

GW - 1

REPORTS

YEAR(S):

2006

**RIVER TERRACE VOLUNTARY CORRECTIVE MEASURES
BIOVENTING SYSTEM
ANNUAL REPORT**

January 2006 through December 2006



**SAN JUAN REFINING COMPANY
GIANT – BLOOMFIELD REFINERY
SUBMITTED: JANUARY 2007**



January 22, 2007

Certified Mail: 7099 3220 0010 2242 5334
7099 3220 0010 2242 5310

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

Wayne Price
New Mexico Oil Conservation Division
Environmental Bureau
1220 South St. Francis Dr
Santa Fe, NM 87505

**Re: River Terrace Voluntary Corrective Measures
Bioventing System
Annual Report
January 2006 through December 2006**

Dear Hope and Wayne,

Giant Refining Company, Bloomfield Refinery submits the River Terrace Voluntary Corrective Measures Bioventing System Annual Report as requested by NMED. This report summarizes data gathered during the initiation of the project (August 2005) as well as start-up through the first year of operation (January 2006 to December 2006).

If you have questions or would like to discuss any aspect of the report, please contact me at (505) 632-4171.

Sincerely,

A handwritten signature in black ink, appearing to read "James R. Schmaltz", is written over a large, stylized, looping flourish.

James R. Schmaltz
Environmental Manager
San Juan Refining Company
Bloomfield Refinery

Cc: Robert Wilkinson, USEPA – Region VI
Brandon Powell, NMOCD Aztec District Office
Ed Riege, Environmental Superintendent – Giant Refinery

PHONE
505-632-8013
FAX
505-632-3911

50 ROAD 4990
P.O. BOX 159
BLOOMFIELD
NEW MEXICO
87413

**RIVER TERRACE VOLUNTARY CORRECTIVE MEASURES
BIOVENTING SYSTEM
ANNUAL REPORT**

January 2006 through December 2006

Owner: San Juan Refining Company (parent corporation)
23733 North Scottsdale Road
Scottsdale, Arizona 85255

Operator: Giant Refining Company (postal address)
P.O. Box 159
Bloomfield, New Mexico 87413

Giant Refining Company (physical address)
#50 Rd 4990
Bloomfield, New Mexico 87413

Facility Name: Bloomfield Refinery

US EPA ID NMD089416416

SIC Code 2911

Submittal Date: January 25, 2007

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Section 1.0 Executive Summary

Executive Summary

Construction of the River Terrace Bioventing Project was initiated in August 2005 with the system being put on-line in January 2006. Thirteen temporary piezometers, Monitoring Wells #48 and #49, Dewatering Wells #1 and #2, and 13 bioventing wells were installed within an 11-month period spanning October 2004 through August 2005. A facility plot plan and river terrace project plot plan are provided in Section 7.0

The bioventing system was installed to provide oxygen to the subsurface and support aerobic biodegradation of petroleum hydrocarbons that were identified in soil along the western portion of the river terrace. The project includes a dewatering system to provide an increased vadose zone for bioremedial activity.

A monitoring plan was developed to assess baseline conditions and provide periodic progress information of the bioventing system. Baseline analysis of the groundwater and soil gas is used to evaluate the current site conditions before remediation activities begin. Performance monitoring offers periodic feedback of remediation operation and GAC filter capability. An in situ respiration test observes the rate at which oxygen is depleted and carbon dioxide is generated to determine oxygen utilization and biodegradation rates within the soils.

Monitoring results from the in situ respiration test indicate the presence of active biodegradation within the river terrace area. Field data collected during the initial 12-months of system operation indicate the bioventing system is effectively enhancing bioremedial activity within the western portion of the river terrace area. Soil gas concentrations collected in the field show that the bioventing system provides sufficient oxygen supply to fully oxygenate the subsurface, supporting aerobic biodegradation of hydrocarbons. These results suggest that as treatment progresses, petroleum hydrocarbon concentrations will diminish. Breakthrough of the lead GAC filter did not occur in 2006.

Section 2.0 Introduction

INTRODUCTION

Owner: San Juan Refining Company (parent corporation)
23733 North Scottsdale Road
Scottsdale, Arizona 85255

Operator: Giant Refining Company (postal address)
P.O. Box 159
Bloomfield, New Mexico 87413

Giant Refining Company (physical address)
#50 Rd 4990
Bloomfield, New Mexico 87413

Facility Name: Bloomfield Refinery: (physical address)
#50 Rd 4990
Bloomfield, New Mexico 87413

Facility Status Corrective Action/Compliance

US EPA ID NMD089416416

SIC Code 2911

Purpose of Monitoring: River Terrace Voluntary Corrective Measures – Assess
Baseline Conditions and Provide Periodic Progress
Information

Type of Monitoring: Baseline and Periodic Groundwater and Soil Vapor
Monitoring

BACKGROUND INFORMATION

SITE LOCATION AND DESCRIPTION

The Bloomfield Refinery is a crude oil refining facility with a crude capacity of 18,000 barrels per day. It is located approximately 1 mile south of Bloomfield, New Mexico, in San Juan County, latitude N36 41' 87", longitude W107 58' 70". It is further located approximately ½ mile east of State Route 550 on Count Road 4990 (a.k.a. Sullivan Road).

The refinery is located on a bluff 120 feet above the south side of the San Juan River. The top of the bluff is relatively flat and is at an elevation of 5,540 feet above sea level. The geological units that comprise the site include, in order of increasing depth, San Juan River Alluvium, Quaternary apron deposits, Aeolian sand and silt, Jackson Lake Terrace, and the Tertiary Nacimiento Formation. An unnamed arroyo flows toward the San Juan River on the southern and western edges of the site. East of the site, a well-defined arroyo cuts a small canyon from the bluff to the San Juan River. Hammond Ditch lies on the bluff between the limit of the Jackson Lake Terrace and the refinery.

Refinery offices are on the western end of the facility, along with warehouse space, maintenance areas, and a storage yard containing used material (e.g., pipes, valves). Petroleum processing units, located in the northwest portion of the refinery, include the crude unit, fluidized cracking unit, catalytic polymerization unit, and hydrodesulfurization unit. The API Separator is located in the northwestern portion of the site. The aeration lagoons are located in the north central section of the refinery.

In the central portion of the site, aboveground storage tanks (AST's) occupy a large percentage of refinery property. South of the refinery and across Sullivan Road are terminals for loading product and off-loading crude, as well as gas storage and hazardous waste storage.

The Refinery owner is San Juan Refining Company (SJRC) and is operated by Giant Refining Company. The historical and current activities conducted at the refinery are petroleum processing, crude and product storage, crude unloading and product loading, waste management (closed and existing facilities), and offices and non-petroleum material storage

HISTORY OF RIVER TERRACE

1999

Sheet piling was installed along with a bentonite slurry wall adjacent to the San Juan River, at the River Terrace, in order to intercept a small hydrocarbon seep that had been detected in the area.

2004

MW #48 & MW #49 and 8 temporary piezometers were installed to launch a River Terrace Investigation. Several temporary piezometers were drilled on the north side of Hammond Ditch to chart the Nacimiento Formation. The development of a slurry wall that will be constructed on the north side of Hammond Ditch to prevent the spread of hydrocarbons to the San Juan River was initiated.

2005

The North Boundary Barrier Wall installation was completed March 2005. In April, five more temporary piezometers were installed at the River Terrace. Dewatering Wells #1 and #2 and thirteen bioventing wells were drilled in August at the River Terrace. Construction of the River Terrace Bioventing Project was initiated in August. The system was put on-line in January 2006.

2006

System monitoring began in January abiding by the guidelines from the River Terrace Voluntary Corrective Measures Monitoring Plan approved by OCD and NMED. The In-Situ Respiration test was conducted in May 2006. Quarterly performance monitoring was carried out in March, June, September, and December of 2006.

Section 3.0 Scope of Activities

Scope of Activities

The River Terrace Investigation was initiated in October 2004 with the installation of eight Temporary Piezometers (TP #1 – TP #8), MW #48, and MW #49. In April 2005, five additional TP wells were installed (TP #9 – TP #13). In August 2005, two dewatering wells (DW #1 and DW #2) and thirteen bioventing wells (BV #1 – BV #13) were installed. Drill logs and installation diagrams can be found in Section 10.0 – Tabs 4, 5, 6, and 7 of the River Terrace Voluntary Corrective Measure Bioventing System Six Month Start-up Report of August 2006 (RT – Six-Month Report).

Baseline Monitoring

Groundwater

Prior to the start of the bioventing system, baseline groundwater samples were taken from TP #1 through TP #13 (except TP #7), MW #48, and MW #49 during the week of August 8, 2005. These wells were purged and analyzed for BTEX, MTBE (EPA Method 8021B) and Total Petroleum Hydrocarbons (EPA Method 8015B). Field measurements of conductivity, temperature, and pH were taken as well. TP #7 appears to have been completed in the River Terrace barrier wall and does not yield a sufficient water volume.

During the week of August 22, 2005 baseline groundwater samples were collected from DW #1 and DW #2 and analyzed for PAH by EPA Method 8310, VOC by EPA Method 8260B, Dissolved (EPA Method 6010C) and Total (EPA Method 6010, 7470) WQCC Metals, and General Chemistry (EPA Methods 106.1, 120.1, 300.0, 310.1).

Total metals (EPA Methods 6010 and 7470) and groundwater field parameters (temperature, pH, conductivity, dissolved oxygen (DO), and oxidation-reduction potential (ORP)) were collected from each of the TP wells (except TP-7) MW #49, and DW #1 during the first week of January 2006 prior to the startup of the dewatering system.

During the week of January 16, 2006 after dewatering conditions stabilized prior to air injection groundwater field parameters (temperature, pH, conductivity, DO, and ORP) were taken from the TP wells (except TP-7), DW #1, and MW #49.

A summary of the baseline groundwater monitoring can be found in Section 5.0 Tab 2 of this report. Chemical analytical reports of baseline data can be found in Section 12.0 of the RT-Six -Month Report submitted August 2006.

Soil

A total of 22 subsurface soil samples were collected from the boreholes of the 13 bioventing (BV #1 - #13) wells during the week of August 15, 2005. Samples were collected above the water table at discrete intervals to assess baseline fuel hydrocarbon concentrations. The soil samples were submitted to the laboratory

and analyzed for BTEX (EPA Method 8021B), Gasoline Range Organics (EPA Method 8015B), and Diesel Range Organics (EPA Method 8015B).

A summary of the field and analytical results for baseline soil sampling is described in Section 5.0 Tab 3 of the RT-Six -Month Report submitted August 2006. Chemical analytical reports of BV Soil data can be found in Section 12.0 of that report also.

Soil Gas

After dewatering conditions stabilized and prior to starting the air injection system, field parameters and soil gas samples were collected during the week of January 18, 2006 at each of the TP wells (except TP-7), MW #49, DW #1, and BV#1 – BV #13. Vapor-phase organics, oxygen, and carbon dioxide concentrations were monitored using a hand-held photoionization detector (PID) and multi-gas meter. One soil gas sample was collected from each sample location and analyzed for BTEX (EPA Method 8021B) and Gasoline Range Organics (EPA Method 8015B).

A summary of the field and analytical results for baseline soil gas sampling is described in Section 5.0 Tab 1 of this report. Chemical analytical reports of baseline soil gas data can be found in Section 12.0 of the RT-Six -Month Report submitted August 2006. A summary of the field results for baseline BV-Pre-Aeration soil gas sampling is described in Section 5.0 Tab 3 of this report.

Performance Monitoring

Upon completion of baseline monitoring activities, on-going performance monitoring activities were performed to assess the progress of the remediation system in reducing fuel hydrocarbons. Laboratory analysis of groundwater, treated groundwater, and soil gas are included in the on-going performance monitoring. In addition, certain field parameter data are collected using portable gauges and gas meters.

Section 5.0 of this report summarizes the field parameter and samples obtained during system startup and routine performance monitoring.

Pressure Readings

Pressure readings were collected from each of the TP wells (except TP-7), MW #49, and DW #1 using a hand-held Magnahelic gauge and sample port at the top of each well. The pressure readings were recorded weekly during the first month of system operation, monthly during the first quarter and then quarterly thereafter. This data is available in Section 5.0 Tabs 1 in this report.

Groundwater

Following the start-up of the blower, groundwater field parameters of the TP wells (except TP-7), MW #49, and DW #1 were scheduled to be collected for the first four weeks of system operation, monthly for the first quarter, and then quarterly thereafter. However, a malfunction in the system's transformer delayed start of

the weekly monitoring by one week. Subsequently weekly groundwater monitoring (temperature, pH, conductivity, DO, and ORP) was conducted on each of the TP wells (except TP-7), DW #1, and MW #49 from the week of January 30, 2006 through the week of February 20, 2006.

First quarter groundwater samples were collected from each of the TP wells (except TP-7), DW #1, and MW #49 during the week of March 6, 2006.

Groundwater samples were analyzed for BTEX and MTBE (EPA Method 8021B), GRO and DRO (EPA Method 8015B). MW #49 and DW #1 were also analyzed for Total Lead, Chromium, and Mercury (EPA Method 6010C and 7470). Field measurements included temperature, pH, conductivity, DO, and ORP.

Subsequent quarterly monitoring events utilized the same collection sites, methods, and parameters. Second quarter samples were collected the week of June 17, 2006. The third quarter sampling event took place during the week of September 11, 2006. Fourth quarter sampling occurred during the week of December 04, 2006.

TP-#4 data is not available for the third and fourth quarter sampling events. Prior to the third quarter sampling event TP-#4 was inadvertently destroyed by a trackhoe that was cleaning out the freshwater inlet pond adjacent to TP-#4's location.

A summary of the performance monitoring results can be found in Section 5.0 Tab 2. Chemical analytical reports of the first and second quarter performance monitoring data can be found in Section 12.0 of the RT-Six -Month Report submitted August 2006. Third and fourth quarter chemical analytical reports are located in Section 10.0 Tabs 7 and 8 of this report.

Soil Gas

Field measurements of soil gas hydrocarbons (using a PID) and oxygen and carbon dioxide concentrations (using a multi-gas meter) were scheduled to be collected from each of the TP wells (except TP-7), MW #49, and DW #1 weekly for the first four weeks of system operation, monthly for the first quarter, and then quarterly thereafter. Due to the transformer malfunction, weekly monitoring was delayed by one week. Subsequently weekly soil gas field measurements were conducted on each of the TP wells (except TP-7), DW #1, and MW #49 from the week of January 30, 2006 through the week of February 20, 2006.

First quarter samples were collected during the week of March 6, 2006. Soil gas analysis included BTEX (8021B) and GRO (8015B). Field measurements of gas hydrocarbons (using a PID) and oxygen and carbon dioxide concentrations (using a multi-gas meter) were taken. Subsequent quarterly monitoring events utilized the same collection sites, methods, and parameters. Second quarter samples were collected the week of June 17, 2006. The third quarter sampling event took place during the week of September 11, 2006. Fourth quarter sampling occurred during the week of December 04, 2006.

TP-#4 data is not available for the third and fourth quarter sampling events. Prior to the third quarter sampling event TP-#4 was inadvertently destroyed by a trackhoe that was cleaning out the freshwater inlet pond adjacent to TP-#4's location.

A summary of the performance monitoring results can be found in Section 5.0 Tab 1. Chemical analytical reports of the first and second quarter performance monitoring data can be found in Section 12.0 of the RT-Six -Month Report submitted August 2006. Third and fourth quarter chemical analytical reports are located in Section 10.0 Tabs 5 and 6 of this report.

GAC Filter Monitoring

Extracted groundwater from the dewatering wells is treated prior to discharging to the raw water ponds, located within the east portion of the refinery. Extracted groundwater is pumped through two GAC filters positioned in series for removal of dissolved-phase hydrocarbons.

GAC filter sampling includes influent samples from a sample port located upstream of the GAC filters, and effluent samples collected from ports located after each of the lead and lag GAC filters. Monitoring the performance of the GAC filters is necessary to estimate GAC filter change-out frequency.

GAC filter influent samples (GAC Inf) and effluent samples collected downstream of the lag GAC filter (GAC 2 Eff) were collected at system start-up and quarterly thereafter. Effluent samples from the lead GAC filter (GAC 1 Eff) were obtained at system startup and weekly thereafter until such time that breakthrough is detected. Samples were analyzed for BTEX by EPA Method 8021B, GRO and DRO by EPA Method 8015B.

Weekly samples were not acquired from August 3, 2006 to August 24, 2006 and from October 12, 2006 to November 28, 2006 because the river pump was down due to an extremely muddy San Juan River. The Dewatering pumps in the Bioventing system are tied into Giant's raw water river pump system. If the river pump is off then the Dewatering pumps will also be off. However, the blower on the Bioventing system continued to operate.

A summary of the GAC filter performance monitoring results is presented in Section 5.0 Tab 4 of this report. Chemical analytical reports are located in Section 10.0 Tab 9 of this report.

In-Situ Respiration

An in situ respiration test was performed during the week of May 22, 2006 following methods described in the Bioventing System Monitoring Plan Amendment. The respiration rate test consisted of monitoring the rate at which oxygen is depleted and carbon dioxide is generated when the air supply is turned off. Oxygen, carbon dioxide, and volatile organic compounds were monitored at

BV #1 through BV #13 and at TP#1, TP#2, TP#5, TP#6, TP#8, and TP #9 using the PID meter and the multi-gas meter. A summary of the in situ test can be found in Section 6.0 of the RT-Six- Month Report submitted August 2006.

Field Data Collection

All water/product levels were measured to an accuracy of 0.01 foot using a Geotech Interface Meter. After determining water levels, purge volumes were calculated.

After sufficient purging (three well volumes), soil gas samples were collected using the vacuum pump. Field measurements of vapor-phase organics (using a PID meter), oxygen, and carbon dioxide concentrations (using a multi-gas meter) were recorded using portable field instruments. Soil gas samples were taken before groundwater purging and sampling.

Prior to soil gas purging, a YSI 550A Dissolved Oxygen Probe was used to determine dissolved oxygen (DO) levels. At least three well volumes were purged from each well prior to groundwater sampling. Electrical conductance, pH, temperature, and oxidation reduction potential were monitored during purging using an Ultrameter 6P. The wells were considered satisfactorily purged when the pH, E.C., and temperature values did not vary by more than 10 percent for at least three measurements.

Field data and analytical results can be found in Section 5.0 – Tabs 1, 2, 3, and 4.

All purged water was collected and disposed of through the refinery wastewater system.

Section 4.0 Regulatory Criteria / Groundwater Cleanup Standards

TABLE OF NEW MEXICO AND THE U. S. EPA'S GROUNDWATER STANDARDS

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
General Properties				
non-aqueous phase liquid (NAPL)	NP			
petroleum				
floating product	NP			
undesirable odor (a)	NP			
pH (units) (a)	6 - 9	6.5 - 8.5		
total dissolved solids (TDS) (a)	1000	500		
turbidity		tt		
Biological Contaminants				
giardia lamblia	tt	Zero		
legionella	tt	Zero		
total coliform	<5%+	Zero		
viruses	tt	Zero		
Inorganic Contaminants				
aluminum	5.0 (i)	0.05 - 0.2 (a)		
ammonia				30
antimony		0.006	0.006	
arsenic	0.1	0.05	0.05	
asbestos-fibers/liter (longer than 10 um)		7 million	7 million	
barium	1.0	2	2	
beryllium		0.004	0.004	
boron	0.75 (i)			0.06
bromate		0.01 (p)	Zero (p)	
cadmium	0.01	0.005	0.005	
chlorate				0.01

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
chloride (a)	250	250		0.01
chlorine				1
chlorine dioxide				0.08
chlorite		1.0 (p)	0.08 (p)	
chromium	0.05	0.1	0.1	
cobalt (i)	0.05			
copper		1.3 (al)	1.3	
cyanide	0.2	0.2	0.2	
fluoride	1.6	4.0		
fluoride (a)		2		
iron (a)	1.0	0.3		
lead	0.05	0.015 (al)	Zero	
manganese (a)	0.2	0.05		
mercury	0.002	0.002	0.002	
molybdenum	1.0 (i)			0.05
nickel	0.2 (i)	0.1	0.1	
nitrate - N	10	10	10	
nitrite - N		1	1	
nitrate + nitrite (as N)		10	10	
selenium	0.05	0.05	0.05	
silver	0.05	0.05	0.05	
silver (a)		0.1		
sodium				20
strontium				17
sulfate	600 (a)	250 (a) / 400 (p)	400	
thallium		0.002	0.0005	
vanadium				0.02
zinc (a)	10.0	5		
Radioactive Contaminants				
Gross alpha (pCi/L) *		15	Zero	
Gross beta & photon emitters (mrem/yr) **		4	Zero	

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
radium 226 (pCi/L)		20 (p)	Zero	
radium 228 (pCi/L)		20 (p)	Zero	
radium 226 + 228 (pCi/L)	30	5	Zero	
radon 222 (pCi/L)		300 (p)	Zero	
uranium	5	0.02 (p)	Zero	
Benzenes				
benzene	0.01	0.005	Zero	
Alkyl Benzenes				
methylbenzene (toluene)	0.75	1 (p) / 0.04 (a)	1	
ethylbenzene	0.75	0.7 (p) / 0.03 (a)	0.7	
dimethyl benzene isomers (xylenes)	0.62	10 (p) / 0.02 (a)	10	
vinylbenzene (styrene)		0.1	0.1	
trimethyl benzene isomers				
propyl benzene isomers				
butyl benzene isomers				
Chlorinated Benzenes				
chlorobenzene	tox	0.1	0.1	
o-dichlorobenzene	tox	0.6	0.6	
m-dichlorobenzene	tox			
p-dichlorobenzene	tox	0.075 (p) / 0.005 (a)	0.075	
1,2,4-trichlorobenzene		0.07	0.07	
1,3,5-trichlorobenzene				0.04
1,2,4,5-tetrachlorobenzene	tox			
pentachlorobenzene	tox			
hexachlorobenzene	tox	0.001	Zero	
Toluenes				
o-chlorotoluene				0.1
p-chlorotoluene				0.1
2,4-dinitrotoluene (2,4-DNT)	tox			

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
2,4,6-trinitrotoluene (TNT)				0.002
isopropyltoluene				
Nitrogenated Benzenes				
aminobenzene (aniline)				
nitrobenzene	tox			
1,3-dinitrobenzene				0.001
Phenols (hydroxybenzenes)	0.005 (a)			
phenol (carbolic acid)	tox			4
2-chlorophenol				0.04
2,4-dichlorophenol	tox			0.02
2,4-dinitro- <i>o</i> -creosol	tox			
2,4-dimethylphenol				
2-methylphenol				
4-methylphenol				
2-nitrophenol				
dinitrophenols	tox			
2,4,5-trichlorophenol	tox			
2,4,6-trichlorophenol	tox			
2,4,6-trichlorophenol	tox			
pentachlorophenol	tox	0.001 (p) / 0.03 (a)	Zero	
p-cresol				
Polycyclics				
acenaphthene				
anthracene	tox			
benz(a)anthracene		0.0001 (p)	Zero	
benzo(a)pyrene	0.0007	0.0002	Zero	
benzo(b)fluoranthene		0.0002 (p)	Zero	
benzo(k)fluoranthene	tox	0.0002 (p)	Zero	
chrysene		0.0002 (p)	Zero	
dibenz(a)anthracene		0.0003 (p)	Zero	
diphenylhydrazine	tox			

