# GW - 32

# GENERAL CORRESPONDENCE

# YEAR(S):

3/06 → 1/13/06

OCD Agenda Items- By Carl Chavez
March 28, 2006

**OCD Follow Up Items from September 8, 2005 Site Inspection**
**Ciniza Refinery Meeting**
**March 28, 2006**

### Post September 8, 2005 Inspection Follow Up Items

1. Dennis Fuhs of Fuhs Construction plans to be onsite Jan. 3rd to clean up banks on aeration lagoons 1 & 2 as well as evaporation ponds 1 and 2. He will also build a berm around the LPG bullet tanks and light natural gasoline tanks NE side of the refinery by the RR Loading Rack. When those two projects are complete he will take care of the mounds of soil east of the Central OCD landfarm. *During the November 10, 2005 storm water inspection meeting with NMED and the OCD follow up meeting, the OCD also required a berm around the refinery process area to prevent process area drainage from impacting storm water drainage areas. Have all of the berms for the above areas been completed? Jim Lieb's email msg. of 3/2/06, indicated Fuh's Trucking had completed 70% of cleanup of the ALs and EPs. What is the status of cleanup at ALs and EPs?*

2. What is the status of the chopper pump? According to Jim Lieb, on 3/2/06, it was installed and is working fine. *Giant had already planned to install a chopper pump before the OCD 9/8/05 site inspection right? Explain why the new chopper pump in the NAPI was needed and how it improves Giant's treatment system?*

3. Is the secondary containment system (SCS) at the NAPIS holding? From the Nov. 10, 2005 meeting, Giant indicated that there had been some fluctuation in fluid level in the SCS, but lately the level had remained constant at 1 ft. of head. Giant felt the primary and secondary containment systems inside and outside the NAPI have integrity. *OCD is concerned about the integrity of the secondary containment system because there may be a hydrogeologic connection between the water table aquifer and SCS. This could result in the potential for leaking contaminants to discharge to the surface and/or migrate via groundwater beneath the refinery property. The above was noticed after Giant had attempted to patch cracks in the NAPIS and had installed a secondary containment liner system beneath the NAPIS; however, Giant is now detecting 1 foot of water in the secondary containment system beneath the NAPI.*

4. On 2/10/06, Jim Lieb measured the in-flow to AL1 from the OAPI at 4.12 gpm. *Is Giant routinely monitoring flow rates over time to its treatment system? This should help in the Pilot Plant Effluent Study and in the day-to-day assessment of the treatment system's loading and capacity.*

5. During the Nov. 10, 2005 meeting, the OCD discussed concerns about the Pilot Station Effluent (PSE) discharging directly into AL1 w/o treatment. The OCD was concerned about PSE overloading the treatment system. The OCD requested sampling of the PSE; i.e., BOD, COD, TPH, 8260, 8270, 8310, etc. From the requested sampling, BOD and COD levels were found to be elevated; however, BTEX, etc. were within RCRA standards. The OCD requested an interpretation of the analytical data results from Giant.

The OCD also requested that Giant sample EP1 weekly for BOD/COD and determine the volume flow rate from the PSE, refinery process water, determine hazardous constituent concentrations, and estimate loading to the current treatment system to compare with the total capacity of the current treatment system. If loading exceeds it's treatment capacity, then Giant needs to undertake actions to operate within its treatment capacity. *Giant responded with its Pilot Plant Effluent Summary and requested further study of its treatment system in a report to be submitted in July 2006. The OCD approved the request with some other conditions. To get a handle on its current treatment system capacity efficiency, OCD had inquired to Giant if it would consider analytical testing for phenol at the influent and effluent to the ALs and % reduction. What does Giant think?*

6. Request for reduced frequency of BOD & COD sampling at EP1 from weekly to monthly in EP1? *How will this affect Pilot Plant Effluent Study? From Section 20(3) of the OCD permit, Giant samples the pilot plant effluent for TCLP and BOD on a quarterly basis with 24 hour reporting and immediate corrective action if RCRA Standards are exceeded. Also, is Giant amenable to Phenol sampling of influent and effluent from ALs 1 & 2? OCD first mentioned it after reviewing Giant's "Pilot Plant Effluent Summary" and more recently in the response to a verbal message from Steve Morris of Giant requesting reduced BOD/COD sampling frequency at AL2 or EP1.*

7. Per section 20(3) of the permit, is Giant also monitoring for RCRA TCLP constituents at the PSE? *If so, have levels always been below RCRA Standards? Please provide all historical RCRA quarterly monitoring data to the OCD from Pilot Plant effluent into AL1 per section 20(3) of the OCD permit.*

## Process vs. Storm Water Drain

1. Has Giant isolated all of the contact areas from storm water or non-contact areas on the site? *See OCD's e-mail dated Nov. 21, 2005 and Dec. 20, 2005 to Ed. Riege of Giant.* What is the status of oil, TPH, etc., in the OAPIS from weekly monitoring? *Is benzene still being detected in the OAPIS? If so, at what concentration?*

2. Vector Arizona Inc. was supposed to be onsite all week (11/28/2005 – 12/2/2005) to put together the storm water/process water site map (Steve Morris Nov. 29, 2005 msg.). *Did Vector evaluate the storm/process water drainage near the FCC Unit and within Refinery Processing area(s)? What if anything was done to test for leakage into the drainage line into the OAPIS by Vector or Giant?*

3. Does Giant understand NMED Inspector Richard Powell's November 10, 2005 storm water declaration that any drains within the refinery process area are considered process drains. Also on this date, the OCD indicated that Giant needs to route contaminated or contact water from the OAPIS to a benzene stripper before it can be discharged into aeration lagoon #1 (AL1). *We need to agree that the drain referred to as a storm drain is really a process drain? Second, regardless of its use as a process drain or storm drain, the influent into the drainage system needs to be known. Third, if the drain is used as a*

*process drain, effluent must be properly treated through a benzene stripper or other acceptable treatment system before discharge into the aeration lagoons. Fourth, if the drain is used as a storm drain, then all influent from refinery process drainage must be plugged or eliminated from the drain and storm water drainage should be routed to a nearby storm water run-off area and not into the ALs.*

4. On 11/15/05, the OCD sent Giant an e-mail requirement for Giant to address the OAPIS, since there appears to be another point source(s) migrating into the OAPIS from the storm water drain (really a process drain) within the FCC and Process Unit. Giant indicated it is working to investigate the source(s) of contamination. *Ed Riege indicated in an e-mail msg. dated 11/29/05, in response to an OCD e-mail dated 11/15/05 where the OCD stated it does not think that Giant has isolated and eliminated the source(s) of oil or hazardous waste accumulation at the OAPIS that Vector Engineering started their site survey on storm water/process water yesterday, November 28, 2005. Vector's report was supposed to be due the end of December and Giant's goal "will be to find and eliminate all sources of oil in the drainage system to the OAPIS." On 12/9/05, Steve Morris indicated by e-mail that Vector Arizona Inc. completed the field portion of the storm water site map on December 2, 2005 and that Vector plans to have the first draft to us in a couple of weeks. The OCD may have received Vector's report in Giant's response to NMED's Storm Water Inspection? Is Vector's report in Giant's Storm Water Inspection response to NMED? Did Giant investigate the drainage system to the OAPIS in their report? The OCD was unaware that Giant still did not know the source(s) for contamination in the drainage system leading to the OAPIS until 3/8/06, the date of the telephone conference call with Giant and OCD/NMED.* ***Where is Vector's survey on storm water/process water report expected by Giant to be completed at the end of December 2005? If Giant was unable to identify a source(s) for contamination in the OAPIS, why hasn't Giant followed up with OCD/NMED before 3/8/06 to determine a course of action for identifying sources of contamination into the OAPIS?***

5. OCD/HWB has been concerned about hazardous wastes in contact with storm water at the OAPIS. *On March 8, 2006, a telephone conference call was held between Giant, NMED and the OCD, to discuss routing OAPIS effluent into the NAPIS at <= 1 – 2 gpm with a discharge bypass to go directly into ALs upon exceedence of the flow rate conditions.* ***The OCD discovered that Giant still had not identified the source(s) of contamination into the OAPIS during the call.*** *Giant indicated it was going to place 6 to 10 plugs near the compressor/ blower and FCC Unit to plug sewer drains. Any overflow into sewer drains would discharge into the NAPIS through the process drain network. Giant had already plugged off the drain near the sulfur recovery unit 2 weeks ago. Giant agreed during the call to provide a commitment with procedures and schedule of how to find and isolate leaks from refinery process area into the drain leading into the OAPIS. The HWB/OCD wants a commitment to eliminate process water from leaking into the storm water drain or system and monitor it by 3/28/06, the date of the next meeting at the Ciniza Refinery. The OCD/HWB does not want the OAPIS to become a storm water containment system. Also, the OCD/HWB learned that the new storm water (really a process water drain) drainage system beneath the refinery process area drains into the OAPIS, while the rest of the older process water drainage system discharges into*

*the NAPIS, benzene strippers, and then into the ALs. According to OCD/HWB, the drainage system tied into the OAPIS is actually a process drain. The OCD/HWB recommended die tracing and/or pressure testing of the storm water system. Dye placed in process water could be traced into storm water system feeding into the OAPIS and Giant indicated the test could be done during the upcoming turn around at the refinery. According to Wayne Price of OCD, the goal should be to separate storm water and process water drainage systems so storm water does not discharge and flood aeration lagoons unless it is contaminated. If Giant can identify a source(s) into the storm water drain and eliminate it or them, then no F-037 listed waste will be in storm water and there would be no violation to OCD/HWB regulations. However, there is still a fundamental nomenclature issue when Giant calls the drainage system under the refinery process unit and FCC unit a storm drain when it may actually need to be called a process drain by definition, unless Giant can eliminate process water from entering the drain. There may be other options like collecting storm water in a large nearby tank, testing it, and discharging it into the storm drain if it meets WQSs. Giant said the large tank(s) is too far away to do this. The goal is to keep OAPIS effluent out of the ALs if it is NOT contaminated and there is not discharge or leaks from process water into the drainage system. In the interim, Giant should route Low flow from the OAPIS into the NAPIS for proper treatment before discharging into the ALs. Second, if due to flow rates Giant cannot discharge OAPIS effluent into the NAPIS for treatment, it should install a benzene stripper to treat OAPIS effluent before routing it to the ALs. The OCD/HWB is concerned about hazardous waste(s) (F-037) in contact with storm water at the OAPIS.*

6. *What is the* Status of Giant's compliance with the NMED's Storm water letter dated December 19, 2005 stemming from the Nov. 10, 2005 Storm Water Inspection by Richard Powell?

**Miscellaneous Items**

1. What is the status of Giant Refinery's RO Reject Water fire pit request? Giant had last indicated that the pit request is ongoing with permeability test results in hand, etc.

Figure No. 3
Property Site Map
Unconfined Storm Water Flow Direction

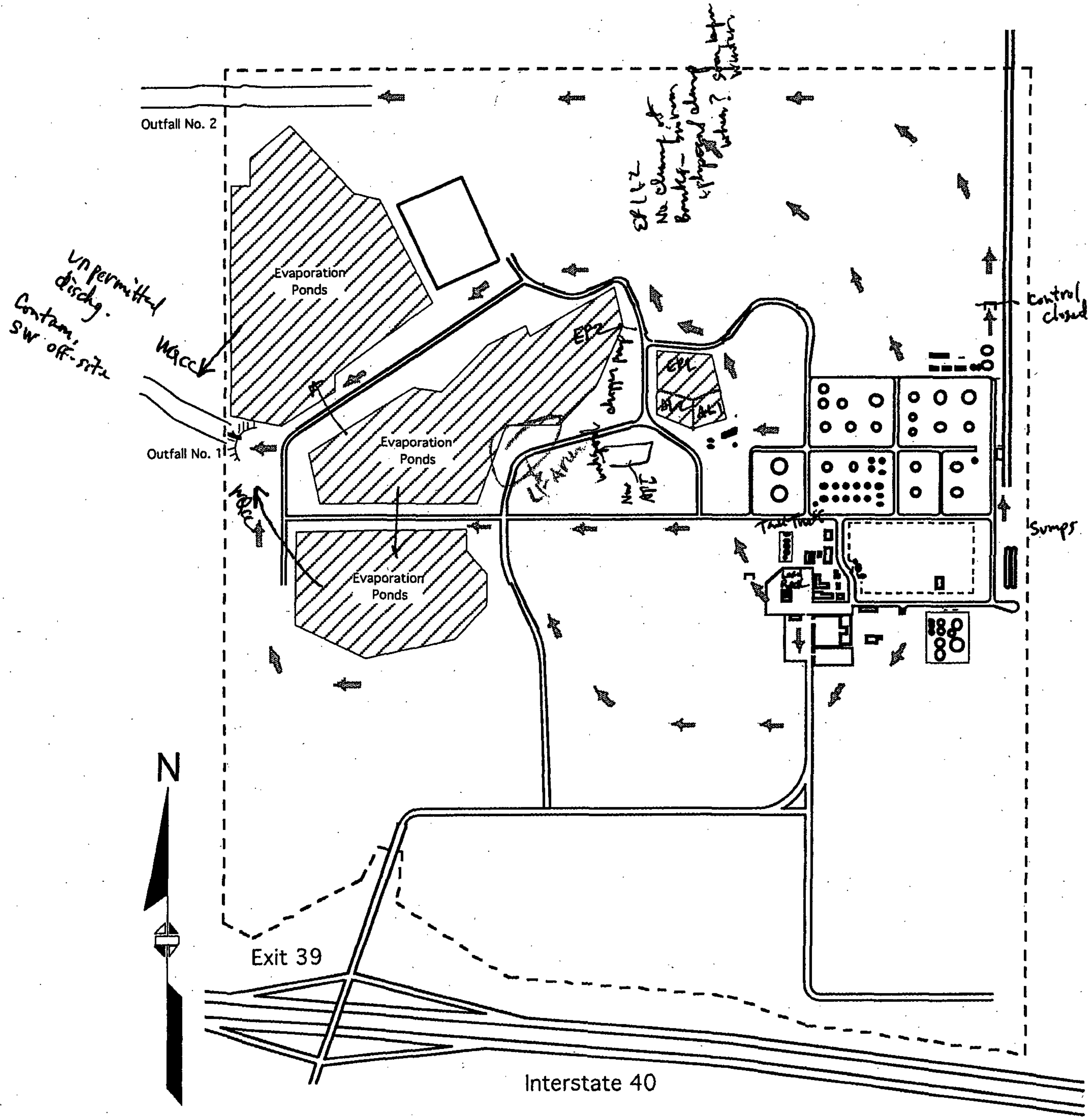
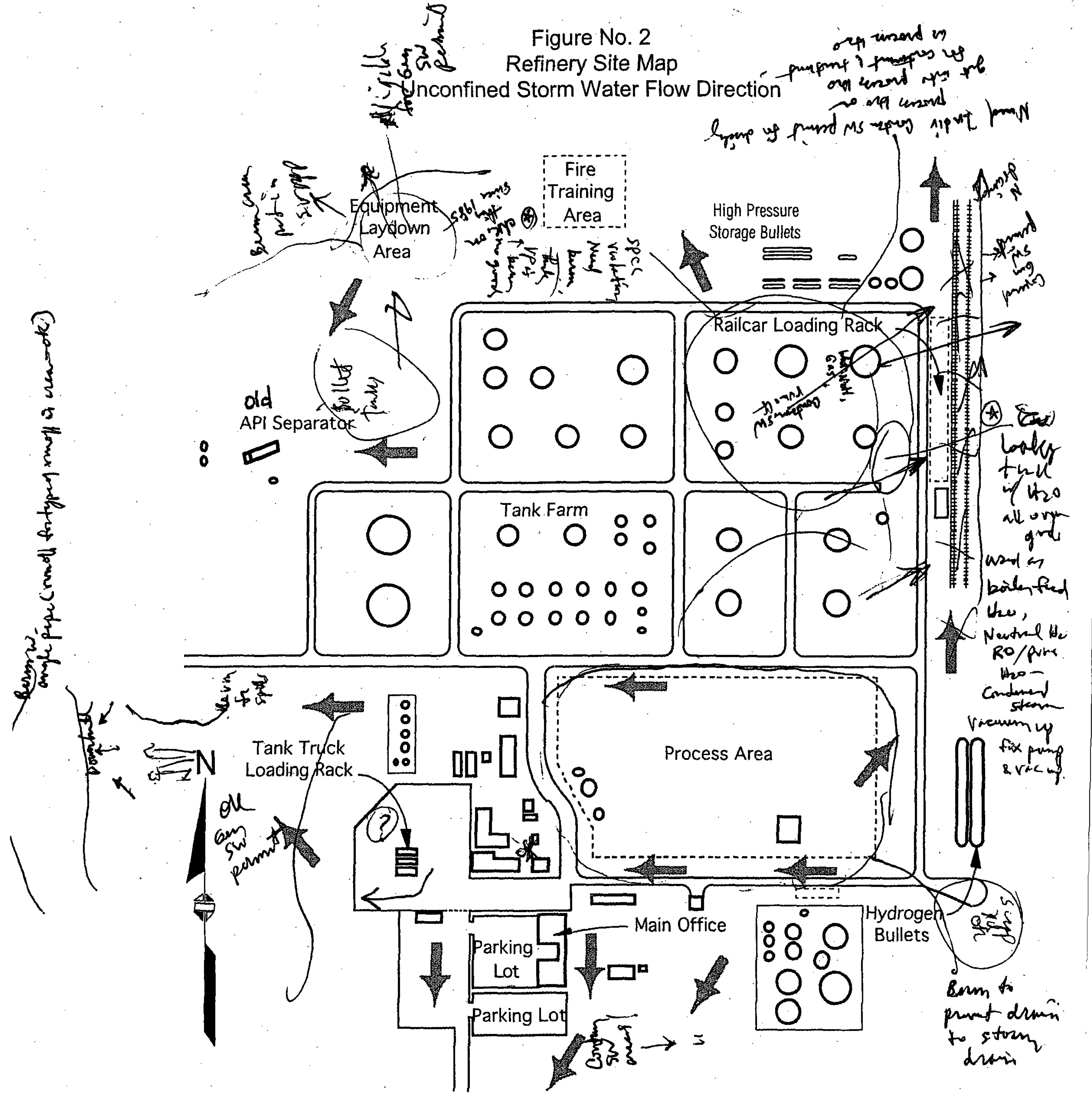
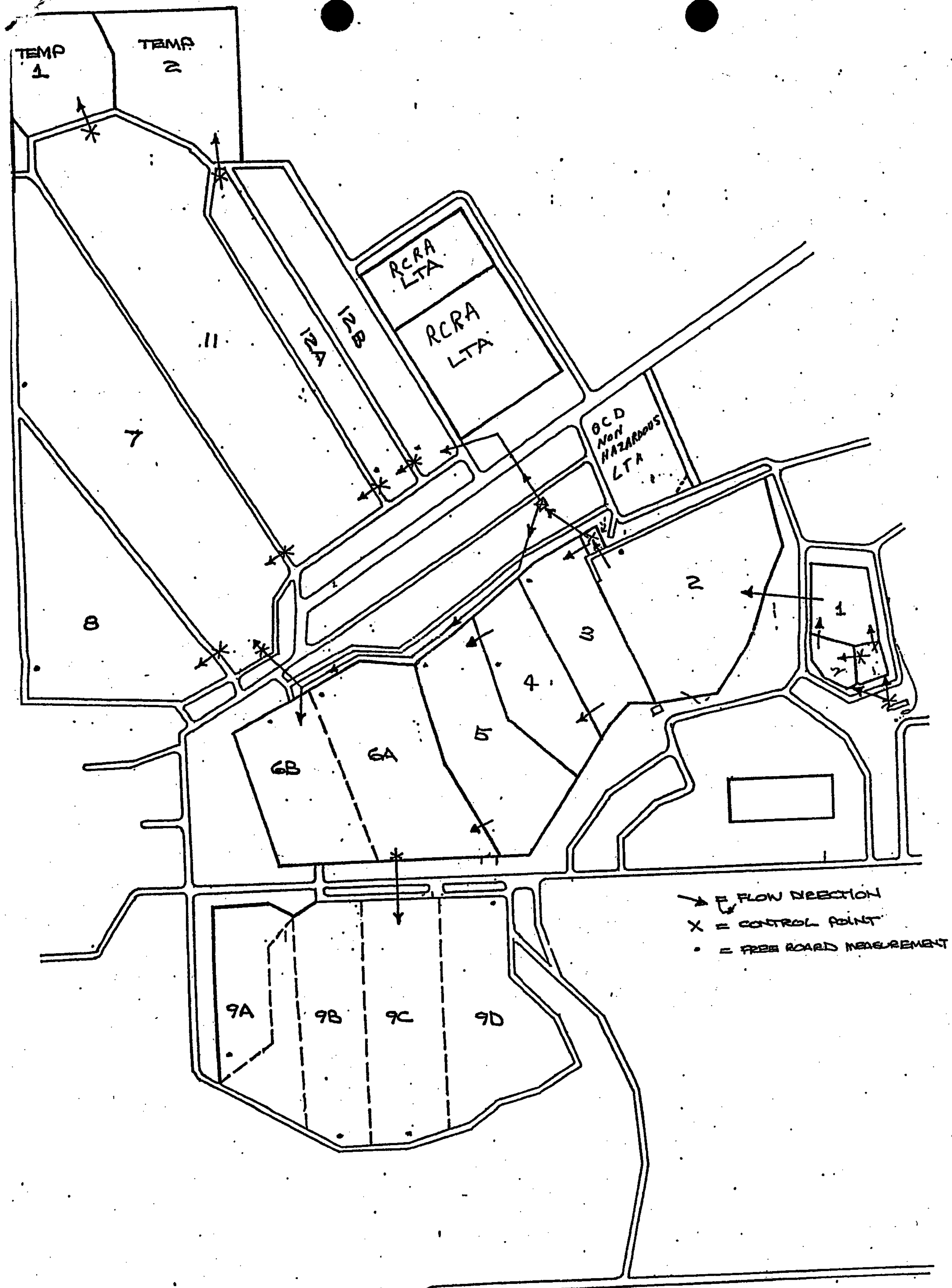


Figure No. 2
Refinery Site Map
Unconfined Storm Water Flow Direction






POND FLOW DIAGRAM

Figure No. 3
Property Site Map
Unconfined Storm Water Flow Direction

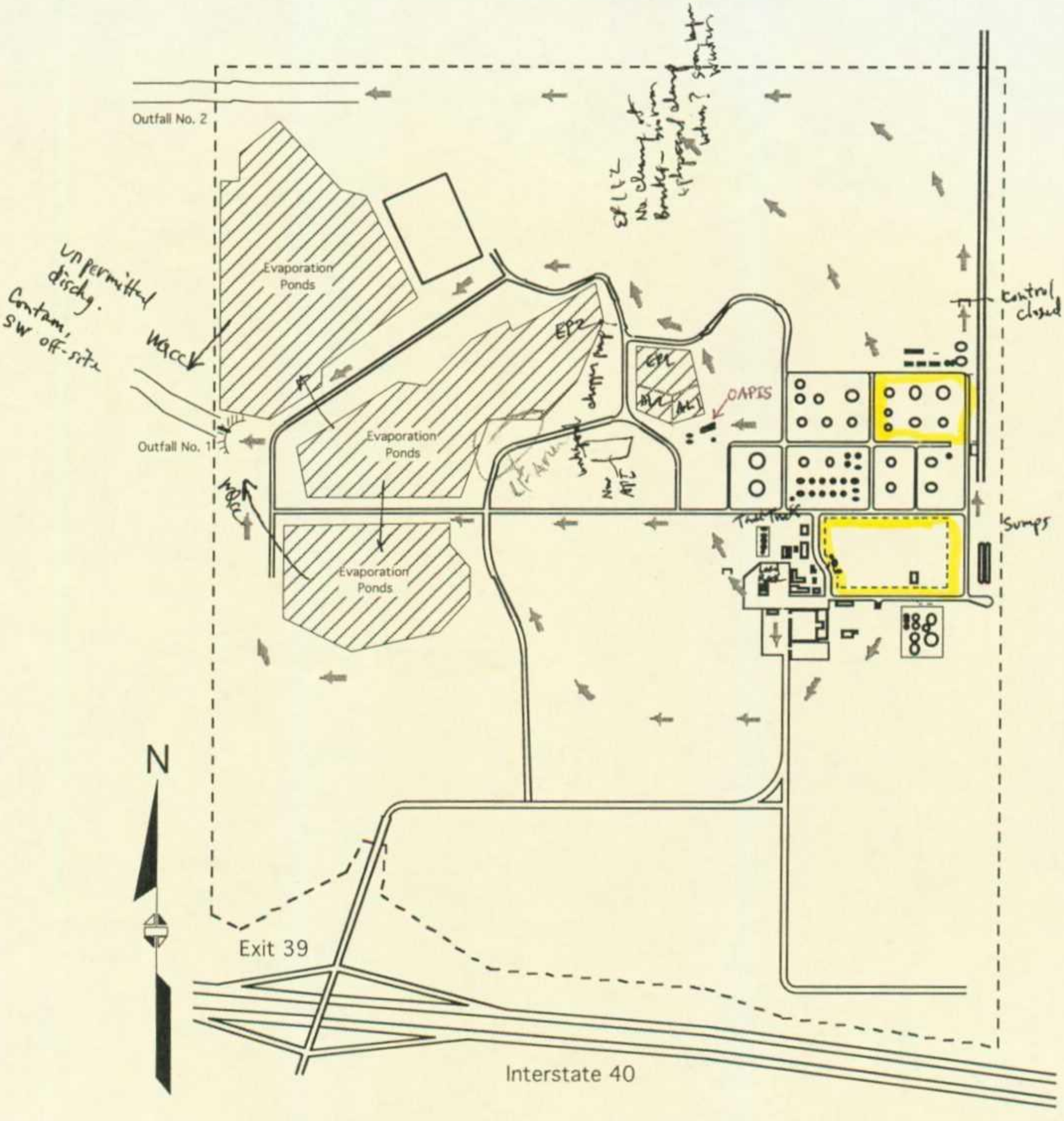
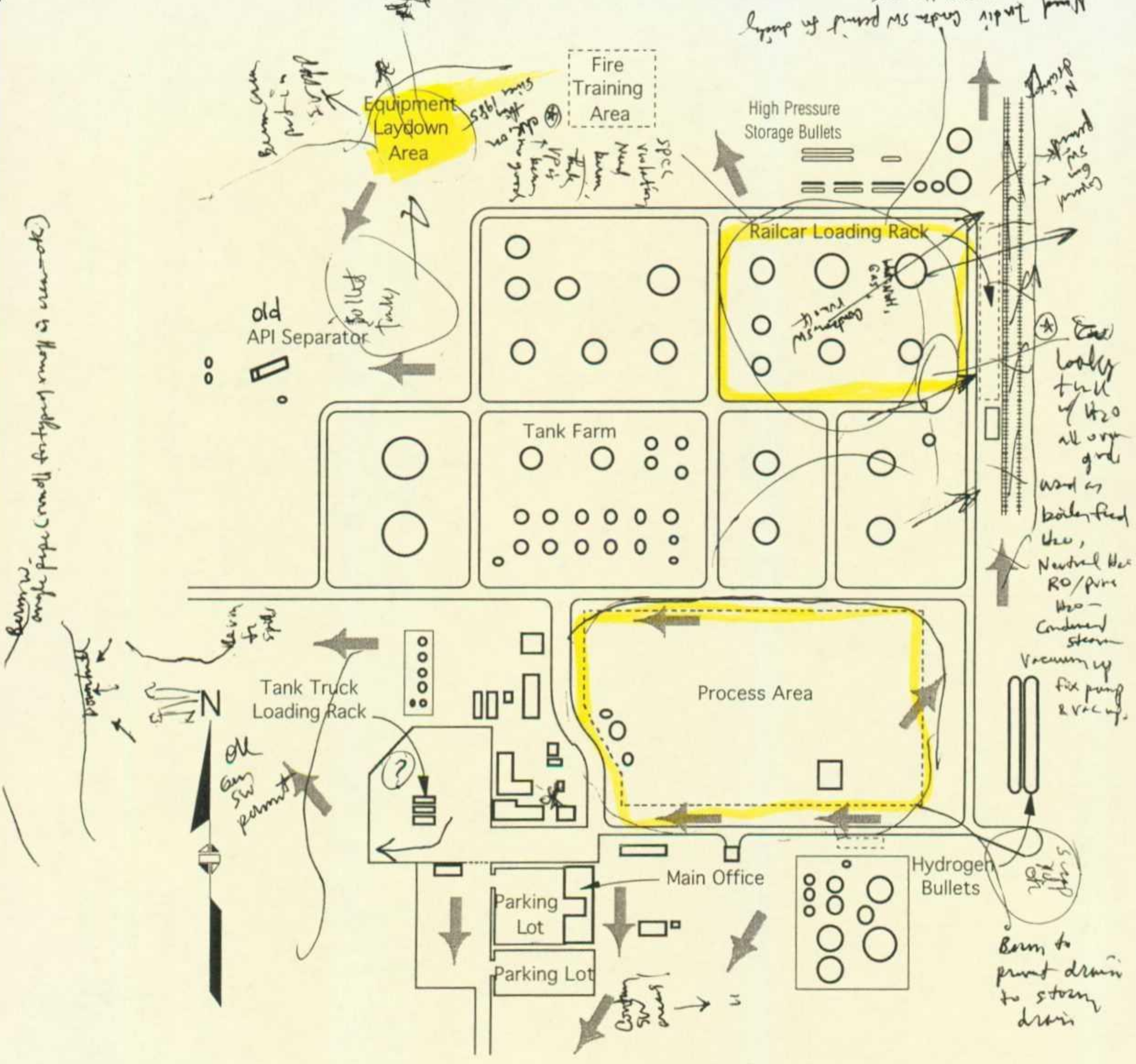
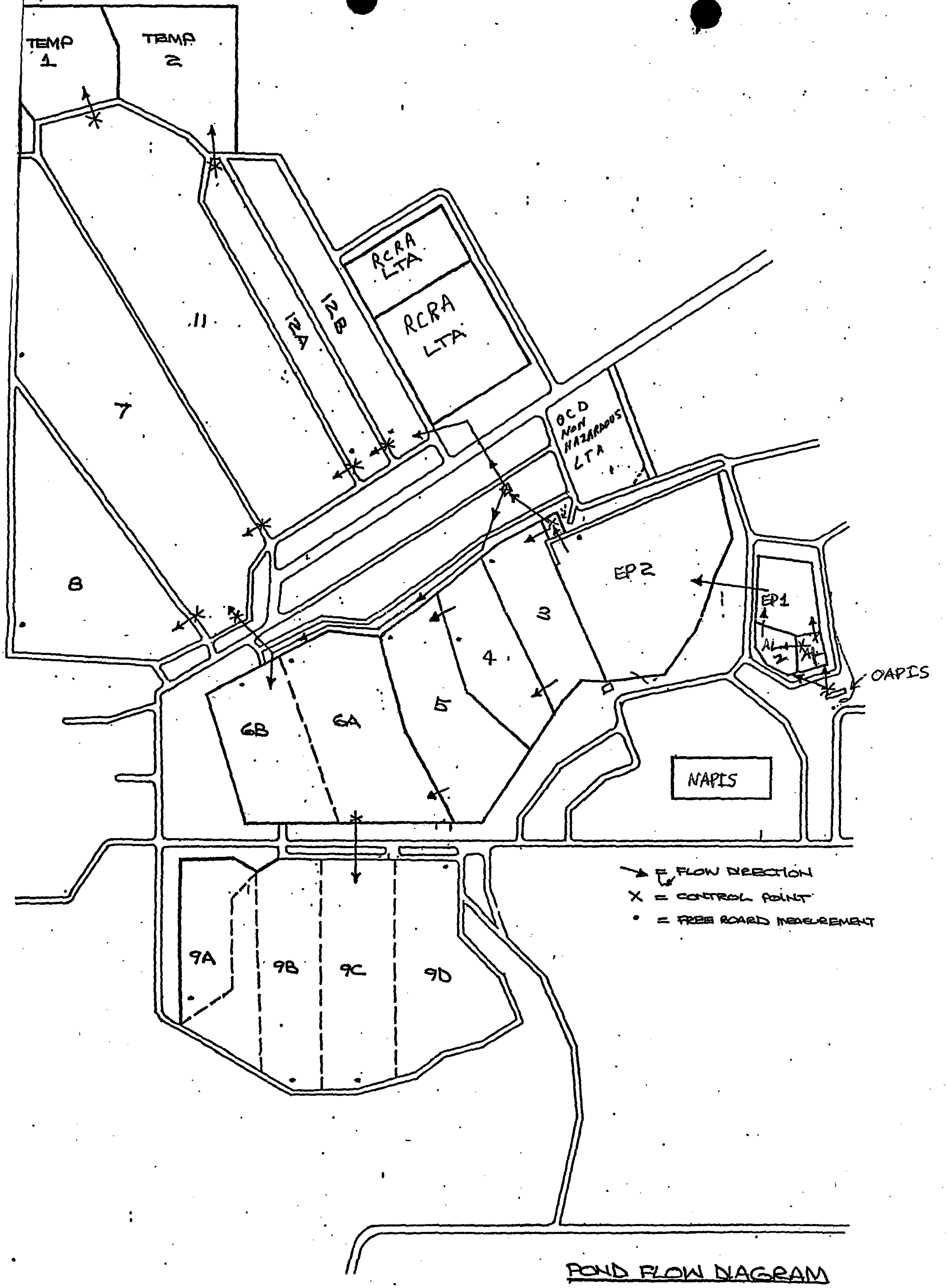


Figure No. 2
Refinery Site Map
Unconfined Storm Water Flow Direction






POND FLOW DIAGRAM

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

# Commitment for Resolution of

# API Separator Storm Water Issues

# Giant Industries, Inc. – Ciniza Refinery

# March 28, 2006

## Introduction

The Giant Industries, Inc. Ciniza Refinery (Ciniza) has separate process waste water and storm water sewers in its refinery processing area. The storm water sewer system was installed in 1996. The process waste water sewer system dates back to 1957. Until fairly recently, the process waste water sewer and storm water sewer systems flowed into a single API separator. In October 2004, the process sewer system was tied into a new API separator (NAPIS) while the storm sewer system remained tied into the original API separator (OAPIS) which currently serves as a storm water collection/separator.

Ciniza is concerned about entry of water through the storm sewer system into the OAPIS during dry weather conditions. Ciniza has installed a pump to divert a small quantity of dry weather flow from the OAPIS into the NAPIS. Ciniza wants to assure that there is not a cross connection somewhere between the process sewer and storm sewer systems which is enabling water to enter the storm sewer system and the OAPIS and that there are no locations where dry weather flow is entering surface drains into the storm water sewer system. If any exist, the connections will be plugged.

Ciniza has recently discussed the issue with the Oil Conservation Division and New Mexico Environment Department, Hazardous Waste Bureau. Most recently, during a conference call with OCD and NMED on March 8, 2006, it was mutually agreed that Ciniza would prepare a Commitment including a schedule for submittal to OCD and NMED on March 28, 2006.

## Corrective Action Plan

During the conference call with OCD and NMED on March 8, 2006, it was mutually agreed that performing a dye trace study to identify possible cross connections would be a good idea to pursue. Ciniza will bid out the dye trace study to a consulting and engineering company. A request for proposal was sent out to URS Corporation and Trihydro Corporation on March 16, 2006. Ciniza will conduct the study during the upcoming refinery turn-around in April. The study will also identify locations where dry weather flow potentially could enter the storm sewer through surface drains and block them off to prevent the water entering the storm water sewer system.

Once Ciniza has eliminated the small amount of dry weather flow from the storm sewer system, Ciniza will pipe/route the non-hazardous storm water flows into an unused pond for temporary holding. The unused pond (dry) is the pond that Ciniza recently discussed with OCD in 2005 for use as a fire water reservoir. The pond has more than sufficient capacity (greater than 1 million gallons of water) to hold a large storm runoff event. Ciniza believes the pond would serve as an excellent choice for a surge holding reservoir for storm water and so should be included in this Commitment.

The pond itself consists of two cells; one cell is currently being used for sewage effluent and is 1/3 the size of the second cell. The second cell is larger and, to the best of our knowledge, has never been used for sewage effluent or other uses. Ciniza would use the second cell as the storm water retention basin. The cells are separated by an earthen berm measuring 15-18' at its base. The earthen berm will be re-built and strengthened prior to the use of the second cell. The dimensions of the berm are approximately 20' bottom X 10' top X 10" ASL. The soil composition is the same as our other ponds (clay) which is several feet thick with negligible permeability (as demonstrated from our other ponds).

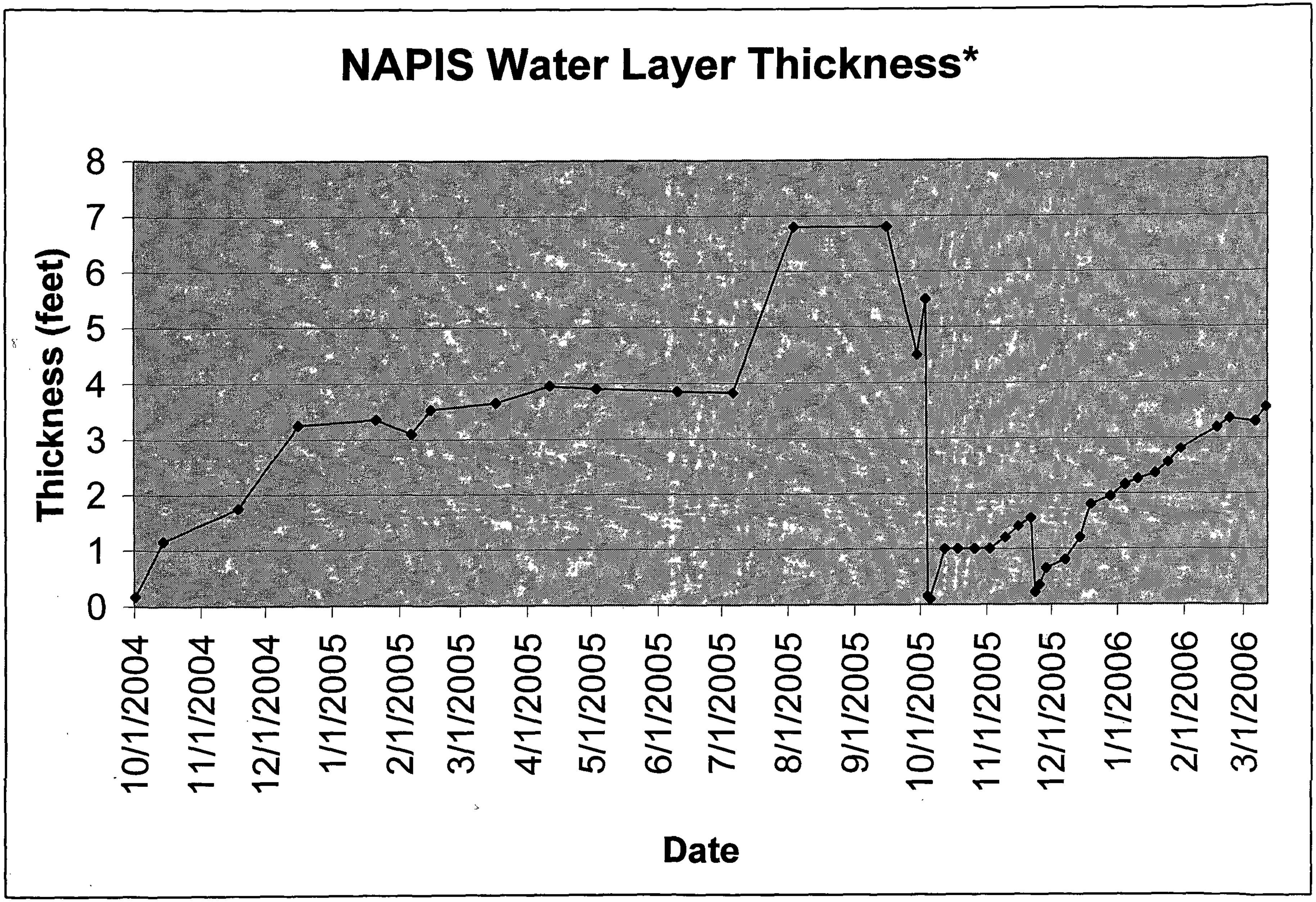
Ciniza has procedures and policy in place to isolate contaminants from storm water. The dye trace study and storm sewer blocking activities that Ciniza will conduct will improve the isolation of contaminants from storm water by preventing contaminants from getting into the storm water sewer system. In addition, Ciniza would install a liner and piezoelectric leak detection system in the pond.

Ciniza proposes to run piping from the storm water/fire water pond to the evaporation ponds. If the storm water was ever contaminated with oil, the oil-contaminated storm water would be skimmed off of the pond by a vacuum truck. Use of the pond will render the OAPIS no longer necessary for storm water management so Ciniza will remove the OAPIS from service and decommission it after the pond is prepared.

During the conference call, OCD mentioned that clean storm water can be routed directly to the evaporation ponds. If more storm water is retained than is needed for fire suppression, the excess storm water would only be discharged to the evaporation pond after it is tested and shown to be clean. During the first couple storm events that require Ciniza to release water from the pond, Ciniza will test the discharge to show there is no contamination. During subsequent releases of storm water to the evaporation ponds, Ciniza will use visual observations for detection of contamination.

## Schedule

| Action Item: | Completion Date: |
|---|---|
| 1. Conduct Dye Trace Study: | Refinery Turn-around in April 2006 |
| 2. Interim Progress Report to OCD/NMED: | May 15, 2006 |
| 3. Block off storm sewer drains | June 1, 2006 |
| 4. Install piping to pond: | July 15, 2006 |
| 6. Interim Progress Report to OCD/NMED: | July 15, 2006 |
| 7. Install liner and leak detection in pond: | July 15, 2006 |
| 8. Remove OAPIS from service: | July 30, 2006 |
| 9. Final Progress Report to OCD/NMED: | August 10, 2006 |


NAPIS Water Layer Thickness*
Thickness (feet)
0
1
2
3
4
5
6
7
8
10/1/2004
11/1/2004
12/1/2004
1/1/2005
2/1/2005
3/1/2005
4/1/2005
5/1/2005
6/1/2005
7/1/2005
8/1/2005
9/1/2005
10/1/2005
11/1/2005
12/1/2005
1/1/2006
2/1/2006
3/1/2006
Date

# NEW OIL WATER SEPARATOR
## SECONDARY CONTAINMENT INSPECTIONS

START DEPTH TO BOTTOM OF SECONDARY CONTAINMENT EQUALS 13.25 FEET

| DATE | WATER LAYER THICKNESS (FEET) | COMMENTS | BENZENE (ug/L) | TOLUENE (ug/L) | ETHYL BENZENE (ug/L) | MTBE (ug/L) | XYLENES, TOTAL (ug/L) |
|---|---|---|---|---|---|---|---|
| 10/1/2004 | * | * See attached inspection report dated 10/14/05 | | | | | |
| 10/14/2004 | 0.17 | | | | | | |
| 11/18/2004 | 1.15 | | | | | | |
| 12/16/2004 | 1.75 | | | | | | |
| 1/21/2005 | 3.25 | | | | | | |
| 2/15/2005 | 3.35 | SAMPLED | 1.1 | 0.9 | 0.62 | | 5.7 |
| 3/17/2005 | 3.53 | | | | | | |
| 4/11/2005 | 3.65 | | | | | | |
| 5/3/2005 | 3.95 | | | | | | |
| 6/10/2005 | 3.9 | | | | | | |
| 7/6/2005 | 3.85 | | | | | | |
| 8/3/2005 | 3.825 | | | | | | |
| 9/15/2005 | 6.8 | SAMPLED | 150 | 130 | ND | 1000 | 58 |
| 9/29/2005 | 6.8 | | | | | | |
| 10/3/2005 | 4.5 | Today maintenance vacuumed out some water from here, Kerry said about 5 barrels. | | | | | |
| 10/4/2005 | 5.5 | | | | | | |
| 10/5/2005 | 0.15 | This was just vacuumed out now. Water taken out about 10 barrels. | | | | | |
| 10/12/2005 | 0.1 | Continuous pumping of below grade tank. | | | | | |
| 10/18/2005 | | Air driven pump removing all water but one inch on the bottom while repairs are being made to separator. | | | | | |
| 10/26/2005 | | Air driven pump removing all water but one inch on the bottom while repairs are being made to separator. | | | | | |
| 11/2/2005 | 1 | | | | | | |
| 11/9/2005 | 1 | | | | | | |
| 11/15/2005 | 1.2 | | | | | | |
| 11/21/2005 | 1.4 | | | | | | |
| 11/23/2005 | 1.55 | After measuring, all water was pumped out. | | | | | |
| 11/25/2005 | 0.22 | | | | | | |
| 11/28/2005 | 0.35 | | | | | | |
| 12/7/2005 | 0.65 | | | | | | |
| 12/14/2005 | 0.8 | | | | | | |
| 12/19/2005 | 1.2 | | | | | | |
| 12/28/2005 | 1.8 | | | | | | |
| 1/4/2006 | 1.95 | | | | | | |
| 1/10/2006 | 2.15 | | | | | | |
| 1/18/2006 | 2.25 | | | | | | |
| 1/24/2006 | 2.35 | | | | | | |
| 1/30/2006 | 2.55 | | | | | | |
| 2/6/2005 | 2.8 | | | | | | |
| 2/16/2006 | 3.1 | | | | | | |
| 2/22/2006 | 3.2 | | | | | | |
| 3/6/2006 | 3.35 | | | | | | |
| 3/11/2006 | 3.3 | | | | | | |
| 3/16/2006 | 3.55 | | | | | | |

## Ed Riege

**From:** John Laurent
**Sent:** Tuesday, February 28, 2006 1:01 PM
**To:** Ed Riege
**Cc:** Jim Hallock
**Subject:** Liners Info

**Attachments:** Sump Liner Case Study; Old API Separator Lining System; API Secondary Liner Repair

Ed,
Attached are two e-mails I received. Nilex seems to have their act together. I also attached Jim's e-mail for the repairs to the existing liner on the new API. The main reason we need to wait for warm weather is the liner material is similar to a vinyl liner you would put in a portable pool. When it gets cold the material is brittle. Once the excavation is done around the liner at the new API there will be dirt that has to be cleaned off the liner first. If it is cold this will be difficult to do. Also applying the patches to brittle material will be difficult and lessens the chance of sealing the leaks.

My suggestion is you work with Nilex to come do the old API. If they do come, then we could get the new API excavated and they could also patch that liner while they are here. I would also want them to do a vacuum test on the new liner they install and the old liner they patch to make sure we do not have any leaks. They may be more expensive then local people but with them maybe we can avoid having to revisit problems with liners due to the installation techniques and testing Nilex does.

John

Sump Liner Case Study

Old API Separator Lining Syste...

API Secondary Liner Repair

# API Secondary Liner Repair

VLDPE ? HDPE? No seams

The new API secondary liner is made from a 40 mil polyethylene material welded at the seams. The leak detection port is located at the southwest end of the new API pit and is approximately 14 ft. deep. The maximum depth of the water in the liner is approximately 36", which indicates the hole in the secondary liner is not higher than 36" above the bottom of the liner. Please follow the following recommended steps in repairing the new liner:

1. Excavate the entire south end of the new API and shore the excavation in accordance with the appropriate OSHA regulations. The liner should be exposed to the bottom of the API on all three sides of the sludge collection pit. Extreme caution must be taken in excavating around the weir box and the liner!
2. A water sump must also be included in the excavation to drain any ground water to a specified area so it can be pumped out of the excavation. Install a temporary sump pump after an adequate water sump has been excavated.
3. Temporarily fill the liner with dyed water to approximately 3 ft. of depth. Special care must be taken to properly support the secondary liner to eliminate the possibility of damaging the liner during this step.
4. Inspect the liner carefully for any discoloration in any water around the excavated area to locate possible leak areas in the liner.
5. After the leaks have been located, drain the liner and dry the area around the leak. Repair the liner in accordance with the suppliers recommended procedures. The ambient temperature must be above 50 deg. F during all repairs. Special care must be taken if the ambient temperature is below 50 deg. F.
6. After all leaks have been located and repaired, fill in the excavation and re-compact the fill material according to GI standards.

It is highly recommended the liner be repaired during the spring or summer time periods and not during the cold winter months due to safety considerations. It would be extremely difficult to enclose the excavation since it will be so large and keep it heated above 50 degrees F so the repairs can be made.

ENGINEERING ♦ CONSTRUCTION ♦ MAINTENANCE

*"Quality Industrial Services for the 21st Century"*

Refinery process Area

March 2, 2006

Giant Refining Co.
Refinery Road I-40
Jamestown, NM

Attention: Ed Riege

Reference: Demolition and installation of New Curb
Ciniza Refinery

5 sit process area

Ref-Chem is pleased to submit this Budgetary Price for the above referenced project. The scope consists of the demolition of some existing curb, and installing 1,000 LF of new curb. Our bid is based on our verbal discussions and walk through with Giant Refining, and the Ref-Chem's attached Cost of Work Basis.

| | |
|---|---|
| Estimated cost of demo | $ 6,000 |
| Estimated cost to install new curb | $78,500 |
| (Includes equipment) | |
| Total | $84,500 |

We appreciate the opportunity to provide our services for Giant Refining, and look forward to working with you on this project. If you have questions concerning this proposal, or require more information, please call Joe Martinez at (432) 332-8531 or (432) 413-2938.

Sincerely,

Joe Martinez
Project Manager

Attachments

REF-CHEM, L.P.

P.O. Box 2588 ♦ Odessa, TX 79760
1128 S. Grandview ♦ Odessa, TX 79761
(432) 332-8531 ♦ Fax: (432) 332-3325

P.O. Box 262507 ♦ Houston, TX 77207
120 N. Munger ♦ Pasadena, TX 77506
(713) 477-4471 ♦ Fax: (713) 477-6456

**Demolition and installation of New Curb**
**Ciniza Refinery**
**Ref-Chem's Proposal**
**COST OF WORK BASIS, 3/02/2006**

1. Our proposal is based on working a 50-hour workweek.

2. We have not included the handling or disposal of material that could be deemed contaminated or hazardous. Our proposed schedule does not allow for any delays due to removal of contaminated soils.

3. Construction Schedule delays beyond our control will be considered as extra work. Delays on getting daily work permits to start work, plant upsets, materials and drawings provided by others, etc., will be invoiced as extra work.

4. Our proposal is based on hand and mechanical excavation for the foundation, as discussed. Backfill is based on reusing the same materials excavated. Should Ref-Chem encounter underground obstructions such as solid rock or abandoned piping, the removal cost if required shall be considered extra work. The client is responsible for identifying and locating underground lines before any excavation begins.

5. Giant Refining will furnish all materials.

6. Electrical work, painting, site work, etc., are not included in this budgetary price.

7. Ref-Chem has included the equipment required to perform this work.

8. New Mexico Gross Receipt Sales Tax, <u>are not</u> included in this price.

OCD copy

measured normal prod.
12–18K bbls/Day
↑prod ~ July 1, 2006 f(feed rate) – everything else not stable
Desalter flow
production level?, bbl/Day
↑prod for turn around?

**GIANT**

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

March 24, 2006

Ms. Hope Monzeglio
Project Leader
Permits Management Program
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Bldg 1
Santa Fe, New Mexico 87505

**SUBJECT: INFORMATION REQUEST FOR AERATION LAGOON AND API SEPARATOR FLOW RATE AND CAPACITY
GIANT REFINING COMPANY, CINIZA REFINERY
HWB-GRCC-MISC**

Dear Ms. Monzeglio:

In response to your letter on the same subject, Giant Industries, Inc. – Ciniza Refinery hereby provides the capacity and flow rate data that you requested. The information is provided below:

a. The average flow rate of effluent discharged by the new API separator on a daily, weekly and monthly basis:

The most recent measurements show the total flow of effluent from Pond 2 at the permanent V-notch weir at 123 gpm. On the same day, Giant also measured the flow from the boiler plant where it enters the Pond 2 at the temporary V-notch weir at 22 gpm. Subtracting the boiler plant flow from the overall flow provides the flow from the aeration lagoons to Pond 1 = 123 gpm – 22 gpm = 101 gpm.

Subtracting the Pilot Station sanitary flow (8 gpm) from the flow from the aeration lagoons to Pond 1 then provides the flow of effluent from the new API separator = 101 gpm – 8 gpm = 93 gpm.

Daily flow = 93 gpm x 60 min/hr x 24 hr/day = 133,920 gpd
Weekly flow = 133,920 gpd x 7 days/week = 937,440 gpw
Monthly flow = 937,440 gpw x 4 weeks/month = 3.75 Mgm

b. The maximum capacity (volume) of each of the aeration lagoons 1 and 2:

Depth measurements of the lagoons were recently taken. Based on the recent measurements, the capacity of the ponds are:

| | |
|---|---|
| Aeration lagoon 1 = | 0.36 acre x 43,560 sq ft/acre x ¾ x 4.5 ft x 7.48 gal/cu ft = 395,900 gallons (approx) |
| Aeration lagoon 2 = | 0.56 acre x 43,560 sq ft/acre x ¾ x 4.5 ft x 7.48 gal/cu ft = 615,800 gallons (approx) |

c. The average daily flow (volume) currently passing through the aeration lagoons to evaporation pond 1:

The gpm value for the aeration lagoon flow rate was calculated in the determination of the flow rate in a. = 101 gpm

Daily flow = 101 gpm x 60 min/hr x 24 hr/day = 145,440 gpd

d. The maximum flow rate that the aeration lagoons can effectively treat:

Based on aerator size and hp rating, the maximum treatment capacity of both lagoons combined is 1,500 pounds per day of BOD. Based on an average BOD influent of 700 mg/l this correlates to:

1500 lbs/day x 2.2 kg/lb x $10^6$ mg/kg x 1 l/700 mg x 1 gal/3.785 l = 1.24 MGD

e. The maximum capacity (volume of waste water that the New API separator can treat:

The new API separator was designed to treat 300 gpm of waste water total. It consists of two bays each of which can treat a maximum of 150 gpm for a total of 300 gpm.

f. The average volume of waste water that is treated by the new API separator on a daily, weekly and monthly basis:

The average amount of slop oil generated on a daily basis is approximately 5,500 gpd. This is the daily average amount sent to the NAPIS. The total amount of waste water on a daily basis also includes the waste water component. The waste water component was determined in a. at 133,920 gpd. Therefore, the total volume treated by the NAPIS is the sum of the two waste streams = 5,500 gpd + 133,920 gpd = 139,420 gpd.

Daily flow = 139,420 gpd
Weekly flow = 139,420 gpd x 7 days/week = 937,440 gpw
Monthly flow = 937,440 gpw x 4 weeks/yr = 3.75 Mgm

If you have any questions regarding the information provided in this letter, please contact me at (505) 722-0227.

Sincerely,

Jim Lieb

Jim Lieb
Environmental Engineer
Giant Industries, Inc. – Ciniza Refinery

Cc: Ed Riege
Steve Morris
Ed Rios

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

Aerator not working

# COVER LETTER

Wednesday, March 08, 2006

Steve Morris
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301

TEL: (505) 722-3833
FAX (505) 722-0210

RE: NMED Monthly Water Samples

Order No.: 0602238

Dear Steve Morris:

Hall Environmental Analysis Laboratory received 4 sample(s) on 2/24/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

ACCREDITED IN ACCORDANCE WITH nelac

4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109
505.345.3975 ■ Fax 505.345.4107
www.hallenvironmental.com

# Hall Environmental Analysis Laboratory

Date: *08-Mar-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Lab Order:** | 0602238 |
| **Project:** | NMED Monthly Water Samples | | |

| | | | |
|---|---|---|---|
| **Lab ID:** | 0602238-01 | **Collection Date:** | 2/23/2006 8:00:00 AM |
| **Client Sample ID:** | AL-2 to EP-1 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | 52 | 3.0 | | mg/L | 1 | 2/28/2006 10:08:02 AM |
| Motor Oil Range Organics (MRO) | ND | 15 | | mg/L | 1 | 2/28/2006 10:08:02 AM |
| Surr: DNOP | 137 | 58-140 | | %REC | 1 | 2/28/2006 10:08:02 AM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | 2.4 | 1.0 | | mg/L | 20 | 3/6/2006 11:39:39 AM |
| Surr: BFB | 110 | 79.7-118 | | %REC | 20 | 3/6/2006 11:39:39 AM |
| **EPA METHOD 7470: MERCURY** | | | | | | Analyst: CMC |
| Mercury | 0.0017 | 0.00020 | | mg/L | 1 | 3/2/2006 |
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: CMC |
| Arsenic | 0.028 | 0.020 | | mg/L | 1 | 3/6/2006 12:16:52 PM |
| Barium | 0.16 | 0.020 | | mg/L | 1 | 3/6/2006 12:16:52 PM |
| Cadmium | ND | 0.0020 | | mg/L | 1 | 3/6/2006 12:16:52 PM |
| Chromium | 0.0094 | 0.0060 | | mg/L | 1 | 3/6/2006 12:16:52 PM |
| Lead | ND | 0.0050 | | mg/L | 1 | 3/6/2006 12:16:52 PM |
| Selenium | ND | 0.050 | | mg/L | 1 | 3/6/2006 12:16:52 PM |
| Silver | ND | 0.0050 | | mg/L | 1 | 3/6/2006 12:16:52 PM |
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: KTM |
| Benzene | 120 | 50 | | µg/L | 50 | 3/2/2006 |
| Toluene | 160 | 50 | | µg/L | 50 | 3/2/2006 |
| Ethylbenzene | ND | 50 | | µg/L | 50 | 3/2/2006 |
| Methyl tert-butyl ether (MTBE) | 1100 | 50 | | µg/L | 50 | 3/2/2006 |
| 1,2,4-Trimethylbenzene | ND | 50 | | µg/L | 50 | 3/2/2006 |
| 1,3,5-Trimethylbenzene | ND | 50 | | µg/L | 50 | 3/2/2006 |
| 1,2-Dichloroethane (EDC) | ND | 50 | | µg/L | 50 | 3/2/2006 |
| 1,2-Dibromoethane (EDB) | ND | 50 | | µg/L | 50 | 3/2/2006 |
| Naphthalene | ND | 100 | | µg/L | 50 | 3/2/2006 |
| 1-Methylnaphthalene | ND | 200 | | µg/L | 50 | 3/2/2006 |
| 2-Methylnaphthalene | ND | 200 | | µg/L | 50 | 3/2/2006 |
| Acetone | 4600 | 500 | | µg/L | 50 | 3/2/2006 |
| Bromobenzene | ND | 50 | | µg/L | 50 | 3/2/2006 |
| Bromochloromethane | ND | 50 | | µg/L | 50 | 3/2/2006 |
| Bromodichloromethane | ND | 50 | | µg/L | 50 | 3/2/2006 |
| Bromoform | ND | 50 | | µg/L | 50 | 3/2/2006 |

*Qualifiers:*

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| S | Spike Recovery outside accepted recovery limits | | |

# Hall Environmental Analysis Laboratory

**Date:** *08-Mar-06*

**CLIENT:** Giant Refining Co **Lab Order:** 0602238
**Project:** NMED Monthly Water Samples

**EPA METHOD 8260B: VOLATILES** Analyst: KTM

| | | | | | |
|---|---|---|---|---|---|
| Bromomethane | ND | 100 | µg/L | 50 | 3/2/2006 |
| 2-Butanone | 680 | 500 | µg/L | 50 | 3/2/2006 |
| Carbon disulfide | ND | 500 | µg/L | 50 | 3/2/2006 |
| Carbon Tetrachloride | ND | 100 | µg/L | 50 | 3/2/2006 |
| Chlorobenzene | ND | 50 | µg/L | 50 | 3/2/2006 |
| Chloroethane | ND | 100 | µg/L | 50 | 3/2/2006 |
| Chloroform | ND | 50 | µg/L | 50 | 3/2/2006 |
| Chloromethane | ND | 50 | µg/L | 50 | 3/2/2006 |
| 2-Chlorotoluene | ND | 50 | µg/L | 50 | 3/2/2006 |
| 4-Chlorotoluene | ND | 50 | µg/L | 50 | 3/2/2006 |
| cis-1,2-DCE | ND | 50 | µg/L | 50 | 3/2/2006 |
| cis-1,3-Dichloropropene | ND | 50 | µg/L | 50 | 3/2/2006 |
| 1,2-Dibromo-3-chloropropane | ND | 100 | µg/L | 50 | 3/2/2006 |
| Dibromochloromethane | ND | 50 | µg/L | 50 | 3/2/2006 |
| Dibromomethane | ND | 100 | µg/L | 50 | 3/2/2006 |
| 1,2-Dichlorobenzene | ND | 50 | µg/L | 50 | 3/2/2006 |
| 1,3-Dichlorobenzene | ND | 50 | µg/L | 50 | 3/2/2006 |
| 1,4-Dichlorobenzene | ND | 50 | µg/L | 50 | 3/2/2006 |
| Dichlorodifluoromethane | ND | 50 | µg/L | 50 | 3/2/2006 |
| 1,1-Dichloroethane | ND | 100 | µg/L | 50 | 3/2/2006 |
| 1,1-Dichloroethene | ND | 50 | µg/L | 50 | 3/2/2006 |
| 1,2-Dichloropropane | ND | 50 | µg/L | 50 | 3/2/2006 |
| 1,3-Dichloropropane | ND | 50 | µg/L | 50 | 3/2/2006 |
| 2,2-Dichloropropane | ND | 100 | µg/L | 50 | 3/2/2006 |
| 1,1-Dichloropropene | ND | 50 | µg/L | 50 | 3/2/2006 |
| Hexachlorobutadiene | ND | 100 | µg/L | 50 | 3/2/2006 |
| 2-Hexanone | ND | 500 | µg/L | 50 | 3/2/2006 |
| Isopropylbenzene | ND | 50 | µg/L | 50 | 3/2/2006 |
| 4-Isopropyltoluene | ND | 50 | µg/L | 50 | 3/2/2006 |
| 4-Methyl-2-pentanone | ND | 500 | µg/L | 50 | 3/2/2006 |
| Methylene Chloride | ND | 150 | µg/L | 50 | 3/2/2006 |
| n-Butylbenzene | ND | 50 | µg/L | 50 | 3/2/2006 |
| n-Propylbenzene | ND | 50 | µg/L | 50 | 3/2/2006 |
| sec-Butylbenzene | ND | 100 | µg/L | 50 | 3/2/2006 |
| Styrene | ND | 50 | µg/L | 50 | 3/2/2006 |
| tert-Butylbenzene | ND | 50 | µg/L | 50 | 3/2/2006 |
| 1,1,1,2-Tetrachloroethane | ND | 50 | µg/L | 50 | 3/2/2006 |
| 1,1,2,2-Tetrachloroethane | ND | 50 | µg/L | 50 | 3/2/2006 |
| Tetrachloroethene (PCE) | ND | 50 | µg/L | 50 | 3/2/2006 |
| trans-1,2-DCE | ND | 50 | µg/L | 50 | 3/2/2006 |
| trans-1,3-Dichloropropene | ND | 50 | µg/L | 50 | 3/2/2006 |
| 1,2,3-Trichlorobenzene | ND | 50 | µg/L | 50 | 3/2/2006 |
| 1,2,4-Trichlorobenzene | ND | 50 | µg/L | 50 | 3/2/2006 |
| 1,1,1-Trichloroethane | ND | 50 | µg/L | 50 | 3/2/2006 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| S | Spike Recovery outside accepted recovery limits | | |

# Hall Environmental Analysis Laboratory

**Date:** *08-Mar-06*

**CLIENT:** Giant Refining Co **Lab Order:** 0602238
**Project:** NMED Monthly Water Samples

EPA METHOD 8260B: VOLATILES Analyst: KTM

| | | | | | |
|---|---|---|---|---|---|
| 1,1,2-Trichloroethane | ND | 50 | µg/L | 50 | 3/2/2006 |
| Trichloroethene (TCE) | ND | 50 | µg/L | 50 | 3/2/2006 |
| Trichlorofluoromethane | ND | 50 | µg/L | 50 | 3/2/2006 |
| 1,2,3-Trichloropropane | ND | 100 | µg/L | 50 | 3/2/2006 |
| Vinyl chloride | ND | 50 | µg/L | 50 | 3/2/2006 |
| Xylenes, Total | 98 | 50 | µg/L | 50 | 3/2/2006 |
| Surr: 1,2-Dichloroethane-d4 | 103 | 69.9-130 | %REC | 50 | 3/2/2006 |
| Surr: 4-Bromofluorobenzene | 90.5 | 71.2-123 | %REC | 50 | 3/2/2006 |
| Surr: Dibromofluoromethane | 102 | 57.3-135 | %REC | 50 | 3/2/2006 |
| Surr: Toluene-d8 | 92.8 | 81.9-122 | %REC | 50 | 3/2/2006 |

*Qualifiers:*

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

**Date:** *08-Mar-06*

**CLIENT:** Giant Refining Co — **Lab Order:** 0602238
**Project:** NMED Monthly Water Samples

**Lab ID:** 0602238-02 — **Collection Date:** 2/23/2006 7:30:00 AM
**Client Sample ID:** OAPIS — **Matrix:** AQUEOUS

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | 2.8 | 1.0 | | mg/L | 1 | 2/28/2006 10:40:46 AM |
| Motor Oil Range Organics (MRO) | ND | 5.0 | | mg/L | 1 | 2/28/2006 10:40:46 AM |
| Surr: DNOP | 114 | 58-140 | | %REC | 1 | 2/28/2006 10:40:46 AM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | 0.80 | 0.25 | | mg/L | 5 | 3/3/2006 12:24:11 PM |
| Surr: BFB | 101 | 79.7-118 | | %REC | 5 | 3/3/2006 12:24:11 PM |
| **EPA METHOD 8310: PAHS** | | | | | | Analyst: JMP |
| Naphthalene | 290 | 25 | | µg/L | 10 | 3/7/2006 2:21:22 PM |
| 1-Methylnaphthalene | ND | 2.5 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| 2-Methylnaphthalene | ND | 2.5 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Acenaphthylene | ND | 2.5 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Acenaphthene | ND | 2.5 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Fluorene | ND | 0.80 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Phenanthrene | ND | 0.60 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Anthracene | ND | 0.60 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Fluoranthene | ND | 0.30 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Pyrene | 0.32 | 0.30 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Benz(a)anthracene | ND | 0.020 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Chrysene | ND | 0.20 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Benzo(b)fluoranthene | ND | 0.050 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Benzo(k)fluoranthene | ND | 0.020 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Benzo(a)pyrene | ND | 0.020 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Dibenz(a,h)anthracene | ND | 0.040 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Benzo(g,h,i)perylene | ND | 0.030 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | µg/L | 1 | 3/7/2006 3:09:22 PM |
| Surr: Benzo(e)pyrene | 89.2 | 54-102 | | %REC | 1 | 3/7/2006 3:09:22 PM |
| **EPA METHOD 7470: MERCURY** | | | | | | Analyst: CMC |
| Mercury | ND | 0.00020 | | mg/L | 1 | 3/2/2006 |
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: CMC |
| Arsenic | 0.033 | 0.020 | | mg/L | 1 | 3/6/2006 12:20:49 PM |
| Barium | 0.29 | 0.020 | | mg/L | 1 | 3/6/2006 12:20:49 PM |
| Cadmium | ND | 0.0020 | | mg/L | 1 | 3/6/2006 12:20:49 PM |
| Chromium | 0.0081 | 0.0060 | | mg/L | 1 | 3/6/2006 12:20:49 PM |

*Qualifiers:*

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

**Date:** *08-Mar-06*

**CLIENT:** Giant Refining Co    **Lab Order:** 0602238
**Project:** NMED Monthly Water Samples

| | | | | | |
|---|---|---|---|---|---|
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | Analyst: **CMC** |
| Lead | ND | 0.0050 | mg/L | 1 | 3/6/2006 12:20:49 PM |
| Selenium | ND | 0.050 | mg/L | 1 | 3/6/2006 12:20:49 PM |
| Silver | ND | 0.0050 | mg/L | 1 | 3/6/2006 12:20:49 PM |
| **EPA METHOD 8260B: VOLATILES** | | | | | Analyst: **KTM** |
| Benzene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Toluene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Ethylbenzene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Methyl tert-butyl ether (MTBE) | 8.4 | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,2,4-Trimethylbenzene | 12 | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,3,5-Trimethylbenzene | 31 | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,2-Dichloroethane (EDC) | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,2-Dibromoethane (EDB) | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Naphthalene | 12 | 10 | µg/L | 5 | 3/7/2006 |
| 1-Methylnaphthalene | 98 | 20 | µg/L | 5 | 3/7/2006 |
| 2-Methylnaphthalene | 60 | 20 | µg/L | 5 | 3/7/2006 |
| Acetone | 99 | 50 | µg/L | 5 | 3/7/2006 |
| Bromobenzene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Bromochloromethane | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Bromodichloromethane | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Bromoform | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Bromomethane | ND | 10 | µg/L | 5 | 3/7/2006 |
| 2-Butanone | ND | 50 | µg/L | 5 | 3/7/2006 |
| Carbon disulfide | ND | 50 | µg/L | 5 | 3/7/2006 |
| Carbon Tetrachloride | ND | 10 | µg/L | 5 | 3/7/2006 |
| Chlorobenzene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Chloroethane | ND | 10 | µg/L | 5 | 3/7/2006 |
| Chloroform | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Chloromethane | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 2-Chlorotoluene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 4-Chlorotoluene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| cis-1,2-DCE | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| cis-1,3-Dichloropropene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,2-Dibromo-3-chloropropane | ND | 10 | µg/L | 5 | 3/7/2006 |
| Dibromochloromethane | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Dibromomethane | ND | 10 | µg/L | 5 | 3/7/2006 |
| 1,2-Dichlorobenzene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,3-Dichlorobenzene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,4-Dichlorobenzene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Dichlorodifluoromethane | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,1-Dichloroethane | ND | 10 | µg/L | 5 | 3/7/2006 |
| 1,1-Dichloroethene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,2-Dichloropropane | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,3-Dichloropropane | ND | 5.0 | µg/L | 5 | 3/7/2006 |

***Qualifiers:***

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

**Date:** *08-Mar-06*

**CLIENT:** Giant Refining Co **Lab Order:** 0602238
**Project:** NMED Monthly Water Samples

| EPA METHOD 8260B: VOLATILES | | | | | Analyst: KTM |
|---|---|---|---|---|---|
| 2,2-Dichloropropane | ND | 10 | µg/L | 5 | 3/7/2006 |
| 1,1-Dichloropropene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Hexachlorobutadiene | ND | 10 | µg/L | 5 | 3/7/2006 |
| 2-Hexanone | ND | 50 | µg/L | 5 | 3/7/2006 |
| Isopropylbenzene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 4-Isopropyltoluene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 4-Methyl-2-pentanone | ND | 50 | µg/L | 5 | 3/7/2006 |
| Methylene Chloride | ND | 15 | µg/L | 5 | 3/7/2006 |
| n-Butylbenzene | 7.5 | 5.0 | µg/L | 5 | 3/7/2006 |
| n-Propylbenzene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| sec-Butylbenzene | ND | 10 | µg/L | 5 | 3/7/2006 |
| Styrene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| tert-Butylbenzene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,1,1,2-Tetrachloroethane | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,1,2,2-Tetrachloroethane | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Tetrachloroethene (PCE) | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| trans-1,2-DCE | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| trans-1,3-Dichloropropene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,2,3-Trichlorobenzene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,2,4-Trichlorobenzene | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,1,1-Trichloroethane | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,1,2-Trichloroethane | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Trichloroethene (TCE) | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Trichlorofluoromethane | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| 1,2,3-Trichloropropane | ND | 10 | µg/L | 5 | 3/7/2006 |
| Vinyl chloride | ND | 5.0 | µg/L | 5 | 3/7/2006 |
| Xylenes, Total | 25 | 5.0 | µg/L | 5 | 3/7/2006 |
| Surr: 1,2-Dichloroethane-d4 | 95.6 | 69.9-130 | %REC | 5 | 3/7/2006 |
| Surr: 4-Bromofluorobenzene | 98.6 | 71.2-123 | %REC | 5 | 3/7/2006 |
| Surr: Dibromofluoromethane | 96.3 | 57.3-135 | %REC | 5 | 3/7/2006 |
| Surr: Toluene-d8 | 90.8 | 81.9-122 | %REC | 5 | 3/7/2006 |

*Qualifiers:*
- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

Date: *08-Mar-06*

**CLIENT:** Giant Refining Co **Lab Order:** 0602238
**Project:** NMED Monthly Water Samples

**Lab ID:** 0602238-03 **Collection Date:** 2/23/2006 8:30:00 AM
**Client Sample ID:** NAPIS **Matrix:** AQUEOUS

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | 140 | 3.0 | | mg/L | 1 | 2/28/2006 11:13:30 AM |
| Motor Oil Range Organics (MRO) | ND | 15 | | mg/L | 1 | 2/28/2006 11:13:30 AM |
| Surr: DNOP | 123 | 58-140 | | %REC | 1 | 2/28/2006 11:13:30 AM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | 50 | 2.5 | | mg/L | 50 | 3/3/2006 12:55:09 PM |
| Surr: BFB | 100 | 79.7-118 | | %REC | 50 | 3/3/2006 12:55:09 PM |
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: KTM |
| Benzene | 15000 | 1000 | | µg/L | 1000 | 3/7/2006 |
| Toluene | 9800 | 1000 | | µg/L | 1000 | 3/7/2006 |
| Ethylbenzene | 610 | 100 | | µg/L | 100 | 3/2/2006 |
| Methyl tert-butyl ether (MTBE) | 19000 | 1000 | | µg/L | 1000 | 3/7/2006 |
| 1,2,4-Trimethylbenzene | 690 | 100 | | µg/L | 100 | 3/2/2006 |
| 1,3,5-Trimethylbenzene | 250 | 100 | | µg/L | 100 | 3/2/2006 |
| 1,2-Dichloroethane (EDC) | ND | 100 | | µg/L | 100 | 3/2/2006 |
| 1,2-Dibromoethane (EDB) | ND | 100 | | µg/L | 100 | 3/2/2006 |
| Naphthalene | 410 | 200 | | µg/L | 100 | 3/2/2006 |
| 1-Methylnaphthalene | ND | 400 | | µg/L | 100 | 3/2/2006 |
| 2-Methylnaphthalene | ND | 400 | | µg/L | 100 | 3/2/2006 |
| Acetone | 19000 | 10000 | | µg/L | 1000 | 3/7/2006 |
| Bromobenzene | ND | 100 | | µg/L | 100 | 3/2/2006 |
| Bromochloromethane | ND | 100 | | µg/L | 100 | 3/2/2006 |
| Bromodichloromethane | ND | 100 | | µg/L | 100 | 3/2/2006 |
| Bromoform | ND | 100 | | µg/L | 100 | 3/2/2006 |
| Bromomethane | ND | 200 | | µg/L | 100 | 3/2/2006 |
| 2-Butanone | 4400 | 1000 | | µg/L | 100 | 3/2/2006 |
| Carbon disulfide | ND | 1000 | | µg/L | 100 | 3/2/2006 |
| Carbon Tetrachloride | ND | 200 | | µg/L | 100 | 3/2/2006 |
| Chlorobenzene | ND | 100 | | µg/L | 100 | 3/2/2006 |
| Chloroethane | ND | 200 | | µg/L | 100 | 3/2/2006 |
| Chloroform | ND | 100 | | µg/L | 100 | 3/2/2006 |
| Chloromethane | ND | 100 | | µg/L | 100 | 3/2/2006 |
| 2-Chlorotoluene | ND | 100 | | µg/L | 100 | 3/2/2006 |
| 4-Chlorotoluene | ND | 100 | | µg/L | 100 | 3/2/2006 |
| cis-1,2-DCE | ND | 100 | | µg/L | 100 | 3/2/2006 |
| cis-1,3-Dichloropropene | ND | 100 | | µg/L | 100 | 3/2/2006 |
| 1,2-Dibromo-3-chloropropane | ND | 200 | | µg/L | 100 | 3/2/2006 |

*Qualifiers:*

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

**Date:** *08-Mar-06*

**CLIENT:** Giant Refining Co  **Lab Order:** 0602238
**Project:** NMED Monthly Water Samples

**EPA METHOD 8260B: VOLATILES**  Analyst: KTM

| | | | | | |
|---|---|---|---|---|---|
| Dibromochloromethane | ND | 100 | µg/L | 100 | 3/2/2006 |
| Dibromomethane | ND | 200 | µg/L | 100 | 3/2/2006 |
| 1,2-Dichlorobenzene | ND | 100 | µg/L | 100 | 3/2/2006 |
| 1,3-Dichlorobenzene | ND | 100 | µg/L | 100 | 3/2/2006 |
| 1,4-Dichlorobenzene | ND | 100 | µg/L | 100 | 3/2/2006 |
| Dichlorodifluoromethane | ND | 100 | µg/L | 100 | 3/2/2006 |
| 1,1-Dichloroethane | ND | 200 | µg/L | 100 | 3/2/2006 |
| 1,1-Dichloroethene | ND | 100 | µg/L | 100 | 3/2/2006 |
| 1,2-Dichloropropane | ND | 100 | µg/L | 100 | 3/2/2006 |
| 1,3-Dichloropropane | ND | 100 | µg/L | 100 | 3/2/2006 |
| 2,2-Dichloropropane | ND | 200 | µg/L | 100 | 3/2/2006 |
| 1,1-Dichloropropene | ND | 100 | µg/L | 100 | 3/2/2006 |
| Hexachlorobutadiene | ND | 200 | µg/L | 100 | 3/2/2006 |
| 2-Hexanone | ND | 1000 | µg/L | 100 | 3/2/2006 |
| Isopropylbenzene | ND | 100 | µg/L | 100 | 3/2/2006 |
| 4-Isopropyltoluene | ND | 100 | µg/L | 100 | 3/2/2006 |
| 4-Methyl-2-pentanone | ND | 1000 | µg/L | 100 | 3/2/2006 |
| Methylene Chloride | ND | 300 | µg/L | 100 | 3/2/2006 |
| n-Butylbenzene | 120 | 100 | µg/L | 100 | 3/2/2006 |
| n-Propylbenzene | 100 | 100 | µg/L | 100 | 3/2/2006 |
| sec-Butylbenzene | ND | 200 | µg/L | 100 | 3/2/2006 |
| Styrene | ND | 100 | µg/L | 100 | 3/2/2006 |
| tert-Butylbenzene | ND | 100 | µg/L | 100 | 3/2/2006 |
| 1,1,1,2-Tetrachloroethane | ND | 100 | µg/L | 100 | 3/2/2006 |
| 1,1,2,2-Tetrachloroethane | ND | 100 | µg/L | 100 | 3/2/2006 |
| Tetrachloroethene (PCE) | ND | 100 | µg/L | 100 | 3/2/2006 |
| trans-1,2-DCE | ND | 100 | µg/L | 100 | 3/2/2006 |
| trans-1,3-Dichloropropene | ND | 100 | µg/L | 100 | 3/2/2006 |
| 1,2,3-Trichlorobenzene | ND | 100 | µg/L | 100 | 3/2/2006 |
| 1,2,4-Trichlorobenzene | ND | 100 | µg/L | 100 | 3/2/2006 |
| 1,1,1-Trichloroethane | ND | 100 | µg/L | 100 | 3/2/2006 |
| 1,1,2-Trichloroethane | ND | 100 | µg/L | 100 | 3/2/2006 |
| Trichloroethene (TCE) | ND | 100 | µg/L | 100 | 3/2/2006 |
| Trichlorofluoromethane | ND | 100 | µg/L | 100 | 3/2/2006 |
| 1,2,3-Trichloropropane | ND | 200 | µg/L | 100 | 3/2/2006 |
| Vinyl chloride | ND | 100 | µg/L | 100 | 3/2/2006 |
| Xylenes, Total | 3900 | 100 | µg/L | 100 | 3/2/2006 |
| Surr: 1,2-Dichloroethane-d4 | 103 | 69.9-130 | %REC | 100 | 3/2/2006 |
| Surr: 4-Bromofluorobenzene | 89.7 | 71.2-123 | %REC | 100 | 3/2/2006 |
| Surr: Dibromofluoromethane | 103 | 57.3-135 | %REC | 100 | 3/2/2006 |
| Surr: Toluene-d8 | 89.5 | 81.9-122 | %REC | 100 | 3/2/2006 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| S | Spike Recovery outside accepted recovery limits | | |

## Hall Environmental Analysis Laboratory

Date: *08-Mar-06*

**CLIENT:** Giant Refining Co **Lab Order:** 0602238
**Project:** NMED Monthly Water Samples

**Lab ID:** 0602238-04 **Collection Date:** 2/23/2006 8:45:00 AM
**Client Sample ID:** Pilot TC **Matrix:** AQUEOUS

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | 7.0 | 3.0 | | mg/L | 1 | 2/28/2006 11:46:00 AM |
| Motor Oil Range Organics (MRO) | ND | 15 | | mg/L | 1 | 2/28/2006 11:46:00 AM |
| Surr: DNOP | 135 | 58-140 | | %REC | 1 | 2/28/2006 11:46:00 AM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | 0.067 | 0.050 | | mg/L | 1 | 3/3/2006 1:23:18 PM |
| Surr: BFB | 99.8 | 79.7-118 | | %REC | 1 | 3/3/2006 1:23:18 PM |
| **EPA METHOD 7470: MERCURY** | | | | | | Analyst: CMC |
| Mercury | ND | 0.00020 | | mg/L | 1 | 3/2/2006 |
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: CMC |
| Arsenic | ND | 0.020 | | mg/L | 1 | 3/6/2006 12:24:46 PM |
| Barium | 0.039 | 0.020 | | mg/L | 1 | 3/6/2006 12:24:46 PM |
| Cadmium | ND | 0.0020 | | mg/L | 1 | 3/6/2006 12:24:46 PM |
| Chromium | ND | 0.0060 | | mg/L | 1 | 3/6/2006 12:24:46 PM |
| Lead | ND | 0.0050 | | mg/L | 1 | 3/6/2006 12:24:46 PM |
| Selenium | ND | 0.050 | | mg/L | 1 | 3/6/2006 12:24:46 PM |
| Silver | ND | 0.0050 | | mg/L | 1 | 3/6/2006 12:24:46 PM |
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: KTM |
| Benzene | ND | 1.0 | | µg/L | 1 | 3/2/2006 |
| Toluene | 3.1 | 1.0 | | µg/L | 1 | 3/2/2006 |
| Ethylbenzene | ND | 1.0 | | µg/L | 1 | 3/2/2006 |
| Methyl tert-butyl ether (MTBE) | ND | 1.0 | | µg/L | 1 | 3/2/2006 |
| 1,2,4-Trimethylbenzene | ND | 1.0 | | µg/L | 1 | 3/2/2006 |
| 1,3,5-Trimethylbenzene | ND | 1.0 | | µg/L | 1 | 3/2/2006 |
| 1,2-Dichloroethane (EDC) | ND | 1.0 | | µg/L | 1 | 3/2/2006 |
| 1,2-Dibromoethane (EDB) | ND | 1.0 | | µg/L | 1 | 3/2/2006 |
| Naphthalene | ND | 2.0 | | µg/L | 1 | 3/2/2006 |
| 1-Methylnaphthalene | ND | 4.0 | | µg/L | 1 | 3/2/2006 |
| 2-Methylnaphthalene | ND | 4.0 | | µg/L | 1 | 3/2/2006 |
| Acetone | 200 | 10 | | µg/L | 1 | 3/2/2006 |
| Bromobenzene | ND | 1.0 | | µg/L | 1 | 3/2/2006 |
| Bromochloromethane | ND | 1.0 | | µg/L | 1 | 3/2/2006 |
| Bromodichloromethane | ND | 1.0 | | µg/L | 1 | 3/2/2006 |
| Bromoform | ND | 1.0 | | µg/L | 1 | 3/2/2006 |

**Qualifiers:**

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

Date: *08-Mar-06*

**CLIENT:** Giant Refining Co **Lab Order:** 0602238
**Project:** NMED Monthly Water Samples

**EPA METHOD 8260B: VOLATILES** Analyst: KTM

| | | | | | |
|---|---|---|---|---|---|
| Bromomethane | ND | 2.0 | µg/L | 1 | 3/2/2006 |
| 2-Butanone | ND | 10 | µg/L | 1 | 3/2/2006 |
| Carbon disulfide | ND | 10 | µg/L | 1 | 3/2/2006 |
| Carbon Tetrachloride | ND | 2.0 | µg/L | 1 | 3/2/2006 |
| Chlorobenzene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| Chloroethane | ND | 2.0 | µg/L | 1 | 3/2/2006 |
| Chloroform | 4.0 | 1.0 | µg/L | 1 | 3/2/2006 |
| Chloromethane | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 2-Chlorotoluene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 4-Chlorotoluene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| cis-1,2-DCE | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| cis-1,3-Dichloropropene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 1,2-Dibromo-3-chloropropane | ND | 2.0 | µg/L | 1 | 3/2/2006 |
| Dibromochloromethane | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| Dibromomethane | ND | 2.0 | µg/L | 1 | 3/2/2006 |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| Dichlorodifluoromethane | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 1,1-Dichloroethane | ND | 2.0 | µg/L | 1 | 3/2/2006 |
| 1,1-Dichloroethene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 1,3-Dichloropropane | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 2,2-Dichloropropane | ND | 2.0 | µg/L | 1 | 3/2/2006 |
| 1,1-Dichloropropene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| Hexachlorobutadiene | ND | 2.0 | µg/L | 1 | 3/2/2006 |
| 2-Hexanone | ND | 10 | µg/L | 1 | 3/2/2006 |
| Isopropylbenzene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 4-Isopropyltoluene | 1.7 | 1.0 | µg/L | 1 | 3/2/2006 |
| 4-Methyl-2-pentanone | ND | 10 | µg/L | 1 | 3/2/2006 |
| Methylene Chloride | ND | 3.0 | µg/L | 1 | 3/2/2006 |
| n-Butylbenzene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| n-Propylbenzene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| sec-Butylbenzene | ND | 2.0 | µg/L | 1 | 3/2/2006 |
| Styrene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| tert-Butylbenzene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 1,1,2,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| Tetrachloroethene (PCE) | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| trans-1,2-DCE | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| trans-1,3-Dichloropropene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 1,2,3-Trichlorobenzene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 1,2,4-Trichlorobenzene | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | 1 | 3/2/2006 |

*Qualifiers:*

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| S | Spike Recovery outside accepted recovery limits | | |

# Hall Environmental Analysis Laboratory

Date: *08-Mar-06*

**CLIENT:** Giant Refining Co **Lab Order:** 0602238
**Project:** NMED Monthly Water Samples

**EPA METHOD 8260B: VOLATILES** Analyst: KTM

| | | | | | |
|---|---|---|---|---|---|
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| Trichloroethene (TCE) | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| Trichlorofluoromethane | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | 1 | 3/2/2006 |
| Vinyl chloride | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| Xylenes, Total | ND | 1.0 | µg/L | 1 | 3/2/2006 |
| Surr: 1,2-Dichloroethane-d4 | 103 | 69.9-130 | %REC | 1 | 3/2/2006 |
| Surr: 4-Bromofluorobenzene | 90.6 | 71.2-123 | %REC | 1 | 3/2/2006 |
| Surr: Dibromofluoromethane | 103 | 57.3-135 | %REC | 1 | 3/2/2006 |
| Surr: Toluene-d8 | 91.0 | 81.9-122 | %REC | 1 | 3/2/2006 |

*Qualifiers:*

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

HALL ENVIRONMENTAL
attn: ANDY FREEMAN
4901 HAWKINS NE, SUITE D
ALBUQUERQUE NM 87109-4372

| Explanation of codes | |
|---|---|
| B | Analyte Detected in Method Blank |
| E | Result is Estimated |
| H | Analyzed Out of Hold Time |
| N | Tentatively Identified Compound |
| S | Subcontracted |
| 1-9 | See Footnote |

STANDARD

*Assaigai Analytical Laboratories, Inc.*

# *Certificate of Analysis*

*All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).*

Client: **HALL ENVIRONMENTAL**
Project: **0602238**
Order: **0602539** **HAL03** Receipt: **02-24-06**

*William P. Biava: President of Assaigai Analytical Laboratories, Inc.*

Sample: ***0602238-01C/AL-2 TO EP-1*** Collected: *02-23-06 8:00:00* By:
Matrix: ***AQUEOUS***

| QC Group | Run Sequence | CAS # | Analyte | Result | Units | Dilution Factor | Detection Limit | Code | Prep Date | Run Date |
|---|---|---|---|---|---|---|---|---|---|---|
| **0602539-0001A** | | **EPA 405.1 Biochemical Oxygen Demand** | | | | | By: | MKM | | |
| BOD06026 | WC.2006.531.15 | 10-26-4 | Biochemical Oxygen Demand | 550 | mg/L | 1 | 2 | 1 | 02-24-06 | 03-01-06 |

*Unless otherwise noted, all samples were received in acceptable condition and all sampling was performed by client or client representative. Sample result of ND indicates Not Detected, ie result is less than the sample specific Detection Limit. Sample specific Detection Limit is determined by multiplying the sample Dilution Factor by the listed Reporting Detection Limit. All results relate only to the items tested. Any miscellaneous workorder information or foonotes will appear below.*

*Analytical results are not corrected for method blank or field blank contamination.*

1 The percent recoveries of the LCS and LCSD are outside of QA/QC criteria (low). This should be taken into account when reviewing the data.

