist-wet, blocky/crumbly, mottled, thin bedded to laminar, more laminar > 86'				
	T.D.				Set well in boring .010" Slotted PVC Screen: set in 80'-90' interval				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2B.xls]Sheet5

Sheet: 1 OF 4
Bore Point: N. Ponds-see plan

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: Not Encountered
Boring No.: BW3B

Log of Test Borings

Elevation: Existing
Date: 10/15/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-5.0		//////////	0.0	**Clay**, red-brown, firm, blocky, moist, roots from 0-2'				
			//////////	5.0					
	5.0-9.0		//////////		**Clay**, dark brown, firm, blocky, moist				
	9.0-9.3		//////////		**Clay**, red-brown, slightly silty, firm, moist				
	9.3-12.0		//////////	10.0	**Clay**, dark brown to red-brown, firm, blocky, moist				
	12.0-12.2		-----		**Silt**, clayey, light brown, crumbly, damp-dry				
	12.2-15.0		//////////	15.0	**Clay**, red-brown, firm, blocky, damp-moist				
	15.0-18.0		//////////		**Clay**, brown, hard, blocky, moist, 16.5 to 17.0' mottled dark and light brown, calcite nodules				
	18.0-20.0		*******	20.0	**Sand**, very fine, reddish-brown, loose, dry				
	20.0-24.3		*******		**Sand**, very fine, reddish, loose, dry, thin clay stringer, 2.5' recovered				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** KM/NS

C:\unzipped\Boundry Well Locations\[BW3B.xls]Sheet1

Sheet: 2 OF 4
Bore Point: N. Ponds-see plan

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: Not Encountered
Boring No.: BW3B

Log of Test Borings

Elevation: Existing
Date: 11/11/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			////////// ////////// ////////// //////////	22.0	**Clay**, red-brown, firm, blocky, moist, roots from 0-2'				
	24.3-24.6		*- - -*		**Silt**, sandy, light brown, firm, dry				
	24.6-25.0		- - - - - - - - - - - -	25.0	**Silt**, light brown, hard, moist				
	25.0-27.0		*- - -* *- - -* *- - -*		**Silt**, sandy, light brown, loose, dry				
	27.0-30.0		/- - -/- - /- - -/- - /- - -/- - /- - -/- - /- - -/- - /- - -/- - /- - -/- -	30.0	**Silt**, some clay, mottled (silt is tan, clay is red-brown), hard, damp				
	30.0-35.0		//-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-//	35.0	**Clay**, silty, red-brown, mottled, hard, moist				
	35.0-37.0		//-//-//-// //-//-//-// //-//-//-//		**Clay**, silty, red-brown, mottled, hard, moist				
	37.0-40.0		////////// ////////// ////////// ////////// ////////// ////////// //////////	40.0	**Clay**, red-brown, hard, moist				
	40.0-41.0		//////////		**Clay**, red-brown, hard, moist, blocky				
	41.0-41.6		/- - -/- -		**Silt**, clayey, red-brown mottled, firm, moist				
	41.6-42.0		- - - - -		**Silt**, very fine sand, red-brown, soft, damp				
	42.0-43.0		******* ******* *******		**Sand**, very fine, some silt, tan grading to red-brown, loose, dry, siltier at bottom				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** KM/NS

C:\unzipped\Boundry Well Locations\[BW3B.xls]Sheet2

Sheet: 3 OF 4
Bore Point: N. Ponds-see plan

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: Not Encountered
Boring No.: BW3B