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
fluoranthene	tox			
fluorene	tox			
indeno(1,2,3-c,d)pyrene		0.0004 (p)	Zero	
naphthalene	tox			0.3
naphthalenes ****	0.03			
phenanthrene	tox			
polychlorinated biphenyls (PCBs)	0.001			
PCBs as decachlorobiphenyl		0.0005	Zero	
pyrene	tox			
Methanes				
chloromethane (methyl chloride)	tox			0.003
dichloromethane (methylene chloride)	0.1	0.005	Zero	
trichloromethane (chloroform)	0.1		Zero (p)	
tetrachloromethane (carbon tetrachloride)	0.01	0.005	Zero	
bromomethane (methyl bromide)	tox			0.01
bromochloromethane				0.09
bromodichloromethane	tox		Zero (p)	
chlorodibromomethane			Zero (p)	0.1
tribromomethane (bromoform)	tox		Zero (p)	
trihalomethanes (THMs) ***		0.1/0.08 (p)	Zero	
fluorotrichloromethane (Freon 11)	tox			2
dichlorodifluoromethane (Freon 12)	tox			1
Ethanes				
1,2-dibromoethane (ethylene dibromide, EDB)	0.0001	0.00005	Zero	
1,1-dichloroethane	0.025			
1,2-dichloroethane (ethylene dichloride, EDC)	0.01	0.005	Zero	
1,1,1-trichloroethane (TCA)	0.06	0.2	0.2	
1,1,2-trichloroethane	0.01	0.005	0.003	
1,1,1,2-tetrachloroethane				0.07

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
1,1,2,2-tetrachloroethane	0.01			
hexachloroethane	tox			
Ethenes (Ethylenes)				
chloroethane (vinyl chloride)	0.001	0.002	Zero	
1,1-dichloroethene	0.005	0.007	0.007	
cis-1,2-dichloroethene	tox	0.07	0.07	
trans-1,2-dichloroethene	tox	0.1	0.1	
trichloroethene (TCE)	0.1	0.005	Zero	
tetrachloroethene (perchloroethylene, PCE)	0.02	0.005	Zero	
Propanes & Propenes				
1,2-dichloropropane (propylene dichloride, PDC)		0.005	Zero	
1,2,3-trichloropropane				0.04
1,2-dibromo-3-chloropropane (DBCP)		0.0002	Zero	
dichloropropenes	tox			
1,3-dichloropropene	tox			0.01
Aldehydes, Ethers, Furans, & Ketones				
acetone				
bis (2-chloroethyl) ether	tox			
bis (2-chloroisopropyl) ether	tox			0.3
bis (chloromethyl) ether	tox			
dibenzofuran				
p-dioxane (diethylene dioxide)				0.568
formaldehyde (methanal)				1
isophorone	tox			0.1
methyl ethyl ketone (MEK, 2-butanone)				0.1
methyl tertiary butyl ether (MTBE)	0.1 (a)			0.04
tetrahydrofuran				

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA IIA (ppm)
Nitrosamines				
N-nitrosodiethylamine	tox			
N-nitrosodimethylamine (NDMA)	tox			
N-nitrosodibutylamine	tox			
N-nitrosodiphenylamine	tox			
N-nitrosopyrrolidine	tox			
Phthalate Esters				
dibutyl phthalate	tox			
di-2-ethylhexyl phthalate	tox	0.006	Zero	
diethyl phthalate	tox			
dimethyl phthalate	tox			
Explosives				
dinitrophenols	tox			
2,4-dinitrotoluene (2,4-DNT)	tox			
hexahydro-1,3,5-trinitro-s-triazine (RDX)				0.002
HMX				0.4
nitroglycerin (glycerol trinitrate)				0.005
nitroguanidine				0.7
2,4,6-trinitrotoluene (TNT)				0.002
Other Organics				
acrolein	tox			
acrylamide		tt	Zero	
acrylonitrile	tox			0.004
benzidine	tox			
chloral hydrate		tt (p)	0.04 (p)	
chloramine				0.3

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
dibromoacetonitrile				0.02
dichloroacetic acid				0.003
dichloroacetonitrile				0.006
dichlorobenzidine	tox			
di(2-ethylhexyl)adipate		0.4	0.4	
diisopropyl methylphosphonate				0.6
epichlorohydrin (1-chlor-2,3-epoxypropane)		n	Zero	
ethylene glycol (1,2-ethanediol)				7
Haloacetic Acids ****		0.06 (p)		
dichloroacetic acid			Zero (p)	
trichloroacetic acid			0.3 (p)	
hexachlorobutadiene	tox			0.001
hexachlorocyclopentadiene	tox	0.05 (p) / 0.008 (a)	0.05	
n-hexane				4.0
Other Pesticides				
acifluorfen				0.1
alachlor		0.002	Zero	
aldicarb		0.003 (p)	0.001	
aldicarb sulfone		0.002 (p)	0.001	
aldicarb sulfoxide		0.004 (p)	0.001	
aldrin	tox			0.001
ametryn				0.06
ammonium sulfamate				2
arsenal (imazapyr)				
atrazine		0.003	0.003	
baygon				0.003
bentazon				0.02
bromacil				0.09
butylate				0.35
carbaryl				0.7
carbofuran		0.04	0.04	

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
carboxin				0.7
chloramben				0.1
chlordan	tox	0.002	Zero	
chlorothalonil				0.5
chlorpyrifos				0.02
cyanazine				0.01
2,4-D (2,4-dichlorophenoxyacetic acid)		0.07	0.07	
dacthal				4
dalapon		0.2	0.2	
DDT (dichloro diphenyl trichloroethane) tox				
4,4'-DDD				
4,4'-DDE				
diazinon				0.0006
dicamba				0.2
dieldrin	tox			0.002
dimethrin				2
dinoseb		0.007	0.007	
dioxin		0.00000005	Zero	
diphenamid				0.2
diquat		0.02	0.02	
disulfoton				0.0003
diuron				0.01
endosulfan	tox			
endothall		0.1	0.1	
endrin	tox	0.002	0.002	
ethylene thiourea				0.001
fenamiphos				0.002
fluometuron				0.09
fonofos				0.01
glyphosate		0.7	0.7	
heptachlor	tox	0.0004	Zero	
heptachlor epoxide		0.0002	Zero	
hexazinone				0.2
lindane (gamma-BHC)	tox	0.0002	0.0002	

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLC (ppm)	EPA HA (ppm)
alpha-BHC	tox			
beta-BHC	tox			
delta-BHC				
malathion				0.2
maleic hydrazide				4
methomyl				0.2
methoxychlor		0.04	0.04	
methyl chlorophenoxyacetic acid (MCPA)				0.011
methyl parathion				0.002
metolachlor				0.1
metribuzin				0.2
oxamyl (vydate)		0.2	0.2	
paraquat				0.03
picloram		0.5	0.5	
prometon				0.1
pronamide				0.05
propachlor				0.09
propazine				0.01
propham				0.1
simazine		0.004	0.004	
2,4,5-T (2,4,5-trichlorophenoxyacetic acid)				0.07
tebuthiuron				0.5
terbacil				0.09
terbufos				0.0009
toxaphene	tox	0.003	Zero	
2,4,5-TP (silvex)		0.05	0.05	
trifluralin				0.005

Abbreviations

al Action Level that, if exceeded, requires water treatment
 BHC benzene hexachloride, also called hexachlorocyclohexane
 DDD 1,1'-(2,2-dichloroethylidene) -bis/4-chlorobenzene

DDI 1,1'-(2,2-dichloroetheneylidene)-bis/4-chlorobenzene
HA Health Advisory
HMN octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
MCL Maximum Contaminant Level
MCLG Maximum Contaminant Level Goal
mg/L milligrams per liter
mrem/yr millirem per year
mrem ede/yr dose committed over a 50-year period to a "reference man" from an annual intake rate of 2 liters drinking water per day
MTBE methyl tertiary butyl ether, a synonym for 2-methoxy-2-methyl propane (the standard includes other ether-based gasoline additives)
NP the contaminant shall Not be Present
pCi/L picocuries per liter
tox a numerical standard has not been established, but the contaminant is listed in a narrative standard of "toxic pollutant" defined in WQCC regulations
2,4,5-TP 2,4,5-trichlorophenoxpropionic acid
tt Treatment Technique that public water system operators must adhere to instead of a numerical standard
um micrometer
U.S. EPA United States Environmental Protection Agency
WQCC New Mexico Water Quality Control Commission

Footnotes

- * The proposed standard excludes radon 222, radium 226 and uranium activity
 - ** This standard excludes radium 228 activity. Units for the existing standard are mrem/yr. U.S. EPA has proposed to change the units to mrem ede/yr.
 - *** The "THMs" standard applies to the sum of chloroform, dichlorobromomethane, dibromochloromethane, and bromoform.
 - **** This standard applies to the sum of naphthalene and monomethylnaphthalene isomers.
 - ***** This standard applies to the sum of mono-, di-, and trichloroacetic acids, and mono- and dibromoacetic acids.
-

Use and Applicability of Standards

All New Mexico standards are adopted by the WQCC except for the MTBE and petroleum (floating product and undesirable odor) standards, which are adopted by the New Mexico Environmental Improvement Board.

U.S. EPA's MCLGs are set at levels that would result in no known or anticipated adverse health effects with an adequate margin of safety. MCLGs do not take treatment costs into consideration and are not enforceable. Health-based proposed MCLs and final enforceable MCLs are set as close to MCLGs as feasible with use of best technology, treatment techniques and other means.

U.S. EPA's HAs serve as informal technical guidance to assist Federal, State and Local officials responsible for protecting public health when emergency spills or contamination situations occur. They are not to be construed as legally enforceable Federal standards and are subject to change as new information becomes available. All HAs listed are for lifetime exposures except for p-dioxane (10 day) and n-hexane (7 year).

APPENDIX A

Appendix A

State of New Mexico Soil Screening Levels

Table A-1 provides State of New Mexico Soil Screening Levels (SSLs), as developed by the New Mexico Environment Department (NMED) Hazardous Waste Bureau (HWB) and the Ground Water Quality Bureau Voluntary Remediation Program for 208 chemicals most commonly associated with environmental releases within the state. These NMED SSLs are derived using default exposure parameter values (as presented in Table A-2) and chemical- and State of New Mexico-specific physical parameters (as presented in Table B-1 of Appendix B). These default values are assumed to be appropriately conservative in the face of uncertainty and are likely to be protective for the majority of site conditions relevant to soil exposures within New Mexico.

However, the NMED SSLs are not necessarily protective of all known human exposure pathways, reasonable land uses or ecological threats. Thus, before applying NMED SSLs at a site, it is extremely important to compare the conceptual site model (CSM) with the assumptions upon which the NMED SSLs are predicated to ensure that the site conditions and exposure pathways match those used to develop the NMED SSLs. If this comparison indicates that the site at issue is more complex than the corresponding SSL scenarios, or that there are significant exposure pathways not accounted for by the NMED SSLs, then the NMED SSLs are insufficient for use in a defensible assessment of the site. A more detailed site-specific approach will be necessary to evaluate the additional pathways or site conditions.

Table A-1

Column 1:	The first column in Table A-1 presents the names of the chemicals for which NMED has developed SSLs.
Column 2:	The second column presents NMED SSLs predicated on residential soil exposures.
Column 3, 5, 7, and 10:	These columns present indicator categories for the NMED SSL residential, industrial, construction, and tap water basis, whether predicated on carcinogenic effects (ca), noncarcinogenic effects (nc), soil saturation limits (sat) or a non-risk based "max" determination. NMED SSLs predicated on a carcinogenic endpoint reflect age-adjusted child-to-adult exposures. NMED SSLs predicated on a noncarcinogenic endpoint reflect child-only exposures. Detected concentrations above the "sat" value may indicate the presence of nonaqueous phase liquid (NAPL). For certain inorganic and semivolatile organic compounds (SVOCs) that exhibit relatively low toxicity, a non risk-based maximum concentration of 10^5 mg/kg is given when the risk-based SSL exceeds that level. These are noted as "max" in the tables.
Columns 4 and 6:	The fourth and sixth columns present NMED SSLs analogous to Column 1, with the exception that these values correspond to Industrial/Occupational and Construction worker (adult-only) exposures, respectively.
Columns 5 and 7:	The fifth and seventh columns present endpoint bases analogous to Column 3

for the Industrial/Occupational and Construction worker receptor populations, respectively. Unlike the Residential population, noncarcinogenic endpoint notes for these receptor populations are predicated on adult-only exposures.

Column 8: The eighth column notes which chemicals are considered VOCs (for inhalation considerations). Those chemicals not considered VOCs are evaluated within the SSLs relative to inhalation of particulate emissions.

Column 9: Presents the tap water SSL for the residential scenario.

Columns 11 and 12: The ninth column presents NMED SSLs for the migration to groundwater pathway developed using a default dilution attenuation factor (DAF) of 1, which assumes no effective dilution or attenuation. These values can be considered at sites where little or no dilution or attenuation of soil leachate concentrations is expected (e.g., shallow water tables, karst topography). Column 10 presents NMED SSLs for the migration to groundwater pathway developed using a DAF of 20 to account for natural processes that reduce contaminant concentrations in the subsurface.

As noted above, separate NMED SSLs are presented for use in evaluating three discrete potential receptor populations: Residential, Industrial/Occupational, and Construction. Each NMED SSL considers incidental ingestion of soil, inhalation of volatiles (limited to those chemicals noted as volatile organic compounds [VOCs] within Table A-1) or particulate emissions from impacted soil, and dermal contact with soil.

Generally, if a contaminant is detected at a level in soil exceeding the most relevant NMED SSL, and the site-specific CSM is in general agreement with the underlying assumptions upon which the NMED SSLs are predicated, this result indicates the potential for adverse human health effects to occur. Conversely, if no contaminants are detected above the most relevant NMED SSL, this tends to indicate to the user that environmental conditions may not necessitate remedial action of the surface soil or the vadose zone.

A detection above an NMED SSL does not indicate that unacceptable exposures are, in fact, occurring. The NMED SSLs are predicated on relatively conservative exposure assumptions and an exceedance only tends to indicate the potential for adverse effects. The NMED SSLs do not account for additive exposures, whether for carcinogenic or noncarcinogenic endpoints. Section 5 of Part A addresses a methodology by which an environmental manager may determine whether further site-evaluation is warranted, however, this methodology does not replace the need for defensible risk assessment where indicated.

The NMED SSLs address a basic subset of exposures fundamental to the widest array of environmentally-impacted sites within the State of New Mexico. The NMED SSLs cannot address all relevant exposure pathways associated with all sites. The utility of the NMED SSLs depends heavily upon the understanding of site conditions as accurately reflected in the CSM and nature and extent of contamination determinations. Consideration of the NMED SSLs does not preclude the need for site-specific risk assessment in all instances.

Table A-1: NMED Soil Screening Levels

Chemical	Residential Soil (mg/kg)	End-point	Industrial/ Occupational Soil (mg/kg)	End-point	Construction Worker Soil (mg/kg)	End-point	VOC	Tap Water (ug/L)	End-point	DAF 1 (mg/kg)	DAF 20 (mg/kg)
Acenaphthene	3.73E+03	nc	3.35E+04	nc	1.41E+04	nc	x	3.65E+02	nc	2.75E+00	5.49E+01
Acetaldehyde	1.06E+02	nc	3.84E+02	nc	3.45E+02	nc	x	1.72E+01	ca		
Acetone	2.81E+04	nc	1.00E+05	max	9.85E+04	nc	x	5.48E+03	nc	9.55E-01	1.91E+01
Acrylonitrile	4.27E+00	ca	1.26E+01	ca	5.75E+01	nc	x	3.81E-01	ca	6.68E-05	1.34E-03
Acetophenone	1.48E+03	sat	1.48E+03	sat	1.48E+03	sat	x	6.08E+02	nc	1.48E-01	2.95E+00
Acrolein	2.06E-01	nc	7.52E-01	nc	6.75E-01	nc	x	4.16E-02	nc	8.55E-06	1.71E-04
Aldrin	2.84E-01	ca	1.12E+00	ca	6.99E+00	nc		3.87E-02	ca	1.42E-01	2.84E+00
Aluminum	7.78E+04	nc	1.00E+05	max	1.44E+04	nc		3.65E+04	nc	5.48E+04	1.10E+06
Anthracene	2.20E+04	nc	1.00E+05	max	8.60E+04	nc	x	1.83E+03	nc	8.11E+01	1.62E+03
Antimony	3.13E+01	nc	4.54E+02	nc	1.24E+02	nc		1.46E+01	nc	6.61E-01	1.32E+01
Arsenic	3.90E+00	ca	1.77E+01	ca	8.52E+01	nc		4.42E-01	ca	1.45E-02	2.90E-01
Barium	1.56E+04	nc	1.00E+05	max	6.02E+04	nc		7.30E+03	nc	3.01E+02	6.03E+03
Benzene	1.03E+01	ca	2.58E+01	ca	1.74E+02	nc	x	3.49E+00	ca	1.00E-03	2.01E-02
Benzidine	2.11E-02	ca	8.33E-02	ca	7.09E-01	ca		2.89E-03	ca	1.24E-05	2.47E-04
Benzo(a)anthracene	6.21E+00	ca	2.34E+01	ca	2.12E+02	ca		9.09E-01	ca	5.43E-01	1.09E+01
Benzo(a)pyrene	6.21E-01	ca	2.34E+00	ca	2.12E+01	ca		9.09E-02	ca	1.39E-01	2.78E+00
Benzo(b)fluoranthene	6.21E+00	ca	2.34E+01	ca	2.12E+02	ca		9.09E-01	ca	1.68E+00	3.35E+01
Benzo(k)fluoranthene	6.21E+01	ca	2.34E+02	ca	2.12E+03	ca		9.09E+00	ca	1.68E+01	3.35E+02
Beryllium	1.56E+02	nc	2.25E+03	nc	5.62E+01	nc		7.30E+01	nc	5.77E+01	1.15E+03
a-BHC (HCH)	9.02E-01	ca	3.99E+00	ca	3.00E+01	ca		1.05E-01	ca	2.13E-04	4.25E-03
b-BHC (HCH)	3.16E+00	ca	1.40E+01	ca	5.39E+01	nc		3.69E-01	ca	7.61E-04	1.52E-02
g-BHC	4.37E+00	ca	1.93E+01	ca	8.09E+01	nc		5.10E-01	ca	9.08E-04	1.82E-02
1,1-Biphenyl	3.08E+03	nc	2.73E+04	nc	1.17E+04	nc	x	3.04E+02	nc	3.61E+00	7.22E+01
Bis(2-chloroethyl) ether	2.44E+00	ca	7.45E+00	ca	1.05E+02	ca	x	9.65E-02	ca	2.77E-05	5.55E-04
Bis(2-chloroisopropyl) ether	3.87E+01	ca	1.19E+02	ca	4.53E+02	sat	x	2.71E+00	ca	7.21E-04	1.44E-02
Bis(2-ethylhexyl) phthalate	3.47E+02	ca	1.37E+03	ca	4.66E+03	nc		4.74E+01	ca	1.07E+03	2.15E+04
Bis(chloromethyl) ether	4.72E-03	ca	1.23E-02	ca	2.32E-01	ca	x	5.09E-04	ca	8.95E-08	1.79E-06
Boron	1.56E+04	nc	1.00E+05	max	3.09E+04	nc		7.30E+03	nc	2.40E+01	4.80E+02
Bromobenzene	3.70E+01	nc	1.37E+02	nc	1.21E+02	nc	x	2.06E+01	nc	1.07E-02	2.14E-01
Bromodichloromethane	1.44E+01	ca	3.72E+01	ca	7.17E+02	ca	x	1.78E+00	ca	5.90E-04	1.18E-02