**CLIENT:** Giant Refining Co
**Work Order:** 0602238
**Project:** NMED Monthly Water Samples

# ANALYTICAL QC SUMMARY REPORT

**TestCode:** 8015DRO_W

Sample ID: MB-9869 | SampType: MBLK | TestCode: 8015DRO_W | Units: mg/L | Prep Date: 2/27/2006 | RunNo: 18412
Client ID: ZZZZZ | Batch ID: 9869 | TestNo: SW8015 | Analysis Date: 2/28/2006 | SeqNo: 454270

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 1.0 | | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 5.0 | | | | | | | | | |

Sample ID: LCS-9869 | SampType: LCS | TestCode: 8015DRO_W | Units: mg/L | Prep Date: 2/27/2006 | RunNo: 18412
Client ID: ZZZZZ | Batch ID: 9869 | TestNo: SW8015 | Analysis Date: 2/28/2006 | SeqNo: 454271

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 6.746 | 1.0 | 5 | 0 | 135 | 81.2 | 149 | | | | |

Sample ID: LCSD-9869 | SampType: LCSD | TestCode: 8015DRO_W | Units: mg/L | Prep Date: 2/27/2006 | RunNo: 18412
Client ID: ZZZZZ | Batch ID: 9869 | TestNo: SW8015 | Analysis Date: 2/28/2006 | SeqNo: 454272

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 6.353 | 1.0 | 5 | 0 | 127 | 81.2 | 149 | 6.746 | 6.00 | 23 | |

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Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

**CLIENT:** Giant Refining Co
**Work Order:** 0602238
**Project:** NMED Monthly Water Samples

# ANALYTICAL QC SUMMARY REPORT

**TestCode:** 8015GRO_W

Sample ID: 5ML RB-2 | SampType: MBLK | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18480
Client ID: ZZZZZ | Batch ID: R18480 | TestNo: SW8015 | Analysis Date: 3/4/2006 | SeqNo: 456357

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 0.050 | | | | | | | | | |

Sample ID: 5ML RB | SampType: MBLK | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18489
Client ID: ZZZZZ | Batch ID: R18489 | TestNo: SW8015 | Analysis Date: 3/6/2006 | SeqNo: 456575

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 0.050 | | | | | | | | | |

Sample ID: 2.5UG GRO LCS-2 | SampType: LCS | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18480
Client ID: ZZZZZ | Batch ID: R18480 | TestNo: SW8015 | Analysis Date: 3/4/2006 | SeqNo: 456358

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 0.4520 | 0.050 | 0.5 | 0 | 90.4 | 82.6 | 114 | | | | |

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Sample ID: 2.5UG GRO LCS | SampType: LCS | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18489
Client ID: ZZZZZ | Batch ID: R18489 | TestNo: SW8015 | Analysis Date: 3/6/2006 | SeqNo: 456577

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 0.4980 | 0.050 | 0.5 | 0 | 99.6 | 82.6 | 114 | | | | |

**Qualifiers:**
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

**CLIENT:** Giant Refining Co
**Work Order:** 0602238
**Project:** NMED Monthly Water Samples

# ANALYTICAL QC SUMMARY REPORT

**TestCode:** 8310_W

Sample ID: MB-9882 | SampType: MBLK | TestCode: 8310_W | Units: µg/L | Prep Date: 2/28/2006 | RunNo: 18497
Client ID: ZZZZZ | Batch ID: 9882 | TestNo: SW8310 | (SW3510C) | Analysis Date: 3/7/2006 | SeqNo: 456803

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | ND | 2.5 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| Acenaphthylene | ND | 2.5 | | | | | | | | | |
| Acenaphthene | ND | 2.5 | | | | | | | | | |
| Fluorene | ND | 0.80 | | | | | | | | | |
| Phenanthrene | ND | 0.60 | | | | | | | | | |
| Anthracene | ND | 0.60 | | | | | | | | | |
| Fluoranthene | ND | 0.30 | | | | | | | | | |
| Pyrene | ND | 0.30 | | | | | | | | | |
| Benz(a)anthracene | ND | 0.020 | | | | | | | | | |
| Chrysene | ND | 0.20 | | | | | | | | | |
| Benzo(b)fluoranthene | ND | 0.050 | | | | | | | | | |
| Benzo(k)fluoranthene | ND | 0.020 | | | | | | | | | |
| Benzo(a)pyrene | ND | 0.020 | | | | | | | | | |
| Dibenz(a,h)anthracene | ND | 0.040 | | | | | | | | | |
| Benzo(g,h,i)perylene | ND | 0.030 | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | | | | | | | | |

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Sample ID: LCS-9882 | SampType: LCS | TestCode: 8310_W | Units: µg/L | Prep Date: 2/28/2006 | RunNo: 18497
Client ID: ZZZZZ | Batch ID: 9882 | TestNo: SW8310 | (SW3510C) | Analysis Date: 3/7/2006 | SeqNo: 456814

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 26.50 | 2.5 | 40 | 0 | 66.2 | 34.8 | 97.4 | | | | |
| 1-Methylnaphthalene | 27.27 | 2.5 | 40.1 | 0 | 68.0 | 34.7 | 100 | | | | |
| 2-Methylnaphthalene | 25.31 | 2.5 | 40 | 0 | 63.3 | 35 | 98.1 | | | | |
| Acenaphthylene | 26.17 | 2.5 | 40.1 | 0 | 65.3 | 48.3 | 95.1 | | | | |
| Acenaphthene | 27.51 | 2.5 | 40 | 0 | 68.8 | 45 | 95 | | | | |
| Fluorene | 2.870 | 0.80 | 4.01 | 0 | 71.6 | 46.8 | 93.4 | | | | |
| Phenanthrene | 1.590 | 0.60 | 2.01 | 0 | 79.1 | 48.7 | 104 | | | | |

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602238
Project: NMED Monthly Water Samples

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8310_W**

Sample ID: LCS-9882 | SampType: LCS | TestCode: 8310_W | Units: µg/L | Prep Date: 2/28/2006 | RunNo: 18497
Client ID: ZZZZZ | Batch ID: 9882 | TestNo: SW8310 | (SW3510C) | Analysis Date: 3/7/2006 | SeqNo: 456814

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Anthracene | 1.490 | 0.60 | 2.01 | 0 | 74.1 | 47.5 | 102 | | | | |
| Fluoranthene | 3.520 | 0.30 | 4.01 | 0 | 87.8 | 46.3 | 108 | | | | |
| Pyrene | 3.770 | 0.30 | 4.01 | 0 | 94.0 | 43.8 | 109 | | | | |
| Benz(a)anthracene | 0.3600 | 0.020 | 0.401 | 0 | 89.8 | 40.3 | 115 | | | | |
| Chrysene | 1.860 | 0.20 | 2.01 | 0 | 92.5 | 42.6 | 107 | | | | |
| Benzo(b)fluoranthene | 0.4400 | 0.050 | 0.501 | 0 | 87.8 | 48.6 | 107 | | | | |
| Benzo(k)fluoranthene | 0.2200 | 0.020 | 0.25 | 0 | 88.0 | 23.3 | 136 | | | | |
| Benzo(a)pyrene | 0.2000 | 0.020 | 0.251 | 0 | 79.7 | 33.4 | 117 | | | | |
| Dibenz(a,h)anthracene | 0.4300 | 0.040 | 0.501 | 0 | 85.8 | 27.3 | 139 | | | | |
| Benzo(g,h,i)perylene | 0.4400 | 0.030 | 0.5 | 0 | 88.0 | 38.2 | 117 | | | | |
| Indeno(1,2,3-cd)pyrene | 0.8530 | 0.080 | 1.002 | 0 | 85.1 | 39.9 | 125 | | | | |

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Sample ID: LCSD-9882 | SampType: LCSD | TestCode: 8310_W | Units: µg/L | Prep Date: 2/28/2006 | RunNo: 18497
Client ID: ZZZZZ | Batch ID: 9882 | TestNo: SW8310 | (SW3510C) | Analysis Date: 3/7/2006 | SeqNo: 456839

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 27.23 | 2.5 | 40 | 0 | 68.1 | 34.8 | 97.4 | | | | |
| 1-Methylnaphthalene | 25.84 | 2.5 | 40.1 | 0 | 64.4 | 34.7 | 100 | | | | |
| 2-Methylnaphthalene | 25.32 | 2.5 | 40 | 0 | 63.3 | 35 | 98.1 | | | | |
| Acenaphthylene | 28.29 | 2.5 | 40.1 | 0 | 70.5 | 48.3 | 95.1 | | | | |
| Acenaphthene | 27.25 | 2.5 | 40 | 0 | 68.1 | 45 | 95 | | | | |
| Fluorene | 2.840 | 0.80 | 4.01 | 0 | 70.8 | 46.8 | 93.4 | | | | |
| Phenanthrene | 1.560 | 0.60 | 2.01 | 0 | 77.6 | 48.7 | 104 | | | | |
| Anthracene | 1.520 | 0.60 | 2.01 | 0 | 75.6 | 47.5 | 102 | | | | |
| Fluoranthene | 3.160 | 0.30 | 4.01 | 0 | 78.8 | 46.3 | 108 | | | | |
| Pyrene | 3.210 | 0.30 | 4.01 | 0 | 80.0 | 43.8 | 109 | | | | |
| Benz(a)anthracene | 0.3100 | 0.020 | 0.401 | 0 | 77.3 | 40.3 | 115 | | | | |
| Chrysene | 1.630 | 0.20 | 2.01 | 0 | 81.1 | 42.6 | 107 | | | | |
| Benzo(b)fluoranthene | 0.3900 | 0.050 | 0.501 | 0 | 77.8 | 48.6 | 107 | | | | |
| Benzo(k)fluoranthene | 0.1900 | 0.020 | 0.25 | 0 | 76.0 | 23.3 | 136 | | | | |

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602238
Project: NMED Monthly Water Samples

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8310_W

Sample ID: LCSD-9882 SampType: LCSD TestCode: 8310_W Units: µg/L Prep Date: 2/28/2006 RunNo: 18497
Client ID: ZZZZZ Batch ID: 9882 TestNo: SW8310 (SW3510C) Analysis Date: 3/7/2006 SeqNo: 456839

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzo(a)pyrene | 0.1700 | 0.020 | 0.251 | 0 | 67.7 | 33.4 | 117 | | | | |
| Dibenz(a,h)anthracene | 0.3900 | 0.040 | 0.501 | 0 | 77.8 | 27.3 | 139 | | | | |
| Benzo(g,h,i)perylene | 0.3700 | 0.030 | 0.5 | 0 | 74.0 | 38.2 | 117 | | | | |
| Indeno(1,2,3-cd)pyrene | 0.7800 | 0.080 | 1.002 | 0 | 77.8 | 39.9 | 125 | | | | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

**CLIENT:** Giant Refining Co
**Work Order:** 0602238
**Project:** NMED Monthly Water Samples

# ANALYTICAL QC SUMMARY REPORT

**TestCode:** HG_CTW

Sample ID: MB-9905 | SampType: MBLK | TestCode: HG_CTW | Units: mg/L | Prep Date: 3/2/2006 | RunNo: 18454
Client ID: ZZZZZ | Batch ID: 9905 | TestNo: SW7470 | (SW7470) | Analysis Date: 3/2/2006 | SeqNo: 455693

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | 0.00020 | | | | | | | | | |

Sample ID: LCS-9905 | SampType: LCS | TestCode: HG_CTW | Units: mg/L | Prep Date: 3/2/2006 | RunNo: 18454
Client ID: ZZZZZ | Batch ID: 9905 | TestNo: SW7470 | (SW7470) | Analysis Date: 3/2/2006 | SeqNo: 455694

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.004476 | 0.00020 | 0.005 | 0 | 89.5 | 80 | 120 | | | | |

Sample ID: LCSD-9905 | SampType: LCSD | TestCode: HG_CTW | Units: mg/L | Prep Date: 3/2/2006 | RunNo: 18454
Client ID: ZZZZZ | Batch ID: 9905 | TestNo: SW7470 | (SW7470) | Analysis Date: 3/2/2006 | SeqNo: 455707

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.004543 | 0.00020 | 0.005 | 0 | 90.9 | 80 | 120 | 0.004476 | 1.48 | 0 | |



Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602238
Project: NMED Monthly Water Samples

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: MB-9915 | SampType: MBLK | TestCode: METALS_TO | Units: mg/L | Prep Date: 3/3/2006 | RunNo: 18483
Client ID: ZZZZZ | Batch ID: 9915 | TestNo: SW6010A | Analysis Date: 3/6/2006 | SeqNo: 456420

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.020 | | | | | | | | | |
| Barium | ND | 0.020 | | | | | | | | | |
| Cadmium | ND | 0.0020 | | | | | | | | | |
| Chromium | ND | 0.0060 | | | | | | | | | |
| Lead | ND | 0.0050 | | | | | | | | | |
| Selenium | ND | 0.050 | | | | | | | | | |
| Silver | ND | 0.0050 | | | | | | | | | |

Sample ID: LCS-9915 | SampType: LCS | TestCode: METALS_TO | Units: mg/L | Prep Date: 3/3/2006 | RunNo: 18483
Client ID: ZZZZZ | Batch ID: 9915 | TestNo: SW6010A | Analysis Date: 3/6/2006 | SeqNo: 456421

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.5621 | 0.020 | 0.5 | 0 | 112 | 80 | 120 | | | | |
| Barium | 0.4882 | 0.020 | 0.5 | 0 | 97.6 | 80 | 120 | | | | |
| Cadmium | 0.5037 | 0.0020 | 0.5 | 0 | 101 | 80 | 120 | | | | |
| Chromium | 0.4889 | 0.0060 | 0.5 | 0 | 97.8 | 80 | 120 | | | | |
| Lead | 0.4994 | 0.0050 | 0.5 | 0 | 99.9 | 80 | 120 | | | | |
| Selenium | 0.5433 | 0.050 | 0.5 | 0 | 109 | 80 | 120 | | | | |
| Silver | 0.4980 | 0.0050 | 0.5 | 0 | 99.6 | 80 | 120 | | | | |

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Sample ID: LCSD-9915 | SampType: LCSD | TestCode: METALS_TO | Units: mg/L | Prep Date: 3/3/2006 | RunNo: 18483
Client ID: ZZZZZ | Batch ID: 9915 | TestNo: SW6010A | Analysis Date: 3/6/2006 | SeqNo: 456422

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.5479 | 0.020 | 0.5 | 0 | 110 | 80 | 120 | 0.5621 | 2.56 | 20 | |
| Barium | 0.4847 | 0.020 | 0.5 | 0 | 96.9 | 80 | 120 | 0.4882 | 0.706 | 20 | |
| Cadmium | 0.5021 | 0.0020 | 0.5 | 0 | 100 | 80 | 120 | 0.5037 | 0.313 | 20 | |
| Chromium | 0.4881 | 0.0060 | 0.5 | 0 | 97.6 | 80 | 120 | 0.4889 | 0.166 | 20 | |
| Lead | 0.4988 | 0.0050 | 0.5 | 0 | 99.8 | 80 | 120 | 0.4994 | 0.111 | 20 | |
| Selenium | 0.5338 | 0.050 | 0.5 | 0 | 107 | 80 | 120 | 0.5433 | 1.77 | 20 | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602238
Project: NMED Monthly Water Samples

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: LCSD-9915 SampType: LCSD TestCode: METALS_TO Units: mg/L Prep Date: 3/3/2006 RunNo: 18483
Client ID: ZZZZZ Batch ID: 9915 TestNo: SW6010A Analysis Date: 3/6/2006 SeqNo: 456422

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Silver | 0.4954 | 0.0050 | 0.5 | 0 | 99.1 | 80 | 120 | 0.498 | 0.530 | 20 | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory

Date: *08-Mar-06*

**CLIENT:** Giant Refining Co
**Work Order:** 0602238
**Project:** NMED Monthly Water Samples

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260_W**

Sample ID: 5mL rb | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 18457
Client ID: ZZZZZ | Batch ID: R18457 | TestNo: SW8260B | Analysis Date: 3/2/2006 | SeqNo: 455862

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | | | | | | | | | |
| Toluene | ND | 1.0 | | | | | | | | | |
| Ethylbenzene | ND | 1.0 | | | | | | | | | |
| Methyl tert-butyl ether (MTBE) | ND | 1.0 | | | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 1.0 | | | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 1.0 | | | | | | | | | |
| 1,2-Dichloroethane (EDC) | ND | 1.0 | | | | | | | | | |
| 1,2-Dibromoethane (EDB) | ND | 1.0 | | | | | | | | | |
| Naphthalene | ND | 2.0 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 4.0 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 4.0 | | | | | | | | | |
| Acetone | ND | 10 | | | | | | | | | |
| Bromobenzene | ND | 1.0 | | | | | | | | | |
| Bromochloromethane | ND | 1.0 | | | | | | | | | |
| Bromodichloromethane | ND | 1.0 | | | | | | | | | |
| Bromoform | ND | 1.0 | | | | | | | | | |
| Bromomethane | ND | 2.0 | | | | | | | | | |
| 2-Butanone | ND | 10 | | | | | | | | | |
| Carbon disulfide | ND | 10 | | | | | | | | | |
| Carbon Tetrachloride | ND | 2.0 | | | | | | | | | |
| Chlorobenzene | ND | 1.0 | | | | | | | | | |
| Chloroethane | ND | 2.0 | | | | | | | | | |
| Chloroform | ND | 1.0 | | | | | | | | | |
| Chloromethane | ND | 1.0 | | | | | | | | | |
| 2-Chlorotoluene | ND | 1.0 | | | | | | | | | |
| 4-Chlorotoluene | ND | 1.0 | | | | | | | | | |
| cis-1,2-DCE | ND | 1.0 | | | | | | | | | |
| cis-1,3-Dichloropropene | ND | 1.0 | | | | | | | | | |
| 1,2-Dibromo-3-chloropropane | ND | 2.0 | | | | | | | | | |

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**Qualifiers:**
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

**CLIENT:** Giant Refining Co
**Work Order:** 0602238
**Project:** NMED Monthly Water Samples

# ANALYTICAL QC SUMMARY REPORT

**TestCode:** 8260_W

| Sample ID: 5mL rb | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 18457 |
|---|---|---|---|---|---|
| Client ID: ZZZZZ | Batch ID: R18457 | TestNo: SW8260B | | Analysis Date: 3/2/2006 | SeqNo: 455862 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dibromochloromethane | ND | 1.0 | | | | | | | | | |
| Dibromomethane | ND | 2.0 | | | | | | | | | |
| 1,2-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,3-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,4-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| Dichlorodifluoromethane | ND | 1.0 | | | | | | | | | |
| 1,1-Dichloroethane | ND | 2.0 | | | | | | | | | |
| 1,1-Dichloroethene | ND | 1.0 | | | | | | | | | |
| 1,2-Dichloropropane | ND | 1.0 | | | | | | | | | |
| 1,3-Dichloropropane | ND | 1.0 | | | | | | | | | |
| 2,2-Dichloropropane | ND | 2.0 | | | | | | | | | |
| 1,1-Dichloropropene | ND | 1.0 | | | | | | | | | |
| Hexachlorobutadiene | ND | 2.0 | | | | | | | | | |
| 2-Hexanone | ND | 10 | | | | | | | | | |
| Isopropylbenzene | ND | 1.0 | | | | | | | | | |
| 4-Isopropyltoluene | ND | 1.0 | | | | | | | | | |
| 4-Methyl-2-pentanone | ND | 10 | | | | | | | | | |
| Methylene Chloride | ND | 3.0 | | | | | | | | | |
| n-Butylbenzene | ND | 1.0 | | | | | | | | | |
| n-Propylbenzene | ND | 1.0 | | | | | | | | | |
| sec-Butylbenzene | ND | 2.0 | | | | | | | | | |
| Styrene | ND | 1.0 | | | | | | | | | |
| tert-Butylbenzene | ND | 1.0 | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | 1.0 | | | | | | | | | |
| Tetrachloroethene (PCE) | ND | 1.0 | | | | | | | | | |
| trans-1,2-DCE | ND | 1.0 | | | | | | | | | |
| trans-1,3-Dichloropropene | ND | 1.0 | | | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,1,1-Trichloroethane | ND | 1.0 | | | | | | | | | |

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**Qualifiers:**
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602238
Project: NMED Monthly Water Samples

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_W

Sample ID: 5mL rb | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 18457
Client ID: ZZZZZ | Batch ID: R18457 | TestNo: SW8260B | Analysis Date: 3/2/2006 | SeqNo: 455862

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,2-Trichloroethane | ND | 1.0 | | | | | | | | | |
| Trichloroethene (TCE) | ND | 1.0 | | | | | | | | | |
| Trichlorofluoromethane | ND | 1.0 | | | | | | | | | |
| 1,2,3-Trichloropropane | ND | 2.0 | | | | | | | | | |
| Vinyl chloride | ND | 1.0 | | | | | | | | | |
| Xylenes, Total | ND | 1.0 | | | | | | | | | |

Sample ID: 5mL rb | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 18474
Client ID: ZZZZZ | Batch ID: R18474 | TestNo: SW8260B | Analysis Date: 3/3/2006 | SeqNo: 456180

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | | | | | | | | | |
| Toluene | ND | 1.0 | | | | | | | | | |
| Ethylbenzene | ND | 1.0 | | | | | | | | | |
| Methyl tert-butyl ether (MTBE) | ND | 1.0 | | | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 1.0 | | | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 1.0 | | | | | | | | | |
| 1,2-Dichloroethane (EDC) | ND | 1.0 | | | | | | | | | |
| 1,2-Dibromoethane (EDB) | ND | 1.0 | | | | | | | | | |
| Naphthalene | ND | 2.0 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 4.0 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 4.0 | | | | | | | | | |
| Acetone | ND | 10 | | | | | | | | | |
| Bromobenzene | ND | 1.0 | | | | | | | | | |
| Bromochloromethane | ND | 1.0 | | | | | | | | | |
| Bromodichloromethane | ND | 1.0 | | | | | | | | | |
| Bromoform | ND | 1.0 | | | | | | | | | |
| Bromomethane | ND | 2.0 | | | | | | | | | |
| 2-Butanone | ND | 10 | | | | | | | | | |
| Carbon disulfide | ND | 10 | | | | | | | | | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602238
Project: NMED Monthly Water Samples

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_W

Sample ID: 5mL rb SampType: MBLK TestCode: 8260_W Units: µg/L Prep Date: RunNo: 18474
Client ID: ZZZZZ Batch ID: R18474 TestNo: SW8260B Analysis Date: 3/3/2006 SeqNo: 456180

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | ND | 2.0 | | | | | | | | | |
| Chlorobenzene | ND | 1.0 | | | | | | | | | |
| Chloroethane | ND | 2.0 | | | | | | | | | |
| Chloroform | ND | 1.0 | | | | | | | | | |
| Chloromethane | ND | 1.0 | | | | | | | | | |
| 2-Chlorotoluene | ND | 1.0 | | | | | | | | | |
| 4-Chlorotoluene | ND | 1.0 | | | | | | | | | |
| cis-1,2-DCE | ND | 1.0 | | | | | | | | | |
| cis-1,3-Dichloropropene | ND | 1.0 | | | | | | | | | |
| 1,2-Dibromo-3-chloropropane | ND | 2.0 | | | | | | | | | |
| Dibromochloromethane | ND | 1.0 | | | | | | | | | |
| Dibromomethane | ND | 2.0 | | | | | | | | | |
| 1,2-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,3-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,4-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| Dichlorodifluoromethane | ND | 1.0 | | | | | | | | | |
| 1,1-Dichloroethane | ND | 2.0 | | | | | | | | | |
| 1,1-Dichloroethene | ND | 1.0 | | | | | | | | | |
| 1,2-Dichloropropane | ND | 1.0 | | | | | | | | | |
| 1,3-Dichloropropane | ND | 1.0 | | | | | | | | | |
| 2,2-Dichloropropane | ND | 2.0 | | | | | | | | | |
| 1,1-Dichloropropene | ND | 1.0 | | | | | | | | | |
| Hexachlorobutadiene | ND | 2.0 | | | | | | | | | |
| 2-Hexanone | ND | 10 | | | | | | | | | |
| Isopropylbenzene | ND | 1.0 | | | | | | | | | |
| 4-Isopropyltoluene | ND | 1.0 | | | | | | | | | |
| 4-Methyl-2-pentanone | ND | 10 | | | | | | | | | |
| Methylene Chloride | ND | 3.0 | | | | | | | | | |
| n-Butylbenzene | ND | 1.0 | | | | | | | | | |
| n-Propylbenzene | ND | 1.0 | | | | | | | | | |
| sec-Butylbenzene | ND | 2.0 | | | | | | | | | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

24 / 29

CLIENT: Giant Refining Co
Work Order: 0602238
Project: NMED Monthly Water Samples

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260_W**

Sample ID: 5mL rb | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 18474
Client ID: ZZZZZ | Batch ID: R18474 | TestNo: SW8260B | Analysis Date: 3/3/2006 | SeqNo: 456180

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Styrene | ND | 1.0 | | | | | | | | | |
| tert-Butylbenzene | ND | 1.0 | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | 1.0 | | | | | | | | | |
| Tetrachloroethene (PCE) | ND | 1.0 | | | | | | | | | |
| trans-1,2-DCE | ND | 1.0 | | | | | | | | | |
| trans-1,3-Dichloropropene | ND | 1.0 | | | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,1,1-Trichloroethane | ND | 1.0 | | | | | | | | | |
| 1,1,2-Trichloroethane | ND | 1.0 | | | | | | | | | |
| Trichloroethene (TCE) | ND | 1.0 | | | | | | | | | |
| Trichlorofluoromethane | ND | 1.0 | | | | | | | | | |
| 1,2,3-Trichloropropane | ND | 2.0 | | | | | | | | | |
| Vinyl chloride | ND | 1.0 | | | | | | | | | |
| Xylenes, Total | ND | 1.0 | | | | | | | | | |

25 / 29

Sample ID: 5mL rb-b | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 18502
Client ID: ZZZZZ | Batch ID: R18502 | TestNo: SW8260B | Analysis Date: 3/7/2006 | SeqNo: 456977

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | | | | | | | | | |
| Toluene | ND | 1.0 | | | | | | | | | |
| Ethylbenzene | ND | 1.0 | | | | | | | | | |
| Methyl tert-butyl ether (MTBE) | ND | 1.0 | | | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 1.0 | | | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 1.0 | | | | | | | | | |
| 1,2-Dichloroethane (EDC) | ND | 1.0 | | | | | | | | | |
| 1,2-Dibromoethane (EDB) | ND | 1.0 | | | | | | | | | |
| Naphthalene | ND | 2.0 | | | | | | | | | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602238
Project: NMED Monthly Water Samples

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260_W**

Sample ID: 100ng lcs | SampType: LCS | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 18457
Client ID: ZZZZZ | Batch ID: R18457 | TestNo: SW8260B | Analysis Date: 3/2/2006 | SeqNo: 455863

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 19.75 | 1.0 | 20 | 0 | 98.7 | 79.2 | 130 | | | | |
| Toluene | 18.63 | 1.0 | 20 | 0 | 93.2 | 81.5 | 118 | | | | |
| Chlorobenzene | 19.31 | 1.0 | 20 | 0 | 96.6 | 81.2 | 132 | | | | |
| 1,1-Dichloroethene | 19.44 | 1.0 | 20 | 0 | 97.2 | 65.5 | 134 | | | | |
| Trichloroethene (TCE) | 18.19 | 1.0 | 20 | 0 | 91.0 | 67 | 131 | | | | |

Sample ID: 100ng lcs | SampType: LCS | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 18474
Client ID: ZZZZZ | Batch ID: R18474 | TestNo: SW8260B | Analysis Date: 3/3/2006 | SeqNo: 456181

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 19.74 | 1.0 | 20 | 0 | 98.7 | 79.2 | 130 | | | | |
| Toluene | 17.72 | 1.0 | 20 | 0 | 88.6 | 81.5 | 118 | | | | |
| Chlorobenzene | 18.95 | 1.0 | 20 | 0 | 94.8 | 81.2 | 132 | | | | |
| 1,1-Dichloroethene | 18.87 | 1.0 | 20 | 0 | 94.3 | 65.5 | 134 | | | | |
| Trichloroethene (TCE) | 18.60 | 1.0 | 20 | 0 | 93.0 | 67 | 131 | | | | |

Sample ID: 100ng lcs | SampType: LCS | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 18502
Client ID: ZZZZZ | Batch ID: R18502 | TestNo: SW8260B | Analysis Date: 3/7/2006 | SeqNo: 456978

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 19.19 | 1.0 | 20 | 0 | 95.9 | 79.2 | 130 | | | | |
| Toluene | 18.39 | 1.0 | 20 | 0 | 91.9 | 81.5 | 118 | | | | |
| Chlorobenzene | 19.84 | 1.0 | 20 | 0 | 99.2 | 81.2 | 132 | | | | |
| 1,1-Dichloroethene | 19.77 | 1.0 | 20 | 0 | 98.8 | 65.5 | 134 | | | | |
| Trichloroethene (TCE) | 18.19 | 1.0 | 20 | 0 | 90.9 | 67 | 131 | | | | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

# Hall Environmental Analysis Laboratory

## Sample Receipt Checklist

Client Name GIANTREFIN | Date and Time Received: 2/24/2006

Work Order Number 0602238 | Received by AT

Checklist completed by Lisa Hedeskcd (Signature) 2/24/06 (Date)

Matrix | Carrier name UPS

| | | | | |
|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ | Not Shipped ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☑ | N/A ☐ | |
| Chain of custody present? | Yes ☑ | No ☐ | | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☑ | No ☐ | | |
| Water - VOA vials have zero headspace? | No VOA vials submitted ☐ | Yes ☑ | No ☐ | |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | N/A ☐ | |

Container/Temp Blank temperature? 3° *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

---

Client contacted ________ Date contacted: ________ Person contacted ________

Contacted by: ________ Regarding ________

Comments: ________

Corrective Action ________

# CHAIN-OF-CUSTODY RECORD

**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: Giant Refining Company-Ciniza
Address: Route 3, Box 7
Gallup, NM 87301

Phone #: 505-722-3833
Fax #: 505-722-0210

QA / QC Package: Std ☐ Level 4 ☐
Other:
Project Name: NMED Monthly Water Samples
Project #:
Project Manager: Steve Morris
Sampler: Steve Morris
Sample Temperature: 3°

| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative HgCl$_2$ | Preservative HNO$_3$ | | HEAL No. |
|---|---|---|---|---|---|---|---|---|
| 2-23-06 | 0800 | $H_2O$ | AL-2 to EP-1 | | | | | 0602238-1 |
| " | 0730 | " | OAPIS | | | | | -2 |
| " | 0830 | " | NAPIS | | | | | -3 |
| " | 0845 | " | Pilot TC | | | | | -4 |

## ANALYSIS REQUEST

| HEAL No. | BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 8310 (PNA or PAH) | RCRA 8 Metals Total | Anions (F, Cl, $NO_3$, $NO_2$, $PO_4$, $SO_4$) | 8081 Pesticides / PCB's (8082) | 8260B (VOA) | 8270 (Semi-VOA) | BOD | | | | Air Bubbles or Headspace (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0602238-1 | | | X | | | | | X | | | X | | X | | | | |
| -2 | | | X | | | | X | X | | | X | | | | | | |
| -3 | | | X | | | | | | | | X | | | | | | |
| -4 | | | X | | | | | X | | | X | | | | | | |

| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |
|---|---|---|---|
| 2/23/06 | 0915 | [signature] | [signature] 1143 2/23/06 |
| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |

Remarks: RUSH

*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*
2006 MAR 20 PM 12 24
*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**

March 13, 2006

Mr. Ed Riege
Environmental Superintendent
Giant Refining Company
Route 3, Box 7
Gallup, New Mexico 87301

**SUBJECT: APPROVAL WITH MODIFICATIONS**
**2004 ANNUAL GROUNDWATER REPORT**
**GIANT REFINING COMPANY, CINIZA REFINERY**
**EPA ID NO. NMD000333211**
**HWB-GRCC-05-001**

Dear Mr. Riege:

The New Mexico Environment Department (NMED) has completed its review of the *Oil Conservation Division 2004 Annual Groundwater Report* (Report), dated August 2005, submitted on behalf of Giant Refining Company, Ciniza Refinery (the Permittee). NMED only reviewed the information presented in Sections 6.0-13.0, 21.A, 21.E, 21.F, Appendix A, and Appendix B pertaining to groundwater monitoring. NMED hereby approves the Report with modifications as listed in this letter. NMED has determined this Report contains some technical deficiencies that must be corrected in all future groundwater monitoring reports. The Permittee must adhere to all requirements established in this letter in addition to the requirements established in the *Approval with Modifications Giant Ciniza Refinery 2003 OCD Annual Reports GW-32* (Approval Letter), issued by NMED to the Permittee, dated June 1, 2005.

The following are the deficiencies identified in the Report:

1. June 1, 2005 Approval Letter, Item No. 18, Discharge Permit Condition 16.A.iii, states "[a]n annual water table potentiometric elevation map using the water table elevation of the ground water in all refinery monitor wells. A corrected water table elevation shall be determined for all wells containing phase-separated hydrocarbons. The map shall show well locations, pertinent site features, and the direction and magnitude of the hydraulic gradient."

   The *Alluvium/Chinle Group Interface Water Levels* map provided in Section 10 of the Report does not provide contours for groundwater flow directions. In addition, groundwater elevations measured in monitoring wells located in the northwest corner (BW-1B, BW-2B, BW-2b, SMW-4....) were not used to generate potentiometric surface contours. The Permittee must include these features on water table potentiometric surface elevation maps provided in future groundwater reports or provide an explanation for omitting the contours on the map.

2. June 1, 2005 Approval Letter, Item No.10, Discharge Permit Condition 16.A.i required a description of the sample collection procedures and field methods. The methods and procedures are not discussed in the Report. Future groundwater monitoring reports must provide a section that describes the sample collection procedures and other field methods used during that sampling event.

3. The Permittee must refer to the June 1, 2005 Approval Letter, Items No. 14 c, d, and e summarized below:

   a. Include a section describing field sample collection and handling procedures, equipment calibrations, decontamination procedures, and collection and management of investigation derived wastes.

   b. Provide a table summarizing well data derived from well depth to water/product measurements from the well casing rims. The water/product levels must be measured to an accuracy of 0.01 foot. The Permittee shall calculate water table elevations by subtracting the depth to water from the surveyed well casing rim elevations. The table shall provide water elevation data for each well. The column headings shall include: measurement date, well identification, well casing elevation, total well depth, depth to SPH, SPH thickness, depth to water, groundwater elevation, and corrected water table elevation (if SPH are present). The data presented in the table can then be applied to the annual water table potentiometric elevation and product thickness maps for each ground water monitoring event.

4. Section 6.0 of the Report contains the Groundwater Monitoring Plan; item No. 6, which states "Waste water from Pilot Travel Center and Truck Stop Facility….." The Permittee must revise the wording to ensure the reader views the Truck Stop Facility as part of the Pilot Travel Center and that one sample is collected from this area. As it currently reads, it could be interpreted that a sample is collected from the Travel Pilot Center and another sample is collected from the Truck Stop Facility.

5. The Table of Contents of the Report, Section 16.0 is missing Permit Condition 21 F. *Summary of Discovery of New Groundwater Contamination*, which is combined with Permit Condition 21E. Permit Condition 21.F identifies contamination present in BW-3C as probably due to drilling, sampling, or lab contamination. In future reports, such statements must be justified by describing why drilling, sampling or lab contamination is thought to be the source of contamination and not a result of a release.

6. Section 9.0 of the Report provides analytical results for Well # 4, designated as *Well #4 SDWA/Iyanbito*. The collection of this sample was not connected with the groundwater sampling event. In future groundwater monitoring reports, the Permittee must highlight laboratory data not collected during the groundwater monitoring event and provide an explanation why the sample(s) was not collected during the scheduled monitoring.

7. Section 13 of the Report provides the data for hydrocarbon thickness and volume of product recovered. The presentation of the data is unclear because the data is recorded in feet and inches while the titles of the columns specify only feet or inches and not both. Future groundwater monitoring reports must provide the SPH thickness measurements in feet to an accuracy of 0.01 foot and provide accurate titles.

8. Well identification must be consistent throughout the report on analytical reports, reporting tables, and on maps. For example, wells labeled PW-2 and PW-4 on the maps are labeled well #2 and well #4 in the analytical reports and reporting tables. This must be corrected in future groundwater reports.

9. The Permittee shall discuss in future groundwater monitoring reports any deviations to approved sampling activities or provide an explanation why sampling was not conducted. Some analytical data appears to be missing from this Report. The following is a list of the discrepancies related to monitoring of the wells in the Report:

a. Section 8 states GWM-1 was analyzed for general chemistry, VOC, SVOC, BTEX, MTBE, and RCRA metals. However, only BTEX and MTBE data were provided in Section 9, containing the tables and analytical reports.

b. Section 8.0 states that PW-2 was analyzed for cyanide. The analytical results for cyanide were not provided in Section 9.

All future groundwater monitoring reports must follow all requirements included in this letter and also the requirements listed in the original Approval Letter. In September 2005, after the Report was submitted, the Permittee submitted a *Response Letter, HWB-GRCC-04*-001 dated September 26, 2005 that included revisions to the *OCD Discharge Renewal Application.* The Permittee must also adhere to all revisions submitted in that *Response Letter* in future groundwater monitoring reports.

If you have questions regarding this approval please contact me at 505-428-2545.

Sincerely,

Hope Monzeglio

Hope Monzeglio
Project Leader
Permits Management Program

HM/sv

cc: J. Kieling, NMED HWB
D. Cobrain NMED HWB
W. Price, OCD
C. Chavez, OCD
D. Foust, OCD, Aztec Office
S. Morris, GRCC
J. Lieb, GRCC

file: Reading File and GRCC 2006 File

## Chavez, Carl J, EMNRD

**From:** Jim Lieb [jlieb@giant.com]
**Sent:** Wednesday, March 15, 2006 2:44 PM
**To:** Monzeglio, Hope, NMENV; Chavez, Carl J, EMNRD
**Cc:** Ed Riege; Steve Morris; Johnny Sanchez
**Subject:** Sewer Excavation Update

Hope/Carl:

Due to the snow this last weekend and the earlier rain last week the soil here is very muddy and makes it unsafe for working around the sewer excavation. Now, with the dry weather here the last couple of days, the area around the excavation is beginning to dry up. Hence, I was just informed that, baring any additional significant precipitation, the excavation will be a go for this Friday. Our plans are to take samples as per your request and as I marked on the diagrams I emailed to you a while back. I have attached the diagrams to this email for easy access by you.

If you have any questions on this, please contact me at 722-3227.

Jim Lieb
Environmental Engineer
Giant - Ciniza Refinery

GIANT
CINIZA
REFINERY

EXCAVATION PIT DETAIL
PROCESS SEWER LINE SLOP OIL SPILL OF 2-24-06
SPILL AREA SAMPLING LOCATIONS (PROPOSED)

X S = PROPOSED SAMPLE LOCATION

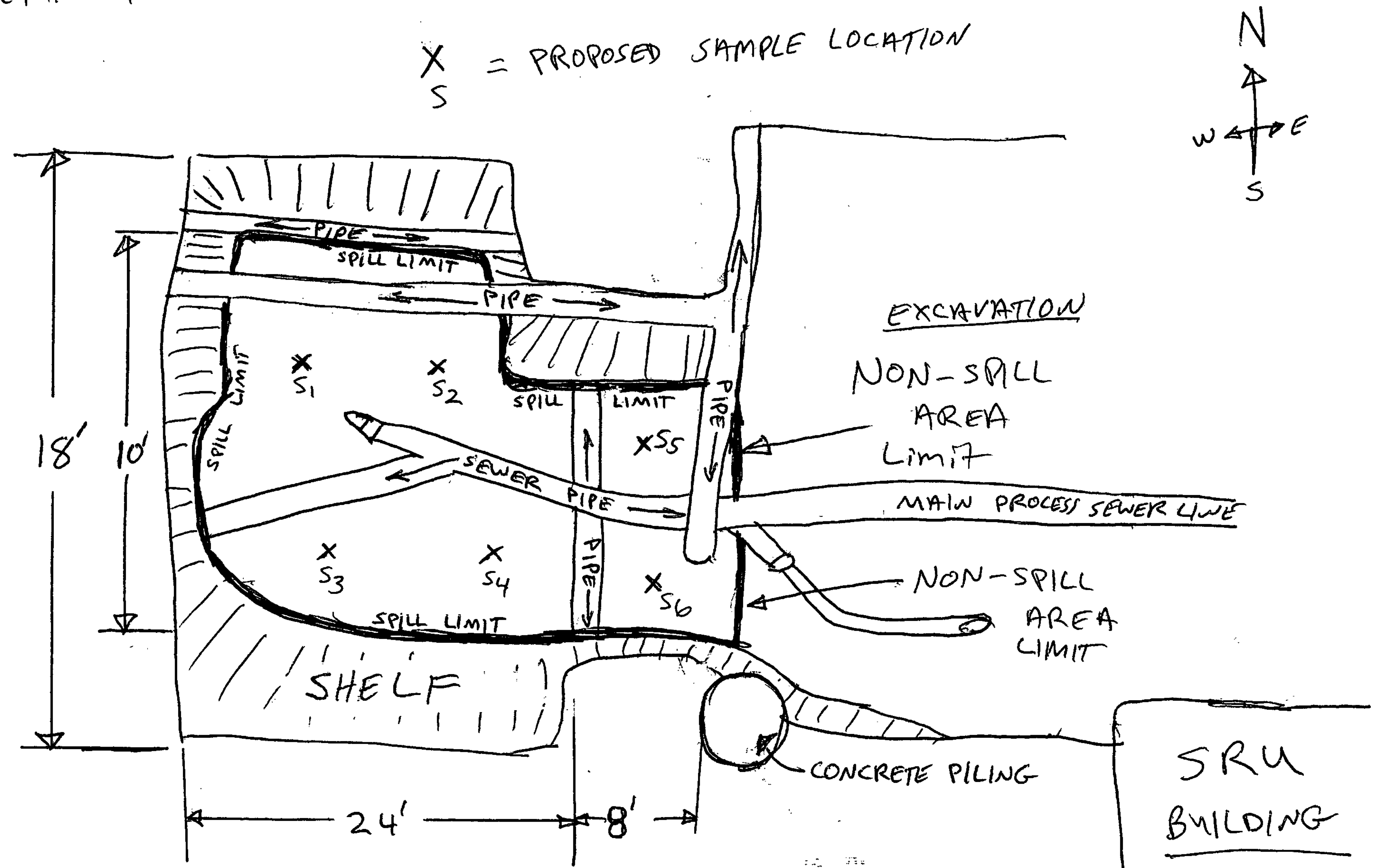
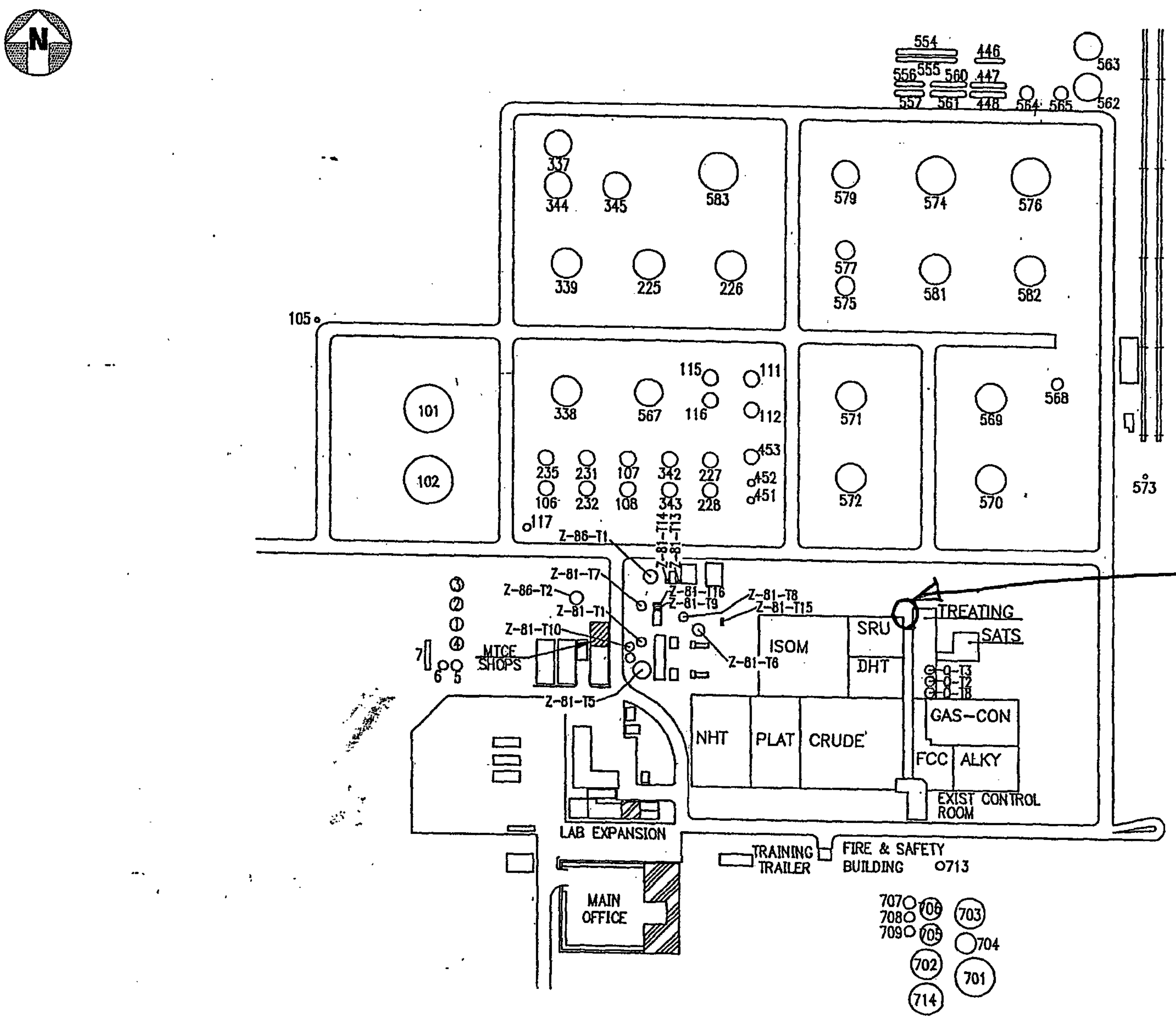



FIGURE: SEWER EXCAVATION SPILL JIM LIEB 3-3-06




PROCESS
SEWER PIPE
EXCAVATION
SLOP OIL
SPILL

| | | |
|---|---|---|
| CONTRACTOR: | | |
| CINIZA REFINERY | GIANT REFINING CO. A DIVISION OF GIANT INDUSTRIES | GALLUP NEW MEXICO |
| GIANT REFINERY TANK FARM PLAN | | |
| DRN. BY: CLM | DATE: 10DEC02 | REF/RFC No: – |
| CHK'D. BY: – | DATE: – | SCALE: NTS |
| APP'D. BY: – | DATE: | CAD REF: G:/ /BULLSEKLE |
| WELD SPEC: – | | PAINT: – |
| DRAWING NO. | Z-01-100 | REV 0 |

## Chavez, Carl J, EMNRD

**From:** Jim Lieb [jlieb@giant.com]
**Sent:** Friday, March 10, 2006 3:27 PM
**To:** Chavez, Carl J, EMNRD; Foust, Denny, EMNRD; Price, Wayne, EMNRD; Monzeglio, Hope, NMENV
**Cc:** Steve Morris; Ed Riege
**Subject:** Weekly Update for Week of March 6, 2006

Hello All:

Steve Morris is out today so in his absence I am preparing the weekly update today.

1. We have determined the average flow from the NAPIS to Aeration Lagoon 1 on a daily (133,900 gpd), weekly (937,400 gpw), and monthly (28.12 MG per month) based on 93 gpm as determined by the following information:

Total flow from Pond 2 out = 123 gpm.
Flow from boiler plant directly to Pond 2 = 22 gpm.
This gives us the flow from pond 1 to pond 2 as 101 gpm.
That should be close to the flow from the Aeration Lagoons
to Pond 1.

The flow from the Travel Center to Aeration Lagoon 1 = 8 gpm.
If we subtract that from the 101gpm. we should have the
approximate flow from the NAPIS thru the benzene strippers
into Aeration Lagoon 1 as 93 gpm.

This is the information requested in question a. and f. in the NMED-HWB letter of February 23, 2006. We are working on answers for the remaining questions in the letter. I thought it would be nice to get this information to you as we get it.

2. The pumping of water from the OAPIS to the NAPIS is working fine.

I have attached the Hall Environmental Analysis Lab report for the Evaporation Pond #2 BOD and COD sampling. If you have any questions please contact me at (505) 722-3227 and I will do my best to answer them. Steve is expected to return this Monday.

Sincerely,

Jim Lieb
Environmental Engineer
Giant-Ciniza

HALL ENVIRONMENTAL ANALYSIS LABORATORY

# COVER LETTER

Thursday, March 09, 2006

Ed Riege
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301

TEL: (505) 722-3833
FAX (505) 722-0210

RE: Evap Pond #2 Inlet Week of 3-2-06

Order No.: 0603046

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 1 sample(s) on 3/3/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

HALL ENVIRONMENTAL
attn: ANDY FREEMAN
4901 HAWKINS NE, SUITE D
ALBUQUERQUE NM 87109-4372

| Explanation of codes | |
|---|---|
| B | *Analyte Detected in Method Blank* |
| E | *Result is Estimated* |
| H | *Analyzed Out of Hold Time* |
| N | *Tentatively Identified Compound* |
| S | *Subcontracted* |
| 1-9 | *See Footnote* |

STANDARD

***Assaigai Analytical Laboratories, Inc.***

# *Certificate of Analysis*

*All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).*

Client: **HALL ENVIRONMENTAL**
Project: **0603046**
Order: **0603089** **HAL03** Receipt: **03-03-06**

*William P. Biava: President of Assaigai Analytical Laboratories, Inc.*

Sample: ***0603046-01A/EVAP POND #2 INLET*** Collected: *03-02-06 9:30:00* By:
Matrix: ***AQUEOUS***

| QC Group | Run Sequence | CAS # | Analyte | Result | Units | Dilution Factor | Detection Limit | Code | Prep Date | Run Date |
|---|---|---|---|---|---|---|---|---|---|---|
| **0603089-0001A** | | **EPA 405.1 Biochemical Oxygen Demand** | | | | | By: | MKM | | |
| BOD06029 | WC.2006.596.13 | 10-26-4 | Biochemical Oxygen Demand | 615 | mg/L | 1 | 2 | | 03-03-06 | 03-08-06 |

Sample: ***0603046-01B/EVAP POND #2 INLET*** Collected: *03-02-06 9:30:00* By:
Matrix: ***AQUEOUS***

| QC Group | Run Sequence | CAS # | Analyte | Result | Units | Dilution Factor | Detection Limit | Code | Prep Date | Run Date |
|---|---|---|---|---|---|---|---|---|---|---|
| **0603089-0002A** | | **EPA 410.1 Chemical Oxygen Demand** | | | | | By: | MKM | | |
| WCOD06015 | WC.2006.574.8 | C-004 | Chemical Oxygen Demand | 1440 | mg/L | 1 | 10 | | 03-06-06 | 03-07-06 |

*Unless otherwise noted, all samples were received in acceptable condition and all sampling was performed by client or client representative. Sample result of ND indicates Not Detected, ie result is less than the sample specific Detection Limit. Sample specific Detection Limit is determined by multiplying the sample Dilution Factor by the listed Reporting Detection Limit. All results relate only to the items tested. Any miscellaneous workorder information or footnotes will appear below.*

*Analytical results are not corrected for method blank or field blank contamination.*

 *Report Date: 3/9/2006 4:03:24 PM*

**Chavez, Carl J, EMNRD**

---

**To:** smorris@giant.com

**Cc:** Ed Riege; Price, Wayne, EMNRD

**Subject:** Reduced Frequency of BOD & COD Sampling in Evap. Ponds

Stephen:

Good morning. I am in receipt of your verbal request from yesterday regarding the reduced frequency of weekly sampling and analyses for BOD and COD in the effluent of aeration lagoon #2 (AL2). The sampling was required by the OCD to evaluate the effectiveness of Giant's treatment system based on problems stemming from a joint OCD/Hazardous Waste Bureau inspection conducted on September 8, 2005 at the Ciniza Refinery.

The Oil Conservation Division (OCD) would be receptive to changing the sampling to be commensurate with the OCD's February 22, 2006 e-mail message to Mr. Ed. Riege of Giant regarding the Pilot Station Effluent Summary provided it does not interfere with the Pilot Station Effluent Study that Giant is currently working on.

In addition, the OCD would like phenol to be monitored at the influent and effluent of AL1 and the effluent of AL2. Phenol has been commonly monitored in refinery treatment systems to evaluate it's overall efficiency. Giant would also need to monitor all aerators in the ALs to document that they are all functioning as designed in accordance with an operation and maintenance schedule. The OCD believes that this would be most condusive to assessing Giant's ongoing treatment capacity and Giant's ability to assess the capacity of it's treatment system. The above would also assist Giant in the preparation of the "Pilot Station Effluent" Study that is due in July 2006.

Let me know what Giant thinks about this. We may be able to agree on a semi-monthly sampling schedule to start. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/
(Pollution Prevention Guidance is under "Publications")

*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*

2006 MAR 9 PM 1 59

**CERTIFIED MAIL**
**RETURN RECEIPT REQUESTED**

March 6, 2006

Darrell Moore
Navajo Refining Company
501 East Main Street, P.O. Drawer 159
Artesia, New Mexico 88210

**SUBJECT: APPROVAL WITH MODIFICATIONS**
**GROUNDWATER MONITORING REPLACEMENT WORK PLAN**
**NAVAJO REFINING COMPANY**
**EPA ID No. NMD048918817**
**HWB-NRC-05-001**

Dear Mr. Moore:

As requested by Navajo Refining Company, the New Mexico Environment Department (NMED) conferred with the New Mexico Oil Conservation Division (OCD) and together generated an updated list of well locations for groundwater monitoring and sampling. The revised monitoring locations and sampling requirements are established in the attached Table. NMED requires Navajo Refining Company (the Permittee) to replace the January 17, 2005 Groundwater Monitoring Work Plan. The replacement plan must include all requirements listed in this Approval with Modifications letter. The replacement work plan shall be implemented following NMED's review and approval. The requirements for the spring 2006 groundwater monitoring event and that must be included in the replacement work plan are as follows:

1. The Permittee must submit drilling logs and well construction diagrams in accordance with the Post Closure Care Permit (Permit), Section 4.7.6.a.

2. The Permittee must submit a revised Groundwater Monitoring Work Plan in accordance with the format described in Appendix E as stated in Section 4.7.6.b of the Permit.

3. The Permittee must follow the sampling requirements established in the attached Table. The table is a comprehensive list that satisfies both NMED and OCD sampling requirements.

4. Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year. The Permittee must use sampling methods approved by the NMED and OCD.

5. Any figures that contain monitoring well name changes as a result of the combination of maps; must include the original well name in parenthesis below the newly assigned name. An explanation must be provided in the legend.

6. Groundwater monitoring activities and all future revised groundwater monitoring work plans must adhere to the sampling requirements outlined in Appendix C (Sampling Methods and Procedures) and Appendix D (Chemical Analytical Procedures) of the Permit.

7. The Groundwater Monitoring Work Plan must address the management of investigation derived waste.

8. The following field parameters must be collected from all wells sampled during each monitoring event: temperature, specific conductivity, pH, dissolved oxygen (DO), and oxidation-reduction potential (ORP).

9. The Permittee must measure the depth to water (DTW) and depth to product (DTP) if present, in all monitoring and recovery wells during each sampling event regardless of whether samples are collected from the wells. All measurements shall be recorded to the nearest 0.01 foot. The Permittee need not collect samples for chemical analysis from wells containing separate phase hydrocarbons (SPH).

The Permittee must conduct all monitoring and sampling activities in accordance with their RCRA Permit. The Permittee must submit the replacement Groundwater Monitoring Work Plan to NMED on or before June 5, 2006.

If you have any questions regarding this letter please me at (505) 428-2545.

Sincerely,

Hope Monzeglio

Hope Monzeglio
Project Leader
Hazardous Waste Bureau

HM

Attachment

cc: *J. Kieling, NMED HWB
*D. Cobrain, NMED HWB
W. Price, NMOCD
C. Chavez, NMOCD
D. Whaley, NRC
L. King, EPA 6PD-N

Reading File and NRC 2006 File
*denotes electronic copy

**Table 1**
**Navajo Refinery Company Monitoring Schedule**

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| MW-1R | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | W. of the EPs |
| MW-2A[1] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX); EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | W. of the EPs |
| MW-3[1] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | S. of EP 1 & 2 |
| MW-4A[1] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | S. of EP 1 & 2 |
| MW-5A[1] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | S. of EP 2 |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| MW-6A [1] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | S. of EP 1 |
| MW-7A [1] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | S. of EP 3 Replacement of MW-7 |
| MW-8 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | TMD, S. of E. draw btw B and H Rd |
| MW-10 [1a] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | S. of EPs |
| MW-11A [1a] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | N. of U.S. Hwy 82 btw B & H Rd |
| MW-15 [1a] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | W. of EP 1 |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| MW-16 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | E. of H Rd and S. of E draw |
| MW-18 [1a] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (GRO, DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | N. Portion of Refinery E. of the NCL |
| MW-18A [1a] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310(SVOC), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of EPs |
| MW-20 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310(SVOC), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | E. of B. Rd, S. of E. draw |
| MW-21 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of E. draw, btw B & H Rd. |
| MW-22A [1a] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | S. of EPs |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| MW-23 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | W. of TEL |
| MW-25 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of EP, W. of Pecos River, E. of H Rd. |
| MW-26 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of EP, W. of Pecos River, E. of H Rd. |
| MW-27 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | E. of H Rd and S. of E. draw |
| MW-28 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | E. of the SE. Tank Farm Area |
| MW-29 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | In refinery N. of TEL |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water *monitoring* wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| MW-39 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | N. of the TEL |
| MW-41 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | N. of the TEL |
| MW-42 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | N. of the TEL |
| MW-43 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | NW. of the TEL |
| MW-45 [1a] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | E. of Refinery, S. of E draw |
| MW-46 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | E. of Refinery, S. of E draw |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| MW-48 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of SE Tank farm Area |
| MW-49 [1a] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (GRO, DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | E. of Refinery, midpoint btw E. draw and U.S. Hwy 82 |
| MW-50 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | W. of Refinery, E. of U.S. Hwy 285 and N. of U.S. Hwy 82 |
| MW-52 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of the Refinery, S. of U.S Hwy 82 |
| MW-53 [1a] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), EPA Method 8015B (DRO), As, Pb, Cr, major cations & anions, nitrates/nitrites | W. of Refinery btw U.S. Hwy 285 and RR tracks |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| MW-54A [1a] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), EPA Method 8015B (DRO), As, Pb, Cr, major cations & anions, nitrates/nitrites | NW. of NCL |
| MW-55 [1a] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), EPA Method 8015B (DRO), As, Pb, Cr, major cations & anions, nitrates/nitrites | E. of NCL |
| MW-56 [1a] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), EPA Method 8015B (DRO), As, Pb, Cr, major cations & anions, nitrates/nitrites | NE of the Refinery |
| MW-58 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of U.S. Hwy 82 and W. of B Rd |
| MW-61 [5] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), EPA Method 8015B (GRO, DRO), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | SW of TEL |
| MW-62 [5] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), EPA Method 8015B (GRO, DRO), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | SW of TEL |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| MW-63 [5] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), EPA Method 8015B (GRO, DRO), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | SW of TEL |
| MW-64 [5] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), EPA Method 8015B (GRO, DRO), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | In Refinery area, N. of U.S. HWY 82 |
| MW-65 [5] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), EPA Method 8015B (GRO, DRO), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of the SE Tank Farm Area |
| MW-66 [5] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), EPA Method 8015B (GRO, DRO), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | E. of the SE Tank Farm Area |
| MW-67 [5] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), EPA Method 8015B (GRO, DRO), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | E. of the Diesel Tank Farm Area |
| MW-68 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of E draw, btw D and H Rd. |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| MW-70 [1a] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX); EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | S. of Eps; Renamed from MW-19 |
| KWB-1A | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of E draw, W. of B Rd. |
| KWB-1C | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of E draw, W. of B Rd. |
| KWB-P2 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | E. of D Rd, N. of U.E. Hwy 82 |
| KWB-2R | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of U.S. Hwy 82 on G.G. Armstrong & Son |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| KWB-3R | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | Replacement well for KWB-3A. S. of U.S. Hwy 82 btw B & D Rd. |
| KWB-4 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | N. of U.S. Hwy 82, W. of B Rd. |
| KWB-5 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | N. of U.S. Hwy 82, W. of B Rd. |
| KWB-6 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | N. of U.S. Hwy 82, W. of B Rd. |
| KWB-7 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | N. of U.S. Hwy 82 btw B & D Rd |
| KWB-8 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | N. of U.S. Hwy 82 btw B & D Rd. |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| KWB-9 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of U.S. Hwy 82, E. of B Rd. |
| KWB-10 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | E. of Refinery, S. of E. draw, N. of U.S. Hwy 82 |
| KWB-11A | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | N. of U.S. Hwy 82 btw B & D Rd |
| KWB-12A | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of U.S. Hwy 82, E. of B Rd. |
| KWB-13 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of U.S. Hwy 82, W. of B Rd |
| NP-1 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX) | S. of E. draw, W. of B Rd. |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| NP-2 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX) | Directly E. of B Rd., S. of E draw |
| NP-3 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | Directly N. of E. draw, NE. of B Rd. |
| NP-5 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of Richey Rd, N. of E. Draw, W. of B Rd. |
| NP-6 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of E. draw, W. of B Rd. |
| NP-7 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of E draw, btw D & H Rd. |
| NP-9 | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of Richey Rd, N. of E. Draw, W. of B Rd. |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| OCD-1 [1a] | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | NW. of EP 6 |
| OCD-2A [1a] | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | N. of EP 6 |
| OCD-3 [1a] | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | NE. of EP 6 |
| OCD-4 [1a] | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | NE. of EP 6 |
| OCD-5 [1a] | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | NE of EP-6 |
| OCD-6 [1a] | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | E. of EP-6 |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| OCD-7A [1] | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | SE. of EP-6 Replacement well for OCD-7AR |
| OCD-8A [1] | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | SE. of EP 3 |
| NCL-32 [1] | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), EPA Method 8015B (DRO), As, Pb, Cr, major cations & anions, nitrates/nitrites | NW. Portion of the Refinery |
| NCL-33 [1] | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), EPA Method 8015B (DRO), As, Pb, Cr, major cations & anions, nitrates/nitrites | NW. Portion of the Refinery |
| NCL-34 [1] | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), EPA Method 8015B (DRO), As, Pb, Cr, major cations & anions, nitrates/nitrites | NW. Portion of the Refinery |
| NCL-44 [1] | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), EPA Method 8015B (DRO), As, Pb, Cr, major cations & anions, nitrates/nitrites | NW. Portion of the Refinery |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| NCL-49 [1a] | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), EPA Method 8015B (DRO), As, Pb, Cr, major cations & anions, nitrates/nitrites | NW. Portion of the Refinery |
| TEL-1 [1] | Semi – annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | NE. Portion of the Refinery |
| TEL-2 [1] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | NE. Portion of the Refinery |
| TEL-3 [1] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8021B plus MTBE (BTEX), EPA Method 8310 (SVOCs), As, Pb, Cr, EPA Method 8015B (GRO, DRO), major cations & anions, nitrates/nitrites | NE. Portion of the Refinery |
| TEL-4 [1a] | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8015B (GRO, DRO), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | NE. Portion of the Refinery |
| RW-1 [2] | Annual [4] (Spring of each year) | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] North Portion of the Refinery |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| RW-2 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] North Portion of the Refinery |
| RW-3 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] North Portion of the Refinery |
| RW-4 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] South Portion of the Refinery |
| RW-5 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] South Portion of the Refinery |
| RW-6 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] South Portion of the Refinery |
| RW-7 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] North Portion of the Refinery |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| RW-8 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] North Portion of the Refinery |
| RW-9 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] North Portion of the Refinery |
| RW-10 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] North Portion of the Refinery |
| RW-11 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] Directly W. of B Rd. |
| RW-12 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] Directly W. of B Rd. |
| RW-13 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] Directly W. of B Rd. |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| RW-14 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] Directly W. of B Rd. |
| RW-15 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] South Portion of the Refinery |
| RW-16 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] North Portion of the Refinery |
| RW-17 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] North Portion of the Refinery |
| RW-18 [2] | Annual [4] (Spring of each year | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | [3] S. of E draw & W. of B Rd. |
| RA 313 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | N. of U.S. Hwy 82, W. of B Rd. |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| RA 314 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | N. of U.S. Hwy 82, W. of B Rd. |
| RA 3723 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | N. of U.S. Hwy 82, W. of B Rd. |
| RA 3156 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of U.S. Hwy 82 and E. of B Rd. |
| RA 3353 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | S. of U.S. Hwy 82 and E. of B Rd |
| RA 4196 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | N. of U.S. Hwy 82 and E. of B Rd |
| RA 4798 | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | E. of B Rd, N. of U. S. Hwy 82 |

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

| Monitoring Well ID | Sampling Frequency | Water Quality Parameters | Analytical Suite | Approximate Well location |
|---|---|---|---|---|
| Larue well | Semi - annual [3] | pH, Cond, Temp, ORP, DO | EPA Method 8260 (VOCs), EPA Method 8310 (SVOCs), Priority Pollutant Metals, major cations & anions, nitrates/nitrites | |

Table date: March 6, 2006.

N = North; S = South; E = East; W = West; NE = Northeast; NW = Northwest; SW = Southwest; SE = Southeast; Btw = between

B Rd = Bolton Road; H Rd = Haldeman Road; D Rd = Dirt Road; Hwy = highway;

EP = Evaporation Ponds; TMD = Three Mile Ditch; E. draw = Eagle Draw;

NCL = North Colony Landfarm; TEL = Tetra Ethyl Lead Impoundment

DO = dissolved oxygen; ORP = oxygen reduction potential; temp = temperature; Cond = specific conductivity

VOCs – volatile organic compounds; SVOCs – semi volatile organic compounds; DRO – diesel range organics,

BTEX – benzene, toluene, ethylbenzene, xylene; MTBE – Methyl Tertiary-Butyl Ether

The Analyte list for EPA Method 8260 must include MTBE

[1]= Point of Compliance well monitoring under RCRA Post Closure Care Permit
[1a] = Ground water monitoring wells at the locations of the compliance points
[2]= Recovery Wells must be sampled if they do not contain measurable phase-separated hydrocarbons
[3] = Semi-Annual groundwater monitoring event must be completed no more than 30 days prior to the start of the irrigation season but no later than April 30 of each year and no later than 30 days after the conclusion of the irrigation season or November 15 of each year
[4] = Annual groundwater monitoring event must be conducted in the spring.
[5] = New monitoring wells installed during the SWMU/AOC Group 1 Corrective Action Investigation

**Note**: All Recovery Trenches and all wells with phase-separated hydrocarbons (PSH's) must be checked at a minimum of once per month and recorded on a spreadsheet. The data must be presented in table form containing all of the recovery wells, date inspected, product thickness measured to .01 of a foot, and amount of product/water recovered. If product is observed in a monitoring well, recovery well or trench, then appropriate steps must be taken to recover product using the best available technology. This information must be provided in the annual groundwater report.

## Chavez, Carl J, EMNRD

**From:** Jim Lieb [jlieb@giant.com]

**Sent:** Monday, March 06, 2006 8:42 AM

**To:** Monzeglio, Hope, NMENV; Chavez, Carl J, EMNRD

**Cc:** Ed Riege; Ed Rios; Steve Morris; Johnny Sanchez; Jim Hallock

**Subject:** Clean up of Sewer Excavation Slop Oil Spill

Hope and Carl:

Per your request for Giant to sample the process sewer slop oil spill that occurred in the excavation, I have prepared a figure showing the spill area with proposed sampling locations. I have shown the spill area within the excavation with a dark line showing the limits of spill. The spill was limited to within the shelf areas. Giant proposes to sample at 6 locations as shown on the figure. We will excavate the spill contaminated soil and take the samples. Samples will be delivered to Hall Environmental Analysis Laboratory in Albuquerque under chain of custody. At request of NMED the samples will be sampled for EPA Method 8021B for BTEX, EPA Method 8015B for GRO and DRO (DRO must cover the range from C10 to C36).