Log of Test Borings

Elevation: Existing
Date: 10/15/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	43.0-45.0		////////// ////////// //////////	43.5	**Clay**, some silt, red-brown, mottled, firm, moist horizontal laminations, coarsing upward to sand				
	45.0-46.7		**_**_** **_**_** **_**_** **_**_**	45.0	**Sand**, very fine, silty, red-brown, loose, damp				
	46.7-47.3		- - - - - -		**Silt**, red-brown, firm, damp				
	47.3-48.3		//-//-//-// //-//-//-//		**Clay**, silty, red-brown mottled, blocky, firm, moist				
	48.3-50.0		////////// ////////// ////////// //////////	50.0	**Clay**, red-brown, small amount of grey mottling, hard, wet, limonite at 49.0'				
	50.0-55.0		////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////	55.0	**Clay**, red-brown, small amount of grey mottling, hard, wet, limonite at 49.0', slightly softer than above (sticky)				
	55.0-57.5		////////// ////////// ////////// //////////		**Clay**, red-brown, stiff, wet, some charcoal at 56.0' as laminar partings				
	57.5-57.7		//*//*//*//		**Clay**, red-brown, sandy, clay soft on both sides not water bearing but wetter than above and below				
	57.7-60.0		//*//*//*// ////////// ////////// ////////// //////////	60.0	**Clay**, red-brown, very stiff, wet, sticky, slickensided when sampled, some grey reduction marks as random striations, looks dendritic in 3D, occasional charcoal pieces				
	60.0-61.8		////////// //////////		**Clay as above**				
	61.8-62.0		*******		**Sand**, clayey, red-brown, loose-soft, wet				
	62.0-62.4		////////// //////////		**Clay**, red-brown, firm, wet, some scattered charcoal				
	62.4-63.2		******* ****		**Clay**, sandy, brown-grey, soft, very wet, not water bearing				
	63.2-66.2		******* *******		**Sand**, silty, fine, red-brown, water bearing, some clay, limonite stain, laminar banded				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** KM/NS

C:\unzipped\Boundry Well Locations\[BW3B.xls]Sheet3

Sheet: 4 OF 4
Bore Point: N. Ponds-see plan

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: Not Encountered
Boring No.: BW3B

Log of Test Borings

Elevation: Existing
Date: 10/15/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			******* ******* *******	65.0					
	66.2-69.6		////////// ////////// ////////// ////////// //////////		**Clay**, light red, very stiff, wet, some scattered reduction spots				
	69.6-69.8		*******		**Sand**, clayey, red-brown, moist				
	69.8-71.8		////////// ////////// ////////// ////////// //////////	70.0	**Clay**, red-brown, stiff, wet, occasional red spots				
	71.8-72.2		//*//*//*//		**Clay**, coarse sandy, dark red-brown, wet				
	72.2-72.4		//////////		**Clay**, red-brown, stiff, wet				
	72.4-72.8		********		**Sand**, clayey, red-brown, moderate dense,				
	72.8-74.0		********		loose, wet				
	74.0-75.0		//////////		**Clay**, coarse sandy, very stiff, wet, rare pebbles				
			////////// ////////// ////////// ////////// //////////	75.0	**Chinle Group, Petrified Forest Formation, Painted Desert Member** **Mudstone**, purple, hard, damp, blocky/crumbly, green-grey reduction webs and occasional spots				
	T.D.				Set well in boring .010" Slotted PVC Screen: set in 62'-72' interval				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** KM/NS

C:\unzipped\Boundry Well Locations\[BW3B.xls]Sheet4

Sheet: 1 OF 8
Bore Point: NW of Pond 11

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 11.0 bgs
Boring No.: BW2C

Log of Test Borings

Elevation: TBD
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0.0-5.0	Continuous	////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////	2.5 5.0	**Clay**, firm, red-brown, moist-wet, roots, white nodules				
	5.0-7.4		////////// ////////// ////////// //////////		**Clay**, firm-stiff, red-brown, moist-wet				
	7.4-7.8		******** ******** ******** ******** ********	7.5	**Sand**, silty/clayey, red-brown, charcoal, moist				
	7.8-10.0		////////// //////////	10.0	**Clay**, firm, red-brown, wet, mottled				
	10.0-11.0		//////////	11.0	**Clay**, firm, red-brown, wet				
	11.0-11.5		//-//-//-//		**Clay**, silty, pinkish-brown, wet,				
	11.5-14.2		//-//-//-// //-//-//-// //-//-//-// //-//-//-//		**Clay**, firm, red-brown, wet,				
	14.2-15.0		////////// //////////		**Clay**, silty, pinkish-brown, wet,				
	15.0-15.2		//-//-//-//	15.0	**Clay**, silty, pinkish-brown, wet,				
	15.2-17.7		////////// ////////// ////////// ////////// //////////		**Clay**, firm, red-brown, wet, mottled				
	17.7-20.0		////////// ////////// ////////// ////////// //////////	20.0	**Clay**, firm, dark brown, some red mottling, wet				
	20.0-24.4		////////// ////////// //////////		**Clay**, firm, dark brown, wet				