Chemical	Residential Soil (mg/kg)	End- point	Industrial/ Occupational Soil (mg/kg)	End- point	Construction Worker Soil (mg/kg)	End- point	VOC	Tap Water (ug/L)	End- point	DAF 1 (mg/kg)	DAF 20 (mg/kg)
Bromomethane	8.51E+00	nc	3.28E+01	nc	2.82E+01	nc	x	8.66E+00	nc	1.87E-03	3.74E-02
1,3-Butadiene	9.93E-01	ca	2.38E+00	ca	4.59E+00	nc	x	1.26E+00	ca		
2-Butanone (MEK)	3.18E+04	nc	4.87E+04	sat	4.87E+04	sat	x	7.06E+03	nc	1.27E+00	2.55E+01
tert-Butyl methyl ether (MTBE)	3.88E+02	ca	9.84E+02	ca	1.96E+04	ca	x	6.14E+01	ca		
n-Butylbenzene	6.21E+01	sat	6.21E+01	sat	6.21E+01	sat	x	6.08E+01	nc	2.70E-01	5.40E+00
sec-Butylbenzene	6.06E+01	sat	6.06E+01	sat	6.06E+01	sat	x	6.08E+01	nc	2.17E-01	4.33E+00
tert-Butylbenzene	1.06E+02	sat	1.06E+02	sat	1.06E+02	sat	x	6.08E+01	nc	2.15E-01	4.30E+00
Cadmium	3.90E+01	nc	5.64E+02	nc	1.54E+02	nc		1.83E+01	nc	1.37E+00	2.75E+01
Carbon disulfide	4.60E+02	sat	4.60E+02	sat	4.60E+02	sat	x	1.04E+03	nc	3.95E-01	7.89E+00
Carbon tetrachloride	3.47E+00	ca	8.64E+00	ca	1.80E+02	ca	x	1.69E+00	ca	9.74E-04	1.95E-02
Chlordane	1.62E+01	ca	7.19E+01	ca	1.30E+02	nc		1.90E+00	ca	3.42E-01	6.83E+00
2-Chloroacetophenone	4.25E-02	nc	1.62E-01	nc	1.41E-01	nc	x	5.22E-02	nc	4.37E-05	8.75E-04
2-Chloro-1,3-butadiene	6.32E+00	nc	2.30E+01	nc	2.06E+01	nc	x	1.43E+01	nc	5.66E-03	1.13E-01
1-Chloro-1,1-difluoroethane	2.11E+02	sat	2.11E+02	sat	2.11E+02	sat	x	8.66E+04	nc	6.28E+01	1.26E+03
Chlorobenzene	1.94E+02	nc	2.45E+02	sat	2.45E+02	sat	x	1.06E+02	nc	5.50E-02	1.10E+00
1-Chlorobutane	1.22E+02	nc	2.99E+02	sat	2.99E+02	sat	x	2.43E+02	nc	9.63E-02	1.93E+00
Chlorodifluoromethane	2.11E+02	sat	2.11E+02	sat	2.11E+02	sat	x	9.75E+04	nc	7.07E+01	1.41E+03
Chloroethane	6.33E+01	ca	1.54E+02	ca	1.42E+03	sat	x	3.81E+01	ca	9.41E-03	1.88E-01
Chloroform	4.00E+00	ca	9.59E+00	ca	2.16E+02	ca	x	1.65E+00	ca	4.12E-04	8.25E-03
Chloromethane	2.18E+01	ca	5.34E+01	ca	2.84E+02	nc	x	1.49E+01	ca	5.02E-03	1.00E-01
b-Chloronaphthalene	3.99E+03	nc	2.78E+04	nc	1.47E+04	nc	x	4.87E+02	nc	1.25E+00	2.51E+01
o-Chloronitrobenzene	1.49E+00	nc	5.48E+00	nc	4.88E+00	nc	x	1.45E-01	nc	3.94E-05	7.88E-04
p-Chloronitrobenzene	1.05E+01	nc	4.23E+01	nc	3.51E+01	nc	x	1.20E+00	nc	3.25E-04	6.51E-03
2-Chlorophenol	1.66E+02	nc	8.85E+02	nc	5.86E+02	nc	x	3.04E+01	nc	2.36E-02	4.72E-01
2-Chloropropane	2.83E+02	nc	7.05E+02	sat	7.05E+02	sat	x	1.76E+02	nc	4.60E-02	9.19E-01
o-Chlorotoluene	2.02E+02	sat	2.02E+02	sat	2.02E+02	sat	x	1.22E+02	nc	5.22E-02	1.04E+00
Chromium III	1.00E+05	max	1.00E+05	max	1.00E+05	max		5.48E+04	nc	9.86E+07	1.97E+09
Chromium VI	2.34E+02	nc	3.40E+03	nc	2.61E+01	ca		1.10E+02	nc	2.10E+00	4.20E+01
Chrysene	6.15E+02	ca	2.31E+03	ca	2.12E+04	ca	x	2.91E+01	ca	1.74E+01	3.48E+02
Cobalt	1.52E+03	nc	2.05E+04	nc	6.10E+01	nc		7.30E+02	nc	3.31E+01	6.61E+02
Copper	3.13E+03	nc	4.54E+04	nc	1.24E+04	nc		1.46E+03	nc	5.15E+01	1.03E+03
Crotonaldehyde	7.01E-02	ca	1.70E-01	ca	3.73E+00	ca	x	5.82E-02	ca	1.49E-04	2.99E-03

Chemical	Residential Soil (mg/kg)	End- point	Industrial/ Occupational Soil (mg/kg)	End- point	Construction Worker Soil (mg/kg)	End- point	VOC	Tap Water (ug/L)	End- point	DAF 1 (mg/kg)	DAF 20 (mg/kg)
Cumene (isopropylbenzene)	2.71E+02	nc	3.89E+02	sat	3.89E+02	sat	x	6.78E+02	nc	4.10E+00	8.21E+01
Cyanide	1.22E+03	nc	1.37E+04	nc	4.76E+03	nc		7.30E+02	nc	7.35E+00	1.47E+02
Cyanogen	1.71E+03	sat	1.71E+03	sat	1.71E+03	sat	x	1.46E+03	nc	2.91E-01	5.82E+00
Cyanogen bromide	2.02E+03	sat	2.02E+03	sat	2.02E+03	sat	x	3.29E+03	nc	7.76E-01	1.55E+01
Cyanogen chloride	2.02E+03	sat	2.02E+03	sat	2.02E+03	sat	x	1.83E+03	nc	4.31E-01	8.62E+00
DDD	2.44E+01	ca	1.11E+02	ca	8.07E+02	ca		2.77E+00	ca	4.15E+00	8.30E+01
DDE	1.72E+01	ca	7.81E+01	ca	5.70E+02	ca		1.95E+00	ca	1.31E+01	2.62E+02
DDT	1.72E+01	ca	7.81E+01	ca	1.38E+02	nc		1.95E+00	ca	7.70E+00	1.54E+02
Dibenz(a,h)anthracene	6.21E-01	ca	2.34E+00	ca	2.12E+01	ca		9.09E-02	ca	5.18E-01	1.04E+01
Dibenzofuran	1.42E+02	nc	1.62E+03	nc	5.52E+02	nc	x	1.22E+01	nc	1.44E-01	2.87E+00
1,2-Dibromo-3-chloropropane	1.84E+00	nc	9.68E+00	nc	6.48E+00	nc	x	3.47E-01	nc	1.49E-04	2.98E-03
Dibromochloromethane	1.48E+01	ca	3.95E+01	ca	7.16E+02	ca	x	1.32E+00	ca	3.58E-04	7.16E-03
1,2-Dibromoethane	5.04E-01	ca	1.31E+00	ca	2.48E+01	ca	x	5.53E-02	ca	1.20E-05	2.40E-04
1,4-Dichloro-2-butene	1.22E-01	ca	3.23E-01	ca	5.97E+00	ca	x	1.19E-02	ca	2.93E-06	5.87E-05
1,2-Dichlorobenzene	3.74E+01	sat	3.74E+01	sat	3.74E+01	sat	x	4.96E+01	nc	1.19E-02	2.37E-01
1,3-Dichlorobenzene	3.26E+01	nc	3.74E+01	sat	3.74E+01	sat	x	1.83E+01	nc	4.36E-03	8.73E-02
1,4-Dichlorobenzene	3.95E+01	ca	1.03E+02	ca	1.98E+03	ca	x	4.95E+00	ca	5.49E-03	1.10E-01
3,3-Dichlorobenzidine	1.08E+01	ca	4.26E+01	ca	3.63E+02	ca		1.47E+00	ca	1.86E-03	3.71E-02
Dichlorodifluoromethane	1.61E+02	nc	2.11E+02	sat	2.11E+02	sat	x	3.95E+02	nc	2.86E-01	5.72E+00
1,1-Dichloroethane	1.40E+03	nc	1.42E+03	sat	1.42E+03	sat	x	1.22E+03	nc	3.39E-01	6.79E+00
1,2-Dichloroethane	6.04E+00	ca	1.52E+01	ca	6.42E+01	ca	x	1.22E+00	ca	2.85E-04	5.71E-03
cis-1,2-Dichloroethene	7.65E+01	nc	3.00E+02	nc	2.54E+02	nc	x	6.08E+01	nc	1.49E-02	2.99E-01
trans-1,2-Dichloroethene	1.12E+02	nc	4.29E+02	nc	3.70E+02	nc	x	1.22E+02	nc	3.33E-02	6.67E-01
1,1-Dichloroethene	2.06E+02	nc	7.77E+02	nc	6.78E+02	nc	x	3.39E+02	nc	1.34E-01	2.68E+00
2,4-Dichlorophenol	1.83E+02	nc	2.05E+03	nc	6.99E+02	nc		1.10E+02	nc	4.31E-02	8.63E-01
1,2-Dichloropropane	6.00E+00	ca	1.49E+01	ca	3.33E+01	nc	x	1.63E+00	ca	4.10E-04	8.19E-03
1,3-Dichloropropane	1.20E+01	ca	3.17E+01	ca	8.98E+01	nc	x	3.90E+00	ca	1.16E-03	2.31E-02
Dicyclopentadiene	2.21E+01	nc	8.26E+01	nc	7.28E+01	nc	x	1.39E+01	nc	1.50E-02	3.00E-01
Dieldrin	3.04E-01	ca	1.20E+00	ca	1.02E+01	ca		4.15E-02	ca	1.34E-03	2.68E-02
Diethyl phthalate	4.89E+04	nc	1.00E+05	max	1.00E+05	max		2.92E+04	nc	1.77E+01	3.54E+02
Dimethyl phthalate	1.00E+05	max	1.00E+05	max	1.00E+05	max		3.65E+05	nc	8.36E+01	1.67E+03
Di-n-butyl phthalate	6.11E+03	nc	6.84E+04	nc	2.33E+04	nc		3.65E+03	nc	1.86E+02	3.72E+03

Chemical	Residential Soil (mg/kg)	End- point	Industrial/ Occupational Soil (mg/kg)	End- point	Construction Worker Soil (mg/kg)	End- point	VOC	Tap Water (ug/L)	End- point	DAF 1 (mg/kg)	DAF 20 (mg/kg)
2,4-Dimethylphenol	1.22E+03	nc	1.37E+04	nc	4.66E+03	nc		7.30E+02	nc	3.55E-01	7.11E+00
4,6-Dinitro-o-cresol	6.11E+00	nc	6.84E+01	nc	2.33E+01	nc		3.65E+00	nc	3.93E-03	7.85E-02
2,4-Dinitrophenol	1.22E+02	nc	1.37E+03	nc	4.66E+02	nc		7.30E+01	nc	5.25E-02	1.05E+00
2,4-Dinitrotoluene	1.22E+02	nc	1.37E+03	nc	4.66E+02	nc		7.30E+01	nc	2.31E-02	4.62E-01
1,2-Diphenylhydrazine	6.08E+00	ca	2.39E+01	ca	2.04E+02	ca		8.30E-01	ca	4.48E-03	8.95E-02
Endosulfan	3.67E+02	nc	4.10E+03	nc	1.40E+03	nc		2.19E+02	nc	7.41E-01	1.48E+01
Endrin	1.83E+01	nc	2.05E+02	nc	6.99E+01	nc		1.10E+01	nc	2.04E-01	4.08E+00
Epichlorohydrin	1.66E+01	nc	6.56E+01	nc	5.54E+01	nc	x	2.03E+00	nc	3.62E-04	7.25E-03
Ethyl acetate	2.10E+04	sat	2.10E+04	sat	2.10E+04	sat	x	5.48E+03	nc	1.44E+00	2.87E+01
Ethyl acrylate	2.79E+00	ca	6.75E+00	ca	5.22E+01	sat	x	2.30E+00	ca	5.86E-03	1.17E-01
Ethyl chloride	6.33E+01	ca	1.54E+02	ca	1.42E+03	sat	x	3.81E+01	ca	9.41E-03	1.88E-01
Ethyl ether	1.94E+03	sat	1.94E+03	sat	1.94E+03	sat	x	1.22E+03	nc	2.37E-01	4.73E+00
Ethyl methacrylate	5.27E+01	sat	5.27E+01	sat	5.27E+01	sat	x	5.48E+02	nc	1.41E+00	2.81E+01
Ethylbenzene	1.28E+02	sat	1.28E+02	sat	1.28E+02	sat	x	1.34E+03	nc	1.01E+00	2.02E+01
Ethylene oxide	2.65E+00	ca	8.07E+00	ca	1.15E+02	ca	x	2.41E-01	ca	4.27E-05	8.54E-04
Fluoranthene	2.29E+03	nc	2.44E+04	nc	8.73E+03	nc		1.46E+03	nc	2.35E+02	4.69E+03
Fluorene	2.66E+03	nc	2.65E+04	nc	1.02E+04	nc	x	2.43E+02	nc	2.93E+00	5.85E+01
Fluoride	3.67E+03	nc	4.10E+04	nc	1.43E+04	nc		2.19E+03	nc	3.29E+02	6.58E+03
Furan	5.53E+00	nc	2.12E+01	nc	1.83E+01	nc	x	6.08E+00	nc	1.32E-03	2.63E-02
Heptachlor	1.08E+00	ca	4.26E+00	ca	3.63E+01	ca		1.47E-01	ca	3.12E-01	6.24E+00
Hexachlorobenzene	3.04E+00	ca	1.20E+01	ca	1.02E+02	ca		4.15E-01	ca	3.43E-02	6.86E-01
Hexachloro-1,3-butadiene	1.22E+01	nc	1.37E+02	nc	4.66E+01	nc		7.30E+00	nc	5.90E-01	1.18E+01
Hexachlorocyclopentadiene	3.66E+02	nc	4.10E+03	nc	4.31E+02	nc		2.19E+02	nc	6.58E+01	1.32E+03
Hexachloroethane	6.11E+01	nc	6.84E+02	nc	2.33E+02	nc		3.65E+01	nc	1.04E-01	2.09E+00
n-Hexane	3.80E+01	sat	3.80E+01	sat	3.80E+01	sat	x	4.16E+02	nc	8.64E-01	1.73E+01
HMX	3.06E+03	nc	3.42E+04	nc	1.17E+04	nc		1.83E+03	nc	5.39E+00	1.08E+02
Hydrogen cyanide	2.24E+01	nc	8.22E+01	nc	7.33E+01	nc	x	6.20E+00	nc	1.24E-03	2.47E-02
Indeno(1,2,3-c,d)pyrene	6.21E+00	ca	2.34E+01	ca	2.12E+02	ca		9.09E-01	ca	4.73E+00	9.46E+01
Iron	2.35E+04	nc	1.00E+05	max	9.29E+04	nc		1.10E+04	nc	2.77E+02	5.54E+03
Isobutanol	1.38E+04	nc	2.26E+04	sat	2.26E+04	sat	x	1.83E+03	nc	4.86E-01	9.72E+00
Isophorone	5.12E+03	ca	2.02E+04	ca	4.66E+04	nc		6.99E+02	ca	1.70E-01	3.40E+00
Lead	4.00E+02	IEUBK	8.00E+02	IEUBK	8.00E+02	IEUBK					

Chemical	Residential Soil (mg/kg)	End-point	Industrial/ Occupational Soil (mg/kg)	End-point	Construction Worker Soil (mg/kg)	End-point	VOC	Tap Water (ug/L)	End-point	DAF 1 (mg/kg)	DAF 20 (mg/kg)
Lead (tetraethyl-)	6.11E+03	nc	6.84E+02	nc	2.38E+02	nc		3.65E+03	nc	6.33E-07	1.27E+05
Maleic hydrazide	1.61E+03	sat	1.61E+03	sat	1.61E+03	sat	x	3.04E+03	nc	8.12E-01	1.62E+01
Manganese	3.59E+03	nc	4.84E+04	nc	1.50E+02	nc		1.72E+03	nc	1.12E+02	2.24E+03
Mercury (elemental)	1.00E+05	max	1.00E+05	max	9.27E+02	nc				1.05E-01	2.09E-03
Mercury (methyl)	6.11E+00	nc	6.84E+01	nc	2.38E+01	nc		3.65E+00	nc	8.26E-04	1.65E-02
Methacrylonitrile	3.84E+00	nc	2.20E+01	nc	1.37E+01	nc	x	1.04E+00	nc	1.83E-04	3.65E-03
Methomyl	8.44E+01	nc	3.17E+02	nc	2.78E+02	nc	x	1.52E+02	nc	5.74E-02	1.15E+00
Methyl acetate	3.76E+04	nc	1.00E+05	max	1.00E+05	max	x	6.08E+03	nc	1.08E+00	2.15E+01
Methyl acrylate	9.28E+01	nc	1.57E+02	sat	1.57E+02	sat	x	1.83E+02	nc	4.64E-01	9.29E+00
Methyl isobutyl ketone	5.51E+03	nc	7.01E+03	sat	7.01E+03	sat	x	1.99E+03	nc	7.35E-01	1.47E+01
Methyl methacrylate	2.92E+03	sat	2.92E+03	sat	2.92E+03	sat	x	1.42E+03	nc	2.76E-01	5.52E+00
Methyl styrene (alpha)	2.17E+02	sat	2.17E+02	sat	2.17E+02	sat	x	4.26E+02	nc	3.08E-01	6.17E+00
Methyl styrene (mixture)	1.39E+02	nc	2.17E+02	sat	2.17E+02	sat	x	5.48E+01	nc	3.96E-02	7.93E-01
Methylcyclohexane	7.89E+01	sat	7.89E+01	sat	7.89E+01	sat	x	5.23E+03	nc	2.88E+01	5.77E+02
Methylene bromide	1.79E+02	nc	7.85E+02	nc	6.09E+02	nc	x	6.08E+01	nc	2.72E-02	5.44E-01
Methylene chloride	1.82E+02	ca	4.90E+02	ca	2.63E+03	sat	x	4.22E+01	ca	8.51E-03	1.70E-01
Molybdenum	3.91E+02	nc	5.68E+03	nc	1.55E+03	nc		1.83E+02	nc	3.70E+00	7.40E+01
Naphthalene	7.95E+01	nc	3.00E+02	nc	2.62E+02	nc	x	6.20E+00	nc	1.97E-02	3.94E-01
Nickel	1.56E+03	nc	2.27E+04	nc	6.19E+03	nc		7.30E+02	nc	4.77E+01	9.53E+02
Nitrate	1.00E+05	max	1.00E+05	max	1.00E+05	max		5.84E+04	nc	1.67E+01	3.35E+02
Nitrite	7.82E+03	nc	1.00E+05	max	3.10E+04	nc		3.85E+03	nc	7.63E-01	1.53E+01
Nitrobenzene	2.28E+01	nc	1.47E+02	nc	8.28E+01	nc	x	3.40E+00	nc	9.18E-04	1.84E-02
Nitroglycerin	3.47E+02	ca	1.37E+03	ca	1.17E+04	ca		4.74E+01	ca	2.80E-02	5.61E-01
N-Nitrosodiethylamine	3.24E-02	ca	1.28E-01	ca	1.09E+00	ca		4.42E-03	ca	8.73E-06	1.75E-04
N-Nitrosodimethylamine	9.54E-02	ca	3.76E-01	ca	1.86E+00	nc		1.30E-02	ca	1.17E-05	2.34E-04
N-Nitrosodi-n-butylamine	2.69E-01	ca	7.28E-01	ca	1.24E+01	ca	x	1.99E-02	ca	1.12E-05	2.24E-04
N-Nitrosodiphenylamine	9.93E+02	ca	3.91E+03	ca	4.66E+03	nc		1.35E+02	ca	2.86E-01	5.71E+00
N-Nitrosopyrrolidine	2.32E+00	ca	9.12E+00	ca	7.77E+01	ca		3.16E-01	ca	1.30E-04	2.60E-03
m-Nitrotoluene	5.69E+02	sat	5.69E+02	sat	5.69E+02	sat	x	1.22E+02	nc	3.30E-02	6.59E-01
o-Nitrotoluene	1.08E+01	ca	3.23E+01	ca	4.73E+02	ca	x	4.81E-01	ca	1.30E-04	2.61E-03
p-Nitrotoluene	1.46E+02	ca	4.37E+02	ca	1.55E+03	nc	x	6.51E+00	ca	1.76E-03	3.53E-02
Pentachlorobenzene	4.89E+01	nc	5.47E+02	nc	1.86E+02	nc		2.92E+01	nc	9.37E-02	1.87E+00

Chemical	Residential Soil (mg/kg)	End-point	Industrial/ Occupational Soil (mg/kg)	End-point	Construction Worker Soil (mg/kg)	End-point	VOC	Tap Water (ug/L)	End-point	DAF 1 (mg/kg)	DAF 20 (mg/kg)
Pentachlorophenol	2.98E+01	ca	1.00E+02	ca	1.02E+03	ca		5.53E+00	ca	5.87E-03	1.17E-01
Phenanthrene	1.83E+03	nc	2.05E+04	nc	6.99E+03	nc		1.10E+03	nc	2.32E+01	4.64E+02
Phenol	1.83E+04	nc	1.00E+05	max	6.99E+04	nc		1.10E+04	nc	2.37E+00	4.74E+01
Polychlorinated biphenyls											
Aroclor 1016	3.93E+00	nc	4.13E+01	nc	1.50E+01	nc		2.56E+00	nc	1.73E-01	3.45E+00
Aroclor 1221	1.12E+00	nc	8.26E+00	ca	4.28E+00	nc		3.32E-01	ca	2.24E-02	4.47E-01
Aroclor 1232	1.12E+00	nc	8.26E+00	ca	4.28E+00	nc		3.32E-01	ca	2.24E-02	4.47E-01
Aroclor 1242	1.12E+00	nc	8.26E+00	ca	4.28E+00	nc		3.32E-01	ca	2.24E-02	4.47E-01
Aroclor 1248	1.12E+00	nc	8.26E+00	ca	4.28E+00	nc		3.32E-01	ca	2.64E-01	5.28E+00
Aroclor 1254	1.12E+00	nc	8.26E+00	ca	4.28E+00	nc		3.32E-01	ca	2.64E-01	5.28E+00
Aroclor 1260	1.12E+00	nc	8.26E+00	ca	4.28E+00	nc		3.32E-01	ca	2.64E-01	5.28E+00
n-Propylbenzene	6.21E+01	sat	6.21E+01	sat	6.21E+01	sat	x	6.08E+01	nc	2.70E-01	5.40E+00
Propylene oxide	2.22E+01	ca	9.33E+01	ca	7.92E+02	nc	x	2.18E+00	ca	4.60E-04	9.20E-03
Pyrene	2.29E+03	nc	3.09E+04	nc	9.01E+03	nc	x	1.83E+02	nc	1.86E+01	3.73E+02
RDX	4.42E+01	ca	1.74E+02	ca	6.99E+02	nc		6.03E+00	ca	1.68E-03	3.36E-02
Selenium	3.91E+02	nc	5.68E+03	nc	1.55E+03	nc		1.83E+02	nc	9.52E-01	1.90E+01
Silver	3.91E+02	nc	5.68E+03	nc	1.55E+03	nc		1.83E+02	nc	1.57E+00	3.13E+01
Strontium	4.69E+04	nc	1.00E+05	max	1.00E+05	max		2.19E+04	nc	7.73E+02	1.55E+04
Styrene	1.00E+02	sat	1.00E+02	sat	1.00E+02	sat	x	1.62E+03	nc	5.23E-01	1.05E+01
1,2,4,5-Tetrachlorobenzene	1.83E+01	nc	2.05E+02	nc	6.99E+01	nc		1.10E+01	nc	2.14E-02	4.29E-01
1,1,1,2-Tetrachloroethane	4.32E+01	ca	1.14E+02	ca	2.11E+03	ca	x	4.27E+00	ca	1.25E-03	2.50E-02
1,1,2,2-Tetrachloroethane	5.55E+00	ca	1.46E+01	ca	2.71E+02	ca	x	5.46E-01	ca	1.60E-04	3.21E-03
Tetrachloroethene	1.25E+01	ca	3.16E+01	ca	1.34E+02	sat	x	4.32E+00	ca	2.87E-03	5.74E-02
Thallium	5.16E+00	nc	7.49E+01	nc	2.04E+01	nc		2.41E+00	nc	1.72E-01	3.43E+00
Toluene	2.52E+02	sat	2.52E+02	sat	2.52E+02	sat	x	2.27E+03	nc	1.08E+00	2.17E+01
Toxaphene	4.42E+00	ca	1.74E+01	ca	1.48E+02	ca		6.03E-01	ca	2.33E-01	4.65E+00
Tribromomethane	6.21E+02	ca	2.46E+03	ca	4.44E+03	nc		2.44E+01	ca	1.73E-01	3.47E+00
1,1,1-Trichloro-1,2,2-trifluoroethane	3.28E+03	sat	3.28E+03	sat	3.28E+03	sat	x	5.92E+04	nc	1.68E+02	3.36E+03
1,2,4-Trichlorobenzene	6.93E+01	nc	2.69E+02	nc	2.30E+02	nc	x	7.16E+00	nc	2.04E-02	4.08E-01
1,1,1-Trichloroethane	5.63E+02	sat	5.63E+02	sat	5.63E+02	sat	x	3.17E+03	nc	1.33E+00	2.65E+01
1,1,2-Trichloroethane	1.19E+01	ca	3.02E+01	ca	1.94E+02	nc	x	1.97E+00	ca	4.98E-04	9.95E-03
Trichloroethylene	6.38E-01	ca	1.56E+00	ca	3.36E+01	ca	x	2.77E-01	ca	1.00E-04	2.00E-03