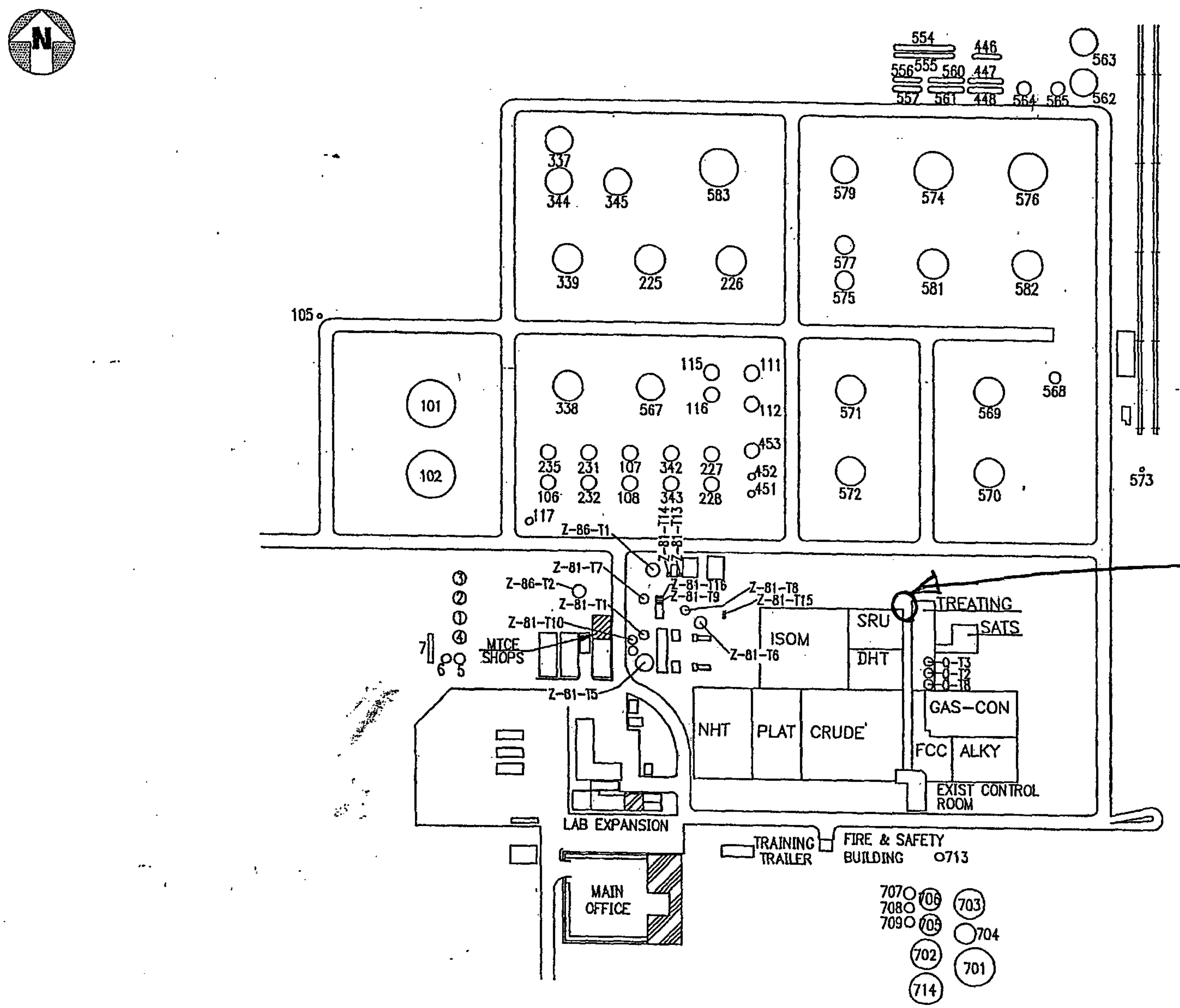
Ciniza expects the excavation of the contaminated soils will begin today. Because this is an active construction and process area we cannot leave open the excavation. Due to safety concerns of leaving an open hole area inside an active process area Ciniza will backfill with clean overburden after excavation of the oil-contaminated soil. We could not begin excavation till now because of on-going construction work in the excavation area to the east of the contaminated zone.

I have included a figure showing the location of the excavation area within the refinery. It is adjacent to the sulfur recovery unit building which I have shown on both figures including an arrow showing north.

Please let me know if the proposed sampling locations are acceptable to NMED.

Sincerely,

Jim Lieb
Environmental Engineer
Giant - Ciniza Refinery
jlieb@giant.com
(505) 722-3227




PROCESS
SEWER PIPE
EXCAVATION
SLOP OIL
SPILL

| | | |
|---|---|---|
| CONTRACTOR: | | |
| CINIZA REFINERY | GIANT REFINING CO. A DIVISION OF GIANT INDUSTRIES | GALLUP NEW MEXICO |
| | GIANT REFINERY TANK FARM PLAN | |
| DRN. BY: CLM | DATE: 10DEC02 | RFE/RFC No: – |
| CHK'D. BY: – | DATE: – | SCALE: NTS |
| APP'D. BY: – | DATE: | CAD REF.: |
| WELD SPEC: – | PAINT: – | |
| DRAWING NO. | Z-01-100 | REV 0 |

GIANT
CINIZA
REFINERY

EXCAVATION PIT DETAIL
PROCESS SEWER LINE SLOP OIL SPILL OF 2-24-06
SPILL AREA SAMPLING LOCATIONS (PROPOSED)

X S = PROPOSED SAMPLE LOCATION

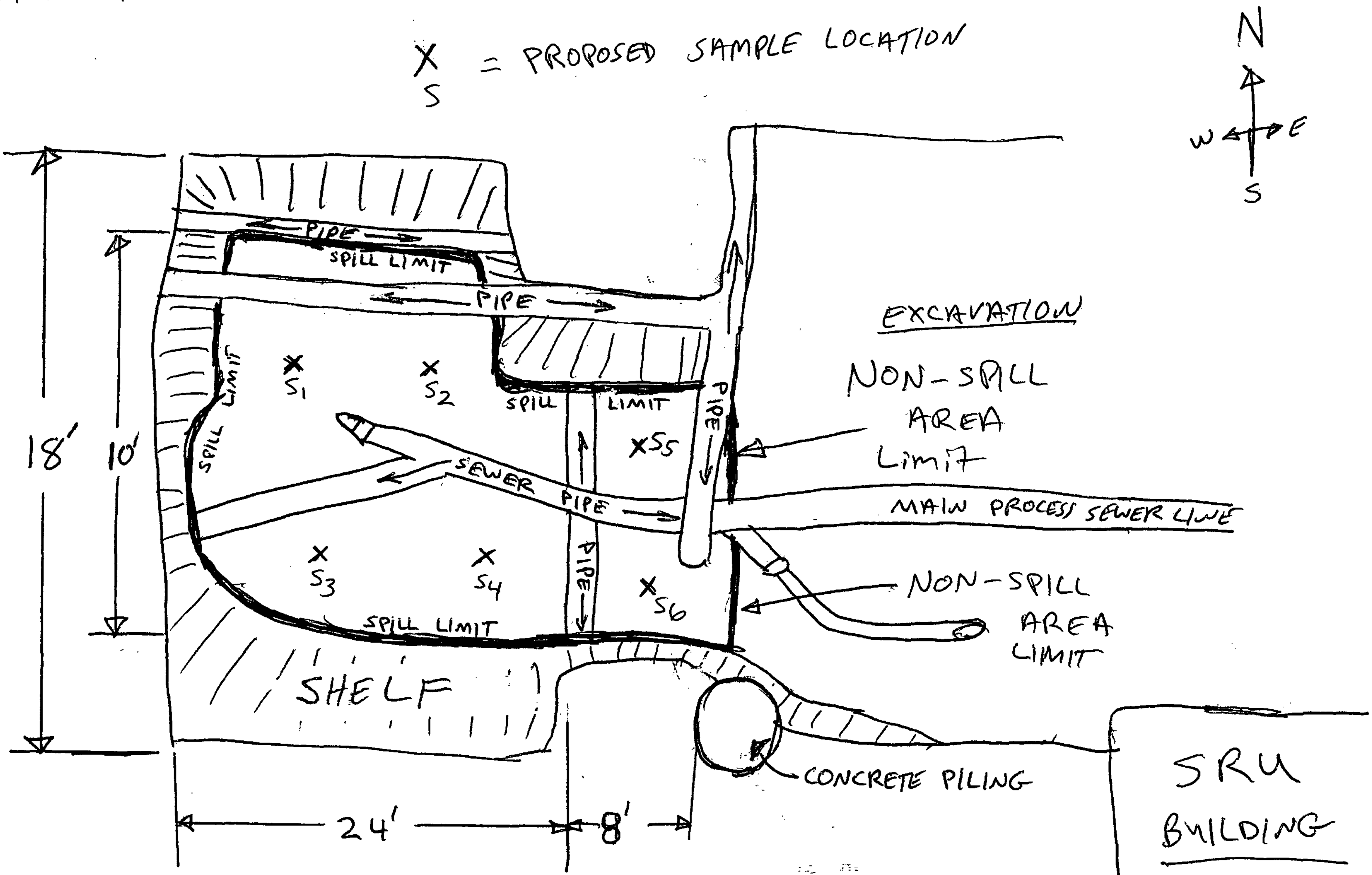



FIGURE: SEWER EXCAVATION SPILL JIM LIEB 3-3-06

## Chavez, Carl J, EMNRD

**From:** Jim Lieb [jlieb@giant.com]

**Sent:** Thursday, March 02, 2006 1:02 PM

**To:** Monzeglio, Hope, NMENV; Chavez, Carl J, EMNRD; Foust, Denny, EMNRD; Price, Wayne, EMNRD; Johnny Sanchez; Steve Morris; Ed Riege

**Subject:** Ciniza Weekly Update Weeks of 1/31/06, 2/9/06 and 2/15/06

Steve Morris is out this week so in his absence I am preparing the weekly updates today.

Updates:

1. As of yesterday, Fuhs Trucking has completed 70% of cleanup of the aeration lagoons and evaporation ponds.
2. The chopper pump installation was completed and has been operating very well.
3. Last week Steve took a snapshot reading from a temporary flow measuring device (90 degree notch) at the inlet of evaporation pond 2 and got a flow of 21/2 inches in the notch which correlates to a flow of 21.7 gpm based on Cameron Hydraulic curve chart.
4. On 2/10/06, Steve used a bucket and stopwatch to get a snapshot measurement of the flow entering aeration lagoon 1 from the OAPIS. He measured 1.6 gallons at 23.3 seconds which correlates to 4.12 gpm.
5. Ciniza has contracted Vector Arizona to provide options and engineering for the installation of a liner and leak detection system in the OAPIS.

I have attached Hall Environmental Analysis Lab reports the weeks of 1/31/06, 2/9/06 and 2/15/06. Samples were taken on 2/23/06 for the OAPIS and Pond #2 Inlet but the results have not as yet been received from Hall. If you have any questions please contact me at (505) 722-3227 and I will do my best to answer them. Steve is expected to return this Monday.

Sincerely,

Jim Lieb
Environmental Engineer
Giant-Ciniza

HALL ENVIRONMENTAL ANALYSIS LABORATORY

# COVER LETTER

Friday, February 10, 2006

Steve Morris
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301

TEL: (505) 722-3833
FAX (505) 722-0210

RE: Pond #1 Inlet for BOD

Order No.: 0602040

Dear Steve Morris:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/3/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

HALL ENVIRONMENTAL
attn: ANDY FREEMAN
4901 HAWKINS NE, SUITE D
ALBUQUERQUE NM 87109-4372

| Explanation of codes | |
|---|---|
| B | *Analyte Detected in Method Blank* |
| E | *Result is Estimated* |
| H | *Analyzed Out of Hold Time* |
| N | *Tentatively Identified Compound* |
| S | *Subcontracted* |
| 1-9 | *See Footnote* |

STANDARD

***Assaigai Analytical Laboratories, Inc.***

# *Certificate of Analysis*

*All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).*

Client: **HALL ENVIRONMENTAL**
Project: **0602040**
Order: **0602079** **HAL03** Receipt: **02-03-06**

*William P. Biava: President of Assaigai Analytical Laboratories, Inc.*

Sample: ***POND #1 INLET*** Collected: *02-02-06 8:00:00* By:
Matrix: ***AQUEOUS***

| QC Group | Run Sequence | CAS # | Analyte | Result | Units | Dilution Factor | Detection Limit | Code | Prep Date | Run Date |
|---|---|---|---|---|---|---|---|---|---|---|
| **0602079-0001A** | | **EPA 405.1 Biochemical Oxygen Demand** | | | | | By: | MKM | | |
| BOD06016 | WC.2006.321.16 | 10-26-4 | Biochemical Oxygen Demand | 640 | mg/L | 1 | 2 | 1 | 02-03-06 | 02-08-06 |

*Unless otherwise noted, all samples were received in acceptable condition and all sampling was performed by client or client representative. Sample result of ND indicates Not Detected, ie result is less than the sample specific Detection Limit. Sample specific Detection Limit is determined by multiplying the sample Dilution Factor by the listed Reporting Detection Limit. All results relate only to the items tested. Any miscellaneous workorder information or foonotes will appear below.*

*Analytical results are not corrected for method blank or field blank contamination.*

1 The percent recoveries of the LCS and the LCSD are outside of QA/QC criteria (low). This should be taken into account when reviewing the data.

# Hall Environmental Analysis Laboratory

## Sample Receipt Checklist

Client Name GIANTREFIN | Date and Time Received: 2/3/2006

Work Order Number 0602040 | Received by LMM

Checklist completed by Lisa Hedrick — Signature | 2/3/06 — Date

Matrix | Carrier name UPS

| | | | | |
|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ | Not Shipped ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☑ | N/A ☐ | |
| Chain of custody present? | Yes ☑ | No ☐ | | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☑ | No ☐ | | |
| Water - VOA vials have zero headspace? | No VOA vials submitted ☑ | Yes ☐ | No ☐ | |
| Water - pH acceptable upon receipt? | Yes ☐ | No ☐ | N/A ☑ | |

Container/Temp Blank temperature? **3°** *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

Client contacted ______ Date contacted: ______ Person contacted ______

Contacted by: ______ Regarding ______

Comments: ______

Corrective Action ______

# CHAIN-OF-CUSTODY RECORD

Client: Giant Refining Company - Ciniza

Address: Route 3 Box 7
Gallup, NM 87301

Phone #: 505 722 3833

Fax #: 505 722 0210

QA / QC Package:
Std ☐ Level 4 ☐
Other: 

Project Name: Pond #1 Inlet for BOD

Project #:

Project Manager: Steve Morris

Sampler: Steve Morris

Sample Temperature: 3°


**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com


## ANALYSIS REQUEST

| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative: $HgCl_2$ | Preservative: $HNO_3$ | | HEAL No. 0602040 | BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 8310 (PNA or PAH) | RCRA 8 Metals | Anions (F, Cl, $NO_3$, $NO_2$, $PO_4$, $SO_4$) | 8081 Pesticides / PCB's (8082) | 8260B (VOA) | 8270 (Semi-VOA) | BOD | | | | Air Bubbles or Headspace (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/2/06 | 0800 | H2O | Pond #1 Inlet | | | | | -1 | | | | | | | | | | | | | X | | | | |

| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |
|---|---|---|---|
| 2-2-06 | 0900 | Steve Morris | Lisa Hall 1202 2/3/06 |
| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |

Remarks: Rush

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Friday, February 10, 2006

Steve Morris
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301

TEL: (505) 722-3833
FAX (505) 722-0210

RE: Pond #2 Inlet Week of 2-3-2006

Order No.: 0602039

Dear Steve Morris:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/3/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

ACCREDITED IN ACCORDANCE WITH nelac

HALL ENVIRONMENTAL
attn: ANDY FREEMAN
4901 HAWKINS NE, SUITE D
ALBUQUERQUE NM 87109-4372

| Explanation of codes | |
|---|---|
| B | *Analyte Detected in Method Blank* |
| E | *Result is Estimated* |
| H | *Analyzed Out of Hold Time* |
| N | *Tentatively Identified Compound* |
| S | *Subcontracted* |
| 1-9 | *See Footnote* |

STANDARD

***Assaigai Analytical Laboratories, Inc.***

# *Certificate of Analysis*

*All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).*

Client: **HALL ENVIRONMENTAL**
Project: **0602039**
Order: **0602081** **HAL03** Receipt: **02-03-06**

*William P. Biava: President of Assaigai Analytical Laboratories, Inc.*

Sample: ***POND 2 INLET*** Collected: *02-02-06 8:30:00* By:
Matrix: ***AQUEOUS***

| QC Group | Run Sequence | CAS # | Analyte | Result | Units | Dilution Factor | Detection Limit | Code | Prep Date | Run Date |
|---|---|---|---|---|---|---|---|---|---|---|
| **0602081-0001A** | | **EPA 405.1 Biochemical Oxygen Demand** | | | | | By: | MKM | | |
| BOD06016 | WC.2006.321.17 | 10-26-4 | Biochemical Oxygen Demand | 449 | mg/L | 1 | 2 | 1 | 02-03-06 | 02-08-06 |
| **0602081-0001B** | | **EPA 410.1 Chemical Oxygen Demand** | | | | | By: | MKM | | |
| WCOD06010 | WC.2006.293.8 | C-004 | Chemical Oxygen Demand | 1480 | mg/L | 1 | 10 | | 02-06-06 | 02-06-06 |

*Unless otherwise noted, all samples were received in acceptable condition and all sampling was performed by client or client representative. Sample result of ND indicates Not Detected, ie result is less than the sample specific Detection Limit. Sample specific Detection Limit is determined by multiplying the sample Dilution Factor by the listed Reporting Detection Limit. All results relate only to the items tested. Any miscellaneous workorder information or foonotes will appear below.*

*Analytical results are not corrected for method blank or field blank contamination.*

1 The percent recoveries of the LCS and the LCSD are outside of QA/QC criteria (low). This should be taken into account when reviewing the data.

 *Report Date: 2/10/2006 12:43:33 PM*

## Hall Environmental Analysis Laboratory

### Sample Receipt Checklist

Client Name GIANTREFIN — Date and Time Received: 2/3/2006

Work Order Number 0602039 — Received by LMM

Checklist completed by Lisa Hedenkres (Signature) 2/3/06 (Date)

Matrix — Carrier name UPS

| | | | | |
|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ | Not Shipped ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☑ | N/A ☐ | |
| Chain of custody present? | Yes ☑ | No ☐ | | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☑ | No ☐ | | |
| Water - VOA vials have zero headspace? | No VOA vials submitted ☑ | Yes ☐ | No ☐ | |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | N/A ☐ | |

Container/Temp Blank temperature? **3°** *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted ____________ Date contacted: ____________ Person contacted ____________

Contacted by: ____________ Regarding ____________

Comments: ____________

Corrective Action ____________

# CHAIN-OF-CUSTODY RECORD

**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: Giant Refining Company - Ciniza

Address: Route 3 Box 7
Gallup, NM 87301

Phone #: 505-722-3833

Fax #: 505-722-0210

QA / QC Package: Std ☐ Level 4 ☐

Other:

Project Name: Pond #2 Inlet Week of 2-3-2006

Project #:

Project Manager: Steve Morris

Sampler: Steve Morris

Sample Temperature: 3°

| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative HgCl$_2$ | Preservative HNO$_3$ | Preservative | HEAL No. 0602039 |
|---|---|---|---|---|---|---|---|---|
| 2/2/06 | 0830 | $H_2O$ | Pond 2 Inlet | 2 | | | | -1 |
| | | | | | | | | |
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## ANALYSIS REQUEST

| BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 8310 (PNA or PAH) | RCRA 8 Metals | Anions (F, Cl, $NO_3$, $NO_2$, $PO_4$, $SO_4$) | 8081 Pesticides / PCB's (8082) | 8260B (VOA) | 8270 (Semi-VOA) | BOD | COD | | | Air Bubbles or Headspace (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | X | X | | | |

| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |
|---|---|---|---|
| 2-2-06 | 0900 | Steve Morris | Jose [illegible] 1201 2/3/06 |
| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |

Remarks: Rush

HALL ENVIRONMENTAL ANALYSIS LABORATORY

# COVER LETTER

Friday, February 24, 2006

Ed Riege
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301

TEL: (505) 722-3833
FAX (505) 722-0210

RE: Pond 2 Inlet Week of 2-15-2006

Order No.: 0602160

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/16/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109
505.345.3975 ■ Fax 505.345.4107
www.hallenvironmental.com

HALL ENVIRONMENTAL
attn: ANDY FREEMAN
4901 HAWKINS NE, SUITE D
ALBUQUERQUE NM 87109-4372

| Explanation of codes | |
|---|---|
| B | Analyte Detected in Method Blank |
| E | Result is Estimated |
| H | Analyzed Out of Hold Time |
| N | Tentatively Identified Compound |
| S | Subcontracted |
| 1-9 | See Footnote |

STANDARD

*Assaigai Analytical Laboratories, Inc.*

# *Certificate of Analysis*

*All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).*

Client: **HALL ENVIRONMENTAL**
Project: **0602160**
Order: **0602348** **HAL03** Receipt: **02-16-06**

*William P. Biava: President of Assaigai Analytical Laboratories, Inc.*

Sample: ***0602160-01A/POND #2 INLET*** Collected: *02-15-06 10:15:00* By:
Matrix: ***AQUEOUS***

| QC Group | Run Sequence | CAS # | Analyte | Result | Units | Dilution Factor | Detection Limit | Code | Prep Date | Run Date |
|---|---|---|---|---|---|---|---|---|---|---|
| **0602348-0001A** | | **EPA 405.1 Biochemical Oxygen Demand** | | | | | By: | MKM | | |
| BOD06023 | WC.2006.453.6 | 10-26-4 | Biochemical Oxygen Demand | 676 | mg/L | 1 | 2 | 1 | 02-17-06 | 02-22-06 |

Sample: ***0602160-01B/POND #2 INLET*** Collected: *02-15-06 10:15:00* By:
Matrix: ***AQUEOUS***

| QC Group | Run Sequence | CAS # | Analyte | Result | Units | Dilution Factor | Detection Limit | Code | Prep Date | Run Date |
|---|---|---|---|---|---|---|---|---|---|---|
| **0602348-0002A** | | **EPA 410.1 Chemical Oxygen Demand** | | | | | By: | MKM | | |
| WCOD06012 | WC.2006.437.12 | C-004 | Chemical Oxygen Demand | 1490 | mg/L | 1 | 10 | | 02-21-06 | 02-21-06 |

*Unless otherwise noted, all samples were received in acceptable condition and all sampling was performed by client or client representative. Sample result of ND indicates Not Detected, ie result is less than the sample specific Detection Limit. Sample specific Detection Limit is determined by multiplying the sample Dilution Factor by the listed Reporting Detection Limit. All results relate only to the items tested. Any miscellaneous workorder information or footnotes will appear below.*

*Analytical results are not corrected for method blank or field blank contamination.*

1 The percent recovery of the LCS is outside of QA/QC criteria (low). This should be taken into account when reviewing the data.

Hall Environmental Analysis Laboratory

## Sample Receipt Checklist

Client Name GIANTREFIN

Date and Time Received: 2/16/2006

Work Order Number 0602160

Received by AT

Checklist completed by ______ Signature ______ Date 2/16/06

Matrix

Carrier name UPS

| | | | | |
|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ | Not Shipped ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☑ | N/A ☐ | |
| Chain of custody present? | Yes ☑ | No ☐ | | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☑ | No ☐ | | |
| Water - VOA vials have zero headspace? | No VOA vials submitted ☑ | Yes ☐ | No ☐ | |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | N/A ☐ | |

Container/Temp Blank temperature? 5° *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

Client contacted ______ Date contacted: ______ Person contacted ______

Contacted by: ______ Regarding ______

Comments: ______

Corrective Action ______

# CHAIN-OF-CUSTODY RECORD

**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: Giant Refining Co. Ciniza

Address: Route 3 Box 7
Gallup, NM 87301

Phone #: 505. 722-3833

Fax #: 505 722-6210

QA / QC Package: Std ☐ Level 4 ☐

Other:

Project Name: Pond #2 Inlet Week of 2-15-06

Project #:

Project Manager: Ed Riege

Sampler: Johnny Sanchez

Sample Temperature: 5

| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative HgCl$_2$ | Preservative HNO$_3$ | Preservative | HEAL No. |
|---|---|---|---|---|---|---|---|---|
| 2-15-06 | 1615 | $H_2O$ | Pond #2 Inlet | | | | | 0602160-1 |

## ANALYSIS REQUEST

| BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 8310 (PNA or PAH) | RCRA 8 Metals | Anions (F, Cl, NO$_3$, NO$_2$, PO$_4$, SO$_4$) | 8081 Pesticides / PCB's (8082) | 8260B (VOA) | 8270 (Semi-VOA) | BOD | COD | | | Air Bubbles or Headspace (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | X | X | | | |

| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) | |
|---|---|---|---|---|
| 2-15 | 1620 | [signature] | [signature] | 2/16/06 @ 1140 |
| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) | |

Remarks: Rush

HALL ENVIRONMENTAL ANALYSIS LABORATORY

# COVER LETTER

Friday, February 17, 2006

Steve Morris
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301

TEL: (505) 722-3833
FAX (505) 722-0210

RE: Pond 2 Inlet Week of 2-10-2006

Order No.: 0602103

Dear Steve Morris:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/10/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

Accredited in accordance with nelac

| | Explanation of codes |
|---|---|
| B | *Analyte Detected In Method Blank* |
| E | *Result is Estimated* |
| H | *Analyzed Out of Hold Time* |
| N | *Tentatively Identified Compound* |
| S | *Subcontracted* |
| 1-9 | *See Footnote* |

**HALL ENVIRONMENTAL**
attn: **ANDY FREEMAN**
**4901 HAWKINS NE, SUITE D**
**ALBUQUERQUE NM 87109-4372**

STANDARD

*Assaigai Analytical Laboratories, Inc.*

# *Certificate of Analysis*

*All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).*

Client: **HALL ENVIRONMENTAL**
Project: **0602103**
Order: **0602228** **HAL03** Receipt: **02-10-06**

*William P. Biava: President of Assaigai Analytical Laboratories, Inc.*

Sample: ***0602103-01A/POND #2 INLET*** Collected: *02-06-09 7:30:00* By:
Matrix: ***AQUEOUS*** *SR9789*

| QC Group | Run Sequence | CAS # | Analyte | Result | Units | Dilution Factor | Detection Limit | Code | Prep Date | Run Date |
|---|---|---|---|---|---|---|---|---|---|---|
| **0602228-0001A** | | **EPA 405.1 Biochemical Oxygen Demand** | | | | | By: | MKM | | |
| BOD06020 | WC.2006.387.13 | 10-26-4 | Biochemical Oxygen Demand | 658 | mg/L | 1 | 2 | | 02-10-06 | 02-15-06 |

Sample: ***0602103-01B/POND #2 INLET*** Collected: *02-06-09 7:30:00* By:
Matrix: ***AQUEOUS***

| QC Group | Run Sequence | CAS # | Analyte | Result | Units | Dilution Factor | Detection Limit | Code | Prep Date | Run Date |
|---|---|---|---|---|---|---|---|---|---|---|
| **0602228-0002A** | | **EPA 410.1 Chemical Oxygen Demand** | | | | | By: | MKM | | |
| WCOD06011 | WC.2006.348.6 | C-004 | Chemical Oxygen Demand | 2860 | mg/L | 10 | 10 | | 02-13-06 | 02-13-06 |

*Unless otherwise noted, all samples were received in acceptable condition and all sampling was performed by client or client representative. Sample result of ND indicates Not Detected, ie result is less than the sample specific Detection Limit. Sample specific Detection Limit is determined by multiplying the sample Dilution Factor by the listed Reporting Detection Limit. All results relate only to the items tested. Any miscellaneous workorder information or foonotes will appear below.*

*Analytical results are not corrected for method blank or field blank contamination.*

 *Report Date:* *2/16/2006 5:54:59 PM*

Hall Environmental Analysis Laboratory

## Sample Receipt Checklist

Client Name GIANTREFIN — Date and Time Received: 2/10/2006

Work Order Number 0602103 — Received by LMM

Checklist completed by Lisa Hedley-Kurd (Signature) 2/10/06 (Date)

Matrix — Carrier name UPS

| | | | | |
|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ | Not Shipped ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☑ | N/A ☐ | |
| Chain of custody present? | Yes ☑ | No ☐ | | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☑ | No ☐ | | |
| Water - VOA vials have zero headspace? | No VOA vials submitted ☑ | Yes ☐ | No ☐ | |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | N/A ☐ | |

Container/Temp Blank temperature? 3° — *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted ______ Date contacted: ______ Person contacted ______

Contacted by: ______ Regarding ______

Comments: ______

Corrective Action ______

# CHAIN-OF-CUSTODY RECORD

**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

QA / QC Package: Std ☐ Level 4 ☐

Other:

Client: Giant Refining Company - Ciniza

Address: Route 3 Box 7 Gallup, NM 87301

Phone #: 505 722 3833

Fax #: 505 722 0210

Project Name: Pond #2 Inlet Week of 2-10-2006

Project #:

Project Manager: Steve Morris

Sampler: Steve Morris

Sample Temperature: 3°

## ANALYSIS REQUEST

| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative HgCl$_2$ | Preservative HNO$_3$ | Preservative | HEAL No. 0602103 | BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 8310 (PNA or PAH) | RCRA 8 Metals | Anions (F, Cl, NO$_3$, NO$_2$, PO$_4$, SO$_4$) | 8081 Pesticides / PCB's (8082) | 8260B (VOA) | 8270 (Semi-VOA) | BOD | COD | | | Air Bubbles or Headspace (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/9/06 | 0730 | $H_2O$ | Pond #2 Inlet | | | | | -1 | | | | | | | | | | | | | X | X | | | |

| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |
|---|---|---|---|
| 2/9/06 | 0900 | Steve Morris | [illegible] 2/10/06 |
| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |

Remarks: Rush

HALL ENVIRONMENTAL ANALYSIS LABORATORY

# COVER LETTER

Tuesday, February 28, 2006

Ed Riege
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301

TEL: (505) 722-3833
FAX (505) 722-0210

RE: OAPIS Effluent Week of 2/15/06

Order No.: 0602161

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/16/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

# Hall Environmental Analysis Laboratory

**Date:** *28-Feb-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | OAPIS |
| **Lab Order:** | 0602161 | **Collection Date:** | 2/15/2006 10:00:00 AM |
| **Project:** | OAPIS Effluent Week of 2/15/06 | **Date Received:** | 2/16/2006 |
| **Lab ID:** | 0602161-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | 3.7 | 1.0 | | mg/L | 1 | 2/24/2006 5:04:46 PM |
| Motor Oil Range Organics (MRO) | ND | 5.0 | | mg/L | 1 | 2/24/2006 5:04:46 PM |
| Surr: DNOP | 127 | 58-140 | | %REC | 1 | 2/24/2006 5:04:46 PM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | 3.1 | 2.0 | | mg/L | 40 | 2/20/2006 4:34:54 PM |
| Surr: BFB | 108 | 79.7-118 | | %REC | 40 | 2/20/2006 4:34:54 PM |
| **EPA METHOD 8310: PAHS** | | | | | | Analyst: JMP |
| Naphthalene | 340 | 25 | | µg/L | 10 | 2/24/2006 1:41:44 PM |
| 1-Methylnaphthalene | ND | 2.5 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| 2-Methylnaphthalene | 24 | 2.5 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Acenaphthylene | ND | 2.5 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Acenaphthene | 3.4 | 2.5 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Fluorene | 5.6 | 0.80 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Phenanthrene | 6.9 | 6.0 | | µg/L | 10 | 2/24/2006 1:41:44 PM |
| Anthracene | ND | 0.60 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Fluoranthene | 0.33 | 0.30 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Pyrene | 0.60 | 0.30 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Benz(a)anthracene | 0.060 | 0.020 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Chrysene | 0.20 | 0.20 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Benzo(b)fluoranthene | ND | 0.050 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Benzo(k)fluoranthene | 0.050 | 0.020 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Benzo(a)pyrene | ND | 0.020 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Dibenz(a,h)anthracene | ND | 0.040 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Benzo(g,h,i)perylene | ND | 0.030 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | µg/L | 1 | 2/23/2006 8:05:57 PM |
| Surr: Benzo(e)pyrene | 76.5 | 54-102 | | %REC | 1 | 2/23/2006 8:05:57 PM |
| **EPA METHOD 7470: MERCURY** | | | | | | Analyst: CMC |
| Mercury | ND | 0.00020 | | mg/L | 1 | 2/18/2006 |
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: NMO |
| Arsenic | ND | 0.020 | | mg/L | 1 | 2/21/2006 12:38:18 PM |
| Barium | 0.23 | 0.020 | | mg/L | 1 | 2/21/2006 9:44:13 AM |
| Cadmium | ND | 0.0020 | | mg/L | 1 | 2/21/2006 9:44:13 AM |
| Chromium | 0.0085 | 0.0060 | | mg/L | 1 | 2/21/2006 9:44:13 AM |
| Lead | ND | 0.0050 | | mg/L | 1 | 2/21/2006 12:38:18 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| S | Spike Recovery outside accepted recovery limits | | |

## Hall Environmental Analysis Laboratory

Date: *28-Feb-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | OAPIS |
| **Lab Order:** | 0602161 | **Collection Date:** | 2/15/2006 10:00:00 AM |
| **Project:** | OAPIS Effluent Week of 2/15/06 | **Date Received:** | 2/16/2006 |
| **Lab ID:** | 0602161-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: NMO |
| Selenium | ND | 0.050 | | mg/L | 1 | 2/24/2006 10:30:09 AM |
| Silver | ND | 0.0050 | | mg/L | 1 | 2/21/2006 9:44:13 AM |
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: KTM |
| Benzene | 210 | 10 | | µg/L | 10 | 2/20/2006 |
| Toluene | 320 | 10 | | µg/L | 10 | 2/20/2006 |
| Ethylbenzene | 21 | 10 | | µg/L | 10 | 2/20/2006 |
| Methyl tert-butyl ether (MTBE) | 18 | 10 | | µg/L | 10 | 2/20/2006 |
| 1,2,4-Trimethylbenzene | 76 | 10 | | µg/L | 10 | 2/20/2006 |
| 1,3,5-Trimethylbenzene | 47 | 10 | | µg/L | 10 | 2/20/2006 |
| 1,2-Dichloroethane (EDC) | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 1,2-Dibromoethane (EDB) | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Naphthalene | 52 | 20 | | µg/L | 10 | 2/20/2006 |
| 1-Methylnaphthalene | 100 | 40 | | µg/L | 10 | 2/20/2006 |
| 2-Methylnaphthalene | 110 | 40 | | µg/L | 10 | 2/20/2006 |
| Acetone | 130 | 100 | | µg/L | 10 | 2/20/2006 |
| Bromobenzene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Bromochloromethane | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Bromodichloromethane | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Bromoform | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Bromomethane | ND | 20 | | µg/L | 10 | 2/20/2006 |
| 2-Butanone | ND | 100 | | µg/L | 10 | 2/20/2006 |
| Carbon disulfide | ND | 100 | | µg/L | 10 | 2/20/2006 |
| Carbon Tetrachloride | ND | 20 | | µg/L | 10 | 2/20/2006 |
| Chlorobenzene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Chloroethane | ND | 20 | | µg/L | 10 | 2/20/2006 |
| Chloroform | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Chloromethane | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 2-Chlorotoluene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 4-Chlorotoluene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| cis-1,2-DCE | ND | 10 | | µg/L | 10 | 2/20/2006 |
| cis-1,3-Dichloropropene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 1,2-Dibromo-3-chloropropane | ND | 20 | | µg/L | 10 | 2/20/2006 |
| Dibromochloromethane | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Dibromomethane | ND | 20 | | µg/L | 10 | 2/20/2006 |
| 1,2-Dichlorobenzene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 1,3-Dichlorobenzene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 1,4-Dichlorobenzene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Dichlorodifluoromethane | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 1,1-Dichloroethane | ND | 20 | | µg/L | 10 | 2/20/2006 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| S | Spike Recovery outside accepted recovery limits | | |

## Hall Environmental Analysis Laboratory

**Date:** *28-Feb-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | OAPIS |
| **Lab Order:** | 0602161 | **Collection Date:** | 2/15/2006 10:00:00 AM |
| **Project:** | OAPIS Effluent Week of 2/15/06 | **Date Received:** | 2/16/2006 |
| **Lab ID:** | 0602161-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: KTM |
| 1,1-Dichloroethene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 1,2-Dichloropropane | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 1,3-Dichloropropane | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 2,2-Dichloropropane | ND | 20 | | µg/L | 10 | 2/20/2006 |
| 1,1-Dichloropropene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Hexachlorobutadiene | ND | 20 | | µg/L | 10 | 2/20/2006 |
| 2-Hexanone | ND | 100 | | µg/L | 10 | 2/20/2006 |
| Isopropylbenzene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 4-Isopropyltoluene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 4-Methyl-2-pentanone | ND | 100 | | µg/L | 10 | 2/20/2006 |
| Methylene Chloride | ND | 30 | | µg/L | 10 | 2/20/2006 |
| n-Butylbenzene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| n-Propylbenzene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| sec-Butylbenzene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Styrene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| tert-Butylbenzene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 1,1,1,2-Tetrachloroethane | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 1,1,2,2-Tetrachloroethane | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Tetrachloroethene (PCE) | ND | 10 | | µg/L | 10 | 2/20/2006 |
| trans-1,2-DCE | ND | 10 | | µg/L | 10 | 2/20/2006 |
| trans-1,3-Dichloropropene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 1,2,3-Trichlorobenzene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 1,2,4-Trichlorobenzene | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 1,1,1-Trichloroethane | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 1,1,2-Trichloroethane | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Trichloroethene (TCE) | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Trichlorofluoromethane | ND | 10 | | µg/L | 10 | 2/20/2006 |
| 1,2,3-Trichloropropane | ND | 20 | | µg/L | 10 | 2/20/2006 |
| Vinyl chloride | ND | 10 | | µg/L | 10 | 2/20/2006 |
| Xylenes, Total | 690 | 10 | | µg/L | 10 | 2/20/2006 |
| Surr: 1,2-Dichloroethane-d4 | 104 | 69.9-130 | | %REC | 10 | 2/20/2006 |
| Surr: 4-Bromofluorobenzene | 98.7 | 71.2-123 | | %REC | 10 | 2/20/2006 |
| Surr: Dibromofluoromethane | 106 | 57.3-135 | | %REC | 10 | 2/20/2006 |
| Surr: Toluene-d8 | 96.7 | 81.9-122 | | %REC | 10 | 2/20/2006 |

**Qualifiers:**
- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Hall Environmental Analysis Laboratory

Date: *28-Feb-06*

**CLIENT:** Giant Refining Co
**Work Order:** 0602161
**Project:** OAPIS Effluent Week of 2/15/06

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015DRO_W**

Sample ID: MB-9825 SampType: MBLK TestCode: 8015DRO_W Units: mg/L Prep Date: 2/21/2006 RunNo: 18367
Client ID: ZZZZZ Batch ID: 9825 TestNo: SW8015 Analysis Date: 2/22/2006 SeqNo: 453163

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 1.0 | | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 5.0 | | | | | | | | | |

Sample ID: LCS-9825 SampType: LCS TestCode: 8015DRO_W Units: mg/L Prep Date: 2/21/2006 RunNo: 18367
Client ID: ZZZZZ Batch ID: 9825 TestNo: SW8015 Analysis Date: 2/22/2006 SeqNo: 453164

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 5.474 | 1.0 | 5 | 0 | 109 | 81.2 | 149 | | | | |

Sample ID: LCSD-9825 SampType: LCSD TestCode: 8015DRO_W Units: mg/L Prep Date: 2/21/2006 RunNo: 18367
Client ID: ZZZZZ Batch ID: 9825 TestNo: SW8015 Analysis Date: 2/22/2006 SeqNo: 453165

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| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 5.434 | 1.0 | 5 | 0 | 109 | 81.2 | 149 | 5.474 | 0.739 | 23 | |

**Qualifiers:**
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602161
Project: OAPIS Effluent Week of 2/15/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 5ML RB | SampType: MBLK | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18338
Client ID: ZZZZZ | Batch ID: R18338 | TestNo: SW8015 | Analysis Date: 2/20/2006 | SeqNo: 452346

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 0.050 | | | | | | | | | |

Sample ID: 2.5UG GRO LCS | SampType: LCS | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18338
Client ID: ZZZZZ | Batch ID: R18338 | TestNo: SW8015 | Analysis Date: 2/20/2006 | SeqNo: 452347

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 0.4920 | 0.050 | 0.5 | 0 | 98.4 | 82.6 | 114 | | | | |

Sample ID: 2.5UG GRO LCSD | SampType: LCSD | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18338
Client ID: ZZZZZ | Batch ID: R18338 | TestNo: SW8015 | Analysis Date: 2/20/2006 | SeqNo: 452348

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| iasoline Range Organics (GRO) | 0.4700 | 0.050 | 0.5 | 0 | 94.0 | 82.6 | 114 | 0.492 | 4.57 | 8.39 | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

**CLIENT:** Giant Refining Co
**Work Order:** 0602161
**Project:** OAPIS Effluent Week of 2/15/06

# ANALYTICAL QC SUMMARY REPORT

**TestCode:** 8310_W

| Sample ID: MB-9801 | SampType: MBLK | TestCode: 8310_W | Units: µg/L | Prep Date: 2/17/2006 | RunNo: 18380 |
|---|---|---|---|---|---|
| Client ID: ZZZZZ | Batch ID: 9801 | TestNo: SW8310 | (SW3510C) | Analysis Date: 2/23/2006 | SeqNo: 453446 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | ND | 2.5 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| Acenaphthylene | ND | 2.5 | | | | | | | | | |
| Acenaphthene | ND | 2.5 | | | | | | | | | |
| Fluorene | ND | 0.80 | | | | | | | | | |
| Phenanthrene | ND | 0.60 | | | | | | | | | |
| Anthracene | ND | 0.60 | | | | | | | | | |
| Fluoranthene | ND | 0.30 | | | | | | | | | |
| Pyrene | ND | 0.30 | | | | | | | | | |
| Benz(a)anthracene | ND | 0.020 | | | | | | | | | |
| Chrysene | ND | 0.20 | | | | | | | | | |
| enzo(b)fluoranthene | ND | 0.050 | | | | | | | | | |
| enzo(k)fluoranthene | ND | 0.020 | | | | | | | | | |
| Lenzo(a)pyrene | ND | 0.020 | | | | | | | | | |
| Dibenz(a,h)anthracene | ND | 0.040 | | | | | | | | | |
| Benzo(g,h,i)perylene | ND | 0.030 | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | | | | | | | | |

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| Sample ID: MB-9785 | SampType: MBLK | TestCode: 8310_W | Units: µg/L | Prep Date: 2/15/2006 | RunNo: 18380 |
|---|---|---|---|---|---|
| Client ID: ZZZZZ | Batch ID: 9785 | TestNo: SW8310 | (SW3510C) | Analysis Date: 2/23/2006 | SeqNo: 453453 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | ND | 2.5 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| Acenaphthylene | ND | 2.5 | | | | | | | | | |
| Acenaphthene | ND | 2.5 | | | | | | | | | |
| Fluorene | ND | 0.80 | | | | | | | | | |
| Phenanthrene | ND | 0.60 | | | | | | | | | |

**Qualifiers:**

| | | | | | |
|---|---|---|---|---|---|
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike Recovery outside accepted recovery limits |

CLIENT: Giant Refining Co
Work Order: 0602161
Project: OAPIS Effluent Week of 2/15/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8310_W

Sample ID: MB-9785 | SampType: MBLK | TestCode: 8310_W | Units: µg/L | Prep Date: 2/15/2006 | RunNo: 18380
Client ID: ZZZZZ | Batch ID: 9785 | TestNo: SW8310 | (SW3510C) | Analysis Date: 2/23/2006 | SeqNo: 453453

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Anthracene | ND | 0.60 | | | | | | | | | |
| Fluoranthene | ND | 0.30 | | | | | | | | | |
| Pyrene | ND | 0.30 | | | | | | | | | |
| Benz(a)anthracene | ND | 0.020 | | | | | | | | | |
| Chrysene | ND | 0.20 | | | | | | | | | |
| Benzo(b)fluoranthene | ND | 0.050 | | | | | | | | | |
| Benzo(k)fluoranthene | ND | 0.020 | | | | | | | | | |
| Benzo(a)pyrene | ND | 0.020 | | | | | | | | | |
| Dibenz(a,h)anthracene | ND | 0.040 | | | | | | | | | |
| Benzo(g,h,i)perylene | ND | 0.030 | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | | | | | | | | |

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Sample ID: LCS-9801 | SampType: LCS | TestCode: 8310_W | Units: µg/L | Prep Date: 2/17/2006 | RunNo: 18380
Client ID: ZZZZZ | Batch ID: 9801 | TestNo: SW8310 | (SW3510C) | Analysis Date: 2/23/2006 | SeqNo: 453447

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 22.76 | 2.5 | 40 | 0 | 56.9 | 34.8 | 97.4 | | | | |
| 1-Methylnaphthalene | 22.85 | 2.5 | 40.1 | 0 | 57.0 | 34.7 | 100 | | | | |
| 2-Methylnaphthalene | 22.32 | 2.5 | 40 | 0 | 55.8 | 35 | 98.1 | | | | |
| Acenaphthylene | 24.16 | 2.5 | 40.1 | 0 | 60.2 | 48.3 | 95.1 | | | | |
| Acenaphthene | 23.38 | 2.5 | 40 | 0 | 58.4 | 45 | 95 | | | | |
| Fluorene | 2.320 | 0.80 | 4.01 | 0 | 57.9 | 46.8 | 93.4 | | | | |
| Phenanthrene | 1.310 | 0.60 | 2.01 | 0 | 65.2 | 48.7 | 104 | | | | |
| Anthracene | 1.230 | 0.60 | 2.01 | 0 | 61.2 | 47.5 | 102 | | | | |
| Fluoranthene | 2.570 | 0.30 | 4.01 | 0 | 64.1 | 46.3 | 108 | | | | |
| Pyrene | 2.690 | 0.30 | 4.01 | 0 | 67.1 | 43.8 | 109 | | | | |
| Benz(a)anthracene | 0.2600 | 0.020 | 0.401 | 0 | 64.8 | 40.3 | 115 | | | | |
| Chrysene | 1.370 | 0.20 | 2.01 | 0 | 68.2 | 42.6 | 107 | | | | |
| Benzo(b)fluoranthene | 0.3100 | 0.050 | 0.501 | 0 | 61.9 | 48.6 | 107 | | | | |
| Benzo(k)fluoranthene | 0.1600 | 0.020 | 0.25 | 0 | 64.0 | 23.3 | 136 | | | | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

**CLIENT:** Giant Refining Co
**Work Order:** 0602161
**Project:** OAPIS Effluent Week of 2/15/06

# ANALYTICAL QC SUMMARY REPORT

**TestCode:** 8310_W

| Sample ID: LCS-9801 | SampType: LCS | TestCode: 8310_W | Units: µg/L | | Prep Date: 2/17/2006 | | | RunNo: 18380 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: ZZZZZ | Batch ID: 9801 | TestNo: SW8310 | (SW3510C) | | Analysis Date: 2/23/2006 | | | SeqNo: 453447 | | |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzo(a)pyrene | 0.1700 | 0.020 | 0.251 | 0 | 67.7 | 33.4 | 117 | | | | |
| Dibenz(a,h)anthracene | 0.3400 | 0.040 | 0.501 | 0 | 67.9 | 27.3 | 139 | | | | |
| Benzo(g,h,i)perylene | 0.3600 | 0.030 | 0.5 | 0 | 72.0 | 38.2 | 117 | | | | |
| Indeno(1,2,3-cd)pyrene | 0.6520 | 0.080 | 1.002 | 0 | 65.1 | 39.9 | 125 | | | | |

| Sample ID: LCS-9785 | SampType: LCS | TestCode: 8310_W | Units: µg/L | | Prep Date: 2/15/2006 | | | RunNo: 18380 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: ZZZZZ | Batch ID: 9785 | TestNo: SW8310 | (SW3510C) | | Analysis Date: 2/23/2006 | | | SeqNo: 453454 | | |

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| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 24.25 | 2.5 | 40 | 0 | 60.6 | 34.8 | 97.4 | | | | |
| 1-Methylnaphthalene | 24.06 | 2.5 | 40.1 | 0 | 60.0 | 34.7 | 100 | | | | |
| 2-Methylnaphthalene | 23.56 | 2.5 | 40 | 0 | 58.9 | 35 | 98.1 | | | | |
| cenaphthylene | 26.32 | 2.5 | 40.1 | 0 | 65.6 | 48.3 | 95.1 | | | | |
| cenaphthene | 25.79 | 2.5 | 40 | 0 | 64.5 | 45 | 95 | | | | |
| Fluorene | 2.670 | 0.80 | 4.01 | 0 | 66.6 | 46.8 | 93.4 | | | | |
| Phenanthrene | 1.430 | 0.60 | 2.01 | 0 | 71.1 | 48.7 | 104 | | | | |
| Anthracene | 1.480 | 0.60 | 2.01 | 0 | 73.6 | 47.5 | 102 | | | | |
| Fluoranthene | 3.100 | 0.30 | 4.01 | 0 | 77.3 | 46.3 | 108 | | | | |
| Pyrene | 3.150 | 0.30 | 4.01 | 0 | 78.6 | 43.8 | 109 | | | | |
| Benz(a)anthracene | 0.3000 | 0.020 | 0.401 | 0 | 74.8 | 40.3 | 115 | | | | |
| Chrysene | 1.540 | 0.20 | 2.01 | 0 | 76.6 | 42.6 | 107 | | | | |
| Benzo(b)fluoranthene | 0.3900 | 0.050 | 0.501 | 0 | 77.8 | 48.6 | 107 | | | | |
| Benzo(k)fluoranthene | 0.1900 | 0.020 | 0.25 | 0 | 76.0 | 23.3 | 136 | | | | |
| Benzo(a)pyrene | 0.2000 | 0.020 | 0.251 | 0 | 79.7 | 33.4 | 117 | | | | |
| Dibenz(a,h)anthracene | 0.4000 | 0.040 | 0.501 | 0 | 79.8 | 27.3 | 139 | | | | |
| Benzo(g,h,i)perylene | 0.4200 | 0.030 | 0.5 | 0 | 84.0 | 38.2 | 117 | | | | |
| Indeno(1,2,3-cd)pyrene | 0.7800 | 0.080 | 1.002 | 0 | 77.8 | 39.9 | 125 | | | | |

**Qualifiers:**
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602161
Project: OAPIS Effluent Week of 2/15/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8310_W

Sample ID: LCSD-9801 SampType: LCSD TestCode: 8310_W Units: µg/L Prep Date: 2/17/2006 RunNo: 18380
Client ID: ZZZZZ Batch ID: 9801 TestNo: SW8310 (SW3510C) Analysis Date: 2/23/2006 SeqNo: 453448

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 24.66 | 2.5 | 40 | 0 | 61.6 | 34.8 | 97.4 | 22.76 | 8.01 | 32.1 | |
| 1-Methylnaphthalene | 23.80 | 2.5 | 40.1 | 0 | 59.4 | 34.7 | 100 | 22.85 | 4.07 | 32.7 | |
| 2-Methylnaphthalene | 23.36 | 2.5 | 40 | 0 | 58.4 | 35 | 98.1 | 22.32 | 4.55 | 34 | |
| Acenaphthylene | 24.98 | 2.5 | 40.1 | 0 | 62.3 | 48.3 | 95.1 | 24.16 | 3.35 | 38.8 | |
| Acenaphthene | 24.39 | 2.5 | 40 | 0 | 61.0 | 45 | 95 | 23.38 | 4.23 | 38.6 | |
| Fluorene | 2.420 | 0.80 | 4.01 | 0 | 60.3 | 46.8 | 93.4 | 2.32 | 4.22 | 39.3 | |
| Phenanthrene | 1.270 | 0.60 | 2.01 | 0 | 63.2 | 48.7 | 104 | 1.31 | 3.10 | 25 | |
| Anthracene | 1.300 | 0.60 | 2.01 | 0 | 64.7 | 47.5 | 102 | 1.23 | 5.53 | 23.9 | |
| Fluoranthene | 2.720 | 0.30 | 4.01 | 0 | 67.8 | 46.3 | 108 | 2.57 | 5.67 | 15.7 | |
| Pyrene | 2.860 | 0.30 | 4.01 | 0 | 71.3 | 43.8 | 109 | 2.69 | 6.13 | 15.3 | |
| Benz(a)anthracene | 0.2800 | 0.020 | 0.401 | 0 | 69.8 | 40.3 | 115 | 0.26 | 7.41 | 119 | |
| Chrysene | 1.400 | 0.20 | 2.01 | 0 | 69.7 | 42.6 | 107 | 1.37 | 2.17 | 16.6 | |
| enzo(b)fluoranthene | 0.3200 | 0.050 | 0.501 | 0 | 63.9 | 48.6 | 107 | 0.31 | 3.17 | 21.7 | |
| enzo(k)fluoranthene | 0.1700 | 0.020 | 0.25 | 0 | 68.0 | 23.3 | 136 | 0.16 | 6.06 | 19.4 | |
| enzo(a)pyrene | 0.1900 | 0.020 | 0.251 | 0 | 75.7 | 33.4 | 117 | 0.17 | 11.1 | 16.7 | |
| Dibenz(a,h)anthracene | 0.3500 | 0.040 | 0.501 | 0 | 69.9 | 27.3 | 139 | 0.34 | 2.90 | 17.3 | |
| Benzo(g,h,i)perylene | 0.3800 | 0.030 | 0.5 | 0 | 76.0 | 38.2 | 117 | 0.36 | 5.41 | 118 | |
| Indeno(1,2,3-cd)pyrene | 0.6920 | 0.080 | 1.002 | 0 | 69.1 | 39.9 | 125 | 0.652 | 5.95 | 17.7 | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

**CLIENT:** Giant Refining Co
**Work Order:** 0602161
**Project:** OAPIS Effluent Week of 2/15/06

# ANALYTICAL QC SUMMARY REPORT

**TestCode: HG_CTW**

Sample ID: MB-9809 SampType: MBLK TestCode: HG_CTW Units: mg/L Prep Date: 2/18/2006 RunNo: 18309
Client ID: ZZZZZ Batch ID: 9809 TestNo: SW7470 (SW7470) Analysis Date: 2/18/2006 SeqNo: 451593

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | 0.00020 | | | | | | | | | |

Sample ID: LCS-9809 SampType: LCS TestCode: HG_CTW Units: mg/L Prep Date: 2/18/2006 RunNo: 18309
Client ID: ZZZZZ Batch ID: 9809 TestNo: SW7470 (SW7470) Analysis Date: 2/18/2006 SeqNo: 451594

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.004414 | 0.00020 | 0.005 | 0 | 88.3 | 80 | 120 | | | | |

Sample ID: LCSD-9809 SampType: LCSD TestCode: HG_CTW Units: mg/L Prep Date: 2/18/2006 RunNo: 18309
Client ID: ZZZZZ Batch ID: 9809 TestNo: SW7470 (SW7470) Analysis Date: 2/18/2006 SeqNo: 451607

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| lercury | 0.004654 | 0.00020 | 0.005 | 0 | 93.1 | 80 | 120 | 0.004414 | 5.30 | 0 | |



Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602161
Project: OAPIS Effluent Week of 2/15/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: MB-9812 SampType: MBLK TestCode: METALS_TO Units: mg/L Prep Date: 2/20/2006 RunNo: 18340
Client ID: ZZZZZ Batch ID: 9812 TestNo: SW6010A Analysis Date: 2/21/2006 SeqNo: 452367

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.020 | | | | | | | | | |
| Lead | ND | 0.0050 | | | | | | | | | |

Sample ID: MB-9812 SampType: MBLK TestCode: METALS_TO Units: mg/L Prep Date: 2/20/2006 RunNo: 18340
Client ID: ZZZZZ Batch ID: 9812 TestNo: SW6010A Analysis Date: 2/21/2006 SeqNo: 452382

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | ND | 0.020 | | | | | | | | | |
| Cadmium | ND | 0.0020 | | | | | | | | | |
| Chromium | ND | 0.0060 | | | | | | | | | |
| Silver | ND | 0.0050 | | | | | | | | | |

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Sample ID: MB-9812 SampType: MBLK TestCode: METALS_TO Units: mg/L Prep Date: 2/20/2006 RunNo: 18381
Client ID: ZZZZZ Batch ID: 9812 TestNo: SW6010A Analysis Date: 2/24/2006 SeqNo: 453458

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.050 | | | | | | | | | |

Sample ID: LCS-9812 SampType: LCS TestCode: METALS_TO Units: mg/L Prep Date: 2/20/2006 RunNo: 18340
Client ID: ZZZZZ Batch ID: 9812 TestNo: SW6010A Analysis Date: 2/21/2006 SeqNo: 452368

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.5139 | 0.020 | 0.5 | 0 | 103 | 80 | 120 | | | | |
| Lead | 0.4770 | 0.0050 | 0.5 | 0 | 95.4 | 80 | 120 | | | | |

Sample ID: LCS-9812 SampType: LCS TestCode: METALS_TO Units: mg/L Prep Date: 2/20/2006 RunNo: 18340
Client ID: ZZZZZ Batch ID: 9812 TestNo: SW6010A Analysis Date: 2/21/2006 SeqNo: 452383

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 0.4819 | 0.020 | 0.5 | 0 | 96.4 | 80 | 120 | | | | |

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602161
Project: OAPIS Effluent Week of 2/15/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: LCS-9812 | SampType: LCS | TestCode: METALS_TO | Units: mg/L | Prep Date: 2/20/2006 | RunNo: 18340
Client ID: ZZZZZ | Batch ID: 9812 | TestNo: SW6010A | Analysis Date: 2/21/2006 | SeqNo: 452383

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cadmium | 0.4881 | 0.0020 | 0.5 | 0.0003001 | 97.6 | 80 | 120 | | | | |
| Chromium | 0.4750 | 0.0060 | 0.5 | 0 | 95.0 | 80 | 120 | | | | |
| Silver | 0.4972 | 0.0050 | 0.5 | 0 | 99.4 | 80 | 120 | | | | |

Sample ID: LCS-9812 | SampType: LCS | TestCode: METALS_TO | Units: mg/L | Prep Date: 2/20/2006 | RunNo: 18381
Client ID: ZZZZZ | Batch ID: 9812 | TestNo: SW6010A | Analysis Date: 2/24/2006 | SeqNo: 453459

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 0.5094 | 0.050 | 0.5 | 0 | 102 | 80 | 120 | | | | |

Sample ID: LCSD-9812 | SampType: LCSD | TestCode: METALS_TO | Units: mg/L | Prep Date: 2/20/2006 | RunNo: 18340
Client ID: ZZZZZ | Batch ID: 9812 | TestNo: SW6010A | Analysis Date: 2/21/2006 | SeqNo: 452369

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| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.4947 | 0.020 | 0.5 | 0 | 98.9 | 80 | 120 | 0.5139 | 3.80 | 20 | |
| Lead | 0.4747 | 0.0050 | 0.5 | 0 | 94.9 | 80 | 120 | 0.477 | 0.500 | 20 | |

Sample ID: LCSD-9812 | SampType: LCSD | TestCode: METALS_TO | Units: mg/L | Prep Date: 2/20/2006 | RunNo: 18340
Client ID: ZZZZZ | Batch ID: 9812 | TestNo: SW6010A | Analysis Date: 2/21/2006 | SeqNo: 452384

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 0.4693 | 0.020 | 0.5 | 0 | 93.9 | 80 | 120 | 0.4819 | 2.66 | 20 | |
| Cadmium | 0.4811 | 0.0020 | 0.5 | 0.0003001 | 96.2 | 80 | 120 | 0.4881 | 1.45 | 20 | |
| Chromium | 0.4689 | 0.0060 | 0.5 | 0 | 93.8 | 80 | 120 | 0.475 | 1.31 | 20 | |
| Silver | 0.4835 | 0.0050 | 0.5 | 0 | 96.7 | 80 | 120 | 0.4972 | 2.79 | 20 | |

Sample ID: LCSD-9843 | SampType: LCSD | TestCode: METALS_TO | Units: mg/L | Prep Date: 2/20/2006 | RunNo: 18381
Client ID: ZZZZZ | Batch ID: 9812 | TestNo: SW6010A | Analysis Date: 2/24/2006 | SeqNo: 453460

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602161
Project: OAPIS Effluent Week of 2/15/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: LCSD-9843 SampType: LCSD TestCode: METALS_TO Units: mg/L Prep Date: 2/20/2006 RunNo: 18381
Client ID: ZZZZZ Batch ID: 9812 TestNo: SW6010A Analysis Date: 2/24/2006 SeqNo: 453460

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 0.5043 | 0.050 | 0.5 | 0 | 101 | 80 | 120 | 0.5094 | 1.01 | 20 | |

Sample ID: 0602161-01CMS SampType: MS TestCode: METALS_TO Units: mg/L Prep Date: 2/20/2006 RunNo: 18340
Client ID: OAPIS Batch ID: 9812 TestNo: SW6010A Analysis Date: 2/21/2006 SeqNo: 452377

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.5293 | 0.020 | 0.5 | 0.005597 | 105 | 75 | 125 | | | | |
| Lead | 0.4680 | 0.0050 | 0.5 | 0 | 93.6 | 75 | 125 | | | | |

Sample ID: 0602161-01CMS SampType: MS TestCode: METALS_TO Units: mg/L Prep Date: 2/20/2006 RunNo: 18340
Client ID: OAPIS Batch ID: 9812 TestNo: SW6010A Analysis Date: 2/21/2006 SeqNo: 452394

| nalyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| arium | 0.7100 | 0.020 | 0.5 | 0.2273 | 96.5 | 75 | 125 | | | | |
| Cadmium | 0.4903 | 0.0020 | 0.5 | 0 | 98.1 | 75 | 125 | | | | |
| Chromium | 0.4685 | 0.0060 | 0.5 | 0.008463 | 92.0 | 75 | 125 | | | | |
| Silver | 0.5081 | 0.0050 | 0.5 | 0 | 102 | 75 | 125 | | | | |

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Sample ID: 0602161-01C MS SampType: MS TestCode: METALS_TO Units: mg/L Prep Date: 2/20/2006 RunNo: 18381
Client ID: OAPIS Batch ID: 9812 TestNo: SW6010A Analysis Date: 2/24/2006 SeqNo: 453465

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 0.4766 | 0.050 | 0.5 | 0 | 95.3 | 75 | 125 | 0 | 0 | 0 | |

Sample ID: 0602161-01CMSD SampType: MSD TestCode: METALS_TO Units: mg/L Prep Date: 2/20/2006 RunNo: 18340
Client ID: OAPIS Batch ID: 9812 TestNo: SW6010A Analysis Date: 2/21/2006 SeqNo: 452378

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.5157 | 0.020 | 0.5 | 0.005597 | 102 | 75 | 125 | 0.5293 | 2.60 | 20 | |
| Lead | 0.4590 | 0.0050 | 0.5 | 0 | 91.8 | 75 | 125 | 0.468 | 1.93 | 20 | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

**CLIENT:** Giant Refining Co
**Work Order:** 0602161
**Project:** OAPIS Effluent Week of 2/15/06

# ANALYTICAL QC SUMMARY REPORT

**TestCode:** METALS_TOTAL

Sample ID: 0602161-01CMSD SampType: MSD TestCode: METALS_TO Units: mg/L Prep Date: 2/20/2006 RunNo: 18340
Client ID: OAPIS Batch ID: 9812 TestNo: SW6010A Analysis Date: 2/21/2006 SeqNo: 452395

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 0.7175 | 0.020 | 0.5 | 0.2273 | 98.0 | 75 | 125 | 0.71 | 1.05 | 20 | |
| Cadmium | 0.4908 | 0.0020 | 0.5 | 0 | 98.2 | 75 | 125 | 0.4903 | 0.116 | 20 | |
| Chromium | 0.4702 | 0.0060 | 0.5 | 0.008463 | 92.4 | 75 | 125 | 0.4685 | 0.359 | 20 | |
| Silver | 0.5055 | 0.0050 | 0.5 | 0 | 101 | 75 | 125 | 0.5081 | 0.503 | 20 | |

Sample ID: 0602161-01C MSD SampType: MSD TestCode: METALS_TO Units: mg/L Prep Date: 2/20/2006 RunNo: 18381
Client ID: OAPIS Batch ID: 9812 TestNo: SW6010A Analysis Date: 2/24/2006 SeqNo: 453466

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 0.4848 | 0.050 | 0.5 | 0 | 97.0 | 75 | 125 | 0.4766 | 1.71 | 20 | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory

## Sample Receipt Checklist

Client Name GIANTREFIN

Date and Time Received: 2/16/2006

Work Order Number 0602161

Received by AT

Checklist completed by [signature] Signature — 2/16/06 Date

Matrix

Carrier name UPS

| | | | | |
|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ | Not Shipped ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☑ | N/A ☐ | |
| Chain of custody present? | Yes ☑ | No ☐ | | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☑ | No ☐ | | |
| Water - VOA vials have zero headspace? | No VOA vials submitted ☐ | Yes ☑ | No ☐ | |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | N/A ☐ | |

Container/Temp Blank temperature? 5° *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

Client contacted ______ Date contacted: ______ Person contacted ______

Contacted by: ______ Regarding ______

Comments: ______

Corrective Action ______

# CHAIN-OF-CUSTODY RECORD

Client: Giant Refinery Co.
Ciniza

Address: Route 3, Box 7
Gallup, NM 87301

Phone #: 505-722-3833

Fax #: 505-722-0210

QA / QC Package:
Std ☐ Level 4 ☐
Other: ______

Project Name: OAPIS Effluent
Week of 2-15-06

Project #:

Project Manager:
Ed Riege

Sampler: Johnny Sanchez

Sample Temperature: 5


**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com


| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative $HgCl_2$ | Preservative $HNO_3$ | | HEAL No. |
|---|---|---|---|---|---|---|---|---|
| 2-15-06 | 10:00 | $H_2O$ | OAPIS | | | | | 0602161-1 |

## ANALYSIS REQUEST

| BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 8310 (~~[illegible]~~ PAH) | RCRA 8 Metals TOTALS | Anions (F, Cl, $NO_3$, $NO_2$, $PO_4$, $SO_4$) | 8081 Pesticides / PCB's (8082) | 8260B (VOA) | 8270 (Semi-VOA) | | | | | | Air Bubbles or Headspace (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | X | | | | X | X | | | X | | | | | | | |

| Date | Time | Relinquished By: (Signature) | Received By: (Signature) |
|---|---|---|---|
| 2-15-06 | 1030 | [signature] | [signature] 2/16/06 @ 1140 |
| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |

Remarks: Rush

HALL ENVIRONMENTAL ANALYSIS LABORATORY

# COVER LETTER

Friday, February 17, 2006

Steve Morris
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301

TEL: (505) 722-3833
FAX (505) 722-0210

RE: NMED Monthly Water Samples 1/31/2006

Order No.: 0602041

Dear Steve Morris:

Hall Environmental Analysis Laboratory received 4 sample(s) on 2/3/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

ACCREDITED IN ACCORDANCE WITH nelac

4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109
505.345.3975 ■ Fax 505.345.4107
www.hallenvironmental.com

## Hall Environmental Analysis Laboratory

**Date:** *17-Feb-06*

**CLIENT:** Giant Refining Co
**Project:** NMED Monthly Water Samples 1/31/2006
**Lab Order:** 0602041

## CASE NARRATIVE

Analytical Comments for METHOD 8015GRO_W, SAMPLE 0602041-01A: Elevated surrogate due to matrix interference. Analytical Comments for METHOD 8015DRO_W, SAMPLE 0602041-01A: DNOP not recovered due to dilution

# Hall Environmental Analysis Laboratory

**Date:** *17-Feb-06*

**CLIENT:** Giant Refining Co
**Project:** NMED Monthly Water Samples 1/31/2006

**Lab Order:** 0602041

**Lab ID:** 0602041-01
**Client Sample ID:** AL-2 to EP-1

**Collection Date:** 1/31/2006 11:30:00 AM
**Matrix:** AQUEOUS

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | 1300 | 150 | | mg/L | 50 | 2/7/2006 7:19:43 PM |
| Motor Oil Range Organics (MRO) | ND | 750 | | mg/L | 50 | 2/7/2006 7:19:43 PM |
| Surr: DNOP | 0 | 58-140 | S | %REC | 50 | 2/7/2006 7:19:43 PM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | 9.7 | 1.0 | | mg/L | 20 | 2/6/2006 11:08:34 PM |
| Surr: BFB | 218 | 79.7-118 | S | %REC | 20 | 2/6/2006 11:08:34 PM |
| **EPA METHOD 7470: MERCURY** | | | | | | Analyst: CMC |
| Mercury | 0.012 | 0.0010 | | mg/L | 5 | 2/15/2006 |
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: NMO |
| Arsenic | ND | 0.020 | | mg/L | 1 | 2/9/2006 2:12:38 PM |
| Barium | 0.53 | 0.020 | | mg/L | 1 | 2/9/2006 2:12:38 PM |
| Cadmium | ND | 0.0020 | | mg/L | 1 | 2/9/2006 2:12:38 PM |
| Chromium | 0.014 | 0.0060 | | mg/L | 1 | 2/9/2006 2:12:38 PM |
| Lead | 0.017 | 0.0050 | | mg/L | 1 | 2/9/2006 2:12:38 PM |
| Selenium | ND | 0.050 | | mg/L | 1 | 2/9/2006 2:12:38 PM |
| Silver | ND | 0.0050 | | mg/L | 1 | 2/9/2006 2:12:38 PM |
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: KTM |
| Benzene | 410 | 100 | | µg/L | 100 | 2/9/2006 |
| Toluene | 1000 | 100 | | µg/L | 100 | 2/9/2006 |
| Ethylbenzene | ND | 100 | | µg/L | 100 | 2/9/2006 |
| Methyl tert-butyl ether (MTBE) | ND | 100 | | µg/L | 100 | 2/9/2006 |
| 1,2,4-Trimethylbenzene | 290 | 100 | | µg/L | 100 | 2/9/2006 |
| 1,3,5-Trimethylbenzene | ND | 100 | | µg/L | 100 | 2/9/2006 |
| 1,2-Dichloroethane (EDC) | ND | 100 | | µg/L | 100 | 2/9/2006 |
| 1,2-Dibromoethane (EDB) | ND | 100 | | µg/L | 100 | 2/9/2006 |
| Naphthalene | 320 | 200 | | µg/L | 100 | 2/9/2006 |
| 1-Methylnaphthalene | ND | 400 | | µg/L | 100 | 2/9/2006 |
| 2-Methylnaphthalene | 540 | 400 | | µg/L | 100 | 2/9/2006 |
| Acetone | 4600 | 1000 | | µg/L | 100 | 2/9/2006 |
| Bromobenzene | ND | 100 | | µg/L | 100 | 2/9/2006 |
| Bromochloromethane | ND | 100 | | µg/L | 100 | 2/9/2006 |
| Bromodichloromethane | ND | 100 | | µg/L | 100 | 2/9/2006 |
| Bromoform | ND | 100 | | µg/L | 100 | 2/9/2006 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| S | Spike Recovery outside accepted recovery limits | | |

## Hall Environmental Analysis Laboratory

**Date:** 17-Feb-06

**CLIENT:** Giant Refining Co **Lab Order:** 0602041
**Project:** NMED Monthly Water Samples 1/31/2006

**EPA METHOD 8260B: VOLATILES** Analyst: KTM

| | | | | | |
|---|---|---|---|---|---|
| Bromomethane | ND | 200 | µg/L | 100 | 2/9/2006 |
| 2-Butanone | ND | 1000 | µg/L | 100 | 2/9/2006 |
| Carbon disulfide | ND | 1000 | µg/L | 100 | 2/9/2006 |
| Carbon Tetrachloride | ND | 200 | µg/L | 100 | 2/9/2006 |
| Chlorobenzene | ND | 100 | µg/L | 100 | 2/9/2006 |
| Chloroethane | ND | 200 | µg/L | 100 | 2/9/2006 |
| Chloroform | ND | 100 | µg/L | 100 | 2/9/2006 |
| Chloromethane | ND | 100 | µg/L | 100 | 2/9/2006 |
| 2-Chlorotoluene | ND | 100 | µg/L | 100 | 2/9/2006 |
| 4-Chlorotoluene | ND | 100 | µg/L | 100 | 2/9/2006 |
| cis-1,2-DCE | ND | 100 | µg/L | 100 | 2/9/2006 |
| cis-1,3-Dichloropropene | ND | 100 | µg/L | 100 | 2/9/2006 |
| 1,2-Dibromo-3-chloropropane | ND | 200 | µg/L | 100 | 2/9/2006 |
| Dibromochloromethane | ND | 100 | µg/L | 100 | 2/9/2006 |
| Dibromomethane | ND | 200 | µg/L | 100 | 2/9/2006 |
| 1,2-Dichlorobenzene | ND | 100 | µg/L | 100 | 2/9/2006 |
| 1,3-Dichlorobenzene | ND | 100 | µg/L | 100 | 2/9/2006 |
| 1,4-Dichlorobenzene | ND | 100 | µg/L | 100 | 2/9/2006 |
| Dichlorodifluoromethane | ND | 100 | µg/L | 100 | 2/9/2006 |
| 1,1-Dichloroethane | ND | 200 | µg/L | 100 | 2/9/2006 |
| 1,1-Dichloroethene | ND | 100 | µg/L | 100 | 2/9/2006 |
| 1,2-Dichloropropane | ND | 100 | µg/L | 100 | 2/9/2006 |
| 1,3-Dichloropropane | ND | 100 | µg/L | 100 | 2/9/2006 |
| 2,2-Dichloropropane | ND | 200 | µg/L | 100 | 2/9/2006 |
| 1,1-Dichloropropene | ND | 100 | µg/L | 100 | 2/9/2006 |
| Hexachlorobutadiene | ND | 200 | µg/L | 100 | 2/9/2006 |
| 2-Hexanone | ND | 1000 | µg/L | 100 | 2/9/2006 |
| Isopropylbenzene | ND | 100 | µg/L | 100 | 2/9/2006 |
| 4-Isopropyltoluene | ND | 100 | µg/L | 100 | 2/9/2006 |
| 4-Methyl-2-pentanone | ND | 1000 | µg/L | 100 | 2/9/2006 |
| Methylene Chloride | ND | 300 | µg/L | 100 | 2/9/2006 |
| n-Butylbenzene | ND | 100 | µg/L | 100 | 2/9/2006 |
| n-Propylbenzene | ND | 100 | µg/L | 100 | 2/9/2006 |
| sec-Butylbenzene | ND | 100 | µg/L | 100 | 2/9/2006 |
| Styrene | ND | 100 | µg/L | 100 | 2/9/2006 |
| tert-Butylbenzene | ND | 100 | µg/L | 100 | 2/9/2006 |
| 1,1,1,2-Tetrachloroethane | ND | 100 | µg/L | 100 | 2/9/2006 |
| 1,1,2,2-Tetrachloroethane | ND | 100 | µg/L | 100 | 2/9/2006 |
| Tetrachloroethene (PCE) | ND | 100 | µg/L | 100 | 2/9/2006 |
| trans-1,2-DCE | ND | 100 | µg/L | 100 | 2/9/2006 |
| trans-1,3-Dichloropropene | ND | 100 | µg/L | 100 | 2/9/2006 |
| 1,2,3-Trichlorobenzene | ND | 100 | µg/L | 100 | 2/9/2006 |
| 1,2,4-Trichlorobenzene | ND | 100 | µg/L | 100 | 2/9/2006 |
| 1,1,1-Trichloroethane | ND | 100 | µg/L | 100 | 2/9/2006 |

**Qualifiers:**

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

Date: *17-Feb-06*

**CLIENT:** Giant Refining Co  **Lab Order:** 0602041
**Project:** NMED Monthly Water Samples 1/31/2006

| EPA METHOD 8260B: VOLATILES | | | | | | Analyst: KTM |
|---|---|---|---|---|---|---|
| 1,1,2-Trichloroethane | ND | 100 | µg/L | 100 | 2/9/2006 | |
| Trichloroethene (TCE) | ND | 100 | µg/L | 100 | 2/9/2006 | |
| Trichlorofluoromethane | ND | 100 | µg/L | 100 | 2/9/2006 | |
| 1,2,3-Trichloropropane | ND | 200 | µg/L | 100 | 2/9/2006 | |
| Vinyl chloride | ND | 100 | µg/L | 100 | 2/9/2006 | |
| Xylenes, Total | 610 | 100 | µg/L | 100 | 2/9/2006 | |
| Surr: 1,2-Dichloroethane-d4 | 101 | 69.9-130 | %REC | 100 | 2/9/2006 | |
| Surr: 4-Bromofluorobenzene | 117 | 71.2-123 | %REC | 100 | 2/9/2006 | |
| Surr: Dibromofluoromethane | 104 | 57.3-135 | %REC | 100 | 2/9/2006 | |
| Surr: Toluene-d8 | 100 | 81.9-122 | %REC | 100 | 2/9/2006 | |

**Qualifiers:**
- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

Date: 17-Feb-06

**CLIENT:** Giant Refining Co **Lab Order:** 0602041
**Project:** NMED Monthly Water Samples 1/31/2006

**Lab ID:** 0602041-02 **Collection Date:** 1/31/2006 11:00:00 AM
**Client Sample ID:** OAPIS **Matrix:** AQUEOUS

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | 2.1 | 1.0 | | mg/L | 1 | 2/7/2006 7:52:31 PM |
| Motor Oil Range Organics (MRO) | ND | 5.0 | | mg/L | 1 | 2/7/2006 7:52:31 PM |
| Surr: DNOP | 119 | 58-140 | | %REC | 1 | 2/7/2006 7:52:31 PM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | 7.2 | 2.0 | | mg/L | 40 | 2/7/2006 12:08:45 AM |
| Surr: BFB | 108 | 79.7-118 | | %REC | 40 | 2/7/2006 12:08:45 AM |
| **EPA METHOD 8310: PAHS** | | | | | | Analyst: JMP |
| Naphthalene | 170 | 12 | | µg/L | 5 | 2/16/2006 4:59:04 PM |
| 1-Methylnaphthalene | 38 | 2.5 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| 2-Methylnaphthalene | 7.1 | 2.5 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Acenaphthylene | ND | 2.5 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Acenaphthene | 6.0 | 2.5 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Fluorene | 3.2 | 0.80 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Phenanthrene | 2.0 | 0.60 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Anthracene | ND | 0.60 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Fluoranthene | 0.31 | 0.30 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Pyrene | 0.57 | 0.30 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Benz(a)anthracene | 0.070 | 0.020 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Chrysene | 0.22 | 0.20 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Benzo(b)fluoranthene | ND | 0.050 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Benzo(k)fluoranthene | 0.020 | 0.020 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Benzo(a)pyrene | 0.030 | 0.020 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Dibenz(a,h)anthracene | ND | 0.040 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Benzo(g,h,i)perylene | ND | 0.030 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | µg/L | 1 | 2/13/2006 2:47:46 PM |
| Surr: Benzo(e)pyrene | 72.2 | 54-102 | | %REC | 1 | 2/13/2006 2:47:46 PM |
| **EPA METHOD 7470: MERCURY** | | | | | | Analyst: CMC |
| Mercury | ND | 0.00020 | | mg/L | 1 | 2/15/2006 |
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: NMO |
| Arsenic | 0.022 | 0.020 | | mg/L | 1 | 2/9/2006 2:17:08 PM |
| Barium | 0.12 | 0.020 | | mg/L | 1 | 2/9/2006 2:17:08 PM |
| Cadmium | ND | 0.0020 | | mg/L | 1 | 2/9/2006 2:17:08 PM |
| Chromium | 0.011 | 0.0060 | | mg/L | 1 | 2/9/2006 2:17:08 PM |

**Qualifiers:**

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

Date: 17-Feb-06

CLIENT: Giant Refining Co | Lab Order: 0602041
Project: NMED Monthly Water Samples 1/31/2006

**EPA 6010: TOTAL RECOVERABLE METALS** Analyst: NMO

| | | | | | |
|---|---|---|---|---|---|
| Lead | ND | 0.0050 | mg/L | 1 | 2/9/2006 2:17:08 PM |
| Selenium | ND | 0.050 | mg/L | 1 | 2/9/2006 2:17:08 PM |
| Silver | ND | 0.0050 | mg/L | 1 | 2/9/2006 2:17:08 PM |