SIZE & TYPE OF BORING: 6-1/4" OD Air Rotary **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2C.xls]Sheet1

Sheet: 2 OF 8
Bore Point: NW of Pond 11

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza Boundary Wells

Water Elevation: 11.0 bgs
Boring No.: BW2C

Log of Test Borings

Elevation: TBD
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			////////// ////////// ////////// ////////// //////////	22.0					
	24.4-24.8		********		**Sand**, fine, red-brown, white grains, dry				
	24.8-25.0		******** ******** ********	25.0	**Silt**, pinkish-brown, dry				
	25.0-26.2		//////////		**Clay**, firm, silty, reddish brown w/ pinkish-brown mottling, wet				
	26.2-26.7		//////////						
	26.7-27.3		********		**Sand**, very fine, pinkish-brown moist				
	27.3-29.0		- - - - - -		**Silt**, pinkish-brown, damp				
	29.0-30.0		////////// ////////// //////////		**Clay**, firm, silty pinkish-brown to reddish-brown, mottled, damp, small carbonate nodules				
			//////////	30.0	**Silt**, pinkish-brown, mottled, damp nodules				
	30.0-31.2		- - - - - -		**Silt**, pinkish-brown, mottled, damp				
	31.2-34.3		////////// ////////// ////////// ////////// ////////// //////////		**Clay**, firm, red-brown, moist (32.5-32.6 grey mottled clay)				
	34.3-35.0		- - - - - - - - - - - - - - - - - -	35.0	**Silt**, pinkish-brown, dry				
	35.0-40.0		//-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-// //-//-//-//	40.0	**Clay**, red-brown, firm, silty, mottled pinkish-brown moist				
	40.0-40.9		//////////		**Clay**, red-brown, firm, moist				
	40.9-41.8		////////// //////////		**Clay**, red-brown, soft, wet				
	41.8-42.9		//-//-//-// //-//-//-//		**Sand**, very fine, silty, red-brown, thin clay stringers black laminations, water bearing				
	42.9--43.5		//////////		**Clay**, red-brown, soft, wet				

SIZE & TYPE OF BORING: 6-1/4" OD Air Rotary **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2C.xls]Sheet2

Sheet: 3 OF 8
Bore Point: NW of Pond 11

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 11.0 bgs
Boring No.: BW2C

Log of Test Borings

Elevation: TBD
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	43.5-44.7		////////// //////////		**Clay**, red-brown, firm, wet				
	44.7-45.0		**/**/**/	45.0	**Sand**, clayey, red-brown, soft, wet				
	45.0-45.6		**/**/**/		**Sand**, clayey, red-brown, soft, water bearing				
	45.6-48.5		////////// ////////// ////////// ////////// //////////		**Clay**, red-brown, firm, wet				
	48.5-48.8		**/**/**/		**Sand**, clayey, red-brown, soft, wet				
	48.8-50.0		////////// ////////// //////////	50.0	**Clay**, red-brown, firm, wet, grey reduction spots				
	50.0-55.0		////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////	55.0	**Clay**, red-brown, firm, moist 2.0' of sample recovered				
	55.0-60.0		//*//*//*// //*//*//*// //*//*//*// //*//*//*// //*//*//*// //*//*//*//		**Clay**, sandy, firm, brown, saturated (6" of sample recovered)				
	58.2-59.8		**/**/**/ **/**/**/ **/**/**/ **/**/**/	60.0	**Sand**, slightly clayey, mottled red-grey, dry, dense dense-very dense, pebbles of limestone, chert and sandstone				
	60.0-64.7		********* ********* ********* ********* ********* ********* *********		**Sand**, fine, brown, loose, water bearing, 1" clay stringer from 61.0 to 61.2' (1.2' of sample recovered)				
	64.7-65.0		////////// ////////// //////////		**Clay**, red-brown, firm, wet				