Chemical	Residential Soil (mg/kg)	End- point	Industrial/ Occupational Soil (mg/kg)	End- point	Construction Worker Soil (mg/kg)	End- point	VOC	Tap Water (ug/L)	End- point	DAF 1 (mg/kg)	DAF 20 (mg/kg)
Trichlorofluoromethane	5.8E+02	nc	9.83E+02	sat	9.83E+02	sat	x	1.29E+03	nc	1.12E+00	2.23E+01
2,4,5-Trichlorophenol	6.11E+03	nc	6.84E+04	nc	2.33E+04	nc		3.65E+03	nc	7.13E+00	1.43E+02
2,4,6-Trichlorophenol	6.11E+00	nc	6.84E+01	nc	2.33E+01	nc		3.65E+00	nc	7.13E-03	1.43E-01
1,1,2-Trichloropropane	2.53E+01	nc	9.64E+01	nc	8.35E+01	nc	x	3.04E+01	nc	1.17E-02	2.35E-01
1,2,3-Trichloropropane	8.61E-02	ca	2.09E-01	ca	4.57E+00	ca	x	5.53E-02	ca	2.07E-05	4.14E-04
1,2,3-Trichloropropene	1.21E+00	nc	4.39E+00	nc	3.95E+00	nc	x	2.10E+00	nc	7.88E-04	1.58E-02
Triethylamine	4.90E+01	nc	2.33E+02	nc	1.69E+02	nc	x	1.21E+01	nc	2.14E-03	4.29E-02
1,2,4-Trimethylbenzene	5.80E+01	nc	2.13E+02	nc	1.90E+02	nc	x	1.23E+01	nc	7.09E-02	1.42E+00
1,3,5-Trimethylbenzene	2.48E+01	nc	6.92E+01	sat	6.92E+01	sat	x	1.23E+01	nc	1.77E-02	3.55E-01
2,4,6-Trinitrotoluene	3.06E+01	nc	3.42E+02	nc	1.17E+02	nc		1.83E+01	nc	5.34E-02	1.07E+00
Vanadium	7.82E+01	nc	1.14E+03	nc	3.10E+02	nc		3.65E+01	nc	3.65E+01	7.30E+02
Vinyl acetate	1.07E+03	nc	3.68E+03	sat	3.52E+03	nc	x	4.12E+02	nc	7.57E-02	1.51E+00
Vinyl bromide	2.85E+00	ca	6.84E+00	ca	1.93E+01	nc	x	1.18E+00	ca	4.71E-04	9.41E-03
Vinyl chloride (Child)	2.25E+00	ca					x	4.28E-01	ca	1.40E-04	2.80E-03
Vinyl chloride (adult)	4.37E+00	ca	1.40E+01	ca	1.82E+02	ca	x	8.33E-01	ca	2.72E-04	5.45E-03
m-Xylene	8.20E+01	sat	8.20E+01	sat	8.20E+01	sat	x	2.03E+02	nc	1.03E-01	2.06E+00
o-Xylene	9.95E+01	sat	9.95E+01	sat	9.95E+01	sat	x	7.30E+03	nc	4.07E+00	8.14E+01
Xylenes	8.20E+01	sat	8.20E+01	sat	8.20E+01	sat	x	2.03E+02	nc	1.03E-01	2.06E+00
Zinc	2.35E+04	nc	1.00E+05	max	9.29E+04	nc		1.10E+04	nc	6.82E+02	1.36E+04

Table A-2

Default Exposure Factors			
Symbol	Definition (units)	Default	Reference
CSF _o	Cancer slope factor oral (mg/kg-day) ⁻¹	Chem.-spec.	IRIS, HEAST, or NCEA
CSF _i	Cancer slope factor inhaled (mg/kg-day) ⁻¹	Chem.-spec.	IRIS, HEAST, or NCEA
RfD _o	Reference dose oral (mg/kg-day)	Chem.-spec.	IRIS, HEAST, or NCEA
RfD _i	Reference dose inhaled (mg/kg-day)	Chem.-spec.	IRIS, HEAST, or NCEA
TR	Target cancer risk	1E-05	NMED-specific value
THQ	Target hazard quotient	1	US EPA, 1989
BW	Body weight (kg)		
	-- adult	70	US EPA, 1989
	-- child	15	US EPA, 1991
AT	Averaging time (days)		
	-- carcinogens	25550	US EPA, 1989
	-- noncarcinogens	ED*365	
SA	Exposed surface area for soil/dust (cm ² /day)		US EPA, 1989
	-- adult resident	5700	US EPA, 1996a
	-- adult worker	3300	US EPA, 1996a
	-- child	2800	US EPA, 1989
AF	Adherence factor, soils (mg/cm ²)		US EPA, 1989
	-- adult resident	0.07	US EPA, 1996a
	-- adult worker	0.2	US EPA, 1996a
	-- child resident	0.2	US EPA, 1989
	-- construction worker	0.3	NMED-specific value
ABS	Skin absorption defaults (unitless):		
	-- semi-volatile organics	0.1	US EPA, 1989
	-- volatile organics	na	US EPA, 2003a
	-- inorganics	na	US EPA, 2000s
IRA	Inhalation rate (m ³ /day)		
	-- adult resident	20	US EPA, 1991
	-- adult worker	20	US EPA, 2001a
	-- child resident	10	Exposure Factors, (US EPA, 1997)
IRW	Drinking water ingestion rate (L/day)		
	-- adult	2	US EPA, 2004b
	-- child	1	US EPA, 2004b
IRS	Soil ingestion (mg/day)		
	-- adult resident	100	US EPA, 1991
	-- child resident	200	US EPA, 1991
	-- commercial/industrial worker	100	US EPA, 2001a
	-- construction worker	330	US EPA, 1991
EF	Exposure frequency (days/yr)		
	-- residential	350	US EPA, 1991
	-- commercial/industrial	225	US EPA, 2001a
	-- construction worker	250	NMED-specific value
ED	Exposure duration (years)		
	-- residential	30 ^a	US EPA, 1991)
	-- child	6	(US EPA, 1991)
	-- commercial/industrial	25	(US EPA, 1999)
	-- construction worker	1	NMED-specific value
IFSadj	Age-adjusted factors for carcinogens		
	Ingestion factor, soils ([mg-yr]/[kg-day])	114	US EPA, 2001a
SFSadj	Dermal factor, soils ([mg-yr]/[kg-day])	361	US EPA, 2001a
InhFadj	Inhalation factor, air ([m ³ -yr]/[kg-day])	11	By analogy to RAGS: Part B, (US EPA, 1991)
IFWadj	Ingestion factor, water ([L-yr]/[kg-day])	1.1	By analogy to RAGS: Part B, (US EPA, 1991)
PEF	Particulate emission factor (m ³ /kg)	Chem.-spec.	US EPA, 2001a
VFs	Volatilization factor for soil (m ³ /kg)	Chem.-spec.	US EPA, 2001a
VFw	Volatilization factor for water (L/m ³)	0.5	US EPA, 1991
Csat	Soil saturation concentration (mg/kg)	Chem.-spec.	US EPA, 2001a

^aExposure duration for lifetime residents is assumed to be 30 years total. For carcinogens, exposures are combined for children (6 years) and adults (24 years).

Chem.-spec. - Chemical-specific value

na - not applicable

RAGS - Risk Assessment Guidance for Superfund

IRIS - Integrated Risk Information System, USEPA, 2003b

HEAST - Health Effects Assessment Summary Tables, USEPA, 1997

NCEA - National Center for Environmental Assessment, Office of Research and Development (USEPA, 2003c)

NMED - New Mexico Environment Department

APPENDIX B

Table B-1: Physical and Chemical Properties

Chemical	MW (g/mole)	H (atm- m ³ /mole)	H' (dimensionless)	D _a (cm ² /s)	D _w (cm ² /s)	K _{oc} (cm ³ /g)	K _d (cm ³ /g)	S (mg/L- water)	D _A (cm ² /s)	VF (m ³ /kg)	SAT (mg/kg)
Acenaphthene	154.21	1.6E-04	6.36E-03	4.21E-02	7.69E-06	4.90E+03	7.35E+00	4.24E+00	4.13E-07	1.93E+05	3.19E+01
Acetaldehyde	44	7.8E-05	3.20E-03	1.20E-01	1.40E-05	1.80E+01	2.70E-02	1.00E+06	2.28E-05	2.60E+04	2.01E+05
Acetone	58	3.9E-05	1.60E-03	1.20E-01	1.10E-05	5.80E-01	8.70E-04	1.00E+06	1.40E-05	3.31E+04	1.74E+05
Acrylonitrile	53	8.8E-05	3.60E-03	1.08E-01	1.34E-05	8.50E-01	1.28E-03	7.90E+04	2.64E-05	2.42E+04	1.38E+04
Acetophenone	120	1.1E-05	4.51E-04	6.00E-02	8.70E-06	4.62E+01	6.93E-02	6.10E+03	2.59E-06	7.71E+04	1.48E+03
Acrolein	56	1.2E-04	4.90E-03	1.05E-01	1.22E-05	2.10E+01	3.15E-02	2.10E+05	2.86E-05	2.32E+04	4.31E+04
Aldrin	365	1.7E-04	6.97E-03	1.32E-02	4.80E-06	2.45E+06	3.68E+03	1.80E-01			
Aluminum	26.98	2.4E-02	1.00E+00			1.43E+01	1.50E+03				
Anthracene	178	6.5E-05	2.67E-03	3.24E-02	7.74E-06	2.95E+04	4.43E+01	4.34E-02	2.73E-08	7.51E+05	1.93E+00
Antimony	121.75	2.4E-02	1.00E+00			1.43E+01	4.50E+01				
Arsenic	74.92	7.7E-01	3.16E+01			1.43E+01	2.90E+01				
Barium	137.33	2.4E-02	1.00E+00			1.43E+01	4.10E+01				
Benzene	78.1	5.6E-03	2.28E-01	8.80E-02	9.80E-06	5.89E+01	8.84E-02	1.75E+03	7.30E-04	4.59E+03	5.06E+02
Benzidine	184.23	7.0E-11	2.88E-09	3.40E-02	1.50E-05	2.74E+03	4.11E+00	3.22E+02			
Benzo(a)anthracene	228	3.3E-06	1.37E-04	5.10E-02	9.00E-06	3.98E+05	5.97E+02	9.40E-03			
Benzo(a)pyrene	250	1.1E-06	4.63E-05	4.30E-02	9.00E-06	1.02E+06	1.53E+03	1.62E-03			
Benzo(b)fluoranthene	252.3	1.1E-04	4.55E-03	2.26E-02	5.56E-06	1.23E+06	1.85E+03	1.50E-03			
Benzo(k)fluoranthene	252.3	8.3E-07	3.40E-05	2.26E-02	5.56E-06	1.23E+06	1.85E+03	8.00E-04			
Beryllium	9.01	2.4E-02	1.00E+00			1.43E+01	7.90E+02				
α-BHC	290.85	1.1E-05	4.35E-04	1.42E-02	7.34E-06	1.23E+03	1.85E+00	2.00E+00			
β-BHC	290.85	7.4E-07	3.05E-05	1.42E-02	7.34E-06	1.26E+03	1.89E+00	2.40E-01			
γ-BHC	290.85	1.4E-05	5.74E-04	1.42E-02	7.34E-06	1.07E+03	1.61E+00	6.80E+00			
1,1-Biphenyl	150	2.9E-04	1.20E-02	4.00E-02	8.20E-06	7.80E+03	1.17E+01	7.50E+00	4.50E-07	1.85E+05	8.91E+01
Bis(2-chloroethyl) ether	140	1.8E-05	7.38E-04	6.92E-02	7.53E-06	7.60E+01	1.14E-01	1.72E+04	2.90E-06	7.29E+04	4.94E+03
Bis(2-chloroisopropyl) ether	170	1.1E-04	4.60E-03	6.30E-02	6.40E-06	6.17E+01	9.25E-02	1.70E+03	1.23E-05	3.53E+04	4.53E+02
Bis(2-ethylhexyl) phthalate	390.54	1.0E-07	4.18E-06	3.51E-02	3.66E-06	1.51E+07	2.27E+04	3.40E-01			
Bis(chloromethyl) ether	120	2.0E-04	8.20E-03	8.90E-02	9.40E-06	1.20E+00	1.80E-03	2.20E+04	4.55E-05	1.84E+04	3.87E+03
Boron	10.81	2.4E-02	1.00E+00			1.43E+01	3.00E+00				
Bromobenzene	157.02	3.7E-03	1.50E-01	7.30E-02	8.70E-06	2.20E+02	3.30E-01	4.70E+02	2.21E-04	8.36E+03	2.45E+02
Bromodichloromethane	164	1.6E-03	6.56E-02	2.98E-02	1.08E-05	1.00E+02	1.50E-01	6.74E+03	6.31E-05	1.56E+04	2.23E+03

Chemical	MW (g/mole)	H (atm- m ³ /mole)	H' (dimensionless)	D _a (cm ² /s)	D _w (cm ² /s)	K _{oc} (cm ³ /g)	K _d (cm ³ /g)	S (mg/L- water)	D _a (cm ² /s)	VF (m ³ /kg)	SAT (mg/kg)
Bromomethane	94.95	6.2E-03	2.56E-01	7.28E-02	1.21E-05	9.00E+00	1.35E-02	1.52E+04	9.03E-04	4.13E+03	3.31E+03
1,3-Butadiene	54	1.8E-01	7.30E+00	9.80E-02	1.10E-05	1.20E+02	1.80E-01	7.40E+02	6.24E-03	1.57E+03	9.10E+02
2-Butanone (MEK)	72	2.7E-05	1.10E-03	9.00E-02	9.80E-06	4.50E+00	6.75E-03	2.70E+05	7.91E-06	4.41E+04	4.87E+04
tert-Butyl methyl ether (MTBE)	88.2	5.9E-04	2.40E-02	8.00E-02	1.00E-05	6.00E+00	9.00E-03	1.50E+05	1.11E-04	1.18E+04	2.78E+04
n-Butylbenzene	130	1.3E-02	5.40E-01	7.50E-02	7.80E-06	2.80E+03	4.20E+00	1.40E+01	9.56E-05	1.27E+04	6.21E+01
sec-Butylbenzene	130	1.9E-02	7.70E-01	7.50E-02	7.80E-06	2.20E+03	3.30E+00	1.70E+01	1.70E-04	9.53E+03	6.06E+01
tert-Butylbenzene	130	1.3E-02	5.20E-01	7.50E-02	7.80E-06	2.20E+03	3.30E+00	3.00E+01	1.16E-04	1.15E+04	1.06E+02
Cadmium	112.41	2.4E-02	1.00E+00			1.43E+01	7.50E+01				
Carbon disulfide	76	2.9E-02	1.20E+00	1.04E-01	1.00E-05	4.60E+01	6.90E-02	1.19E+03	3.42E-03	2.12E+03	4.60E+02
Carbon tetrachloride	154	3.0E-02	1.25E+00	7.80E-02	8.80E-06	1.74E+02	2.61E-01	7.93E+02	1.76E-03	2.96E+03	4.63E+02
Chlordane	409.8	4.9E-05	1.99E-03	1.18E-02	4.37E-06	1.20E+05	1.80E+02	5.60E-02			
2-Chloroacetophenone	154.59	3.7E-02	1.50E+00	7.20E-02	6.80E-06	3.30E+02	4.95E-01	4.70E+02	1.34E-03	3.39E+03	3.99E+02
2-Chloro-1,3-butadiene	88	3.2E-02	1.30E+00	1.10E-01	1.10E-05	5.00E+01	7.50E-02	7.40E+02	3.75E-03	2.03E+03	2.99E+02
1-Chloro-1,1-difluoroethane	100.5	1.0E-01	4.10E+00	8.00E-02	1.10E-05	5.80E+01	8.70E-02	2.80E+02	4.67E-03	1.82E+03	2.11E+02
Chlorobenzene	113	3.7E-03	1.50E-01	7.30E-02	8.70E-06	2.19E+02	3.29E-01	4.72E+02	2.21E-04	8.34E+03	2.45E+02
1-Chlorobutane	92.57	3.2E-02	1.30E+00	1.10E-01	1.10E-05	5.00E+01	7.50E-02	7.40E+02	3.75E-03	2.03E+03	2.99E+02
Chlorodifluoromethane	86.47	1.0E-01	4.10E+00	8.00E-02	1.10E-05	5.80E+01	8.70E-02	2.80E+02	4.67E-03	1.82E+03	2.11E+02
Chloroethane	65	1.1E-02	4.50E-01	1.00E-01	1.20E-05	1.50E+01	2.25E-02	5.70E+03	1.90E-03	2.85E+03	1.42E+03
Chloroform	120	3.7E-03	1.50E-01	1.04E-01	1.00E-05	3.98E+01	5.97E-02	7.92E+03	6.53E-04	4.86E+03	1.99E+03
Chloromethane	51	2.4E-02	9.80E-01	1.09E-01	6.50E-06	3.50E+01	5.25E-02	8.20E+03	3.29E-03	2.16E+03	2.82E+03
β-Chloronaphthalene	160	3.2E-04	1.30E-02	3.50E-02	8.80E-06	1.60E+03	2.40E+00	1.20E+01	1.98E-06	8.81E+04	3.09E+01
o-Chloronitrobenzene	153.33	4.4E-05	1.80E-03	7.60E-02	8.60E-06	6.50E+01	9.75E-02	2.10E+03	6.54E-06	4.85E+04	5.69E+02
p-Chloronitrobenzene	153.33	5.1E-05	2.10E-03	7.60E-02	8.60E-06	6.50E+01	9.75E-02	2.10E+03	7.42E-06	4.56E+04	5.69E+02
2-Chlorophenol	130	3.9E-04	1.60E-02	5.01E-02	9.46E-06	4.00E+02	6.00E-01	2.20E+04	1.13E-05	3.69E+04	1.71E+04
2-Chloropropane	78.54	2.3E-03	9.40E-02	8.00E-02	1.00E-05	5.10E+01	7.65E-02	2.70E+03	3.03E-04	7.13E+03	7.05E+02
o-Chlorotoluene	172.57	3.4E-03	1.40E-01	7.20E-02	8.70E-06	1.60E+02	2.40E-01	4.70E+02	2.46E-04	7.91E+03	2.02E+02
Chromium III	52						1.80E+06				
Chromium VI	52						1.90E+01				
Chrysene	228.28	9.5E-05	3.88E-03	2.48E-02	6.21E-06	3.98E+05	5.97E+02	1.60E-03	2.10E-09	2.71E+06	9.55E-01
Cobalt	58.93	2.4E-02	1.00E+00			1.43E+01	4.50E+01				
Copper	63.55	2.4E-02	1.00E+00			1.43E+01	3.50E+01				
Crotonaldehyde	70.09	2.4E-01	1.00E+01	9.10E-02	1.00E-05	8.40E+02	1.26E+00	2.00E+01	3.67E-03	2.05E+03	5.27E+01