**EPA METHOD 8260B: VOLATILES** Analyst: KTM

| | | | | | |
|---|---|---|---|---|---|
| Benzene | 880 | 20 | µg/L | 20 | 2/9/2006 |
| Toluene | 1500 | 20 | µg/L | 20 | 2/9/2006 |
| Ethylbenzene | ND | 20 | µg/L | 20 | 2/9/2006 |
| Methyl tert-butyl ether (MTBE) | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,2,4-Trimethylbenzene | 120 | 20 | µg/L | 20 | 2/9/2006 |
| 1,3,5-Trimethylbenzene | 66 | 20 | µg/L | 20 | 2/9/2006 |
| 1,2-Dichloroethane (EDC) | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,2-Dibromoethane (EDB) | ND | 20 | µg/L | 20 | 2/9/2006 |
| Naphthalene | 46 | 40 | µg/L | 20 | 2/9/2006 |
| 1-Methylnaphthalene | 81 | 80 | µg/L | 20 | 2/9/2006 |
| 2-Methylnaphthalene | 84 | 80 | µg/L | 20 | 2/9/2006 |
| Acetone | ND | 200 | µg/L | 20 | 2/9/2006 |
| Bromobenzene | ND | 20 | µg/L | 20 | 2/9/2006 |
| Bromochloromethane | ND | 20 | µg/L | 20 | 2/9/2006 |
| Bromodichloromethane | ND | 20 | µg/L | 20 | 2/9/2006 |
| Bromoform | ND | 20 | µg/L | 20 | 2/9/2006 |
| Bromomethane | ND | 40 | µg/L | 20 | 2/9/2006 |
| 2-Butanone | ND | 200 | µg/L | 20 | 2/9/2006 |
| Carbon disulfide | ND | 200 | µg/L | 20 | 2/9/2006 |
| Carbon Tetrachloride | ND | 40 | µg/L | 20 | 2/9/2006 |
| Chlorobenzene | ND | 20 | µg/L | 20 | 2/9/2006 |
| Chloroethane | ND | 40 | µg/L | 20 | 2/9/2006 |
| Chloroform | ND | 20 | µg/L | 20 | 2/9/2006 |
| Chloromethane | ND | 20 | µg/L | 20 | 2/9/2006 |
| 2-Chlorotoluene | ND | 20 | µg/L | 20 | 2/9/2006 |
| 4-Chlorotoluene | ND | 20 | µg/L | 20 | 2/9/2006 |
| cis-1,2-DCE | ND | 20 | µg/L | 20 | 2/9/2006 |
| cis-1,3-Dichloropropene | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,2-Dibromo-3-chloropropane | ND | 40 | µg/L | 20 | 2/9/2006 |
| Dibromochloromethane | ND | 20 | µg/L | 20 | 2/9/2006 |
| Dibromomethane | ND | 40 | µg/L | 20 | 2/9/2006 |
| 1,2-Dichlorobenzene | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,3-Dichlorobenzene | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,4-Dichlorobenzene | ND | 20 | µg/L | 20 | 2/9/2006 |
| Dichlorodifluoromethane | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,1-Dichloroethane | ND | 40 | µg/L | 20 | 2/9/2006 |
| 1,1-Dichloroethene | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,2-Dichloropropane | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,3-Dichloropropane | ND | 20 | µg/L | 20 | 2/9/2006 |

**Qualifiers:**
* Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit

## Hall Environmental Analysis Laboratory

Date: *17-Feb-06*

**CLIENT:** Giant Refining Co **Lab Order:** 0602041
**Project:** NMED Monthly Water Samples 1/31/2006

**EPA METHOD 8260B: VOLATILES** Analyst: KTM

| | | | | | |
|---|---|---|---|---|---|
| 2,2-Dichloropropane | ND | 40 | µg/L | 20 | 2/9/2006 |
| 1,1-Dichloropropene | ND | 20 | µg/L | 20 | 2/9/2006 |
| Hexachlorobutadiene | ND | 40 | µg/L | 20 | 2/9/2006 |
| 2-Hexanone | ND | 200 | µg/L | 20 | 2/9/2006 |
| Isopropylbenzene | ND | 20 | µg/L | 20 | 2/9/2006 |
| 4-Isopropyltoluene | ND | 20 | µg/L | 20 | 2/9/2006 |
| 4-Methyl-2-pentanone | ND | 200 | µg/L | 20 | 2/9/2006 |
| Methylene Chloride | ND | 60 | µg/L | 20 | 2/9/2006 |
| n-Butylbenzene | ND | 20 | µg/L | 20 | 2/9/2006 |
| n-Propylbenzene | ND | 20 | µg/L | 20 | 2/9/2006 |
| sec-Butylbenzene | ND | 20 | µg/L | 20 | 2/9/2006 |
| Styrene | ND | 20 | µg/L | 20 | 2/9/2006 |
| tert-Butylbenzene | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,1,1,2-Tetrachloroethane | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,1,2,2-Tetrachloroethane | ND | 20 | µg/L | 20 | 2/9/2006 |
| Tetrachloroethene (PCE) | ND | 20 | µg/L | 20 | 2/9/2006 |
| trans-1,2-DCE | ND | 20 | µg/L | 20 | 2/9/2006 |
| trans-1,3-Dichloropropene | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,2,3-Trichlorobenzene | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,2,4-Trichlorobenzene | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,1,1-Trichloroethane | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,1,2-Trichloroethane | ND | 20 | µg/L | 20 | 2/9/2006 |
| Trichloroethene (TCE) | ND | 20 | µg/L | 20 | 2/9/2006 |
| Trichlorofluoromethane | ND | 20 | µg/L | 20 | 2/9/2006 |
| 1,2,3-Trichloropropane | ND | 40 | µg/L | 20 | 2/9/2006 |
| Vinyl chloride | ND | 20 | µg/L | 20 | 2/9/2006 |
| Xylenes, Total | 1500 | 20 | µg/L | 20 | 2/9/2006 |
| Surr: 1,2-Dichloroethane-d4 | 102 | 69.9-130 | %REC | 20 | 2/9/2006 |
| Surr: 4-Bromofluorobenzene | 98.4 | 71.2-123 | %REC | 20 | 2/9/2006 |
| Surr: Dibromofluoromethane | 104 | 57.3-135 | %REC | 20 | 2/9/2006 |
| Surr: Toluene-d8 | 95.9 | 81.9-122 | %REC | 20 | 2/9/2006 |

**Qualifiers:**

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

Date: *17-Feb-06*

**CLIENT:** Giant Refining Co **Lab Order:** 0602041
**Project:** NMED Monthly Water Samples 1/31/2006

**Lab ID:** 0602041-03 **Collection Date:** 1/31/2006 1:00:00 PM
**Client Sample ID:** NAPIS **Matrix:** AQUEOUS

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: **SCC** |
| Diesel Range Organics (DRO) | 120 | 3.0 | | mg/L | 1 | 2/7/2006 8:25:34 PM |
| Motor Oil Range Organics (MRO) | ND | 15 | | mg/L | 1 | 2/7/2006 8:25:34 PM |
| Surr: DNOP | 112 | 58-140 | | %REC | 1 | 2/7/2006 8:25:34 PM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: **NSB** |
| Gasoline Range Organics (GRO) | 12 | 5.0 | | mg/L | 100 | 2/7/2006 12:38:45 AM |
| Surr: BFB | 113 | 79.7-118 | | %REC | 100 | 2/7/2006 12:38:45 AM |
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: **KTM** |
| Benzene | 3200 | 50 | | µg/L | 50 | 2/9/2006 |
| Toluene | 2900 | 50 | | µg/L | 50 | 2/9/2006 |
| Ethylbenzene | 150 | 50 | | µg/L | 50 | 2/9/2006 |
| Methyl tert-butyl ether (MTBE) | 5100 | 50 | | µg/L | 50 | 2/9/2006 |
| 1,2,4-Trimethylbenzene | 260 | 50 | | µg/L | 50 | 2/9/2006 |
| 1,3,5-Trimethylbenzene | 58 | 50 | | µg/L | 50 | 2/9/2006 |
| 1,2-Dichloroethane (EDC) | ND | 50 | | µg/L | 50 | 2/9/2006 |
| 1,2-Dibromoethane (EDB) | ND | 50 | | µg/L | 50 | 2/9/2006 |
| Naphthalene | 240 | 100 | | µg/L | 50 | 2/9/2006 |
| 1-Methylnaphthalene | 240 | 200 | | µg/L | 50 | 2/9/2006 |
| 2-Methylnaphthalene | 350 | 200 | | µg/L | 50 | 2/9/2006 |
| Acetone | 11000 | 2000 | | µg/L | 200 | 2/9/2006 |
| Bromobenzene | ND | 50 | | µg/L | 50 | 2/9/2006 |
| Bromochloromethane | ND | 50 | | µg/L | 50 | 2/9/2006 |
| Bromodichloromethane | ND | 50 | | µg/L | 50 | 2/9/2006 |
| Bromoform | ND | 50 | | µg/L | 50 | 2/9/2006 |
| Bromomethane | ND | 100 | | µg/L | 50 | 2/9/2006 |
| 2-Butanone | 2500 | 500 | | µg/L | 50 | 2/9/2006 |
| Carbon disulfide | ND | 500 | | µg/L | 50 | 2/9/2006 |
| Carbon Tetrachloride | ND | 100 | | µg/L | 50 | 2/9/2006 |
| Chlorobenzene | ND | 50 | | µg/L | 50 | 2/9/2006 |
| Chloroethane | ND | 100 | | µg/L | 50 | 2/9/2006 |
| Chloroform | ND | 50 | | µg/L | 50 | 2/9/2006 |
| Chloromethane | ND | 50 | | µg/L | 50 | 2/9/2006 |
| 2-Chlorotoluene | ND | 50 | | µg/L | 50 | 2/9/2006 |
| 4-Chlorotoluene | ND | 50 | | µg/L | 50 | 2/9/2006 |
| cis-1,2-DCE | ND | 50 | | µg/L | 50 | 2/9/2006 |
| cis-1,3-Dichloropropene | ND | 50 | | µg/L | 50 | 2/9/2006 |
| 1,2-Dibromo-3-chloropropane | ND | 100 | | µg/L | 50 | 2/9/2006 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| S | Spike Recovery outside accepted recovery limits | | |

# Hall Environmental Analysis Laboratory

Date: *17-Feb-06*

| | | | |
|---|---|---|---|
| CLIENT: | Giant Refining Co | Lab Order: | 0602041 |
| Project: | NMED Monthly Water Samples 1/31/2006 | | |

EPA METHOD 8260B: VOLATILES — Analyst: KTM

| | | | | | |
|---|---|---|---|---|---|
| Dibromochloromethane | ND | 50 | µg/L | 50 | 2/9/2006 |
| Dibromomethane | ND | 100 | µg/L | 50 | 2/9/2006 |
| 1,2-Dichlorobenzene | ND | 50 | µg/L | 50 | 2/9/2006 |
| 1,3-Dichlorobenzene | ND | 50 | µg/L | 50 | 2/9/2006 |
| 1,4-Dichlorobenzene | ND | 50 | µg/L | 50 | 2/9/2006 |
| Dichlorodifluoromethane | ND | 50 | µg/L | 50 | 2/9/2006 |
| 1,1-Dichloroethane | ND | 100 | µg/L | 50 | 2/9/2006 |
| 1,1-Dichloroethene | ND | 50 | µg/L | 50 | 2/9/2006 |
| 1,2-Dichloropropane | ND | 50 | µg/L | 50 | 2/9/2006 |
| 1,3-Dichloropropane | ND | 50 | µg/L | 50 | 2/9/2006 |
| 2,2-Dichloropropane | ND | 100 | µg/L | 50 | 2/9/2006 |
| 1,1-Dichloropropene | ND | 50 | µg/L | 50 | 2/9/2006 |
| Hexachlorobutadiene | ND | 100 | µg/L | 50 | 2/9/2006 |
| 2-Hexanone | ND | 500 | µg/L | 50 | 2/9/2006 |
| Isopropylbenzene | ND | 50 | µg/L | 50 | 2/9/2006 |
| 4-Isopropyltoluene | ND | 50 | µg/L | 50 | 2/9/2006 |
| 4-Methyl-2-pentanone | ND | 500 | µg/L | 50 | 2/9/2006 |
| Methylene Chloride | ND | 150 | µg/L | 50 | 2/9/2006 |
| n-Butylbenzene | ND | 50 | µg/L | 50 | 2/9/2006 |
| n-Propylbenzene | ND | 50 | µg/L | 50 | 2/9/2006 |
| sec-Butylbenzene | ND | 50 | µg/L | 50 | 2/9/2006 |
| Styrene | ND | 50 | µg/L | 50 | 2/9/2006 |
| tert-Butylbenzene | ND | 50 | µg/L | 50 | 2/9/2006 |
| 1,1,1,2-Tetrachloroethane | ND | 50 | µg/L | 50 | 2/9/2006 |
| 1,1,2,2-Tetrachloroethane | ND | 50 | µg/L | 50 | 2/9/2006 |
| Tetrachloroethene (PCE) | ND | 50 | µg/L | 50 | 2/9/2006 |
| trans-1,2-DCE | ND | 50 | µg/L | 50 | 2/9/2006 |
| trans-1,3-Dichloropropene | ND | 50 | µg/L | 50 | 2/9/2006 |
| 1,2,3-Trichlorobenzene | ND | 50 | µg/L | 50 | 2/9/2006 |
| 1,2,4-Trichlorobenzene | ND | 50 | µg/L | 50 | 2/9/2006 |
| 1,1,1-Trichloroethane | ND | 50 | µg/L | 50 | 2/9/2006 |
| 1,1,2-Trichloroethane | ND | 50 | µg/L | 50 | 2/9/2006 |
| Trichloroethene (TCE) | ND | 50 | µg/L | 50 | 2/9/2006 |
| Trichlorofluoromethane | ND | 50 | µg/L | 50 | 2/9/2006 |
| 1,2,3-Trichloropropane | ND | 100 | µg/L | 50 | 2/9/2006 |
| Vinyl chloride | ND | 50 | µg/L | 50 | 2/9/2006 |
| Xylenes, Total | 1000 | 50 | µg/L | 50 | 2/9/2006 |
| Surr: 1,2-Dichloroethane-d4 | 106 | 69.9-130 | %REC | 50 | 2/9/2006 |
| Surr: 4-Bromofluorobenzene | 114 | 71.2-123 | %REC | 50 | 2/9/2006 |
| Surr: Dibromofluoromethane | 110 | 57.3-135 | %REC | 50 | 2/9/2006 |
| Surr: Toluene-d8 | 98.3 | 81.9-122 | %REC | 50 | 2/9/2006 |

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

## Hall Environmental Analysis Laboratory

Date: 17-Feb-06

**CLIENT:** Giant Refining Co  **Lab Order:** 0602041
**Project:** NMED Monthly Water Samples 1/31/2006

**Lab ID:** 0602041-04  **Collection Date:** 1/31/2006 2:00:00 PM
**Client Sample ID:** Pilot TC  **Matrix:** AQUEOUS

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | 14 | 1.0 | | mg/L | 1 | 2/7/2006 9:31:39 PM |
| Motor Oil Range Organics (MRO) | ND | 5.0 | | mg/L | 1 | 2/7/2006 9:31:39 PM |
| Surr: DNOP | 139 | 58-140 | | %REC | 1 | 2/7/2006 9:31:39 PM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | ND | 0.050 | | mg/L | 1 | 2/7/2006 1:08:51 AM |
| Surr: BFB | 109 | 79.7-118 | | %REC | 1 | 2/7/2006 1:08:51 AM |
| **EPA METHOD 7470: MERCURY** | | | | | | Analyst: CMC |
| Mercury | ND | 0.00020 | | mg/L | 1 | 2/15/2006 |
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: NMO |
| Arsenic | ND | 0.020 | | mg/L | 1 | 2/9/2006 2:21:04 PM |
| Barium | 0.024 | 0.020 | | mg/L | 1 | 2/9/2006 2:21:04 PM |
| Cadmium | ND | 0.0020 | | mg/L | 1 | 2/9/2006 2:21:04 PM |
| Chromium | ND | 0.0060 | | mg/L | 1 | 2/9/2006 2:21:04 PM |
| Lead | ND | 0.0050 | | mg/L | 1 | 2/9/2006 2:21:04 PM |
| Selenium | ND | 0.050 | | mg/L | 1 | 2/9/2006 2:21:04 PM |
| Silver | ND | 0.0050 | | mg/L | 1 | 2/9/2006 2:21:04 PM |
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: KTM |
| Benzene | ND | 1.0 | | µg/L | 1 | 2/9/2006 |
| Toluene | 1.5 | 1.0 | | µg/L | 1 | 2/9/2006 |
| Ethylbenzene | ND | 1.0 | | µg/L | 1 | 2/9/2006 |
| Methyl tert-butyl ether (MTBE) | ND | 1.0 | | µg/L | 1 | 2/9/2006 |
| 1,2,4-Trimethylbenzene | ND | 1.0 | | µg/L | 1 | 2/9/2006 |
| 1,3,5-Trimethylbenzene | ND | 1.0 | | µg/L | 1 | 2/9/2006 |
| 1,2-Dichloroethane (EDC) | ND | 1.0 | | µg/L | 1 | 2/9/2006 |
| 1,2-Dibromoethane (EDB) | ND | 1.0 | | µg/L | 1 | 2/9/2006 |
| Naphthalene | ND | 2.0 | | µg/L | 1 | 2/9/2006 |
| 1-Methylnaphthalene | ND | 4.0 | | µg/L | 1 | 2/9/2006 |
| 2-Methylnaphthalene | ND | 4.0 | | µg/L | 1 | 2/9/2006 |
| Acetone | 180 | 10 | | µg/L | 1 | 2/9/2006 |
| Bromobenzene | ND | 1.0 | | µg/L | 1 | 2/9/2006 |
| Bromochloromethane | ND | 1.0 | | µg/L | 1 | 2/9/2006 |
| Bromodichloromethane | ND | 1.0 | | µg/L | 1 | 2/9/2006 |
| Bromoform | ND | 1.0 | | µg/L | 1 | 2/9/2006 |

**Qualifiers:**
- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

Date: *17-Feb-06*

**CLIENT:** Giant Refining Co

**Project:** NMED Monthly Water Samples 1/31/2006

**Lab Order:** 0602041

EPA METHOD 8260B: VOLATILES — Analyst: KTM

| | | | | | |
|---|---|---|---|---|---|
| Bromomethane | ND | 2.0 | µg/L | 1 | 2/9/2006 |
| 2-Butanone | ND | 10 | µg/L | 1 | 2/9/2006 |
| Carbon disulfide | ND | 10 | µg/L | 1 | 2/9/2006 |
| Carbon Tetrachloride | ND | 2.0 | µg/L | 1 | 2/9/2006 |
| Chlorobenzene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| Chloroethane | ND | 2.0 | µg/L | 1 | 2/9/2006 |
| Chloroform | 2.5 | 1.0 | µg/L | 1 | 2/9/2006 |
| Chloromethane | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 2-Chlorotoluene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 4-Chlorotoluene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| cis-1,2-DCE | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| cis-1,3-Dichloropropene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 1,2-Dibromo-3-chloropropane | ND | 2.0 | µg/L | 1 | 2/9/2006 |
| Dibromochloromethane | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| Dibromomethane | ND | 2.0 | µg/L | 1 | 2/9/2006 |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| Dichlorodifluoromethane | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 1,1-Dichloroethane | ND | 2.0 | µg/L | 1 | 2/9/2006 |
| 1,1-Dichloroethene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 1,3-Dichloropropane | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 2,2-Dichloropropane | ND | 2.0 | µg/L | 1 | 2/9/2006 |
| 1,1-Dichloropropene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| Hexachlorobutadiene | ND | 2.0 | µg/L | 1 | 2/9/2006 |
| 2-Hexanone | ND | 10 | µg/L | 1 | 2/9/2006 |
| Isopropylbenzene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 4-Isopropyltoluene | 1.1 | 1.0 | µg/L | 1 | 2/9/2006 |
| 4-Methyl-2-pentanone | ND | 10 | µg/L | 1 | 2/9/2006 |
| Methylene Chloride | ND | 3.0 | µg/L | 1 | 2/9/2006 |
| n-Butylbenzene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| n-Propylbenzene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| sec-Butylbenzene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| Styrene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| tert-Butylbenzene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 1,1,2,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| Tetrachloroethene (PCE) | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| trans-1,2-DCE | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| trans-1,3-Dichloropropene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 1,2,3-Trichlorobenzene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 1,2,4-Trichlorobenzene | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | 1 | 2/9/2006 |

**Qualifiers:**

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

## Hall Environmental Analysis Laboratory

Date: 17-Feb-06

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Lab Order:** | 0602041 |
| **Project:** | NMED Monthly Water Samples 1/31/2006 | | |

**EPA METHOD 8260B: VOLATILES** — Analyst: KTM

| | | | | | |
|---|---|---|---|---|---|
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| Trichloroethene (TCE) | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| Trichlorofluoromethane | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | 1 | 2/9/2006 |
| Vinyl chloride | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| Xylenes, Total | ND | 1.0 | µg/L | 1 | 2/9/2006 |
| Surr: 1,2-Dichloroethane-d4 | 95.0 | 69.9-130 | %REC | 1 | 2/9/2006 |
| Surr: 4-Bromofluorobenzene | 107 | 71.2-123 | %REC | 1 | 2/9/2006 |
| Surr: Dibromofluoromethane | 99.6 | 57.3-135 | %REC | 1 | 2/9/2006 |
| Surr: Toluene-d8 | 97.3 | 81.9-122 | %REC | 1 | 2/9/2006 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| S | Spike Recovery outside accepted recovery limits | | |

Hall Environmental Analysis Laboratory

Date: *17-Feb-06*

**CLIENT:** Giant Refining Co
**Work Order:** 0602041
**Project:** NMED Monthly Water Samples 1/31/2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015DRO_W**

Sample ID: MB-9709 | SampType: MBLK | TestCode: 8015DRO_W | Units: mg/L | Prep Date: 2/6/2006 | RunNo: 18170
Client ID: ZZZZZ | Batch ID: 9709 | TestNo: SW8015 | Analysis Date: 2/7/2006 | SeqNo: 447883

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 1.0 | | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 5.0 | | | | | | | | | |

Sample ID: LCS-9709 | SampType: LCS | TestCode: 8015DRO_W | Units: mg/L | Prep Date: 2/6/2006 | RunNo: 18170
Client ID: ZZZZZ | Batch ID: 9709 | TestNo: SW8015 | Analysis Date: 2/7/2006 | SeqNo: 447884

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 5.945 | 1.0 | 5 | 0 | 119 | 81.2 | 149 | | | | |

Sample ID: LCSD-9709 | SampType: LCSD | TestCode: 8015DRO_W | Units: mg/L | Prep Date: 2/6/2006 | RunNo: 18170
Client ID: ZZZZZ | Batch ID: 9709 | TestNo: SW8015 | Analysis Date: 2/7/2006 | SeqNo: 447885

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| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 5.781 | 1.0 | 5 | 0 | 116 | 81.2 | 149 | 5.945 | 2.80 | 23 | |

**Qualifiers:**
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602041
Project: NMED Monthly Water Samples 1/31/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 5ML RB | SampType: MBLK | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18169
Client ID: ZZZZZ | Batch ID: R18169 | TestNo: SW8015 | Analysis Date: 2/6/2006 | SeqNo: 447863

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 0.050 | | | | | | | | | |

Sample ID: 2.5UG GRO LCS | SampType: LCS | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18169
Client ID: ZZZZZ | Batch ID: R18169 | TestNo: SW8015 | Analysis Date: 2/6/2006 | SeqNo: 447864

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 0.4920 | 0.050 | 0.5 | 0 | 98.4 | 82.6 | 114 | | | | |

Sample ID: 2.5UG GRO LCSD | SampType: LCSD | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18169
Client ID: ZZZZZ | Batch ID: R18169 | TestNo: SW8015 | Analysis Date: 2/7/2006 | SeqNo: 447865

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 0.4860 | 0.050 | 0.5 | 0 | 97.2 | 82.6 | 114 | 0.492 | 1.23 | 8.39 | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602041
Project: NMED Monthly Water Samples 1/31/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8310_W

Sample ID: MB-9712 | SampType: MBLK | TestCode: 8310_W | Units: µg/L | Prep Date: 2/6/2006 | RunNo: 18291
Client ID: ZZZZZ | Batch ID: 9712 | TestNo: SW8310 | (SW3510C) | Analysis Date: 2/13/2006 | SeqNo: 450970

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | ND | 2.5 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| Acenaphthylene | ND | 2.5 | | | | | | | | | |
| Acenaphthene | ND | 2.5 | | | | | | | | | |
| Fluorene | ND | 0.80 | | | | | | | | | |
| Phenanthrene | ND | 0.60 | | | | | | | | | |
| Anthracene | ND | 0.60 | | | | | | | | | |
| Fluoranthene | ND | 0.30 | | | | | | | | | |
| Pyrene | ND | 0.30 | | | | | | | | | |
| Benz(a)anthracene | ND | 0.020 | | | | | | | | | |
| Chrysene | ND | 0.20 | | | | | | | | | |
| Benzo(b)fluoranthene | ND | 0.050 | | | | | | | | | |
| Benzo(k)fluoranthene | ND | 0.020 | | | | | | | | | |
| Benzo(a)pyrene | ND | 0.020 | | | | | | | | | |
| Dibenz(a,h)anthracene | ND | 0.040 | | | | | | | | | |
| Benzo(g,h,i)perylene | ND | 0.030 | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | | | | | | | | |

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Sample ID: LCS-9712 | SampType: LCS | TestCode: 8310_W | Units: µg/L | Prep Date: 2/6/2006 | RunNo: 18291
Client ID: ZZZZZ | Batch ID: 9712 | TestNo: SW8310 | (SW3510C) | Analysis Date: 2/13/2006 | SeqNo: 450973

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 23.55 | 2.5 | 40 | 0 | 58.9 | 34.8 | 97.4 | | | | |
| 1-Methylnaphthalene | 23.19 | 2.5 | 40.1 | 0 | 57.8 | 34.7 | 100 | | | | |
| 2-Methylnaphthalene | 22.54 | 2.5 | 40 | 0 | 56.4 | 35 | 98.1 | | | | |
| Acenaphthylene | 25.07 | 2.5 | 40.1 | 0 | 62.5 | 48.3 | 95.1 | | | | |
| Acenaphthene | 24.30 | 2.5 | 40 | 0 | 60.8 | 45 | 95 | | | | |
| Fluorene | 2.460 | 0.80 | 4.01 | 0 | 61.3 | 46.8 | 93.4 | | | | |
| Phenanthrene | 1.290 | 0.60 | 2.01 | 0 | 64.2 | 48.7 | 104 | | | | |

Qualifiers:
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602041
Project: NMED Monthly Water Samples 1/31/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8310_W

Sample ID: LCS-9712 | SampType: LCS | TestCode: 8310_W | Units: µg/L | Prep Date: 2/6/2006 | RunNo: 18291
Client ID: ZZZZZ | Batch ID: 9712 | TestNo: SW8310 | (SW3510C) | Analysis Date: 2/13/2006 | SeqNo: 450973

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Anthracene | 1.330 | 0.60 | 2.01 | 0 | 66.2 | 47.5 | 102 | | | | |
| Fluoranthene | 2.730 | 0.30 | 4.01 | 0 | 68.1 | 46.3 | 108 | | | | |
| Pyrene | 2.700 | 0.30 | 4.01 | 0 | 67.3 | 43.8 | 109 | | | | |
| Benz(a)anthracene | 0.2800 | 0.020 | 0.401 | 0 | 69.8 | 40.3 | 115 | | | | |
| Chrysene | 1.350 | 0.20 | 2.01 | 0 | 67.2 | 42.6 | 107 | | | | |
| Benzo(b)fluoranthene | 0.3300 | 0.050 | 0.501 | 0 | 65.9 | 48.6 | 107 | | | | |
| Benzo(k)fluoranthene | 0.1700 | 0.020 | 0.25 | 0 | 68.0 | 23.3 | 136 | | | | |
| Benzo(a)pyrene | 0.1800 | 0.020 | 0.251 | 0 | 71.7 | 33.4 | 117 | | | | |
| Dibenz(a,h)anthracene | 0.3300 | 0.040 | 0.501 | 0 | 65.9 | 27.3 | 139 | | | | |
| Benzo(g,h,i)perylene | 0.3600 | 0.030 | 0.5 | 0 | 72.0 | 38.2 | 117 | | | | |
| Indeno(1,2,3-cd)pyrene | 0.7650 | 0.080 | 1.002 | 0 | 76.3 | 39.9 | 125 | | | | |



Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602041
Project: NMED Monthly Water Samples 1/31/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: HG_CTW

Sample ID: MB-9774 SampType: MBLK TestCode: HG_CTW Units: mg/L Prep Date: 2/15/2006 RunNo: 18273
Client ID: ZZZZZ Batch ID: 9774 TestNo: SW7470 (SW7470) Analysis Date: 2/15/2006 SeqNo: 450494

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | 0.00020 | | | | | | | | | |

Sample ID: LCS-9774 SampType: LCS TestCode: HG_CTW Units: mg/L Prep Date: 2/15/2006 RunNo: 18273
Client ID: ZZZZZ Batch ID: 9774 TestNo: SW7470 (SW7470) Analysis Date: 2/15/2006 SeqNo: 450495

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.004592 | 0.00020 | 0.005 | 0 | 91.8 | 80 | 120 | | | | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602041
Project: NMED Monthly Water Samples 1/31/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: MB-9729 | SampType: MBLK | TestCode: METALS_TO | Units: mg/L | Prep Date: 2/8/2006 | RunNo: 18204
Client ID: ZZZZZ | Batch ID: 9729 | TestNo: SW6010A | Analysis Date: 2/9/2006 | SeqNo: 448810

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.020 | | | | | | | | | |
| Barium | ND | 0.020 | | | | | | | | | |
| Cadmium | ND | 0.0020 | | | | | | | | | |
| Chromium | ND | 0.0060 | | | | | | | | | |
| Lead | ND | 0.0050 | | | | | | | | | |
| Selenium | ND | 0.050 | | | | | | | | | |
| Silver | ND | 0.0050 | | | | | | | | | |

Sample ID: LCS-9729 | SampType: LCS | TestCode: METALS_TO | Units: mg/L | Prep Date: 2/8/2006 | RunNo: 18204
Client ID: ZZZZZ | Batch ID: 9729 | TestNo: SW6010A | Analysis Date: 2/9/2006 | SeqNo: 448811

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.5173 | 0.020 | 0.5 | 0 | 103 | 80 | 120 | | | | |
| Barium | 0.4809 | 0.020 | 0.5 | 0.0004845 | 96.1 | 80 | 120 | | | | |
| Cadmium | 0.4939 | 0.0020 | 0.5 | 0 | 98.8 | 80 | 120 | | | | |
| Chromium | 0.4842 | 0.0060 | 0.5 | 0 | 96.8 | 80 | 120 | | | | |
| Lead | 0.4799 | 0.0050 | 0.5 | 0 | 96.0 | 80 | 120 | | | | |
| Selenium | 0.4987 | 0.050 | 0.5 | 0 | 99.7 | 80 | 120 | | | | |
| Silver | 0.5003 | 0.0050 | 0.5 | 0 | 100 | 80 | 120 | | | | |

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Sample ID: LCSD-9729 | SampType: LCSD | TestCode: METALS_TO | Units: mg/L | Prep Date: 2/8/2006 | RunNo: 18204
Client ID: ZZZZZ | Batch ID: 9729 | TestNo: SW6010A | Analysis Date: 2/9/2006 | SeqNo: 448812

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.5084 | 0.020 | 0.5 | 0 | 102 | 80 | 120 | 0.5173 | 1.73 | 20 | |
| Barium | 0.4860 | 0.020 | 0.5 | 0.0004845 | 97.1 | 80 | 120 | 0.4809 | 1.06 | 20 | |
| Cadmium | 0.4907 | 0.0020 | 0.5 | 0 | 98.1 | 80 | 120 | 0.4939 | 0.644 | 20 | |
| Chromium | 0.4889 | 0.0060 | 0.5 | 0 | 97.8 | 80 | 120 | 0.4842 | 0.986 | 20 | |
| Lead | 0.4790 | 0.0050 | 0.5 | 0 | 95.8 | 80 | 120 | 0.4799 | 0.178 | 20 | |
| Selenium | 0.4941 | 0.050 | 0.5 | 0 | 98.8 | 80 | 120 | 0.4987 | 0.928 | 20 | |

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602041
Project: NMED Monthly Water Samples 1/31/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: LCSD-9729 SampType: LCSD TestCode: METALS_TO Units: mg/L Prep Date: 2/8/2006 RunNo: 18204
Client ID: ZZZZZ Batch ID: 9729 TestNo: SW6010A Analysis Date: 2/9/2006 SeqNo: 448812

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Silver | 0.5066 | 0.0050 | 0.5 | 0 | 101 | 80 | 120 | 0.5003 | 1.26 | 20 | |

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory

Date: 17-Feb-06

CLIENT: Giant Refining Co
Work Order: 0602041
Project: NMED Monthly Water Samples 1/31/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_W

Sample ID: 5mL rb-b | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 18209
Client ID: ZZZZZ | Batch ID: R18209 | TestNo: SW8260B | Analysis Date: 2/9/2006 | SeqNo: 448981

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | | | | | | | | | |
| Toluene | ND | 1.0 | | | | | | | | | |
| Ethylbenzene | ND | 1.0 | | | | | | | | | |
| Methyl tert-butyl ether (MTBE) | ND | 1.0 | | | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 1.0 | | | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 1.0 | | | | | | | | | |
| 1,2-Dichloroethane (EDC) | ND | 1.0 | | | | | | | | | |
| 1,2-Dibromoethane (EDB) | ND | 1.0 | | | | | | | | | |
| Naphthalene | ND | 2.0 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 4.0 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 4.0 | | | | | | | | | |
| Acetone | ND | 10 | | | | | | | | | |
| Bromobenzene | ND | 1.0 | | | | | | | | | |
| Bromochloromethane | ND | 1.0 | | | | | | | | | |
| Bromodichloromethane | ND | 1.0 | | | | | | | | | |
| Bromoform | ND | 1.0 | | | | | | | | | |
| Bromomethane | ND | 2.0 | | | | | | | | | |
| 2-Butanone | ND | 10 | | | | | | | | | |
| Carbon disulfide | ND | 10 | | | | | | | | | |
| Carbon Tetrachloride | ND | 2.0 | | | | | | | | | |
| Chlorobenzene | ND | 1.0 | | | | | | | | | |
| Chloroethane | ND | 2.0 | | | | | | | | | |
| Chloroform | ND | 1.0 | | | | | | | | | |
| Chloromethane | ND | 1.0 | | | | | | | | | |
| 2-Chlorotoluene | ND | 1.0 | | | | | | | | | |
| 4-Chlorotoluene | ND | 1.0 | | | | | | | | | |
| cis-1,2-DCE | ND | 1.0 | | | | | | | | | |
| cis-1,3-Dichloropropene | ND | 1.0 | | | | | | | | | |
| 1,2-Dibromo-3-chloropropane | ND | 2.0 | | | | | | | | | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602041
Project: NMED Monthly Water Samples 1/31/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_W

Sample ID: 5mL rb-b SampType: MBLK TestCode: 8260_W Units: µg/L Prep Date: RunNo: 18209
Client ID: ZZZZZ Batch ID: R18209 TestNo: SW8260B Analysis Date: 2/9/2006 SeqNo: 448981

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dibromochloromethane | ND | 1.0 | | | | | | | | | |
| Dibromomethane | ND | 2.0 | | | | | | | | | |
| 1,2-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,3-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,4-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| Dichlorodifluoromethane | ND | 1.0 | | | | | | | | | |
| 1,1-Dichloroethane | ND | 2.0 | | | | | | | | | |
| 1,1-Dichloroethene | ND | 1.0 | | | | | | | | | |
| 1,2-Dichloropropane | ND | 1.0 | | | | | | | | | |
| 1,3-Dichloropropane | ND | 1.0 | | | | | | | | | |
| 2,2-Dichloropropane | ND | 2.0 | | | | | | | | | |
| 1,1-Dichloropropene | ND | 1.0 | | | | | | | | | |
| Hexachlorobutadiene | ND | 2.0 | | | | | | | | | |
| 2-Hexanone | ND | 10 | | | | | | | | | |
| Isopropylbenzene | ND | 1.0 | | | | | | | | | |
| 4-Isopropyltoluene | ND | 1.0 | | | | | | | | | |
| 4-Methyl-2-pentanone | ND | 10 | | | | | | | | | |
| Methylene Chloride | ND | 3.0 | | | | | | | | | |
| n-Butylbenzene | ND | 1.0 | | | | | | | | | |
| n-Propylbenzene | ND | 1.0 | | | | | | | | | |
| sec-Butylbenzene | ND | 1.0 | | | | | | | | | |
| Styrene | ND | 1.0 | | | | | | | | | |
| tert-Butylbenzene | ND | 1.0 | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | 1.0 | | | | | | | | | |
| Tetrachloroethene (PCE) | ND | 1.0 | | | | | | | | | |
| trans-1,2-DCE | ND | 1.0 | | | | | | | | | |
| trans-1,3-Dichloropropene | ND | 1.0 | | | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,1,1-Trichloroethane | ND | 1.0 | | | | | | | | | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602041
Project: NMED Monthly Water Samples 1/31/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_W

Sample ID: 5mL rb-b | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 18209
Client ID: ZZZZZ | Batch ID: R18209 | TestNo: SW8260B | Analysis Date: 2/9/2006 | SeqNo: 448981

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,2-Trichloroethane | ND | 1.0 | | | | | | | | | |
| Trichloroethene (TCE) | ND | 1.0 | | | | | | | | | |
| Trichlorofluoromethane | ND | 1.0 | | | | | | | | | |
| 1,2,3-Trichloropropane | ND | 2.0 | | | | | | | | | |
| Vinyl chloride | ND | 1.0 | | | | | | | | | |
| Xylenes, Total | ND | 1.0 | | | | | | | | | |

Sample ID: 100ng lcs | SampType: LCS | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 18209
Client ID: ZZZZZ | Batch ID: R18209 | TestNo: SW8260B | Analysis Date: 2/9/2006 | SeqNo: 448982

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 22.54 | 1.0 | 20 | 0 | 113 | 79.3 | 136 | | | | |
| Toluene | 20.83 | 1.0 | 20 | 0 | 104 | 65.5 | 123 | | | | |
| Chlorobenzene | 21.50 | 1.0 | 20 | 0 | 108 | 80.3 | 134 | | | | |
| 1,1-Dichloroethene | 22.89 | 1.0 | 20 | 0 | 114 | 65.5 | 134 | | | | |
| Trichloroethene (TCE) | 21.51 | 1.0 | 20 | 0 | 108 | 85.6 | 119 | | | | |

22/23

Sample ID: 100ng lcsd | SampType: LCSD | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 18209
Client ID: ZZZZZ | Batch ID: R18209 | TestNo: SW8260B | Analysis Date: 2/9/2006 | SeqNo: 448983

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 21.29 | 1.0 | 20 | 0 | 106 | 81.4 | 130 | 22.54 | 5.68 | 11 | |
| Toluene | 21.23 | 1.0 | 20 | 0 | 106 | 65.5 | 123 | 20.83 | 1.89 | 12.2 | |
| Chlorobenzene | 21.02 | 1.0 | 20 | 0 | 105 | 80.3 | 134 | 21.5 | 2.26 | 12 | |
| 1,1-Dichloroethene | 21.18 | 1.0 | 20 | 0 | 106 | 65.5 | 134 | 22.89 | 7.76 | 19.3 | |
| Trichloroethene (TCE) | 20.76 | 1.0 | 20 | 0 | 104 | 75.8 | 110 | 21.51 | 3.57 | 15.5 | |

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name GIANTREFIN — Date and Time Received: 2/3/2006

Work Order Number 0602041 — Received by LMM

Checklist completed by [signature] (Signature) 2/3/06 (Date)

Matrix — Carrier name UPS

| | | | | |
|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ | Not Shipped ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☑ | N/A ☐ | |
| Chain of custody present? | Yes ☑ | No ☐ | | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☑ | No ☐ | | |
| Water - VOA vials have zero headspace? | No VOA vials submitted ☐ | Yes ☑ | No ☐ | |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | N/A ☐ | |

Container/Temp Blank temperature? 3° — *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted — Date contacted: — Person contacted

Contacted by: — Regarding

Comments:

Corrective Action

# CHAIN-OF-CUSTODY RECORD

Client: Giant Refining Company - Ciniza

Address: Route 3 Box 7
Gallup, NM 87301

Phone #: 505-722-3833

Fax #: 505-722-0210

QA / QC Package:
Std ☐ Level 4 ☐
Other:

Project Name: NMED Monthly Water Samples 1-31-2006

Project #:

Project Manager: [illegible signature]

Sampler: [illegible signature]

Sample Temperature: 3°


**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com


## ANALYSIS REQUEST

| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative $HgCl_2$ | Preservative $HNO_3$ | | HEAL No. 0602041 | BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 8310 (PNA or PAH) | RCRA 8 Metals Total | Anions (F, Cl, $NO_3$, $NO_2$, $PO_4$, $SO_4$) | 8081 Pesticides / PCB's (8082) | 8260B (VOA) | 8270 (Semi-VOA) | | | | | Air Bubbles or Headspace (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-31-06 | 1130 | $H_2O$ | AL-2 to EP-1 | | | | | -1 | | | X | | | | | X | | | X | | | | | | |
| " | 1100 | " | OAPIS | | | | | -2 | | | X | | | | X | X | | | X | | | | | | |
| " | 1300 | " | NAPIS | | | | | -3 | | | X | | | | | | | | X | | | | | | |
| " | 1400 | " | Pilot TC | | | | | -4 | | | X | | | | | X | | | X | | | | | | |

| Date | Time | Relinquished By: (Signature) | Received By: (Signature) |
|---|---|---|---|
| 2-2-06 | 0900 | [illegible signature] | [illegible signature] 2/3/06 1201 |
| | | | |

Remarks: Rush

HALL ENVIRONMENTAL ANALYSIS LABORATORY

# COVER LETTER

Wednesday, March 01, 2006

Steve Morris
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301

TEL: (505) 722-3833
FAX (505) 722-0210

RE: OAPIS Effluent Week of 2-10-2006

Order No.: 0602104

Dear Steve Morris:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/10/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

nelac

## Hall Environmental Analysis Laboratory

**Date:** *01-Mar-06*

**CLIENT:** Giant Refining Co
**Project:** OAPIS Effluent Week of 2-10-2006
**Lab Order:** 0602104

## CASE NARRATIVE

EPA Method 8310: The LCSD has RPD data that is slightly outside of the standard limits. All percent recoveries were within acceptable limits.

# Hall Environmental Analysis Laboratory

**Date:** *01-Mar-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | OAPIS |
| **Lab Order:** | 0602104 | **Collection Date:** | 2/9/2006 8:00:00 AM |
| **Project:** | OAPIS Effluent Week of 2-10-2006 | **Date Received:** | 2/10/2006 |
| **Lab ID:** | 0602104-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | 5.5 | 1.0 | | mg/L | 1 | 2/16/2006 12:01:10 AM |
| Motor Oil Range Organics (MRO) | ND | 5.0 | | mg/L | 1 | 2/16/2006 12:01:10 AM |
| Surr: DNOP | 124 | 58-140 | | %REC | 1 | 2/16/2006 12:01:10 AM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | 4.1 | 1.0 | | mg/L | 20 | 2/11/2006 3:54:35 AM |
| Surr: BFB | 105 | 79.7-118 | | %REC | 20 | 2/11/2006 3:54:35 AM |
| **EPA METHOD 8310: PAHS** | | | | | | Analyst: JMP |
| Naphthalene | 230 | 25 | | µg/L | 10 | 2/24/2006 12:53:42 PM |
| 1-Methylnaphthalene | ND | 2.5 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| 2-Methylnaphthalene | 4.2 | 2.5 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Acenaphthylene | ND | 2.5 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Acenaphthene | ND | 2.5 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Fluorene | ND | 0.80 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Phenanthrene | 2.2 | 0.60 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Anthracene | ND | 0.60 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Fluoranthene | 0.35 | 0.30 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Pyrene | 0.75 | 0.30 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Benz(a)anthracene | 0.060 | 0.020 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Chrysene | 0.23 | 0.20 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Benzo(b)fluoranthene | ND | 0.050 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Benzo(k)fluoranthene | 0.020 | 0.020 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Benzo(a)pyrene | ND | 0.020 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Dibenz(a,h)anthracene | 0.040 | 0.040 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Benzo(g,h,i)perylene | ND | 0.030 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | µg/L | 1 | 2/23/2006 11:18:00 PM |
| Surr: Benzo(e)pyrene | 69.4 | 54-102 | | %REC | 1 | 2/23/2006 11:18:00 PM |
| **EPA METHOD 7470: MERCURY** | | | | | | Analyst: CMC |
| Mercury | ND | 0.00020 | | mg/L | 1 | 2/15/2006 |
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: NMO |
| Arsenic | ND | 0.020 | | mg/L | 1 | 2/17/2006 10:19:42 AM |
| Barium | 0.22 | 0.020 | | mg/L | 1 | 2/17/2006 10:19:42 AM |
| Cadmium | ND | 0.0020 | | mg/L | 1 | 2/17/2006 10:19:42 AM |
| Chromium | 0.0090 | 0.0060 | | mg/L | 1 | 2/17/2006 10:19:42 AM |
| Lead | ND | 0.0050 | | mg/L | 1 | 2/17/2006 10:19:42 AM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| S | Spike Recovery outside accepted recovery limits | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | OAPIS |
| **Lab Order:** | 0602104 | **Collection Date:** | 2/9/2006 8:00:00 AM |
| **Project:** | OAPIS Effluent Week of 2-10-2006 | **Date Received:** | 2/10/2006 |
| **Lab ID:** | 0602104-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: NMO |
| Selenium | ND | 0.050 | | mg/L | 1 | 2/17/2006 10:19:42 AM |
| Silver | ND | 0.0050 | | mg/L | 1 | 2/17/2006 10:19:42 AM |
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: KTM |
| Benzene | 340 | 50 | | µg/L | 50 | 2/19/2006 |
| Toluene | 610 | 50 | | µg/L | 50 | 2/19/2006 |
| Ethylbenzene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Methyl tert-butyl ether (MTBE) | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,2,4-Trimethylbenzene | 95 | 50 | | µg/L | 50 | 2/19/2006 |
| 1,3,5-Trimethylbenzene | 60 | 50 | | µg/L | 50 | 2/19/2006 |
| 1,2-Dichloroethane (EDC) | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,2-Dibromoethane (EDB) | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Naphthalene | ND | 100 | | µg/L | 50 | 2/19/2006 |
| 1-Methylnaphthalene | ND | 200 | | µg/L | 50 | 2/19/2006 |
| 2-Methylnaphthalene | ND | 200 | | µg/L | 50 | 2/19/2006 |
| Acetone | ND | 500 | | µg/L | 50 | 2/19/2006 |
| Bromobenzene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Bromochloromethane | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Bromodichloromethane | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Bromoform | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Bromomethane | ND | 100 | | µg/L | 50 | 2/19/2006 |
| 2-Butanone | ND | 500 | | µg/L | 50 | 2/19/2006 |
| Carbon disulfide | ND | 500 | | µg/L | 50 | 2/19/2006 |
| Carbon Tetrachloride | ND | 100 | | µg/L | 50 | 2/19/2006 |
| Chlorobenzene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Chloroethane | ND | 100 | | µg/L | 50 | 2/19/2006 |
| Chloroform | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Chloromethane | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 2-Chlorotoluene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 4-Chlorotoluene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| cis-1,2-DCE | ND | 50 | | µg/L | 50 | 2/19/2006 |
| cis-1,3-Dichloropropene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,2-Dibromo-3-chloropropane | ND | 100 | | µg/L | 50 | 2/19/2006 |
| Dibromochloromethane | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Dibromomethane | ND | 100 | | µg/L | 50 | 2/19/2006 |
| 1,2-Dichlorobenzene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,3-Dichlorobenzene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,4-Dichlorobenzene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Dichlorodifluoromethane | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,1-Dichloroethane | ND | 100 | | µg/L | 50 | 2/19/2006 |

**Qualifiers:**

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

**Date:** *01-Mar-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | OAPIS |
| **Lab Order:** | 0602104 | **Collection Date:** | 2/9/2006 8:00:00 AM |
| **Project:** | OAPIS Effluent Week of 2-10-2006 | **Date Received:** | 2/10/2006 |
| **Lab ID:** | 0602104-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: KTM |
| 1,1-Dichloroethene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,2-Dichloropropane | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,3-Dichloropropane | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 2,2-Dichloropropane | ND | 100 | | µg/L | 50 | 2/19/2006 |
| 1,1-Dichloropropene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Hexachlorobutadiene | ND | 100 | | µg/L | 50 | 2/19/2006 |
| 2-Hexanone | ND | 500 | | µg/L | 50 | 2/19/2006 |
| Isopropylbenzene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 4-Isopropyltoluene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 4-Methyl-2-pentanone | ND | 500 | | µg/L | 50 | 2/19/2006 |
| Methylene Chloride | ND | 150 | | µg/L | 50 | 2/19/2006 |
| n-Butylbenzene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| n-Propylbenzene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| sec-Butylbenzene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Styrene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| tert-Butylbenzene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,1,1,2-Tetrachloroethane | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,1,2,2-Tetrachloroethane | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Tetrachloroethene (PCE) | ND | 50 | | µg/L | 50 | 2/19/2006 |
| trans-1,2-DCE | ND | 50 | | µg/L | 50 | 2/19/2006 |
| trans-1,3-Dichloropropene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,2,3-Trichlorobenzene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,2,4-Trichlorobenzene | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,1,1-Trichloroethane | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,1,2-Trichloroethane | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Trichloroethene (TCE) | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Trichlorofluoromethane | ND | 50 | | µg/L | 50 | 2/19/2006 |
| 1,2,3-Trichloropropane | ND | 100 | | µg/L | 50 | 2/19/2006 |
| Vinyl chloride | ND | 50 | | µg/L | 50 | 2/19/2006 |
| Xylenes, Total | 810 | 50 | | µg/L | 50 | 2/19/2006 |
| Surr: 1,2-Dichloroethane-d4 | 96.6 | 69.9-130 | | %REC | 50 | 2/19/2006 |
| Surr: 4-Bromofluorobenzene | 104 | 71.2-123 | | %REC | 50 | 2/19/2006 |
| Surr: Dibromofluoromethane | 96.1 | 57.3-135 | | %REC | 50 | 2/19/2006 |
| Surr: Toluene-d8 | 103 | 81.9-122 | | %REC | 50 | 2/19/2006 |

**Qualifiers:**

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Hall Environmental Analysis Laboratory

Date: *01-Mar-06*

**CLIENT:** Giant Refining Co
**Work Order:** 0602104
**Project:** OAPIS Effluent Week of 2-10-2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015DRO_W**

Sample ID: MB-9756 | SampType: MBLK | TestCode: 8015DRO_W | Units: mg/L | Prep Date: 2/13/2006 | RunNo: 18235
Client ID: ZZZZZ | Batch ID: 9756 | TestNo: SW8015 | Analysis Date: 2/15/2006 | SeqNo: 450713

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 1.0 | | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 5.0 | | | | | | | | | |

Sample ID: LCS-9756 | SampType: LCS | TestCode: 8015DRO_W | Units: mg/L | Prep Date: 2/13/2006 | RunNo: 18235
Client ID: ZZZZZ | Batch ID: 9756 | TestNo: SW8015 | Analysis Date: 2/15/2006 | SeqNo: 450714

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 5.134 | 1.0 | 5 | 0 | 103 | 81.2 | 149 | | | | |

Sample ID: LCSD-9756 | SampType: LCSD | TestCode: 8015DRO_W | Units: mg/L | Prep Date: 2/13/2006 | RunNo: 18235
Client ID: ZZZZZ | Batch ID: 9756 | TestNo: SW8015 | Analysis Date: 2/15/2006 | SeqNo: 450715

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| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 4.902 | 1.0 | 5 | 0 | 98.0 | 81.2 | 149 | 5.134 | 4.63 | 23 | |

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602104
Project: OAPIS Effluent Week of 2-10-2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 5ML RB | SampType: MBLK | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18225
Client ID: ZZZZZ | Batch ID: R18225 | TestNo: SW8015 | Analysis Date: 2/10/2006 | SeqNo: 449272

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 0.050 | | | | | | | | | |

Sample ID: 2.5UG GRO LCS | SampType: LCS | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18225
Client ID: ZZZZZ | Batch ID: R18225 | TestNo: SW8015 | Analysis Date: 2/10/2006 | SeqNo: 449273

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 0.5140 | 0.050 | 0.5 | 0 | 103 | 82.6 | 114 | | | | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602104
Project: OAPIS Effluent Week of 2-10-2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8310_W

Sample ID: MB-9801 | SampType: MBLK | TestCode: 8310_W | Units: µg/L | Prep Date: 2/17/2006 | RunNo: 18380
Client ID: ZZZZZ | Batch ID: 9801 | TestNo: SW8310 | (SW3510C) | Analysis Date: 2/23/2006 | SeqNo: 453446

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | ND | 2.5 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| Acenaphthylene | ND | 2.5 | | | | | | | | | |
| Acenaphthene | ND | 2.5 | | | | | | | | | |
| Fluorene | ND | 0.80 | | | | | | | | | |
| Phenanthrene | ND | 0.60 | | | | | | | | | |
| Anthracene | ND | 0.60 | | | | | | | | | |
| Fluoranthene | ND | 0.30 | | | | | | | | | |
| Pyrene | ND | 0.30 | | | | | | | | | |
| Benz(a)anthracene | ND | 0.020 | | | | | | | | | |
| Chrysene | ND | 0.20 | | | | | | | | | |
| Benzo(b)fluoranthene | ND | 0.050 | | | | | | | | | |
| Benzo(k)fluoranthene | ND | 0.020 | | | | | | | | | |
| Benzo(a)pyrene | ND | 0.020 | | | | | | | | | |
| Dibenz(a,h)anthracene | ND | 0.040 | | | | | | | | | |
| Benzo(g,h,i)perylene | ND | 0.030 | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | | | | | | | | |

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Sample ID: MB-9785 | SampType: MBLK | TestCode: 8310_W | Units: µg/L | Prep Date: 2/15/2006 | RunNo: 18380
Client ID: ZZZZZ | Batch ID: 9785 | TestNo: SW8310 | (SW3510C) | Analysis Date: 2/23/2006 | SeqNo: 453453

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | ND | 2.5 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| Acenaphthylene | ND | 2.5 | | | | | | | | | |
| Acenaphthene | ND | 2.5 | | | | | | | | | |
| Fluorene | ND | 0.80 | | | | | | | | | |
| Phenanthrene | ND | 0.60 | | | | | | | | | |

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

**CLIENT:** Giant Refining Co
**Work Order:** 0602104
**Project:** OAPIS Effluent Week of 2-10-2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8310_W**

Sample ID: MB-9785 | SampType: MBLK | TestCode: 8310_W | Units: µg/L | Prep Date: 2/15/2006 | RunNo: 18380
Client ID: ZZZZZ | Batch ID: 9785 | TestNo: SW8310 | (SW3510C) | Analysis Date: 2/23/2006 | SeqNo: 453453

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Anthracene | ND | 0.60 | | | | | | | | | |
| Fluoranthene | ND | 0.30 | | | | | | | | | |
| Pyrene | ND | 0.30 | | | | | | | | | |
| Benz(a)anthracene | ND | 0.020 | | | | | | | | | |
| Chrysene | ND | 0.20 | | | | | | | | | |
| Benzo(b)fluoranthene | ND | 0.050 | | | | | | | | | |
| Benzo(k)fluoranthene | ND | 0.020 | | | | | | | | | |
| Benzo(a)pyrene | ND | 0.020 | | | | | | | | | |
| Dibenz(a,h)anthracene | ND | 0.040 | | | | | | | | | |
| Benzo(g,h,i)perylene | ND | 0.030 | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | | | | | | | | |

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Sample ID: LCS-9801 | SampType: LCS | TestCode: 8310_W | Units: µg/L | Prep Date: 2/17/2006 | RunNo: 18380
Client ID: ZZZZZ | Batch ID: 9801 | TestNo: SW8310 | (SW3510C) | Analysis Date: 2/23/2006 | SeqNo: 453447

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 22.76 | 2.5 | 40 | 0 | 56.9 | 34.8 | 97.4 | | | | |
| 1-Methylnaphthalene | 22.85 | 2.5 | 40.1 | 0 | 57.0 | 34.7 | 100 | | | | |
| 2-Methylnaphthalene | 22.32 | 2.5 | 40 | 0 | 55.8 | 35 | 98.1 | | | | |
| Acenaphthylene | 24.16 | 2.5 | 40.1 | 0 | 60.2 | 48.3 | 95.1 | | | | |
| Acenaphthene | 23.38 | 2.5 | 40 | 0 | 58.4 | 45 | 95 | | | | |
| Fluorene | 2.320 | 0.80 | 4.01 | 0 | 57.9 | 46.8 | 93.4 | | | | |
| Phenanthrene | 1.310 | 0.60 | 2.01 | 0 | 65.2 | 48.7 | 104 | | | | |
| Anthracene | 1.230 | 0.60 | 2.01 | 0 | 61.2 | 47.5 | 102 | | | | |
| Fluoranthene | 2.570 | 0.30 | 4.01 | 0 | 64.1 | 46.3 | 108 | | | | |
| Pyrene | 2.690 | 0.30 | 4.01 | 0 | 67.1 | 43.8 | 109 | | | | |
| Benz(a)anthracene | 0.2600 | 0.020 | 0.401 | 0 | 64.8 | 40.3 | 115 | | | | |
| Chrysene | 1.370 | 0.20 | 2.01 | 0 | 68.2 | 42.6 | 107 | | | | |
| Benzo(b)fluoranthene | 0.3100 | 0.050 | 0.501 | 0 | 61.9 | 48.6 | 107 | | | | |
| Benzo(k)fluoranthene | 0.1600 | 0.020 | 0.25 | 0 | 64.0 | 23.3 | 136 | | | | |

**Qualifiers:**
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

**CLIENT:** Giant Refining Co
**Work Order:** 0602104
**Project:** OAPIS Effluent Week of 2-10-2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8310_W**

Sample ID: LCS-9801 SampType: LCS TestCode: 8310_W Units: µg/L Prep Date: 2/17/2006 RunNo: 18380
Client ID: ZZZZZ Batch ID: 9801 TestNo: SW8310 (SW3510C) Analysis Date: 2/23/2006 SeqNo: 453447

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzo(a)pyrene | 0.1700 | 0.020 | 0.251 | 0 | 67.7 | 33.4 | 117 | | | | |
| Dibenz(a,h)anthracene | 0.3400 | 0.040 | 0.501 | 0 | 67.9 | 27.3 | 139 | | | | |
| Benzo(g,h,i)perylene | 0.3600 | 0.030 | 0.5 | 0 | 72.0 | 38.2 | 117 | | | | |
| Indeno(1,2,3-cd)pyrene | 0.6520 | 0.080 | 1.002 | 0 | 65.1 | 39.9 | 125 | | | | |

Sample ID: LCS-9785 SampType: LCS TestCode: 8310_W Units: µg/L Prep Date: 2/15/2006 RunNo: 18380
Client ID: ZZZZZ Batch ID: 9785 TestNo: SW8310 (SW3510C) Analysis Date: 2/23/2006 SeqNo: 453454

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 24.25 | 2.5 | 40 | 0 | 60.6 | 34.8 | 97.4 | | | | |
| 1-Methylnaphthalene | 24.06 | 2.5 | 40.1 | 0 | 60.0 | 34.7 | 100 | | | | |
| ?-Methylnaphthalene | 23.56 | 2.5 | 40 | 0 | 58.9 | 35 | 98.1 | | | | |
| \cenaphthylene | 26.32 | 2.5 | 40.1 | 0 | 65.6 | 48.3 | 95.1 | | | | |
| \cenaphthene | 25.79 | 2.5 | 40 | 0 | 64.5 | 45 | 95 | | | | |
| Fluorene | 2.670 | 0.80 | 4.01 | 0 | 66.6 | 46.8 | 93.4 | | | | |
| Phenanthrene | 1.430 | 0.60 | 2.01 | 0 | 71.1 | 48.7 | 104 | | | | |
| Anthracene | 1.480 | 0.60 | 2.01 | 0 | 73.6 | 47.5 | 102 | | | | |
| Fluoranthene | 3.100 | 0.30 | 4.01 | 0 | 77.3 | 46.3 | 108 | | | | |
| Pyrene | 3.150 | 0.30 | 4.01 | 0 | 78.6 | 43.8 | 109 | | | | |
| Benz(a)anthracene | 0.3000 | 0.020 | 0.401 | 0 | 74.8 | 40.3 | 115 | | | | |
| Chrysene | 1.540 | 0.20 | 2.01 | 0 | 76.6 | 42.6 | 107 | | | | |
| Benzo(b)fluoranthene | 0.3900 | 0.050 | 0.501 | 0 | 77.8 | 46.6 | 107 | | | | |
| Benzo(k)fluoranthene | 0.1900 | 0.020 | 0.25 | 0 | 76.0 | 23.3 | 136 | | | | |
| Benzo(a)pyrene | 0.2000 | 0.020 | 0.251 | 0 | 79.7 | 33.4 | 117 | | | | |
| Dibenz(a,h)anthracene | 0.4000 | 0.040 | 0.501 | 0 | 79.8 | 27.3 | 139 | | | | |
| Benzo(g,h,i)perylene | 0.4200 | 0.030 | 0.5 | 0 | 84.0 | 38.2 | 117 | | | | |
| Indeno(1,2,3-cd)pyrene | 0.7800 | 0.080 | 1.002 | 0 | 77.8 | 39.9 | 125 | | | | |

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Qualifiers: E Value above quantitation range; ND Not Detected at the Reporting Limit; H Holding times for preparation or analysis exceeded; R RPD outside accepted recovery limits; J Analyte detected below quantitation limits; S Spike Recovery outside accepted recovery limits

**CLIENT:** Giant Refining Co
**Work Order:** 0602104
**Project:** OAPIS Effluent Week of 2-10-2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode:** 8310_W

Sample ID: LCSD-9801 SampType: LCSD TestCode: 8310_W Units: µg/L Prep Date: 2/17/2006 RunNo: 18380
Client ID: ZZZZZ Batch ID: 9801 TestNo: SW8310 (SW3510C) Analysis Date: 2/23/2006 SeqNo: 453448

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 24.66 | 2.5 | 40 | 0 | 61.6 | 34.8 | 97.4 | 22.76 | 8.01 | 32.1 | |
| 1-Methylnaphthalene | 23.80 | 2.5 | 40.1 | 0 | 59.4 | 34.7 | 100 | 22.85 | 4.07 | 32.7 | |
| 2-Methylnaphthalene | 23.36 | 2.5 | 40 | 0 | 58.4 | 35 | 98.1 | 22.32 | 4.55 | 34 | |
| Acenaphthylene | 24.98 | 2.5 | 40.1 | 0 | 62.3 | 48.3 | 95.1 | 24.16 | 3.35 | 38.8 | |
| Acenaphthene | 24.39 | 2.5 | 40 | 0 | 61.0 | 45 | 95 | 23.38 | 4.23 | 38.6 | |
| Fluorene | 2.420 | 0.80 | 4.01 | 0 | 60.3 | 46.8 | 93.4 | 2.32 | 4.22 | 39.3 | |
| Phenanthrene | 1.270 | 0.60 | 2.01 | 0 | 63.2 | 48.7 | 104 | 1.31 | 3.10 | 25 | |
| Anthracene | 1.300 | 0.60 | 2.01 | 0 | 64.7 | 47.5 | 102 | 1.23 | 5.53 | 23.9 | |
| Fluoranthene | 2.720 | 0.30 | 4.01 | 0 | 67.8 | 46.3 | 108 | 2.57 | 5.67 | 15.7 | |
| Pyrene | 2.860 | 0.30 | 4.01 | 0 | 71.3 | 43.8 | 109 | 2.69 | 6.13 | 15.3 | |
| Benz(a)anthracene | 0.2800 | 0.020 | 0.401 | 0 | 69.8 | 40.3 | 115 | 0.26 | 7.41 | 119 | |
| Chrysene | 1.400 | 0.20 | 2.01 | 0 | 69.7 | 42.6 | 107 | 1.37 | 2.17 | 16.6 | |
| Benzo(b)fluoranthene | 0.3200 | 0.050 | 0.501 | 0 | 63.9 | 48.6 | 107 | 0.31 | 3.17 | 21.7 | |
| Benzo(k)fluoranthene | 0.1700 | 0.020 | 0.25 | 0 | 68.0 | 23.3 | 136 | 0.16 | 6.06 | 19.4 | |
| Benzo(a)pyrene | 0.1900 | 0.020 | 0.251 | 0 | 75.7 | 33.4 | 117 | 0.17 | 11.1 | 16.7 | |
| Dibenz(a,h)anthracene | 0.3500 | 0.040 | 0.501 | 0 | 69.9 | 27.3 | 139 | 0.34 | 2.90 | 17.3 | |
| Benzo(g,h,i)perylene | 0.3800 | 0.030 | 0.5 | 0 | 76.0 | 38.2 | 117 | 0.36 | 5.41 | 118 | |
| Indeno(1,2,3-cd)pyrene | 0.6920 | 0.080 | 1.002 | 0 | 69.1 | 39.9 | 125 | 0.652 | 5.95 | 17.7 | |

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Sample ID: LCSD-9785 SampType: LCSD TestCode: 8310_W Units: µg/L Prep Date: 2/15/2006 RunNo: 18380
Client ID: ZZZZZ Batch ID: 9785 TestNo: SW8310 (SW3510C) Analysis Date: 2/23/2006 SeqNo: 453455

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 16.55 | 2.5 | 40 | 0 | 41.4 | 34.8 | 97.4 | 24.25 | 37.7 | 32.1 | R |
| 1-Methylnaphthalene | 17.15 | 2.5 | 40.1 | 0 | 42.8 | 34.7 | 100 | 24.06 | 33.5 | 32.7 | R |
| 2-Methylnaphthalene | 16.72 | 2.5 | 40 | 0 | 41.8 | 35 | 98.1 | 23.56 | 34.0 | 34 | |
| Acenaphthylene | 20.10 | 2.5 | 40.1 | 0 | 50.1 | 48.3 | 95.1 | 26.32 | 26.8 | 38.8 | |
| Acenaphthene | 19.67 | 2.5 | 40 | 0 | 49.2 | 45 | 95 | 25.79 | 26.9 | 38.6 | |
| Fluorene | 2.100 | 0.80 | 4.01 | 0 | 52.4 | 46.8 | 93.4 | 2.67 | 23.9 | 39.3 | |
| Phenanthrene | 1.150 | 0.60 | 2.01 | 0 | 57.2 | 48.7 | 104 | 1.43 | 21.7 | 25 | |

**Qualifiers:**
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

**CLIENT:** Giant Refining Co
**Work Order:** 0602104
**Project:** OAPIS Effluent Week of 2-10-2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8310_W**

| Sample ID: LCSD-9785 | SampType: LCSD | TestCode: 8310_W | Units: µg/L | Prep Date: 2/15/2006 | RunNo: 18380 |
|---|---|---|---|---|---|
| Client ID: ZZZZZ | Batch ID: 9785 | TestNo: SW8310 | (SW3510C) | Analysis Date: 2/23/2006 | SeqNo: 453455 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Anthracene | 1.180 | 0.60 | 2.01 | 0 | 58.7 | 47.5 | 102 | 1.48 | 22.6 | 23.9 | |
| Fluoranthene | 2.620 | 0.30 | 4.01 | 0 | 65.3 | 46.3 | 108 | 3.1 | 16.8 | 15.7 | R |
| Pyrene | 2.590 | 0.30 | 4.01 | 0 | 64.6 | 43.8 | 109 | 3.15 | 19.5 | 15.3 | R |
| Benz(a)anthracene | 0.2400 | 0.020 | 0.401 | 0 | 59.9 | 40.3 | 115 | 0.3 | 22.2 | 119 | |
| Chrysene | 1.260 | 0.20 | 2.01 | 0 | 62.7 | 42.6 | 107 | 1.54 | 20.0 | 16.6 | R |
| Benzo(b)fluoranthene | 0.3100 | 0.050 | 0.501 | 0 | 61.9 | 48.6 | 107 | 0.39 | 22.9 | 21.7 | R |
| Benzo(k)fluoranthene | 0.1600 | 0.020 | 0.25 | 0 | 64.0 | 23.3 | 136 | 0.19 | 17.1 | 19.4 | |
| Benzo(a)pyrene | 0.1700 | 0.020 | 0.251 | 0 | 67.7 | 33.4 | 117 | 0.2 | 16.2 | 16.7 | |
| Dibenz(a,h)anthracene | 0.3300 | 0.040 | 0.501 | 0 | 65.9 | 27.3 | 139 | 0.4 | 19.2 | 17.3 | R |
| Benzo(g,h,i)perylene | 0.3500 | 0.030 | 0.5 | 0 | 70.0 | 38.2 | 117 | 0.42 | 18.2 | 118 | |
| Indeno(1,2,3-cd)pyrene | 0.6300 | 0.080 | 1.002 | 0 | 62.9 | 39.9 | 125 | 0.78 | 21.3 | 17.7 | R |



**Qualifiers:**
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

**CLIENT:** Giant Refining Co
**Work Order:** 0602104
**Project:** OAPIS Effluent Week of 2-10-2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode: HG_CTW**

Sample ID: MB-9774 SampType: MBLK TestCode: HG_CTW Units: mg/L Prep Date: 2/15/2006 RunNo: 18273
Client ID: ZZZZZ Batch ID: 9774 TestNo: SW7470 (SW7470) Analysis Date: 2/15/2006 SeqNo: 450494

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | 0.00020 | | | | | | | | | |

Sample ID: LCS-9774 SampType: LCS TestCode: HG_CTW Units: mg/L Prep Date: 2/15/2006 RunNo: 18273
Client ID: ZZZZZ Batch ID: 9774 TestNo: SW7470 (SW7470) Analysis Date: 2/15/2006 SeqNo: 450495

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.004592 | 0.00020 | 0.005 | 0 | 91.8 | 80 | 120 | | | | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602104
Project: OAPIS Effluent Week of 2-10-2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode: METALS_TOTAL**

Sample ID: MB-9790 | SampType: MBLK | TestCode: METALS_TO | Units: mg/L | Prep Date: 2/16/2006 | RunNo: 18305
Client ID: ZZZZZ | Batch ID: 9790 | TestNo: SW6010A | Analysis Date: 2/17/2006 | SeqNo: 451487

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.020 | | | | | | | | | |
| Barium | ND | 0.020 | | | | | | | | | |
| Cadmium | ND | 0.0020 | | | | | | | | | |
| Chromium | ND | 0.0060 | | | | | | | | | |
| Lead | ND | 0.0050 | | | | | | | | | |
| Selenium | ND | 0.050 | | | | | | | | | |
| Silver | ND | 0.0050 | | | | | | | | | |

Sample ID: LCS-9790 | SampType: LCS | TestCode: METALS_TO | Units: mg/L | Prep Date: 2/16/2006 | RunNo: 18305
Client ID: ZZZZZ | Batch ID: 9790 | TestNo: SW6010A | Analysis Date: 2/17/2006 | SeqNo: 451488

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| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.5078 | 0.020 | 0.5 | 0 | 102 | 80 | 120 | | | | |
| Barium | 0.4677 | 0.020 | 0.5 | 0 | 93.5 | 80 | 120 | | | | |
| Cadmium | 0.4914 | 0.0020 | 0.5 | 0 | 98.3 | 80 | 120 | | | | |
| Chromium | 0.4802 | 0.0060 | 0.5 | 0 | 96.0 | 80 | 120 | | | | |
| Lead | 0.4686 | 0.0050 | 0.5 | 0 | 93.7 | 80 | 120 | | | | |
| Selenium | 0.4994 | 0.050 | 0.5 | 0 | 99.9 | 80 | 120 | | | | |
| Silver | 0.4998 | 0.0050 | 0.5 | 0.001836 | 99.6 | 80 | 120 | | | | |

Sample ID: LCSD-9790 | SampType: LCSD | TestCode: METALS_TO | Units: mg/L | Prep Date: 2/16/2006 | RunNo: 18305
Client ID: ZZZZZ | Batch ID: 9790 | TestNo: SW6010A | Analysis Date: 2/17/2006 | SeqNo: 451489

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.5035 | 0.020 | 0.5 | 0 | 101 | 80 | 120 | 0.5078 | 0.848 | 20 | |
| Barium | 0.4740 | 0.020 | 0.5 | 0 | 94.8 | 80 | 120 | 0.4677 | 1.34 | 20 | |
| Cadmium | 0.4902 | 0.0020 | 0.5 | 0 | 98.0 | 80 | 120 | 0.4914 | 0.239 | 20 | |
| Chromium | 0.4776 | 0.0060 | 0.5 | 0 | 95.5 | 80 | 120 | 0.4802 | 0.533 | 20 | |
| Lead | 0.4659 | 0.0050 | 0.5 | 0 | 93.2 | 80 | 120 | 0.4686 | 0.589 | 20 | |
| Selenium | 0.5076 | 0.050 | 0.5 | 0 | 102 | 80 | 120 | 0.4994 | 1.63 | 20 | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0602104
Project: OAPIS Effluent Week of 2-10-2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: LCSD-9790 | SampType: LCSD | TestCode: METALS_TO | Units: mg/L | Prep Date: 2/16/2006 | RunNo: 18305
Client ID: ZZZZZ | Batch ID: 9790 | TestNo: SW6010A | Analysis Date: 2/17/2006 | SeqNo: 451489

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Silver | 0.5082 | 0.0050 | 0.5 | 0.001836 | 101 | 80 | 120 | 0.4998 | 1.66 | 20 | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory

## Sample Receipt Checklist

Client Name GIANTREFIN Date and Time Received: 2/10/2006

Work Order Number 0602104 Received by LMM

Checklist completed by [signature] 2/10/06
Signature Date

Matrix Carrier name UPS

| | | | | |
|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ | Not Shipped ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☑ | N/A ☐ | |
| Chain of custody present? | Yes ☑ | No ☐ | | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☑ | No ☐ | | |
| Water - VOA vials have zero headspace? | No VOA vials submitted ☐ | Yes ☑ | No ☐ | |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | N/A ☐ | |

Container/Temp Blank temperature? 3° *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

---

Client contacted ______ Date contacted: ______ Person contacted ______

Contacted by: ______ Regarding ______

Comments: ______

Corrective Action ______

# CHAIN-OF-CUSTODY RECORD

Client: Giant Refining Company - Ciniza

Address: Route 3 Box 7
Gallup 87301

Phone #: 505 722 3833

Fax #: 505 722 0210

QA / QC Package:
Std ☐ Level 4 ☐
Other:

Project Name: OAPIS Effluent Week of 2-10-2006

Project #:

Project Manager: Steve Morris

Sampler: Steve Morris

Sample Temperature: 3°

**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

## ANALYSIS REQUEST

| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative $HgCl_2$ | Preservative $HNO_3$ | Preservative | HEAL No. 0602104 | BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 8310 (~~PNA~~ or PAH) | RCRA 8 Metals Total | Anions (F, Cl, $NO_3$, $NO_2$, $PO_4$, $SO_4$) | 8081 Pesticides / PCB's (8082) | 8260B (VOA) | 8270 (Semi-VOA) | | | | | Air Bubbles or Headspace (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/9/06 | 0800 | $H_2O$ | OAPIS | | | | | -1 | | | X | | | | X | X | | | X | | | | | | |

| Date: 2/9/06 | Time: 0900 | Relinquished By: (Signature) Steve Morris | Received By: (Signature) [signature] 2/10/06 1147 |
|---|---|---|---|
| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |

Remarks: Rush

**Chavez, Carl J, EMNRD**

**From:** Chavez, Carl J, EMNRD

**Sent:** Tuesday, February 28, 2006 1:01 PM

**To:** Monzeglio, Hope, NMENV; Foust, Denny, EMNRD; Price, Wayne, EMNRD

**Subject:** FW: 2/25/06 spill

FYI.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/
(Pollution Prevention Guidance is under "Publications")

---

**From:** Jim Lieb [mailto:jlieb@giant.com]
**Sent:** Tuesday, February 28, 2006 12:12 PM
**To:** Chavez, Carl J, EMNRD
**Subject:** RE: 2/25/06 spill

Carl:

I did some further checking here. The spilled material is not crude oil but is slop oil from the desalter unit. I thought it was crude because Steve M. had it written down as crude in his report. The desalter is designed to be hard piped to the sewer system. The slop oil from the desalter is blown down periodically into the sewer system otherwise the desalter would malfunction. The slop oil is then skimmed off at the API and sent back into the refinery process.

I revised the form and am having it signed and will email it to you all.

Jim

---

**From:** Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
**Sent:** Tuesday, February 28, 2006 8:54 AM
**To:** Jim Lieb
**Cc:** Monzeglio, Hope, NMENV
**Subject:** RE: 2/25/06 spill

Jim:

Ok. Yes, 5% will work and Hope Monzeglio thinks it is ok to use 5%. Please make sure the volumes are not equal in future reporting. Please resubmit the report with the new recovered volume and the clarification on the cause of problem with explanation for why crude oil is present in the sewer line. This helps us to understand whether Giant may have a crude oil leak in its sewer line system, etc. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/

(Pollution Prevention Guidance is under "Publications")

---

**From:** Jim Lieb [mailto:jlieb@giant.com]
**Sent:** Tuesday, February 28, 2006 8:53 AM
**To:** Chavez, Carl J, EMNRD
**Cc:** Ed Riege; Monzeglio, Hope, NMENV; Foust, Denny, EMNRD; Price, Wayne, EMNRD
**Subject:** RE: 2/25/06 spill

Carl:

The spilled material was crude oil that was in the sewer pipe.

In preparing the form I assumed that the oil was all pumped out. On second thought some oil may have been absorbed by the clay. So I will make an estimate that up to 5 % was absorbed = 0.05 x 1680 gallons = 84 gallons. Hence the amount recovered is estimated as 1680- 84 = 1596 gallons.

The asterisks were already on the form I have. They do not mean anything.

I will revise the form and re-submit to you and Denny and Hope.

I apologise for any confusion this may have caused. I did'nt mean to be inaccurate.

Sincerely,

Jim Lieb
Environmental Engineer

---

**From:** Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
**Sent:** Tuesday, February 28, 2006 7:44 AM
**To:** Jim Lieb; Monzeglio, Hope, NMENV
**Cc:** Ed Riege; Price, Wayne, EMNRD; denny.faust@state.nm.us
**Subject:** RE: 2/25/06 spill

Jim:

Good morning. The phone message I received on 2/25/06 from Steve Morris of Giant indicated that the release was a crude oil release; however, your report seems to indicate that the release occurred from a sewer line that may have contained oily refinery water. Was the release crude oil or oily water?