SIZE & TYPE OF BORING: 6-1/4" OD Air Rotary **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2C.xls]Sheet3

Sheet: 4 OF 8
Bore Point: NW of Pond 11

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza Boundary Wells

Water Elevation: 11.0 bgs
Boring No.: BW2C

Log of Test Borings

Elevation: TBD
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	65.0-70.0		////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////	65.0 70.0	**Clay**, dark brown, firm, some red-brown mottling, wet				
	70.0-75.0		////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////	75.0	**Clay**, dark brown, firm, wet				
	75.0-79.5		////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////		**Clay**, red brown, firm, wet				
	79.5-82.5		////////// ////////// ////////// ////////// ////////// ////////// //////////	80.0	**Clay**, red brown, firm, wet, grey reduction spots				
	82.5-84.5		**/**/**/ **/**/**/ **/**/**/ **/**/**/		**Sand**, clayey, red-brown, moderate dense, some gravels (sandstone and limestone), weakly water bearing				
	84.5-85.0		////////// ////////// ////////// //////////	85.0	**Petrified Forest Formation, Painted Desert Mem** **Mudstone**, weathered, red-brown, grey-green reduction spots, hard, moist-wet, blocky/crumbly				

SIZE & TYPE OF BORING: 6-1/4" OD Air Rotary **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2C.xls]Sheet4

Sheet: 6 OF 8
Bore Point: NW of Pond 11

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza Boundary Wells

Water Elevation: 11.0 bgs
Boring No.: BW2C

Log of Test Borings

Elevation: TBD
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	85.0-90.0		//////////	86.0	**Mudstone**, weathered, red-brown, grey-green reduction spots, hard, moist-wet, blocky/crumbly, mottled, thin bedded to laminar, more laminar > 86'				
			//////////	90.0					
	90.0-151.0		//////////		**Mudstone/Siltstone** interbedded, blocky, damp-dry, dense **Chinle Group, Petrified Forest Formation, Painted Desert Member** blocky, damp-dry, dense **Chinle Group, Petrified Forest Formation, Painted Desert Member**				
			//////////	95.0					
			//////////	100.0					
			//////////	105.0					

SIZE & TYPE OF BORING: 6-1/4" OD Air Rotary **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2C.xls]Sheet5

Sheet: 6 OF 8
Bore Point: NW of Pond 11

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 11.0 bgs
Boring No.: BW2C

Log of Test Borings

Elevation: TBD
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
				110.0					
				115.0					
				120.0					
				125.0					

SIZE & TYPE OF BORING: 6-1/4" OD Air Rotary

LOGGED BY: WHK

C:\unzipped\Boundry Well Locations\[BW2C.xls]Sheet6

Sheet: 7 OF 8
Bore Point: NW of Pond 11

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 11.0 bgs
Boring No.: BW2C

Log of Test Borings

Elevation: TBD
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			//////////						
			//////////						
			//////////						
			//////////						
			//////////	130.0					
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////	135.0					
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////	140.0					
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
	143.0-165.0		********		**Petrified Forest Formation**				
			********		**Sandstone**, very argillaceous, green-white				
			********		weakly water bearing, (easily drilled)				
			********	145.0					
			********						
			********						
			********						
			********						
			********						
			********						
			********						
			********						

SIZE & TYPE OF BORING: 6-1/4" OD Air Rotary **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2C.xls]Sheet7

Sheet: 5 OF 8
Bore Point: NW of Pond 11

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 11.0 bgs
Boring No.: BW2C

Log of Test Borings

Elevation: TBD
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			********						
			********	150.0					
			********						
			********						
			********						
			********						
			********						
			********						
			********						
			********						
			********						
			********	155.0					
			********						
			********						
			********						
			********						
			********						
			********						
			********						
			********						
			********						
			********						
			********						
			********						
			********	160.0					
			********						
			********						
			********						
			********						
			********						
			********						
			********						
			********						
			********						
			********						
			********	165.0					
			////////////		**Siltstone/Mudstone**, interbedded as above				
			////////////						
			////////////						
			////////////						
			////////////						
			////////////						
			////////////						
			////////////						
			////////////						
			////////////	170.0	T.D.				