Chemical	MW (g/mole)	H (atm- m ³ /mole)	H' (dimensionless)	D _a (cm ² /s)	D _w (cm ² /s)	K _{oc} (cm ³ /g)	K _d (cm ³ /g)	S (mg/L- water)	D _a (cm ² /s)	VF (m ³ /kg)	SAT (mg/kg)
Cumene (isopropylbenzene)	120	1.2E+00	4.90E+01	7.50E-02	7.10E-06	2.20E+02	3.30E-01	6.10E+01	6.22E-03	1.57E+03	3.89E+02
Cyanide	27.03		5.44E-03			2.71E+00	9.90E+00				
Cyanogen	52	5.1E-03	2.10E-01	2.00E-01	1.40E-05	1.40E+00	2.10E-03	8.50E+03	2.20E-03	2.64E+03	1.71E+03
Cyanogen bromide	52	5.1E-03	2.10E-01	9.60E-02	1.00E-05	2.60E+01	3.90E-02	8.50E+03	8.93E-04	4.15E+03	2.02E+03
Cyanogen chloride	52	5.1E-03	2.10E-01	9.60E-02	1.00E-05	2.60E+01	3.90E-02	8.50E+03	8.93E-04	4.15E+03	2.02E+03
DDD	320	4.0E-06	1.64E-04	1.69E-02	4.76E-06	1.00E+06	1.50E+03	9.00E-02			
DDE	318	2.1E-05	8.61E-04	1.44E-02	5.87E-06	4.47E+06	6.71E+03	1.20E-01			
DDT	354.5	8.1E-06	3.32E-04	1.37E-02	4.95E-06	2.63E+06	3.95E+03	2.50E-02			
Dibenz(a,h)anthracene	278.3	1.5E-08	6.03E-07	2.02E-02	5.18E-06	3.80E+06	5.70E+03	2.49E-03			
Dibenzofuran	284.8	1.3E-05	5.33E-04	6.01E-02	1.00E-05	7.76E+03	1.16E+01	3.10E+00	6.20E-08	4.98E+05	3.66E+01
1,2-Dibromo-3-chloropropane	240	1.5E-04	6.00E-03	8.00E-02	8.00E-06	1.70E+02	2.55E-01	1.20E+03	1.24E-05	3.52E+04	5.15E+02
Dibromochloromethane	210	8.5E-04	3.50E-02	2.00E-02	1.00E-05	6.30E+01	9.45E-02	4.40E+03	2.84E-05	2.33E+04	1.20E+03
1,2-Dibromoethane	188	3.2E-04	1.30E-02	7.33E-02	8.06E-06	2.80E+01	4.20E-02	3.40E+03	4.75E-05	1.80E+04	7.37E+02
1,4-Dichloro-2-butene	130	2.7E-04	1.10E-02	7.30E-02	8.10E-06	4.80E+01	7.20E-02	2.80E+03	3.54E-05	2.09E+04	6.91E+02
1,2-Dichlorobenzene	147	1.9E-03	7.79E-02	6.90E-02	7.90E-06	3.80E+01	5.70E-02	1.56E+02	2.36E-04	8.07E+03	3.74E+01
1,3-Dichlorobenzene	147	1.9E-03	7.80E-02	6.90E-02	7.90E-06	3.80E+01	5.70E-02	1.56E+02	2.37E-04	8.07E+03	3.74E+01
1,4-Dichlorobenzene	147	2.4E-03	9.96E-02	6.90E-02	7.90E-06	6.16E+02	9.24E-01	7.38E+01	6.51E-05	1.54E+04	8.19E+01
3,3-Dichlorobenzidine	253.13	4.0E-09	1.64E-07	1.94E-02	6.74E-06	7.24E+02	1.09E+00	3.11E+00	4.67E-03	1.82E+03	2.11E+02
Dichlorodifluoromethane	120	1.0E-01	4.10E+00	8.00E-02	1.05E-05	5.80E+01	8.70E-02	2.80E+02	6.40E-04	4.90E+03	1.42E+03
1,1-Dichloroethane	99	5.6E-03	2.30E-01	7.42E-02	1.05E-05	5.30E+01	7.95E-02	5.06E+03	1.87E-04	9.07E+03	2.00E+03
1,2-Dichloroethane	99	9.8E-04	4.01E-02	1.04E-01	9.90E-06	3.80E+01	5.70E-02	8.52E+03	5.25E-04	5.42E+03	8.63E+02
cis-1,2-Dichloroethene	97	4.1E-03	1.67E-01	7.36E-02	1.13E-05	3.55E+01	5.33E-02	3.50E+03	1.04E-03	3.85E+03	1.74E+03
trans-1,2-Dichloroethene	97	9.4E-03	3.85E-01	7.07E-02	1.19E-05	3.80E+01	5.70E-02	6.30E+03	1.04E-03	3.85E+03	1.74E+03
1,1-Dichloroethene	97	2.7E-02	1.10E+00	9.00E-02	1.00E-05	6.50E+01	9.75E-02	2.30E+03	2.60E-03	2.43E+03	9.27E+02
2,4-Dichlorophenol	163	3.2E-06	1.30E-04	3.46E-02	8.77E-06	1.47E+02	2.21E-01	4.50E+03			
1,2-Dichloropropane	110	2.7E-03	1.10E-01	7.80E-02	8.70E-06	4.40E+01	6.60E-02	2.80E+03	3.58E-04	6.56E+03	7.07E+02
1,3-Dichloropropene	111	1.8E-02	7.26E-01	6.26E-02	1.00E-05	2.70E+01	4.05E-02	2.80E+03	1.60E-03	3.11E+03	8.43E+02
Dicyclopentadiene	130	1.1E-02	4.40E-01	6.70E-02	1.00E-05	5.70E+02	8.55E-01	1.80E+03	2.86E-04	7.34E+03	1.95E+03
Dieldrin	381	1.5E-05	6.19E-04	1.25E-02	4.74E-06	2.14E+04	3.21E+01	1.95E-01			
Diethyl phthalate	222.2	4.5E-07	1.85E-05	2.56E-02	6.35E-06	2.88E+02	4.32E-01	1.08E+03			
Dimethyl phthalate	194.19	4.1E-07	1.70E-05	5.68E-02	6.29E-06	3.71E+01	5.56E-02	4.00E+03			
Di-n-butyl phthalate	278.34	9.4E-10	3.85E-08	4.38E-02	7.86E-06	3.39E+04	5.09E+01	1.12E+01			

Chemical	MW (g/mole)	H (atm- m ³ /mole)	H ⁺ (dimensionless)	D _a (cm ² /s)	D _w (cm ² /s)	K _{oc} (cm ³ /g)	K _d (cm ³ /g)	S (mg/L- water)	D _A (cm ² /s)	VF (m ³ /kg)	SAT (mg/kg)
2,4-Dimethylphenol	122.16	2.0E-06	8.20E-05	5.84E-02	8.69E-06	2.09E+02	3.14E-01	7.87E+03			
4,6-Dinitro-o-cresol	198.14	1.4E-06	5.72E-05	2.93E-02	6.91E-06	6.02E+02	9.02E-01	1.98E+02			
2,4-Dinitrophenol	184.11	8.6E-08	3.52E-06	2.73E-02	9.06E-06	3.64E+02	5.46E-01	2.79E+03			
2,4-Dinitrotoluene	182.14	9.3E-08	3.80E-06	2.03E-01	7.06E-06	9.55E+01	1.43E-01	2.70E+02			
1,2-Diphenylhydrazine	184.24	4.6E-11	1.90E-09	3.17E-02	7.36E-06	3.48E+03	5.22E+00	2.21E+02			
Endosulfan	406.95	1.1E-05	4.59E-04	1.15E-02	4.55E-06	2.14E+03	3.21E+00	5.10E-01			
Endrin	381	7.5E-06	3.08E-04	1.25E-02	4.74E-06	1.23E+04	1.85E+01	2.50E-01			
Epichlorohydrin	93	3.2E-05	1.30E-03	8.80E-02	9.80E-06	3.50E+00	5.25E-03	6.00E+04	8.88E-06	4.17E+04	1.07E+04
Ethyl acetate	88	1.4E-04	5.70E-03	7.30E-02	9.70E-06	5.90E+01	8.85E-02	8.00E+04	1.81E-05	2.92E+04	2.10E+04
Ethyl acrylate	100.1	2.4E-01	9.80E+00	9.10E-02	8.60E-06	8.40E+02	1.26E+00	2.00E+01	3.63E-03	2.06E+03	5.22E+01
Ethyl chloride	65	1.1E-02	4.50E-01	1.00E-01	1.20E-05	1.50E+01	2.25E-02	5.70E+03	1.90E-03	2.85E+03	1.42E+03
Ethyl ether	74.12	1.3E-05	5.30E-04	7.00E-02	9.30E-06	1.40E+01	2.10E-02	1.00E+04	3.90E-06	6.29E+04	1.94E+03
Ethyl methacrylate	114.12	2.4E-01	1.00E+01	9.10E-02	8.60E-06	8.40E+02	1.26E+00	2.00E+01	3.67E-03	2.05E+03	5.27E+01
Ethylbenzene	106.2	7.9E-03	3.23E-01	7.50E-02	7.80E-06	3.63E+02	5.45E-01	1.69E+02	3.36E-04	6.77E+03	1.28E+02
Ethylene oxide	44	7.6E-05	3.10E-03	1.30E-01	1.50E-05	2.20E+00	3.30E-03	1.00E+06	2.72E-05	2.38E+04	1.77E+05
Fluoranthene	202.3	1.6E-05	6.60E-04	3.02E-02	6.35E-06	1.07E+05	1.61E+02	2.06E-01			
Fluorene	166.21	7.8E-05	3.20E-03	6.10E-02	7.88E-06	7.90E+03	1.19E+01	1.90E+00	1.96E-07	2.80E+05	2.28E+01
Fluoride	38	2.4E-02	1.00E+00			1.43E+01	1.50E+02	1.69E+00			
Furan	68	5.4E-03	2.20E-01	1.00E-01	1.20E-05	1.20E+01	1.80E-02	1.00E+04	1.06E-03	3.81E+03	2.18E+03
Heptachlor	373.5	1.1E-03	4.47E-02	1.12E-02	5.69E-06	1.41E+06	2.12E+03	1.80E-01			
Hexachlorobenzene	284.8	1.3E-03	5.41E-02	5.42E-02	5.91E-06	5.50E+04	8.25E+01	6.20E+00			
Hexachloro-1,3-butadiene	260.76	8.1E-03	3.34E-01	5.61E-02	6.16E-06	5.37E+04	8.06E+01	3.23E+00			
Hexachlorocyclopentadiene	272.75	2.7E-02	1.11E+00	1.61E-02	7.21E-06	2.00E+02	3.00E+02	1.80E+00			
Hexachloroethane	236.74	3.9E-03	1.59E-01	2.50E-03	6.80E-06	1.78E+03	2.67E+00	5.00E+01			
n-Hexane	86	1.2E-01	5.00E+00	2.00E-01	7.80E-06	8.90E+02	1.34E+00	1.80E+01	5.01E-03	1.75E+03	3.80E+01
HMX	296.2	1.0E-11	4.10E-10			1.85E+03	2.78E+00	2.56E+03			
Hydrogen cyanide	27	1.3E-04	5.30E-03	1.80E-01	1.80E-05	1.70E+01	2.55E-02	1.00E+06	5.36E-05	1.69E+04	1.99E+05
Indeno(1,2,3-c,d)pyrene	276.3	1.6E-06	6.56E-05	1.90E-02	5.66E-06	3.47E+06	5.21E+03	2.20E-05			
Iron	55.84	2.4E-02	1.00E+00			1.43E+01	2.50E+01				
Isobutanol	74	1.2E-05	4.90E-04	8.60E-02	9.30E-06	6.20E+01	9.30E-02	8.50E+04	3.04E-06	7.12E+04	2.26E+04
Isophorone	138.21	6.6E-06	2.72E-04	6.23E-02	6.76E-06	4.68E+01	7.02E-02	1.20E+04			
Lead	207.2	2.4E-02	1.00E+00			1.43E+01	9.00E+02				

Chemical	MW (g/mole)	H (atm- m ³ /mole)	H' (dimensionless)	D _a (cm ² /s)	D _w (cm ² /s)	K _{oc} (cm ³ /g)	K _d (cm ³ /g)	S (mg/L- water)	D _a (cm ² /s)	VF (m ³ /kg)	SAT (mg/kg)
lead (Tetraethyl-)	64.52										
Maleic hydrazide	110	6.6E-03	2.70E-01	9.00E-02	1.10E-05	4.20E+01	6.30E-02	6.00E+03	9.52E-04	4.02E+03	1.61E+03
Manganese	54.94	2.4E-02	1.00E+00			1.43E+01	6.50E+01				
Mercury (elemental)	200.59	2.4E-02	1.00E+00	3.07E-02	6.30E-06	1.43E+01	5.20E+01				
Mercury (methyl)	215.62	1.1E-02	4.67E-01			1.43E+01					
Methacrylonitrile	67.09	8.8E-05	3.60E-03	1.10E-01	1.30E-05	8.40E-01	1.26E-03	7.90E+04	2.66E-05	2.41E+04	1.38E+04
Methomyl	160	3.9E-02	1.60E+00	6.90E-02	1.00E-05	1.50E+01	2.25E-02	1.70E+05	3.03E-03	2.25E+03	6.59E+04
Methyl acetate	74.08	2.0E-05	8.40E-04	1.00E-01	1.00E-05	2.20E+00	3.30E-03	1.00E+06	7.22E-06	4.62E+04	1.77E+05
Methyl acrylate	86.09	2.4E-01	9.80E+00	9.10E-02	8.60E-06	8.40E+02	1.26E+00	6.00E+01	3.63E-03	2.06E+03	1.57E+02
Methyl isobutyl ketone	100	1.4E-04	5.70E-03	7.50E-02	7.80E-06	1.30E+02	1.95E-01	1.90E+04	1.30E-05	3.45E+04	7.01E+03
Methyl methacrylate	100	3.4E-04	1.40E-02	7.70E-02	8.60E-06	1.30E+01	1.95E-02	1.50E+04	5.98E-05	1.61E+04	2.92E+03
Methyl styrene (alpha)	118.18	2.3E-03	9.40E-02	7.10E-02	8.00E-06	3.60E+02	5.40E-01	3.00E+02	9.69E-05	1.26E+04	2.17E+02
Methyl styrene (mixture)	118.18	2.3E-03	9.40E-02	7.10E-02	8.00E-06	3.60E+02	5.40E-01	3.00E+02	9.69E-05	1.26E+04	2.17E+02
Methylcyclohexane	98	4.4E-01	1.80E+01	7.00E-02	9.00E-06	2.20E+03	3.30E+00	1.40E+01	2.37E-03	2.55E+03	7.89E+01
Methylene bromide	170	9.0E-04	3.70E-02	8.00E-02	8.00E-06	1.80E+02	2.70E-01	1.20E+04	6.99E-05	1.48E+04	5.37E+03
Methylene chloride	85	2.2E-03	9.00E-02	1.00E-01	1.20E-05	1.20E+01	1.80E-02	1.30E+04	4.69E-04	5.73E+03	2.63E+03
Molybdenum	95.94	2.4E-02	1.00E+00			1.43E+01	2.00E+01				
Naphthalene	128.16	4.8E-04	1.98E-02	5.90E-02	7.50E-06	2.00E+03	3.00E+00	3.10E+01	3.94E-06	6.25E+04	9.84E+01
Nickel	58.71	2.4E-02	1.00E+00			1.43E+01	6.50E+01				
Nitrate	101.1	2.4E-02	1.00E+00			1.43E+01					
Nitrite	46	2.0E-07	8.38E-06			2.37E+01	3.56E-02				
Nitrobenzene	120	2.4E-05	9.84E-04	7.60E-02	8.60E-06	6.46E+01	9.69E-02	2.10E+03	4.16E-06	6.09E+04	5.68E+02
Nitroglycerin	227.08	6.1E-03	2.50E-01			2.60E+02	3.90E-01	1.80E+03			
N-Nitrosodiethylamine	102.14	3.7E-06	1.50E-04	6.48E-02	9.13E-06	1.20E+03	1.80E+00	1.06E+05			
N-Nitrosodimethylamine	74.08	1.4E-01	5.90E+00	3.12E-02	6.35E-06	3.82E+01	5.73E-02	1.00E+06			
N-Nitrosodi-n-butylamine	158.2	3.2E-04	1.31E-02	5.80E-02	9.72E-06	2.60E+02	3.90E-01	1.27E+03	1.48E-05	3.23E+04	7.17E+02
N-Nitrosodiphenylamine	198.23	5.0E-06	2.05E-04	3.12E-02	6.35E-06	1.29E+03	1.94E+00	3.51E+01			7.40E+01
N-Nitrosopyrrolidine	100.2	4.9E-08	2.00E-06			1.59E+02	2.38E-01	1.00E+06			
m-Nitrotoluene	137.1	2.4E-05	9.80E-04	7.60E-02	8.60E-06	6.50E+01	9.75E-02	2.10E+03	4.14E-06	6.10E+04	5.69E+02
o-Nitrotoluene	137.13	2.4E-05	9.80E-04	7.60E-02	8.60E-06	6.50E+01	9.75E-02	2.10E+03	4.14E-06	6.10E+04	5.69E+02
p-Nitrotoluene	137.1	2.4E-05	9.80E-04	7.60E-02	8.60E-06	6.50E+01	9.75E-02	2.10E+03	4.14E-06	6.10E+04	5.69E+02
Pentachlorobenzene	250.32	7.1E-03	2.90E-01	5.70E-02	6.30E-06	2.00E+03	3.00E+00	8.31E+02			

Chemical	MW (g/mole)	H (atm- m ³ /mole)	H' (dimensionless)	D _a (cm ² /s)	D _w (cm ² /s)	K _{oc} (cm ³ /g)	K _d (cm ³ /g)	S (mg/L- water)	D _a (cm ² /s)	VF (m ³ /kg)	SAT (mg/kg)
Pentachlorophenol	266.34	2.4E-08	1.00E-06	5.60E-02	6.10E-06	5.92E+02	8.88E-01	1.95E+03			
Phenanthrene	178.2	2.3E-05	9.40E-04			1.40E+04	2.10E+01	1.15E+00			
Phenol	94 (291.98 - 360.86)	4.0E-07	1.63E-05	8.20E-02	9.10E-06	2.88E+01	4.32E-02	8.28E+04			
Polychlorinated biphenyls											
Aroclor 1016	variable	4.2E-02	1.73E+00	1.75E-02	8.00E-06	4.48E+04	6.72E+01	2.77E-01			
Aroclor 1221	variable	1.8E-08	7.40E-07	1.75E-02	8.00E-06	4.48E+04	6.72E+01	2.77E-01			
Aroclor 1232	variable	1.8E-08	7.40E-07	1.75E-02	8.00E-06	4.48E+04	6.72E+01	2.77E-01			
Aroclor 1242	variable	1.8E-08	7.40E-07	1.75E-02	8.00E-06	4.48E+04	6.72E+01	2.77E-01			
Aroclor 1248	variable	1.8E-08	7.40E-07	5.70E+03	6.00E-01	5.30E+05	7.95E+02	2.77E-01			
Aroclor 1254	variable	1.8E-08	7.40E-07	5.70E+03	6.00E-01	5.30E+05	7.95E+02	2.77E-01			
Aroclor 1260	variable	1.8E-08	7.40E-07	5.70E+03	6.00E-01	5.30E+05	7.95E+02	2.77E-01			
n-Propylbenzene	120.19	1.3E-02	5.40E-01	7.50E-02	7.80E-06	2.80E+03	4.20E+00	1.40E+01	9.56E-05	1.27E+04	6.21E+01
Propylene oxide	58	8.5E-05	3.50E-03	1.20E-01	1.30E-05	2.50E+01	3.75E-02	4.80E+05	2.33E-05	2.57E+04	1.01E+05
Pyrene	200	1.1E-05	4.51E-04	2.72E-02	7.24E-06	6.80E+04	1.02E+02	1.35E-01	4.07E-09	1.95E+06	1.38E+01
RDX	222.12	6.3E-08	2.60E-06			7.00E+01	1.05E-01	5.97E+01			
Selenium	78.96	9.7E-03	3.98E-01			1.43E+01	5.00E+00				
Silver	107.87	2.4E-02	1.00E+00			1.43E+01	8.30E+00				
Strontium	87.62	2.4E-02	1.00E+00			1.43E+01	3.50E+01				
Styrene	100	2.7E-03	1.10E-01	7.10E-02	8.00E-06	9.10E+01	1.37E-01	3.10E+02	2.54E-04	7.78E+03	1.00E+02
1,2,4,5-Tetrachlorobenzene	215.89	1.0E-03	4.10E-02	2.11E-02	8.76E-06	1.19E+03	1.78E+00	5.95E-01			
1,1,1,2-Tetrachloroethane	167.85	3.4E-04	1.41E-02	7.10E-02	7.90E-06	7.90E+01	1.19E-01	2.97E+03	3.68E-05	2.05E+04	8.72E+02
1,1,2,2-Tetrachloroethane	169.86	3.4E-04	1.40E-02	7.10E-02	7.90E-06	7.90E+01	1.19E-01	2.97E+03	3.65E-05	2.05E+04	8.72E+02
Tetrachloroethene	170	1.8E-02	7.54E-01	7.20E-02	8.20E-06	2.70E+02	4.05E-01	2.00E+02	8.54E-04	4.25E+03	1.34E+02
Thallium	204.37	2.4E-02	1.00E+00			1.43E+01	7.10E+01				
Toluene	92	6.6E-03	2.72E-01	8.70E-02	8.60E-06	1.82E+02	2.73E-01	5.26E+02	5.19E-04	5.45E+03	2.52E+02
Toxaphene	414	6.0E-06	2.46E-04	1.16E-02	4.34E-06	2.57E+05	3.86E+02	7.40E-01			
Tribromomethane	252.73	6.6E-04	2.70E-02	1.49E-02	1.03E-05	8.70E+01	6.92E+00	3.10E+03	6.51E-07	1.54E+05	2.20E+04
1,1,2-Trichloro-1,2,2-trifluoroethane	187.38	5.2E-01	2.14E+01	2.88E-02	8.07E-06	1.60E+02	2.40E-01	1.10E+03	2.23E-03	2.63E+03	3.28E+03
1,2,4-Trichlorobenzene	181	1.4E-03	5.82E-02	3.00E-02	8.23E-06	1.78E+03	2.67E+00	3.00E+02	6.53E-06	4.86E+04	8.55E+02
1,1,1-Trichloroethane	130	1.7E-02	7.05E-01	7.80E-02	8.80E-06	1.10E+02	1.65E-01	1.33E+03	1.37E-03	3.35E+03	5.63E+02
1,1,2-Trichloroethane	133	9.1E-04	3.74E-02	7.80E-02	8.80E-06	5.01E+01	7.52E-02	4.42E+03	1.22E-04	1.12E+04	1.12E+03

Chemical	MW (g/mole)	H (atm- m ³ /mole)	H' (dimensionless)	D _a (cm ² /s)	D _w (cm ² /s)	K _{oc} (cm ³ /g)	K _d (cm ³ /g)	S (mg/L- water)	D _a (cm ² /s)	VF (m ³ /kg)	SAT (mg/kg)
Trichloroethylene	131	1.0E-02	4.22E-01	7.90E-02	9.10E-06	9.40E+01	1.41E-01	1.10E+03	9.61E-04	4.00E+03	4.01E+02
Trichlorofluoromethane	140	9.8E-02	4.00E+00	8.70E-02	1.30E-05	1.60E+02	2.40E-01	1.10E+03	4.15E-03	1.93E+03	9.83E+02
2,4,5-Trichlorophenol	197.46	4.4E-06	1.80E-04	2.91E-02	7.03E-06	1.19E+03	1.78E+00	1.20E+03			
2,4,6-Trichlorophenol	197.46	7.8E-06	3.20E-04	3.18E-02	6.25E-06	1.19E+03	1.78E+00	8.00E+02			
1,1,2-Trichloropropane	147.43	2.9E-02	1.20E+00	4.00E-02	9.30E-06	5.10E+01	7.65E-02	2.70E+03	1.29E-03	3.45E+03	1.06E+03
1,2,3-Trichloropropane	147.43	2.7E-02	1.10E+00	7.10E-02	7.90E-06	5.10E+01	7.65E-02	2.70E+03	2.17E-03	2.67E+03	1.03E+03
1,2,3-Trichloropropene	145.42	2.7E-02	1.10E+00	7.10E-02	7.90E-06	5.10E+01	7.65E-02	2.70E+03	2.17E-03	2.67E+03	1.03E+03
Triethylamine	101.19	9.0E-05	3.70E-03	1.20E-01	1.30E-05	2.20E+00	3.30E-03	1.00E+06	2.92E-05	2.30E+04	1.77E+05
1,2,4-Trimethylbenzene	120	5.6E-03	2.30E-01	7.50E-02	7.10E-06	3.70E+03	5.55E+00	2.60E-01	3.14E-05	2.21E+04	1.50E+00
1,3,5-Trimethylbenzene	120	7.8E-03	3.20E-01	7.50E-02	7.10E-06	8.20E+02	1.23E+00	4.80E+01	1.75E-04	9.40E+03	6.92E+01
2,4,6-Trinitrotoluene	227.13	4.6E-01	1.90E-05	2.45E-02	6.36E-06	1.83E+03	2.75E+00	1.30E+02			
Vanadium	50.94	2.4E-02	1.00E+00			1.43E+01	1.00E+03				
Vinyl acetate	86	5.1E-04	2.10E-02	8.50E-02	9.20E-06	5.30E+00	7.95E-03	2.00E+04	1.04E-04	1.22E+04	3.68E+03
Vinyl bromide	106.95	6.3E-03	2.60E-01	1.00E-01	1.20E-05	1.30E+02	1.95E-01	1.80E+04	6.84E-04	4.75E+03	7.19E+03
Vinyl chloride	63	2.7E-02	1.11E+00	1.10E-01	1.20E-06	1.88E+01	2.79E-02	2.80E+03	3.87E-03	1.99E+03	9.36E+02
Vinyl chloride	63	2.7E-02	1.11E+00	1.10E-01	1.20E-06	1.88E+01	2.79E-02	2.80E+03	3.87E-03	1.99E+03	9.36E+02
m-Xylene	106	7.3E-03	3.01E-01	7.00E-02	7.80E-06	2.00E+02	3.00E-01	1.61E+02	4.34E-04	5.96E+03	8.20E+01
o-Xylene	106	5.2E-03	2.13E-01	8.70E-02	1.00E-05	2.40E+02	3.60E-01	1.78E+02	3.48E-04	6.65E+03	9.95E+01
Xylenes	106	7.3E-03	3.00E-01	7.00E-02	7.80E-06	2.00E+02	3.00E-01	1.61E+02	4.33E-04	5.96E+03	8.20E+01
Zinc	65.38	2.4E-02	1.00E+00			1.43E+01	6.20E+01				