Another point of concern from the report is the volume of the release in comparison to the volume recovered. The volumes should not be equal and the concern is that Giant is not accurately recording the true volume recovered on the C-141. Please resubmit the C-141 with the correct volume and cause of problem information. Lastly, is there any reason for the asterisk denoted on the form? Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/
(Pollution Prevention Guidance is under "Publications")

---

**From:** Jim Lieb [mailto:jlieb@giant.com]

**Sent:** Monday, February 27, 2006 5:09 PM
**To:** Monzeglio, Hope, NMENV
**Cc:** Ed Riege; Price, Wayne, EMNRD; Chavez, Carl J, EMNRD; denny.faust@state.nm.us
**Subject:** RE: 2/25/06 spill

Hope:

I have prepared a Release Notification and Corrective Action form (Form C-141) for the spill. I will put a hard copy with original signature to you and provide the required 2 copies to the OCD district office in Aztec.

Sincerely,

Jim Lieb

---

**From:** Monzeglio, Hope, NMENV [mailto:hope.monzeglio@state.nm.us]
**Sent:** Monday, February 27, 2006 11:34 AM
**To:** Jim Lieb; Ed Riege
**Cc:** Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV; WPRICE@state.nm.us
**Subject:** RE: 2/25/06 spill

Jim

Thank you for the follow up. NMED would like Giant to collect confirmation soil samples upon excavating to clean soil in the excavation area which the crude spill occurred in. The size of the excavation will determine the number of samples you will need to collect. The samples should be analyzed for EPA Method 8021B for BTEX, EPA Method 8015B for GRO and DRO extended covering the carbon range C32-C36.

Call me with any questions. 505-428-2545

Hope

---

**From:** Jim Lieb [mailto:jlieb@giant.com]
**Sent:** Monday, February 27, 2006 12:16 PM
**To:** Monzeglio, Hope, NMENV
**Cc:** Chavez, Carl J, EMNRD; Ed Riege
**Subject:** RE: 2/25/06 spill

Hope:

We are planning to excavate the contaminated soil and place it into 40 yard boxes from Enichem. The boxes will be kept covered with rain repellent tarps. The boxes will be kept on site pending approval by Enichem for disposal as hazardous waste at a permitted TSDF. If Enichem does not have boxes available, we will place the excavated soil onto plastic tarp material and construct an enclosing berm surrounding the soil. I will keep you informed which method of accumulation is used. We will excavate to clean soil based on visual and olfactory observations.

I performed calculation on constituents in the spilled material and have determined that the spilled crude contained an RQ of benzene (80 pounds) and xylene (166 pounds). I reported this information to the NRC today at approx. 11:45 am.

If you have any questions, please contact me by email or at (505) 722-3227 or Ed Riege at (505) 722-3217.
Sincerely,

Jim Lieb
Environmental Engineer

---

**From:** Ed Riege
**Sent:** Monday, February 27, 2006 8:28 AM
**To:** 'Monzeglio, Hope, NMENV'
**Cc:** Jim Lieb
**Subject:** RE: 2/25/06 spill

Hope,
After the contaminated soil is removed there will be no further excavation. Jim is researching the options on the plans for the contaminated soil and will get back with you. We are not sure whether to go with drums or plastic in a bermed area and then ship off site for disposal.
Thanks
Ed

-----Original Message-----
**From:** Monzeglio, Hope, NMENV [mailto:hope.monzeglio@state.nm.us]
**Sent:** Monday, February 27, 2006 8:18 AM
**To:** Ed Riege
**Subject:** 2/25/06 spill

Ed

I received the message from Steve this morning about the spill. I have a few questions pertaining to the spill. Is Giant still excavating the area where the spill occurred after the contaminated soil is removed? What are Giants plans for the contaminated soil.

Thanks

Hope

Hope Monzeglio
Environmental Specialist
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, BLDG 1
Santa Fe NM 87505
Phone: (505) 428-2545
Fax: (505)-428-2567
hope.monzeglio@state.nm.us





Confidentiality Notice: This e-mail, including all attachments is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited unless specifically provided under the New Mexico Inspection of Public Records Act. If you are not the intended

## Chavez, Carl J, EMNRD

**From:** Chavez, Carl J, EMNRD
**Sent:** Tuesday, February 28, 2006 8:04 AM
**To:** 'Jim Lieb'; Monzeglio, Hope, NMENV
**Cc:** Ed Riege; Price, Wayne, EMNRD; denny.faust@state.nm.us
**Subject:** RE: 2/25/06 spill

Jim:

Good morning. The phone message I received on 2/25/06 from Steve Morris of Giant indicated that the release was a crude oil release; however, your report seems to indicate that the release occurred from a sewer line that may have contained oily refinery water. Was the release crude oil or oily water?

Another point of concern from the report is the volume of the release in comparison to the volume recovered. The volumes should not be equal and the concern is that Giant is not accurately recording the true volume recovered on the C-141. Please resubmit the C-141 with the correct volume information. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
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**Sent:** Monday, February 27, 2006 5:09 PM
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**Cc:** Ed Riege; Price, Wayne, EMNRD; Chavez, Carl J, EMNRD; denny.faust@state.nm.us
**Subject:** RE: 2/25/06 spill

Hope:

I have prepared a Release Notification and Corrective Action form (Form C-141) for the spill. I will put a hard copy with original signature to you and provide the required 2 copies to the OCD district office in Aztec.

Sincerely,

Jim Lieb

---

**From:** Monzeglio, Hope, NMENV [mailto:hope.monzeglio@state.nm.us]
**Sent:** Monday, February 27, 2006 11:34 AM
**To:** Jim Lieb; Ed Riege
**Cc:** Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV; WPRICE@state.nm.us
**Subject:** RE: 2/25/06 spill

Jim

Thank you for the follow up. NMED would like Giant to collect confirmation soil samples upon excavating to clean soil in the excavation area which the crude spill occurred in. The size of the excavation will determine the number of samples you will need to collect. The samples should be analyzed for EPA Method 8021B for BTEX, EPA Method 8015B for GRO and DRO extended covering the carbon range C32-C36.

Call me with any questions. 505-428-2545

Hope

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**From:** Jim Lieb [mailto:jlieb@giant.com]
**Sent:** Monday, February 27, 2006 12:16 PM
**To:** Monzeglio, Hope, NMENV
**Cc:** Chavez, Carl J, EMNRD; Ed Riege
**Subject:** RE: 2/25/06 spill

Hope:

We are planning to excavate the contaminated soil and place it into 40 yard boxes from Enichem. The boxes will be kept covered with rain repellent tarps. The boxes will be kept on site pending approval by Enichem for disposal as hazardous waste at a permitted TSDF. If Enichem does not have boxes available, we will place the excavated soil onto plastic tarp material and construct an enclosing berm surrounding the soil. I will keep you informed which method of accumulation is used. We will excavate to clean soil based on visual and olfactory observations.

I performed calculation on constituents in the spilled material and have determined that the spilled crude contained an RQ of benzene (80 pounds) and xylene (166 pounds). I reported this information to the NRC today at approx. 11:45 am.

If you have any questions, please contact me by email or at (505) 722-3227 or Ed Riege at (505) 722-3217.
Sincerely,

Jim Lieb
Environmental Engineer

---

**From:** Ed Riege
**Sent:** Monday, February 27, 2006 8:28 AM
**To:** 'Monzeglio, Hope, NMENV'
**Cc:** Jim Lieb
**Subject:** RE: 2/25/06 spill

Hope,
After the contaminated soil is removed there will be no further excavation. Jim is researching the options on the plans for the contaminated soil and will get back with you. We are not sure whether to go with drums or plastic in a bermed area and then ship off site for disposal.
Thanks
Ed

> -----Original Message-----
> **From:** Monzeglio, Hope, NMENV [mailto:hope.monzeglio@state.nm.us]
> **Sent:** Monday, February 27, 2006 8:18 AM
> **To:** Ed Riege
> **Subject:** 2/25/06 spill
>
> Ed
>
> I received the message from Steve this morning about the spill. I have a few questions pertaining to the spill. Is Giant still excavating the area where the spill occurred after the contaminated soil is removed? What are Giants plans for the contaminated soil.
>
> Thanks
>
> Hope
>
> Hope Monzeglio
> Environmental Specialist

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

# Release Notification and Corrective Action

## OPERATOR

☒ Initial Report ☐ Final Report

| | |
|---|---|
| Name of Company Giant Refining – Ciniza Refinery | Contact Jim Lieb |
| Address I-40, Exit 39, Jamestown NM 87347 | Telephone No. 505-722-3227 |
| Facility Name Ciniza Refinery | Facility Type Oil refinery |

| | | |
|---|---|---|
| Surface Owner Giant Industries, Inc. | Mineral Owner Giant Industries, Inc. | Lease No. |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| | 23 & 33 | 15N | 15W | | | | | McKinley |

**Latitude** 35°29'30" **Longitude** 108°24'40"

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release Crude oil | Volume of Release 1,680 gallons | Volume Recovered 1,680 |
| Source of Release Main sewer line | Date and Hour of Occurrence 2/24/06 1900 hours | Date and Hour of Discovery 2/24/06 1900 hours |
| Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required | If YES, To Whom? National Response Center (Ms. Rawls)<br>OCD- Carl Chavez<br>NMED – Hope Monzeglio | |
| By Whom? Steve Morris, within 24 hours of spill | Date and Hour 2/25/06 at 1100 hours | |
| Was a Watercourse Reached? ☐ Yes ☒ No | If YES, Volume Impacting the Watercourse. | |

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Contractors working in sewer line excavation inadvertently caused a stop plug to become loose which allowed oil in pipe to release. Spill oil was immediately pumped out of excavation.

Describe Area Affected and Cleanup Action Taken.*
Excavation in refinery facility. All of the spill was confined to the excavation. None of the spill impacted surface waters. The spilled material was immediately vacuumed up into a vac truck and spill material was put back into refinery process system.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

| | | |
|---|---|---|
| Signature: Stanley J Fisher | OIL CONSERVATION DIVISION | |
| Printed Name: STANLEY D FISHER | Approved by District Supervisor: | |
| Title: OPS MAN | Approval Date: | Expiration Date: |
| E-mail Address: SFISHER@GIANT.COM | Conditions of Approval: | Attached ☐ |
| Date: 2/27/06 Phone: 722-0203 | | |

## Chavez, Carl J, EMNRD

**To:** Leavitt, Marcy, NMENV
**Cc:** Menetrey, Karen, NMENV
**Subject:** Accepted: FW: NPDES meeting follow-up

Marcy:

I can make it if you think that OCD should be represented at this meeting. If not, the only thing I would bring up is the request by a stakeholder for more OCD cost, FTE, estimated projects information of the OCD.

Karen Menetrey and I agreed the info. request has already been addressed by the OCD; however, Karen Menetrey was unable to update the Internet before the meeting. Karen agreed to add a sentence or two in OCD's PD at the end of OCD's tally of facility types with estimated numbers.

The OCD would like to have the following sentences added by Karen: "The OCD Program is subject to ongoing Federal storm water regulatory changes related to oil and gas facilities; consequently, the exact number of storm water facilities cannot be estimated at this time. In addition, due to the phase-in approach of the state in seeking complete Primacy, the number of FTEs and costs are expected to increase over time as more responsibilities are untertaken."

Thank you.

## Chavez, Carl J, EMNRD

**From:** Monzeglio, Hope, NMENV
**Sent:** Monday, February 27, 2006 12:34 PM
**To:** Jim Lieb; Ed Riege
**Cc:** Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV; Price, Wayne, EMNRD
**Subject:** RE: 2/25/06 spill

Jim

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Call me with any questions. 505-428-2545

Hope

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**Cc:** Chavez, Carl J, EMNRD; Ed Riege
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Sincerely,

Jim Lieb
Environmental Engineer

---

**From:** Ed Riege
**Sent:** Monday, February 27, 2006 8:28 AM
**To:** 'Monzeglio, Hope, NMENV'
**Cc:** Jim Lieb
**Subject:** RE: 2/25/06 spill

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*Thanks*
Ed

-----Original Message-----
**From:** Monzeglio, Hope, NMENV [mailto:hope.monzeglio@state.nm.us]

**Sent:** Monday, February 27, 2006 8:18 AM
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**Subject:** 2/25/06 spill

Ed

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Thanks

Hope

Hope Monzeglio
Environmental Specialist
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, BLDG 1
Santa Fe NM 87505
Phone: (505) 428-2545
Fax: (505)-428-2567
hope.monzeglio@state.nm.us

*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**

February 23, 2006

Mr. Ed Riege
Environmental Superintendent
Giant Refining Company
Route 3, Box 7
Gallup, New Mexico 87301

**SUBJECT: INFORMATION REQUEST FOR AERATION LAGOON AND API SEPARATOR FLOW RATE AND CAPACITY**
**GIANT REFINING COMPANY, CINIZA REFINERY**
**NMED ID No. NMD000333211**
**HWB-GRCC-MISC**

Dear Mr. Riege:

The New Mexico Environment Department (NMED) is requesting Giant Refining Company, Ciniza Refinery (the Permittee) provide NMED with the following information:

a. The average flow-rate of effluent discharged by the "New" API separator on a daily, weekly and monthly basis,

b. The maximum capacity (volume) of each of the aeration lagoons 1 and 2,

c. The average daily flow (volume) currently passing through the aeration lagoons to evaporation pond 1,

d. The maximum flow rate that the aeration lagoons can effectively treat,

e. The maximum capacity (volume) of wastewater that the "New" API separator can treat and,

f. The average volume of wastewater that is treated by the "New" API separator on a daily, weekly, and monthly basis.

The information must be submitted to NMED on or before March 24, 2006.

If you have any questions regarding this letter, please call me at (505) 428-2545.

Sincerely,

Hope Monzeglio

Hope Monzeglio
Project Leader
Permits Management Program

HM

cc: *D. Cobrain, NMED HWB
W. Price, OCD Santa Fe Office
C. Chavez, OCD Santa Fe Office
D. Foust, OCD Aztec Office
S. Morris, GRCC
J. Lieb, GRCC

File: Reading File and GRCC 2006 File
* Denotes electronic copy

## Chavez, Carl J, EMNRD

**From:** Chavez, Carl J, EMNRD
**Sent:** Wednesday, February 22, 2006 11:37 AM
**To:** 'Ed Riege'
**Cc:** Monzeglio, Hope, NMENV; Price, Wayne, EMNRD; Foust, Denny, EMNRD; Steve Morris; Price, Wayne, EMNRD
**Subject:** RE: Pilot Station Effluent Summary

Ed:

Good morning. The OCD has reviewed your e-mail related to the above subject with attachments dated February 2, 2006, in response to the OCD's e-mail dated December 28, 2005.

The OCD notices that the letter dated December 12, 1986, references a 1970 publication and the algorithms with assumptions appear valid; however, in future evaluations of the treatment system, there should be more current waste water treatment models available to evaluate Giant's treatment system capacity. Giant may want to consider using current modeling methods in the evaluation of its treatment system.

Giant used flow rates from the travel center and refinery in its calculations of 50,400 gpd and 117,800 gpd, respectively. However, the more recent flow rates from the February 2, 2006 letter are actually around 7,200 gpd, and 151,200 gpd, respectively. The total combined flow rate in 1986 compared to 2006 is 168,200 versus 158,400 respectively; however, the [BOD] is much higher today than in 1986. The OCD notices that flow rates do not reflect maximum flow capacities from the travel center or refinery. Also, the OCD assumes that Cells # 1 and 2 appear to correspond with Aeration Lagoons 1 and 2 (ALs 1 & 2).

As mentioned by Giant, the loading from the OAPI and NAPI was not reflected in the 1986 letter. More recently, the NMED- HWB has required that the OAPI effluent be routed to the NAPI Unit for treatment, based on organic contamination in the influent to the OAPI Unit, which is routed untreated into AL1, and this may also need to be considered in future calculations. Why is the flow rate from the travel center so low, i.e., 5 gpm, and is this the average flow rate? In addition, the OCD is concerned about Giant's ability to increase its treatment capacity, since the refinery has been operating at about 1/2 its treatment capacity; however, at 1/2 capacity, the BOD loading appears to be within the scope of the 1986 letter. What will happen at maximum flow capacities from the travel center and refinery at present day [BOD]?

Consequently, the OCD is in agreement with Giant's February 2, 2006 letter to determine if there are actually any issues with the BOD loading and the ability of Giant's treatment system to handle capacities. More specifically, the OCD is concerned about Giant's treatment system and its ability to handle current and maximum flow capacities. For example, Giant should be looking at maximum flow rates with concentration assumptions from historical sampling of [BOD], etc. Giant should confirm that all aerators in the ALs are functioning as designed and have been and are in operation or fully functional today. If not, the OCD would like to know what operation and maintenance problems associated with the aeration system are, if any.

In addition, for a more current assessment of Giant's treatment capacity, the OCD would like to request that Giant consider monitoring the AL influent and effluent for [Phenol] to determine the % reduction of Phenol. Perhaps Phenol concentrations can be monitored at the influent and effluent of AL1 and at the effluent of AL2? What does Giant think about this? Phenol has been commonly monitored in refinery treatment systems to evaluate the overall efficiency of the treatment system.

The OCD agrees with the consideration in the December 12, 1986 letter about the consideration of several water conservation projects. Have any water conservation projects been implemented at Ciniza?

Finally, July 2006 is acceptable to the OCD. We look forward to receipt of your findings and the consideration of our questions and concerns provided above. Please contact me if you have questions. Thank you

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau 1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/ (Pollution Prevention Guidance is under "Publications")

-----Original Message-----
From: Ed Riege [mailto:eriege@giant.com]
Sent: Thursday, February 02, 2006 8:38 AM
To: Chavez, Carl J, EMNRD
Cc: Monzeglio, Hope, NMENV; Price, Wayne, EMNRD; Foust, Denny, EMNRD; Steve Morris
Subject: Pilot Station Effluent Summary

<<_0117081617_001.pdf>> <<RESPONSE LETTER OCD BOD jan06.doc>>

February 2, 2006

Mr. Carl Chavez
NM Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Dear Mr. Chavez:

In response to your e-mail dated December 28, 2005, Giant Industries, Inc., Ciniza Refinery (Ciniza), has examined the contribution from the Pilot Station Effluent (PSE) to the aeration lagoon with respect to biological oxygen demand (BOD) and other constituents. As you may remember, the Pilot Station was previously known as the Travel Center and was owned and operated by Giant Industries.

In order to determine the anticipated loading from the PSE, we first looked at the history of the relationship between the refinery and the station and then at the discharges that were anticipated from the facility. The travel center was under construction in 1986 and on December 12, 1986, Bob McClenahan, the Environmental Coordinator for Giant, wrote to Richard Stamets, the Director of New Mexico Oil Conservation Division (NMOCD), to notify him of the construction and the additional discharges to the aeration basin from the facility (see Attachment 1).

In 1986, the design flow from the Travel Center was 35 gallons per minute at a $BOD_5$ value of 200 mg/L. This amounted to about 85 pounds per day loading to the system. Also at that time, the refinery load was 700 mg/L BOD at about 82 gallons per minute, resulting in approximately 690 pounds of BOD per day.

The biokinetic data and subsequent calculations for refinery wastewaters in the 1986 letter stated that the BOD removal rate coefficient ($K_e$) was 0.0004 to 0.0009 L/mg-hr, the sludge synthesis coefficient (Y) was 0.35 to 0.46 pounds sludge per pound $BOD_r$, the $O_2$ demand for synthesis (a') was 0.91 to 1.06, and the $O_2$ demand for endogenous respiration (b) was 0.16 to 0.21. Based on these numbers and an average lagoon temperature in summer of 24°C, the following numbers were calculated:

| | Cell #1 | Cell #2 |
|---|---|---|
| Volume (Mgal) | 0.51 | 0.85 |
| BOD removal summer (Lbs) | 1353 | 135 |
| $O_2$ demand (lbs/hr) | 70 | 24 |

As you are aware, current conditions are slightly different – the contribution to the aeration lagoons from the Pilot Station is much less in volume but higher in concentration. The average flow to the aeration lagoon from the Pilot Station is approximately 5 gallons per minute and BOD samples ranged from 504 mg/L to 10,500 mg/L during 2005. This has resulted in a BOD loading ranging from 30 to 630 pounds per day.

If the refinery load is approximately 700 mg/L at an average flow of 105 gpm, the loading would be 882 pounds per day. This would mean the total loading could be as high as 1,330 pounds per day from sources, the refinery and the PSE. This number is almost the exact loading calculated in 1986.

Samples taken at the inlet to aeration lagoon (AL) 2 on January 6, 2006 had a BOD concentration of 369 mg/l, which is 300 mg/L higher than the calculations in 1986. The flows from AL 1 to AL 2 will be dependent upon evaporation from AL 1 and any additional flows to either the new API unit or the oil-water separator to AL 1. Because of this, calculations to determine loading and BOD removal rates at AL 1 are incomplete. However, it does appear that the loading to AL 1 is no greater than that initially predicted in 1986.

Because there is a unique relationship between Ciniza and the Pilot Station, we would like to take some time to determine if there actually is an issue, since the total BOD loading for the facility is within the original anticipated design for the existing number of aeration units and lagoons. In order to close the loop Giant would like to fill in some of the data gaps and obtain the following information:

- BOD going into aeration lagoon 1 (per stream or an aggregate number);
- BOD exiting aeration lagoon 2;
- Flow rate between aeration lagoon 1 and aeration lagoon 2; and
- Total water reporting to aeration lagoon 1 – including the API and stormwater separator units.
- Work with operations and engineering to determine what the anticipated increase in flow rate will be due to increase in production.

We have also followed through with the sampling requested in your e-mail on November 30, 2005 and found that the effluent from the travel center does not exceed the RCRA toxicity standards as the quarterly sampling also indicates.

We propose to continue our investigation and, if we determine that the load placed on our AL by the PSE is too great, we would like the opportunity to work with our neighbor to find a cost-effective and acceptable solution for both of us. Since the winter months actually require the greater amount of oxygen, and we are more than half way through the winter, we request additional time to work on this problem and come to a mutually acceptable resolution within a nine-month period. In July 2006 we propose to send you documentation of our findings and any plans to remedy the loading, as appropriate and necessary.

Please let me know your thoughts on the data presented and our proposal.

Sincerely,

Ed Riege

GIANT
REFINING COMPANY
ROUTE 3, BOX 7 • GALLUP, NEW MEXICO 87301
(505) 722-3833 • TWX 910-981-0504

December 12, 1986

Richard L. Stamets
Director
NMOCD
P.O. Box 2088
Land Office Building
Santa Fe, NM 87501

RE: Addition to Giant's Ciniza Refinery Discharge Plan, GW-32

Dear Mr. Stamets:

As your staff is aware, Giant is building a new Travel Center near our Refinery. We would like to use the new Aeration Basin for biological treatment of the waste water generated from that facility. Enclosed are some pertinent data related to this proposed addition.

The facility is scheduled to commence operations in May of 1987. Waste streams will be generated at four general locations: the truck service area, the truck fuel center, the R.V. dump station, and the main building, which houses restaurants, showers and restroom facilities. Each of these sources will run through at least one 2,000 gallon septic tank for solids and grease removal, in addition to some biological treatment. The waste water will gravity flow from the septic tanks to a lift station. The lift station is designed to pump the water to the Parchell flume at the inlet of the aeration basin (pond #1). The system is designed to gravity flow to pond #9, in case of mechanical problems. (See attached sewer layout for details).

The designed flow from the Travel Center is 35 GPM (50,400 GPD), at a $BOD_5$ value of 200 mg/l. This will result in 85 pounds per day of BOD being treated. The refinery organic load was calculated to be 700 mg/l BOD at 117,800 GPD, or 690 #/day BOD. The total anticipated load to the basin therefore is 775 #/day at 168,200 GPD. The aeration equipment (See Appendix A attached) is designed to provide oxygen for up to 1500 #/day of BOD and result in an annualize average evaporation rate of 16,300 GPD (11.3 GPM). The net increase in water to our evaporation ponds would be 34,100 GPD. Utilizing the equations from Table 6-1 (enclosed) of our Discharge plan application report, the total yearly discharge would increase by 12.4 million gallons (MG), for a total of

71.2 MG/yr (218.6 AF/yr). Using the calculated pond evaporation capacity of 228.6 AF/yr, results in a conservative pan evaporation rate capacity of 105%. It should be noted that by lake evaporation rates, the pond's capacity is calculated to be 156%. However, due to the marginal amount of calculated excess capacity, several water conservation projects are being considered.

I hope this provides you with adequate information on this proposed change. If you have any questions, please don't hesitate to call me.

Sincerely,

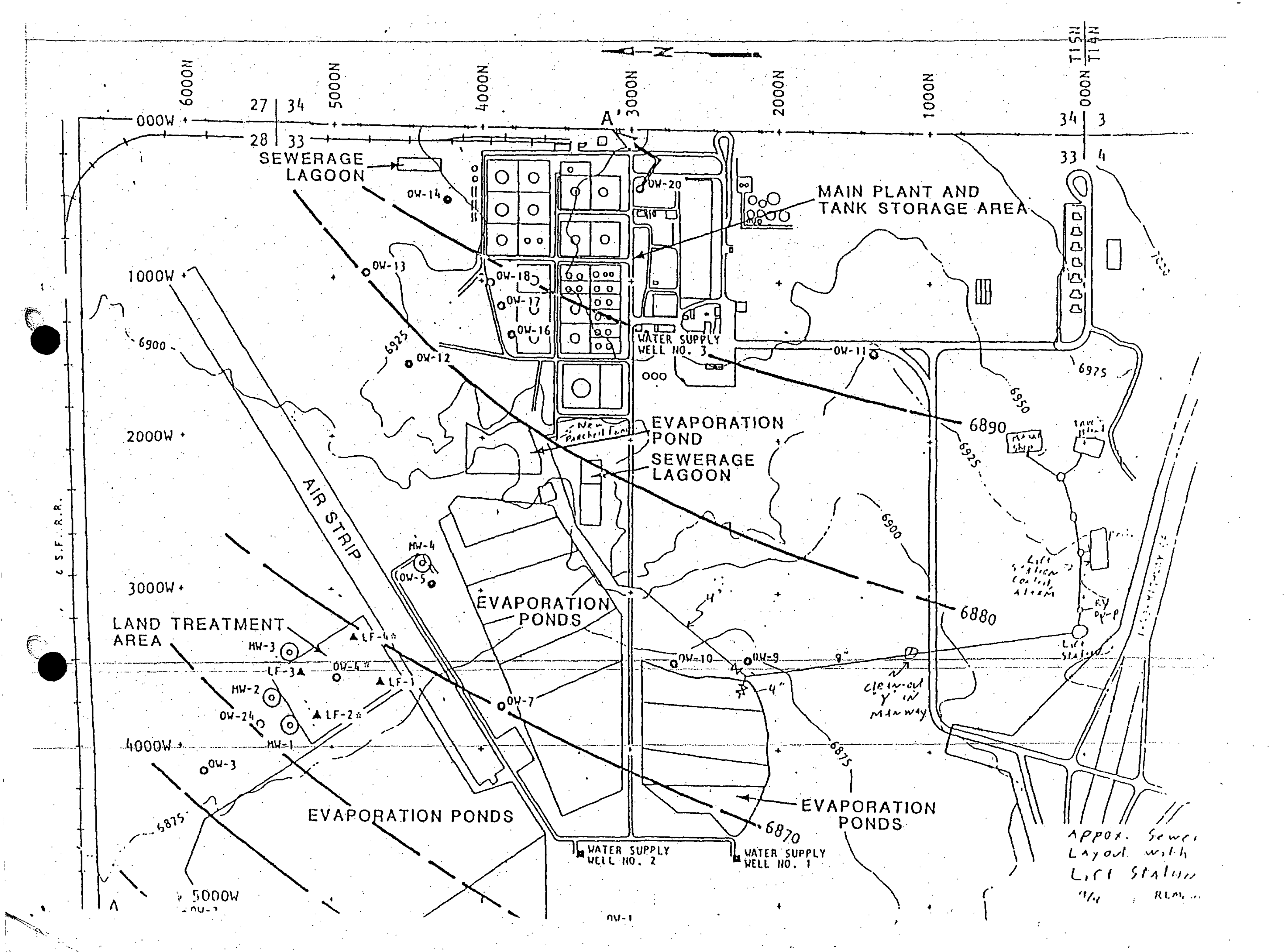
Bob McClenahan, Jr.

Bob McClenahan, Jr.
Environmental Coordinator
Giant Refining Company

RLM:ds

Enclosures

cc: Carl Shook
Trent Thomas, Geoscience Consultants, Ltd.
Carlos Guerra, Giant Industries
Frank Chavez, OCD, Aztec, NM



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MAIN PLANT AND TANK STORAGE AREA
EVAPORATION POND
SEWERAGE LAGOON
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LAND TREATMENT AREA
AIR STRIP
WATER SUPPLY WELL NO. 3
WATER SUPPLY WELL NO. 2
WATER SUPPLY WELL NO. 1
OW-14
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OW-9
OW-7
OW-5
OW-4
OW-3
OW-24
OW-1
MW-1
MW-2
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MW-4
LF-1
LF-2
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6900
6925
6950
6975
6890
6880
6870
6875
New Parshall Flume
Cleanout "Y" in Manway
Lift Station
Appox. Sewer Layout with Lift Station

TABLE 6-1

WATER BALANCE FOR EVAPORATION PONDS

| MONTH | PRECIP. (IN.) | PAN EVAP. (IN.) | DIFFERENCE (IN.) |
|---|---|---|---|
| Jan | .56 | .38 | +.18 |
| Feb | .50 | .50 | 0.00 |
| Mar | .61 | .84 | -.23 |
| Apr | .43 | 2.05 | -1.62 |
| May | .43 | 3.82 | -3.39 |
| June | .52 | 5.81 | -5.29 |
| July | 1.83 | 7.11 | -5.28 |
| Aug | 1.65 | 5.92 | -4.27 |
| Sep | .99 | 3.89 | -2.90 |
| Oct | 1.17 | 2.03 | -.86 |
| Nov | .62 | .70 | -.08 |
| Dec | .68 | .39 | +.29 |
| | 9.99 | 33.44 | -23.45 |

30.63
91.6%

Average discharge = 161,000 gallons/day

Yearly Discharge = 365 days x 161,000 gallons/day = 58,765,000 gallons/year

58,765,000 gallons/year x 1 Acre-Foot/325,742 gallons = 180.4 AF/year

Net Pond Evaporation = 23.45 in/year = 1.954 ft/year

Pond Evaporative Capacity = 117 Acres x 1.954 ft/year = 228.6 AF/year

Relative Capacity = $\frac{228.6 \text{ AF/year}}{180.4 \text{ AF/year}}$ = 127%

TC 50,400

RECEIVED AUG 1 4 1986

SIDESLOPES = 2:1
TOP OF DIKE = 10'

SLUDGE POND VOLUMETRICS
TRIAL #3
JULY 18 1986

| CELL | DRAIN POINT ELEV | BOTTOM ELEV | SPILL ELEV | BOTTOM ELEV AREA (SF) | TOP OF POND CONTOUR AREA (SF) | TOP OF FREEBOARD CONTOUR AREA (SF) | POND VOLUME (CF) | FREEBOARD VOLUME (CF) | TOTAL CELL VOLUME (CF) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 92.0 | 93.0 | 100.0 | 10,521 | 14,694 | 16,770 | 68,297 (0.51MG) | 31,464 | 99,761 |
| 2 | 86.0 | 87.0 | 96.0 | 12,141 | 18,410 | 20,754 | 112,998 (0.85MG) | 39,164 | 152,162 |
| 3 | 85.0 | 86.0 | 96.0 | 34,402 | 48,631 | 51,753 | 349,933 | 100,384 | 450,317 |
| | | | | | VOLUME TOTALS: | | 531,228 | 171,012 | 702,240 |

Appendix A

The following biokinetic data for refinery wastewaters are taken from Reference #1:

a. BOD Removal Rate Coefficient, $(K_e)$ = 0.0004 to 0.0009 L/mg-hr

b. Sludge Synthesis Coefficient, (Y) = 0.35-0.46 lbs. Sludge/lb. $BOD_r$

c. $O_2$ Demand for Synthesis, (a') = 0.91-1.06

d. $O_2$ Demand for Endogenous Respiration, (b') = 0.16-0.21

Since the above data are based on a bench scale experimental study in th laboratory, 20°C (68°F) temperature will be assumed.

<u>Cell #1:</u> Lagoon Temperature: 24°C* (Summer)

Lagoon Temperature: 13.5°C* (Winter)

*REFER TO COMPUTER PRINTOUT FOR COOLING CALCULATIONS.

Correct BOD Removal Rate Coefficient, $K_e$ for temperature,

$$K_{e_{T°C}} = K_{e_{20°C}} \times 1.04^{(T-20°C)}$$

$$= 0.00065 \text{ L/mg-hr (Avg.)} \times 1.04^{25-20}$$

$$= 0.0008 \text{ L/mg-hr (Summer)}$$

$$= 0.019 \text{ L/mg-day}$$

$$K_{e_{winter}} = 0.00065 \text{ L/mg-hr} \times 1.04^{13.5-20}$$

$$= 0.0005 \text{ L/mg-day}$$

$$= 0.012 \text{ L/mg-day}$$

Basin Volume = 0.51 MG

REFER TO COMPUTER PRINTOUT TRIAL ERROR MLVSS v $BOD_r$
NOTE: Summer conditions control.

$BOD_5$ removal = 714 mg/l - 70 mg/l = 644 mg/l

$$\text{lbs } BOD_5 \text{ removed} = 644 \text{ mg/l } (8.34)\ 0.252 \text{ MGD}$$

$$= 1353 \ \frac{\text{lbs}}{\text{day}}$$

Maximum $O_2$ Demand = a' (BOD removal) + b' (lbs MLVSS)

$$\text{lbs MLVSS} = 245 \text{ mg/l} \times 0.5 \text{ MG} \times 8.34$$

$$= 1022 \text{ lbs MLVSS}$$

$$\text{lbs } O_2 = 1.06 \ \frac{\text{lbs } O_2}{\text{lb } BOD_r} \left(1353 \text{ lbs } \frac{BOD}{\text{day}}\right) + 0.21 \ \frac{1}{\text{day}} \ (1022 \text{ lbs})$$

$$= 1649 \text{ lbs } \frac{O_2}{\text{day}}$$

$$= 70 \text{ lbs/hr}$$

REFER TO COMPUTER PRINTOUT FOR FIELD $O_2$ TRANSFER RATE CALCULATIONS.

Three (3) - 15HP Aqua Jet aerators with anti-erosion assemblies in Cell
are recommended.

Cell #2:

Lagoon Temperature = 22.3°C* (Summer)

Lagoon Temperature = 4.9°C* (Winter)

*REFER TO COMPUTER PRINTOUT FOR COOLING CALCULATIONS

Basin Volume = 0.85 MG

Summer:

REFER TO COMPUTER PRINTOUT TRIAL ERROR MLVSS vs $BOD_r$.

$BOD_5$ removal = 70 mg/l - 6 mg/l = 64 mg/l

lbs $BOD_5$ removed = 64 mg/l (8.34) 0.252 MGD

= 135 lbs/day

Winter:

$BOD_5$ removal = 109 mg/l - 12 mg/l = 97 mg/l

lbs $BOD_5$ removed = 97 mg/l (8.34) 0.252 MGD

= 204 lbs/day

Winter removal requires largest oxygen supply.

lbs MLVSS = 248 mg/l x 0.85 MG x 8.34

= 1758 lbs MLVSS

$$\text{lbs } O_2 = 1.06 \frac{\text{lbs } O_2}{\text{lb } BOD_5} \left(204 \frac{\text{lbs}}{\text{day}}\right) + 0.21 \frac{1}{\text{day}} \left(1758 \frac{\text{lbs}}{\text{day}}\right)$$

$$= 585 \frac{\text{lbs } O_2}{\text{day}}$$

$$= 24 \frac{\text{lbs } O_2}{\text{hr}}$$

REFER TO COMPUTER PRINTOUT FOR FTR CALCULATIONS.

Two (2) - 15 HP Aqua-Jet aerators with anti-erosion assemblies in Cell #2 are recommended.

NOTE: An effluent TSS level of = 300 mg/l should be expected. If th level of discharge is not acceptable, a settling pond (2-3 day will be required.

Also using two - 15 HP aerators in Cell #2 should produce an effluent D.O. level of about 5 mg/l based on the information given. Refer to computer printout.

Reference:

1. Ronald L. Dickenson; John T. Giboney; "Stabilization of Refinery Wastewaters with the Activated Sludge Process: Determination of Design Parameters"; A paper presented at 25th Industrial Waste Conference at the Purdue University, Lafayette, Indiana, May 1970.

SEC/sp
10/22/86

*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*

2006 FEB 22 PM 1 39

**DERRITH WATCHMAN-MOORE**
*DEPUTY SECRETARY*

**CERTIFIED MAIL**
**RETURN RECEIPT REQUESTED**

February 21, 2006

Ed Riege
Environmental Superintendent
Giant Ciniza Refining Company
Route 3 Box 71
Gallup, New Mexcio 87301

**SUBJECT: RESPONSE TO APPROVAL WITH MODIFICATIONS TO THE 2003 OCD ANNUAL REPORT GW-32 RESPONSE LETTER GIANT REFINING COMPANY, CINIZA REFINERY EPA ID NO. NMD000333211 HWB-GRCC-04-001**

Dear Mr. Riege:

The New Mexico Environment Department has completed its review of the document titled *Response Letter, HWB-GRCC-04-001* to the 2003 OCD Annual Report GW-32 dated September 26, 2005 submitted on behalf of Giant Refining Company, Ciniza Refinery (the Permittee). The Permittee must address all requirements and revisions identified in the comments below and apply them to future groundwater monitoring reports.

1. Response letter, Comment # 12 states, "*[t]his page was revised, see (Attachment 8). The term low was deleted and the reference to OCD wells (mistake) was changed to OW. The request to sample OW 14 on a semiannual basis was added to Section 9 of the renewal application.*"

   **NMED Comment**: It appears the sampling of well OW-14 on a semi annual basis was not changed in the table provided in Section 9, No. 4. The Permittee must revise the table under the Frequency Column for Well OW-14 to semi-annual.

2. Comment # 20 states "*In 2003 product recovered from RW-1 was 17.3 gallons, RW-5 was 3,250 mls of product, and RW-6 had 9,050 ml of product recovered. Giant Personnel measured the volume……*"

   **NMED Comment:** The next groundwater report must be consistent when reporting the units for the volume of product measured. If the Permittee uses an abbreviation such as ml or mls, the abbreviation must also be defined. The Permittee must report the volume of product in gallons.

3. Attachment 1, which contains the revisions to the *OCD Discharge Plan Renewal Application,* the first block of the last row in the Table in Section 9.0, page 9-4 is empty and must be revised to include the Northeast OCD Landfarm. The Permittee shall refer to the email dated December 6, 2005 from Ed Riege to Hope Monzeglio titled "*Groundwater Plan in the discharge permit.*"

Please call me at 505-428-2545 if have questions regarding this letter.

Sincerely,

Hope Monzeglio

Hope Monzeglio
Project Leader
Hazardous Waste Bureau

HM

cc: *D. Cobrain, NMED HWB
W. Price, OCD
C. Chavez, OCD
D. Foust, OCD Aztec Office
S. Morris, GRCC
J.Lieb, GRCC

File: Reading and GRCC 2006
*denotes electronic copy

*State of New Mexico*
***ENVIRONMENT DEPARTMENT***
***Hazardous Waste Bureau***
***2905 Rodeo Park Drive East, Building 1***
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**BILL RICHARDSON**
*GOVERNOR*

**RON CURRY**
*SECRETARY*

**DERRITH WATCHMAN-MOORE**
*DEPUTY SECRETARY*

**CERTIFIED MAIL**
**RETURN RECEIPT REQUESTED**

February 3, 2006

Mr. Ed Riege
Environmental Superintendent
Giant Refining Company
Route 3 Box 7
Gallup, New Mexico 87301

**SUBJECT: OLD API SEPARATOR EFFLUENT**
**GIANT REFINING COMPANY, CINIZA REFINERY**
**EPA NO. NMD000333211**
**HWB-GRCC-MISC**

Dear Mr. Riege:

The New Mexico Environment Department (NMED) is requiring Giant Refining Company, Ciniza Refinery (Permittee) to route all effluent discharging from the "Old" API separator to the "New" API separator prior to entry into the aeration lagoons. Weekly effluent sampling results, collected during the month of December 2005 from the "Old" API separator, detected benzene at hazardous concentrations, exceeding 500 parts per billion.

The "Old" API separator was closed and removed from service on October 6, 2004 and converted for use for storm water drainage only in December 2004. After the conversion, the Permittee stated the "Old" API Separator would not receive refinery process wastewater. Based on the available information, it appears the "Old" API Separator is still receiving refinery process wastewater containing benzene at hazardous concentrations and potentially F037 and F038 listed waste. The "Old" API separator no longer functions as an API separator; therefore, cannot receive refinery process wastewater or store hazardous waste. The use of the "Old" API Separator must also comply with all state and federal agency regulations and the current use does not comply with the Oil Conservation Division's (OCD) discharge permit.

The Permittee has not provided definitive information pinpointing the source of hazardous constituents entering the "Old" API separator. The Permittee must route all of the "Old" API separator effluent to the "New" API separator. The Permittee may propose an alternate resolution that will treat the "Old" API separator effluent prior to entering the aeration lagoons. The re-routing of the effluent must be accomplished by May 1, 2006 or an alternate proposal must be submitted to NMED no later than April 17, 2006. This proposal must also be approved by OCD.

If you have any questions regarding this letter, please call me at (505) 428-2545.

Sincerely,

Hope Monzeglio

Hope Monzeglio
Project Leader
Permits Management Program

HM

cc: J. Kieling, NMED HWB
D. Cobrain, NMED HWB
W. Price, OCD
C. Chavez, OCD
D. Foust, OCD
S. Morris, GRCC

File: Reading and GRCC 2006

*State of New Mexico*
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*SECRETARY*

**DERRITH WATCHMAN-MOORE**
*DEPUTY SECRETARY*

**CERTIFIED MAIL**
**RETURN RECEIPT REQUESTED**

February 3, 2006

Mr. Ed Riege
Environmental Superintendent
Giant Refining Company
Route 3 Box 7
Gallup, New Mexico 87301

**SUBJECT: REVISED SAMPLING SCHEDULE FOR AERATION LAGOON EFFLUENT**
**GIANT REFINING COMPANY, CINIZA REFINERY**
**EPA NO. NMD000333211**
**HWB-GRCC-MISC**

Dear Mr. Riege:

Based on analytical data provided by Giant Refining Company, Ciniza Refinery (Permittee), the New Mexico Environment Department (NMED) is revising the sampling requirements that were established in NMED's letter dated December 13, 2005 titled *Modified Sampling Schedule American Petroleum Institute Separator (API)*. The attached table illustrates a change in the frequency of effluent sample collection from AL-2 to EP-1. The attached table, titled *Giant Ciniza Refinery Sampling Schedule Resulting from The API Separator Spill* dated Revision 1 February 1, 2006, shall replace the previous table dated December 16, 2005.

If you have any questions regarding this letter, please call me at (505) 428-2545.

Sincerely,

Hope Monzeglio

Hope Monzeglio
Project Leader
Permits Management Program

HM

Attachment

cc: *D. Cobrain, NMED HWB
W. Price, OCD
C. Chavez, OCD
S. Morris, GRCC
D. Foust, OCD

File: Reading and GRCC 2006

## Giant Ciniza Refinery Sampling Schedule Resulting From The API Separator Spill

| Sampling Location | * Sampling Frequency | Analytical Suite | Comments and Additional Parameters |
|---|---|---|---|
| Effluent from AL-2 to EP-1 | Monthly | EPA Method 8260, EPA Method 8015B must include $C_6$ –$C_{10}$ and $C_{10}$-$C_{36}$ carbon ranges, RCRA 8 Metals (totals) | Sampling frequency will be modified as needed by NMED |
| Effluent from Old API separator (storm water Separator Effluent) | Monthly<br><br>(Note: OCD sampling requirement is weekly) | EPA Method 8260, EPA Method 8310, RCRA 8 Metals (totals); EPA Method 8015B must include $C_6$ –$C_{10}$ and $C_{10}$-$C_{36}$ carbon ranges<br>* Monthly – sample same analytical analysis as above, see *Note section at the bottom of the table | Measure product thickness on surface water on a weekly basis and after every rain event. Report data on the first of every month via email<br><br>Sampling frequency will be evaluated after receipt of three months analytical results by NMED |
| Effluent from Pilot Gas Station to the Aeration Lagoon | Monthly | EPA method 8260, RCRA 8 Metals (totals); EPA Method 8015B must include $C_6$ –$C_{10}$ and $C_{10}$-$C_{36}$ carbon ranges | Sampling frequency will be evaluated after receipt of three months analytical results by NMED |
| Effluent from New API separator | Monthly | EPA method 8260, EPA Method 8015B must include $C_6$ –$C_{10}$ and $C_{10}$-$C_{36}$ carbon ranges | Sampling frequency will be evaluated after receipt of three months analytical results by NMED |
| ***Note**: Monthly effluent samples from AL-2 to EP-1, the New API separator, the Old API separator, and the Pilot Truck Stop discharge must be collected on the same day and analyzed for EPA method 8260 and EPA Method 8015B ($C_6$ –$C_{10}$ and $C_{10}$-$C_{36}$). Effluent samples from AL2-EP-1, Old API separator, and the Pilot Station must also be analyzed for RCRA Metals (totals). | | | |

Table date: Revision 1 February 1, 2006.
The revised sampling is in response to the August 2005 spill from the breakdown of the new API separator.

February 2, 2006

Mr. Carl Chavez
NM Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Dear Mr. Chavez:

In response to your e-mail dated December 28, 2005, Giant Industries, Inc., Ciniza Refinery (Ciniza), has examined the contribution from the Pilot Station Effluent (PSE) to the aeration lagoon with respect to biological oxygen demand (BOD) and other constituents. As you may remember, the Pilot Station was previously known as the Travel Center and was owned and operated by Giant Industries.

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The biokinetic data and subsequent calculations for refinery wastewaters in the 1986 letter stated that the BOD removal rate coefficient ($K_e$) was 0.0004 to 0.0009 L/mg-hr, the sludge synthesis coefficient (Y) was 0.35 to 0.46 pounds sludge per pound $BOD_r$, the $O_2$ demand for synthesis (a') was 0.91 to 1.06, and the $O_2$ demand for endogenous respiration (b) was 0.16 to 0.21. Based on these numbers and an average lagoon temperature in summer of 24°C, the following numbers were calculated:

| | Cell #1 | Cell #2 |
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| Volume (Mgal) | 0.51 | 0.85 |
| BOD removal summer (Lbs) | 1353 | 135 |
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As you are aware, current conditions are slightly different – the contribution to the aeration lagoons from the Pilot Station is much less in volume but higher in concentration. The average flow to the aeration lagoon from the Pilot Station is approximately 5 gallons per minute and BOD samples ranged from 504 mg/L to 10,500 mg/L during 2005. This has resulted in a BOD loading ranging from 30 to 630 pounds per day.

If the refinery load is approximately 700 mg/L at an average flow of 105 gpm, the loading would be 882 pounds per day. This would mean the total loading could be as high as 1,330 pounds per day from sources, the refinery and the PSE. This number is almost the exact loading calculated in 1986.

Samples taken at the inlet to aeration lagoon (AL) 2 on January 6, 2006 had a BOD concentration of 369 mg/l, which is 300 mg/L higher than the calculations in 1986. The flows from AL 1 to AL 2 will be dependent upon evaporation from AL 1 and any additional flows to either the new API unit or the oil-water separator to AL 1. Because of this, calculations to determine loading and BOD removal rates at AL 1 are incomplete. However, it does appear that the loading to AL 1 is no greater than that initially predicted in 1986.

Because there is a unique relationship between Ciniza and the Pilot Station, we would like to take some time to determine if there actually is an issue, since the total BOD loading for the facility is within the original anticipated design for the existing number of aeration units and lagoons. In order to close the loop Giant would like to fill in some of the data gaps and obtain the following information:

- BOD going into aeration lagoon 1 (per stream or an aggregate number);
- BOD exiting aeration lagoon 2;
- Flow rate between aeration lagoon 1 and aeration lagoon 2; and
- Total water reporting to aeration lagoon 1 – including the API and stormwater separator units.
- Work with operations and engineering to determine what the anticipated increase in flow rate will be due to increase in production.

We have also followed through with the sampling requested in your e-mail on November 30, 2005 and found that the effluent from the travel center does not exceed the RCRA toxicity standards as the quarterly sampling also indicates.

We propose to continue our investigation and, if we determine that the load placed on our AL by the PSE is too great, we would like the opportunity to work with our neighbor to find a cost-effective and acceptable solution for both of us. Since the winter months actually require the greater amount of oxygen, and we are more than half way through the winter, we request additional time to work on this problem and come to a mutually acceptable resolution within a nine-month period. In July 2006 we propose to send you documentation of our findings and any plans to remedy the loading, as appropriate and necessary.

Please let me know your thoughts on the data presented and our proposal.

Sincerely,

Ed Riege

GIANT
REFINING COMPANY
ROUTE 3, BOX 7 • GALLUP, NEW MEXICO 87301
(505) 722-3833 • TWX 910-981-0504

December 12, 1986

Richard L. Stamets
Director
NMOCD
P.O. Box 2088
Land Office Building
Santa Fe, NM 87501

RE: Addition to Giant's Ciniza Refinery Discharge Plan, GW-32

Dear Mr. Stamets:

As your staff is aware, Giant is building a new Travel Center near our Refinery. We would like to use the new Aeration Basin for biological treatment of the waste water generated from that facility. Enclosed are some pertinent data related to this proposed addition.

The facility is scheduled to commence operations in May of 1987. Waste streams will be generated at four general locations: the truck service area, the truck fuel center, the R.V. dump station, and the main building, which houses restaurants, showers and restroom facilities. Each of these sources will run through at least one 2,000 gallon septic tank for solids and grease removal, in addition to some biological treatment. The waste water will gravity flow from the septic tanks to a lift station. The lift station is designed to pump the water to the Parchell flume at the inlet of the aeration basin (pond #1). The system is designed to gravity flow to pond #9, in case of mechanical problems. (See attached sewer layout for details).

The designed flow from the Travel Center is 35 GPM (50,400 GPD), at a $BOD_5$ value of 200 mg/l. This will result in 85 pounds per day of BOD being treated. The refinery organic load was calculated to be 700 mg/l BOD at 117,800 GPD, or 690 #/day BOD. The total anticipated load to the basin therefore is 775 #/day at 168,200 GPD. The aeration equipment (See Appendix A attached) is designed to provide oxygen for up to 1500 #/day of BOD and result in an annualize average evaporation rate of 16,300 GPD (11.3 GPM). The net increase in water to our evaporation ponds would be 34,100 GPD. Utilizing the equations from Table 6-1 (enclosed) of our Discharge plan application report, the total yearly discharge would increase by 12.4 million gallons (MG), for a total of

71.2 MG/yr (218.6 AF/yr). Using the calculated pond evaporation capacity of 228.6 AF/yr, results in a conservative pan evaporation rate capacity of 105%. It should be noted that by lake evaporation rates, the pond's capacity is calculated to be 156%. However, due to the marginal amount of calculated excess capacity, several water conservation projects are being considered.

I hope this provides you with adequate information on this proposed change. If you have any questions, please don't hesitate to call me.

Sincerely,

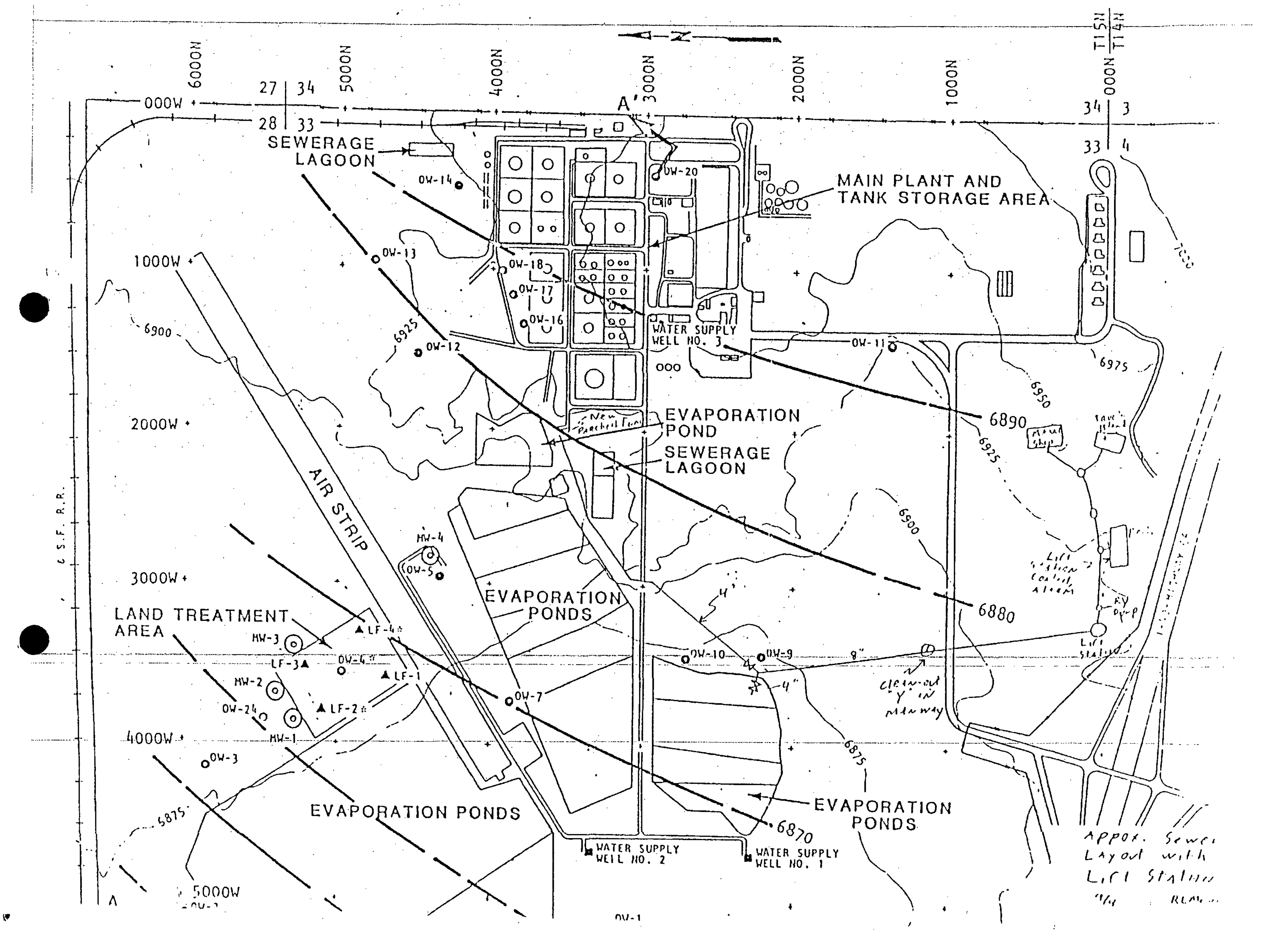
Bob McClenahan, Jr.

Bob McClenahan, Jr.
Environmental Coordinator
Giant Refining Company

RLM:ds

Enclosures

cc: Carl Shook
Trent Thomas, Geoscience Consultants, Ltd.
Carlos Guerra, Giant Industries
Frank Chavez, OCD, Aztec, NM



SEWERAGE LAGOON
MAIN PLANT AND TANK STORAGE AREA
EVAPORATION POND
SEWERAGE LAGOON
EVAPORATION PONDS
AIR STRIP
LAND TREATMENT AREA
EVAPORATION PONDS
EVAPORATION PONDS
WATER SUPPLY WELL NO. 3
WATER SUPPLY WELL NO. 2
WATER SUPPLY WELL NO. 1
6000N
5000N
4000N
3000N
2000N
1000N
000N
T15N
T14N
000W
1000W
2000W
3000W
4000W
5000W
OW-14
OW-13
OW-12
OW-18
OW-17
OW-16
OW-20
OW-11
OW-10
OW-9
OW-7
OW-5
OW-4
OW-3
OW-24
MW-1
MW-2
MW-3
MW-4
LF-1
LF-2
LF-3
LF-4
6870
6875
6880
6890
6900
6925
6950
6975
A
A'
Appox. Sewer Layout with Lift Station

TABLE 6-1

WATER BALANCE FOR EVAPORATION PONDS

| MONTH | PRECIP. (IN.) | PAN EVAP. (IN.) | DIFFERENCE (IN.) |
|---|---|---|---|
| Jan | .56 | .38 | +.18 |
| Feb | .50 | .50 | 0.00 |
| Mar | .61 | .84 | -.23 |
| Apr | .43 | 2.05 | -1.62 |
| May | .43 | 3.82 | -3.39 |
| June | .52 | 5.81 | -5.29 |
| July | 1.83 | 7.11 | -5.28 |
| Aug | 1.65 | 5.92 | -4.27 |
| Sep | .99 | 3.89 | -2.90 |
| Oct | 1.17 | 2.03 Σ 30.63 | -.86 |
| Nov | .62 | .70 91.6% | -.08 |
| Dec | .68 | .39 | +.29 |
| | 9.99 | 33.44 | -23.45 |

Average discharge = 161,000 gallons/day

Yearly Discharge = 365 days x 161,000 gallons/day = 58,765,000 gallons/year

58,765,000 gallons/year x 1 Acre-Foot/325,742 gallons = 180.4 AF/year

Net Pond Evaporation = 23.45 in/year = 1.954 ft/year

Pond Evaporative Capacity = 117 Acres x 1.954 ft/year = 228.6 AF/year

Relative Capacity = $\frac{228.6 \text{ AF/year}}{180.4 \text{ AF/year}}$ = 127%

TC 50,400

RECEIVED AUG 1 4 1986

SIDESLOPES = 2:1
TOP OF DIKE = 10'

SLUDGE POND VOLUMETRICS
TRIAL #3
JULY 18 1986

| CELL | DRAIN POINT ELEV | BOTTOM ELEV | SPILL ELEV | BOTTOM ELEV AREA (SF) | TOP OF POND CONTOUR AREA (SF) | TOP OF FREEBOARD CONTOUR AREA (SF) | POND VOLUME (CF) | FREEBOARD VOLUME (CF) | TOTAL CELL VOLUME (CF) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 92.0 | 93.0 | 100.0 | 10,521 | 14,694 | 16,770 | 68,297(0.51MG) | 31,464 | 99,761 |
| 2 | 86.0 | 87.0 | 96.0 | 12,141 | 18,410 | 20,754 | 112,998(0.85MG) | 39,164 | 152,162 |
| 3 | 85.0 | 86.0 | 96.0 | 34,402 | 48,631 | 51,753 | 349,933 | 100,384 | 450,317 |
| | | | | | | VOLUME TOTALS: | 531,228 | 171,012 | 702,240 |

Appendix A

The following biokinetic data for refinery wastewaters are taken from Reference #1:

a. BOD Removal Rate Coefficient, $(K_e)$ = 0.0004 to 0.0009 L/mg-hr

b. Sludge Synthesis Coefficient, (Y) = 0.35-0.46 lbs. Sludge/lb. $BOD_r$

c. $O_2$ Demand for Synthesis, (a') = 0.91-1.06

d. $O_2$ Demand for Endogenous Respiration, (b') = 0.16-0.21

Since the above data are based on a bench scale experimental study in th laboratory, 20°C (68°F) temperature will be assumed.

Cell #1: Lagoon Temperature: 24°C* (Summer)

Lagoon Temperature: 13.5°C* (Winter)

*REFER TO COMPUTER PRINTOUT FOR COOLING CALCULATIONS.

Correct BOD Removal Rate Coefficient, $K_e$ for temperature,

$$K_{e_{T^\circ C}} = K_{e_{20^\circ C}} \times 1.04^{(T-20^\circ C)}$$

$$= 0.00065 \text{ L/mg-hr (Avg.)} \times 1.04^{25-20}$$

$$= 0.0008 \text{ L/mg-hr} \quad \text{(Summer)}$$

$$= 0.019 \text{ L/mg-day}$$

$$K_{e_{winter}} = 0.00065 \text{ L/mg-hr} \times 1.04^{13.5-20}$$

$$= 0.0005 \text{ L/mg-day}$$

$$= 0.012 \text{ L/mg-day}$$

Basin Volume = 0.51 MG

REFER TO COMPUTER PRINTOUT TRIAL ERROR MLVSS v BODr
NOTE: Summer conditions control.

$BOD_5$ removal = 714 mg/l - 70 mg/l = 644 mg/l

$$\text{lbs } BOD_5 \text{ removed} = 644 \text{ mg/l } (8.34)\ 0.252 \text{ MGD}$$

$$= 1353 \frac{\text{lbs}}{\text{day}}$$

Maximum $O_2$ Demand = a' (BOD removal) + b' (lbs MLVSS)

$$\text{lbs MLVSS} = 245 \text{ mg/l} \times 0.5 \text{ MG} \times 8.34$$

$$= 1022 \text{ lbs MLVSS}$$

$$\text{lbs } O_2 = 1.06 \frac{\text{lbs } O_2}{\text{lb } BOD_r} \left(1353 \text{ lbs } \frac{\text{BOD}}{\text{day}}\right) + 0.21 \frac{1}{\text{day}} (1022 \text{ lbs})$$

$$= 1649 \text{ lbs } \frac{O_2}{\text{day}}$$

$$= 70 \text{ lbs/hr}$$

REFER TO COMPUTER PRINTOUT FOR FIELD $O_2$ TRANSFER RATE CALCULATIONS.

Three (3) - 15HP Aqua Jet aerators with anti-erosion assemblies in Cell are recommended.

Cell #2:

Lagoon Temperature = 22.3°C* (Summer)

Lagoon Temperature = 4.9°C* (Winter)

*REFER TO COMPUTER PRINTOUT FOR COOLING CALCULATIONS

Basin Volume = 0.85 MG

Summer:

REFER TO COMPUTER PRINTOUT TRIAL ERROR MLVSS vs $BOD_r$.

$BOD_5$ removal = 70 mg/l - 6 mg/l = 64 mg/l

lbs $BOD_5$ removed = 64 mg/l (8.34) 0.252 MGD

= 135 lbs/day

Winter:

$BOD_5$ removal = 109 mg/l - 12 mg/l = 97 mg/l

lbs $BOD_5$ removed = 97 mg/l (8.34) 0.252 MGD

= 204 lbs/day

Winter removal requires largest oxygen supply.

lbs MLVSS = 248 mg/l x 0.85 MG x 8.34

= 1758 lbs MLVSS

$$\text{lbs } O_2 = 1.06 \frac{\text{lbs } O_2}{\text{lb } BOD_5} \left(204 \frac{\text{lbs}}{\text{day}}\right) + 0.21 \frac{1}{\text{day}} \left(1758 \frac{\text{lbs}}{\text{day}}\right)$$

$$= 585 \frac{\text{lbs } O_2}{\text{day}}$$

$$= 24 \frac{\text{lbs } O_2}{\text{hr}}$$

REFER TO COMPUTER PRINTOUT FOR FTR CALCULATIONS.

Two (2) - 15 HP Aqua-Jet aerators with anti-erosion assemblies in Cell #2 are recommended.

NOTE: An effluent TSS level of = 300 mg/l should be expected. If th level of discharge is not acceptable, a settling pond (2-3 day will be required.

Also using two - 15 HP aerators in Cell #2 should produce an effluent D.O. level of about 5 mg/l based on the information given. Refer to computer printout.

Reference:

1. Ronald L. Dickenson; John T. Giboney; "Stabilization of Refinery Wastewaters with the Activated Sludge Process: Determination of Design Parameters"; A paper presented at 25th Industrial Waste Conference at the Purdue University, Lafayette, Indiana, May 1970.

SEC/sp
10/22/86

GIANT

REFINING COMPANY

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PHONE
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January 30, 2006

Certified Mail # 7005 0390 0004 3145 6753

Richard Powell
New Mexico Environmental Department
Surface Water Quality Bureau
P.O. Box 26110
Santa Fe NM 87502-6110

2006 FEB 2 PM 12 33

**Re: Response to NPDES Storm Water Compliance Inspection Report, Ciniza Refinery, NPDES #NMR05B157**

Dear Mr. Powell:

Enclosed please find a copy of the response to the written inspection report you provided for the Ciniza refinery inspection on November 10, 2005. This response is designed to respond to and clarify some of the preliminary observations set forth in the Inspection Report and to set forth efforts by Giant to properly manage effluents regulated under Part 419 and stormwater discharges within the Multi-Sector permit.

Giant appreciates the suggestions for improvement of its written SWPPP and has, where appropriate, incorporated those suggestions into a newly revised SWPPP. With respect to some of the comments, it appears the inspection report comments seek modifications at the Ciniza Refinery over and above what is required for MSGP 200 Compliance. Where those comments make sense as a good practice, Giant has included them in the attached SWPPP revision.

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

Thank you for this opportunity to respond with additional information.

Sincerely,

Ed Rios

c: Marcia Gail Bohling, USEPA (6EN-AS)
USEPA, NPDES Permits Branch (6WQ-P)
NMED, District V, Grants
Carl Chavez/Wayne Price, OCD, Santa Fe
Ed Riege Giant, Ciniza
David Kirby Giant, Scottsdale

Enclosure-2

**Response to NPDES Compliance Inspection Report**
**Giant Refining Company/Ciniza Refinery**
**NPDES Permit # NMR05B157, November 10, 2005**

On November 10, 2005, there was an inspection that focused on the Ciniza Refinery's management of stormwater and compliance with appropriate EPA regulatory programs for stormwater discharge. A written inspection report (hereinafter the "Inspection Report") prepared by Mr. Richard E. Powell of the Surface Water Quality Bureau of the New Mexico Environment Department set forth a number of preliminary observations regarding the status of NPDES stormwater compliance by the Ciniza Refinery, which utilizes NPDES Permit # NMR05B157 (the October 30, 2000 Multi-Sector General Permit for Industrial Activities) for the occasional discharge of "industrial stormwater." This response is designed to respond to and clarify some of the preliminary observations set forth in the Inspection Report and to set forth efforts by Giant to properly manage effluents regulated under Part 419 and stormwater discharges within the Multi-Sector permit. Giant is committed to meeting the NPDES requirements and goals of appropriate stormwater management, takes its obligations seriously, and sincerely appreciates the opportunity to respond with additional information.

## I. OVERVIEW OF CINIZA REFINERY WASTEWATER AND STORMWATER MANAGEMENT

As an overview, it is important to remember this refinery, in operation since the late 1950s, is located in a relatively arid region of New Mexico. While precipitation does infrequently occur, much of it often can be managed on-site, without any discharge to a water of the United States. The purview of the NPDES program is a discharge, namely an addition of a pollutant that reaches a water of the U.S. through a point source. If there is no regulated discharge, no NPDES permit is required.

Over the years since the enactment of the initial 1970 Army Corps federal permit program for discharges into waters of the U.S. and their tributaries (which became the NPDES permit program in 1972), the Ciniza Refinery has taken a number of significant measures to assure compliance with surface water quality protection requirements. Properly operated and maintained, these measures keep the Ciniza Refinery in compliance with NPDES requirements.

Today, there are three types of stormwater at the Ciniza Refinery that theoretically could discharge to a water of the United States, if not otherwise managed or controlled to avoid such discharges. The first type of stormwater is "contaminated runoff," as regulated under the technology-based effluent limitations adopted in 1985. 40 C.F.R. Part 419. This is managed in a "zero discharge" system that has been constructed, maintained and operated so as to keep process wastewater (and "contaminated runoff") from reaching a water of the U.S. The second type of stormwater is "stormwater discharge associated with industrial activity," as defined in 40 C.F.R.

Section 122.26 (b)(14), exclusive of the "contaminated runoff" already regulated under Part 419.[1] It is permissible to discharge such industrial stormwater pursuant to the 2000 MSGP, although the Ciniza Refinery generally manages its industrial stormwater for no discharge as well, except in the case of significant precipitation events that would cause the retention facilities' capacity to be exceeded. After significant precipitation events, valves are opened to discharge such industrial stormwater. (There are concrete barriers with valves that discharge to a drainage running across a portion of the property to Outfall 2; there is also a valve system at Outfall 1). The third type of stormwater at this facility is unregulated stormwater. This is stormwater that neither meets the definition of Part 419 contaminated runoff nor 122.26 (b)(14) "stormwater discharge associated with industrial activity." The 1987 Clean Water Act amendments and subsequent EPA regulations make it clear that this stormwater is not, at least at present, subject to NPDES requirements (so long as it is not commingled with other regulated forms of stormwater).

The Ciniza Refinery also maintains and implements an aggressive Integrated Contingency Plan. In the event of a minor spill, the source of a spill is isolated, the spill is contained, and cleanup occurs. A vacuum truck with an 80 bbl capacity is kept operational in the Maintenance Yard as just one of the ICP's precautionary measures to prevent spills from creating problems. As part of the standard operating procedures in the ICP, process surveillance rounds are conducted during each shift. Process equipment, vessels, tanks, piping, and grounds are visually inspected for signs of abnormal conditions, leakage and spills. Spills are immediately reported to the Shift Supervisor and response action is initiated.

[1]Unless commingled, these two types of "CWA-regulated" stormwater are managed under separate NPDES regulatory programs, with "contaminated runoff" discharges being regulated under the traditional NPDES process wastewater discharge program and the "stormwater discharge associated with industrial activity" being regulated under the NPDES stormwater discharge program, which can include use of the 2000 MSGP.

In brief, Giant operates and maintains a "zero discharge" retention system that has been constructed to manage Part 419 process wastewater and "contaminated runoff" without an NPDES permit. Part 419 regulated effluent is managed in "zero discharge" retention impoundments.[2] At the time of the November 10, 2005 inspection referenced in the Inspection Report, no discharges of "contaminated runoff" (or process wastewater) regulated under Part 419 were occurring. All process wastewater and any associated "contaminated runoff" was being directed into the "zero discharge" system on that date, as is the standard operating procedure at the Ciniza Refinery every day. As a result of Giant's operation and maintenance of the "zero discharge" retention system for all process wastewater and "contaminated runoff" as that term is defined in Part 419, no NPDES permit for Part 419 regulated effluent is required at the Ciniza Refinery. Building, maintaining and operating a "zero discharge" NPDES treatment system eliminates the need for that type of NPDES permit.

As presently operated by Giant, "industrial stormwater"[3] (not under Part 419) generally will not discharge from the Ciniza Refinery. It is captured initially in an industrial stormwater management retention system. In contrast to the "zero discharge" system for Part 419 regulated effluents, some "industrial stormwater" occasionally must be discharged after a significant precipitation event but only from two stormwater basins (controlled by valve systems) that drain to the areas known as Outfall 1 and Outfall 2. The Ciniza Refinery manages its regulated "industrial stormwater" from the Outfall 1 and Outfall 2 basins in a separate stormwater retention system that does not have sufficient capacity to hold all the "industrial stormwater" volumes that may infrequently result during significant precipitation events. Giant has obtained coverage under the 2000 MSGP to allow such discharges of "industrial stormwater" for those infrequent occasions when its "industrial stormwater" retention capacity for those two basins is exceeded.

On the November 10, 2005 inspection date, there were no such volumes of "industrial stormwater" at the Ciniza Refinery, and there were no discharges of any "industrial stormwater" of the type sought to be covered by the 2000 MSGP. Before any discharge occurs from the Ciniza Refinery "industrial stormwater" retention systems for the Outfall 1 and Outfall 2 basins, the opening of specific valves[4] in the retention system must occur. All valves were closed on

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[2]Federal programs to permit discharges (additions of pollutants) to waters of the United States, started with Executive Order 11574 in 1970, which led to the 1970 establishment of the Refuse Act Permit Program regulations (the "RAPP"), the forerunner of the NPDES permit. The Ciniza Refinery began to make a number of structural, maintenance and operational modifications to keep process wastewater (and what became Part 419 "contaminated runoff") from being discharged to a water of the United States, resulting in the zero discharge system it currently maintains and operates.

[3]This term of "industrial stormwater" excludes the "contaminated runoff" regulated under Part 419.

[4]"Contaminated runoff" covered under Part 419 is not discharged on those infrequent occasions when it is necessary to open valves and discharge some MSGP "industrial

November 10, 2005. The facility was not discharging. No illegal discharges were occurring at the facility. There were no discharges whatsoever on November 10, 2005.

## II. The Ciniza Refinery's Response to the Federal Permit Requirement for Process Wastewater/"Contaminated Runoff" Discharges (Effluents Regulated Under Part 419) Has Been to Design, Construct, Maintain and Operate a "Zero Discharge" Retention System For All Part 419 Effluent Streams. As a Result, No NPDES Permit is Required for Part 419 Discharges at the Ciniza Refinery.

The Inspection Report focuses on stormwater issues, and properly points out that, today, regulated stormwater discharges at petroleum refineries may be under Part 419 or they may be under the "industrial stormwater" program that took effect in the 1990s (after the Congressional amendments of the Clean Water Act in 1987). This portion of the response focuses on the management of Part 419 process wastewater and "contaminated runoff."

A series of federal regulatory developments, beginning with the initial 1970 Refuse Act Permit Program (run by the Army Corps with EPA assistance), then followed by the Congressional adoption of the NPDES permit requirement in 1972, and the EPA efforts starting in 1973 to adopt technology based regulations governing "contaminated runoff" (Part 419) from petroleum refineries, resulted in the determination in the 1970s by the Ciniza Refinery to manage its process wastewater (and the stormwater that meets the definition of "contaminated runoff" under Part 419) in a zero discharge retention system. **Giant continues to maintain and operate this zero discharge system for process wastewater and "contaminated runoff," regularly inspecting (on a weekly basis) the condition of the retention system and the freeboard (remaining capacity). Records are kept of each such inspection. This zero discharge retention system has a demonstrated track record of effectively handling all Part 419-regulated effluent. The retention system has been highly successful over the past 30-plus years with respect to preventing discharges of Part 419 process wastewater and any "contaminated runoff."** No NPDES permit for Part 419 effluent is necessary.

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stormwater." Giant directs all Part 419 "contaminated runoff" into the zero-discharge retention system, not into the "industrial stormwater" detention system which has these valves.

As far back as the early 1970s, the Ciniza Refinery designed and constructed a "zero discharge" system, which it subsequently has maintained, upgraded at times and continuously operated, to appropriately handle process wastewater and "contaminated runoff" as defined under Part 419.[5] The recent Inspection Report, however, incorrectly implied that the Ciniza Refinery directs "contaminated runoff" regulated under the Part 419 program into the detention system for "industrial stormwater." To the contrary, Part 419 "contaminated runoff" is directed to the zero discharge retention system, set up and maintained since the 1970s to respond to the process wastewater NPDES requirements (for which the technology based limitations are set forth in Part 419).

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[5]After the 1987 CWA amendments regulated additional "industrial stormwater," a stormwater detention system was utilized to keep the bulk of that additional "industrial stormwater" on-site as well, although occasional discharges are necessary from the retention system when its capacity is exceeded by a significant precipitation event.

To fully understand how Part 419 "contaminated runoff" is regulated, and properly managed at the Ciniza Refinery, it is helpful to review the history of regulatory developments that impacted the Ciniza Refinery's management of stormwater. The review is also helpful to clarify exactly what is defined as "contaminated runoff" subject to Part 419. These regulatory developments logically led the Ciniza Refinery to the design, construction, regular maintenance and operation of an NPDES-compliant "zero discharge" retention system for Part 419 regulated effluent streams (including process wastewater and "contaminated runoff").[6]

The relevant regulatory history begins with a federal mandate in 1970 that an oil refinery, such as the Ciniza Refinery, may no longer discharge into a water of the United States (or its tributaries) unless a federal permit was obtained to assure the pollution would not be unduly harmful. These initial federal efforts to require a permit for discharges of wastewater from industrial facilities such as this oil refinery utilized the authority of the Rivers and Harbors Act (also known as the Refuse Act), administered by the Army Corps of Engineers. Earth Day and public concerns led Richard Nixon not only to create the U.S. Environmental Protection Agency in 1970, it also led to his 1970 issuance of Executive Order 11574.

> "Executive Order 11574 initiated the Section 13 (R&H Act of 1899) permit program known as the **Refuse Act Permit Program (RAPP) for controlling all discharges into navigable waters and their tributaries.** RAPP administered by Corps with oversight and decision authority by EPA."

**Summary of History** of Army Corps Regulatory Programs (prepared by the Army Corps) at page 1; on the Internet at http://www.usace.army.mil/inet/functions/cw/cecwo/reg/reghist.pdf. (Bold emphasis added.)

In 1972, Congress enacted the Clean Water Act requiring NPDES permits for facilities adding pollutants to federally protected waters through a point source, which continued the regulation of discharges to navigable waters and their tributaries but moved the permit program from the Army Corps of Engineers to EPA (with the exception of 404 dredge and fill discharges, for which permitting authority was kept in the Army Corps). The new NPDES permits were more detailed in terms of what was to be included, and specifically required technology-based effluent limitations (TBELs) and, where necessary to assure attainment with water quality standards for the receiving waters, water-quality based effluent limitations (WQBELs).[7]

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[6]As discussed in the next section of this response, the Congressional mandate to regulate "industrial stormwater" in 1987 led to the decision by the Ciniza Refinery to utilize the general permit (currently the 2000 MSGP) for those few occasions when a discharge of "industrial stormwater" (**not "contaminated runoff"**) might be required out of the stormwater detention system that was constructed. This "industrial stormwater" detention system (and occasional discharges from it) should not be confused with the zero discharge retention system for Part 419 regulated process wastewater and "contaminated runoff."

[7]The extent to which the NPDES permit program would address stormwater discharges

**For the Ciniza Refinery, these efforts** [first (in 1970) by the Army Corps to regulate industrial discharges into navigable waters and their tributaries (the RAPP permit program) and then by EPA in the newly created NPDES program (as continued with EPA's subsequent twelve year effort to develop the Part 419 TBEL regulations for the petroleum refining sector)] **sent a fairly clear signal that, at a minimum, process wastewater would have to be captured in order to meet discharge limitations for these new permits.**

The Ciniza Refinery knew it would have to capture all process wastewater and any other similarly-regulated effluent (including co-mingled stormwater) in order to treat it to discharge standards. Because of the location in an arid climate zone in which evaporation greatly exceeded precipitation, the Ciniza Refinery decided to construct and operate not just a detention system to allow treatment prior to discharge, but an appropriately sized retention system that would allow no discharge. The arid climate allowed the use of evaporative treatment and/or water recycling in a zero discharge system to be implemented by the Ciniza Refinery.

While a series of ponds designed to detain all process wastewater already existed at the facility, the Ciniza Refinery built additional ponds in the early 1970s to hold and retain (without discharge) all process wastewater, and later what EPA would finally define as "contaminated runoff" under the Part 419 regulations in 1985. Ponds 11, 12A and 12B specifically were added to create additional holding capacity for the retention system, enabling the refinery to go to zero discharge treatment of process wastewater and what would later become defined as "contaminated runoff."

Given the size of refinery operations and the amount of product being processed, these new ponds 11, 12A and 12B were required to meet the goal of a "zero discharge" NPDES facility with respect to the process wastewater (and the other associated effluents [i.e., "contaminated runoff"] that eventually became regulated under Part 419 in 1985). Although the Ciniza Refinery has changed ownership since its original construction in 1957 and since it built additional retention capacity to achieve zero discharge, the new owner maintains and operates that zero discharge system to this date. Since Giant, the current owner, acquired the Ciniza Refinery, it has regularly maintained and operated this retention system so as to maintain the "zero discharge" status for Part 419 regulated effluent.