SIZE & TYPE OF BORING: 6-1/4" OD Air Rotary **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2C.xls]Sheet8

Sheet: 1 OF 3
Bore Point: 10' West of BW2B

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza Boundary Wells

Water Elevation: 25.9' bgs
Boring No.: BW 2A

Log of Test Borings

Elevation: TBD
Date: 11/10/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0.0-5.0	Continuous	////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////	2.5 5.0	**Clay**, firm, red-brown, moist-wet, roots, white nodules				
	5.0-7.4		////////// ////////// ////////// //////////		**Clay**, firm-stiff, red-brown, moist-wet				
	7.4-7.8		******** ******** ******** ******** ********	7.5	**Sand**, silty/clayey, red-brown, charcoal, moist				
	7.8-10.0		////////// //////////	10.0	**Clay**, firm, red-brown, wet, mottled				
	10.0-11.0		//////////	11.0	**Clay**, firm, red-brown, wet				
	11.0-11.5		//-//-//-//		**Clay**, silty, pinkish-brown, wet,				
	11.5-14.2		//-//-//-// //-//-//-// //-//-//-// //-//-//-//		**Clay**, firm, red-brown, wet,				
	14.2-15.0		////////// //////////		**Clay**, silty, pinkish-brown, wet,				
	15.0-15.2		//-//-//-//	15.0	**Clay**, silty, pinkish-brown, wet,				
	15.2-17.7		////////// ////////// ////////// ////////// //////////		**Clay**, firm, red-brown, wet, mottled				
	17.7-20.0		////////// ////////// ////////// ////////// //////////	20.0	**Clay**, firm, dark brown, some red mottling, wet				
	20.0-24.4		////////// ////////// //////////		**Clay**, firm, dark brown, wet				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2A.xls]Sheet1

Sheet: 2 OF 3
Bore Point: 10' West of BW2B

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza Boundary Wells

Water Elevation: 25.9' bgs
Boring No.: BW 2A

Log of Test Borings

Elevation: TBD
Date: 11/10/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			//////////	22.0					
			//////////						
			//////////						
			//////////						
			//////////						
	24.4-24.8		********		**Sand**, fine, red-brown, white grains, dry				
	24.8-25.0		********	25.0	**Silt**, pinkish-brown, dry				
			********						
			********						
	25.0-26.2		//////////		**Clay**, firm, silty, reddish brown w/ pinkish-brown				
	26.2-26.7		//////////		mottling, wet				
	26.7-27.3		********		**Sand**, very fine, pinkish-brown moist				
	27.3-29.0		- - - - - -		**Silt**, pinkish-brown, damp				
	29.0-30.0		//////////		**Clay**, firm, silty, pinkish- brown to reddish-brown,				
			//////////		mottled, damp, small carbonate nodules				
			//////////		**Clay**, reddish-brown, damp, small carbonate				
			//////////	30.0	nodules				
	30.0-31.2		- - - - - -		**Silt**, pinkish-brown, mottled, damp				
	31.2-34.3		//////////		**Clay**, firm, red-brown, moist				
			//////////		(32.5-32.6 grey mottled clay)				
			//////////						
			//////////						
			//////////						
			//////////						
	34.3-35.0		- - - - - -		**Silt**, pinkish-brown, dry				
			- - - - - -						
			- - - - - -	35.0					
	35.0-40.0		//-//-//-//		**Clay**, red-brown, firm, silty, mottled pinkish-brown				
			//-//-//-//		moist				
			//-//-//-//						
			//-//-//-//						
			//-//-//-//						
			//-//-//-//						
			//-//-//-//						
			//-//-//-//						
			//-//-//-//						
			//-//-//-//						
			//-//-//-//	40.0					
	40.0-40.9		//////////		**Clay**, red-brown, firm, moist				
	40.9-41.8		//////////		**Clay**, red-brown, soft, wet				
			//////////						
	41.8-42.9		//-//-//-//		**Sand**, very fine, silty, red-brown, thin clay stringers				
			//-//-//-//		black laminations, water bearing				
	42.9--43.5		//////////		**Clay**, red-brown, soft, wet				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2A.xls]Sheet2