Notes:
MW – Molecular weight
H' – Dimensionless Henry's Law Constant
D_w – Diffusivity in water
K_d – Soil-water partition coefficient
D_a – Apparent diffusivity (calculated for VOCs only)
SAT – Soil saturation limit (calculated for VOCs only)

H – Henry's Law Constant
D_a – Diffusivity in air
K_{oc} – Soil organic carbon partition coefficient
S – Solubility in water
VF – Volatilization factor (calculated for VOCs only)
VOC – Volatile organic compound

APPENDIX C

Table C-1: Human Health Benchmarks Used for Calculating SSLs

Chemical	CSF _o (mg/kg-day) ⁻¹	Reference	RfD _o (mg/kg-day)	Reference	CSF _i (mg/kg-day) ⁻¹	Reference	RfD _i (mg/kg-day)	Reference	ABS
Acenaphthene			6.00E-02	IRIS			6.00E-02	route	0
Acetaldehyde					7.70E-03	IRIS	2.60E-03	IRIS	0
Acetone			9.00E-01	IRIS			9.00E-01	route	0
Acrylonitrile	5.40E-01	IRIS	1.00E-03	HEAST	2.40E-01	IRIS	5.71E-04	IRIS	0
Acetophenone			1.00E-01	IRIS			1.00E-01	route	0
Acrolein			5.00E-04	IRIS			5.71E-06	IRIS	0
Aldrin	1.72E+01	IRIS	3.00E-05	IRIS	1.72E+01	IRIS	3.00E-05	route	0.1
Aluminum			1.00E+00	NCEA			1.40E-03	NCEA	0
Anthracene			3.00E-01	IRIS			3.00E-01	route	0
Antimony			4.00E-04	IRIS					0
Arsenic	1.50E+00	IRIS	3.00E-04	IRIS	1.51E+01	IRIS			0.03
Barium			2.00E-01	IRIS			2.00E-01	route	0
Benzene	5.50E-02	IRIS	4.00E-03	IRIS	2.70E-02	IRIS	8.60E-03	IRIS	0
Benzidine	2.30E+02	IRIS	3.00E-03	IRIS	2.35E+02	IRIS	3.00E-03	route	0.1
Benzo(a)anthracene	7.30E-01	NCEA			3.10E-01	NCEA			0.13
Benzo(a)pyrene	7.30E+00	IRIS			3.10E+00	NCEA			0.13
Benzo(b)fluoranthene	7.30E-01	NCEA			3.10E-01	NCEA			0.13
Benzo(k)fluoranthene	7.30E-02	NCEA			3.10E-02	NCEA			0.13
Beryllium			2.00E-03	IRIS	8.40E+00	IRIS	5.71E-06	IRIS	0
α-BHC	6.30E+00	IRIS	5.00E-04	NCEA	6.30E+00	IRIS	5.00E-04	route	0.04
β-BHC	1.80E+00	IRIS	2.00E-04	NCEA	1.80E+00	IRIS	2.00E-04	route	0.04
γ-BHC	1.30E+00	HEAST	3.00E-04	IRIS	3.00E-04	route	3.00E-04	route	0.04
1,1-Biphenyl			5.00E-02	IRIS			5.00E-02	route	0

Chemical	CSF _o (mg/kg-day) ⁻¹	Reference	RfD _o (mg/kg-day)	Reference	CSF _i (mg/kg-day) ⁻¹	Reference	RfD _i (mg/kg-day)	Reference	ABS
Bis(2-chloroethyl) ether	1.10E+00	IRIS			1.16E+00	IRIS			0
Bis(2-chloroisopropyl) ether	7.00E-02	HEAST	4.00E-02	IRIS	3.50E-02	HEAST	4.00E-02	route	0
Bis(2-ethylhexyl) phthalate	1.40E-02	IRIS	2.00E-02	IRIS	1.40E-02	route	2.00E-02	route	0.1
Bis(chloromethyl) ether	2.20E+02	IRIS			2.17E+02	IRIS			0
Boron			2.00E-01	IRIS			5.70E-03	HEAST	0
Bromobenzene			2.00E-02	NCEA			2.90E-03	NCEA	0
Bromodichloromethane	6.20E-02	IRIS	2.00E-02	IRIS	6.20E-02	route	2.00E-02	route	0
Bromomethane			1.40E-03	IRIS			1.43E-03	IRIS	0
1,3-Butadiene					1.05E-01	IRIS	5.71E-04	IRIS	0
2-Butanone (MEK)			6.00E-01	IRIS			1.43E+00	IRIS	0
tert-Butyl methyl ether (MTBE)	1.80E-03	Reg 6/prov	8.60E-01	route	1.80E-03	route	8.57E-01	IRIS	0
n-Butylbenzene			1.00E-02	NCEA			1.00E-02	route	0
sec-Butylbenzene			1.00E-02	NCEA			1.00E-02	route	0
tert-Butylbenzene			1.00E-02	NCEA			1.00E-02	route	0
Cadmium			5.00E-04	IRIS	6.30E+00	IRIS			0.001
Carbon disulfide			1.00E-01	IRIS			2.00E-01	IRIS	0
Carbon tetrachloride	1.30E-01	IRIS	7.00E-04	IRIS	5.25E-02	IRIS			0
Chlordane	3.50E-01	IRIS	5.00E-04	IRIS	3.50E-01	IRIS	2.00E-04	IRIS	0.04
2-Chloroacetophenone			8.60E-06	route			8.57E-06	IRIS	0
2-Chloro-1,3-butadiene			2.00E-02	HEAST			2.00E-03	HEAST	0
1-Chloro-1,1-difluoroethane			1.40E+01	route			1.43E+01	IRIS	0
Chlorobenzene			2.00E-02	IRIS			1.70E-02	NCEA	0
1-Chlorobutane			4.00E-02	Reg 6/prov			4.00E-02	route	0
Chlorodifluoromethane			4.10E+01	route			1.43E+01	IRIS	0
Chloroethane	2.90E-03	NCEA	4.00E-01	NCEA	2.90E-03	route	2.86E+00	IRIS	0
Chloroform			1.00E-02	IRIS	8.05E-02	IRIS	1.35E-02	NCEA	0

Chemical	CSF _o (mg/kg-day) ⁻¹	Reference	RfD _o (mg/kg-day)	Reference	CSF _i (mg/kg-day) ⁻¹	Reference	RfD _i (mg/kg-day)	Reference	ABS
Chloromethane	1.30E-02	HEAST			6.30E-03	HEAST	2.57E-02	IRIS	0
β-Chloronaphthalene			8.00E-02	IRIS			8.00E-02	route	0
o-Chloronitrobenzene	9.70E-03	HEAST	1.00E-03	HEAST	9.70E-03	route	2.00E-05	HEAST	0
p-Chloronitrobenzene	6.70E-03	HEAST	1.00E-03	HEAST	6.70E-03	route	1.70E-04	HEAST	0
2-Chlorophenol			5.00E-03	IRIS			5.00E-03	route	0
2-Chloropropane			2.90E-02	route			2.90E-02	HEAST	0
o-Chlorotoluene			2.00E-02	IRIS			2.00E-02	route	0
Chromium III			1.50E+00	IRIS					0
Chromium VI			3.00E-03	IRIS	2.90E+02	IRIS	2.85E-05	IRIS	0
Chrysene	7.30E-03	NCEA			3.10E-03	NCEA			0.13
Cobalt			2.00E-02	NCEA	9.80E+00	NCEA	5.70E-06	NCEA	0
Copper			4.00E-02	HEAST					0
Crotonaldehyde	1.90E+00	HEAST			1.90E+00	route			0
Cumene (isopropylbenzene)			1.00E-01	IRIS			1.14E-01	IRIS	0
Cyanide			2.00E-02	IRIS					0.1
Cyanogen			4.00E-02	IRIS					0
Cyanogen bromide			9.00E-02	IRIS					0
Cyanogen chloride			5.00E-02	IRIS					0
DDD	2.40E-01	IRIS			2.40E-01	route			0.03
DDE	3.40E-01	IRIS			3.40E-01	route			0.03
DDT	3.40E-01	IRIS	5.00E-04	IRIS	3.40E-01	IRIS	5.00E-04	route	0.03
Dibenz(a,h)anthracene	7.30E+00	NCEA			3.10E+00	NCEA			0.13
Dibenzofuran			2.00E-03	NCEA			2.00E-03	route	0
1,2-Dibromo-3-chloropropane	1.40E+00	HEAST	5.70E-05	route	2.40E-03	HEAST	5.70E-05	IRIS	0
Dibromochloromethane	8.40E-02	IRIS	2.00E-02	IRIS	8.40E-02	route	2.00E-02	route	0
1,2-Dibromoethane	2.00E+00	IRIS	9.00E-03	IRIS	2.00E+00	IRIS	2.60E-03	IRIS	0

Chemical	CSF _o (mg/kg-day) ⁻¹	Reference	RfD _o (mg/kg-day)	Reference	CSF _i (mg/kg-day) ⁻¹	Reference	RfD _i (mg/kg-day)	Reference	ABS
1,4-Dichloro-2-butene	9.30E+00	route			9.30E+00	HEAST			0
1,2-Dichlorobenzene			9.00E-02	IRIS			6.90E-03	NCEA	0
1,3-Dichlorobenzene			3.00E-03	NCEA			3.00E-03	NCEA	0
1,4-Dichlorobenzene	2.40E-02	HEAST	3.00E-02	NCEA	2.20E-02	NCEA	2.29E-01	IRIS	0
3,3-Dichlorobenzidine	4.50E-01	IRIS			4.50E-01	route			0.1
Dichlorodifluoromethane			2.00E-01	IRIS			5.71E-02	HEAST	0
1,1-Dichloroethane			2.00E-01	Reg 6/prov			2.00E-01	Reg 6/prov	0
1,2-Dichloroethane	9.10E-02	IRIS	2.00E-02	NCEA	9.10E-02	IRIS	1.40E-03	NCEA	0
cis-1,2-Dichloroethene			1.00E-02	HEAST			1.00E-02	route	0
trans-1,2-Dichloroethene			2.00E-02	IRIS			2.00E-02	route	0
1,1-Dichloroethene			5.00E-02	IRIS			5.70E-02	IRIS	0
2,4-Dichlorophenol			3.00E-03	IRIS			3.00E-03	route	0.1
1,2-Dichloropropane	6.80E-02	HEAST	1.10E-03	route	6.80E-02	route	1.10E-03	IRIS	0
1,3-Dichloropropene	1.00E-01	IRIS	3.00E-02	IRIS	1.40E-02	IRIS	5.71E-03	IRIS	0
Dicyclopentadiene			8.00E-03	Reg 6/prov			2.00E-03	Reg 6/prov	0
Dieldrin	1.60E+01	IRIS	5.00E-05	IRIS	1.61E+01	IRIS	5.00E-05	route	0.1
Diethyl phthalate			8.00E-01	IRIS			8.00E-01	route	0.1
Dimethyl phthalate			1.00E+01	HEAST			1.00E+01	route	0.1
Di-n-butyl phthalate			1.00E-01	IRIS			1.00E-01	route	0.1
2,4-Dimethylphenol			2.00E-02	IRIS			2.00E-02	route	0.1
4,6-Dinitro-o-cresol			1.00E-04	prov.			1.00E-04	route	0.1
2,4-Dinitrophenol			2.00E-03	IRIS			2.00E-03	route	0.1
2,4-Dinitrotoluene			2.00E-03	IRIS			2.00E-03	route	0.1
1,2-Diphenylhydrazine	8.00E-01	IRIS			7.70E-01	IRIS			0.1
Endosulfan			6.00E-03	IRIS			6.00E-03	route	0.1
Endrin			3.00E-04	IRIS			3.00E-04	route	0.1

Chemical	CSF _o (mg/kg-day) ⁻¹	Reference	RfD _o (mg/kg-day)	Reference	CSF _i (mg/kg-day) ⁻¹	Reference	RfD _i (mg/kg-day)	Reference	ABS
Epichlorohydrin	9.90E-03	IRIS	2.00E-03	HEAST	4.20E-03	IRIS	2.86E-04	IRIS	0
Ethyl acetate			9.00E-01	IRIS			9.00E-01	route	0
Ethyl acrylate	4.80E-02	HEAST			4.80E-02	route			0
Ethyl chloride	2.90E-03	NCEA	4.00E-01	NCEA	2.90E-03	route	2.86E+00	IRIS	0
Ethyl ether			2.00E-01	IRIS			2.00E-01	route	0
Ethyl methacrylate			9.00E-02	HEAST			9.00E-02	route	0
Ethylbenzene			1.00E-01	IRIS			2.90E-01	IRIS	0
Ethylene oxide	1.00E+00	HEAST			3.50E-01	HEAST			0
Fluoranthene			4.00E-02	IRIS			4.00E-02	route	0.13
Fluorene			4.00E-02	IRIS			4.00E-02	route	0
Fluoride			6.00E-02	IRIS					0.1
Furan			1.00E-03	IRIS			1.00E-03	route	0
Heptachlor	4.50E+00	IRIS	5.00E-04	IRIS	4.55E+00	IRIS	5.00E-04	route	0.1
Hexachlorobenzene	1.60E+00	IRIS	8.00E-04	IRIS	1.61E+00	IRIS	8.00E-04	route	0.1
Hexachloro-1,3-butadiene	7.80E-02	IRIS	2.00E-04	HEAST	7.70E-02	IRIS	2.00E-04	route	0.1
Hexachlorocyclopentadiene			6.00E-03	IRIS			5.71E-05	IRIS	0.1
Hexachloroethane	1.40E-02	IRIS	1.00E-03	IRIS	1.40E-02	IRIS	1.00E-03	route	0.1
n-Hexane			1.10E+01	prov.			5.71E-02	IRIS	0
HMX			5.00E-02	IRIS			5.00E-02	route	0.1
Hydrogen cyanide			2.00E-02	IRIS			8.57E-04	IRIS	0
Indeno(1,2,3-c,d)pyrene	7.30E-01	NCEA			3.10E-01	NCEA			0.13
Iron			3.00E-01	NCEA					0
Isobutanol			3.00E-01	IRIS			3.00E-01	route	0
Isophorone	9.50E-04	IRIS	2.00E-01	IRIS	9.50E-04	route	2.00E-01	route	0.1
Lead									0
Lead (tetraethyl-)			1.00E-07	IRIS					0.1

Chemical	CSF _o (mg/kg-day) ⁻¹	Reference	RfD _o (mg/kg-day)	Reference	CSF _i (mg/kg-day) ⁻¹	Reference	RfD _i (mg/kg-day)	Reference	ABS
Maleic hydrazide			5.00E-01	IRIS		IRIS	5.00E-01	route	0
Manganese			4.70E-02	Reg 6			1.40E-05	IRIS	0
Mercury (elemental)							8.57E-05	IRIS	0
Mercury (methyl)			1.00E-04	IRIS		IRIS			0.1
Methacrylonitrile			1.00E-04	IRIS		IRIS	2.00E-04	HEAST	0
Methomyl			2.50E-02	IRIS		IRIS	2.50E-02	route	0
Methyl acetate			1.00E+00	HEAST		HEAST	1.00E+00	route	0
Methyl acrylate			3.00E-02	HEAST		HEAST	3.00E-02	route	0
Methyl isobutyl ketone			8.00E-02	HEAST		HEAST	8.57E-01	IRIS	0
Methyl methacrylate			1.40E+00	IRIS		IRIS	2.00E-01	IRIS	0
Methyl styrene (alpha)			7.00E-02	HEAST		HEAST	7.00E-02	route	0
Methyl styrene (mixture)			6.00E-03	HEAST		HEAST	1.00E-02	HEAST	0
Methylcyclohexane			8.60E-01	route		route	8.60E-01	HEAST	0
Methylene bromide			1.00E-02	HEAST		HEAST	1.00E-02	route	0
Methylene chloride	7.50E-03	IRIS	6.00E-02	IRIS	1.65E-03	IRIS	8.60E-01	HEAST	0
Molybdenum			5.00E-03	IRIS		IRIS			0
Naphthalene			2.00E-02	IRIS		IRIS	8.57E-04	IRIS	0
Nickel			2.00E-02	IRIS		IRIS			0
Nitrate			1.60E+00	IRIS		IRIS			0
Nitrite			1.00E-01	IRIS		IRIS			0
Nitrobenzene			5.00E-04	IRIS		IRIS	5.71E-04	HEAST	0
Nitroglycerin	1.40E-02	NCEA			1.40E-02	route			0.1
N-Nitrosodiethylamine	1.50E+02	IRIS			1.51E+02	IRIS			0.1
N-Nitrosodimethylamine	5.10E+01	IRIS	8.00E-06	prov.	4.90E+01	Jl	8.00E-06	route	0.1
N-Nitrosodi-n-butylamine	5.40E+00	IRIS			5.60E+00	IRIS			0.1
N-Nitrosodiphenylamine	4.90E-03	IRIS	2.00E-02	prov.	4.90E-03	route	2.00E-02	route	0.1

Chemical	CSF _o (mg/kg-day) ⁻¹	Reference	RfD _o (mg/kg-day)	Reference	CSF _i (mg/kg-day) ⁻¹	Reference	RfD _i (mg/kg-day)	Reference	ABS
N-Nitrosopyrrolidine	2.10E+00	IRIS			2.14E+00	IRIS			0.1
m-Nitrotoluene			2.00E-02	HEAST			2.00E-02	route	0
o-Nitrotoluene	2.30E-01	prov.	1.00E-02	HEAST	2.30E-01	route	1.00E-02	route	0
p-Nitrotoluene	1.70E-02	prov.	1.00E-02	HEAST	1.70E-02	route	1.00E-02	route	0
Pentachlorobenzene			8.00E-04	IRIS			8.00E-04	route	0.1
Pentachlorophenol	1.20E-01	IRIS	3.00E-02	IRIS	1.20E-01	route	3.00E-02	route	0.25
Phenanthrene (pyrene surrogate)			3.00E-02	IRIS			3.00E-02	route	0.1
Phenol			3.00E-01	IRIS			3.00E-01	route	0.1
Polychlorinated biphenyls									
Aroclor 1016	7.00E-02	IRIS	7.00E-05	IRIS	7.00E-02	IRIS	7.00E-05	route	0.14
Aroclor 1221	2.00E+00	IRIS	2.00E-05	IRIS	2.00E+00	IRIS	2.00E-05	route	0.14
Aroclor 1232	2.00E+00	IRIS	2.00E-05	IRIS	2.00E+00	IRIS	2.00E-05	route	0.14
Aroclor 1242	2.00E+00	IRIS	2.00E-05	IRIS	2.00E+00	IRIS	2.00E-05	route	0.14
Aroclor 1248	2.00E+00	IRIS	2.00E-05	IRIS	2.00E+00	IRIS	2.00E-05	route	0.14
Aroclor 1254	2.00E+00	IRIS	2.00E-05	IRIS	2.00E+00	IRIS	2.00E-05	route	0.14
Aroclor 1260	2.00E+00	IRIS	2.00E-05	IRIS	2.00E+00	IRIS	2.00E-05	route	0.14
n-Propylbenzene			1.00E-02	NCEA			1.00E-02	route	0
Propylene oxide	2.40E-01	IRIS	8.60E-03	route	1.30E-02	IRIS	8.57E-03	IRIS	0
Pyrene			3.00E-02	IRIS			3.00E-02	route	0
RDX	1.10E-01	IRIS	3.00E-03	IRIS	1.10E-01	route	3.00E-03	route	0.1
Selenium			5.00E-03	IRIS					0
Silver			5.00E-03	IRIS					0
Strontium			6.00E-01	IRIS					0
Styrene			2.00E-01	IRIS			2.86E-01	IRIS	0
1,2,4,5-Tetrachlorobenzene			3.00E-04	IRIS			3.00E-04	route	0.1
1,1,1,2-Tetrachloroethane	2.60E-02	IRIS	3.00E-02	IRIS	2.59E-02	IRIS	3.00E-02	route	0

Chemical	CSF _o (mg/kg-day) ⁻¹	Reference	RfD _o (mg/kg-day)	Reference	CSF _i (mg/kg-day) ⁻¹	Reference	RfD _i (mg/kg-day)	Reference	ABS
1,1,2,2-Tetrachloroethane	2.00E-01	IRIS	6.00E-02	NCEA	2.03E-01	IRIS	6.00E-02	route	0
Tetrachloroethylene	5.20E-02	NCEA	1.00E-02	IRIS	2.03E-02	NCEA	1.14E-01	NCEA	0
Thallium			6.60E-05	IRIS					0
Toluene			8.00E-02	IRIS			1.40E+00	IRIS	0
Toxaphene	1.10E+00	IRIS			1.12E+00	IRIS			0.1
Tribromomethane (Bromoform)	7.90E-03	IRIS	2.00E-02	IRIS	3.85E-03	IRIS	2.00E-02	route	0
1,1,2-Trichloro-1,2,2-trifluoroethane			3.00E+01	IRIS			8.57E+00	HEAST	0
1,2,4-Trichlorobenzene			1.00E-02	IRIS			1.00E-03	prov.	0
1,1,1-Trichloroethane			2.80E-01	NCEA			6.30E-01	NCEA	0
1,1,2-Trichloroethane	5.70E-02	IRIS	4.00E-03	IRIS	5.60E-02	IRIS	4.00E-03	route	0
Trichloroethene	4.0E-01	NCEA	3.00E-04	NCEA	4.0E-01	NCEA	1.00E-02	NCEA	0
Trichlorofluoromethane			3.00E-01	IRIS			2.00E-01	HEAST	0
2,4,5-Trichlorophenol			1.00E-01	IRIS			1.00E-01	route	0.1
2,4,6-Trichlorophenol	1.10E-02	IRIS	1.00E-04	NCEA	1.09E-02	IRIS	1.00E-04	route	0.1
1,1,2-Trichloropropane			5.00E-03	IRIS			5.00E-03	route	0
1,2,3-Trichloropropane	2.00E+00	NCEA	6.00E-03	IRIS	2.00E+00	route	1.40E-03	NCEA	0
1,2,3-Trichloropropene			1.00E-02	prov.			2.90E-04	prov.	0
Triethylamine			1.99E-03	route			1.99E-03	IRIS	0
1,2,4-Trimethylbenzene			5.00E-02	NCEA			1.70E-03	NCEA	0
1,3,5-Trimethylbenzene			5.00E-02	NCEA			1.70E-03	NCEA	0
2,4,6-Trinitrotoluene	3.00E-02	IRIS	5.00E-04	IRIS	3.00E-02	route	5.00E-04	route	0.1
Vanadium			1.00E-03	NCEA					0
Vinyl acetate			1.00E+00	HEAST			5.71E-02	IRIS	0
Vinyl bromide (Bromomethene)	1.10E-02	route	8.60E-04	HEAST	1.10E-01	HEAST	8.57E-04	IRIS	0
Vinyl chloride (Child)	1.40E+00	IRIS	3.00E-03	IRIS	3.00E-02	IRIS	2.80E-02	IRIS	0
Vinyl chloride (Adult)	7.20E-01	IRIS	3.00E-03	IRIS	1.54E-02	IRIS	2.85E-02	IRIS	0

NMED Soil Screening Levels
June 2006
Revision 4.0

Chemical	CSF _o (mg/kg-day) ⁻¹	Reference	RfD _o (mg/kg-day)	Reference	CSF _i (mg/kg-day) ⁻¹	Reference	RfD _i (mg/kg-day)	Reference	ABS
m-Xylene			2.00E-01	IRIS			2.86E-02	IRIS	0.1
o-Xylene			2.00E-01	IRIS					0.1
Xylenes			2.00E-01	IRIS			2.86E-02	IRIS	0.1
Zinc			3.00E-01	IRIS					0

Notes:

CSF_o – Oral cancer slope factor
 CSF_i – Inhalation cancer slope factor
 RfD_o – Oral Reference Dose
 RfD_i – Inhalation Reference Dose
 r – Route-to-route extrapolation
 ABS – Dermal absorption coefficient

IRIS – Integrated Risk Information System, USEPA 2006.