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from industrial facilities was unclear for the first 15 years of the CWA, and eventually would be resolved by the issuance of some technology-based effluent limitations that did address stormwater and then by the development of a new industrial stormwater discharge program in the 1990s, consistent with the clarifying direction of the 1987 CWA amendments.

EPA's efforts to regulate stormwater in the 1970s and 1980s involved a number of different regulatory initiatives, most of which ended up in litigation over issues of scope and legality. With respect to petroleum refining, EPA did make early efforts to begin regulating at least some highly contaminated runoff from process areas as far back as 1973. Eventually, this regulatory effort resulted in the 1985 regulation of "contaminated runoff" under Part 419 and later, in 1992, the regulation of "stormwater discharge associated with industrial activity" under Section 122.26.

While the Part 419 regulations setting discharge quality limitations for "contaminated runoff" did not become finally effective until 1985, the EPA efforts to regulate "process wastewater" also sought to address some contaminated runoff at petroleum refineries at least as far back as 1973, when studies done by contractors led to the first proposal of Part 419 effluent limitations. 38 Fed. Reg. 34542 (December 14, 1973). In the May 9, 1974 Federal Register, EPA regulations were made effective that required NPDES TBELs for the petroleum refining point source category to address some runoff as well as process wastewater. In a final rule that initially created 40 C.F.R. Part 419, that 1974 regulation addressed "runoff" (defined as the "flow of storm water") and provided a method for determining TBEL limits that was based on "storm flow (**process area runoff**) which is treated in the main treatment system." It also provided a TBEL for "[a]ll additional storm runoff (from tank fields and non-process areas), that has been segregated from the main waste stream for discharge. " See, i.e., 39 Fed. Reg. at 16564 (May 9, 1974). EPA stated in the preamble, that in response to comments on the earlier draft rule, it had divided storm runoff as follows:

> "The handling of storm runoff was reevaluated and the run-off from a refinery was broken down further to consider tankfield runoff, process area runoff, and other noncontaminated runoff. This reevaluation also considered the treatment of marginally contaminated runoff. (See "Development Document," Section VII. )
>
> As a result of this evaluation, a limit of 35 mg/l TOC and 15 mg/l oil and grease (both maximums) was set for both tankfield runoff and other uncontaminated runoff. (This is changed from 15 mg/l of TOC and no visible sheen). The limits for contaminated runoff should remain the same."

39 Fed. Reg at 16560 (May 9, 1974). Thus, as far back as 1973 and 1974, there were efforts to have Part 419 address some runoff, which was divided into "contaminated runoff" and "tankfield runoff and other uncontaminated runoff." Stringent discharge limits were set for process wastewater and "contaminated runoff," and the remaining "tankfield and other uncontaminated runoff" had far less stringent limits that generally would not require capture and treatment at a facility like the Ciniza Refinery.

The Ciniza Refinery had already been reengineered towards the zero discharge goal for the process wastewater and contaminated runoff. EPA's effort to regulated uncontaminated runoff was contested by the American Petroleum Institute.

Following these legal challenges by the American Petroleum Institute and others with respect to these initial TBELs for the petroleum refining sector (and the coverage of both the contaminated runoff [which had to be captured and treated] and the tankfield and uncontaminated runoff [which generally did not have to be captured and treated]), EPA solicited additional comments on modifying the Part 419 regulations to eliminate some of these problems. A variety of regulatory modifications were sought.

On May 20, 1975, EPA modified the Part 419 regulations again. 40 Fed. Reg. 29139 (May 20, 1975). Some of the preamble statements in that rulemaking relate to EPA's efforts to develop a properly legal regulatory program that would address some stormwater:

> "In the draft contractor's report the flows from the refineries were broken down into three categories: 1) process water, 2) storm runoff, and 3) once-through cooling water. The process waters included: waters which come into direct contact with a product, intermediate, or raw material; contaminated storm runoff; and cooling tower blowdown. Process waters were considered to require treatment, and were to be segregated and discharged separately from clean storm runoff and once-through cooling water which were presumed to be uncontaminated."

40 Fed. Reg. at 21940. EPA then discussed the proposed and final new regulation's treatment of stormwater:

> "The proposed regulation differed from the contractor's report in several respects. The definition of process water remained the same, except that an added allocation was given for ballast water and contaminated stormwater, over and above the basic allocation. In addition, concentration limits were set for both clean stormwater and once-through cooling water. These changes meant that the basic pollutant allocation was not actually based on process water flows, and the contaminated storm runoff, ballast, clean storm runoff and once-through cooling water each received separate allocations.
>
> In the promulgated regulations, ... the previous definitions of different types of waste streams (process water, ballast water, etc.) were retained. EPA has not modified the contractor's original approach to identifying flows used in the calculation of BAT limitations."

40 Fed. Reg. at 21941.

These indicated EPA's mid-1970s approach to regulating refinery stormwater under Part 419. The EPA and its contractor were taking the position in the development of these regulations that there was one set of requirements for "contaminated runoff" that appeared to be based on "storm flow (process area runoff) which is treated in the main treatment system" (as originally stated at 39 Fed. Reg. 16564 (May 9, 1974); and also "[a]ll additional storm runoff (from tank fields and non-process areas), that has been segregated from the main waste stream for discharge." Id.

A review of the preamble language from 1975 confirmed that storm runoff that commingled with process water would be regulated like process water because it passed through the treatment system as well:

> "the flows from the refineries were broken down into three categories: 1) process water, 2) storm runoff, and 3) once-through cooling water. **The process waters included**: waters which come into direct contact with a product, intermediate, or raw material; **contaminated storm runoff**; and cooling tower blowdown. **Process waters were considered to require treatment, and were to be segregated and discharged separately from clean storm runoff and once-through cooling water which were presumed to be uncontaminated.**"

40 Fed. Reg. at 29140 (May 20, 1975) (Emphasis added). Included in the clean storm runoff category would be stormwater that might come from an area of the refinery where petroleum material might be present, but its method of handling kept the stormwater clean (i.e, it did not have contact with the process materials or process wastewater).

"Clean storm runoff" would occur, for example, if the petroleum material were inside a tank or pipe and not exposed to the stormwater during a precipitation event. This was apparent from EPA's use of language such as the following:

> "The handling of storm runoff was reevaluated.... **As a result of this evaluation, a limit** of 35 mg/l TOC and 15 mg/l oil and grease (both maximums) **was set for both tankfield runoff and other uncontaminated runoff.** (This is changed from 15 mg/l of TOC and no visible sheen). **The limits for contaminated runoff should remain the same.**"

39 Fed. Reg at 16560 (May 9, 1974).

Thus, the Ciniza Refinery naturally had to look at controlling stormwater in two different ways: first, determine what stormwater would become contaminated through contact with petroleum materials or process wastewaters at the facility such that EPA would consider that "contaminated runoff" as having to meet process wastewater limits achievable by handling that water through a wastewater treatment system; second, look at the remaining stormwater in other areas (where petroleum might be managed but was prevented from contacting the precipitation by the physical integrity of the containing tank or pipe or perhaps a roofed structure with a separate drainage system away from the process area) where such stormwater would be considered "clean" or in EPA's words could be "presumed to be uncontaminated." Again, the zero discharge retention system at the Ciniza Refinery, with the new ponds constructed and properly maintained, was managed in such a way as to handle the stormwater that was contaminated by contact with petroleum materials or commingled with process wastewaters.

The legality of EPA's authority to regulate runoff, including "uncontaminated runoff," was disputed by industry, along with other alleged deficiencies challenged in the Part 419 litigation. The 1975 modifications did not resolve adequately all of the industry concerns and the court challenge continued. Although by this time the Ciniza Refinery was managing process wastewater and co-mingled contaminated runoff in a zero discharge system in the spirit of these Part 419 regulations, the Part 419 stormwater regulations adopted in 1974 and 1975 did not survive the legal challenges.

The **litigation challenges** to this Part 419 regulatory effort by EPA to develop TBEL regulations for petroleum refineries **stormwater resulted in an invalidation of the Part 419 effort to regulate stormwater** and a remand to EPA by the court. *American Petroleum Institute v. EPA*, 540 F. 2d 1023 (10th Cir. 1976). **On October 18, 1982, EPA formally withdrew the Part 419 storm water effluent limitations that had been promulgated on May 9, 1974.** <u>See</u> 47 Fed. Reg. 46434 (October 18, 1982).[8] Once again, more litigation ensued, resulting in another settlement agreement in which EPA agreed to propose "effluent limitations guidelines for contaminated storm water runoff." 49 Fed. Reg. at 34152 (August 28, 1984). (EPA was no longer proposing any limits for "uncontaminated runoff.")

Thus, in 1984, EPA proposed changes to the Part 419 regulations that, once again, would address "contaminated runoff." EPA again observed the question of what stormwater was and was not regulated under technology based requirements in NPDES permits was highly confusing:

> "In the October 18, 1982 rulemaking the Agency withdrew storm water effluent limitations guidelines for BPT, BAT and NSPS because they were remanded by the U.S. Court of Appeals in *American Petroleum Institute v. EPA,* 540 F.2d 1023 (10th Cir. 1976).
>
> <u>Since that remand there has been some confusion on the part of permit writers and others as to whether storm water runoff ('runoff") effluent limitations should be contained in permits</u>. There are two kinds of such runoff, i.e., contaminated and uncontaminated. The purpose of this rulemaking is to establish BPT, BCT and BAT effluent limitations guidelines for contaminated storm runoff.
>
> * * *
>
> <u>In today's proposal, EPA is defining contaminated runoff, for purposes of these regulations only, to be runoff which comes into contact with any raw material, intermediate product, finished product, by-product, or waste product located on petroleum refinery property. Any other storm water runoff at a refinery is considered uncontaminated</u>. . . .
>
> Contaminated runoff constitutes an additional source of pollution which must be managed during periods of precipitation along with process wastewater from refinery operations. <u>The regulations being proposed today do not establish numerical effluent limitations for uncontaminated runoff</u>. Effluent limitations, including but not limited to

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[8]Nevertheless, the Ciniza Refinery had already engineered its facility to contain process wastewater and what EPA appeared to be referring to in the overturned regulations as "contaminated runoff."

allocations, for uncontaminated runoff may be established by the permit writer based on his/her professional judgment."

49 Fed. Reg. at 34154 (August 28, 1984)(underlined emphasis added).

**Thus,** in 1984 (as later finalized as the final Part 419 regulations in 1985), EPA was continuing the concept that **there would be two kinds of discharged stormwater from a petroleum refinery, that which was contaminated because it had directly contacted process materials (the precipitation "came into contact with" the raw material or the product or the waste product) and that discharged stormwater that was uncontaminated by direct contact with such materials (such as that in an area where all petroleum materials were kept segregated from contact with storm water so that the runoff was previously identified by EPA as presumably clean).**[9] The former would have to be captured and treated along with

[9]It was certainly EPA's apparent position in 1985 that only in those areas in which petroleum was managed regularly so that it would come into contact with stormwater that Part 419 effluent limitations would apply to that "contaminated runoff" and that such "contaminated runoff" would now have to be permitted under Section 402. It would be completely incorrect to read Part 419 as covering any effluent from any location where a petroleum spill might ever occur. It only covered those process areas where petroleum would regularly contact stormwater such that it was "contaminated runoff," not any place an accidental spill might occur.

Roughly contemporaneous with EPA's issuance of the Part 419 effluent limitations in 1985 was its issuance of updated Part 110 spill reporting regulations that sought to clarify which oil spills would have to be reported under Part 110 and which ones were considered to be covered under Part 402. In the March 11, 1985 proposed rule amending Section 311 oil spill reporting [40 C.F.R. Part 110], EPA clarified which spills are handled under the NPDES permit reporting for a facility with an NPDES permit and, conversely, which would be handled under Section 311 and the Part 110 oil spill reporting procedure. Here, in 1985, EPA was proposing new amendments to 40 C.F.R. Part 110 to incorporate the 1978 CWA Congressional clarification as to which oil spills get handled under an NPDES permit as opposed to under Section 311 of the CWA. See, generally, 50 Fed. Reg. 9776 (March 11, 1985). [Obviously, if a spill is under Part 110, it is not subject to 402 and thus neither is that spill nor any contacting runoff subject to Part 419.]

EPA headquarters set forth (in this March, 1985 Federal Register preamble) the following instructive guidance:

> In addition to changing the harmful quantity language in the 1978 amendments to the CWA, Congress also modified the definition of "discharge" in section 311 (a)(1) to exclude from Section 311 coverage three types of discharges that are subject to the Section 402 National Pollutant Discharge Elimination System (NPDES) and Section 309 enforcement provisions. Specifically, Congress provided that the following discharges be excluded from section 311 coverage:
>
> *(A) discharges in compliance with a permit under section 402 of this Act,*

*(B) discharges resulting from circumstances identified and reviewed and made a part of the public record with respect to a permit issued or modified under section 402 of this Act, and subject to a condition in such permit, and ( C) continuous or anticipated intermittent discharges from a point source, identified in a permit or permit application under section 402 of this Act, which are caused by events occurring within the scope of relevant operating or treatment systems.*

The basis for this specific exclusion stems from the uncertainty under the old statute as to whether and to what extent discharges from facilities with NPDES permits were subject to the provisions of section 311. Senator Stafford, a principal sponsor of the amendment to section 311, explained the general nature of the changes:

* * **we are attempting to draw a line between the provisions of the act under sections 301, 304, 402 regulating chronic discharges and 311 dealing with spills. At the extremes it is relatively easy to focus on the difference but it can become complicated. The concept can be summarized by stating that those discharges of pollutants that a reasonable man would conclude are associated with permits, permit conditions, the operation of treatment technology and permit violations would result in 402/309 sanctions; those discharges of pollutants that a reasonable man would conclude are episodic or classical spills not intended or capable of being processed through the permitted system and outfall would result in the application of section 311. (* 124 **Congressional Record** 37683 (1978)).

More specifically, Senator Stafford related that "the changes make it clear that discharges, from a point source permitted under section 402 which are associated with manufacturing and treatment, are to be regulated under Sections 402 and 309. 'Spill" situations will be subject to section 311, however, regardless of whether they occur at a facility with a 402 permit" ( 124 **Congressional Record** 37683 (1978)).

50 Fed. Reg. at 9777.

In the April, 1987 final rule adopting these Section 311 changes to 40 C.F.R. Part 110, EPA again spoke to the clear and complete distinction that Congress mandated in the 1978 Congressional amendment on CWA spill reporting [a spill is either to be reported under section 311 or under the facility's NPDES permit, but 311 and 402 are meant to be mutually exclusive]:

Congress intended this amendment to clarify which section of the CWA governs discharges of oil and hazardous substances from point sources holding NPDES permits. Foreseeable or chronic point source discharges that are permitted under section 402, and that are either due to causes associated with the manufacturing or other commercial activities in which the discharger is engaged or due to the operation of the treatment facilities required by the NPDES permit, are to be regulated under the NPDES program. "Classic spill" situations are subject to the requirements of section 311. Such spills are governed by section 311 even where the discharger holds a valid and effective NPDES permit under section 402.

the process wastewater.

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52 Fed. Reg. 10712, 10714 (April 2, 1987).

This history of what is under Part 402 (and, thus potentially covered under Part 419) versus what is under Section 311 also supports the conclusion that in 1985 EPA and Congress did not take the position that the mere possibility of a spill in a particular area made all of the runoff from that area that contacted such a spill into Part 419 regulated effluent under an NPDES (402) permit.

Whether or not the stormwater was regulated hinged not on whether it was in a particular area of the refinery, but instead on whether it contacted the process raw or waste materials or any petroleum product. (This was the specific and unambiguous, plain language expressly chosen to define "contaminated runoff" in Part 419.) If not, it was uncontaminated runoff that would be regulated only if commingled with regulated Part 419 process wastewater/contaminated stormwater or if the permit writer, in the course of writing the permit, chose to so regulate it.[10]

**EPA sought**, however, **to discourage the routing of uncontaminated water (i.e., from a tank or pipe area where no contact occurred) into the same treatment system as the process wastewater and contaminated runoff**, believing it to be a far sounder environmental practice to discharge that uncontaminated stormwater separately:

> "These proposed regulations do not address uncontaminated runoff which is discharged through the process wastewater treatment facility. This is because the Agency believes that introducing uncontaminated runoff to the process wastewater treatment system may result in the discharge of an increased mass of pollutants to the environment compared to the mass of pollutants discharged if no uncontaminated runoff were present in the process wastewater treatment system. Therefore, the Agency does not want to encourage this practice on a national basis."

49 Fed. Reg at 34155. Here EPA was encouraging refineries to take stormwater that did not come into direct contact with petroleum process materials, as opposed to precipitation on the actual process area where it would actually contact petroleum materials (or petroleum waste), and not to put that uncontaminated stormwater into the same system as the Part 419 stormwater.

In the 1985 preamble to the final Part 419 regulations, EPA made this point again (in responding to various comments on the 1984 proposed Part 419 regulations):

> "[C]larifications were requested on the Agency's definition of contaminated runoff and its intentions to include only water which comes into direct contact with raw materials or petroleum products (i.e., exposed or spilled oil) or to extend its coverage to runoff from storage areas or tank farms where, ideally, no direct contact occurs.
>
> The Agency's intent in promulgating storm water runoff limitations is to provide a mechanism for the control of storm water when this waste stream is, or is very likely to

[10]The legality of EPA addressing stormwater that was uncontaminated and not co-mingled at an industrial facility was questionable, until Congress clarified this issue in the 1987 CWA amendments and EPA developed the resulting definition of regulated "stormwater discharge associated with industrial activity" at Section 122.26(b)(14).

be, contaminated by direct contact with raw, intermediate or final products. The collection and treatment of storm water runoff that is uncontaminated can be costly and burden the refinery's wastewater treatment system. For this reason, the **Agency wishes to encourage refineries which segregate uncontaminated storm water runoff from contaminated wastewater streams to continue this practice.**"

50 Fed. Reg. at 28522 (July 12, 1985)(bold emphasis added). **EPA was clearly telling** the petroleum refining sector, including the **Ciniza Refinery, not to route stormwater that did not become contact-contaminated into the same treatment system with the process wastewater,** but that EPA preferred instead that such water be discharged elsewhere. [Two years later, Congress would (in the 1987 CWA amendments) direct EPA to provide an altogether different approach for regulating such stormwater at industrial facilities, which today is embodied in 40 C.F.R. Section 122.26.]

After these Part 419 regulations were promulgated, the stormwater flows at the Ciniza Refinery were such that **stormwater that did come into contact with petroleum materials** was directed, along with the process wastewaters, **into the zero discharge wastewater treatment** system of retention ponds and basins constructed and operated to assure that Part 419 regulated effluents directed into this system would not discharge. The EPA was still expressly stating that uncontaminated stormwater (any stormwater that had not come into contact with the petroleum raw materials, intermediate or final products or petroleum waste) should generally not be commingled if possible, and that such presumably uncontaminated water was not subject to any numeric effluent limitations under Part 419.

As discussed below in the section on discharges of "industrial stormwater" regulated under Section 122.26, a second retention system is set up to hold that "industrial stormwater" without discharge as well, except when it is determined the holding capacity (not engineered for all of the runoff from large storm events) will be exceeded. Such discharges of industrial stormwater from these valved systems will occur in the summer monsoon rains, and occasionally in a big spring rain event. At that time, a decision is made to open the 122.26 "industrial stormwater" retention system valves to allow valved discharge in the areas denominated as Outfalls 1 and 2.

In the event a problem occurs with the zero discharge stormwater management system for retaining Part 419 regulated effluents, and either process wastewater or "contaminated runoff" that had contacted petroleum materials escaped this zero discharge system, that does not mean it would then discharge to a "water of the U.S." in violation of the CWA. The process wastewater or Part 419 "contaminated runoff" would then go into the 122.26 "industrial stormwater" retention system, which does not discharge unless valves are opened. In such a situation involving an unintended escape of Part 419 effluents from the main zero discharge retention system, these Part 419 effluents would then be captured in the "industrial stormwater" retention system, cleaned up and, as appropriate, placed into oil recovery units or into the zero discharge WWTU retention system. The Ciniza Refinery thus has a redundancy built in to its control of

Part 419 effluents to keep it zero discharge, even if a problem with the main zero discharge containment system occurs.

The Ciniza Refinery continues to manage all Part 419 process wastewater and "contaminated runoff" (as defined and then clarified by the foregoing regulatory history and relevant preambles for the twelve year history of the Part 419 regulations) in its zero discharge retention system, consistent with EPA's 1985 regulations, and should not need an NPDES permit for Part 419 effluents as a result of the operational and maintenance protocols which successfully maintain this system as zero discharge.

## III. The Ciniza Refinery Generally Manages "Storm Water Discharge Associated With Industrial Activity" [or "Industrial Stormwater"] As Appropriate Under The New EPA Regulatory Program Arising From the 1987 Clean Water Act Amendments and 40 C.F.R. Section 122.26. Only Two Areas at the Refinery Have "Industrial Stormwater" (Not Commingled With "Contaminated Runoff") That Occasionally Must Be Discharged from A Separate Storm Water Retention System By Opening Valves (for Outfalls 1 or 2) When Precipitation Events Exceed Retention Capacity.

In 1987, Congress amended the Clean Water Act, in part to help resolve some of EPA's administrative and legal difficulties (as shown by numerous court challenges) in seeking to regulate stormwater discharges. The 1987 Water Quality Act required EPA first (by October 1, 1992) to regulate storm water discharges "associated with industrial activity."[11] EPA set forth that definition of what was a "stormwater discharge associated with industrial activity" in 40 C.F.R. 122.26(b)(14) and it was discussed at some length at 55 Fed. Reg. 48007-15 (Nov. 16, 1990).

The new "industrial stormwater" program was not intended to cover discharges already under a TBEL regulation, like Part 419 "contaminated runoff," but it took what EPA previously had described as "clean" or "uncontaminated runoff" from industrial areas at petroleum refineries which did not have "contact" with the Part 419 petroleum materials and subjected that non-contact stormwater (i.e., from tank farms, roofed areas, and other locations where stormwater fell in an industrial area) to this new program.

The 1990 stormwater regulations that EPA developed for this new "industrial stormwater" program then defined what portions of a facility with a listed SIC code are considered to have industrial activity, such as industrial plant yards, material handling sites, refuse sites, shipping and receiving areas, manufacturing buildings, material storage areas for raw

[11]Included by Congress in the list of SIC industries considered to have industrial stormwater discharges were facilities classified as SIC code 29, which covers petroleum refineries.

material, intermediate and finished products. 40 C.F.R. Section 122.26(b)(14).[12]

The approach to determining what was regulated was different in the new "industrial stormwater" program as well. In the Part 419 program, the determination of whether runoff was regulated turned on whether the stormwater "comes into contact with" petroleum products, raw materials or petroleum waste products. In this new "industrial stormwater" program, it was not the contact with materials that made the stormwater regulated, it was the area at the industrial facility on which the stormwater fell that determined if it was regulated.

The sweep of the new "industrial stormwater" provisions clearly covered many areas of the Ciniza refinery whenever such stormwater in that area did not come into contact with raw material, intermediate or finished product or petroleum waste. Thus stormwater that had never contacted any petroleum materials (thus not "contaminated runoff" under Part 419) would still require a permit for discharge under this new regulatory program if it met the definition of a "stormwater discharge associated with industrial activity" in 40 C.F.R. Section 122.26(b)(14). While EPA in 1985 had clearly and expressly encouraged petroleum refineries not to commingle such "industrial stormwater" with the "process wastewater" and "contaminated runoff" already regulated under Part 419, now this new "industrial stormwater" program would require a separate permit for discharge under Section 122.26.

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[12]In response to a comment, EPA specifically stated:

> "[T]ank farms at industrial facilities are included. Tank farms are in existence to store products and materials created or used by the facility. Accordingly they are directly related to manufacturing processes."

55 Fed. Reg. at 48009.

"Industrial stormwater" at the Ciniza Refinery typically falls into two categories: (1) that which does not discharge at all, and thus is not regulated[13]; and (2) that which is handled in stormwater drainage basins that have retention systems, but must occasionally discharge when the holding capacity is exceeded.[14] There are two such basins, which discharge to the areas denominated as Outfall 1 and Outfall 2. It **is this latter category of occasionally discharged "industrial stormwater" that is subject to the MSGP requirements.** This is the only regulated "industrial stormwater" at the Ciniza Refinery under 122.26.

Much of the 122.26 regulated "industrial stormwater" is directed into initially routed to retention containments. **Giant generally manages such regulated "industrial stormwater"** in this "industrial stormwater" retention systems (prior to discharge at the Outfall 1 or Outfall 2 locations) **to prevent discharge except in the case of a significant precipitation event.** Such a precipitation event could cause the holding capacity of this "industrial stormwater" retention system to be exceeded. **When necessary, valves are opened and "industrial stormwater" discharged at the locations at the Ciniza Refinery denominated in its Stormwater Pollution Prevention Plan as Outfalls 1 and 2.**

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[13]This category does not include "contaminated runoff" directed into the zero-discharge system for managing Part 419 effluent. It includes runoff from industrial areas that happen to drain into other "no outlet" areas where the stormwater either percolates or evaporates, but does not discharge to a "water of the United States."

[14]There is one location on the north and east side of the LPG tank farm area where some stormwater can flow to the drainage leading to Outfall 2 without passing through the valved retention system. As a result of the concern about this expressed in the Inspection Report, even though Giant is unaware of any stormwater from that area being discharged after a spill in this one portion of the tank farm, Giant has budgeted, engineered and contracted for full containment of this area so it will become zero discharge for stormwater.

Because the Ciniza Refinery did have a few areas where uncontaminated stormwater occurs that meets the definition of a "stormwater discharge associated with industrial activity" in 40 C.F.R. 122.26(b)(14), the Ciniza Refinery would have some "industrial stormwater" that could require a permit for discharge under this newer program.[15]

In 1992, the first 122.26 permit coverage requirement for discharge of this "industrial stormwater" took effect. Giant (the owner of the Ciniza Refinery at that time) properly filed a Notice of Intent for discharge coverage under the baseline industrial Storm Water General Permit. By Permit Coverage Notice from EPA dated December 31, 1992, Giant received a confirmation of authorization under NPDES storm water permit number NM00A172 for discharges in New Mexico from the Ciniza Refinery. Giant continues to manage its occasional discharges of 122.26 "industrial stormwater" under the available general stormwater permits. Since this program took effect, Giant has sought to manage its "industrial stormwater" in basins that have retention capacity allowing discharges to be limited to just a few times in a year, at most.[16]

The 1992 baseline industrial general permit eventually was replaced by a Multi-Sector General Permit. Today, for the occasional 122.26 discharge of industrial stormwater, Giant utilizes the 2000 MSGP (NPDES Permit # NMR05B157) to authorize such occasional discharges of "industrial stormwater" when its retention capacity is exceeded. [Part 419

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[15]Unless stormwater "comes into contact with any raw material, intermediate product, finished product, byproduct or waste product" located at the Giant refinery, it does not meet the definition of "contaminated runoff" and thus is not under Part 419.

[16]As previously mentioned, there is one portion of the LPG tank farm area that drains towards Outfall No. 2 without first going through the "industrial stormwater" retention system. That is in the process of being converted to a zero discharge area with the construction of new berms to prevent stormwater from that area from reaching the Outfall 2 drainage. Giant personnel are not aware of any spills in that area that have contaminated storm discharges.

"contaminated runoff" is not discharged when the valves are opened.[17]]

The October 30, 2000 Multi-sector General Permit under which the Ciniza Refinery is currently operating states in pertinent part:

> **"6.I. Sector I - Oil and Gas Extraction and Refining**
> **6.I.1. Covered Storm Water Discharges**
>
> The requirements in Part 6.I apply to storm water discharges associated with industrial activity from Oil and Gas Extraction and Refining facilities as identified by the SIC Codes specified under Sector I in Table 1-1 of Part 1.2.1.
>
> * * *
>
> **6.I.3. Limitations on Coverage**
>
> 6.I.3.1. *Prohibition of Storm Water Discharges.* This permit does not authorize contaminated storm water discharges from petroleum refining or drilling operations that are subject to nationally established BAT or BPT guidelines found at 40 C.F.R. Parts 419 and 435, respectively. Note: **most contaminated discharges at petroleum refining** and drilling facilities **are subject to these effluent guidelines and are not eligible for coverage** by this permit.
> 6.I.3.2. *Prohibition of Non-Storm Water Discharges.* Not authorized by this permit: discharges of vehicle and equipment washwater, including tank cleaning operations."

65 Fed. Reg. at 64830 (Oct. 30, 2000)(bold emphasis added).

The 2000 MSGP correctly is pointing out that **it is the "contamination"** as **that term is defined in Part 419 that makes the discharge covered by Part 419**, not the area of the facility from which it comes.

This 2000 Multi-Sector Permit indicates "most contaminated discharges" are not eligible for discharge under the MSGP, because most such discharges meet the definition of "contaminated runoff" under Part 419. **If the industrial stormwater does not contact the requisite petroleum materials so as to meet the Part 419 term "contaminated runoff," it remains runoff eligible for discharge under the MSGP.** Thus, the 2000 MSGP says there will be some contaminated runoff (as long as its not the Part 419 definition of "contaminated"),

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[17]As noted in Section 1.2.3.4 of the 2000 MSGP, discharges subject to effluent limitations under Part 419 are not authorized.

contaminated not by contact with the types of petroleum materials that make it Part 419 regulated, but by something else, as well as uncontaminated stormwater, that can be discharged pursuant to the 2000 MSGP. Giant does not manage its Part 419 "contaminated runoff" in discharges from Outfalls 1 and 2, but it does occasionally discharge 122.26 eligible "industrial stormwater" (which may also contain some contaminants, as long as they don't come from contact with Part 419 petroleum materials or product waste) at the Ciniza Refinery. These 122.26 discharges only occur after significant precipitation events (pursuant to the MSGP), when Giant opens the valves because its 122.26 "industrial stormwater" retention capacity is exceeded.

Giant generally manages its petroleum raw materials, its intermediate petroleum product, its finished petroleum product and its petroleum byproducts and waste products so as to minimize stormwater contact. As previously noted, in those areas where stormwater has a significant likelihood of contacting the petroleum product, byproduct or waste, or any raw material, the flow of that stormwater is routed to a "zero discharge" system that includes the recapture of such petroleum materials in an oil-water separator prior to management of the remaining effluent in a pond system operated to be "zero discharge" to waters of the United States. This is an appropriate wastewater treatment system built, maintained and operated by the Ciniza Refinery in order to meet CWA requirements with respect to Part 419 (covering both process wastewater and any runoff that gets contaminated through contact with petroleum raw materials, products, byproducts or waste.)

To the extent there is a concern that a spill or accidental loss of petroleum product, byproduct, waste or raw material could inadvertently occur in an area that might drain to the contained 122.26 retention areas with valves that could discharge to the areas denominated as Outfalls 1 and 2, it would be cleaned up and appropriately removed before there was a 122.26 stormwater discharge. Giant (as a matter of policy) would not open the valves to discharge such contaminated waters.

First, it is noteworthy that spill events of any significance at the Ciniza Refinery are extremely uncommon and unlikely. There have been no reportable spills under Part 110. A spill prevention containment and countermeasures program is designed to prevent spills, and an aggressive Integrated Contingency Plan assures prompt detection and cleanup of spills.[18] In

[18] As noted in the April 12, 2005 SWPPP, there are a variety of leak and spill controls, including the following:

> "All petroleum storage tanks are located within full encirclement earthen containment dikes constructed of low permeability soil. All basins are sized to contain the maximum volume of the largest tank within the dike, plus an additional freeboard height of at least 6 inches.... Precipitation is infrequent and stormwater trapped within diked areas typically evaporates. Spills are removed via vacuum trucks or portable pumping systems. Recovered material is transferred to a slop tank or the WWTU [zero discharge wastewater treatment unit that retains all Part 419 wastewater], as appropriate....

addition, the Clean Air Act requires that the refinery maintain an LDAR (leak detection and repair) program, which requires monitoring, inspection and recordkeeping for equipment in VOC and HAP service. These programs make it unlikely that precipitation will have the requisite contact with the types of petroleum materials that are the factual predicate for Part 419 regulation.

Second, even in the case of an unanticipated upset condition, however, Giant can capture, remove and prevent any such petroleum product, byproduct, waste or raw materials from being discharged. By keeping the valves closed and by engaging in appropriate spill response and cleanup prior to the opening of the valves for purposes of discharging "industrial stormwater," stormwater in that area would be cleaned up along with the spilled petroleum materials. Thus, aside from the general direction of runoff from the process areas and areas where it is "contaminated" to the zero discharge system that Giant has implemented, in the event petroleum were released into basins that drain towards Outfalls 1 and 2, Giant under its ICP can capture and clean up such petroleum materials and any associated runoff prior to "industrial stormwater" discharge.[19]

Giant has developed and implemented a Storm Water Pollution Prevention Plan. As a general rule, all regulated areas of the refinery are operated and designed to have all stormwater contained. Part 419 "contaminated runoff" is directed, as noted in the earlier discussion, into the zero discharge retention system. "Industrial stormwater" (from areas regulated under 122.26 but not "contaminated" as defined under Part 419) generally is directed into a stormwater retention system.[20] In order for this "industrial stormwater" from the Ciniza Refinery to reach a water of the United States (i.e, the Rio Puerco nearby), Giant must affirmatively open valves in detention containment areas to permit the stormwater to discharge (i.e., into the areas referred to as Outfalls 1 and 2).[21]

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> Spilled material which accumulates in any retention basin is removed via portable skimmers and pumps, and then transferred to either a slop tank or the WWTU, as appropriate."

Best Management Practice #4: Leak and Spill Controls.

[19]As explained in some detail earlier, Giant manages Part 419 "contaminated runoff" by directing it to a different wastewater treatment retention system that it manages for zero discharge.

[20]Once again, the only exception is the north and east portion of the LPG tank farm area, and this has now already been engineered and contracted for full stormwater containment.

[21]If, by circumstance, an industrial spill of petroleum materials or other Part 419 regulated byproducts or raw materials into the "industrial stormwater" detention system occurred, Giant

The Ciniza Refinery is designed, constructed, maintained and operated such that only appropriate "industrial stormwater" (not "contaminated runoff") is to be present in the detention system when any of the valves are opened to allow "industrial stormwater" discharge in the areas known as Outfalls 1 and 2.

## IV. Ciniza Response to Inspector's Specific Concerns: Introduction

As noted in the last paragraph of the Inspection Report, Giant brought its two highest ranking on-site officials to the closing conference after the inspection: General Manager Ed Rios; and Operations Manager Stan Fisher. Also at the debriefing session were Ed Riege and Steve Morris, top experienced members of the Ciniza Refinery environmental team. Giant takes its compliance obligations and the advice of regulatory staff after an inspection with appropriate respect. We are grateful for the professional courtesy of regulatory staff in providing the closing conference.

Immediately after the inspection closing conference, Giant retained a stormwater consultant to assist with updating and improving its stormwater pollution prevention plan.

When it received the written Inspection Report, Giant addressed the inspector's concerns. These concerns in the written Inspection Report consists of four unnumbered sections (one with three subparts), totaling five single spaced pages, accompanied by a cover letter dated December 19, 2005. The sections in the Inspection Report are entitled as follows (with a numbering system added for easy reference):

**1) "Introduction"**

**2) "Permit Status:** Overall rating of 'Unsatisfactory' "

**3) "Storm Water Pollution Prevention Plan (SWPPP)"**

**Subpart a) "Pollution Prevention Team:** Overall rating of 'Marginal' "

**Subpart b) "Description of Potential Pollutant Sources:** Overall rating of 'Marginal' "

**Subpart c) "Description of Appropriate Measures and Controls:** Overall rating of "Unsatisfactory"

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would clean up any such materials (and water contacting such materials). Giant typically would not open the detention system valves to allow such spills to reach the Rio Puerco or other water of the U.S.

**4) "Annual Site Compliance Evaluation Reports:** Overall rating of 'Unsatisfactory' "

With respect to the "**Introduction,**" the only substantive statement that warrants any response is that the "inspection included an assessment of the potential co-mingling of "contaminated runoff" as defined under 40 C.F.R. Part 419.11 and ineligible for coverage under the MSGP, with storm water discharges that are eligible."

Giant has taken this concern extremely seriously, and undertook a lengthy review of the development of the Part 419 regulations and the EPA guidance on what is properly considered "contaminated runoff" to double-check its interpretation on this issue. As noted several times by EPA itself in the course of the rulemaking, this area can be misunderstood. Giant had detailed its position and rationale at great length herein, both to make sure Giant itself understands the regulations correctly and to facilitate a mutual understanding with the regulatory authorities as to what is appropriate management of Part 419 "contaminated runoff." Giant is very interested in compliance with these regulations, and never had a problem on this issue with any previous inspections.

Giant's position on this issue has already been outlined above, and Giant believes it has implemented an entirely reasonable interpretation of Part 419 as applied to the facts of its facility, and that its system of zero discharge that it has constructed and endeavored to maintain is fundamentally a good one, consistent with the goals and requirements of the Clean Water Act.

As previously noted, Giant believes it appropriately manages "contaminated runoff" in a zero discharge system, and, on those rare occasions when the Ciniza Refinery does discharge (i.e., by opening the valves to areas denominated as Outfalls 1 and 2), only "industrial stormwater" is discharged and no "contaminated runoff." Giant has taken the inspector's complaint very seriously, has carefully researched guidance on how EPA intended to define and interpret the term Part 419 "contaminated runoff" and believes it has adopted a sensible and logical protocol to manage Part 419 effluents without discharge.

Nevertheless, Giant has gone back and updated its SWPPP, and has designed/implemented some additional barrier systems to maintain even more stormwater in a "zero discharge" retention system in its efforts to be fully responsive to the Inspection Report. While these improvements will add redundant levels to assure that no Part 419 "contaminated runoff" is discharged, the existing system has been highly effective in keeping Part 419 regulated effluents from discharging. The Ciniza Refinery, on those rare occasions when it discharges, does not discharge Part 419 effluent, but only "industrial stormwater" pursuant to 122.26.

The remaining sections of the Inspection Report (2, 3a, 3b, 3c and 4) are discussed in separate sections below. A number of suggestions made by the Inspection Report have resulted in changes in the Ciniza Refinery's efforts to keep stormwater clean, and Giant is grateful for the regulatory assistance. Giant's goal is to comply with the requirements and, as suggested in several places by the inspector, to go above and beyond basic legal requirements to further isolate stormwater from potential contamination at the Ciniza Refinery.

## V. **The Finding of "Unsatisfactory" Permit Status Was Improperly Based, as Noted in the Inspection Report, on the Alleged Documented "Contaminated Runoff" Assessment. The Ciniza Refinery Does Not Commingle Part 419 "Contaminated Runoff" with any "Industrial Stormwater" That Is Discharged To the Outfall 1 or 2 Locations.**

Giant is understandably concerned and very chagrined about the statement in the Inspection Report that indicates as follows:

**Permit Status:** Overall rating of "Unsatisfactory"

There are a total of seven paragraphs in this section that follow this tentative "Unsatisfactory" conclusion by the inspector. The very last paragraph reveals the basis for the overall "Unsatisfactory" rating on "**Permit Status**" and is quoted here in pertinent part:

> "Since most of the time available to conduct this inspection was spent doing the above documented "contaminated runoff" assessment, only a cursory, and after the fact review of the SWPPP, was completed."

In other words, the basis of the "Unsatisfactory" **Permit Status** was the perceived commingling of "contaminated runoff" regulated under Part 419 with "industrial stormwater" that the inspector felt was being discharged. To put it another way, the inspector based the "unsatisfactory" determination on what he perceived to be a serious problem of "contaminated runoff" being discharged pursuant to the MSGP at the Outfalls 1 or 2 locations.

The inspector's concern with this issue was such that the entire third paragraph in this section of the Inspection Report was emphasized in bold, and is quoted in its entirety below:

> **"Section 301 (a) of the Federal Water Pollution Act states that "Except as in compliance with this section and sections 302, 306, 307, 318, 402 and 404 of this Act, the discharge of any pollutant by any person shall be unlawful." Since this facility does not have (and has apparently never had) NPDES permit coverage for discharges of process wastewater or contaminated runoff, all past and continuing, discharges have been (are) in apparent violation of Section 301 of the Clean Water Act, 33 U.S.C. § 1311."**

The inspector apparently thought that the Ciniza Refinery was discharging Part 419 "contaminated runoff" to a water of the United States without an NPDES permit, and thus made the "unsatisfactory" permit status finding.

First, there were no discharges occurring on the date of the inspection. There was no precipitation event, there was plenty of capacity remaining in the detention system, and no industrial stormwater valves were opened. The Part 419 retention system, of course, was not discharging either (as it is managed as a zero discharge system).

Second, as noted previously in this response, Giant believes it has appropriately set up a system that keeps all process wastewater and "contaminated runoff" in its zero discharge retention system. Since it designed, constructed, maintains and operates this retention system to be zero discharge, there should be no problem whatsoever that no NPDES permit exists for the zero discharge portion of this system where Part 419 process wastewater and "contaminated runoff" is directed.

Thus, the "unsatisfactory" finding on **Permit Status** seems unwarranted as the inspector perhaps unfairly assumed that "contaminated runoff" is being directed to the "industrial stormwater" detention system and that Part 419 "contaminated runoff" is being discharged through valves at the Outfall 1 or 2 locations. This is not the case.[22]

Giant has struggled to determine the rationale for this seemingly unfair conclusion by the inspector that Part 419 effluent is being discharged and believes it stems from a misreading of a sentence in the 1998 MSGP preamble. **In the first paragraph of this Permit Status section of the Inspection Report are three sentences**, the first which correctly quotes the definition of Part 419 "contaminated runoff" and **the second and third which appear to be quotes taken from a preamble to the 1998 Multi-Sector Stormwater Permit notice in the September 30, 1998 Federal Register**. It is the first of these two sentences from the 1998 MSGP preamble that the inspector apparently based his "unsatisfactory" determination upon, for that single sentence seemingly caused him to conclude stormwater from certain geographic areas at the facility necessarily had to be "contaminated runoff," even if that stormwater never contacted petroleum materials.

However, since Part 419 is clear on its face that the prerequisite for Part 419 regulation of stormwater is the "contact" with "raw material, intermediate product, finished product, by-product or waste product" produced by the petroleum refining process, and since the preambles to the various iterations of the Part 419 regulations show that the Ciniza Refinery's interpretation of Part 419 "contaminated runoff" and its management of such "contaminated runoff" in a zero

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[22]As of the November 10, 2005 date the inspector was at the facility, there was no discharge of any kind whatsoever occurring, so this was not a case of actual discharge observed. It was, in the inspector's mind, a logical deduction that an improper discharge of Part 419 "contaminated runoff" must have occurred in the past and would occur again in the future at the Outfall 1 or 2 locations. While understandable given the single misleading sentence in the 1998 MSGP preamble relied upon by the inspector, that sentence ambiguously characterizes the scope of Part 419 coverage. The Ciniza Refinery does not discharge Part 419 effluent when it is maintaining, operating and managing its retention and detention systems properly.

discharge system is appropriate, the inspector's determination based on his interpretation of a single sentence in the 1998 MSGP preamble is unfair as applied to the Ciniza Refinery.

The second paragraph in the **Permit Status** section of the Inspection Report then proceeds to unfairly penalize the Ciniza Refinery based on that single ambiguous sentence from the 1998 MSGP preamble (ignoring the express language in the Part 419 definition of "contaminated runoff" that first requires that runoff "**contact**" with "raw material, intermediate product, finished product, by-product or waste product" in order for the runoff to meet the Part 419 definition of "contaminated"). As a result of, first, not applying the plain requirement of "contact" before finding an area had "contaminated runoff" and, second, of misapplying one ambiguous sentence in a preamble on the 1998 MSGP in a manner which clearly contradicts the regulatory history of Part 419 development as well as the plain language of the Part 419 "contaminated runoff" definition, this inspector appears to have unfairly assigned a permit status of "unsatisfactory." While it is apparent how he reached the conclusion that illegal Part 419 discharges were occurring and was troubled that the Ciniza Refinery did not have an NPDES permit for Part 419 discharges, unfortunately, that "unsatisfactory" **Permit Status** finding was based on a misunderstanding of the scope of Part 419 coverage. Hopefully, Giant's lengthy exploration of the Part 419 coverage in the first part of this response appropriately resolves the ambiguity in the 1998 MSGP preamble sentence at issue.

To specifically understand how this unfortunate misunderstanding arose, it is useful to review in greater detail the specific sentence in the November 10, 2005 Inspection Report relied upon by the inspector, and to review the source for that sentence, the 1998 MSGP preamble in the Federal Register.

The first paragraph in this **Permit Status** portion of the Inspection Report consists of three sentences. The first correctly quotes the definition of "contaminated runoff" from Part 419 of the regulations. As noted, runoff must "come into contact" with petroleum product, byproduct, waste product or raw material before it is considered to be "contaminated runoff."

The second sentence in this first paragraph states that "[m]ost areas at refineries are not eligible for coverage under the MSGP including: raw material, intermediate product, by-product, final product, waste material, chemical and material storage areas; loading and unloading areas; transmission pipelines; and, processing areas." It is this second sentence that the inspector mistakenly interpreted to come to the conclusion that the Ciniza Refinery was improperly discharging Part 419 effluent without an NPDES permit.

The third sentence in this first paragraph of this portion of the Inspection Report then states: "[r]unoff that may be eligible for coverage, provided that discharges are not co-mingled with "contaminated runoff," include: vehicle and equipment storage, maintenance and refueling areas."

To find the source of that second sentence, we need to go back to 1998, when EPA terminated the 1992 Baseline Industrial General Permit for Stormwater and issued an expanded Multi-Sector General Permit that now covered industrial stormwater discharges from petroleum refineries.

In seeking to provide cursory (shorthand) guidance as to what was "contaminated stormwater" under Part 419 as opposed to what was "industrial stormwater" under the Multi-Sector General Permit, the 1998 preamble for the Multi-Sector Permit stated:

> **"I. Storm Water Discharges Associated with Industrial Activity from Oil and Gas Extraction Facilities and Petroleum Refineries**
>
> 1. *Discharges Covered Under This Section*
>
> (a) *Coverage.*
>
> * * *
>
> This section also covers petroleum refineries listed under SIC code 2911. Contaminated storm water discharges from petroleum refining or drilling operations that are subject to nationally established BAT or BPT guidelines found at 40 C.F.R. 419 and 435 are not included.
>
> Note that areas eligible for coverage at petroleum refineries will be very limited because the term "contaminated runoff," as defined under 40 C.F.R. 419.11, includes "* * * runoff which comes into contact with any raw material, intermediate product, finished product, by-product or waste product located on petroleum refinery property." Areas at petroleum refineries which may be eligible for permit coverage, provided discharges from these areas are not co-mingled with "contaminated runoff," include vehicle and equipment storage, maintenance and refueling areas. <u>Most areas at refineries will not be eligible for coverage including : raw material, intermediate product, by-product, final product, waste material, chemical and material storage areas;, loading and unloading areas; transmission pipelines; and, processing areas</u>."

63 Fed. Reg. at 52484 (September 30, 1998) (underlined emphasis added).

The underlined sentence in this 1998 preamble could be read two ways:

(1) the way the Inspection Report did, which is that all stormwater in these areas would automatically come into contact with raw material, intermediate product, finished product, by-product or waste product so as to meet the definition of Part 419 "contaminated runoff," or,

(2) that <u>most</u> such areas will have the requisite Part 419 "contact" between runoff and petroleum materials, and thus the runoff would be "contaminated" and thus ineligible.[23]

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[23]Even under this second interpretation, if an accidental spill of petroleum materials occurred at the facility somewhere, say if a truck overturned on the road out of the facility, and it happened to rain at exactly that moment, there is still a question as to whether the stormwater contacting such a spill makes this into a 402 permitted effluent, or if this is a classic type of spill

The latter reading is consistent with the plain language and regulatory history and preambles for Part 419, and is the appropriate reading.

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not intended for 402 but for Section 311 of the CWA. The earlier discussion in the regulatory history of EPA's efforts to distinguish spills regulated under CWA Section 402 and the NPDES permit from spills regulated under CWA Section 311 suggests that the mere occurrence of a spill does not make stormwater that contacts it automatically subject to Part 419 effluent limitations. The first question to ask is whether this is a 402 covered spill or a 311 spill. Only if it is a 402 spill is it even potentially subject to Part 419 at all.

**If, due to some management practice, the runoff in that area referred to in that 1998 MSGP preamble sentence** [say an area in which some raw materials or finished petroleum product was stored] **did not contact the requisite petroleum materials** (the obvious example being a completely roofed area in which the stormwater in that area did not contact any petroleum materials, and so the stormwater would be from that geographic area of the refinery but clearly would not be Part 419 "contaminated runoff"), **it would not be Part 419 "contaminated runoff."** Nowhere in the history of the Part 419 regulations is there anything that suggests that stormwater that falls on an area with some petroleum material, even if that material is inside containers, inside a roofed structure, and therefore clearly not in contact, is automatically Part 419 "contaminated runoff." The opposite is true: there is no Part 419 "contaminated runoff" unless there is stormwater contact with the requisite materials.[24] It is not a geographic determination; instead, it is a materials-contact determination.

If the factual predicate of "contact" with "raw material, intermediate product, finished product, by-product or waste product" (required for Part 419 "contaminated runoff") does not occur, the precipitation could not be "contaminated' by contact such that it is subject to Part 419. With respect to the scope of Part 419, it is the plain language requiring actual contact, as explained through the regulatory history (including the Part 419 preambles) that is controlling, and not a single ambiguous sentence made in a preamble for the MSGP issuance in 1998.

As demonstrated by the lengthy review of the development of the Part 419 regulations, it

[24]Even if stormwater contacts petroleum materials, it is not Part 419 stormwater if the petroleum came from a spill that is covered by 40 C.F.R. Part 110 and CWA Section 311 as opposed to the NPDES program. In 1985, EPA was intending to cover under Part 419 stormwater in areas with regular (not incidental) contact with petroleum materials.

is the **actual contamination by contact**[25] **with petroleum materials** (raw materials, intermediate or finished petroleum products or petroleum waste products) **that can create Part 419 "contaminated runoff,"**not the location where the precipitation occurs.[26]

[25]The 1985 and 1987 preamble statements and the 1978 Congressional amendment to the CWA distinguishing incidental oil spills under Section 311 from oil spills that typically are through the NPDES (CWA 402) treatment system for process wastewater further indicates this must be some regularized contact, not just an incidental spill.

[26]In fact, in Part 419, EPA strongly encouraged refineries to manage their precipitation in all locations to keep it uncontaminated by contact and to not route such uncontaminated runoff it into wastewater treatment systems that were handling process waste water. To now take the position that any place where a facility might ever spill petroleum now required all stormwater in that area to be routed into the process wastewater treatment system would be the exact opposite of the EPA statements that stormwater in that generally uncontaminated area should NOT be routed into the same process wastewater treatment system.

It is the Part 419 regulation itself that should be looked to for defining the scope of Part 419. Where there is ambiguity, it is the preambles to the Part 419 regulatory development previously discussed that provide further clarity. It is illogical to utilize a single, out of context and ambiguous sentence in a 1998 MSGP preamble, not written by someone who would have worked on the development of the Part 419 regulations, to overrule either the explicit language of the definition of "contaminated runoff" in Part 419, or the far more illuminating preambles to the relevant Part 419 regulations.[27]

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[27]The 1998 Federal Register permit notice for the MSGP was not a regulation itself and thus could not change the 1985 adoption of Part 419. The single inartful sentence in a preamble to the 1998 notice of MSGP permit issuance simply cannot overrule the plain meaning of a Part 419 regulation nor should it carry any weight contrary to the preambles that accompanied the Part 419 regulatory development.

The 2000 MSGP permit preamble fortunately does not repeat such misleading language, either in its authorization of allowable discharges or in its preamble. Simply put, a single sentence in a notice issuing the 1998 MSGP does not change the definition of what is "contaminated runoff" under Part 419.[28]

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[28]In the one and only location in the "industrial stormwater" rules where EPA had been required to define contaminated runoff, not for purposes of Part 419, but for purposes of determining the scope of a different stormwater exemption for oil and gas extraction and production facilities, EPA took the position the stormwater was uncontaminated unless it had a 24 hour reportable quantity discharged with it. In this analogous situation, where EPA was interpreting what "contaminated by contact" with "raw material, intermediate products, finished byproduct or waste products" located at "oil and gas exploration, production, processing or treatment operations" for purposes of 40 C.F.R. Section 122.26(a)(2), EPA stated that stormwater is not "contaminated by contact" unless the stormwater has had a discharge of a reportable quantity under 40 C.F.R. Sections 117.21, 302.6 or 110.6 or else is sufficiently contaminated to contribute to an actual violation of a water quality standard. 54 Fed. Reg. 246 (Jan. 4, 1989). See 40 C.F.R. Section 122.26(c)(1)(iii). As recently noted in the Federal Register by EPA:

> "[W]ith respect to oil or grease or hazardous substances, the determination of whether storm water is contaminated by contact with such materials, as established by the Administrator, shall take into consideration whether these materials are present in such storm water runoff in excess of reportable quantities under section 311 of the CWA or section 102 of CERCLA."

71 Fed. Reg. at 896 (Jan. 6, 2006)). Even if this were the appropriate definition of "contaminated runoff to use, the Ciniza Refinery would not be discharging "contaminated runoff" at Outfalls 1 or 2. The bottom line is that the appropriate definition of "contaminated runoff" for Part 419 purposes is the one at Part 419, and any clarification sought must be found in the preambles to that rulemaking, not in the preamble to a notice of general permit issuance for "industrial stormwater."

The second paragraph in the **Permit Status** section of the Inspection Report stated there are a "number of areas from which 'contaminated runoff' or co-mingled 'contaminated runoff' and storm water runoff appear to discharge...." The Inspection Report then identifies three areas where it alleges Part 419 "contaminated runoff" is being discharged (bold numbering and additional spacing below added for ease of reference):

> "These include: **[1]** a fairly large area in the northeast part of the facility where some (most is contained) of the railcar loading/unloading facility and an LPG tank farm appear to drain either directly offsite or are commingled with storm water runoff directed to storm water outfall No. 2;
>
> **[2]** the area along the south side of the main process area (north of the office complex) appears to co-mingle with storm water runoff directed to storm water outfall No. 1;
>
> and **[3]** the area along the north side of the facility where some of the drainage from a scrap yard (from which discharges are likely eligible) appears to co-mingle with drainage from an adjacent (to the east) tank farm and then directed to storm water outfall No. 2."

Thus, it appears the Inspection Report finding of "unsatisfactory" is based on the understanding that in these three areas, stormwater does contact petroleum materials (triggering Part 419) and then is discharged to either Outfall 1 or 2 after a valve is opened. (It is indisputable no such discharge of any kind was occurring on the date of the inspection since there was no precipitation event and the valves had not been opened.)

With respect to the first concern that stormwater that has come into contact with petroleum materials such that Part 419 effluent is discharged from the railcar loading/unloading facility and an LPG tank farm, the Ciniza Refinery carefully manages the stormwater in that area to assure that no spilled petroleum materials and associated runoff are discharged from that area.

In the area at the railcar facility where spills may be likely to occur, a separate catchment system for any spills and any stormwater that would contact such spills is utilized to keep spills (and "contaminated runoff") at zero discharge in that area. This system is based on grate drains under the railroad tracks which captures the stormwater that falls in the immediate vicinity of the railroad. There are concrete stormwater barriers that prevent the stormwater from leaving this area. Spills in this area are, as is standard protocol, kept contained and cleaned up (along with any contacting "contaminated runoff") without discharge.[29] While it does not happen, even if a spill did escape this first concrete barrier catchment system, it would then encounter a berm

[29]If runoff carried spills into the Rio Puerco, it likely would be a reportable event under Part 110 since the threshold for harmful quantities of oil under Part 110 is so low. The Ciniza Refinery has had no such reportable events, which is consistent with the management of stormwater to avoid discharge of Part 419 effluents.

system designed to keep such a spill from entering the standard 122.26 "industrial stormwater" retention system. On November 10, 2005, there was some damage to that berm. Thus, the second level of protection was somewhat compromised and this created concern on the part of the inspector. Still, the first barrier system was still fully operational. It was just a problem with the second redundant barrier in this railcar area that concerned the inspector, which has since been fixed. Even if the first concrete barrier and the second berm barrier is compromised in the railcar area, the spill from the railcar area would then be caught in the 122.26 "industrial stormwater" retention system in this area. At that point, a valve would have to be opened at this additional concrete barrier system before the spill could reach the water of the United States associated with Outfall No. 2. Thus, the inspector's two fold concerns are unwarranted [First, his concern is that the stormwater in this area should be considered Part 419 stormwater, which is not correct. Second, his concern was that a spill would, with associated stormwater, get into a water of the U.S., which is not the case due to a three barrier system protecting this railcar area where spills may occur.] Giant is appropriately upset that the second barrier in this three barrier system was compromised at the time of the inspection, but that did not result in a discharge of spilled material or associated stormwater from the railcar area.

In the areas further away from the railcar facility where spills are far less likely, only the single retention system control is utilized, along with a strong spill response plan, to assure that no spills (or runoff contacting such spills) will be discharged when the valves for a 122.26 "industrial stormwater" discharge are opened. Petroleum materials are unlikely to be spilled in this area, and any spills that occurred would be cleaned up prior to any 122.26 discharge of "industrial stormwater."

On the date of the inspection (November 10, 2005), perhaps the inspector was concerned that one of the berms in an additional catchment/berming system in an area where chemicals are loaded into railcars had been damaged as a result of vehicle traffic. While unlikely that runoff will be contaminated by contact with such unloaded chemicals in this area (not a process area), the Ciniza Refinery has sought to maintain an additional berm system to keep railcar area stormwater redundantly contained here. Such a redundant system protects in the event a precipitation event happened to occur right at the time unloading was occurring and a spill occurred. (It is unlikely such unloading would occur during the rainstorm, as staff would probably wait until the rain stopped.)

At no time, however, did a spill or any runoff that contacted a spill from this railcar area reach a water of the U.S. Hypothetically, had any runoff contacted a spill that occurred before the spill was cleaned up and then that runoff escaped the redundant catchment because the berm had been damaged by vehicle traffic, that runoff would have been caught in the "industrial stormwater" retention system and, if contaminated, appropriately removed prior to any opening of any valves for discharge. Giant agrees that it is entirely appropriate to repair that first berm compromised by vehicle traffic; there was no discharge of Part 419 regulated effluent at any time while it was compromised due to the redundancy of catchment systems maintained for such occurrences at the Ciniza Refinery. We are chagrined that the redundant berm in the railcar area was compromised, but it did not result in any improper discharge. Since that inspection date, the berm was repaired.

With respect to the LPG tank farm area referred to by the inspector, the majority of this area drains to a zero discharge depression (sometimes referred to as a grassy swale). There is no discharge to a water of the U.S. from this drainage, and as such, no potential for NPDES regulation. On the other hand, the inspector may have been duly concerned that a smaller portion of this LPG tank farm area does drain towards the area denominated as Outfall No. 2. The storm runoff in this area is not captured.

First, Giant notes that it has not had spills in this northern/eastern area of the tank farm that have contaminated runoff discharged to waters of the United States. No reportable spill events have occurred. Second, Giant appreciates the inspector's concern that such a spill could occur. As a result, Giant has, subsequent to the inspection, engineered and contracted for the construction of a bermed system for this area to keep stormwater from this northern/eastern portion zero discharge. This should be constructed shortly, thus eliminating the spill's potential for contaminating stormwater that would be discharged into a water of the United States. Thus, the Ciniza Refinery does not believe accidental spills and certainly no Part 419 effluents will be discharged towards Outfall No.2 from this northern/eastern LPG tank farm area.

In the second area of concern noted by the inspector, the concern is that the "area along the south side of the main process area (north of the office complex) appears to co-mingle with storm water runoff directed to storm water outfall No. 1." In response, the Ciniza Refinery notes that it is aware that risk of a spill or leak occurring in the Process Area is high, and thus its system directs storm water in this Process Area into the zero discharge WWTU retention system. Generally, any precipitation that falls in this area is captured by drop inlets (gravity flow) to a piping system below through which it then flows into the zero discharge WWTU retention system. While gravity flow directs the stormwater in the Process Area into these drop inlets, a redundant system of curbing also generally assures that such stormwater would not leave the area even if the drop inlets somehow were plugged or otherwise not adequately draining the stormwater in this Process Area.

In the extremely unlikely situation that a spill (or "contaminated runoff") escaped the catchment system that keeps the Process Area zero discharge, this Part 419 effluent would then be caught within the 122.26 retention system and be cleaned up before valves were opened to discharge.

On November 10, 2005, the inspector may have been concerned with broken curbing in part of the zero discharge system for this Process Area. There was no problem with the drop inlets, which were all functioning as intended to drain this Process Area. The Ciniza Refinery has never had a problem with the drop inlets being sufficiently sized to handle even the precipitation flow (of even the largest storms) from the Process Area, and thus any Part 419 "contaminated runoff" from the Process Area gravity flows into the zero discharge WWTU retention system.

Even had Part 419 effluents drained out through the compromised curbing (which definitely did not occur on November 10, 2005), the redundant protections for this Process Area prevent any discharge to waters of the United States. Redundant protections are helpful and permit the Ciniza Refinery to make repairs, such as the one needed for this curbing, in an orderly fashion. Such a repair has been appropriately scheduled after the problem was noticed. Giant is grateful to the inspector for pointing out this appropriate action to be taken.

It is important to remember, even though there was compromised curbing and repair is appropriate, there were no discharges of Part 419 effluents to "waters of the U.S." from the Process Area. (Even had such Part 419 effluents escaped through any compromise in the zero discharge system, they would have been caught and cleaned up prior to any opening of valves to discharge "industrial stormwater" to Outfall No. 1.)

The third area of concern raised by the inspector related to "the area along the north side of the facility where some of the drainage from a scrap yard (from which discharges are likely eligible) appears to co-mingle with drainage from an adjacent (to the east) tank farm and then directed to storm water outfall No. 2." First, this tank area does not drain to a stormwater outfall area. The drainage from this area is to a depression (sometimes referred to as a grassy swale) that has no discharge at all to waters of the United States. All water in this depression evaporates. Nevertheless, Giant has engineered additional berms to be constructed which, when constructed, will even prevent additional stormwater even from reaching the zero discharge grassy swale depression. Tanks with secondary containment with enough freeboard also keep precipitation that would contact a spill contained. Even if a spill or runoff contacting such a spill could escape the these catchment systems, it would be captured in zero discharge grassy swale depression without discharge to a water of the United States.

While the **Permit Status** section predominantly bases its "unsatisfactory" finding on the concern that Part 419 "contaminated runoff" is being discharged (which was not occurring), it also raises legitimate concerns with respect to the inclusion of the documentation supporting the Endangered Species and Historic Places determinations for MSGP eligibility. This information inadvertently was not included in the 4/12/05 SWPPP revision and has been updated and incorporated in the new SWPPP. A copy of the relevant document is attached hereto as Attachment One.

## VI. Giant Appreciates the Suggestions for Improvement of Its Written SWPPP and Has, Where Appropriate, Incorporated Those Suggestions Into A Newly Revised SWPPP. With Respect to Some of the Comments, It Appears the Inspection Report Comments Seek Modifications at the Ciniza Refinery over and Above What is Required for MSGP 2000 Compliance. Where Those Comments Nevertheless Make Sense as A Good Practice, Giant Has Included Them in the SWPPP Revision.

The **Storm Water Pollution Prevention Plan (SWPPP)** portion of the Inspection Report had three subsections. The first rated the **"Pollution Prevention Team"** only "marginal" because Giant did not make Mr. Riege a member of this team; the second subsection rated the **"Description of Potential Pollutant Sources"** only "marginal" even though the inspector specifically stated in writing in this Inspection Report subsection that "[t]he plan does a very thorough job of pollutant and pollutant source identification"; and the third subsection rated the **"Description of Appropriate Measures and Controls"** as "unsatisfactory."

Each subsection, after its title and overall rating, then references in bold a specific provision of the MSGP and then states in italics a paragraph which appears to be the inspector guidance for conducting an EPA stormwater inspection for MSGP compliance for that provision of the MSGP. Thereafter, in each subsection of this Inspection Report are a series of observations and suggestions made by the inspector.

Giant appreciates the suggestions for improvement made, and has carefully considered and, where appropriate, incorporated all of the suggestions into the revised SWPPP prepared with the assistance of a stormwater consultant after the review of the Inspection Report.

With respect to the omission of Mr. Riege on the **"Pollution Prevention Team"** in the April 12, 2005 SWPPP, Part 4.2.1 of the MSGP mandates neither that the facility environmental superintendent be a formal member of the SWPPP team nor that an individual such as Mr. Riege may not involve himself on such pollution prevention matters without being formally listed as a member of the team. With all due respect to Mr. Riege, the SWPPP already includes several highly capable individuals on the Pollution Prevention Team, including the Team Leader, Steve Morris (Environmental Engineer), who has been at the Ciniza Refinery significantly longer than Mr. Riege and who is also highly competent in environmental issues and is an appropriate representative of the environmental staff at the facility for this Team, and a deep, varied and experienced set of additional members from the facility that complement the environmental team leader. As EPA noted when it first developed the 1995 MSGP,

> "When selecting members of the team, the plant manager should draw on the expertise of all relevant departments within the plant to ensure that all aspects of plant operations are considered when the plan is developed."

60 Fed. Reg. at 50815 (Sept. 29, 1995). In this case, the plant manager (Mr. Ed Rios) is also a member of the team, appointed a key member of the environmental staff to head the team. The team has then been rounded out with Mr. Stan Fisher (Operations Manager); Ted Gonzales (Maintenance Manager); John Laurent (Technical Services Manager); Tony Allen (Purchasing and Warehouse Manager), and Charley Arnold (Safety Manager). What each of these team members "brings to the table" is described in the SWPPP, and Giant therefore submits that this Pollution Prevention Team should be considered more than "marginal" in composition, simply because Mr. Riege is not a formal member. The Team is charged with the responsibility for the SWPPP, and it does regularly consult with and utilize Mr. Riege's services as well. Mr. Riege

has many other primary responsibilities, particularly air quality, but he does materially provide additional backup assistance to the Pollution Prevention Team.

Nothing in the regulations, the MSGP, or any preambles or other guidance indicates it is EPA's interpretation that a Pollution Prevention Team must include the Environmental Superintendent and not only an Environmental Engineer, nor does anything in the regulations, the MSGP or preambles or other guidance indicate there is anything improper about assistance on stormwater issues from an environmental superintendent if he (or she) is not listed on the Pollution Prevention Team. Typically, at complex facilities such as a refinery, many people not listed on the Pollution Prevention Team may undertake duties to help maintain stormwater compliance. This should be encouraged.

Out of respect for the inspector's regard for Mr. Riege and the inspector's apparent conclusion this will enhance stormwater compliance, and because Mr. Riege has agreed, Giant has added the Environmental Superintendent as a member of the Pollution Prevention Team in the SWPPP revision that has been prepared since the November 10, 2005 inspection.

The second subsection rated the **"Description of Potential Pollutant Sources"** only "marginal," even though the inspector specifically states in writing in the last sentence of the first paragraph of his observations in this subsection that "[t]he plan does a very thorough job of pollutant and pollutant source identification." That same first paragraph of observations does, however, criticize the site map in the April 12, 2005 SWPPP as being insufficiently accurate in terms of its depiction of drainage areas and structural controls.

The site map in the April 12, 2005 SWPPP may not have been to scale with respect to everything shown on the map, but it met the basic requirements of the EPA regulations and associated guidance. EPA did not intend that regulated entities hire consultants to prepare engineering scale drawings and elevation contour maps to depict drainage and controls in substantially greater detail than in the April 12, 2005 SWPPP for the Ciniza Refinery. In fact, when EPA first developed the general permit requirement to require identification of pollutant sources, EPA responded to criticism that this was a costly new requirement in a manner clearly indicating it did not expect a facility to have to hire expensive consulting engineers for this portion of the SWPPP:

> "The second component of the plan, **description of pollutant sources**, is achievable because it **is based on the information that should generally either be readily available** from the normal business practices at the facility (e.g. materials inventories) or **from standard evaluations or observations**."

57 Fed. Reg. at 41265 (Sept. 9, 1992). In fact, in 1992, EPA contemporaneously issued a guidance document it still utilizes today entitled "**Storm Water Management for Industrial Activities:** Developing Pollution Prevention Plans and Best Management Practices," (EPA 832-R-006; Sept. 1992), which includes illustrative figures (Figure 2.3 "Example Site Map" at page

facilities like the Ciniza Refinery on the level of detail required in the maps.[30] A comparison of EPA's illustration of what is an adequate site map with drainage and controls to the April 12, 2005 Ciniza Refinery SWPPP map shows that Giant's map has substantially more detail than the representative EPA template.[31]

Nevertheless, Giant did retain, after the inspection, an outside engineering and consulting firm to prepare, at substantial expense, a far more detailed map that not only meets the regulatory requirements (as did the old map), but includes all the additional details mentioned in the Inspection Report. Copies of those new maps are included with the SWPPP as Attachment 1.

Giant did conduct some monitoring which the inspector now claims should trigger various obligations under the MSGP, including a rewrite of the SWPPP and (in his opinion) the following:

> "These elevated analytical results (as well as the results of the quarterly visual examinations) must be taken into consideration during the facility's 'Comprehensive Site Compliance Evaluation.' **These results must be used**, in part, to determine required amendments to the SWPPP **to incorporate additional structural and non-structural controls as appropriate to eliminate or significantly minimize pollutants in storm water discharges so that these pollutant levels are reduced to below cut-off concentrations**." (Bold emphasis added.)

---

[30] This 1992 guidance is still the current EPA guidance and can be found at the EPA stormwater current guidance publications webpage at the following location on the Internet : http://cfpub.epa.gov/npdes/docs.cfm?document_type_id=1&view=Policy%20and%20Guidance%20Documents&program_id=6&sort=name.

[31] "EPA expects that many facilities will have existing site maps indicating the major features of the facility or will be able to develop such maps based on site inspections. Plant managers or other employees should be readily able to develop descriptions of potential pollutant sources and use best professional judgement in evaluating the pollution potential of various activities. A prediction of the direction of flow can be based on site topography and simple observations of drainage patterns." 57 Fed. Reg. at 41271 (Sept. 9, 1992).

> **water discharges so that these pollutant levels are reduced to below cut-off concentrations.**" (Bold emphasis added.)

According to this inspector, if a facility does monitoring, and they happen to exceed cutoff benchmark monitoring concentrations specified for some other sector, that then triggers a duty on the part of the industry sector doing such monitoring to make structural and non-structural changes to its facility **until it can now meet benchmark monitoring cutoff concentrations.**

This use of benchmark monitoring cutoffs to mandate additional controls is not what EPA intended:

> "**The benchmark concentrations are not effluent limitations and should not be interpreted or adopted as such. These values are merely levels** which EPA has used **to determine if a storm water discharge** from any given facility **merits further monitoring** to insure that the facility has been successful in implementing a storm water pollution prevention plan."

60 Fed. Reg. at 50895 (Sept. 29, 1995).

Nevertheless, Giant appreciates the suggestions of the inspector that it take a close look at what additional steps it can take to reduce pollutant loading in those infrequent occasions that a 122.26 stormwater discharge actually occurs. A number of additional berming projects have been authorized to further segregate industrial activities from potential discharge and the 122.26 retention basins and the SWPPP rewrite has also included a variety of additional changes consistent with further pollution prevention.

The Inspection Report also notes that the location noted on the map as Outfall 2 is actually below the point where the valves from the "industrial stormwater" retention basin discharge into the drainage that runs across the Ciniza Refinery, carrying ephemeral flows across the Giant property. Visual examination of the stormwater always occurs at the valves, and the new maps show the actual outfall at this location. Outfall No.1 is appropriately located at the valved discharge location.

Giant visually monitors at each valved location before these stormwater valves are opened. Were oil present and visible, its spill response would be triggered and reporting requirements likely would apply if the valves were opened at that time. The inspector correctly pointed out that Giant was not keeping records of its visual inspections (which are quarterly required, although many quarters are zero discharge for "industrial stormwater") and has now changed its protocol to assure such records are being appropriately kept.

The third subsection on the Inspection Report's discussion of the **"Stormwater Pollution Prevention Plan (SWPPP)"** rated the **"Description of Appropriate Measures and Controls"** as "unsatisfactory." There are three problems listed in this subsection:

SWPPP. The inclusion of inspection reports in addressed in the new SWPPP.

With respect to the inspector's concern that cooling water mist be evaluated for harmful chemicals, the SWPPP does reference the determination to eliminate the chromate-causing chemicals from cooling water treatment as they were determined to be harmful. No new water treatment chemicals are allowed unless approved by environmental staff, who make that determination taking into account the potential water quality standards issues referenced in 4.4.2.3.

## VII. With Respect to the Annual Site Compliance Evaluation Reports, Giant Appreciates The General Comment in the Inspection Report That "These Annual Evaluations Appear Very Thorough." With Respect to Comments Suggesting Improvements to Be Made, Giant Has Carefully Evaluated Each Such Comment and, Where Appropriate, Has Made Improvements.

The fourth and final section of the Inspection Report states as follows:

> "**Annual Site Compliance Evaluation Reports:** Overall rating of 'Unsatisfactory.'
>
> **Part 4.9 of the permit states, in part, 'You must conduct facility inspections at least once a year. The inspections must be done by qualified personnel provided by you."**

There are three complaints noted in the Inspection Report with respect to the **Annual Site Compliance Evaluation Reports** that apparently underlie the "unsatisfactory" finding:

1) The "apparent failure to incorporate changes dictated by the above-mentioned analytical sampling data;"

2) "[T]he staff conducting the evaluations apparently failed to observe, document, and properly address the areas that appear to produce discharges of 'contaminated runoff' from this facility;" and

3) "In addition, reports of these evaluations have not been signed and certified by a cognizant official or authorized representative per requirements in Parts 4.9.4 and 9.7.1 of the MSGP."

The first complaint was addressed in the preceding section. The benchmark monitoring cut off concentrations for other industry sectors are not effluent limitations on stormwater discharges for the Ciniza Refinery, and EPA expressly did not even include these concentrations as even enough to trigger monitoring in Sector I in the 2000 MSGP. This facility rarely discharges, and it does not contribute to violations of water quality standards in the receiving streams. To now argue that these benchmark cutoff concentrations now become effluent limits that mandate additional stormwater control installation through the Annual Site Compliance Evaluation is overreaching.

On the other hand, as previously noted, Giant nevertheless took all of the inspector's suggestions into account in its latest SWPPP revision, providing the entire report to its consultant, and as a result Giant has designed, engineered and/or implemented additional controls.

The second complaint has also been addressed previously. The issue of Part 419 runoff has been carefully considered throughout the history of the Ciniza Refinery, and the contention that Part 419 effluent is being discharged (and therefore that this should have been rectified in the Annual Site Evaluation) is based on a misunderstanding of the regulations.

The third complaint is that the report was not signed and certified by an appropriate official. The report was signed by General Manager Ed Rios on December 22, 2004.

## Chavez, Carl J, EMNRD

**From:** sadlier@attglobal.net
**Sent:** Wednesday, January 04, 2006 4:46 PM
**To:** Chavez, Carl J, EMNRD; geosynthetics@msn.com
**Cc:** geosynthetics@msn.com
**Subject:** Re: Liner Comparison Table Mil Thickness Question

Attachment information..txt (7... LinersCompareFinal 1.pdf (44 KB...

Dear Carl,

This paper gave a rather broad and qualitative comparison of the geomembrane types available at the time.

The precision of the comparison was not great such that thickness was not really a consideration. However we were clearly thinking in terms of the commonly available thickness of the different products e.g.

monolithic extruded PE 1.5 mm
reinforced PP, CSPE, EIA etc 1.1 mm

The original paper is attached and you should note that it dates from 1997.
Whilst some aspects are the same you should be aware that many of these products (or our perception of them) have developed further since then.

If you would like a proposal for a more current and perhaps more targeted comparison we would be pleased to assist.

Yours Faithfully

Mike Sadlier

>
> Dear Sir or Madam:
>
> Could you tell me the mil thickness used for the liner comparison
> table at the Internet website address below?
>
> Website Liner Comparison
> http://www.geosynthetica.net/tech_docs/LinerComparison.asp
>
> Thank you.
>
> Carl J. Chavez, CHMM
> New Mexico Energy, Minerals & Natural Resources Dept.
> Oil Conservation Division, Environmental Bureau 1220 South St. Francis
> Dr., Santa Fe, New Mexico 87505
> Office: (505) 476-3491
> Fax: (505) 476-3462
> E-mail: CarlJ.Chavez@state.nm.us
> Website: http://www.emnrd.state.nm.us/ocd/ (Pollution Prevention
> Guidanceis under "Publications")
>
>
>
> Confidentiality Notice: This e-mail, including all attachments is for

## Chavez, Carl J, EMNRD

**From:** Steve Morris [smorris@giant.com]
**Sent:** Friday, January 27, 2006 11:34 AM
**To:** Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV; Foust, Denny, EMNRD; Ed Riege; Monzeglio, Hope, NMENV; Johnny Sanchez; Steve Morris; Price, Wayne, EMNRD
**Subject:** Ciniza Weekly Update Week of 01/27/2006

HALL7508_OAPIS010606.pdf (490 ... HALL7509_OAPIS011306.pdf (402 ...