Sheet: 3 OF 3
Bore Point: 10' West of BW2B

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 25.9' bgs
Boring No.: BW 2A

Log of Test Borings

Elevation: TBD
Date: 11/10/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	43.5-44.7		////////// //////////		**Clay**, red-brown, firm, wet				
	44.7-45.0		**/**/**/	45.0	**Sand**, clayey, red-brown, soft, wet				
	45.0-45.6		**/**/**/		**Sand**, clayey, red-brown, soft, water bearing				
	45.6-48.5		////////// ////////// ////////// ////////// //////////		**Clay**, red-brown, firm, wet				
	48.5-48.8		**/**/**/		**Sand**, clayey, red-brown, soft, wet				
	48.8-50.0		////////// ////////// //////////	50.0	**Clay**, red-brown, firm, wet, grey reduction spots				
	50.0-55.0		////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////	55.0	**Clay**, red-brown, firm, moist (2.0' of sample recovered)				
	55.0-60.0		//*//*//*// //*//*//*// //*//*//*// //*//*//*// //*//*//*// //*//*//*//		**Clay**, sandy, firm, brown, saturated (6" of sample recovered)				
	58.2-59.8		**/**/**/ **/**/**/ **/**/**/ **/**/**/	60.0	**Sand**, slightly clayey, mottled red-grey, dry, dense dense-very dense, pebbles of limestone, chert and sandstone				
	60.0-64.7		********* ********* ********* ********* ********* ********* *********		**Sand**, fine, brown, loose, water bearing, 1" clay stringer from 61.0 to 61.2' (1.2' of sample recovered)				
	64.7-65.0		////////// ////////// //////////		**Clay**, red-brown, firm, wet T.D. 65.0'				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW2A.xls]Sheet3

Sheet: 1 OF 3
Bore Point: Dike 7-8 intersection

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 9' bgs
Boring No.: BW1B

Log of Test Borings

Elevation: Existing
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-4.0	Continuous	//////////	2.5	**Clay**, firm, red-brown, moist				
	4.0-5.0		//////////	5.0	**Clay**, silty, firm-stiff, red-brown, wet				
	5.0-10.0		//////////	7.5 10.0	**Clay**, firm-stiff, red-brown, wet ("Fat Clay")				
	10.0-20.0		//////////	15.0 20.0	**Clay**, stiff, red-brown, wet ("Fat Clay")				
	20.0-24.5		//////////		**Clay**, hard, damp-moist, some slickensides, (shrink swell), brittle, slightly silty @ 21.0-21.3				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW1B.xls]Sheet1