NCEA – National Center for Environmental Assessment, Office of Research and Development, USEPA 2003c.

VOLUME 2

**TIER 1: SCREENING-LEVEL ECOLOGICAL RISK
ASSESSMENT**

**PHASE I
Scoping Assessment**

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1. Introduction

The purpose of an ecological risk assessment is to evaluate the potential adverse effects that chemical contamination has on the plants and animals that make up ecosystems. The risk assessment process provides a way to develop, organize and present scientific information so that it is relevant to environmental decisions.

The New Mexico Environment Department Hazardous Waste Bureau (NMED) has developed a tiered procedure for the evaluation of ecological risk. This procedure is outlined in the *Guidance for Assessing Ecological Risks Posed by Chemicals: Screening-Level Ecological Risk Assessment* (GAERPC) (NMED, 2000). Briefly, the tiers of the procedure are organized as follows:

PHASE I: QUALITATIVE ASSESSMENT

- Tier I: Screening-Level Ecological Risk Assessment
- Scoping Assessment
- Screening Assessment

PHASE II: QUANTITATIVE ASSESSMENT

- Tier II: Site-Specific Ecological Risk Assessment

As discussed above and illustrated in Figure 1, the Scoping Assessment is the first phase of the Tier I Screening-Level Ecological Risk Assessment process as defined by the NMED GAERPC. This document provides specific procedures to assist the facility in conducting the first step (Scoping Assessment) of the Tier I, Screening-Level Ecological Risk Assessment process outlined in the GAERPC. The purpose of the Scoping Assessment is to gather information, which will be used to determine if there is "any reason to believe that ecological receptors and/or complete exposure pathways exist at or in the locality of the site" (NMED, 2000). The scoping assessment step also serves as the initial information-gathering phase for sites clearly in need of a more detailed assessment of potential ecological risk. This document outlines the methodology for conducting a Scoping Assessment, and includes a Site Assessment Checklist (Attachment A), which serves as tool for gathering information about the facility property and surrounding areas. Although the GAERPC provides a copy of the US EPA Checklist for Ecological Assessment/Sampling (US EPA, 1997), the attached Site Assessment Checklist provides an expanded, user-friendly template, which both guides the user as to what information to collect and furnishes an organized structure in which to enter the information.

After the Site Assessment Checklist has been completed, the assessor must use the collected information to generate a Scoping Assessment Report and Preliminary Conceptual Site Exposure Model (PCSEM). Guidance for performing these tasks is provided in this document, and in the GAERPC. The Scoping Assessment Report and PCSEM are subsequently used to address the first in a series of Technical Decision Points of the tiered GAERPC process. Technical Decision Points are questions which must be answered by the assessor after the completion of certain phases in the process. The resulting answer to the question determines the next step to be undertaken by the

facility. The first Technical Decision Point, as illustrated in Figure 1, is to decide: *Is Ecological Risk Suspected?*

If the answer to the first Technical Decision Point is “no” (that is, ecological risk is not suspected), the assessor may use the Exclusion Criteria Checklist and Decision Tree (Attachment B) to help confirm or deny that possibility. However, it is unlikely that any site containing potential ecological habitat or receptors will meet the Site Exclusion Criteria.

If ecological risk is suspected, the facility will usually be directed to proceed to the next phase of Tier I, which is a Screening Level Ecological Risk Assessment (SLERA). A SLERA is a simplified risk assessment that can be conducted with limited site-specific data by defining assumptions for parameters that lack site-specific data (US EPA, 1997). Values used for screening are consistently biased in the direction of overestimating risk to ensure that sites that might pose an ecological risk are properly identified. The completed Site Assessment Checklist is a valuable source of information needed for the completion of the SLERA. Instructions for performing a SLERA can be found in the GAERPC and in a number of EPA guidance documents (e.g., US EPA, 1997; US EPA, 1998).

2. Scoping Assessment

The Scoping Assessment serves as the initial information gathering and evaluation phase of the Tier I process. A Scoping Assessment consists of the following steps:

- Compile and Assess Basic Site Information (using Site Assessment Checklist)
- Conduct Site Visit
- Identify Preliminary Contaminants of Potential Ecological Concern
- Develop a Preliminary Conceptual Site Exposure Model
- Prepare a Scoping Assessment Report

The following subsections provide guidance for completing each step of the Scoping Assessment. For additional guidance, readers should refer to the GAERPC (NMED, 2000).

2.1 COMPILE AND ASSESS BASIC SITE INFORMATION

The first step of the Scoping Assessment process is to compile and assess basic site information. Since the purpose of the Scoping Assessment is to determine if ecological habitats, receptors, and complete exposure pathways are likely to exist at the site, those items are the focus of the information gathering. The Site Assessment Checklist (Attachment A) should be used to complete this step. The questions in the Site Assessment Checklist should be addressed as completely as possible with the information available before conducting a site visit.

In many cases, a large portion of the Site Assessment Checklist can be completed using reference materials and general knowledge of the site. A thorough file search should be conducted to compile all potential reference materials. Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) and Facility Investigation (RFI) reports, inspection reports, RCRA Part B Permit

Applications, and facility maps can all be good sources of the information needed for the Site Assessment Checklist.

Habitats and receptors which may be present at the site can be identified by contacting local and regional natural resource agencies. Habitat types may be determined by reviewing land use and land cover maps (EULC), which are available via the Internet at <http://www.nationalatlas.gov/scripts>. Additional sources of general information for the identification of ecological receptors and habitats are listed in the introduction section of the Site Assessment Checklist (Attachment A).

After all available information has been compiled and entered into the Site Assessment Checklist, the assessor should review the checklist and identify data gaps. Plans should then be made to obtain the missing information by performing additional research and/or by observation and investigation during the site visit.

2.2 SITE VISIT

When performing a Scoping Assessment, at least one site visit should be conducted to directly assess ecological features and conditions. As discussed in the previous section, completion of the Site Assessment Checklist should have begun during the compilation of basic site information. The site visit allows for verification of the information obtained from the review of references and other information sources. The current land and surface water usage and characteristics at the site can be observed, as well as direct and indirect evidence of receptors. In addition to the site, areas adjacent to the site and all areas where ecological receptors are likely to contact site-related chemicals (i.e., all areas which may have been impacted by the release or migration of chemicals from the site) should be observed or visited and addressed in the Site Assessment Checklist. The focus of the habitat and receptor observations should be on a community level. That is, dominant plant and animal species and habitats (e.g., wetlands, wooded areas) should be identified during the site visit. Photographs should be taken during the site visit and attached to the Scoping Assessment Report. Photographs are particularly useful for documenting the nature, quality, and distribution of vegetation, other ecological features, potential exposure pathways, and any evidence of contamination or impact. While the focus of the survey is on the community level, the U.S. Fish and Wildlife Service and the New Mexico Natural Heritage Program should be contacted prior to the site visit. The intent is to determine if state listed and/or federal listed Threatened & Endangered (T&E) species or sensitive habitats may be present at the site, or if any other fish or wildlife species could occur in the area (as indicated in the Site Assessment Checklist, Section IIID). A trained biologist or ecologist should conduct the biota surveys to appropriately characterize major habitats and to determine whether T&E species are present or may potentially use the site. The site assessment should also include a general survey for T&E species and any sensitive habitats (e.g. wetlands, perennial waters, breeding areas), due to the fact that federal and state databases might not be complete.

Site visits should be conducted at times of the year when ecological features are most apparent (i.e., spring, summer, early fall). Visits during winter might not provide as much evidence of the presence or absence of receptors and potential exposure pathways.

In addition to observations of ecological features, the assessor should note any evidence of chemical releases (including visual and olfactory clues), drainage patterns, areas with apparent erosion, signs of

groundwater discharge at the surface (such as seeps or springs), and any natural or anthropogenic site disturbances.

2.3 IDENTIFY CONTAMINANTS OF POTENTIAL ECOLOGICAL CONCERN

Contaminants of Potential Ecological Concern (COPECs) are chemicals which may pose a threat to individual species or biological communities. For the purposes of the Scoping Assessment, all chemicals known or suspected of being released at the site are considered COPECs. The identification of COPECs is usually accomplished by the review of historical information in which previous site activities and releases are identified, or by sampling data which confirm the presence of contaminants in environmental media at the site. If any non-chemical stressors such as mechanical disturbances or extreme temperature conditions are known to be present at the site, they too are to be considered in the assessment.

After the COPECs have been identified, they should be summarized and organized (such as in table or chart form) for presentation in the Scoping Assessment Report.

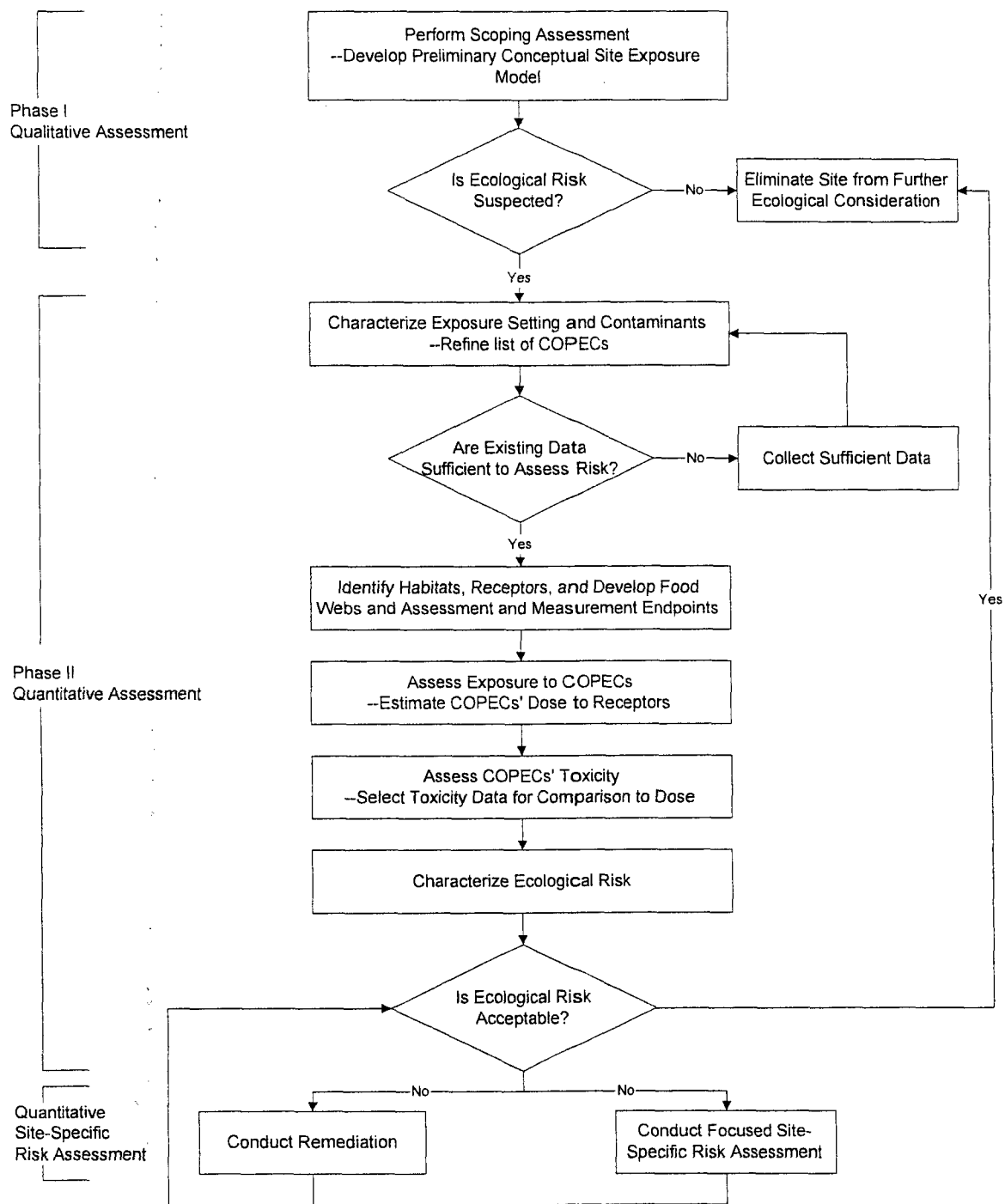
2.4 DEVELOPING THE PRELIMINARY CONCEPTUAL SITE EXPOSURE MODEL

A PCSEM provides a summary of potentially complete exposure pathways, along with potentially exposed receptor types. The PCSEM, in conjunction with the scoping report, is used to determine whether further ecological assessment (i.e., Screening-Level Assessment, Site-Specific Assessment) and/or interim measures are required.

A complete exposure pathway is defined as a pathway having all of the following attributes (US EPA, 1998; NMED, 2000):

- A source and mechanism for hazardous waste/constituent release to the environment
- An environmental transport medium or mechanism by which a receptor can come into contact with the hazardous waste/constituent
- A point of receptor contact with the contaminated media or via the food web, and
- An exposure route to the receptor.

If any of the above components are missing from the exposure pathway, it is not a complete pathway for the site. A discussion regarding all possible exposure pathways and the rationale/justification for eliminating any pathways should be included in the PCSEM narrative and in the Scoping Assessment Report.



Adapted from GAERPC (NMED 2000).

Figure 1. NMED Ecological Risk Assessment Process

The PCSEM is presented as both a narrative discussion and a diagram illustrating potential contaminant migration and exposure pathways to ecological receptors. A sample PCSEM diagram is presented in Figure 2. On the PCSEM diagram, the components of a complete exposure pathway are grouped into three main categories: sources, release mechanisms, and potential receptors. As a contaminant migrates and/or is transformed in the environment, sources and release mechanisms can be defined as primary, secondary, and tertiary.

For example, Figure 2 depicts releases from a landfill that migrate into soils, and reach nearby surface water and sediment via storm water runoff. In this situation, the release from the landfill is considered the primary release, with infiltration as the primary release mechanism. Soil becomes the secondary source, and storm water runoff is the secondary release mechanism to surface water and sediments, the tertiary source.

Subsequent ecological exposures to terrestrial and aquatic receptors will result from this release. The primary exposure routes to ecological receptors are direct contact, ingestion, and possibly inhalation. For example, plant roots will be in direct contact with contaminated sediments, and burrowing mammals will be exposed via dermal contact with soil and incidental ingestion of contaminated soil. In addition, exposures for birds and mammals will occur as they ingest prey items through the food web.

Although completing the Site Assessment Checklist will not provide the user with a ready made PCSEM, a majority of the components of the PCSEM can be found in the information provided by the Site Assessment Checklist. The information gathered for the completion of Section II of the Site Assessment Checklist, can be used to identify sources of releases. The results of Section III, Habitat Evaluation, can be used to both identify secondary and tertiary sources and to identify the types of receptors which may be exposed. The information gathered for completion of Section IV, Exposure Pathway Evaluation, will assist users in tracing the migration pathways of releases in the environment, thus helping to identify release mechanisms and sources.

Once all of the components of the conceptual model have been identified, complete exposure pathways and receptors that have the potential for exposure to site releases can be identified.

For further guidance on constructing a PCSEM, consult the GAERPC (NMED, 2000), and EPA's Office of Solid Waste and Emergency Response's *Soil Screening Guidance: User's Guide* (1996).

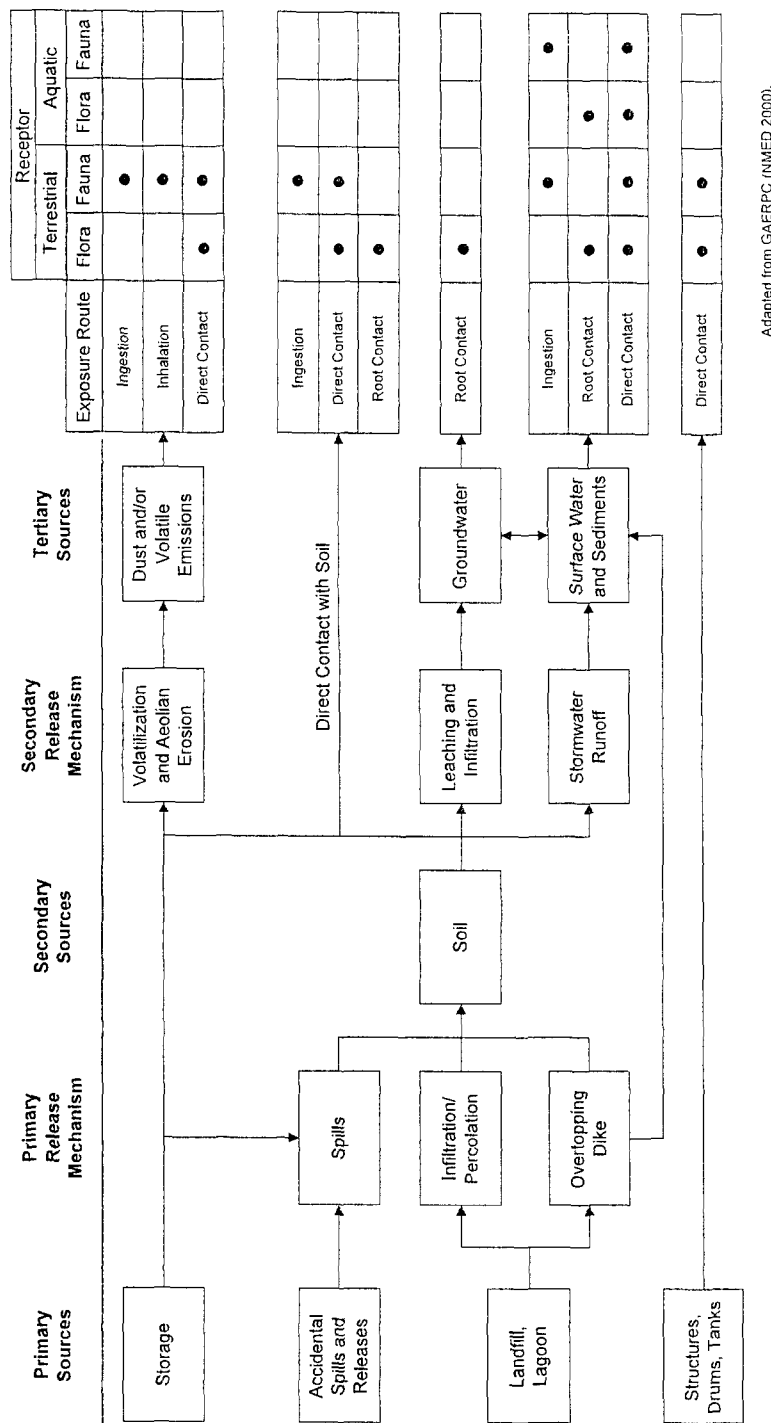
2.5 ASSEMBLING THE SCOPING ASSESSMENT REPORT

After completion of the previously described activities of the scoping assessment, the Scoping Assessment Report should be assembled to summarize the site information and present an evaluation of receptors and pathways at the site. The Scoping Assessment Report should be designed to support the decision made regarding the first Technical Decision Point (Is Ecological Risk Suspected?). The Scoping Assessment Report should, at a minimum, contain the following information:

- Existing Data Summary
- Site Visit Summary (including a completed Site Assessment Checklist)

- Evaluation of Receptors and Pathways
- Recommendations
- Attachments (e.g. photographs, field notes, telephone conversation logs with natural resource agencies)
- References/Data Sources

After completion, the Scoping Assessment Report and PCSEM should be submitted to NMED for review and approval. These documents will serve as a basis for decisions regarding future actions at the site.



Adapted from GAERPC (NMED 2000).

Figure 2. Example Preliminary Conceptual Site Exposure Model Diagram for a Hypothetical Site

3. Site Exclusion Criteria

If the assessor believes that the answer to the first Technical Decision Point (Is Ecological Risk Suspected?) is "no" based on the results of the PCSEM and Scoping Assessment Report, it should be determined whether the facility meets the NMED Site Exclusion Criteria.

Exclusion criteria are defined as those conditions at an affected property which eliminate the need for a SLERA. The three criteria are as follows:

- Affected property does not include viable ecological habitat.
- Affected property is not utilized by potential receptors.
- Complete or potentially complete exposure pathways do not exist due to affected property setting or conditions of affected property media.