1) During time periods when there are no storm events, the OAPIS has almost zero flow of water in to Aeration Lagoon #1. I will devise a way to measure this flow and include it in the weekly update as soon as I can. It would appear we have been sampling essentially the same stagnant water week after week.
2) We will be installing a 90 degree flow measuring device (notch) at the inlet of evaporation pond 2 on the water stream from the boiler plant. This will enable us to get better numbers on the flow rate out of the new API separator.
3) Work continues on the Chopper pump installation. The contractor will be working over the weekend on concrete and grout to allow these materials time to cure and minimize down time.
4) Lab analysis from weekly water samples received to date attached.
<<HALL7508_OAPIS010606.pdf>> <<HALL7509_OAPIS011306.pdf>> If you have any questions please give me a call at 505-722-0258.
Thanks, Steve Morris

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, January 25, 2006

Steve Morris
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301

TEL: (505) 722-0258
FAX (505) 722-0210

RE: OAPIS Week of 1/6/2006

Order No.: 0601055

Dear Steve Morris:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/6/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

ACCREDITED IN ACCORDANCE WITH nelac

4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109
505.345.3975 ■ Fax 505.345.4107
www.hallenvironmental.com

# Hall Environmental Analysis Laboratory

**Date:** *25-Jun-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | OAPIS |
| **Lab Order:** | 0601055 | **Collection Date:** | 1/4/2006 2:30:00 PM |
| **Project:** | OAPIS Week of 1/6/2006 | **Date Received:** | 1/6/2006 |
| **Lab ID:** | 0601055-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | Limit | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: **SCC** |
| Diesel Range Organics (DRO) | 1.2 | 1.0 | | mg/L | 1 | 1/9/2006 6:56:04 PM |
| Motor Oil Range Organics (MRO) | ND | 5.0 | | mg/L | 1 | 1/9/2006 6:56:04 PM |
| Surr: DNOP | 119 | 58-140 | | %REC | 1 | 1/9/2006 6:56:04 PM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: **NSB** |
| Gasoline Range Organics (GRO) | 2.1 | 0.50 | | mg/L | 10 | 1/13/2006 11:39:59 AM |
| Surr: BFB | 106 | 79.7-118 | | %REC | 10 | 1/13/2006 11:39:59 AM |
| **EPA METHOD 8310: PAHS** | | | | | | Analyst: **JMP** |
| Naphthalene | 200 | 12 | | µg/L | 5 | 1/23/2006 4:19:23 PM |
| 1-Methylnaphthalene | 27 | 2.5 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| 2-Methylnaphthalene | 5.8 | 2.5 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Acenaphthylene | ND | 2.5 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Acenaphthene | 6.0 | 2.5 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Fluorene | 7.0 | 0.80 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Phenanthrene | ND | 0.60 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Anthracene | ND | 0.60 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Fluoranthene | ND | 0.30 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Pyrene | 0.51 | 0.30 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Benz(a)anthracene | 0.050 | 0.020 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Chrysene | ND | 0.20 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Benzo(b)fluoranthene | ND | 0.050 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Benzo(k)fluoranthene | 0.040 | 0.020 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Benzo(a)pyrene | ND | 0.020 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Dibenz(a,h)anthracene | ND | 0.040 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Benzo(g,h,i)perylene | ND | 0.030 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | µg/L | 1 | 1/16/2006 11:10:35 PM |
| Surr: Benzo(e)pyrene | 90.0 | 54-102 | | %REC | 1 | 1/16/2006 11:10:35 PM |
| **EPA METHOD 7470: MERCURY** | | | | | | Analyst: **CMC** |
| Mercury | ND | 0.00020 | | mg/L | 1 | 1/9/2006 |
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: **CMC** |
| Arsenic | ND | 0.020 | | mg/L | 1 | 1/16/2006 2:22:17 PM |
| Barium | 0.23 | 0.020 | | mg/L | 1 | 1/16/2006 2:22:17 PM |
| Cadmium | ND | 0.0020 | | mg/L | 1 | 1/16/2006 2:22:17 PM |
| Chromium | 0.0093 | 0.0060 | | mg/L | 1 | 1/16/2006 2:22:17 PM |
| Lead | ND | 0.0050 | | mg/L | 1 | 1/16/2006 2:22:17 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| S | Spike Recovery outside accepted recovery limits | | |

# Hall Environmental Analysis Laboratory

Date: *25-Jun-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | OAPIS |
| **Lab Order:** | 0601055 | **Collection Date:** | 1/4/2006 2:30:00 PM |
| **Project:** | OAPIS Week of 1/6/2006 | **Date Received:** | 1/6/2006 |
| **Lab ID:** | 0601055-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | Limit | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: **CMC** |
| Selenium | ND | 0.050 | | mg/L | 1 | 1/16/2006 2:22:17 PM |
| Silver | ND | 0.0050 | | mg/L | 1 | 1/16/2006 2:22:17 PM |
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: **HLM** |
| Benzene | 190 | 10 | | µg/L | 10 | 1/16/2006 |
| Toluene | 50 | 10 | | µg/L | 10 | 1/16/2006 |
| Ethylbenzene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Methyl tert-butyl ether (MTBE) | 11 | 10 | | µg/L | 10 | 1/16/2006 |
| 1,2,4-Trimethylbenzene | 47 | 10 | | µg/L | 10 | 1/16/2006 |
| 1,3,5-Trimethylbenzene | 44 | 10 | | µg/L | 10 | 1/16/2006 |
| 1,2-Dichloroethane (EDC) | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 1,2-Dibromoethane (EDB) | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Naphthalene | 25 | 20 | | µg/L | 10 | 1/16/2006 |
| 1-Methylnaphthalene | 51 | 40 | | µg/L | 10 | 1/16/2006 |
| 2-Methylnaphthalene | 53 | 40 | | µg/L | 10 | 1/16/2006 |
| Acetone | 210 | 100 | | µg/L | 10 | 1/16/2006 |
| Bromobenzene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Bromochloromethane | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Bromodichloromethane | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Bromoform | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Bromomethane | ND | 20 | | µg/L | 10 | 1/16/2006 |
| 2-Butanone | ND | 100 | | µg/L | 10 | 1/16/2006 |
| Carbon disulfide | ND | 100 | | µg/L | 10 | 1/16/2006 |
| Carbon Tetrachloride | ND | 20 | | µg/L | 10 | 1/16/2006 |
| Chlorobenzene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Chloroethane | ND | 20 | | µg/L | 10 | 1/16/2006 |
| Chloroform | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Chloromethane | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 2-Chlorotoluene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 4-Chlorotoluene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| cis-1,2-DCE | ND | 10 | | µg/L | 10 | 1/16/2006 |
| cis-1,3-Dichloropropene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 1,2-Dibromo-3-chloropropane | ND | 20 | | µg/L | 10 | 1/16/2006 |
| Dibromochloromethane | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Dibromomethane | ND | 20 | | µg/L | 10 | 1/16/2006 |
| 1,2-Dichlorobenzene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 1,3-Dichlorobenzene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 1,4-Dichlorobenzene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Dichlorodifluoromethane | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 1,1-Dichloroethane | ND | 20 | | µg/L | 10 | 1/16/2006 |

**Qualifiers:**

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

# Hall Environmental Analysis Laboratory

Date: *25-Jan-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | OAPIS |
| **Lab Order:** | 0601055 | **Collection Date:** | 1/4/2006 2:30:00 PM |
| **Project:** | OAPIS Week of 1/6/2006 | **Date Received:** | 1/6/2006 |
| **Lab ID:** | 0601055-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | Limit | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: HLM |
| 1,1-Dichloroethene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 1,2-Dichloropropane | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 1,3-Dichloropropane | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 2,2-Dichloropropane | ND | 20 | | µg/L | 10 | 1/16/2006 |
| 1,1-Dichloropropene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Hexachlorobutadiene | ND | 20 | | µg/L | 10 | 1/16/2006 |
| 2-Hexanone | ND | 100 | | µg/L | 10 | 1/16/2006 |
| Isopropylbenzene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 4-Isopropyltoluene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 4-Methyl-2-pentanone | ND | 100 | | µg/L | 10 | 1/16/2006 |
| Methylene Chloride | ND | 30 | | µg/L | 10 | 1/16/2006 |
| n-Butylbenzene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| n-Propylbenzene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| sec-Butylbenzene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Styrene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| tert-Butylbenzene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 1,1,1,2-Tetrachloroethane | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 1,1,2,2-Tetrachloroethane | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Tetrachloroethene (PCE) | ND | 10 | | µg/L | 10 | 1/16/2006 |
| trans-1,2-DCE | ND | 10 | | µg/L | 10 | 1/16/2006 |
| trans-1,3-Dichloropropene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 1,2,3-Trichlorobenzene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 1,2,4-Trichlorobenzene | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 1,1,1-Trichloroethane | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 1,1,2-Trichloroethane | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Trichloroethene (TCE) | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Trichlorofluoromethane | ND | 10 | | µg/L | 10 | 1/16/2006 |
| 1,2,3-Trichloropropane | ND | 20 | | µg/L | 10 | 1/16/2006 |
| Vinyl chloride | ND | 10 | | µg/L | 10 | 1/16/2006 |
| Xylenes, Total | 530 | 10 | | µg/L | 10 | 1/16/2006 |
| Surr: 1,2-Dichloroethane-d4 | 114 | 69.9-130 | | %REC | 10 | 1/16/2006 |
| Surr: 4-Bromofluorobenzene | 103 | 71.2-123 | | %REC | 10 | 1/16/2006 |
| Surr: Dibromofluoromethane | 116 | 73.9-134 | | %REC | 10 | 1/16/2006 |
| Surr: Toluene-d8 | 96.2 | 81.9-122 | | %REC | 10 | 1/16/2006 |

Qualifiers:
- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Hall Environmental Analysis Laboratory

Date: 25-Jan-06

CLIENT: Giant Refining Co
Work Order: 0601055
Project: OAPIS Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DRO_W

Sample ID: MB-9535 SampType: MBLK TestCode: 8015DRO_W Units: mg/L Prep Date: 1/9/2006 RunNo: 17852
Client ID: ZZZZZ Batch ID: 9535 TestNo: SW8015 Analysis Date: 1/9/2006 SeqNo: 438884

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 1.0 | | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 5.0 | | | | | | | | | |

Sample ID: LCS-9535 SampType: LCS TestCode: 8015DRO_W Units: mg/L Prep Date: 1/9/2006 RunNo: 17852
Client ID: ZZZZZ Batch ID: 9535 TestNo: SW8015 Analysis Date: 1/9/2006 SeqNo: 438885

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 5.740 | 1.0 | 5 | 0 | 115 | 81.2 | 149 | | | | |

Sample ID: LCSD-9535 SampType: LCSD TestCode: 8015DRO_W Units: mg/L Prep Date: 1/9/2006 RunNo: 17852
Client ID: ZZZZZ Batch ID: 9535 TestNo: SW8015 Analysis Date: 1/9/2006 SeqNo: 438886

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 5.962 | 1.0 | 5 | 0 | 119 | 81.2 | 149 | 5.74 | 3.80 | 23 | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601055
Project: OAPIS Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: Reagent Blank 5ml | SampType: MBLK | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 17890
Client ID: ZZZZZ | Batch ID: R17890 | TestNo: SW8015 | Analysis Date: 1/12/2006 | SeqNo: 439931

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 0.050 | | | | | | | | | |

Sample ID: Reagent Blank 5ml | SampType: MBLK | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 17915
Client ID: ZZZZZ | Batch ID: R17915 | TestNo: SW8015 | Analysis Date: 1/13/2006 | SeqNo: 440339

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 0.050 | | | | | | | | | |

Sample ID: GRO lcs 2.5ug | SampType: LCS | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 17890
Client ID: ZZZZZ | Batch ID: R17890 | TestNo: SW8015 | Analysis Date: 1/13/2006 | SeqNo: 439932

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 0.4586 | 0.050 | 0.5 | 0 | 91.7 | 82.6 | 114 | | | | |

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Sample ID: GRO lcs 2.5ug | SampType: LCS | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 17915
Client ID: ZZZZZ | Batch ID: R17915 | TestNo: SW8015 | Analysis Date: 1/13/2006 | SeqNo: 440340

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 0.4762 | 0.050 | 0.5 | 0 | 95.2 | 82.6 | 114 | | | | |

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601055
Project: OAPIS Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8310_W

Sample ID: MB-9551 | SampType: MBLK | TestCode: 8310_W | Units: µg/L | Prep Date: 1/10/2006 | RunNo: 17974
Client ID: ZZZZZ | Batch ID: 9551 | TestNo: SW8310 | (SW3510C) | Analysis Date: 1/16/2006 | SeqNo: 441634

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | ND | 2.5 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| Acenaphthylene | ND | 2.5 | | | | | | | | | |
| Acenaphthene | ND | 2.5 | | | | | | | | | |
| Fluorene | ND | 0.80 | | | | | | | | | |
| Phenanthrene | ND | 0.60 | | | | | | | | | |
| Anthracene | ND | 0.60 | | | | | | | | | |
| Fluoranthene | ND | 0.30 | | | | | | | | | |
| Pyrene | ND | 0.30 | | | | | | | | | |
| Benz(a)anthracene | ND | 0.020 | | | | | | | | | |
| Chrysene | ND | 0.20 | | | | | | | | | |
| Benzo(b)fluoranthene | ND | 0.050 | | | | | | | | | |
| Benzo(k)fluoranthene | ND | 0.020 | | | | | | | | | |
| Benzo(a)pyrene | ND | 0.020 | | | | | | | | | |
| Dibenz(a,h)anthracene | ND | 0.040 | | | | | | | | | |
| Benzo(g,h,i)perylene | ND | 0.030 | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | | | | | | | | |

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Sample ID: LCS-9551 | SampType: LCS | TestCode: 8310_W | Units: µg/L | Prep Date: 1/10/2006 | RunNo: 17974
Client ID: ZZZZZ | Batch ID: 9551 | TestNo: SW8310 | (SW3510C) | Analysis Date: 1/16/2006 | SeqNo: 441637

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 14.94 | 2.5 | 20 | 0 | 74.7 | 34.8 | 97.4 | | | | |
| 1-Methylnaphthalene | 14.85 | 2.5 | 20.05 | 0 | 74.1 | 34.7 | 100 | | | | |
| 2-Methylnaphthalene | 14.55 | 2.5 | 20 | 0 | 72.8 | 35 | 98.1 | | | | |
| Acenaphthylene | 14.63 | 2.5 | 20.05 | 0 | 73.0 | 48.3 | 95.1 | | | | |
| Acenaphthene | 15.05 | 2.5 | 20 | 0 | 75.2 | 45 | 95 | | | | |
| Fluorene | 1.480 | 0.80 | 2.005 | 0 | 73.8 | 46.8 | 93.4 | | | | |
| Phenanthrene | 0.8300 | 0.60 | 1.005 | 0 | 82.6 | 48.7 | 104 | | | | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601055
Project: OAPIS Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8310_W

Sample ID: LCS-9551 | SampType: LCS | TestCode: 8310_W | Units: µg/L | Prep Date: 1/10/2006 | RunNo: 17974
Client ID: ZZZZZ | Batch ID: 9551 | TestNo: SW8310 | (SW3510C) | Analysis Date: 1/16/2006 | SeqNo: 441637

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Anthracene | 0.7900 | 0.60 | 1.005 | 0 | 78.6 | 47.5 | 102 | | | | |
| Fluoranthene | 1.720 | 0.30 | 2.005 | 0 | 85.8 | 46.3 | 108 | | | | |
| Pyrene | 1.820 | 0.30 | 2.005 | 0 | 90.8 | 43.8 | 109 | | | | |
| Benz(a)anthracene | 0.1800 | 0.020 | 0.2005 | 0 | 89.8 | 40.3 | 115 | | | | |
| Chrysene | 0.9600 | 0.20 | 1.005 | 0 | 95.5 | 42.6 | 107 | | | | |
| Benzo(b)fluoranthene | 0.2200 | 0.050 | 0.2505 | 0 | 87.8 | 48.6 | 107 | | | | |
| Benzo(k)fluoranthene | 0.1100 | 0.020 | 0.125 | 0 | 88.0 | 23.3 | 136 | | | | |
| Benzo(a)pyrene | 0.1100 | 0.020 | 0.125 | 0 | 88.0 | 33.4 | 117 | | | | |
| Dibenz(a,h)anthracene | 0.2200 | 0.040 | 0.25 | 0 | 88.0 | 27.3 | 139 | | | | |
| Benzo(g,h,i)perylene | 0.2500 | 0.030 | 0.25 | 0 | 100 | 38.2 | 117 | | | | |
| Indeno(1,2,3-cd)pyrene | 0.4770 | 0.080 | 0.501 | 0 | 95.2 | 39.9 | 125 | | | | |

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Sample ID: LCSD-9551 | SampType: LCSD | TestCode: 8310_W | Units: µg/L | Prep Date: 1/10/2006 | RunNo: 17974
Client ID: ZZZZZ | Batch ID: 9551 | TestNo: SW8310 | (SW3510C) | Analysis Date: 1/16/2006 | SeqNo: 441638

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 14.42 | 2.5 | 20 | 0 | 72.1 | 34.8 | 97.4 | 14.94 | 3.54 | 32.1 | |
| 1-Methylnaphthalene | 14.35 | 2.5 | 20.05 | 0 | 71.6 | 34.7 | 100 | 14.85 | 3.42 | 32.7 | |
| 2-Methylnaphthalene | 14.20 | 2.5 | 20 | 0 | 71.0 | 35 | 98.1 | 14.55 | 2.43 | 34 | |
| Acenaphthylene | 14.36 | 2.5 | 20.05 | 0 | 71.6 | 48.3 | 95.1 | 14.63 | 1.83 | 38.8 | |
| Acenaphthene | 14.61 | 2.5 | 20 | 0 | 73.0 | 45 | 95 | 15.05 | 2.97 | 38.6 | |
| Fluorene | 1.440 | 0.80 | 2.005 | 0 | 71.8 | 46.8 | 93.4 | 1.48 | 2.74 | 39.3 | |
| Phenanthrene | 0.7600 | 0.60 | 1.005 | 0 | 75.6 | 48.7 | 104 | 0.83 | 8.81 | 25 | |
| Anthracene | 0.7700 | 0.60 | 1.005 | 0 | 76.6 | 47.5 | 102 | 0.79 | 2.56 | 23.9 | |
| Fluoranthene | 1.610 | 0.30 | 2.005 | 0 | 80.3 | 46.3 | 108 | 1.72 | 6.61 | 15.7 | |
| Pyrene | 1.730 | 0.30 | 2.005 | 0 | 86.3 | 43.8 | 109 | 1.82 | 5.07 | 15.3 | |
| Benz(a)anthracene | 0.1600 | 0.020 | 0.2005 | 0 | 79.8 | 40.3 | 115 | 0.18 | 11.8 | 119 | |
| Chrysene | 0.8700 | 0.20 | 1.005 | 0 | 86.6 | 42.6 | 107 | 0.96 | 9.84 | 16.6 | |
| Benzo(b)fluoranthene | 0.2100 | 0.050 | 0.2505 | 0 | 83.8 | 48.6 | 107 | 0.22 | 4.65 | 21.7 | |
| Benzo(k)fluoranthene | 0.1000 | 0.020 | 0.125 | 0 | 80.0 | 23.3 | 136 | 0.11 | 9.52 | 19.4 | |

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601055
Project: OAPIS Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8310_W**

Sample ID: LCSD-9551 SampType: LCSD TestCode: 8310_W Units: µg/L Prep Date: 1/10/2006 RunNo: 17974
Client ID: ZZZZZ Batch ID: 9551 TestNo: SW8310 (SW3510C) Analysis Date: 1/16/2006 SeqNo: 441638

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzo(a)pyrene | 0.1300 | 0.020 | 0.125 | 0 | 104 | 33.4 | 117 | 0.11 | 16.7 | 16.7 | |
| Dibenz(a,h)anthracene | 0.2100 | 0.040 | 0.25 | 0 | 84.0 | 27.3 | 139 | 0.22 | 4.65 | 17.3 | |
| Benzo(g,h,i)perylene | 0.2300 | 0.030 | 0.25 | 0 | 92.0 | 38.2 | 117 | 0.25 | 8.33 | 118 | |
| Indeno(1,2,3-cd)pyrene | 0.4540 | 0.080 | 0.501 | 0 | 90.6 | 39.9 | 125 | 0.477 | 4.94 | 17.7 | |



Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601055
Project: OAPIS Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: HG_CTW

Sample ID: MB-9544 | SampType: MBLK | TestCode: HG_CTW | Units: mg/L | Prep Date: 1/9/2006 | RunNo: 17848
Client ID: ZZZZZ | Batch ID: 9544 | TestNo: SW7470 (SW7470) | Analysis Date: 1/9/2006 | SeqNo: 438823

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | 0.00020 | | | | | | | | | |

Sample ID: LCS-9544 | SampType: LCS | TestCode: HG_CTW | Units: mg/L | Prep Date: 1/9/2006 | RunNo: 17848
Client ID: ZZZZZ | Batch ID: 9544 | TestNo: SW7470 (SW7470) | Analysis Date: 1/9/2006 | SeqNo: 438824

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.004253 | 0.00020 | 0.005 | 0 | 85.1 | 80 | 120 | | | | |

Sample ID: LCSD-9544 | SampType: LCSD | TestCode: HG_CTW | Units: mg/L | Prep Date: 1/9/2006 | RunNo: 17848
Client ID: ZZZZZ | Batch ID: 9544 | TestNo: SW7470 (SW7470) | Analysis Date: 1/9/2006 | SeqNo: 438848

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.004311 | 0.00020 | 0.005 | 0 | 86.2 | 80 | 120 | 0.004253 | 1.35 | 0 | |



Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601055
Project: OAPIS Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: MB-9536 SampType: MBLK TestCode: METALS_TO Units: mg/L Prep Date: 1/9/2006 RunNo: 17885
Client ID: ZZZZZ Batch ID: 9536 TestNo: SW6010A Analysis Date: 1/12/2006 SeqNo: 439739

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.020 | | | | | | | | | |
| Barium | ND | 0.020 | | | | | | | | | |
| Cadmium | ND | 0.0020 | | | | | | | | | |
| Chromium | ND | 0.0060 | | | | | | | | | |
| Lead | ND | 0.0050 | | | | | | | | | |
| Selenium | ND | 0.050 | | | | | | | | | |
| Silver | ND | 0.0050 | | | | | | | | | |

Sample ID: MB-9536 SampType: MBLK TestCode: METALS_TO Units: mg/L Prep Date: 1/9/2006 RunNo: 17932
Client ID: ZZZZZ Batch ID: 9536 TestNo: SW6010A Analysis Date: 1/16/2006 SeqNo: 440773

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.020 | | | | | | | | | |
| Barium | ND | 0.020 | | | | | | | | | |
| Cadmium | ND | 0.0020 | | | | | | | | | |
| Chromium | ND | 0.0060 | | | | | | | | | |
| Lead | ND | 0.0050 | | | | | | | | | |
| Selenium | ND | 0.050 | | | | | | | | | |
| Silver | ND | 0.0050 | | | | | | | | | |

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Sample ID: LCS-9536 SampType: LCS TestCode: METALS_TO Units: mg/L Prep Date: 1/9/2006 RunNo: 17885
Client ID: ZZZZZ Batch ID: 9536 TestNo: SW6010A Analysis Date: 1/12/2006 SeqNo: 439740

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | 0.4894 | 0.0050 | 0.5 | 0 | 97.9 | 80 | 120 | | | | |

Sample ID: LCS-9536 SampType: LCS TestCode: METALS_TO Units: mg/L Prep Date: 1/9/2006 RunNo: 17932
Client ID: ZZZZZ Batch ID: 9536 TestNo: SW6010A Analysis Date: 1/16/2006 SeqNo: 440774

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601055
Project: OAPIS Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: LCS-9536 SampType: LCS TestCode: METALS_TO Units: mg/L Prep Date: 1/9/2006 RunNo: 17932
Client ID: ZZZZZ Batch ID: 9536 TestNo: SW6010A Analysis Date: 1/16/2006 SeqNo: 440774

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.4853 | 0.020 | 0.5 | 0 | 97.1 | 80 | 120 | | | | |
| Barium | 0.4613 | 0.020 | 0.5 | 0 | 92.3 | 80 | 120 | | | | |
| Cadmium | 0.4680 | 0.0020 | 0.5 | 0 | 93.6 | 80 | 120 | | | | |
| Chromium | 0.4714 | 0.0060 | 0.5 | 0 | 94.3 | 80 | 120 | | | | |
| Lead | 0.4601 | 0.0050 | 0.5 | 0 | 92.0 | 80 | 120 | | | | |
| Selenium | 0.4684 | 0.050 | 0.5 | 0 | 93.7 | 80 | 120 | | | | |
| Silver | 0.4791 | 0.0050 | 0.5 | 0.001109 | 95.6 | 80 | 120 | | | | |

Sample ID: LCSD-9536 SampType: LCSD TestCode: METALS_TO Units: mg/L Prep Date: 1/9/2006 RunNo: 17885
Client ID: ZZZZZ Batch ID: 9536 TestNo: SW6010A Analysis Date: 1/12/2006 SeqNo: 439741

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | 0.4769 | 0.0050 | 0.5 | 0 | 95.4 | 80 | 120 | 0.4894 | 2.60 | 20 | |

11/18

Sample ID: LCSD-9536 SampType: LCSD TestCode: METALS_TO Units: mg/L Prep Date: 1/9/2006 RunNo: 17932
Client ID: ZZZZZ Batch ID: 9536 TestNo: SW6010A Analysis Date: 1/16/2006 SeqNo: 440775

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.4891 | 0.020 | 0.5 | 0 | 97.8 | 80 | 120 | 0.4853 | 0.775 | 20 | |
| Barium | 0.4627 | 0.020 | 0.5 | 0 | 92.5 | 80 | 120 | 0.4613 | 0.308 | 20 | |
| Cadmium | 0.4676 | 0.0020 | 0.5 | 0 | 93.5 | 80 | 120 | 0.468 | 0.0760 | 20 | |
| Chromium | 0.4741 | 0.0060 | 0.5 | 0 | 94.8 | 80 | 120 | 0.4714 | 0.582 | 20 | |
| Lead | 0.4560 | 0.0050 | 0.5 | 0 | 91.2 | 80 | 120 | 0.4601 | 0.907 | 20 | |
| Selenium | 0.4633 | 0.050 | 0.5 | 0 | 92.7 | 80 | 120 | 0.4684 | 1.11 | 20 | |
| Silver | 0.4795 | 0.0050 | 0.5 | 0.001109 | 95.7 | 80 | 120 | 0.4791 | 0.0776 | 20 | |

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory

Date: 25-Jan-06

**CLIENT:** Giant Refining Co
**Work Order:** 0601055
**Project:** OAPIS Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260_W**

Sample ID: 5ml rb | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 17916
Client ID: ZZZZZ | Batch ID: R17916 | TestNo: SW8260B | Analysis Date: 1/13/2006 | SeqNo: 440423

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | | | | | | | | | |
| Toluene | ND | 1.0 | | | | | | | | | |
| Ethylbenzene | ND | 1.0 | | | | | | | | | |
| Methyl tert-butyl ether (MTBE) | ND | 1.0 | | | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 1.0 | | | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 1.0 | | | | | | | | | |
| 1,2-Dichloroethane (EDC) | ND | 1.0 | | | | | | | | | |
| 1,2-Dibromoethane (EDB) | ND | 1.0 | | | | | | | | | |
| Naphthalene | ND | 2.0 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 4.0 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 4.0 | | | | | | | | | |
| Acetone | ND | 10 | | | | | | | | | |
| Bromobenzene | ND | 1.0 | | | | | | | | | |
| Bromochloromethane | ND | 1.0 | | | | | | | | | |
| Bromodichloromethane | ND | 1.0 | | | | | | | | | |
| Bromoform | ND | 1.0 | | | | | | | | | |
| Bromomethane | ND | 2.0 | | | | | | | | | |
| 2-Butanone | ND | 10 | | | | | | | | | |
| Carbon disulfide | ND | 10 | | | | | | | | | |
| Carbon Tetrachloride | ND | 2.0 | | | | | | | | | |
| Chlorobenzene | ND | 1.0 | | | | | | | | | |
| Chloroethane | ND | 2.0 | | | | | | | | | |
| Chloroform | ND | 1.0 | | | | | | | | | |
| Chloromethane | ND | 1.0 | | | | | | | | | |
| 2-Chlorotoluene | ND | 1.0 | | | | | | | | | |
| 4-Chlorotoluene | ND | 1.0 | | | | | | | | | |
| cis-1,2-DCE | ND | 1.0 | | | | | | | | | |
| cis-1,3-Dichloropropene | ND | 1.0 | | | | | | | | | |
| 1,2-Dibromo-3-chloropropane | ND | 2.0 | | | | | | | | | |

12/18

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601055
Project: OAPIS Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260_W**

Sample ID: 5ml rb | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 17916
Client ID: ZZZZZ | Batch ID: R17916 | TestNo: SW8260B | Analysis Date: 1/13/2006 | SeqNo: 440423

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dibromochloromethane | ND | 1.0 | | | | | | | | | |
| Dibromomethane | ND | 2.0 | | | | | | | | | |
| 1,2-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,3-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,4-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| Dichlorodifluoromethane | ND | 1.0 | | | | | | | | | |
| 1,1-Dichloroethane | ND | 2.0 | | | | | | | | | |
| 1,1-Dichloroethene | ND | 1.0 | | | | | | | | | |
| 1,2-Dichloropropane | ND | 1.0 | | | | | | | | | |
| 1,3-Dichloropropane | ND | 1.0 | | | | | | | | | |
| 2,2-Dichloropropane | ND | 2.0 | | | | | | | | | |
| 1,1-Dichloropropene | ND | 1.0 | | | | | | | | | |
| Hexachlorobutadiene | ND | 2.0 | | | | | | | | | |
| 2-Hexanone | ND | 10 | | | | | | | | | |
| Isopropylbenzene | ND | 1.0 | | | | | | | | | |
| 4-Isopropyltoluene | ND | 1.0 | | | | | | | | | |
| 4-Methyl-2-pentanone | ND | 10 | | | | | | | | | |
| Methylene Chloride | ND | 3.0 | | | | | | | | | |
| n-Butylbenzene | ND | 1.0 | | | | | | | | | |
| n-Propylbenzene | ND | 1.0 | | | | | | | | | |
| sec-Butylbenzene | ND | 1.0 | | | | | | | | | |
| Styrene | ND | 1.0 | | | | | | | | | |
| tert-Butylbenzene | ND | 1.0 | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | 1.0 | | | | | | | | | |
| Tetrachloroethene (PCE) | ND | 1.0 | | | | | | | | | |
| trans-1,2-DCE | ND | 1.0 | | | | | | | | | |
| trans-1,3-Dichloropropene | ND | 1.0 | | | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,1,1-Trichloroethane | ND | 1.0 | | | | | | | | | |

13/18

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601055
Project: OAPIS Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_W

Sample ID: 5ml rb | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 17916
Client ID: ZZZZZ | Batch ID: R17916 | TestNo: SW8260B | Analysis Date: 1/13/2006 | SeqNo: 440423

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,2-Trichloroethane | ND | 1.0 | | | | | | | | | |
| Trichloroethene (TCE) | ND | 1.0 | | | | | | | | | |
| Trichlorofluoromethane | ND | 1.0 | | | | | | | | | |
| 1,2,3-Trichloropropane | ND | 2.0 | | | | | | | | | |
| Vinyl chloride | ND | 1.0 | | | | | | | | | |
| Xylenes, Total | ND | 1.0 | | | | | | | | | |

Sample ID: 5ml rb | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 17921
Client ID: ZZZZZ | Batch ID: R17921 | TestNo: SW8260B | Analysis Date: 1/16/2006 | SeqNo: 440538

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | | | | | | | | | |
| Toluene | ND | 1.0 | | | | | | | | | |
| Ethylbenzene | ND | 1.0 | | | | | | | | | |
| Methyl tert-butyl ether (MTBE) | ND | 1.0 | | | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 1.0 | | | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 1.0 | | | | | | | | | |
| 1,2-Dichloroethane (EDC) | ND | 1.0 | | | | | | | | | |
| 1,2-Dibromoethane (EDB) | ND | 1.0 | | | | | | | | | |
| Naphthalene | ND | 2.0 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 4.0 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 4.0 | | | | | | | | | |
| Acetone | ND | 10 | | | | | | | | | |
| Bromobenzene | ND | 1.0 | | | | | | | | | |
| Bromochloromethane | ND | 1.0 | | | | | | | | | |
| Bromodichloromethane | ND | 1.0 | | | | | | | | | |
| Bromoform | ND | 1.0 | | | | | | | | | |
| Bromomethane | ND | 2.0 | | | | | | | | | |
| 2-Butanone | ND | 10 | | | | | | | | | |
| Carbon disulfide | ND | 10 | | | | | | | | | |

14/18

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601055
Project: OAPIS Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_W

Sample ID: 5ml rb | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 17921
Client ID: ZZZZZ | Batch ID: R17921 | TestNo: SW8260B | Analysis Date: 1/16/2006 | SeqNo: 440538

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbon Tetrachloride | ND | 2.0 | | | | | | | | | |
| Chlorobenzene | ND | 1.0 | | | | | | | | | |
| Chloroethane | ND | 2.0 | | | | | | | | | |
| Chloroform | ND | 1.0 | | | | | | | | | |
| Chloromethane | ND | 1.0 | | | | | | | | | |
| 2-Chlorotoluene | ND | 1.0 | | | | | | | | | |
| 4-Chlorotoluene | ND | 1.0 | | | | | | | | | |
| cis-1,2-DCE | ND | 1.0 | | | | | | | | | |
| cis-1,3-Dichloropropene | ND | 1.0 | | | | | | | | | |
| 1,2-Dibromo-3-chloropropane | ND | 2.0 | | | | | | | | | |
| Dibromochloromethane | ND | 1.0 | | | | | | | | | |
| Dibromomethane | ND | 2.0 | | | | | | | | | |
| 1,2-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,3-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,4-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| Dichlorodifluoromethane | ND | 1.0 | | | | | | | | | |
| 1,1-Dichloroethane | ND | 2.0 | | | | | | | | | |
| 1,1-Dichloroethene | ND | 1.0 | | | | | | | | | |
| 1,2-Dichloropropane | ND | 1.0 | | | | | | | | | |
| 1,3-Dichloropropane | ND | 1.0 | | | | | | | | | |
| 2,2-Dichloropropane | ND | 2.0 | | | | | | | | | |
| 1,1-Dichloropropene | ND | 1.0 | | | | | | | | | |
| Hexachlorobutadiene | ND | 2.0 | | | | | | | | | |
| 2-Hexanone | ND | 10 | | | | | | | | | |
| Isopropylbenzene | ND | 1.0 | | | | | | | | | |
| 4-Isopropyltoluene | ND | 1.0 | | | | | | | | | |
| 4-Methyl-2-pentanone | ND | 10 | | | | | | | | | |
| Methylene Chloride | ND | 3.0 | | | | | | | | | |
| n-Butylbenzene | ND | 1.0 | | | | | | | | | |
| n-Propylbenzene | ND | 1.0 | | | | | | | | | |
| sec-Butylbenzene | ND | 1.0 | | | | | | | | | |

15/18

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601055
Project: OAPIS Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_W

Sample ID: 5ml rb | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 17921
Client ID: ZZZZZ | Batch ID: R17921 | TestNo: SW8260B | Analysis Date: 1/16/2006 | SeqNo: 440538

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Styrene | ND | 1.0 | | | | | | | | | |
| tert-Butylbenzene | ND | 1.0 | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | 1.0 | | | | | | | | | |
| Tetrachloroethene (PCE) | ND | 1.0 | | | | | | | | | |
| trans-1,2-DCE | ND | 1.0 | | | | | | | | | |
| trans-1,3-Dichloropropene | ND | 1.0 | | | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,1,1-Trichloroethane | ND | 1.0 | | | | | | | | | |
| 1,1,2-Trichloroethane | ND | 1.0 | | | | | | | | | |
| Trichloroethene (TCE) | ND | 1.0 | | | | | | | | | |
| Trichlorofluoromethane | ND | 1.0 | | | | | | | | | |
| 1,2,3-Trichloropropane | ND | 2.0 | | | | | | | | | |
| Vinyl chloride | ND | 1.0 | | | | | | | | | |
| Xylenes, Total | ND | 1.0 | | | | | | | | | |

16 / 18

Sample ID: 100ng lcs | SampType: LCS | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 17916
Client ID: ZZZZZ | Batch ID: R17916 | TestNo: SW8260B | Analysis Date: 1/13/2006 | SeqNo: 440424

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 20.47 | 1.0 | 20 | 0 | 102 | 79.3 | 136 | | | | |
| -Toluene | 20.09 | 1.0 | 20 | 0 | 100 | 65.5 | 123 | | | | |
| Chlorobenzene | 20.51 | 1.0 | 20 | 0 | 103 | 80.3 | 134 | | | | |
| 1,1-Dichloroethene | 20.10 | 1.0 | 20 | 0 | 101 | 72.7 | 135 | | | | |
| Trichloroethene (TCE) | 19.96 | 1.0 | 20 | 0 | 99.8 | 85.6 | 119 | | | | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601055
Project: OAPIS Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_W

Sample ID: 100ng lcs | SampType: LCS | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 17921
Client ID: ZZZZZ | Batch ID: R17921 | TestNo: SW8260B | Analysis Date: 1/16/2006 | SeqNo: 440539

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 20.04 | 1.0 | 20 | 0 | 100 | 79.3 | 136 | | | | |
| Toluene | 19.43 | 1.0 | 20 | 0 | 97.1 | 65.5 | 123 | | | | |
| Chlorobenzene | 20.33 | 1.0 | 20 | 0 | 102 | 80.3 | 134 | | | | |
| 1,1-Dichloroethene | 19.92 | 1.0 | 20 | 0 | 99.6 | 72.7 | 135 | | | | |
| Trichloroethene (TCE) | 18.98 | 1.0 | 20 | 0 | 94.9 | 85.6 | 119 | | | | |

17 / 18

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

## Hall Environmental Analysis Laboratory

### Sample Receipt Checklist

Client Name GIANTREFIN

Date and Time Received: 1/6/2006

Work Order Number 0601055

Received by AT

Checklist completed by [signature] Signature    Date 1/6/06

Matrix

Carrier name UPS

| | | | | |
|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ | Not Shipped ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☑ | N/A ☐ | |
| Chain of custody present? | Yes ☑ | No ☐ | | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | | |
| Chain of custody agrees with sample labels? | Yes ☐ | No ☑ | | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☐ | No ☑ | | |
| Water - VOA vials have zero headspace? | No VOA vials submitted ☐ | Yes ☑ | No ☐ | |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | N/A ☐ | |

Container/Temp Blank temperature? 7° *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

---

Client contacted ______ Date contacted: ______ Person contacted ______

Contacted by: ______ Regarding ______

Comments: ______

Corrective Action ______

# CHAIN-OF-CUSTODY RECORD

**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: Giant Refining Company - Ciniza

Address: Route 3 Box 7
Gallup, NM 87321

Phone #: 505 722 3833

Fax #: 505 722 9210

QA / QC Package: Std ☐ Level 4 ☐

Other: 

Project Name: OAPIS
Week of 1-6-2006

Project #:

Project Manager: Steve Morris

Sampler:

Sample Temperature: 7°

| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative $HgCl_2$ | Preservative $HNO_3$ | | HEAL No. |
|---|---|---|---|---|---|---|---|---|
| 1-4-06 | 1430 | $H_2O$ | OAPIS | | | | | 0601055-1 |

**ANALYSIS REQUEST**

| BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 8310 (PNA or PAH) | RCRA 8 Metals | Anions (F, Cl, $NO_3$, $NO_2$, $PO_4$, $SO_4$) | 8081 Pesticides / PCB's (8082) | 8260B (VOA) | 8270 (Semi-VOA) | | | | | Air Bubbles or Headspace (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | X | | | | X | X | | | X | | | | | | |

| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) | |
|---|---|---|---|---|
| 1-5-06 | 0900 | [signature] | [signature] | 1/6/06 @ 1340 |
| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) | |

Remarks:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

COVER LETTER

Wednesday, January 25, 2006

Ed Riege
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301

TEL: (505) 722-3833
FAX (505) 722-0210

RE: OAPIS Week of 1/13/06

Order No.: 0601119

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/13/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

ACCREDITED IN ACCORDANCE WITH nelac

# Hall Environmental Analysis Laboratory

Date: *25-Jun-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | OAPIS |
| **Lab Order:** | 0601119 | **Collection Date:** | 1/11/2006 1:30:00 PM |
| **Project:** | OAPIS Week of 1/13/06 | **Date Received:** | 1/13/2006 |
| **Lab ID:** | 0601119-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | Limit | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | 4.6 | 3.0 | | mg/L | 1 | 1/17/2006 9:40:35 AM |
| Motor Oil Range Organics (MRO) | ND | 15 | | mg/L | 1 | 1/17/2006 9:40:35 AM |
| Surr: DNOP | 128 | 58-140 | | %REC | 1 | 1/17/2006 9:40:35 AM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | 6.0 | 2.0 | | mg/L | 40 | 1/23/2006 1:50:24 PM |
| Surr: BFB | 105 | 79.7-118 | | %REC | 40 | 1/23/2006 1:50:24 PM |
| **EPA METHOD 8310: PAHS** | | | | | | Analyst: JMP |
| Naphthalene | 190 | 12 | | µg/L | 5 | 1/23/2006 3:31:23 PM |
| 1-Methylnaphthalene | 68 | 2.5 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| 2-Methylnaphthalene | 37 | 2.5 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Acenaphthylene | ND | 2.5 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Acenaphthene | ND | 2.5 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Fluorene | 7.7 | 0.80 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Phenanthrene | 5.9 | 0.60 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Anthracene | ND | 0.60 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Fluoranthene | 0.30 | 0.30 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Pyrene | 0.52 | 0.30 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Benz(a)anthracene | 0.060 | 0.020 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Chrysene | ND | 0.20 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Benzo(b)fluoranthene | 0.080 | 0.050 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Benzo(k)fluoranthene | 0.050 | 0.020 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Benzo(a)pyrene | 0.050 | 0.020 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Dibenz(a,h)anthracene | 0.040 | 0.040 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Benzo(g,h,i)perylene | 0.10 | 0.030 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | µg/L | 1 | 1/18/2006 11:04:38 PM |
| Surr: Benzo(e)pyrene | 77.9 | 54-102 | | %REC | 1 | 1/18/2006 11:04:38 PM |
| **EPA METHOD 7470: MERCURY** | | | | | | Analyst: CMC |
| Mercury | ND | 0.00020 | | mg/L | 1 | 1/20/2006 |
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: NMO |
| Arsenic | ND | 0.020 | | mg/L | 1 | 1/20/2006 10:39:37 AM |
| Barium | 0.26 | 0.020 | | mg/L | 1 | 1/20/2006 10:39:37 AM |
| Cadmium | ND | 0.0020 | | mg/L | 1 | 1/20/2006 10:39:37 AM |
| Chromium | 0.0092 | 0.0060 | | mg/L | 1 | 1/20/2006 10:39:37 AM |
| Lead | ND | 0.0050 | | mg/L | 1 | 1/20/2006 10:39:37 AM |

**Qualifiers:**

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

## Hall Environmental Analysis Laboratory

**Date:** *25-Jun-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | OAPIS |
| **Lab Order:** | 0601119 | **Collection Date:** | 1/11/2006 1:30:00 PM |
| **Project:** | OAPIS Week of 1/13/06 | **Date Received:** | 1/13/2006 |
| **Lab ID:** | 0601119-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | Limit | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: NMO |
| Selenium | ND | 0.050 | | mg/L | 1 | 1/20/2006 10:39:37 AM |
| Silver | ND | 0.0050 | | mg/L | 1 | 1/20/2006 10:39:37 AM |
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: HLM |
| Benzene | 1000 | 50 | | µg/L | 50 | 1/19/2006 |
| Toluene | 990 | 50 | | µg/L | 50 | 1/19/2006 |
| Ethylbenzene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Methyl tert-butyl ether (MTBE) | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,2,4-Trimethylbenzene | 180 | 50 | | µg/L | 50 | 1/19/2006 |
| 1,3,5-Trimethylbenzene | 82 | 50 | | µg/L | 50 | 1/19/2006 |
| 1,2-Dichloroethane (EDC) | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,2-Dibromoethane (EDB) | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Naphthalene | 110 | 100 | | µg/L | 50 | 1/19/2006 |
| 1-Methylnaphthalene | ND | 200 | | µg/L | 50 | 1/19/2006 |
| 2-Methylnaphthalene | ND | 200 | | µg/L | 50 | 1/19/2006 |
| Acetone | ND | 500 | | µg/L | 50 | 1/19/2006 |
| Bromobenzene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Bromochloromethane | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Bromodichloromethane | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Bromoform | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Bromomethane | ND | 100 | | µg/L | 50 | 1/19/2006 |
| 2-Butanone | ND | 500 | | µg/L | 50 | 1/19/2006 |
| Carbon disulfide | ND | 500 | | µg/L | 50 | 1/19/2006 |
| Carbon Tetrachloride | ND | 100 | | µg/L | 50 | 1/19/2006 |
| Chlorobenzene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Chloroethane | ND | 100 | | µg/L | 50 | 1/19/2006 |
| Chloroform | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Chloromethane | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 2-Chlorotoluene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 4-Chlorotoluene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| cis-1,2-DCE | ND | 50 | | µg/L | 50 | 1/19/2006 |
| cis-1,3-Dichloropropene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,2-Dibromo-3-chloropropane | ND | 100 | | µg/L | 50 | 1/19/2006 |
| Dibromochloromethane | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Dibromomethane | ND | 100 | | µg/L | 50 | 1/19/2006 |
| 1,2-Dichlorobenzene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,3-Dichlorobenzene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,4-Dichlorobenzene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Dichlorodifluoromethane | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,1-Dichloroethane | ND | 100 | | µg/L | 50 | 1/19/2006 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| S | Spike Recovery outside accepted recovery limits | | |

## Hall Environmental Analysis Laboratory

**Date:** *25-Jun-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | OAPIS |
| **Lab Order:** | 0601119 | **Collection Date:** | 1/11/2006 1:30:00 PM |
| **Project:** | OAPIS Week of 1/13/06 | **Date Received:** | 1/13/2006 |
| **Lab ID:** | 0601119-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | Limit | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: HLM |
| 1,1-Dichloroethene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,2-Dichloropropane | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,3-Dichloropropane | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 2,2-Dichloropropane | ND | 100 | | µg/L | 50 | 1/19/2006 |
| 1,1-Dichloropropene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Hexachlorobutadiene | ND | 100 | | µg/L | 50 | 1/19/2006 |
| 2-Hexanone | ND | 500 | | µg/L | 50 | 1/19/2006 |
| Isopropylbenzene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 4-Isopropyltoluene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 4-Methyl-2-pentanone | ND | 500 | | µg/L | 50 | 1/19/2006 |
| Methylene Chloride | ND | 150 | | µg/L | 50 | 1/19/2006 |
| n-Butylbenzene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| n-Propylbenzene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| sec-Butylbenzene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Styrene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| tert-Butylbenzene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,1,1,2-Tetrachloroethane | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,1,2,2-Tetrachloroethane | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Tetrachloroethene (PCE) | ND | 50 | | µg/L | 50 | 1/19/2006 |
| trans-1,2-DCE | ND | 50 | | µg/L | 50 | 1/19/2006 |
| trans-1,3-Dichloropropene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,2,3-Trichlorobenzene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,2,4-Trichlorobenzene | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,1,1-Trichloroethane | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,1,2-Trichloroethane | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Trichloroethene (TCE) | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Trichlorofluoromethane | ND | 50 | | µg/L | 50 | 1/19/2006 |
| 1,2,3-Trichloropropane | ND | 100 | | µg/L | 50 | 1/19/2006 |
| Vinyl chloride | ND | 50 | | µg/L | 50 | 1/19/2006 |
| Xylenes, Total | 970 | 50 | | µg/L | 50 | 1/19/2006 |
| Surr: 1,2-Dichloroethane-d4 | 104 | 69.9-130 | | %REC | 50 | 1/19/2006 |
| Surr: 4-Bromofluorobenzene | 110 | 71.2-123 | | %REC | 50 | 1/19/2006 |
| Surr: Dibromofluoromethane | 93.2 | 73.9-134 | | %REC | 50 | 1/19/2006 |
| Surr: Toluene-d8 | 99.9 | 81.9-122 | | %REC | 50 | 1/19/2006 |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| S | Spike Recovery outside accepted recovery limits | | |

Hall Environmental Analysis Laboratory

Date: *25-Jan-06*

CLIENT: Giant Refining Co
Work Order: 0601119
Project: OAPIS Week of 1/13/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DRO_W

Sample ID: **LCS-9583** SampType: **LCS** TestCode: **8015DRO_W** Units: **mg/L** Prep Date: **1/16/2006** RunNo: **17928**
Client ID: **ZZZZZ** Batch ID: **9583** TestNo: **SW8015** Analysis Date: **1/16/2006** SeqNo: **440598**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 5.618 | 1.0 | 5 | 0 | 112 | 81.2 | 149 | | | | |
| Motor Oil Range Organics (MRO) | ND | 5.0 | | | | | | | | | |

Sample ID: **LCSD-9583** SampType: **LCSD** TestCode: **8015DRO_W** Units: **mg/L** Prep Date: **1/16/2006** RunNo: **17928**
Client ID: **ZZZZZ** Batch ID: **9583** TestNo: **SW8015** Analysis Date: **1/16/2006** SeqNo: **440599**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 5.779 | 1.0 | 5 | 0 | 116 | 81.2 | 149 | 5.618 | 2.82 | 23 | |
| Motor Oil Range Organics (MRO) | ND | 5.0 | | | | | | 0 | 0 | 0 | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601119
Project: OAPIS Week of 1/13/06

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015GRO_W**

Sample ID: 5ML RB | SampType: MBLK | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18017
Client ID: ZZZZZ | Batch ID: R18017 | TestNo: SW8015 | Analysis Date: 1/23/2006 | SeqNo: 443323

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 0.050 | | | | | | | | | |

Sample ID: 2.5UG GRO LCS | SampType: LCS | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18017
Client ID: ZZZZZ | Batch ID: R18017 | TestNo: SW8015 | Analysis Date: 1/23/2006 | SeqNo: 443324

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 0.4740 | 0.050 | 0.5 | 0 | 94.8 | 82.6 | 114 | | | | |

Sample ID: 2.5UG GRO LCSD | SampType: LCSD | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 18017
Client ID: ZZZZZ | Batch ID: R18017 | TestNo: SW8015 | Analysis Date: 1/23/2006 | SeqNo: 443349

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 0.4840 | 0.050 | 0.5 | 0 | 96.8 | 82.6 | 114 | 0.474 | 2.09 | 8.39 | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601119
Project: OAPIS Week of 1/13/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8310_W

Sample ID: MB-9599 | SampType: MBLK | TestCode: 8310_W | Units: µg/L | Prep Date: 1/17/2006 | RunNo: 17999
Client ID: ZZZZZ | Batch ID: 9599 | TestNo: SW8310 | (SW3510C) | Analysis Date: 1/18/2006 | SeqNo: 442601

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | ND | 2.5 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| Acenaphthylene | ND | 2.5 | | | | | | | | | |
| Acenaphthene | ND | 2.5 | | | | | | | | | |
| Fluorene | ND | 0.80 | | | | | | | | | |
| Phenanthrene | ND | 0.60 | | | | | | | | | |
| Anthracene | ND | 0.60 | | | | | | | | | |
| Fluoranthene | ND | 0.30 | | | | | | | | | |
| Pyrene | ND | 0.30 | | | | | | | | | |
| Benz(a)anthracene | ND | 0.020 | | | | | | | | | |
| Chrysene | ND | 0.20 | | | | | | | | | |
| Benzo(b)fluoranthene | ND | 0.050 | | | | | | | | | |
| Benzo(k)fluoranthene | ND | 0.020 | | | | | | | | | |
| Benzo(a)pyrene | ND | 0.020 | | | | | | | | | |
| Dibenz(a,h)anthracene | ND | 0.040 | | | | | | | | | |
| Benzo(g,h,i)perylene | ND | 0.030 | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | | | | | | | | |

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Sample ID: LCS-9599 | SampType: LCS | TestCode: 8310_W | Units: µg/L | Prep Date: 1/17/2006 | RunNo: 17999
Client ID: ZZZZZ | Batch ID: 9599 | TestNo: SW8310 | (SW3510C) | Analysis Date: 1/18/2006 | SeqNo: 442603

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 24.23 | 2.5 | 40 | 0 | 60.6 | 34.8 | 97.4 | | | | |
| 1-Methylnaphthalene | 23.35 | 2.5 | 40.1 | 0 | 58.2 | 34.7 | 100 | | | | |
| 2-Methylnaphthalene | 23.08 | 2.5 | 40 | 0 | 57.7 | 35 | 98.1 | | | | |
| Acenaphthylene | 25.00 | 2.5 | 40.1 | 0 | 62.4 | 48.3 | 95.1 | | | | |
| Acenaphthene | 24.46 | 2.5 | 40 | 0 | 61.2 | 45 | 95 | | | | |
| Fluorene | 2.490 | 0.80 | 4.01 | 0 | 62.1 | 46.8 | 93.4 | | | | |
| Phenanthrene | 1.380 | 0.60 | 2.01 | 0 | 68.7 | 46.7 | 104 | | | | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601119
Project: OAPIS Week of 1/13/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8310_W

Sample ID: LCS-9599 | SampType: LCS | TestCode: 8310_W | Units: µg/L | Prep Date: 1/17/2006 | RunNo: 17999
Client ID: ZZZZZ | Batch ID: 9599 | TestNo: SW8310 | (SW3510C) | Analysis Date: 1/18/2006 | SeqNo: 442603

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Anthracene | 1.340 | 0.60 | 2.01 | 0 | 66.7 | 47.5 | 102 | | | | |
| Fluoranthene | 2.700 | 0.30 | 4.01 | 0 | 67.3 | 46.3 | 108 | | | | |
| Pyrene | 2.720 | 0.30 | 4.01 | 0 | 67.8 | 43.8 | 109 | | | | |
| Benz(a)anthracene | 0.2800 | 0.020 | 0.401 | 0 | 69.8 | 40.3 | 115 | | | | |
| Chrysene | 1.370 | 0.20 | 2.01 | 0 | 68.2 | 42.6 | 107 | | | | |
| Benzo(b)fluoranthene | 0.3400 | 0.050 | 0.501 | 0 | 67.9 | 48.6 | 107 | | | | |
| Benzo(k)fluoranthene | 0.1700 | 0.020 | 0.25 | 0 | 68.0 | 23.3 | 136 | | | | |
| Benzo(a)pyrene | 0.1700 | 0.020 | 0.251 | 0 | 67.7 | 33.4 | 117 | | | | |
| Dibenz(a,h)anthracene | 0.3400 | 0.040 | 0.501 | 0 | 67.9 | 27.3 | 139 | | | | |
| Benzo(g,h,i)perylene | 0.3600 | 0.030 | 0.5 | 0 | 72.0 | 38.2 | 117 | | | | |
| Indeno(1,2,3-cd)pyrene | 0.7370 | 0.080 | 1.002 | 0 | 73.6 | 39.9 | 125 | | | | |

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Sample ID: LCSD-9599 | SampType: LCSD | TestCode: 8310_W | Units: µg/L | Prep Date: 1/17/2006 | RunNo: 17999
Client ID: ZZZZZ | Batch ID: 9599 | TestNo: SW8310 | (SW3510C) | Analysis Date: 1/18/2006 | SeqNo: 442604

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 24.98 | 2.5 | 40 | 0 | 62.4 | 34.8 | 97.4 | 24.23 | 3.05 | 32.1 | |
| 1-Methylnaphthalene | 24.30 | 2.5 | 40.1 | 0 | 60.6 | 34.7 | 100 | 23.35 | 3.99 | 32.7 | |
| 2-Methylnaphthalene | 24.05 | 2.5 | 40 | 0 | 60.1 | 35 | 98.1 | 23.08 | 4.12 | 34 | |
| Acenaphthylene | 25.66 | 2.5 | 40.1 | 0 | 64.0 | 48.3 | 95.1 | 25 | 2.58 | 38.8 | |
| Acenaphthene | 25.29 | 2.5 | 40 | 0 | 63.2 | 45 | 95 | 24.46 | 3.34 | 38.6 | |
| Fluorene | 2.570 | 0.80 | 4.01 | 0 | 64.1 | 46.8 | 93.4 | 2.49 | 3.16 | 39.3 | |
| Phenanthrene | 1.370 | 0.60 | 2.01 | 0 | 68.2 | 48.7 | 104 | 1.38 | 0.727 | 25 | |
| Anthracene | 1.400 | 0.60 | 2.01 | 0 | 69.7 | 47.5 | 102 | 1.34 | 4.38 | 23.9 | |
| Fluoranthene | 2.910 | 0.30 | 4.01 | 0 | 72.6 | 46.3 | 108 | 2.7 | 7.49 | 15.7 | |
| Pyrene | 2.830 | 0.30 | 4.01 | 0 | 70.6 | 43.8 | 109 | 2.72 | 3.96 | 15.3 | |
| Benz(a)anthracene | 0.2900 | 0.020 | 0.401 | 0 | 72.3 | 40.3 | 115 | 0.28 | 3.51 | 119 | |
| Chrysene | 1.520 | 0.20 | 2.01 | 0 | 75.6 | 42.6 | 107 | 1.37 | 10.4 | 16.6 | |
| Benzo(b)fluoranthene | 0.3700 | 0.050 | 0.501 | 0 | 73.9 | 48.6 | 107 | 0.34 | 8.45 | 21.7 | |
| Benzo(k)fluoranthene | 0.1800 | 0.020 | 0.25 | 0 | 72.0 | 23.3 | 136 | 0.17 | 5.71 | 19.4 | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601119
Project: OAPIS Week of 1/13/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8310_W

Sample ID: LCSD-9599 SampType: LCSD TestCode: 8310_W Units: µg/L Prep Date: 1/17/2006 RunNo: 17999
Client ID: ZZZZZ Batch ID: 9599 TestNo: SW8310 (SW3510C) Analysis Date: 1/18/2006 SeqNo: 442604

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzo(a)pyrene | 0.1800 | 0.020 | 0.251 | 0 | 71.7 | 33.4 | 117 | 0.17 | 5.71 | 16.7 | |
| Dibenz(a,h)anthracene | 0.3500 | 0.040 | 0.501 | 0 | 69.9 | 27.3 | 139 | 0.34 | 2.90 | 17.3 | |
| Benzo(g,h,i)perylene | 0.3900 | 0.030 | 0.5 | 0 | 78.0 | 38.2 | 117 | 0.36 | 8.00 | 118 | |
| Indeno(1,2,3-cd)pyrene | 0.7620 | 0.080 | 1.002 | 0 | 76.0 | 39.9 | 125 | 0.737 | 3.34 | 17.7 | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601119
Project: OAPIS Week of 1/13/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: Hg_CTW

Sample ID: MB-9625 | SampType: MBLK | TestCode: Hg_CTW | Units: mg/L | Prep Date: 1/20/2006 | RunNo: 17989
Client ID: ZZZZZ | Batch ID: 9625 | TestNo: SW7470 | (SW7470) | Analysis Date: 1/20/2006 | SeqNo: 442366

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | 0.00020 | | | | | | | | | |

Sample ID: LCS-9625 | SampType: LCS | TestCode: Hg_CTW | Units: mg/L | Prep Date: 1/20/2006 | RunNo: 17989
Client ID: ZZZZZ | Batch ID: 9625 | TestNo: SW7470 | (SW7470) | Analysis Date: 1/20/2006 | SeqNo: 442367

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.004124 | 0.00020 | 0.005 | 0 | 82.5 | 80 | 120 | | | | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601119
Project: OAPIS Week of 1/13/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: MB-9615 | SampType: MBLK | TestCode: METALS_TO | Units: mg/L | Prep Date: 1/19/2006 | RunNo: 17983
Client ID: ZZZZZ | Batch ID: 9615 | TestNo: SW6010A | Analysis Date: 1/20/2006 | SeqNo: 442110

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.020 | | | | | | | | | |
| Barium | ND | 0.020 | | | | | | | | | |
| Cadmium | ND | 0.0020 | | | | | | | | | |
| Chromium | ND | 0.0060 | | | | | | | | | |
| Lead | ND | 0.0050 | | | | | | | | | |
| Selenium | ND | 0.050 | | | | | | | | | |
| Silver | ND | 0.0050 | | | | | | | | | |

Sample ID: LCS-9615 | SampType: LCS | TestCode: METALS_TO | Units: mg/L | Prep Date: 1/19/2006 | RunNo: 17983
Client ID: ZZZZZ | Batch ID: 9615 | TestNo: SW6010A | Analysis Date: 1/20/2006 | SeqNo: 442101

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| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.4712 | 0.020 | 0.5 | 0 | 94.2 | 80 | 120 | | | | |
| Barium | 0.4652 | 0.020 | 0.5 | 0 | 93.0 | 80 | 120 | | | | |
| Cadmium | 0.4572 | 0.0020 | 0.5 | 0 | 91.4 | 80 | 120 | | | | |
| Chromium | 0.4752 | 0.0060 | 0.5 | 0 | 95.0 | 80 | 120 | | | | |
| Lead | 0.4433 | 0.0050 | 0.5 | 0 | 88.7 | 80 | 120 | | | | |
| Selenium | 0.4317 | 0.050 | 0.5 | 0 | 86.3 | 80 | 120 | | | | |
| Silver | 0.4764 | 0.0050 | 0.5 | 0 | 95.3 | 80 | 120 | | | | |

Sample ID: LCSD-9615 | SampType: LCSD | TestCode: METALS_TO | Units: mg/L | Prep Date: 1/19/2006 | RunNo: 17983
Client ID: ZZZZZ | Batch ID: 9615 | TestNo: SW6010A | Analysis Date: 1/20/2006 | SeqNo: 442102

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.4736 | 0.020 | 0.5 | 0 | 94.7 | 80 | 120 | 0.4712 | 0.500 | 20 | |
| Barium | 0.4662 | 0.020 | 0.5 | 0 | 93.2 | 80 | 120 | 0.4652 | 0.211 | 20 | |
| Cadmium | 0.4649 | 0.0020 | 0.5 | 0 | 93.0 | 80 | 120 | 0.4572 | 1.65 | 20 | |
| Chromium | 0.4763 | 0.0060 | 0.5 | 0 | 95.3 | 80 | 120 | 0.4752 | 0.235 | 20 | |
| Lead | 0.4476 | 0.0050 | 0.5 | 0 | 89.5 | 80 | 120 | 0.4433 | 0.956 | 20 | |
| Selenium | 0.4415 | 0.050 | 0.5 | 0 | 88.3 | 80 | 120 | 0.4317 | 2.24 | 20 | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601119
Project: OAPIS Week of 1/13/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: LCSD-9615 SampType: LCSD TestCode: METALS_TO Units: mg/L Prep Date: 1/19/2006 RunNo: 17983
Client ID: ZZZZZ Batch ID: 9615 TestNo: SW6010A Analysis Date: 1/20/2006 SeqNo: 442102

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Silver | 0.4772 | 0.0050 | 0.5 | 0 | 95.4 | 80 | 120 | 0.4764 | 0.179 | 20 | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory

Date: 25-Jan-06

CLIENT: Giant Refining Co
Work Order: 0601119
Project: OAPIS Week of 1/13/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_W

Sample ID: 5ml rb SampType: MBLK TestCode: 8260_W Units: µg/L Prep Date: RunNo: 17978
Client ID: ZZZZZ Batch ID: R17978 TestNo: SW8260B Analysis Date: 1/19/2006 SeqNo: 441974

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | | | | | | | | | |
| Toluene | ND | 1.0 | | | | | | | | | |
| Ethylbenzene | ND | 1.0 | | | | | | | | | |
| Methyl tert-butyl ether (MTBE) | ND | 1.0 | | | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 1.0 | | | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 1.0 | | | | | | | | | |
| 1,2-Dichloroethane (EDC) | ND | 1.0 | | | | | | | | | |
| 1,2-Dibromoethane (EDB) | ND | 1.0 | | | | | | | | | |
| Naphthalene | ND | 2.0 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 4.0 | | | | | | | | | |
| !-Methylnaphthalene | ND | 4.0 | | | | | | | | | |
| \cetone | ND | 10 | | | | | | | | | |
| 3romobenzene | ND | 1.0 | | | | | | | | | |
| Bromochloromethane | ND | 1.0 | | | | | | | | | |
| Bromodichloromethane | ND | 1.0 | | | | | | | | | |
| Bromoform | ND | 1.0 | | | | | | | | | |
| Bromomethane | ND | 2.0 | | | | | | | | | |
| 2-Butanone | ND | 10 | | | | | | | | | |
| Carbon disulfide | ND | 10 | | | | | | | | | |
| Carbon Tetrachloride | ND | 2.0 | | | | | | | | | |
| Chlorobenzene | ND | 1.0 | | | | | | | | | |
| Chloroethane | ND | 2.0 | | | | | | | | | |
| Chloroform | ND | 1.0 | | | | | | | | | |
| Chloromethane | ND | 1.0 | | | | | | | | | |
| 2-Chlorotoluene | ND | 1.0 | | | | | | | | | |
| 4-Chlorotoluene | ND | 1.0 | | | | | | | | | |
| cis-1,2-DCE | ND | 1.0 | | | | | | | | | |
| cis-1,3-Dichloropropene | ND | 1.0 | | | | | | | | | |
| 1,2-Dibromo-3-chloropropane | ND | 2.0 | | | | | | | | | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601119
Project: OAPIS Week of 1/13/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_W

Sample ID: 5ml rb | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 17978
Client ID: ZZZZZ | Batch ID: R17978 | TestNo: SW8260B | Analysis Date: 1/19/2006 | SeqNo: 441974

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dibromochloromethane | ND | 1.0 | | | | | | | | | |
| Dibromomethane | ND | 2.0 | | | | | | | | | |
| 1,2-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,3-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,4-Dichlorobenzene | ND | 1.0 | | | | | | | | | |
| Dichlorodifluoromethane | ND | 1.0 | | | | | | | | | |
| 1,1-Dichloroethane | ND | 2.0 | | | | | | | | | |
| 1,1-Dichloroethene | ND | 1.0 | | | | | | | | | |
| 1,2-Dichloropropane | ND | 1.0 | | | | | | | | | |
| 1,3-Dichloropropane | ND | 1.0 | | | | | | | | | |
| 2,2-Dichloropropane | ND | 2.0 | | | | | | | | | |
| 1,1-Dichloropropene | ND | 1.0 | | | | | | | | | |
| Hexachlorobutadiene | ND | 2.0 | | | | | | | | | |
| 2-Hexanone | ND | 10 | | | | | | | | | |
| Isopropylbenzene | ND | 1.0 | | | | | | | | | |
| 4-Isopropyltoluene | ND | 1.0 | | | | | | | | | |
| 4-Methyl-2-pentanone | ND | 10 | | | | | | | | | |
| Methylene Chloride | ND | 3.0 | | | | | | | | | |
| n-Butylbenzene | ND | 1.0 | | | | | | | | | |
| n-Propylbenzene | ND | 1.0 | | | | | | | | | |
| sec-Butylbenzene | ND | 1.0 | | | | | | | | | |
| Styrene | ND | 1.0 | | | | | | | | | |
| tert-Butylbenzene | ND | 1.0 | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | 1.0 | | | | | | | | | |
| Tetrachloroethene (PCE) | ND | 1.0 | | | | | | | | | |
| trans-1,2-DCE | ND | 1.0 | | | | | | | | | |
| trans-1,3-Dichloropropene | ND | 1.0 | | | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 1.0 | | | | | | | | | |
| 1,1,1-Trichloroethane | ND | 1.0 | | | | | | | | | |

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Qualifiers: E Value above quantitation range; ND Not Detected at the Reporting Limit; H Holding times for preparation or analysis exceeded; R RPD outside accepted recovery limits; J Analyte detected below quantitation limits; S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601119
Project: OAPIS Week of 1/13/06

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_W

Sample ID: 5ml rb | SampType: MBLK | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 17978
Client ID: ZZZZZ | Batch ID: R17978 | TestNo: SW8260B | Analysis Date: 1/19/2006 | SeqNo: 441974

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,2-Trichloroethane | ND | 1.0 | | | | | | | | | |
| Trichloroethene (TCE) | ND | 1.0 | | | | | | | | | |
| Trichlorofluoromethane | ND | 1.0 | | | | | | | | | |
| 1,2,3-Trichloropropane | ND | 2.0 | | | | | | | | | |
| Vinyl chloride | ND | 1.0 | | | | | | | | | |
| Xylenes, Total | ND | 1.0 | | | | | | | | | |

Sample ID: 100ng lcs | SampType: LCS | TestCode: 8260_W | Units: µg/L | Prep Date: | RunNo: 17978
Client ID: ZZZZZ | Batch ID: R17978 | TestNo: SW8260B | Analysis Date: 1/19/2006 | SeqNo: 441975

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 19.34 | 1.0 | 20 | 0 | 96.7 | 79.3 | 136 | | | | |
| Toluene | 20.12 | 1.0 | 20 | 0 | 101 | 65.5 | 123 | | | | |
| Chlorobenzene | 20.20 | 1.0 | 20 | 0 | 101 | 80.3 | 134 | | | | |
| 1,1-Dichloroethene | 19.93 | 1.0 | 20 | 0 | 99.7 | 72.7 | 135 | | | | |
| Trichloroethene (TCE) | 19.14 | 1.0 | 20 | 0 | 95.7 | 85.6 | 119 | | | | |

14/15

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

## Hall Environmental Analysis Laboratory

### Sample Receipt Checklist

Client Name GIANTREFIN | Date and Time Received: 1/13/2006

Work Order Number 0601119 | Received by LMM

Checklist completed by Lisa Hallahan (Signature) 1/13/06 (Date)

Matrix | Carrier name UPS

| | | | | |
|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ | Not Shipped ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☑ | N/A ☐ | |
| Chain of custody present? | Yes ☑ | No ☐ | | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☑ | No ☐ | | |
| Water - VOA vials have zero headspace? | No VOA vials submitted ☐ | Yes ☑ | No ☐ | |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | N/A ☐ | |
| Container/Temp Blank temperature? | 7° | *4° C ± 2 Acceptable* If given sufficient time to cool. | | |

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

# CHAIN-OF-CUSTODY RECORD

Client: Giant Refining Co. Ciniza

Address: Route 3, Box 7 Gallup, NM 87301

Phone #: 505 722 3833

Fax #: 505 722 6210

QA / QC Package: Std ☐ Level 4 ☐

Other:

Project Name: OAPIS Week of 1-13-06

Project #:

Project Manager: ED RIEGE

Sampler: Johnny Sanchez

Sample Temperature:


**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com


## ANALYSIS REQUEST

| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative $HgCl_2$ | Preservative $HNO_3$ | | HEAL No. | BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 8310 ([redacted] PAH) | RCRA 8 Metals | Anions (F, Cl, $NO_3$, $NO_2$, $PO_4$, $SO_4$) | 8081 Pesticides / PCB's (8082) | 8260B (VOA) | 8270 (Semi-VOA) | | | | | Air Bubbles or Headspace (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-11-06 | 1:30P | $H_2O$ | OAPIS | | | | | 0601119-1 | | | X | | | | X | X | | | X | | | | | | |

| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |
|---|---|---|---|
| 1-12-06 | 0900 | J Sanchez | Lise Hawk (?) 1140 1/13/06 |
| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |

Remarks:

**Chavez, Carl J, EMNRD**

**From:** Monzeglio, Hope, NMENV
**Sent:** Wednesday, January 25, 2006 3:55 PM
**To:** Chavez, Carl J, EMNRD; Price, Wayne, EMNRD
**Subject:** FW: OAPIS SKETCH

Correspondence with S. Morris about the Old API Separator.
-----Original Message-----
From: Steve Morris [mailto:smorris@giant.com]
Sent: Wednesday, January 25, 2006 3:44 PM
To: Monzeglio, Hope, NMENV
Subject: RE: OAPIS SKETCH

Hope,
I have been taking a clean empty 1 gallon distilled water bottle and dunking it in to the last portion of the water section of the OAPIS. As it is filled, I do get surface water. Once the gallon bottle is full, I fill the sample bottles right away.

The small trickle of water flows from the south side of the water section and I have been catching the sample on the north.
The reason for that is that it is easier to reach the water from that side.
I can, however, catch samples from right where the water exits the water section. (no problem)

During a storm event I could catch a sample of the water as it enters or exits the drain pipe.
The snow we got today didn't amount to enough moisture to see a difference at the OAPIS.
Hopefully we will get more tonight.
If we do, would you like for me to catch a sample as it enters lagoon #1?
Let me know if this helps.
Thanx, Steve.

-----Original Message-----
From: Monzeglio, Hope, NMENV [mailto:hope.monzeglio@state.nm.us]
Sent: Wednesday, January 25, 2006 2:25 PM
To: Steve Morris
Subject: RE: OAPIS SKETCH

Steve

Thanks for the sketch. I figure email may be easier since we keep playing phone tag. I have questions on how you are collecting the effluent sample.

1. When you collect a sample for from the Old API separator are you taking a surface sample or scooping water from within the separator for a sample?

2. To clarify, the last few sampling events, was the sample collected from a point where effluent was flowing or trickling out of the Old API or from within the separator as stated in #1?

3. When you have a storm water event and you have effluent flowing out, are you able to obtain a sample from the flowing effluent coming out of the Old API or do you collect the sample from within the Old API?

I was not sure if there was a sample port at the X on the sketch. If you need clarification let me know.

Thanks

Hope

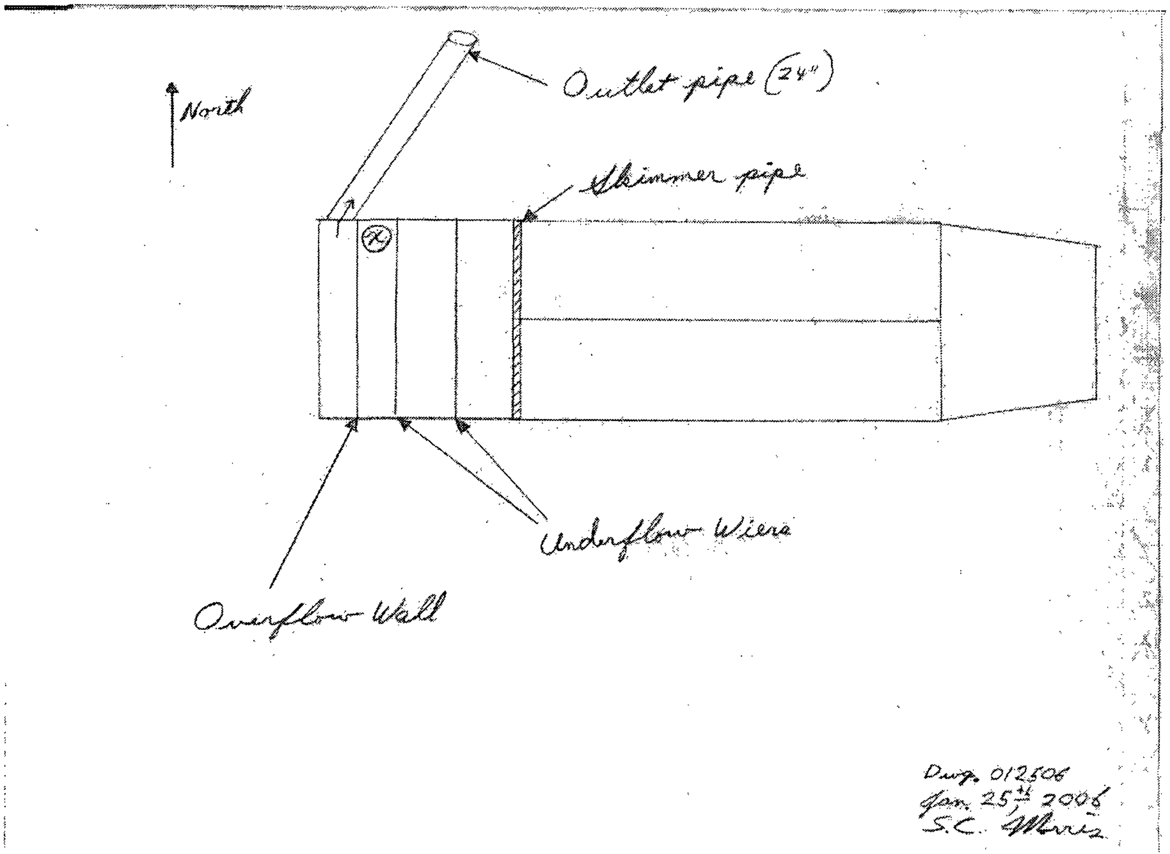
-----Original Message-----
From: Steve Morris [mailto:smorris@giant.com]
Sent: Wednesday, January 25, 2006 1:57 PM
To: Monzeglio, Hope, NMENV
Subject: OAPIS SKETCH

<<OAPIS.jpg>> Hi Hope,
Here is a quick sketch of the OAPIS.
The circled X is where I've been catching the samples.
I'll give you a call,
Thanx, Steve



DISCLAIMER: The information contained in this e-mail message may be privileged, confidential and protected from disclosure. If you are not the intended recipient, any further disclosure, use, dissemination, distribution or copying of this message or any attachment is strictly prohibited. If you think you have received this e-mail message in error, please e-mail the sender at the above address and permanently delete the e-mail. Although this e-mail and any attachments are believed to be free of any virus or other defect that might affect any computer system into which they are received and opened, it is the responsibility of the recipient to ensure that they are virus free and no responsibility is accepted by Giant Industries, Inc.
or its affiliates for any loss or damage arising in any way from their use.

Old API Separator Sketch (January 25, 2006)



**From:** Steve Morris [smorris@giant.com]
**Sent:** Friday, January 20, 2006 10:57 AM
**To:** Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV; Foust, Denny, EMNRD; Ed Riege; Monzeglio, Hope, NMENV; Johnny Sanchez; Steve Morris; Price, Wayne, EMNRD
**Subject:** Ciniza Weekly Update 01-20-06

HALL7368_POND2IN010606.pdf (10... HALL7397_NMED122805.pdf (609 K... HALL7406_AL2EP010606.pdf (315 ...

1) Work has started preparing the oil sump at the NAPIS for Chopper Pump installation.
I will update everyone on this email distribution list as we get into the project and have a better picture of the completion date.

2) Ciniza Operations and Maintenance personnel continue to keep a close eye on the NAPIS and no unexpected problems are noted.

3) Attached are the water sample results I have received to date.

If you have any questions, please give me a call at 505-722-0258.
Thanks,
Steve Morris
<<HALL7368_POND2IN010606.pdf>> <<HALL7397_NMED122805.pdf>> <<HALL7406_AL2EP010606.pdf>>

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

January 16, 2006

Steve Morris
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0258
FAX (505) 722-0210

RE: Pond 2 Inlet Week of 1-6-2006 Order No.: 0601054

Dear Steve Morris:

Hall Environmental Analysis Laboratory received 1 sample on 1/6/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

| Explanation of codes | |
|---|---|
| B | *Analyte Detected in Method Blank* |
| E | *Result is Estimated* |
| H | *Analyzed Out of Hold Time* |
| N | *Tentatively Identified Compound* |
| S | *Subcontracted* |
| 1-9 | *See Footnote* |

HALL ENVIRONMENTAL
attn: ANDY FREEMAN
4901 HAWKINS NE, SUITE D
ALBUQUERQUE NM 87109-4372

STANDARD

***Assaigai Analytical Laboratories, Inc.***

# *Certificate of Analysis*

*All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).*

Client: **HALL ENVIRONMENTAL**
Project: **0601054**
Order: **0601132** **HAL03** Receipt: **01-06-06**

*William P. Biava: President of Assaigai Analytical Laboratories, Inc.*

Sample: ***POND 2 INLET*** Collected: *01-05-06 8:30:00* By:
Matrix: ***AQUEOUS***

| QC Group | Run Sequence | CAS # | Analyte | Result | Units | Dilution Factor | Detection Limit | Code | Prep Date | Run Date |
|---|---|---|---|---|---|---|---|---|---|---|
| **0601132-0001A** | | **EPA 410.1 Chemical Oxygen Demand** | | | | | By: | MKM | | |
| WCOD06002 | WC.2006.47.2 | C-004 | Chemical Oxygen Demand | 1390 | mg/L | 1 | 10 | | 01-09-06 | 01-09-06 |
| **0601132-0001B** | | **EPA 405.1 Biochemical Oxygen Demand** | | | | | By: | MKM | | |
| BOD06003 | WC.2006.73.11 | 10-26-4 | Biochemical Oxygen Demand | 369 | mg/L | 1 | 2 | 1 | 01-06-06 | 01-11-06 |

*Unless otherwise noted, all samples were received in acceptable condition and all sampling was performed by client or client representative. Sample result of ND indicates Not Detected, ie result is less than the sample specific Detection Limit. Sample specific Detection Limit is determined by multiplying the sample Dilution Factor by the listed Reporting Detection Limit. All results relate only to the items tested. Any miscellaneous workorder information or foonotes will appear below.*

*Analytical results are not corrected for method blank or field blank contamination.*

1 The Laboratory Control Spike and the Laboratory Control Spike Duplicate recoveries for the Biochemical Oxygen Demand (BOD) batch of samples, analyzed for this work order, were 82.3% and 77.5% respectively. These recoveries are below the QC acceptance limits of 84.6-115.4% and are most likely due to a poor performing seed capsule used for this batch. Therefore, the above BOD data, may be potentially negatively biased to that extent. This should be taken into account when evaluating the data.