Sheet: 2 OF 3
Bore Point: Dike 7-8 intersection

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 9' bgs
Boring No.: BW1B

Log of Test Borings

Elevation: Existing
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			////////// ////////// ////////// ////////// //////////	22.0					
	24.5-24.7		********		**Sand**, very fine, silty, dry, loose, light red-brown				
	24.7-26.5		/*/*/*/*/*/ /*/*/*/*/*/ /*/*/*/*/*/	25.0	**Clay**, very sandy, silty hard, damp, red-brown crumbly				
	26.5-28.5		**_**_**_ **_**_**_ **_**_**_ **_**_**_		**Sand**, very fine, silty, dry, slightly clayey, occasional < 1cm clay beds, loose-moderate dense, very light brown				
	28.5-30.5		//*//*//*// //*//*//*// //*//*//*// //*//*//*//	30.0	**Clay**, slightly sandy, silty, firm-stiff, very light red-brown, damp, occasional laminar salt bed, dry, very crumbly in hand				
	30.5-31.3		//*//*//*//		**Clay**, sandy, gradational with above dry, stiff-hard, very light brown				
	31.3-32.3		//*//*//*//						
	32.3-32.9		********		**Sand**, very fine, loose, silty, slightly clayey, moderate dense, very light brown, dry				
	32.9-33.2		//*//*//*//						
	33.2-35.0		//*//*//*// ********		**Clay**, slightly sandy, firm, dry, very light brown crumbles easily				
			******** //*//*//*//		**Sand**, very silty, dry, very light brown, moderate, dense				
			//*//*//*// //*//*//*//	35.0	**Clay**, slightly sandy, silty, hard, dry, crumbly, very light red-brown, graditional contacts				
	35.0-40.0		////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// ////////// //////////	40.0	**Clay**, red-brown, "Fat", damp, crumbly in hand carves smooth vitrius surface with knife, hard, 2 lamini of very fine sand in 5' run				
	40.0-45.0		////////// ////////// ////////// ////////// ////////// //////////		**Same as above**, 1 sand laminae				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW1B.xls]Sheet2

Sheet: 3 OF 3
Bore Point: Dike 7-8 intersection

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundary Wells

Water Elevation: 9' bgs
Boring No.: BW1B

Log of Test Borings

Elevation: Existing
Date: 10/28/2003

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
			//////////	44.0					
			//////////						
			//////////	45.0					
	45.0-50.0		//////////		**Same as above**				
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////	50.0					
	50.0-52.0		**/**/**/		**Sand**, clayey, moderate dense, dark red-purple, damp				
			//**/						
			//**/						
	52.0-55.0		//////////		**Clay**, dark red-purple, hard, moist-wet, crumbles in hand sample				
			//////////						
			//////////						
			//////////						
			//////////						
			//////////						
			//////////	55.0					
	55.0-58.2		/*/*/*/*/*/		**Clay**, very sandy, red-purple, hard, brittle, moist-wet, gradition of sand is greater with depth				
			/*/*/*/*/*/						
			/*/*/*/*/*/						
			/*/*/*/*/*/						
			/*/*/*/*/*/						
			/*/*/*/*/*/						
	58.2-59.8		**/**/**/		**Sand**, slightly clayey, mottled red-grey, dry, dense dense-very dense, pebbles of limestone, chert and sandstone				
			//**/						
	59.8-60.0								
				60.0	**Petrified Forest Formation of the Painted Desert Member**. **Clay**,(claystone), red, carbonate nodules, (white), hard, crumbly, damp-moist				
	60.0-65.0								
					Same as above, some grey mottling, fissile at 60.0'				
	T.D.			65.0	Set well in boring, see well diagram				
					.010" Slotted PVC Screen: set in 64.6'-54.6' interval				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** WHK

C:\unzipped\Boundry Well Locations\[BW1B.xls]Sheet3

Sheet: 2 OF 2
Bore Point: SW corner of Pond 1

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 03-118
Site: Ciniza
Boundry Wells

Water Elevation: Not Encountered
Boring No.: GWM-1

Log of Test Borings

Elevation: TBD
Date: 7/8/2004

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	21.5-24.0		////////// //////////	22.0	**Sand**, gravelly				
	22.5-24.0		////////// ////////// //////////		**Petrified Forest Formation, Painted Desert Member, Mudstone**, weathered, red-purple, reduction spots, hard, moist, blocky/crumbly				
	24.0			25.0	T.D.				
					Screened interval 18-24'				
				30.0					
				35.0					
				40.0					
					Clay, black, wet,				

SIZE & TYPE OF BORING: 4-1/4" ID Hollow Stemmed Auger **LOGGED BY:** NS

C:\unzipped\Boundry Well Locations\[GWM-1.xls]Sheet2