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name GIANTREFIN | Date and Time Received: 1/6/2006

Work Order Number 0601054 | Received by AT

Checklist completed by ______ Signature ______ Date 1/6/06

Matrix | Carrier name UPS

| | | | | |
|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ | Not Shipped ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☑ | N/A ☐ | |
| Chain of custody present? | Yes ☑ | No ☐ | | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☑ | No ☐ | | |
| Water - VOA vials have zero headspace? | No VOA vials submitted ☐ | Yes ☑ | No ☐ | |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | N/A ☐ | |

Container/Temp Blank temperature? 7° *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

Client contacted ______ Date contacted: ______ Person contacted ______

Contacted by: ______ Regarding ______

Comments: ______

Corrective Action ______

# CHAIN-OF-CUSTODY RECORD

Client: Giant Refining Company - Ciniza

Address: Route 3 Box 7 Gallup, NM 87301

Phone #: 5057223833

Fax #: 5057220210

QA / QC Package: Std ☐ Level 4 ☐

Other:

Project Name: Pond 2 Inlet Week of 1-6-2006

Project #:

Project Manager: Steve Morris

Sampler: Johnny Sanchez

Sample Temperature: 7


**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com


| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative: $HgCl_2$ | Preservative: $HNO_3$ | Preservative | HEAL No. |
|---|---|---|---|---|---|---|---|---|
| 1-5-06 | 0830 | $H_2O$ | Pond 2 inlet | 2 | | | | 0601054-1 |

**ANALYSIS REQUEST**

| BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 8310 (PNA or PAH) | RCRA 8 Metals | Anions (F, Cl, $NO_3$, $NO_2$, $PO_4$, $SO_4$) | 8081 Pesticides / PCB's (8082) | 8260B (VOA) | 8270 (Semi-VOA) | BOD | COD | | | Air Bubbles or Headspace (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | X | X | | | |

| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |
|---|---|---|---|
| 1-5-06 | 0900 | J Sanchez | [signature] 1/6/06 1340 |

| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |
|---|---|---|---|
| | | | |

Remarks:

# COVER LETTER

January 17, 2006

Steve Morris
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0258
FAX (505) 722-0210

RE: NMED Monthly Water Samples 12/28/05 Order No.: 0512322

Dear Steve Morris:

Hall Environmental Analysis Laboratory received 4 samples on 12/30/2005 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

# Hall Environmental Analysis Laboratory

**Date:** *17-Jan-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | AL-2 to EP-1 |
| **Lab Order:** | 0512322 | **Collection Date:** | 12/28/2005 9:30:00 AM |
| **Project:** | NMED Monthly Water Samples 12/28/05 | | |
| **Lab ID:** | 0512322-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | 21 | 3.0 | | mg/L | 1 | 1/4/2006 2:45:14 PM |
| Motor Oil Range Organics (MRO) | ND | 15 | | mg/L | 1 | 1/4/2006 2:45:14 PM |
| Surr: DNOP | 122 | 58-140 | | %REC | 1 | 1/4/2006 2:45:14 PM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | ND | 0.50 | | mg/L | 10 | 1/9/2006 12:49:13 PM |
| Surr: BFB | 105 | 79.7-118 | | %REC | 10 | 1/9/2006 12:49:13 PM |
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: HLM |
| Benzene | 50 | 10 | | µg/L | 10 | 1/3/2006 |
| Toluene | 96 | 10 | | µg/L | 10 | 1/3/2006 |
| Ethylbenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Methyl tert-butyl ether (MTBE) | 41 | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2,4-Trimethylbenzene | 45 | 10 | | µg/L | 10 | 1/3/2006 |
| 1,3,5-Trimethylbenzene | 14 | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2-Dichloroethane (EDC) | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2-Dibromoethane (EDB) | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Naphthalene | 140 | 20 | | µg/L | 10 | 1/3/2006 |
| 1-Methylnaphthalene | 260 | 40 | | µg/L | 10 | 1/3/2006 |
| 2-Methylnaphthalene | 330 | 40 | | µg/L | 10 | 1/3/2006 |
| Acetone | 5100 | 1000 | | µg/L | 100 | 12/31/2005 |
| Bromobenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Bromochloromethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Bromodichloromethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Bromoform | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Bromomethane | ND | 20 | | µg/L | 10 | 1/3/2006 |
| 2-Butanone | 1100 | 100 | | µg/L | 10 | 1/3/2006 |
| Carbon disulfide | ND | 100 | | µg/L | 10 | 1/3/2006 |
| Carbon Tetrachloride | ND | 20 | | µg/L | 10 | 1/3/2006 |
| Chlorobenzene | 14 | 10 | | µg/L | 10 | 1/3/2006 |
| Chloroethane | ND | 20 | | µg/L | 10 | 1/3/2006 |
| Chloroform | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Chloromethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 2-Chlorotoluene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 4-Chlorotoluene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| cis-1,2-DCE | ND | 10 | | µg/L | 10 | 1/3/2006 |
| cis-1,3-Dichloropropene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2-Dibromo-3-chloropropane | ND | 20 | | µg/L | 10 | 1/3/2006 |
| Dibromochloromethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Dibromomethane | ND | 20 | | µg/L | 10 | 1/3/2006 |
| 1,2-Dichlorobenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,3-Dichlorobenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |

**Qualifiers:**

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

# Hall Environmental Analysis Laboratory

**Date:** *17-Jan-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | AL-2 to EP-1 |
| **Lab Order:** | 0512322 | **Collection Date:** | 12/28/2005 9:30:00 AM |
| **Project:** | NMED Monthly Water Samples 12/28/05 | | |
| **Lab ID:** | 0512322-01 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Dichlorodifluoromethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,1-Dichloroethane | ND | 20 | | µg/L | 10 | 1/3/2006 |
| 1,1-Dichloroethene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2-Dichloropropane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,3-Dichloropropane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 2,2-Dichloropropane | ND | 20 | | µg/L | 10 | 1/3/2006 |
| 1,1-Dichloropropene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Hexachlorobutadiene | ND | 20 | | µg/L | 10 | 1/3/2006 |
| 2-Hexanone | ND | 100 | | µg/L | 10 | 1/3/2006 |
| Isopropylbenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 4-Isopropyltoluene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 4-Methyl-2-pentanone | ND | 100 | | µg/L | 10 | 1/3/2006 |
| Methylene Chloride | ND | 30 | | µg/L | 10 | 1/3/2006 |
| n-Butylbenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| n-Propylbenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| sec-Butylbenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Styrene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| tert-Butylbenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,1,1,2-Tetrachloroethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,1,2,2-Tetrachloroethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Tetrachloroethene (PCE) | ND | 10 | | µg/L | 10 | 1/3/2006 |
| trans-1,2-DCE | ND | 10 | | µg/L | 10 | 1/3/2006 |
| trans-1,3-Dichloropropene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2,3-Trichlorobenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2,4-Trichlorobenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,1,1-Trichloroethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,1,2-Trichloroethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Trichloroethene (TCE) | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Trichlorofluoromethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2,3-Trichloropropane | ND | 20 | | µg/L | 10 | 1/3/2006 |
| Vinyl chloride | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Xylenes, Total | 90 | 10 | | µg/L | 10 | 1/3/2006 |
| Surr: 1,2-Dichloroethane-d4 | 98.1 | 69.9-130 | | %REC | 10 | 1/3/2006 |
| Surr: 4-Bromofluorobenzene | 98.6 | 71.2-123 | | %REC | 10 | 1/3/2006 |
| Surr: Dibromofluoromethane | 96.3 | 73.9-134 | | %REC | 10 | 1/3/2006 |
| Surr: Toluene-d8 | 96.5 | 81.9-122 | | %REC | 10 | 1/3/2006 |
| **EPA METHOD 7470: MERCURY** | | | | | | Analyst: CMC |
| Mercury | 0.013 | 0.00040 | | mg/L | 2 | 1/3/2006 |
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: NMO |
| Arsenic | ND | 0.020 | | mg/L | 1 | 1/4/2006 10:42:26 AM |

| Qualifiers: | | |
|---|---|---|
| | ND - Not Detected at the Reporting Limit | S - Spike Recovery outside accepted recovery limits |
| | J - Analyte detected below quantitation limits | R - RPD outside accepted recovery limits |
| | B - Analyte detected in the associated Method Blank | E - Value above quantitation range |
| | * - Value exceeds Maximum Contaminant Level | |

## Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

**CLIENT:** Giant Refining Co
**Client Sample ID:** AL-2 to EP-1
**Lab Order:** 0512322
**Collection Date:** 12/28/2005 9:30:00 AM
**Project:** NMED Monthly Water Samples 12/28/05
**Lab ID:** 0512322-01
**Matrix:** AQUEOUS

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| Barium | 0.12 | 0.020 | | mg/L | 1 | 1/4/2006 10:42:26 AM |
| Cadmium | ND | 0.0020 | | mg/L | 1 | 1/4/2006 10:42:26 AM |
| Chromium | 0.014 | 0.0060 | | mg/L | 1 | 1/4/2006 10:42:26 AM |
| Lead | 0.0078 | 0.0050 | | mg/L | 1 | 1/4/2006 10:42:26 AM |
| Selenium | ND | 0.050 | | mg/L | 1 | 1/4/2006 10:42:26 AM |
| Silver | ND | 0.0050 | | mg/L | 1 | 1/4/2006 10:42:26 AM |

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

## Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

**CLIENT:** Giant Refining Co
**Client Sample ID:** OAPIS Effluent
**Lab Order:** 0512322
**Collection Date:** 12/28/2005 10:00:00 AM
**Project:** NMED Monthly Water Samples 12/28/05
**Lab ID:** 0512322-02
**Matrix:** AQUEOUS

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | 4.5 | 3.0 | | mg/L | 1 | 1/4/2006 3:18:00 PM |
| Motor Oil Range Organics (MRO) | ND | 15 | | mg/L | 1 | 1/4/2006 3:18:00 PM |
| Surr: DNOP | 130 | 58-140 | | %REC | 1 | 1/4/2006 3:18:00 PM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | 9.4 | 5.0 | | mg/L | 100 | 1/9/2006 1:19:52 PM |
| Surr: BFB | 104 | 79.7-118 | | %REC | 100 | 1/9/2006 1:19:52 PM |
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: HLM |
| Benzene | 2100 | 100 | | µg/L | 100 | 12/31/2005 |
| Toluene | 2300 | 100 | | µg/L | 100 | 12/31/2005 |
| Ethylbenzene | 150 | 100 | | µg/L | 100 | 12/31/2005 |
| Methyl tert-butyl ether (MTBE) | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2,4-Trimethylbenzene | 250 | 100 | | µg/L | 100 | 12/31/2005 |
| 1,3,5-Trimethylbenzene | 110 | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2-Dichloroethane (EDC) | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2-Dibromoethane (EDB) | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Naphthalene | ND | 200 | | µg/L | 100 | 12/31/2005 |
| 1-Methylnaphthalene | ND | 400 | | µg/L | 100 | 12/31/2005 |
| 2-Methylnaphthalene | ND | 400 | | µg/L | 100 | 12/31/2005 |
| Acetone | ND | 1000 | | µg/L | 100 | 12/31/2005 |
| Bromobenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Bromochloromethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Bromodichloromethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Bromoform | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Bromomethane | ND | 200 | | µg/L | 100 | 12/31/2005 |
| 2-Butanone | ND | 1000 | | µg/L | 100 | 12/31/2005 |
| Carbon disulfide | ND | 1000 | | µg/L | 100 | 12/31/2005 |
| Carbon Tetrachloride | ND | 200 | | µg/L | 100 | 12/31/2005 |
| Chlorobenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Chloroethane | ND | 200 | | µg/L | 100 | 12/31/2005 |
| Chloroform | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Chloromethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 2-Chlorotoluene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 4-Chlorotoluene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| cis-1,2-DCE | ND | 100 | | µg/L | 100 | 12/31/2005 |
| cis-1,3-Dichloropropene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2-Dibromo-3-chloropropane | ND | 200 | | µg/L | 100 | 12/31/2005 |
| Dibromochloromethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Dibromomethane | ND | 200 | | µg/L | 100 | 12/31/2005 |
| 1,2-Dichlorobenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,3-Dichlorobenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |

**Qualifiers:**
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

## Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | OAPIS Effluent |
| **Lab Order:** | 0512322 | **Collection Date:** | 12/28/2005 10:00:00 AM |
| **Project:** | NMED Monthly Water Samples 12/28/05 | | |
| **Lab ID:** | 0512322-02 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Dichlorodifluoromethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,1-Dichloroethane | ND | 200 | | µg/L | 100 | 12/31/2005 |
| 1,1-Dichloroethene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2-Dichloropropane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,3-Dichloropropane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 2,2-Dichloropropane | ND | 200 | | µg/L | 100 | 12/31/2005 |
| 1,1-Dichloropropene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Hexachlorobutadiene | ND | 200 | | µg/L | 100 | 12/31/2005 |
| 2-Hexanone | ND | 1000 | | µg/L | 100 | 12/31/2005 |
| Isopropylbenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 4-Isopropyltoluene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 4-Methyl-2-pentanone | ND | 1000 | | µg/L | 100 | 12/31/2005 |
| Methylene Chloride | ND | 300 | | µg/L | 100 | 12/31/2005 |
| n-Butylbenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| n-Propylbenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| sec-Butylbenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Styrene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| tert-Butylbenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,1,1,2-Tetrachloroethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,1,2,2-Tetrachloroethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Tetrachloroethene (PCE) | ND | 100 | | µg/L | 100 | 12/31/2005 |
| trans-1,2-DCE | ND | 100 | | µg/L | 100 | 12/31/2005 |
| trans-1,3-Dichloropropene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2,3-Trichlorobenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2,4-Trichlorobenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,1,1-Trichloroethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,1,2-Trichloroethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Trichloroethene (TCE) | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Trichlorofluoromethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2,3-Trichloropropane | ND | 200 | | µg/L | 100 | 12/31/2005 |
| Vinyl chloride | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Xylenes, Total | 1900 | 100 | | µg/L | 100 | 12/31/2005 |
| Surr: 1,2-Dichloroethane-d4 | 92.6 | 69.9-130 | | %REC | 100 | 12/31/2005 |
| Surr: 4-Bromofluorobenzene | 94.9 | 71.2-123 | | %REC | 100 | 12/31/2005 |
| Surr: Dibromofluoromethane | 96.6 | 73.9-134 | | %REC | 100 | 12/31/2005 |
| Surr: Toluene-d8 | 95.7 | 81.9-122 | | %REC | 100 | 12/31/2005 |
| **EPA METHOD 8310: PAHS** | | | | | | Analyst: JMP |
| Naphthalene | 680 | 13 | | µg/L | 5 | 1/12/2006 5:01:54 PM |
| 1-Methylnaphthalene | 57 | 2.5 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| 2-Methylnaphthalene | 25 | 2.5 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| Acenaphthylene | ND | 2.5 | | µg/L | 1 | 1/12/2006 1:56:10 AM |

**Qualifiers:**
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

# Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | OAPIS Effluent |
| **Lab Order:** | 0512322 | **Collection Date:** | 12/28/2005 10:00:00 AM |
| **Project:** | NMED Monthly Water Samples 12/28/05 | | |
| **Lab ID:** | 0512322-02 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| Acenaphthene | ND | 2.5 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| Fluorene | 7.2 | 0.80 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| Phenanthrene | 5.0 | 3.0 | | µg/L | 5 | 1/12/2006 5:01:54 PM |
| Anthracene | ND | 0.60 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| Fluoranthene | ND | 0.30 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| Pyrene | ND | 0.30 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| Benz(a)anthracene | ND | 0.020 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| Chrysene | ND | 0.20 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| Benzo(b)fluoranthene | ND | 0.050 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| Benzo(k)fluoranthene | 0.020 | 0.020 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| Benzo(a)pyrene | ND | 0.020 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| Dibenz(a,h)anthracene | ND | 0.040 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| Benzo(g,h,i)perylene | ND | 0.030 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| Indeno(1,2,3-cd)pyrene | ND | 0.080 | | µg/L | 1 | 1/12/2006 1:56:10 AM |
| Surr: Benzo(e)pyrene | 71.3 | 54-102 | | %REC | 1 | 1/12/2006 1:56:10 AM |
| **EPA METHOD 7470: MERCURY** | | | | | | Analyst: **CMC** |
| Mercury | ND | 0.00020 | | mg/L | 1 | 1/3/2006 |
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: **NMO** |
| Arsenic | ND | 0.020 | | mg/L | 1 | 1/4/2006 10:46:24 AM |
| Barium | 0.20 | 0.020 | | mg/L | 1 | 1/4/2006 10:46:24 AM |
| Cadmium | ND | 0.0020 | | mg/L | 1 | 1/4/2006 10:46:24 AM |
| Chromium | 0.0067 | 0.0060 | | mg/L | 1 | 1/4/2006 10:46:24 AM |
| Lead | ND | 0.0050 | | mg/L | 1 | 1/4/2006 10:46:24 AM |
| Selenium | ND | 0.050 | | mg/L | 1 | 1/4/2006 10:46:24 AM |
| Silver | ND | 0.0050 | | mg/L | 1 | 1/4/2006 10:46:24 AM |

Qualifiers:
- ND - Not Detected at the Reporting Limit
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- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

## Hall Environmental Analysis Laboratory

**Date:** *17-Jun-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | NAPIS Effluent |
| **Lab Order:** | 0512322 | **Collection Date:** | 12/28/2005 10:30:00 AM |
| **Project:** | NMED Monthly Water Samples 12/28/05 | | |
| **Lab ID:** | 0512322-03 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | 670 | 30 | | mg/L | 10 | 1/5/2006 7:33:19 AM |
| Motor Oil Range Organics (MRO) | ND | 150 | | mg/L | 10 | 1/5/2006 7:33:19 AM |
| Surr: DNOP | 88.8 | 58-140 | | %REC | 10 | 1/5/2006 7:33:19 AM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | 330 | 5.0 | | mg/L | 100 | 1/9/2006 1:50:28 PM |
| Surr: BFB | 120 | 79.7-118 | S | %REC | 100 | 1/9/2006 1:50:28 PM |
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: HLM |
| Benzene | 23000 | 1000 | | µg/L | 1000 | 1/5/2006 |
| Toluene | 48000 | 1000 | | µg/L | 1000 | 1/5/2006 |
| Ethylbenzene | 1400 | 100 | | µg/L | 100 | 12/31/2005 |
| Methyl tert-butyl ether (MTBE) | 960 | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2,4-Trimethylbenzene | 1100 | 100 | | µg/L | 100 | 12/31/2005 |
| 1,3,5-Trimethylbenzene | 340 | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2-Dichloroethane (EDC) | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2-Dibromoethane (EDB) | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Naphthalene | 390 | 200 | | µg/L | 100 | 12/31/2005 |
| 1-Methylnaphthalene | ND | 400 | | µg/L | 100 | 12/31/2005 |
| 2-Methylnaphthalene | 430 | 400 | | µg/L | 100 | 12/31/2005 |
| Acetone | ND | 1000 | | µg/L | 100 | 12/31/2005 |
| Bromobenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Bromochloromethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Bromodichloromethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Bromoform | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Bromomethane | ND | 200 | | µg/L | 100 | 12/31/2005 |
| 2-Butanone | 3800 | 1000 | | µg/L | 100 | 12/31/2005 |
| Carbon disulfide | ND | 1000 | | µg/L | 100 | 12/31/2005 |
| Carbon Tetrachloride | ND | 200 | | µg/L | 100 | 12/31/2005 |
| Chlorobenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Chloroethane | ND | 200 | | µg/L | 100 | 12/31/2005 |
| Chloroform | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Chloromethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 2-Chlorotoluene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 4-Chlorotoluene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| cis-1,2-DCE | ND | 100 | | µg/L | 100 | 12/31/2005 |
| cis-1,3-Dichloropropene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2-Dibromo-3-chloropropane | ND | 200 | | µg/L | 100 | 12/31/2005 |
| Dibromochloromethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Dibromomethane | ND | 200 | | µg/L | 100 | 12/31/2005 |
| 1,2-Dichlorobenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,3-Dichlorobenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |

**Qualifiers:**
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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

# Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | NAPIS Effluent |
| **Lab Order:** | 0512322 | **Collection Date:** | 12/28/2005 10:30:00 AM |
| **Project:** | NMED Monthly Water Samples 12/28/05 | | |
| **Lab ID:** | 0512322-03 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Dichlorodifluoromethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,1-Dichloroethane | ND | 200 | | µg/L | 100 | 12/31/2005 |
| 1,1-Dichloroethene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2-Dichloropropane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,3-Dichloropropane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 2,2-Dichloropropane | ND | 200 | | µg/L | 100 | 12/31/2005 |
| 1,1-Dichloropropene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Hexachlorobutadiene | ND | 200 | | µg/L | 100 | 12/31/2005 |
| 2-Hexanone | ND | 1000 | | µg/L | 100 | 12/31/2005 |
| Isopropylbenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 4-Isopropyltoluene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 4-Methyl-2-pentanone | ND | 1000 | | µg/L | 100 | 12/31/2005 |
| Methylene Chloride | ND | 300 | | µg/L | 100 | 12/31/2005 |
| n-Butylbenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| n-Propylbenzene | 140 | 100 | | µg/L | 100 | 12/31/2005 |
| sec-Butylbenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Styrene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| tert-Butylbenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,1,1,2-Tetrachloroethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,1,2,2-Tetrachloroethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Tetrachloroethene (PCE) | ND | 100 | | µg/L | 100 | 12/31/2005 |
| trans-1,2-DCE | ND | 100 | | µg/L | 100 | 12/31/2005 |
| trans-1,3-Dichloropropene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2,3-Trichlorobenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2,4-Trichlorobenzene | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,1,1-Trichloroethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,1,2-Trichloroethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Trichloroethene (TCE) | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Trichlorofluoromethane | ND | 100 | | µg/L | 100 | 12/31/2005 |
| 1,2,3-Trichloropropane | ND | 200 | | µg/L | 100 | 12/31/2005 |
| Vinyl chloride | ND | 100 | | µg/L | 100 | 12/31/2005 |
| Xylenes, Total | 7700 | 100 | | µg/L | 100 | 12/31/2005 |
| Surr: 1,2-Dichloroethane-d4 | 93.3 | 69.9-130 | | %REC | 100 | 12/31/2005 |
| Surr: 4-Bromofluorobenzene | 91.2 | 71.2-123 | | %REC | 100 | 12/31/2005 |
| Surr: Dibromofluoromethane | 93.9 | 73.9-134 | | %REC | 100 | 12/31/2005 |
| Surr: Toluene-d8 | 97.7 | 81.9-122 | | %REC | 100 | 12/31/2005 |

**Qualifiers:**

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* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

# Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | Pilot TC Effluent |
| **Lab Order:** | 0512322 | **Collection Date:** | 12/28/2005 11:00:00 AM |
| **Project:** | NMED Monthly Water Samples 12/28/05 | | |
| **Lab ID:** | 0512322-04 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | ND | 3.0 | | mg/L | 1 | 1/4/2006 4:55:35 PM |
| Motor Oil Range Organics (MRO) | ND | 15 | | mg/L | 1 | 1/4/2006 4:55:35 PM |
| Surr: DNOP | 83.9 | 58-140 | | %REC | 1 | 1/4/2006 4:55:35 PM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | 0.063 | 0.050 | | mg/L | 1 | 1/9/2006 11:56:12 PM |
| Surr: BFB | 104 | 79.7-118 | | %REC | 1 | 1/9/2006 11:56:12 PM |
| **EPA METHOD 8260B: VOLATILES** | | | | | | Analyst: HLM |
| Benzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Toluene | 16 | 10 | | µg/L | 10 | 1/3/2006 |
| Ethylbenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Methyl tert-butyl ether (MTBE) | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2,4-Trimethylbenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,3,5-Trimethylbenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2-Dichloroethane (EDC) | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2-Dibromoethane (EDB) | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Naphthalene | ND | 20 | | µg/L | 10 | 1/3/2006 |
| 1-Methylnaphthalene | ND | 40 | | µg/L | 10 | 1/3/2006 |
| 2-Methylnaphthalene | ND | 40 | | µg/L | 10 | 1/3/2006 |
| Acetone | 280 | 100 | | µg/L | 10 | 1/3/2006 |
| Bromobenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Bromochloromethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Bromodichloromethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Bromoform | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Bromomethane | ND | 20 | | µg/L | 10 | 1/3/2006 |
| 2-Butanone | ND | 100 | | µg/L | 10 | 1/3/2006 |
| Carbon disulfide | ND | 100 | | µg/L | 10 | 1/3/2006 |
| Carbon Tetrachloride | ND | 20 | | µg/L | 10 | 1/3/2006 |
| Chlorobenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Chloroethane | ND | 20 | | µg/L | 10 | 1/3/2006 |
| Chloroform | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Chloromethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 2-Chlorotoluene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 4-Chlorotoluene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| cis-1,2-DCE | ND | 10 | | µg/L | 10 | 1/3/2006 |
| cis-1,3-Dichloropropene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2-Dibromo-3-chloropropane | ND | 20 | | µg/L | 10 | 1/3/2006 |
| Dibromochloromethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Dibromomethane | ND | 20 | | µg/L | 10 | 1/3/2006 |
| 1,2-Dichlorobenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,3-Dichlorobenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |

**Qualifiers:**

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

# Hall Environmental Analysis Laboratory

Date: *17-Jun-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | Pilot TC Effluent |
| **Lab Order:** | 0512322 | **Collection Date:** | 12/28/2005 11:00:00 AM |
| **Project:** | NMED Monthly Water Samples 12/28/05 | | |
| **Lab ID:** | 0512322-04 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Dichlorodifluoromethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,1-Dichloroethane | ND | 20 | | µg/L | 10 | 1/3/2006 |
| 1,1-Dichloroethene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2-Dichloropropane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,3-Dichloropropane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 2,2-Dichloropropane | ND | 20 | | µg/L | 10 | 1/3/2006 |
| 1,1-Dichloropropene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Hexachlorobutadiene | ND | 20 | | µg/L | 10 | 1/3/2006 |
| 2-Hexanone | ND | 100 | | µg/L | 10 | 1/3/2006 |
| Isopropylbenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 4-Isopropyltoluene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 4-Methyl-2-pentanone | ND | 100 | | µg/L | 10 | 1/3/2006 |
| Methylene Chloride | ND | 30 | | µg/L | 10 | 1/3/2006 |
| n-Butylbenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| n-Propylbenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| sec-Butylbenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Styrene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| tert-Butylbenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,1,1,2-Tetrachloroethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,1,2,2-Tetrachloroethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Tetrachloroethene (PCE) | ND | 10 | | µg/L | 10 | 1/3/2006 |
| trans-1,2-DCE | ND | 10 | | µg/L | 10 | 1/3/2006 |
| trans-1,3-Dichloropropene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2,3-Trichlorobenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2,4-Trichlorobenzene | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,1,1-Trichloroethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,1,2-Trichloroethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Trichloroethene (TCE) | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Trichlorofluoromethane | ND | 10 | | µg/L | 10 | 1/3/2006 |
| 1,2,3-Trichloropropane | ND | 20 | | µg/L | 10 | 1/3/2006 |
| Vinyl chloride | ND | 10 | | µg/L | 10 | 1/3/2006 |
| Xylenes, Total | 11 | 10 | | µg/L | 10 | 1/3/2006 |
| Surr: 1,2-Dichloroethane-d4 | 112 | 69.9-130 | | %REC | 10 | 1/3/2006 |
| Surr: 4-Bromofluorobenzene | 104 | 71.2-123 | | %REC | 10 | 1/3/2006 |
| Surr: Dibromofluoromethane | 114 | 73.9-134 | | %REC | 10 | 1/3/2006 |
| Surr: Toluene-d8 | 92.0 | 81.9-122 | | %REC | 10 | 1/3/2006 |
| **EPA METHOD 7470: MERCURY** | | | | | | Analyst: CMC |
| Mercury | ND | 0.00020 | | mg/L | 1 | 1/3/2006 |
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: NMO |
| Arsenic | ND | 0.020 | | mg/L | 1 | 1/4/2006 10:50:19 AM |

**Qualifiers:**

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J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

## Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | Pilot TC Effluent |
| **Lab Order:** | 0512322 | **Collection Date:** | 12/28/2005 11:00:00 AM |
| **Project:** | NMED Monthly Water Samples 12/28/05 | | |
| **Lab ID:** | 0512322-04 | **Matrix:** | AQUEOUS |

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| Barium | 0.034 | 0.020 | | mg/L | 1 | 1/4/2006 10:50:19 AM |
| Cadmium | ND | 0.0020 | | mg/L | 1 | 1/4/2006 10:50:19 AM |
| Chromium | ND | 0.0060 | | mg/L | 1 | 1/4/2006 10:50:19 AM |
| Lead | ND | 0.0050 | | mg/L | 1 | 1/4/2006 10:50:19 AM |
| Selenium | ND | 0.050 | | mg/L | 1 | 1/4/2006 10:50:19 AM |
| Silver | ND | 0.0050 | | mg/L | 1 | 1/4/2006 10:50:19 AM |

**Qualifiers:**

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

**CLIENT:** Giant Refining Co
**Work Order:** 0512322
**Project:** NMED Monthly Water Samples 12/28/05

# QC SUMMARY REPORT
## Method Blank

Sample ID: **MB-9510** Batch ID: **9510** Test Code: **SW8015** Units: **mg/L** Analysis Date: **1/4/2006 1:07:47 PM** Prep Date: **1/4/2006**
Client ID: Run ID: **FID(17A) 2_060103A** SeqNo: **437660**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 1 | | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 5 | | | | | | | | | |
| Surr: DNOP | 1.14 | 0 | 1 | 0 | 114 | 58 | 140 | 0 | | | |

Sample ID: **Reagent Blank 5m** Batch ID: **R17853** Test Code: **SW8015** Units: **mg/L** Analysis Date: **1/9/2006 8:36:21 AM** Prep Date:
Client ID: Run ID: **PIDFID_060109A** SeqNo: **438908**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 0.05 | | | | | | | | | |
| Surr: BFB | 21.24 | 0 | 20 | 0 | 106 | 79.7 | 118 | 0 | | | |

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

/

CLIENT: Giant Refining Co
Work Order: 0512322
Project: NMED Monthly Water Samples 12/28/05

# QC SUMMARY REPORT
## Method Blank

Sample ID: MB-9498 | Batch ID: 9498 | Test Code: SW8310 | Units: µg/L | Analysis Date: 1/11/2006 7:32:04 PM | Prep Date: 1/3/2006
Client ID: | Run ID: HUGO_060111B | SeqNo: 439787

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | ND | 2.5 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 2.5 | | | | | | | | | |
| Acenaphthylene | ND | 2.5 | | | | | | | | | |
| Acenaphthene | ND | 2.5 | | | | | | | | | |
| Fluorene | ND | 0.6 | | | | | | | | | |
| Phenanthrene | ND | 0.6 | | | | | | | | | |
| Anthracene | ND | 0.6 | | | | | | | | | |
| Fluoranthene | ND | 0.3 | | | | | | | | | |
| Pyrene | ND | 0.3 | | | | | | | | | |
| Benz(a)anthracene | ND | 0.02 | | | | | | | | | |
| Chrysene | ND | 0.2 | | | | | | | | | |
| Benzo(b)fluoranthene | ND | 0.05 | | | | | | | | | |
| Benzo(k)fluoranthene | ND | 0.02 | | | | | | | | | |
| Benzo(a)pyrene | ND | 0.02 | | | | | | | | | |
| Dibenz(a,h)anthracene | ND | 0.04 | | | | | | | | | |
| Benzo(g,h,i)perylene | ND | 0.03 | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | ND | 0.08 | | | | | | | | | |
| Surr: Benzo(e)pyrene | 7.76 | 0 | 10 | 0 | 77.6 | 54 | 102 | 0 | | | |

Sample ID: MB-9499 | Batch ID: 9499 | Test Code: SW7470 | Units: mg/L | Analysis Date: 1/3/2006 | Prep Date: 1/3/2006
Client ID: | Run ID: MI-LA254_060103A | SeqNo: 437349

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | 0.0002 | | | | | | | | | |

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

CLIENT: Giant Refining Co
Work Order: 0512322
Project: NMED Monthly Water Samples 12/28/05

# QC SUMMARY REPORT

Method Blank

Sample ID: **MB-9496** Batch ID: **9496** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **1/4/2006 11:59:49 AM** Prep Date: **1/3/2006**

Client ID: Run ID: **ICP_060104B** SeqNo: **437597**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.02 | | | | | | | | | |
| Barium | ND | 0.02 | | | | | | | | | |
| Cadmium | 0.0004735 | 0.002 | | | | | | | | | J |
| Chromium | ND | 0.006 | | | | | | | | | |
| Lead | ND | 0.005 | | | | | | | | | |
| Selenium | ND | 0.05 | | | | | | | | | |
| Silver | ND | 0.005 | | | | | | | | | |

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

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: Giant Refining Co
Work Order: 0512322
Project: NMED Monthly Water Samples 12/28/05

# QC SUMMARY REPORT

Method Blank

Sample ID: 5ml rb | Batch ID: R17780 | Test Code: SW8260B | Units: µg/L | Analysis Date: 12/30/2005 | Prep Date:

Client ID: | Run ID: NEPTUNE_051230A | SeqNo: 437136

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1 | | | | | | | | | |
| Toluene | ND | 1 | | | | | | | | | |
| Ethylbenzene | ND | 1 | | | | | | | | | |
| Methyl tert-butyl ether (MTBE) | ND | 1 | | | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 1 | | | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 1 | | | | | | | | | |
| 1,2-Dichloroethane (EDC) | ND | 1 | | | | | | | | | |
| 1,2-Dibromoethane (EDB) | ND | 1 | | | | | | | | | |
| Naphthalene | ND | 2 | | | | | | | | | |
| 1-Methylnaphthalene | ND | 4 | | | | | | | | | |
| 2-Methylnaphthalene | ND | 4 | | | | | | | | | |
| Acetone | ND | 10 | | | | | | | | | |
| Bromobenzene | ND | 1 | | | | | | | | | |
| Bromochloromethane | ND | 1 | | | | | | | | | |
| Bromodichloromethane | ND | 1 | | | | | | | | | |
| Bromoform | ND | 1 | | | | | | | | | |
| Bromomethane | ND | 2 | | | | | | | | | |
| 2-Butanone | ND | 10 | | | | | | | | | |
| Carbon disulfide | ND | 10 | | | | | | | | | |
| Carbon Tetrachloride | ND | 2 | | | | | | | | | |
| Chlorobenzene | ND | 1 | | | | | | | | | |
| Chloroethane | ND | 2 | | | | | | | | | |
| Chloroform | ND | 1 | | | | | | | | | |
| Chloromethane | ND | 1 | | | | | | | | | |
| 2-Chlorotoluene | ND | 1 | | | | | | | | | |
| 4-Chlorotoluene | ND | 1 | | | | | | | | | |
| cis-1,2-DCE | ND | 1 | | | | | | | | | |

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

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CLIENT: Giant Refining Co

Work Order: 0512322

Project: NMED Monthly Water Samples 12/28/05

# QC SUMMARY REPORT

## Method Blank

| | | |
|---|---|---|
| cis-1,3-Dichloropropene | ND | 1 |
| 1,2-Dibromo-3-chloropropane | ND | 2 |
| Dibromochloromethane | ND | 1 |
| Dibromomethane | ND | 2 |
| 1,2-Dichlorobenzene | ND | 1 |
| 1,3-Dichlorobenzene | ND | 1 |
| 1,4-Dichlorobenzene | ND | 1 |
| Dichlorodifluoromethane | ND | 1 |
| 1,1-Dichloroethane | ND | 2 |
| 1,1-Dichloroethene | ND | 1 |
| 1,2-Dichloropropane | ND | 1 |
| 1,3-Dichloropropane | ND | 1 |
| 2,2-Dichloropropane | ND | 2 |
| 1,1-Dichloropropene | ND | 1 |
| Hexachlorobutadiene | ND | 2 |
| 2-Hexanone | ND | 10 |
| Isopropylbenzene | ND | 1 |
| 4-Isopropyltoluene | ND | 1 |
| 4-Methyl-2-pentanone | ND | 10 |
| Methylene Chloride | ND | 3 |
| n-Butylbenzene | ND | 1 |
| n-Propylbenzene | ND | 1 |
| sec-Butylbenzene | ND | 1 |
| Styrene | ND | 1 |
| tert-Butylbenzene | ND | 1 |
| 1,1,1,2-Tetrachloroethane | ND | 1 |
| 1,1,2,2-Tetrachloroethane | ND | 1 |
| Tetrachloroethene (PCE) | ND | 1 |
| trans-1,2-DCE | ND | 1 |
| trans-1,3-Dichloropropene | ND | 1 |
| 1,2,3-Trichlorobenzene | ND | 1 |
| 1,2,4-Trichlorobenzene | ND | 1 |
| 1,1,1-Trichloroethane | ND | 1 |

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

J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

| | |
|---|---|
| CLIENT: | Giant Refining Co |
| Work Order: | 0512322 |
| Project: | NMED Monthly Water Samples 12/28/05 |

# QC SUMMARY REPORT

## Method Blank

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1,1,2-Trichloroethane | ND | 1 | | | | | | | |
| Trichloroethene (TCE) | ND | 1 | | | | | | | |
| Trichlorofluoromethane | 0.586 | 1 | | | | | | | J |
| 1,2,3-Trichloropropane | ND | 2 | | | | | | | |
| Vinyl chloride | ND | 1 | | | | | | | |
| Xylenes, Total | ND | 1 | | | | | | | |
| Surr: 1,2-Dichloroethane-d4 | 9.832 | 0 | 10 | 0 | 98.3 | 69.9 | 130 | 0 | |
| Surr: 4-Bromofluorobenzene | 9.446 | 0 | 10 | 0 | 94.5 | 71.2 | 123 | 0 | |
| Surr: Dibromofluoromethane | 10.24 | 0 | 10 | 0 | 102 | 73.9 | 134 | 0 | |
| Surr: Toluene-d8 | 9.782 | 0 | 10 | 0 | 97.8 | 81.9 | 122 | 0 | |

Qualifiers:

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

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: Giant Refining Co
Work Order: 0512322
Project: NMED Monthly Water Samples 12/28/05

# QC SUMMARY REPORT
## Sample Duplicate

Sample ID: **0512322-04B DUP** Batch ID: **9496** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **1/4/2006 10:54:14 AM** Prep Date: **1/3/2006**

Client ID: **Pilot TC Effluent** Run ID: **ICP_060104B** SeqNo: **437590**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | |
| Barium | 0.03347 | 0.02 | 0 | 0 | 0 | 0 | 0 | 0.03395 | 1.42 | 30 | |
| Cadmium | ND | 0.002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | |
| Chromium | 0.001193 | 0.006 | 0 | 0 | 0 | 0 | 0 | 0.001765 | 0 | 30 | J |
| Lead | 0.004163 | 0.005 | 0 | 0 | 0 | 0 | 0 | 0.003067 | 0 | 30 | J |
| Selenium | ND | 0.05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | |
| Silver | ND | 0.005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | |

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

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Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: Giant Refining Co
Work Order: 0512322
Project: NMED Monthly Water Samples 12/28/05

# QC SUMMARY REPORT

## Sample Matrix Spike

Sample ID: **0512322-04B MS** Batch ID: **9496** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **1/4/2006 11:08:54 AM** Prep Date: **1/3/2006**

Client ID: **Pilot TC Effluent** Run ID: **ICP_060104B** SeqNo: **437593**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.5278 | 0.02 | 0.5 | 0 | 106 | 75 | 125 | 0 | | | |
| Barium | 0.5243 | 0.02 | 0.5 | 0.03395 | 98.1 | 75 | 125 | 0 | | | |
| Cadmium | 0.4819 | 0.002 | 0.5 | 0 | 96.4 | 75 | 125 | 0 | | | |
| Chromium | 0.4786 | 0.006 | 0.5 | 0.001765 | 95.4 | 75 | 125 | 0 | | | |
| Lead | 0.4651 | 0.005 | 0.5 | 0.003067 | 92.4 | 75 | 125 | 0 | | | |
| Selenium | 0.2348 | 0.05 | 0.5 | 0 | 47.0 | 75 | 125 | 0 | | | S |
| Silver | 0.4911 | 0.005 | 0.5 | 0 | 98.2 | 75 | 125 | 0 | | | |

Sample ID: **0512322-04B MSD** Batch ID: **9496** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **1/4/2006 11:12:57 AM** Prep Date: **1/3/2006**

Client ID: **Pilot TC Effluent** Run ID: **ICP_060104B** SeqNo: **437594**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.529 | 0.02 | 0.5 | 0 | 106 | 75 | 125 | 0.5278 | 0.227 | 20 | |
| Barium | 0.5113 | 0.02 | 0.5 | 0.03395 | 95.5 | 75 | 125 | 0.5243 | 2.51 | 20 | |
| Cadmium | 0.4805 | 0.002 | 0.5 | 0 | 96.1 | 75 | 125 | 0.4819 | 0.304 | 20 | |
| Chromium | 0.4768 | 0.006 | 0.5 | 0.001765 | 95.0 | 75 | 125 | 0.4786 | 0.393 | 20 | |
| Lead | 0.463 | 0.005 | 0.5 | 0.003067 | 92.0 | 75 | 125 | 0.4651 | 0.445 | 20 | |
| Selenium | 0.237 | 0.05 | 0.5 | 0 | 47.4 | 75 | 125 | 0.2348 | 0.929 | 20 | S |
| Silver | 0.4888 | 0.005 | 0.5 | 0 | 97.8 | 75 | 125 | 0.4911 | 0.479 | 20 | |

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

Hall Environmental Analysis Laboratory

Date: 17-Jan-06

CLIENT: Giant Refining Co
Work Order: 0512322
Project: NMED Monthly Water Samples 12/28/05

# QC SUMMARY REPORT

## Laboratory Control Spike - generic

Sample ID: LCS-9510 | Batch ID: 9510 | Test Code: SW8015 | Units: mg/L | Analysis Date: 1/4/2006 1:40:16 PM | Prep Date: 1/4/2006
Client ID: | Run ID: FID(17A) 2_060103A | SeqNo: 437661

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 5.131 | 1 | 5 | 0 | 103 | 81.2 | 149 | 0 | | | |

Sample ID: LCSD-9510 | Batch ID: 9510 | Test Code: SW8015 | Units: mg/L | Analysis Date: 1/4/2006 2:12:44 PM | Prep Date: 1/4/2006
Client ID: | Run ID: FID(17A) 2_060103A | SeqNo: 437662

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 4.452 | 1 | 5 | 0 | 89.0 | 81.2 | 149 | 5.131 | 14.2 | 23 | |

Sample ID: GRO lcs 2.5ug | Batch ID: R17853 | Test Code: SW8015 | Units: mg/L | Analysis Date: 1/10/2006 3:26:21 AM | Prep Date:
Client ID: | Run ID: PIDFID_060109A | SeqNo: 438917

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 0.4756 | 0.05 | 0.5 | 0 | 95.1 | 82.6 | 114 | 0 | | | |

Sample ID: 100ng lcs | Batch ID: R17780 | Test Code: SW8260B | Units: µg/L | Analysis Date: 12/30/2005 | Prep Date:
Client ID: | Run ID: NEPTUNE_051230A | SeqNo: 437137

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 19.07 | 1 | 20 | 0 | 95.4 | 79.3 | 136 | 0 | | | |
| Toluene | 18.1 | 1 | 20 | 0 | 90.5 | 65.5 | 123 | 0 | | | |
| Chlorobenzene | 21.4 | 1 | 20 | 0 | 107 | 80.3 | 134 | 0 | | | |
| 1,1-Dichloroethene | 18.37 | 1 | 20 | 0 | 91.8 | 72.7 | 135 | 0 | | | |
| Trichloroethene (TCE) | 19.41 | 1 | 20 | 0 | 97.1 | 85.6 | 119 | 0 | | | |

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

CLIENT: Giant Refining Co
Work Order: 0512322
Project: NMED Monthly Water Samples 12/28/05

# QC SUMMARY REPORT
## Laboratory Control Spike - generic

Sample ID: 100ng lcs | Batch ID: R17792 | Test Code: SW8260B | Units: µg/L | Analysis Date: 1/3/2006 | Prep Date:
Client ID: | Run ID: VAL_060103A | SeqNo: 437520

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 19.75 | 1 | 20 | 0 | 98.8 | 79.3 | 136 | 0 | | | |
| Toluene | 18.56 | 1 | 20 | 0 | 92.8 | 65.5 | 123 | 0 | | | |
| Chlorobenzene | 18.55 | 1 | 20 | 0 | 92.7 | 80.3 | 134 | 0 | | | |
| 1,1-Dichloroethene | 16.7 | 1 | 20 | 0 | 83.5 | 72.7 | 135 | 0 | | | |
| Trichloroethene (TCE) | 19.24 | 1 | 20 | 0 | 96.2 | 85.6 | 119 | 0 | | | |

Sample ID: 100ng lcs | Batch ID: R17806 | Test Code: SW8260B | Units: µg/L | Analysis Date: 1/4/2006 | Prep Date:
Client ID: | Run ID: VAL_060104A | SeqNo: 437877

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 20.02 | 1 | 20 | 0 | 100 | 79.3 | 136 | 0 | | | |
| Toluene | 18.38 | 1 | 20 | 0 | 91.9 | 65.5 | 123 | 0 | | | |
| Chlorobenzene | 19.09 | 1 | 20 | 0 | 95.4 | 80.3 | 134 | 0 | | | |
| 1,1-Dichloroethene | 18.38 | 1 | 20 | 0 | 91.9 | 72.7 | 135 | 0 | | | |
| Trichloroethene (TCE) | 19.26 | 1 | 20 | 0 | 96.3 | 85.6 | 119 | 0 | | | |

Sample ID: 100ng lcs | Batch ID: R17822 | Test Code: SW8260B | Units: µg/L | Analysis Date: 1/5/2006 | Prep Date:
Client ID: | Run ID: VAL_060105A | SeqNo: 438232

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 19.76 | 1 | 20 | 0 | 98.8 | 79.3 | 136 | 0 | | | |
| Toluene | 19.64 | 1 | 20 | 0 | 98.2 | 65.5 | 123 | 0 | | | |
| Chlorobenzene | 20.65 | 1 | 20 | 0 | 103 | 80.3 | 134 | 0 | | | |
| 1,1-Dichloroethene | 17.77 | 1 | 20 | 0 | 88.9 | 72.7 | 135 | 0 | | | |
| Trichloroethene (TCE) | 19.69 | 1 | 20 | 0 | 98.5 | 85.6 | 119 | 0 | | | |

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

CLIENT: Giant Refining Co
Work Order: 0512322
Project: NMED Monthly Water Samples 12/28/05

# QC SUMMARY REPORT

## Laboratory Control Spike - generic

Sample ID: LCS-9498 Batch ID: 9498 Test Code: SW8310 Units: µg/L Analysis Date: 1/11/2006 8:20:05 PM Prep Date: 1/3/2006

Client ID: Run ID: HUGO_060111B SeqNo: 439788

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 25.33 | 2.5 | 40 | 0 | 63.3 | 34.8 | 97.4 | 0 | | | |
| 1-Methylnaphthalene | 25.38 | 2.5 | 40.1 | 0 | 63.3 | 34.7 | 100 | 0 | | | |
| 2-Methylnaphthalene | 24.94 | 2.5 | 40 | 0 | 62.4 | 35 | 98.1 | 0 | | | |
| Acenaphthylene | 25.15 | 2.5 | 40.1 | 0 | 62.7 | 48.3 | 95.1 | 0 | | | |
| Acenaphthene | 25.75 | 2.5 | 40 | 0 | 64.4 | 45 | 95 | 0 | | | |
| Fluorene | 2.54 | 0.8 | 4.01 | 0 | 63.3 | 46.8 | 93.4 | 0 | | | |
| Phenanthrene | 1.39 | 0.6 | 2.01 | 0 | 69.2 | 48.7 | 104 | 0 | | | |
| Anthracene | 1.35 | 0.6 | 2.01 | 0 | 67.2 | 47.5 | 102 | 0 | | | |
| Fluoranthene | 2.9 | 0.3 | 4.01 | 0 | 72.3 | 46.3 | 108 | 0 | | | |
| Pyrene | 2.93 | 0.3 | 4.01 | 0 | 73.1 | 43.8 | 109 | 0 | | | |
| Benz(a)anthracene | 0.29 | 0.02 | 0.401 | 0 | 72.3 | 40.3 | 115 | 0 | | | |
| Chrysene | 1.51 | 0.2 | 2.01 | 0 | 75.1 | 42.6 | 107 | 0 | | | |
| Benzo(b)fluoranthene | 0.35 | 0.05 | 0.501 | 0 | 69.9 | 48.6 | 107 | 0 | | | |
| Benzo(k)fluoranthene | 0.17 | 0.02 | 0.25 | 0 | 68.0 | 23.3 | 136 | 0 | | | |
| Benzo(a)pyrene | 0.18 | 0.02 | 0.251 | 0 | 71.7 | 33.4 | 117 | 0 | | | |
| Dibenz(a,h)anthracene | 0.35 | 0.04 | 0.501 | 0 | 69.9 | 27.3 | 139 | 0 | | | |
| Benzo(g,h,i)perylene | 0.37 | 0.03 | 0.5 | 0 | 74.0 | 38.2 | 117 | 0 | | | |
| Indeno(1,2,3-cd)pyrene | 0.723 | 0.08 | 1.002 | 0 | 72.2 | 39.9 | 125 | 0 | | | |

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

CLIENT: Giant Refining Co
Work Order: 0512322
Project: NMED Monthly Water Samples 12/28/05

# QC SUMMARY REPORT

## Laboratory Control Spike Duplicate

Sample ID: LCSD-9498 Batch ID: 9498 Test Code: SW8310 Units: µg/L Analysis Date: 1/11/2006 9:08:05 PM Prep Date: 1/3/2006
Client ID: Run ID: HUGO_060111B SeqNo: 439789

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Naphthalene | 28.19 | 2.5 | 40 | 0 | 70.5 | 34.8 | 97.4 | 25.33 | 10.7 | 32.1 | |
| 1-Methylnaphthalene | 28.02 | 2.5 | 40.1 | 0 | 69.9 | 34.7 | 100 | 25.38 | 9.89 | 32.7 | |
| 2-Methylnaphthalene | 27.53 | 2.5 | 40 | 0 | 68.8 | 35 | 98.1 | 24.94 | 9.87 | 34 | |
| Acenaphthylene | 28 | 2.5 | 40.1 | 0 | 69.8 | 48.3 | 95.1 | 25.15 | 10.7 | 38.8 | |
| Acenaphthene | 28.49 | 2.5 | 40 | 0 | 71.2 | 45 | 95 | 25.75 | 10.1 | 38.6 | |
| Fluorene | 2.81 | 0.8 | 4.01 | 0 | 70.1 | 46.8 | 93.4 | 2.54 | 10.1 | 39.3 | |
| Phenanthrene | 1.58 | 0.6 | 2.01 | 0 | 78.6 | 48.7 | 104 | 1.39 | 12.8 | 25 | |
| Anthracene | 1.5 | 0.6 | 2.01 | 0 | 74.6 | 47.5 | 102 | 1.35 | 10.5 | 23.9 | |
| Fluoranthene | 3.16 | 0.3 | 4.01 | 0 | 78.8 | 46.3 | 108 | 2.9 | 8.58 | 15.7 | |
| Pyrene | 3.22 | 0.3 | 4.01 | 0 | 80.3 | 43.8 | 109 | 2.93 | 9.43 | 15.3 | |
| Benz(a)anthracene | 0.32 | 0.02 | 0.401 | 0 | 79.8 | 40.3 | 115 | 0.29 | 9.84 | 119 | |
| Chrysene | 1.63 | 0.2 | 2.01 | 0 | 81.1 | 42.6 | 107 | 1.51 | 7.64 | 16.6 | |
| Benzo(b)fluoranthene | 0.4 | 0.05 | 0.501 | 0 | 79.8 | 48.6 | 107 | 0.35 | 13.3 | 21.7 | |
| Benzo(k)fluoranthene | 0.19 | 0.02 | 0.25 | 0 | 76.0 | 23.3 | 136 | 0.17 | 11.1 | 19.4 | |
| Benzo(a)pyrene | 0.21 | 0.02 | 0.251 | 0 | 83.7 | 33.4 | 117 | 0.18 | 15.4 | 16.7 | |
| Dibenz(a,h)anthracene | 0.38 | 0.04 | 0.501 | 0 | 75.8 | 27.3 | 139 | 0.35 | 8.22 | 17.3 | |
| Benzo(g,h,i)perylene | 0.41 | 0.03 | 0.5 | 0 | 82.0 | 38.2 | 117 | 0.37 | 10.3 | 118 | |
| Indeno(1,2,3-cd)pyrene | 0.83 | 0.08 | 1.002 | 0 | 82.8 | 39.9 | 125 | 0.723 | 13.8 | 17.7 | |

Sample ID: LCS-9499 Batch ID: 9499 Test Code: SW7470 Units: mg/L Analysis Date: 1/3/2006 Prep Date: 1/3/2006
Client ID: Run ID: MI-LA254_060103A SeqNo: 437350

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.004489 | 0.0002 | 0.005 | 0 | 89.8 | 80 | 120 | 0 | | | |

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

CLIENT: Giant Refining Co
Work Order: 0512322
Project: NMED Monthly Water Samples 12/28/05

# QC SUMMARY REPORT

## Laboratory Control Spike Duplicate

Sample ID: LCSD-9499 Batch ID: 9499 Test Code: SW7470 Units: mg/L Analysis Date: 1/3/2006 Prep Date: 1/3/2006
Client ID: Run ID: MI-LA254_060103A SeqNo: 437370

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.004712 | 0.0002 | 0.005 | 0 | 94.2 | 80 | 120 | 0.004489 | 4.84 | 0 | |

Sample ID: LCS-9496 Batch ID: 9496 Test Code: SW6010A Units: mg/L Analysis Date: 1/4/2006 10:28:10 AM Prep Date: 1/3/2006
Client ID: Run ID: ICP_060104B SeqNo: 437583

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.5109 | 0.02 | 0.5 | 0 | 102 | 80 | 120 | 0 | | | |
| Barium | 0.4747 | 0.02 | 0.5 | 0 | 94.9 | 80 | 120 | 0 | | | |
| Cadmium | 0.4789 | 0.002 | 0.5 | 0.0004735 | 95.7 | 80 | 120 | 0 | | | |
| Chromium | 0.4796 | 0.006 | 0.5 | 0 | 95.9 | 80 | 120 | 0 | | | |
| Lead | 0.4836 | 0.005 | 0.5 | 0 | 96.7 | 80 | 120 | 0 | | | |
| Selenium | 0.4821 | 0.05 | 0.5 | 0 | 96.4 | 80 | 120 | 0 | | | |
| Silver | 0.4794 | 0.005 | 0.5 | 0 | 95.9 | 80 | 120 | 0 | | | |

Sample ID: LCSD-9496 Batch ID: 9496 Test Code: SW6010A Units: mg/L Analysis Date: 1/4/2006 10:31:25 AM Prep Date: 1/3/2006
Client ID: Run ID: ICP_060104B SeqNo: 437584

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.5201 | 0.02 | 0.5 | 0 | 104 | 80 | 120 | 0.5109 | 1.80 | 20 | |
| Barium | 0.4808 | 0.02 | 0.5 | 0 | 96.2 | 80 | 120 | 0.4747 | 1.27 | 20 | |
| Cadmium | 0.484 | 0.002 | 0.5 | 0.0004735 | 96.7 | 80 | 120 | 0.4789 | 1.05 | 20 | |
| Chromium | 0.4873 | 0.006 | 0.5 | 0 | 97.5 | 80 | 120 | 0.4796 | 1.58 | 20 | |
| Lead | 0.4857 | 0.005 | 0.5 | 0 | 97.1 | 80 | 120 | 0.4836 | 0.449 | 20 | |
| Selenium | 0.4758 | 0.05 | 0.5 | 0 | 95.2 | 80 | 120 | 0.4821 | 1.32 | 20 | |
| Silver | 0.4848 | 0.005 | 0.5 | 0 | 97.0 | 80 | 120 | 0.4794 | 1.12 | 20 | |

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

Hall Environmental Analysis Laboratory

## Sample Receipt Checklist

Client Name GRC GALLUP

Date and Time Received: 12/30/2005

Work Order Number 0512322

Received by LMM

Checklist completed by Lisa Valdez (Signature) 12/30/05 (Date)

Matrix

Carrier name UPS

| | | | | |
|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ | Not Shipped ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☑ | N/A ☐ | |
| Chain of custody present? | Yes ☑ | No ☐ | | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☑ | No ☐ | | |
| Water - VOA vials have zero headspace? | No VOA vials submitted ☐ | Yes ☑ | No ☐ | |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | N/A ☐ | |

Container/Temp Blank temperature? 5° *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Corrective Action

# CHAIN-OF-CUSTODY RECORD

**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: Giant Refining Company - Ciniza

Address: Route 3, Box 7
Gallup, NM 87301

Phone #: 505-722-3833

Fax #: 505-722-0210

QA / QC Package: Std ☐ Level 4 ☐

Other:

Project Name: NMED Monthly Water Samples 12/28/05

Project #:

Project Manager: Steve Morris

Sampler: Steve Morris

Sample Temperature: 5

| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative HgCl$_2$ | Preservative HNO$_3$ | | HEAL No. |
|---|---|---|---|---|---|---|---|---|
| 12/28/05 | 0930 | $H_2O$ | AL-2 EP-1 | | | | | 0612302-1 |
| " | 1000 | " | OAPIS Effluent | | | | | -2 |
| " | 1030 | " | NAPIS Effluent | | | | | -3 |
| " | 1100 | " | Pilot TC Effluent | | | | | -4 |

## ANALYSIS REQUEST

| HEAL No. | BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 8310 ([illegible] or PAH) | RCRA 8 Metals Total | Anions (F, Cl, NO$_3$, NO$_2$, PO$_4$, SO$_4$) | 8081 Pesticides / PCB's (8082) | 8260B (VOA) | 8270 (Semi-VOA) | | | | | Air Bubbles or Headspace (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0612302-1 | | | X | | | | | X | | | X | | | | | | |
| -2 | | | X | | | | X | X | | | X | | | | | | |
| -3 | | | X | | | | | | | | X | | | | | | |
| -4 | | | X | | | | | X | | | X | | | | | | |

| Date | Time | Relinquished By: (Signature) | Received By: (Signature) |
|---|---|---|---|
| 12-29-05 | 0830 | [illegible] | [illegible] 12/30/05 11:15 |
| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

# COVER LETTER

Wednesday, January 18, 2006

Ed Riege
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301

TEL: (505) 722-0258
FAX (505) 722-0210

RE: AL-2 to EP-1 Week of 1/6/2006

Order No.: 0601058

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/6/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109
505.345.3975 ■ Fax 505.345.4107
www.hallenvironmental.com

# Hall Environmental Analysis Laboratory

**Date:** *18-Jan-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | AL-2 to EP-1 |
| **Lab Order:** | 0601058 | **Collection Date:** | 1/4/2006 3:00:00 PM |
| **Project:** | AL-2 to EP-1 Week of 1/6/2006 | **Date Received:** | 1/6/2006 |
| **Lab ID:** | 0601058-01A | **Matrix:** | AQUEOUS |

| Analyses | Result | Limit | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015B: DIESEL RANGE** | | | | | | Analyst: SCC |
| Diesel Range Organics (DRO) | 570 | 30 | | mg/L | 10 | 1/13/2006 4:06:26 PM |
| Motor Oil Range Organics (MRO) | ND | 150 | | mg/L | 10 | 1/13/2006 4:06:26 PM |
| Surr: DNOP | 105 | 58-140 | | %REC | 10 | 1/13/2006 4:06:26 PM |
| **EPA METHOD 8015B: GASOLINE RANGE** | | | | | | Analyst: NSB |
| Gasoline Range Organics (GRO) | ND | 1.0 | | mg/L | 20 | 1/12/2006 5:46:16 PM |
| Surr: BFB | 110 | 79.7-118 | | %REC | 20 | 1/12/2006 5:46:16 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: NSB |
| Methyl tert-butyl ether (MTBE) | 66 | 50 | | µg/L | 20 | 1/12/2006 5:46:16 PM |
| Benzene | 22 | 20 | | µg/L | 20 | 1/12/2006 5:46:16 PM |
| Toluene | 45 | 20 | | µg/L | 20 | 1/12/2006 5:46:16 PM |
| Ethylbenzene | ND | 20 | | µg/L | 20 | 1/12/2006 5:46:16 PM |
| Xylenes, Total | 67 | 60 | | µg/L | 20 | 1/12/2006 5:46:16 PM |
| Surr: 4-Bromofluorobenzene | 110 | 82.2-119 | | %REC | 20 | 1/12/2006 5:46:16 PM |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level | B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit |
| S | Spike Recovery outside accepted recovery limits | | |

# Hall Environmental Analysis Laboratory

Date: *18-Jun-06*

| | | | |
|---|---|---|---|
| **CLIENT:** | Giant Refining Co | **Client Sample ID:** | AL-2 to EP-1 |
| **Lab Order:** | 0601058 | **Collection Date:** | 1/4/2006 3:00:00 PM |
| **Project:** | AL-2 to EP-1 Week of 1/6/2006 | **Date Received:** | 1/6/2006 |
| **Lab ID:** | 0601058-01B | **Matrix:** | AQUEOUS |

| Analyses | Result | Limit | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 7470: MERCURY** | | | | | | Analyst: **CMC** |
| Mercury | 0.0040 | 0.00020 | | mg/L | 1 | 1/9/2006 |
| **EPA 6010: TOTAL RECOVERABLE METALS** | | | | | | Analyst: **CMC** |
| Arsenic | ND | 0.020 | | mg/L | 1 | 1/16/2006 2:26:13 PM |
| Barium | 0.11 | 0.020 | | mg/L | 1 | 1/16/2006 2:26:13 PM |
| Cadmium | ND | 0.0020 | | mg/L | 1 | 1/16/2006 2:26:13 PM |
| Chromium | 0.0061 | 0.0060 | | mg/L | 1 | 1/16/2006 2:26:13 PM |
| Lead | 0.0064 | 0.0050 | | mg/L | 1 | 1/16/2006 2:26:13 PM |
| Selenium | ND | 0.050 | | mg/L | 1 | 1/16/2006 2:26:13 PM |
| Silver | ND | 0.0050 | | mg/L | 1 | 1/16/2006 2:26:13 PM |

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Hall Environmental Analysis Laboratory

Date: *18-Jan-06*

CLIENT: Giant Refining Co
Work Order: 0601058
Project: AL-2 to EP-1 Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015DRO_W**

Sample ID: MB-9535 SampType: MBLK TestCode: 8015DRO_W Units: mg/L Prep Date: 1/9/2006 RunNo: 17852
Client ID: ZZZZZ Batch ID: 9535 TestNo: SW8015 Analysis Date: 1/9/2006 SeqNo: 438884

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 1.0 | | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 5.0 | | | | | | | | | |
| Surr: DNOP | 1.156 | 0 | 1 | 0 | 116 | 58 | 140 | | | | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: *0601058*
Project: AL-2 to EP-1 Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: **Reagent Blank 5ml** SampType: **MBLK** TestCode: **8015GRO_W** Units: **mg/L** Prep Date: RunNo: **17890**
Client ID: **ZZZZZ** Batch ID: **R17890** TestNo: **SW8015** Analysis Date: **1/12/2006** SeqNo: **439931**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 0.050 | | | | | | | | | |
| Surr: BFB | 20.34 | 0 | 20 | 0 | 102 | 79.7 | 118 | | | | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601058
Project: AL-2 to EP-1 Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: **Reagent Blank 5ml** SampType: **MBLK** TestCode: **8021BTEX_W** Units: **µg/L** Prep Date: RunNo: **17890**
Client ID: **ZZZZZ** Batch ID: **R17890** TestNo: **SW8021** Analysis Date: **1/12/2006** SeqNo: **439913**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl tert-butyl ether (MTBE) | ND | 2.5 | | | | | | | | | |
| Benzene | ND | 1.0 | | | | | | | | | |
| Toluene | ND | 1.0 | | | | | | | | | |
| Ethylbenzene | ND | 1.0 | | | | | | | | | |
| Xylenes, Total | ND | 3.0 | | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 20.16 | 0 | 20 | 0 | 101 | 82.2 | 119 | | | | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601058
Project: AL-2 to EP-1 Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: HG_CTW

Sample ID: MB-9544 | SampType: MBLK | TestCode: HG_CTW | Units: mg/L | Prep Date: 1/9/2006 | RunNo: 17848
Client ID: ZZZZZ | Batch ID: 9544 | TestNo: SW7470 | (SW7470) | Analysis Date: 1/9/2006 | SeqNo: 438823

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | 0.00020 | | | | | | | | | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601058
Project: AL-2 to EP-1 Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: MB-9536 SampType: MBLK TestCode: METALS_TO Units: mg/L Prep Date: 1/9/2006 RunNo: 17885
Client ID: ZZZZZ Batch ID: 9536 TestNo: SW6010A Analysis Date: 1/12/2006 SeqNo: 439739

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.020 | | | | | | | | | |
| Barium | ND | 0.020 | | | | | | | | | |
| Cadmium | ND | 0.0020 | | | | | | | | | |
| Chromium | ND | 0.0060 | | | | | | | | | |
| Lead | ND | 0.0050 | | | | | | | | | |
| Selenium | ND | 0.050 | | | | | | | | | |
| Silver | ND | 0.0050 | | | | | | | | | |

Sample ID: MB-9536 SampType: MBLK TestCode: METALS_TO Units: mg/L Prep Date: 1/9/2006 RunNo: 17932
Client ID: ZZZZZ Batch ID: 9536 TestNo: SW6010A Analysis Date: 1/16/2006 SeqNo: 440773

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.020 | | | | | | | | | |
| Barium | ND | 0.020 | | | | | | | | | |
| Cadmium | ND | 0.0020 | | | | | | | | | |
| Chromium | ND | 0.0060 | | | | | | | | | |
| Lead | ND | 0.0050 | | | | | | | | | |
| Selenium | ND | 0.050 | | | | | | | | | |
| Silver | ND | 0.0050 | | | | | | | | | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory

Date: *18-Jan-06*

**CLIENT:** Giant Refining Co
**Work Order:** 0601058
**Project:** AL-2 to EP-1 Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode: HG_CTW**

Sample ID: 0601064-04D DUP | SampType: DUP | TestCode: HG_CTW | Units: mg/L | Prep Date: 1/9/2006 | RunNo: 17848

Client ID: ZZZZZ | Batch ID: 9544 | TestNo: SW7470 | (SW7470) | Analysis Date: 1/9/2006 | SeqNo: 438841

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | ND | 0.00020 | | | | | | 0 | 0 | 20 | |

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Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601058
Project: AL-2 to EP-1 Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: 0601065-04A DUP SampType: DUP TestCode: METALS_TO Units: mg/L Prep Date: 1/9/2006 RunNo: 17932
Client ID: ZZZZZ Batch ID: 9536 TestNo: SW6010A Analysis Date: 1/16/2006 SeqNo: 440787

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.020 | | | | | | 0 | 0 | 30 | |
| Barium | 0.5651 | 0.020 | | | | | | 0.565 | 0.0205 | 30 | |
| Cadmium | ND | 0.0020 | | | | | | 0 | 0 | 30 | |
| Chromium | ND | 0.0060 | | | | | | 0 | 0 | 30 | |
| Lead | ND | 0.0050 | | | | | | 0.004291 | 0 | 30 | |
| Selenium | ND | 0.050 | | | | | | 0 | 0 | 30 | |
| Silver | ND | 0.0050 | | | | | | 0 | 0 | 30 | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory

Date: *18-Jan-06*

CLIENT: Giant Refining Co
Work Order: 0601058
Project: AL-2 to EP-1 Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

## TestCode: 8015DRO_W

Sample ID: **LCS-9535** SampType: **LCS** TestCode: **8015DRO_W** Units: **mg/L** Prep Date: **1/9/2006** RunNo: **17852**
Client ID: **ZZZZZ** Batch ID: **9535** TestNo: **SW8015** Analysis Date: **1/9/2006** SeqNo: **438885**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 5.740 | 1.0 | 5 | 0 | 115 | 81.2 | 149 | | | | |

Sample ID: **LCSD-9535** SampType: **LCSD** TestCode: **8015DRO_W** Units: **mg/L** Prep Date: **1/9/2006** RunNo: **17852**
Client ID: **ZZZZZ** Batch ID: **9535** TestNo: **SW8015** Analysis Date: **1/9/2006** SeqNo: **438886**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 5.962 | 1.0 | 5 | 0 | 119 | 81.2 | 149 | 5.74 | 3.80 | 23 | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601058
Project: AL-2 to EP-1 Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015GRO_W**

Sample ID: GRO lcs 2.5ug | SampType: LCS | TestCode: 8015GRO_W | Units: mg/L | Prep Date: | RunNo: 17890
Client ID: ZZZZZ | Batch ID: R17890 | TestNo: SW8015 | Analysis Date: 1/13/2006 | SeqNo: 439932

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 0.4586 | 0.050 | 0.5 | 0 | 91.7 | 82.6 | 114 | | | | |



Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601058
Project: AL-2 to EP-1 Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 8021BTEX_W**

Sample ID: BTEX lcs 100ng | SampType: LCS | TestCode: 8021BTEX_W Units: µg/L | Prep Date: | RunNo: 17890

Client ID: ZZZZZ | Batch ID: R17890 | TestNo: SW8021 | Analysis Date: 1/12/2006 | SeqNo: 440002

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl tert-butyl ether (MTBE) | 20.00 | 2.5 | 20 | 0 | 100 | 64.5 | 133 | | | | |
| Benzene | 18.85 | 1.0 | 20 | 0 | 94.2 | 88.5 | 114 | | | | |
| Toluene | 19.12 | 1.0 | 20 | 0 | 95.6 | 87.2 | 114 | | | | |
| Ethylbenzene | 19.76 | 1.0 | 20 | 0 | 98.8 | 88.6 | 113 | | | | |
| Xylenes, Total | 39.56 | 3.0 | 40 | 0 | 98.9 | 83.3 | 114 | | | | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601058
Project: AL-2 to EP-1 Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: HG_CTW

Sample ID: **LCS-9544** SampType: **LCS** TestCode: **HG_CTW** Units: mg/L Prep Date: **1/9/2006** RunNo: **17848**
Client ID: ZZZZZ Batch ID: **9544** TestNo: **SW7470** (SW7470) Analysis Date: **1/9/2006** SeqNo: **438824**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.004253 | 0.00020 | 0.005 | 0 | 85.1 | 80 | 120 | | | | |

Sample ID: **LCSD-9544** SampType: **LCSD** TestCode: **HG_CTW** Units: mg/L Prep Date: **1/9/2006** RunNo: **17848**
Client ID: ZZZZZ Batch ID: **9544** TestNo: **SW7470** (SW7470) Analysis Date: **1/9/2006** SeqNo: **438848**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.004311 | 0.00020 | 0.005 | 0 | 86.2 | 80 | 120 | 0.004253 | 1.35 | 0 | |

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Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601058
Project: AL-2 to EP-1 Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: LCS-9536 SampType: LCS TestCode: METALS_TO Units: mg/L Prep Date: 1/9/2006 RunNo: 17885
Client ID: ZZZZZ Batch ID: 9536 TestNo: SW6010A Analysis Date: 1/12/2006 SeqNo: 439740

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | 0.4894 | 0.0050 | 0.5 | 0 | 97.9 | 80 | 120 | | | | |

Sample ID: LCS-9536 SampType: LCS TestCode: METALS_TO Units: mg/L Prep Date: 1/9/2006 RunNo: 17932
Client ID: ZZZZZ Batch ID: 9536 TestNo: SW6010A Analysis Date: 1/16/2006 SeqNo: 440774

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.4853 | 0.020 | 0.5 | 0 | 97.1 | 80 | 120 | | | | |
| Barium | 0.4613 | 0.020 | 0.5 | 0 | 92.3 | 80 | 120 | | | | |
| Cadmium | 0.4680 | 0.0020 | 0.5 | 0 | 93.6 | 80 | 120 | | | | |
| Chromium | 0.4714 | 0.0060 | 0.5 | 0 | 94.3 | 80 | 120 | | | | |
| Lead | 0.4601 | 0.0050 | 0.5 | 0 | 92.0 | 80 | 120 | | | | |
| Selenium | 0.4684 | 0.050 | 0.5 | 0 | 93.7 | 80 | 120 | | | | |
| Silver | 0.4791 | 0.0050 | 0.5 | 0.001109 | 95.6 | 80 | 120 | | | | |

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Sample ID: LCSD-9536 SampType: LCSD TestCode: METALS_TO Units: mg/L Prep Date: 1/9/2006 RunNo: 17885
Client ID: ZZZZZ Batch ID: 9536 TestNo: SW6010A Analysis Date: 1/12/2006 SeqNo: 439741

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | 0.4769 | 0.0050 | 0.5 | 0 | 95.4 | 80 | 120 | 0.4894 | 2.60 | 20 | |

Sample ID: LCSD-9536 SampType: LCSD TestCode: METALS_TO Units: mg/L Prep Date: 1/9/2006 RunNo: 17932
Client ID: ZZZZZ Batch ID: 9536 TestNo: SW6010A Analysis Date: 1/16/2006 SeqNo: 440775

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.4891 | 0.020 | 0.5 | 0 | 97.8 | 80 | 120 | 0.4853 | 0.775 | 20 | |
| Barium | 0.4627 | 0.020 | 0.5 | 0 | 92.5 | 80 | 120 | 0.4613 | 0.308 | 20 | |
| Cadmium | 0.4676 | 0.0020 | 0.5 | 0 | 93.5 | 80 | 120 | 0.468 | 0.0760 | 20 | |
| Chromium | 0.4741 | 0.0060 | 0.5 | 0 | 94.8 | 80 | 120 | 0.4714 | 0.582 | 20 | |
| Lead | 0.4560 | 0.0050 | 0.5 | 0 | 91.2 | 80 | 120 | 0.4601 | 0.907 | 20 | |
| Selenium | 0.4633 | 0.050 | 0.5 | 0 | 92.7 | 80 | 120 | 0.4684 | 1.11 | 20 | |

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Giant Refining Co
Work Order: 0601058
Project: AL-2 to EP-1 Week of 1/6/2006

# ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: **LCSD-9536** SampType: **LCSD** TestCode: **METALS_TO** Units: **mg/L** Prep Date: **1/9/2006** RunNo: **17932**
Client ID: **ZZZZZ** Batch ID: **9536** TestNo: **SW6010A** Analysis Date: **1/16/2006** SeqNo: **440775**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Silver | 0.4795 | 0.0050 | 0.5 | 0.001109 | 95.7 | 80 | 120 | 0.4791 | 0.0776 | 20 | |

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Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

# Hall Environmental Analysis Laboratory

## Sample Receipt Checklist

Client Name GIANTREFIN

Date and Time Received: 1/6/2006

Work Order Number 0601058

Received by AT

Checklist completed by Signature Date 1/6/06

Matrix

Carrier name UPS

| | | | | |
|---|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ | |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ | Not Shipped ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☑ | N/A ☐ | |
| Chain of custody present? | Yes ☑ | No ☐ | | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | | |
| Sample containers intact? | Yes ☑ | No ☐ | | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | | |
| All samples received within holding time? | Yes ☑ | No ☐ | | |
| Water - VOA vials have zero headspace? | No VOA vials submitted ☐ | Yes ☑ | No ☐ | |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | N/A ☐ | |
| Container/Temp Blank temperature? | 7° | *4° C ± 2 Acceptable* If given sufficient time to cool. | | |

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Corrective Action

# CHAIN-OF-CUSTODY RECORD

**HALL ENVIRONMENTAL ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: Giant Refining Company - Ciniza

Address: Route 3 Box 7
Gallup, NM 87301

Phone #: 505 722 3833

Fax #: 505 722 0210

QA / QC Package: Std ☐ Level 4 ☐

Other:

Project Name: AL-2 to EP-1 Week of 1-6-2006

Project #:

Project Manager: Steve Morris

Sampler:

Sample Temperature: 7°

| Date | Time | Matrix | Sample I.D. No. | Number/Volume | Preservative $HgCl_2$ | Preservative $HNO_3$ | | HEAL No. |
|---|---|---|---|---|---|---|---|---|
| 1-4-06 | 1500 | $H_2O$ | AL-2 to EP-1 | 5 | | | | 0601058-1 |

## ANALYSIS REQUEST

| Sample I.D. No. | BTEX + MTBE + ~~TMB~~'s (8021) | BTEX + MTBE + TPH (Gasoline Only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | EDC (Method 8021) | 8310 (PNA or PAH) | RCRA 8 Metals Total | Anions (F, Cl, $NO_3$, $NO_2$, $PO_4$, $SO_4$) | 8081 Pesticides / PCB's (8082) | 8260B (VOA) | 8270 (Semi-VOA) | | | | | Air Bubbles or Headspace (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL-2 to EP-1 | X | | X | | | | | X | | | | | | | | | |

| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |
|---|---|---|---|
| 1-5-06 | 0900 | F. Sanchez | D. Schluppe 1/6/06 1340 |
| Date: | Time: | Relinquished By: (Signature) | Received By: (Signature) |

Remarks:

## Chavez, Carl J, EMNRD

**From:** Steve Morris [smorris@giant.com]
**Sent:** Friday, January 20, 2006 10:57 AM
**To:** Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV; Foust, Denny, EMNRD; Ed Riege; Monzeglio, Hope, NMENV; Johnny Sanchez; Steve Morris; Price, Wayne, EMNRD
**Subject:** Ciniza Weekly Update 01-20-06

HALL7368_POND2IN010606.pdf (10... HALL7397_NMED122805.pdf (609 K... HALL7406_AL2EP010606.pdf (315 ...

1) Work has started preparing the oil sump at the NAPIS for Chopper Pump installation.
I will update everyone on this email distribution list as we get into the project and have a better picture of the completion date.

2) Ciniza Operations and Maintenance personnel continue to keep a close eye on the NAPIS and no unexpected problems are noted.

3) Attached are the water sample results I have received to date.

If you have any questions, please give me a call at 505-722-0258.
Thanks,
Steve Morris
<<HALL7368_POND2IN010606.pdf>> <<HALL7397_NMED122805.pdf>> <<HALL7406_AL2EP010606.pdf>>

## Chavez, Carl J, EMNRD

**From:** Chavez, Carl J, EMNRD
**Sent:** Thursday, January 19, 2006 1:18 PM
**To:** Bratcher, Mike, EMNRD
**Cc:** Price, Wayne, EMNRD
**Subject:** Navajo Refinery- Artesia

Mike:

Hi. I am taking over for Wayne Price on this project and wanted to share one item of possible concern that Wayne wanted me to mention to you from our October 26, 2005 site visit. It may be more of a local blight problem than anything? We spoke briefly with Mr. Simmons and he seemed concerned, but had not contacted anyone about the property.

Anyway, we noticed a residential property (I believe an empty lot) adjacent to Mr. Buddy Simmons home located at 420 Quail, Artesia (road trending E-W just north of the refinery off of Hwy. 285). See map (http://maps.yahoo.com/maps_result?addr=420+Quail&csz=Artesia%2C+New+Mexico&country=us&new=1&name=&qty=The) residential property had numerous stacked 55 gallon drums on the premises. We didn't think the property belonged to the refinery, but thought we should follow-up with you about it.

Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/
(Pollution Prevention Guidance is under "Publications")