The Exclusion Criteria Checklist and associated Decision Tree (Attachment B) can be used as a tool to help the user determine if an affected site meets the exclusion criteria. The checklist assists in making a conservative, qualitative determination of whether viable habitats, ecological receptors, and/or complete exposure pathways exist at or in the locality of the site where a release of hazardous waste/constituents has occurred. Thus, meeting the exclusion criteria means that the facility can answer "no" to the first Technical Decision Point.

If the affected property meets the Site Exclusion Criteria, based on the results of the checklist and decision tree, the facility must still submit a Scoping Assessment Report to NMED which documents the site conditions and justification for how the criteria have been met. Upon review and approval of the exclusion by the appropriate NMED Bureau, the facility will not be required to conduct any further evaluation of ecological risk. However, the exclusion is not permanent; a future change in circumstances may result in the affected property no longer meeting the exclusion criteria.

4. Technical Decision Point: Is Ecological Risk Suspected?

As discussed in the beginning of this document, the Scoping Assessment is the first phase of the GAERPC ecological risk assessment process (Figure 1). Following the submission of the Scoping Assessment Report and PCSEM, NMED will decide upon one of the following three recommendations for the site:

- No further ecological investigation at the site, or
- Continue the risk assessment process, and/or
- Undertake a removal or remedial action.

If the information presented in the Scoping Assessment Report supports the answer of "no" to the first Technical Decision Point, and the site meets the exclusion criteria, the site will likely be excused from further consideration of ecological risk. However, this is only true if it can be documented that a complete exposure pathway does not exist and will not exist in the future at the site based on current conditions. For those sites where valid pathways for potential exposure exist or are likely to exist in the future, further ecological risk assessment (usually in the form of a SLERA) will be

required. However, if the Scoping Assessment indicates that a detailed assessment is warranted, the facility would not be required to conduct a SLERA. Instead the facility would move directly to Tier II-Site-Specific Ecological Risk Assessment.

References

Los Alamos National Laboratory (LANL), 1997. *Administrative Procedure 4.5*, Draft

New Mexico Environment Department (NMED), 2000. *Guidance for Assessing Ecological Risks Posed by Chemicals: Screening-Level Ecological Risk Assessment*, Hazardous and Radioactive Materials Bureau, Final, March.

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U.S.EPA, 1998. *Guidelines for Ecological Risk Assessment*, Risk Assessment Forum, Final, April. EPA/630/R-95/002F; <http://www.epa.gov/ncea/ecorisk.htm>.

Section 5.0 Monitoring Results

<u>Title</u>	<u>Tab Number</u>
Soil Gas Monitoring.....	1
Groundwater Monitoring.....	2
BV Soil Gas Monitoring – Pre- Aeration.....	3
GAC Filter Monitoring.....	4

RIVER TERRACE

Soil Gas Monitoring 2005/2006

Sample Location	Sampling Activities	DATE	Purge Volume (L)	Depth to Water (ft)	Pressure (Inches of Water)	PID (PPM)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylben (ug/L)	Xylene (ug/L)	GRO (ug/L)
TP #1	Start-Up	Pre-Dewatering	Week of 1/09/06	9.4	5.14	0.00	1401.0	1.3	5.8	47.0	3.5	320.0	2,800.0
		Pre-Aeration	Week of 1/16/06	14.5	7.88	0.00	191.0	4.5	NR	NR	NR	NR	NR
	1st Quarter	1st Week	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		2nd Week	Week of 1/30/06	11.5	6.28	0.02	1490.0	0.0	NR	NR	NR	NR	NR
		3rd Week	Week of 2/6/06	13.0	7.25	0.08	1534.0	0.0	NR	NR	NR	NR	NR
		4th Week	Week of 2/13/06	13.0	7.81	0.05	1534.0	0.0	NR	NR	NR	NR	NR
	2nd Quarter	2nd Month	Week of 2/20/06	14.0	8.15	0.10	1534.0	0.1	NR	NR	NR	NR	NR
		3rd Month	Week of 3/06/06	15.0	8.04	0.30	1534.0	0.1	22.0	321.0	12.0	2,100.0	8,500.0
	3rd Quarter	2nd Quarter	Week of 6/17/06	12.5	6.8	0.05	1452.0	0.5	2.6	5.5	<2.0	210.0	3,100.0
		3rd Quarter	Week of 9/11/06	10.4	5.68	0.01	85.5	0.1	29.0	<2.0	36.0	170.0	920.0
	4th Quarter	4th Quarter	Week of 12/04/06	13.5	7.42	0.02	1146.0	0.3	<5.0	8.3	140.0	1,000.0	8,000.0
TP #2	Start-Up	Pre-Dewatering	Week of 1/09/06	12.0	6.62	0.00	1589.0	4.0	7.8	11.0	8.0	88.0	1,100.0
		Pre-Aeration	Week of 1/16/06	16.5	9.12	0.00	1490.0	2.9	NR	NR	NR	NR	NR
	1st Quarter	1st Week	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		2nd Week	Week of 1/30/06	14.2	7.74	0.05	732.0	0.0	NR	NR	NR	NR	NR
		3rd Week	Week of 2/6/06	17.0	9.25	0.10	600.0	0.0	NR	NR	NR	NR	NR
		4th Week	Week of 2/13/06	18.0	9.73	0.01	399.8	0.0	NR	NR	NR	NR	NR
	2nd Quarter	2nd Month	Week of 2/20/06	18.0	9.83	0.19	223.6	0.0	NR	NR	NR	NR	NR
		3rd Month	Week of 3/06/06	18.0	9.83	0.05	92.7	0.0	0.4	1.8	1.4	17.0	150.0
	3rd Quarter	2nd Quarter	Week of 6/17/06	15.1	8.27	0.15	23.8	0.0	0.2	0.2	0.1	2.8	25.0
		3rd Quarter	Week of 9/11/06	13.4	7.37	0.01	5.4	0.0	<0.10	<0.10	<0.10	<0.10	<5.0
	4th Quarter	4th Quarter	Week of 12/04/06	16.5	9.03	0.08	67.0	0.0	0.1	<0.10	1.6	18.0	120.0

NS = Not Sampled due to Transformer Malfunction
 PR = Piezometer needs repair - Not Sampled
 VP = Vacuum Pump Malfunction - Not Sampled
 PD = Piezometer Destroyed
 NM = Not Measured
 NR = Not Required
 ft below TOC = feet below top of casing

RIVER TERRACE

Soil Gas Monitoring 2005/2006

Sample Location	Sampling Activities	DATE	Purge Volume (L)	Depth to Water (ft)	Pressure (Inches of Water)	PID (PPM)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylben (ug/L)	Xylene (ug/L)	CRO (ug/L)
TP #3	Start-Up	Pre-Dewatering	11.8	6.44	0.00	NM	17.8	0.0	<0.05	<0.05	<0.05	0.1	98.6
		Week of 1/09/06											
	1st Quarter	Pre-Aeration	NM	NM	NM	NM	NM	NM	NR	NR	NR	NR	NR
		Week of 1/16/06											
		1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		Week of 1/23/06											
		2nd Week	12.8	7.01	0.00	16.5	20.9	0.0	NR	NR	NR	NR	NR
		Week of 1/30/06											
		3rd Week	13.0	7.14	0.00	163.0	20.9	0.0	NR	NR	NR	NR	NR
		Week of 2/6/06											
		4th Week	11.0	6.15	0.00	227.7	20.9	0.0	NR	NR	NR	NR	NR
		Week of 2/13/06											
		2nd Month	PR	PR	PR	PR	PR	PR	NR	NR	NR	NR	NR
		Week of 2/20/06											
		3rd Month	15.0	8.09	0.00	179.8	18.6	0.6	0.55	2.2	0.53	23.0	1,300.0
		Week of 3/06/06											
TP #4	Start-Up	Pre-Dewatering	9.1	4.96	0.00	11.9	16.8	0.0	<0.05	0.071	0.073	0.29	17.00
		Week of 1/09/06											
	1st Quarter	Pre-Aeration	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
		Week of 1/16/06											
		1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		Week of 1/23/06											
		2nd Week	10.0	5.74	0.00	658.0	19.3	0.1	NR	NR	NR	NR	NR
		Week of 1/30/06											
		3rd Week	11.0	6.06	0.00	1534.0	18.5	0.2	NR	NR	NR	NR	NR
		Week of 2/6/06											
		4th Week	11.0	6.24	0.00	1534.0	18.1	0.2	NR	NR	NR	NR	NR
		Week of 2/13/06											
		2nd Month	12.0	6.34	0.00	VP	VP	VP	NR	NR	NR	NR	NR
		Week of 2/20/06											
		3rd Month	12.0	6.41	0.00	1534.0	18.5	0.6	54.0	76.0	23.0	630.0	19,000.0
		Week of 3/06/06											
TP #5	Start-Up	Pre-Dewatering	9.8	5.33	0.00	198.0	20.9	0.1	<1.0	<1.0	<1.0	12.00	80.00
		Week of 6/17/06											
	1st Quarter	2nd Quarter	PD	PD	PD	PD	PD	PD	PD	PD	PD	PD	PD
		Week of 9/11/06											
TP #6	Start-Up	Pre-Dewatering	PD	PD	PD	PD	PD	PD	PD	PD	PD	PD	PD
		Week of 12/04/06											
	1st Quarter	2nd Quarter	PD	PD	PD	PD	PD	PD	PD	PD	PD	PD	PD
		Week of 12/04/06											

NS = Not Sampled due to Transformer Malfunction
 NM = Not Measured
 PR = Piezometer needs repair - Not Sampled
 NR = Not Required
 VP = Vacuum Pump Malfunction - Not Sampled
 ft below TOC = feet below top of casing
 PD = Piezometer Destroyed

RIVER TERRACE

Soil Gas Monitoring 2005/2006

Sample Location	Sampling Activities	DATE	Purge Volume (L)	Depth to Water	Pressure (Inches of Water)	PID (PPM)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylben (ug/L)	Xylene (ug/L)	GRO (ug/L)
TP #5	Start-Up	Pre-Dewatering	Week of 1/09/06	8.6	4.70	0.00	103.5	16.0	0.13	54.0	0.25	38.0	150.0
		Pre-Aeration	Week of 1/16/06	13.8	7.57	0.00	1202.0	7.4	NR	NR	NR	NR	NR
	1st Quarter	1st Week	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		2nd Week	Week of 1/30/06	13.4	7.33	0.00	1490.0	18.1	NR	NR	NR	NR	NR
		3rd Week	Week of 2/6/06	13.9	7.60	0.00	1534.0	18.7	NR	NR	NR	NR	NR
		4th Week	Week of 2/13/06	14.0	7.73	0.00	1534.0	20.6	NR	NR	NR	NR	NR
	2nd Quarter	2nd Month	Week of 2/20/06	14.0	7.85	0.00	1534.0	20.6	NR	NR	NR	NR	NR
		3rd Month	Week of 3/06/06	14.0	7.81	0.01	1534.0	19.7	69.0	310.0	55.0	2,000.0	34,000.0
	3rd Quarter	2nd Quarter	Week of 6/17/06	9.6	5.24	0.00	953.0	18.6	<10	15.0	11.0	130.0	1,800.0
		3rd Quarter	Week of 9/11/06	9.7	5.32	0.00	137.0	18.6	<2.5	<2.5	79.00	380.00	1,200.00
	4th Quarter	4th Quarter	Week of 12/04/06	11.0	5.95	0.00	1805.0	19.3	6.10	15.0	14.00	1,400.0	8,900.0
TP #6	Start-Up	Pre-Dewatering	Week of 1/09/06	10.4	5.63	0.00	350.0	16.5	2.70	41.0	0.36	210.0	570.0
		Pre-Aeration	Week of 1/16/06	15.6	8.53	0.00	415.0	6.2	NR	NR	NR	NR	NR
	1st Quarter	1st Week	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		2nd Week	Week of 1/30/06	14.9	8.15	0.00	1359.0	18.0	NR	NR	NR	NR	NR
		3rd Week	Week of 2/6/06	15.0	8.4	0.00	1254.0	18.8	NR	NR	NR	NR	NR
		4th Week	Week of 2/13/06	16.0	8.54	0.01	1534.0	20.2	NR	NR	NR	NR	NR
	2nd Quarter	2nd Month	Week of 2/20/06	16.0	8.59	0.00	1534.0	19.7	NR	NR	NR	NR	NR
		3rd Month	Week of 3/06/06	16.0	8.61	0.00	1534.0	20.0	7.60	47.0	6.50	950.0	4,500.0
	3rd Quarter	2nd Quarter	Week of 6/17/06	11.3	6.18	0.00	56.9	20.6	<0.1	0.2	<0.10	3.1	100.0
		3rd Quarter	Week of 9/11/06	11.3	6.17	0.00	8.1	26.0	<0.1	<0.1	0.18	0.97	17.0
	4th Quarter	4th Quarter	Week of 12/04/06	12.0	6.61	0.00	160.0	19.4	<0.50	<0.50	2.30	37.0	320.0
NS = Not Sampled due to Transformer Malfunction PR = Piezometer needs repair - Not Sampled VP = Vacuum Pump Malfunction - Not Sampled PD = Piezometer Destroyed													
NM = Not Measured NR = Not Required ft below TOC = feet below top of casing													

RIVER TERRACE

Soil Gas Monitoring 2005/2006

Sample Location	Sampling Activities	DATE	Purge Volume (L)	Depth to Water	Pressure (Inches of Water)	PID (PPM)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylben (ug/L)	Xylene (ug/L)	GRO (ug/L)
TP #8	Start-Up	Pre-Dewatering	10.3	5.61	0.00	1589.0	4.6	8.9	6.9	31.0	2.9	300.0	1,800.0
		Week of 1/09/06											
	1st Quarter	Pre-Aeration	15.8	8.65	0.00	847.0	1.3	5.2	NR	NR	NR	NR	NR
		Week of 1/16/06											
	1st Month	1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		Week of 1/23/06											
		2nd Week	13.2	7.24	0.10	1490.0	20.9	0.0	NR	NR	NR	NR	NR
		Week of 1/30/06											
	2nd Month	3rd Week	15.0	8.38	0.10	1534.0	20.9	0.0	NR	NR	NR	NR	NR
		Week of 2/6/06											
		4th Week	16.0	9.02	0.09	1534.0	20.7	0.0	NR	NR	NR	NR	NR
		Week of 2/13/06											
	3rd Month	2nd Week	17.0	9.22	0.10	1534.0	20.9	0.0	NR	NR	NR	NR	NR
		Week of 2/20/06											
		3rd Week	16.0	8.92	0.05	1534.0	20.7	0.1	8.8	220.0	13.0	1,900.0	7,700.0
		Week of 3/06/06											
TP #9	Start-Up	Pre-Dewatering	11.3	5.08	0.00	8.5	17.2	0.2	<0.05	0.054	0.18	0.35	31.0
		Week of 1/09/06											
	1st Quarter	Pre-Aeration	9.4	5.14	0.00	0.4	15.9	2.0	NR	NR	NR	NR	NR
		Week of 1/16/06											
	1st Month	1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		Week of 1/23/06											
		2nd Week	9.5	5.22	0.00	58.3	20.7	0.0	NR	NR	NR	NR	NR
		Week of 1/30/06											
	2nd Month	3rd Week	9.6	5.25	0.00	27.8	20.9	0.0	NR	NR	NR	NR	NR
		Week of 2/6/06											
		4th Week	9.5	5.24	0.00	18.5	20.9	0.0	NR	NR	NR	NR	NR
		Week of 2/13/06											
	3rd Month	2nd Week	9.0	5.28	0.00	51.4	20.9	0.0	NR	NR	NR	NR	NR
		Week of 2/20/06											
		3rd Week	10.0	5.21	0.00	7.7	20.6	0.1	<0.05	0.085	0.063	0.53	8.00
		Week of 3/06/06											
TP #10	2nd Quarter	2nd Week	9.0	5.26	0.00	13.9	20.9	0.0	<0.10	<0.10	0.10	0.62	31.00
		Week of 6/17/06											
	3rd Quarter	3rd Week	10.0	5.48	0.00	18.3	20.3	0.3	<0.10	0.21	0.18	2.50	140.00
		Week of 9/11/06											
TP #11	4th Quarter	4th Week	10.0	5.39	0.00	9.6	20.9	0.1	<0.10	<0.10	0.16	3.50	20.00
		Week of 12/04/06											

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 ft below TOC = feet below top of casing

RIVER TERRACE

Soil Gas Monitoring 2005/2006

Sample Location	Sampling Activities	DATE	Purge Volume (L)	Depth to Water	Pressure (Inches of Water)	PID (PPM)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylben (ug/L)	Xylene (ug/L)	GRO (ug/L)
TP #10	Start-Up	Week of 1/09/06	9.3	5.08	0.00	0.0	17.8	0.0	<0.05	<0.05	<0.05	0.28	<5.0
	1st Quarter	Pre-Dewatering	NS	NM	NS	NM	NS	NS	NR	NR	NR	NS	NS
		Pre-Aeration											
		1st Week											
		2nd Week											
	2nd Quarter	Week of 1/30/06	10.0	5.54	0.00	31.2	18.1	0.8	NR	NR	NR	NR	NR
		3rd Week	10.0	5.67	0.00	52.5	18.5	0.8	NR	NR	NR	NR	NR
		Week of 2/13/06	10.0	5.74	0.00	110.9	17.6	0.8	NR	NR	NR	NR	NR
		4th Week	11.0	5.85	0.00	VP	VP	VP	NR	NR	NR	NR	NR
	3rd Quarter	Week of 2/20/06	11.0	5.86	0.00	21.9	17.1	1.1	0.069	0.62	0.053	6.1	25.0
		Week of 3/06/06	9.6	5.23	0.00	6.7	20.9	0.0	0.11	0.16	<0.10	0.57	14.0
		Week of 6/17/06	9.6	5.26	0.00	4.7	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0
		Week of 9/11/06	10.0	5.57	0.00	18.0	14.4	0.7	<0.10	<0.10	0.2	2.7	22.000
	4th Quarter	Week of 12/04/06											
TP #11	Start-Up	Week of 1/09/06	10.2	5.55	0.00	0.0	17.5	0.3	<0.05	<0.05	<0.05	0.14	<5.0
	1st Quarter	Pre-Dewatering	NS	NM	NS	NM	NS	NS	NR	NR	NR	NS	NR
		Pre-Aeration											
		1st Week											
		2nd Week	11.0	6.03	0.00	24.0	20.7	0.3	NR	NR	NR	NR	NR
	2nd Quarter	Week of 1/30/06	11.0	6.1	0.00	73.2	20.9	0.3	NR	NR	NR	NR	NR
		3rd Week	11.0	6.19	0.00	65.2	20.2	0.3	NR	NR	NR	NR	NR
		Week of 2/13/06	12.0	6.29	0.00	VP	VP	VP	NR	NR	NR	NR	NR
		Week of 2/20/06	11.0	6.31	0.00	13.2	20.0	0.4	0.055	0.32	0.063	3.3	13.0
	3rd Quarter	Week of 3/05/06	10.3	5.61	0.00	2.6	18.8	1.4	<0.10	<0.10	<0.10	<0.30	<5.0
		Week of 6/17/06	10.3	5.69	0.00	2.8	19.1	1.4	<0.10	<0.10	0.24	1.5	9.000
		Week of 9/11/06	10.0	6.00	0.00	2.8	14.4	0.7	<0.10	<0.10	<0.10	<0.10	<5.0
		Week of 12/04/06											

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NR = Not Required

ft below TOC = feet below top of casing

RIVER TERRACE

Soil Gas Monitoring 2005/2006

Sample Location	Start-Up	Sampling Activities	DATE	Burge Volume (L)	Depth to Water	Pressure (Inches of Water)	PID (PPM)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylben (ug/L)	Xylene (ug/L)	GRO (ug/L)
TP #12	1st Quarter	Pre-Dewatering	Week of 1/09/06	13.5	7.38	0.00	0.2	17.8	0.0	<0.05	<0.05	<0.05	0.32	<5.0
		Pre-Aeration	Week of 1/16/06	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
		1st Week	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		2nd Week	Week of 1/30/06	14.0	7.73	0.00	27.0	19.3	1.3	NR	NR	NR	NR	NR
	2nd Quarter	3rd Week	Week of 2/6/06	14.0	7.79	0.00	122.0	19.3	1.1	NR	NR	NR	NR	NR
		4th Week	Week of 2/13/06	14.0	7.86	0.00	72.5	18.8	1.1	NR	NR	NR	NR	NR
		2nd Month	Week of 2/20/06	15.0	7.94	0.00	VP	VP	VP	NR	NR	NR	NR	NR
		3rd Month	Week of 3/06/06	15.0	7.94	0.00	10.1	18.7	1.4	0.052	0.21	0.055	2.3	9.000
	3rd Quarter	2nd Quarter	Week of 6/17/06	13.6	7.44	0.00	6.7	20.9	0.0	0.12	0.19	<0.10	0.52	17.000
		3rd Quarter	Week of 9/11/06	13.6	7.48	0.00	5.7	20.9	0.0	<0.10	<0.10	0.1	<0.30	<5.0
		4th Quarter	Week of 12/04/06	14.0	7.67	0.00	30.3	18.5	1.6	<0.20	<0.20	0.28	24	120.00
TP #13	1st Quarter	Pre-Dewatering	Week of 1/09/06	11.4	6.24	0.00	0.1	17.8	0.0	<0.05	<0.05	<0.05	<0.05	<5.0
		Pre-Aeration	Week of 1/16/06	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
		1st Week	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		2nd Week	Week of 1/30/06	12.0	6.59	0.00	24.2	20.0	0.7	NR	NR	NR	NR	NR
	2nd Quarter	3rd Week	Week of 2/6/06	12.0	6.64	0.00	121.0	19.4	0.8	NR	NR	NR	NR	NR
		4th Week	Week of 2/13/06	12.0	6.69	0.00	78.8	19.2	0.8	NR	NR	NR	NR	NR
		2nd Month	Week of 2/20/06	12.0	6.79	0.00	VP	VP	VP	NR	NR	NR	NR	NR
		3rd Month	Week of 3/06/06	12.0	6.78	0.00	12.6	19.1	1.0	0.05	0.17	0.085	1.6	8.6
	3rd Quarter	2nd Quarter	Week of 6/17/06	11.6	6.35	0.00	19.5	18.1	1.0	0.11	0.48	0.11	2.4	27.0
		3rd Quarter	Week of 9/11/06	11.6	6.33	0.00	1.8	18.6	6.9	<0.10	<0.10	<0.10	<0.30	<5.0
		4th Quarter	Week of 12/04/06	11.9	6.51	0.00	13.8	18.5	1.1	<0.10	<0.10	0.18	2.4	18.000
TP #14	1st Quarter	Pre-Dewatering	Week of 1/09/06	11.4	6.24	0.00	0.1	17.8	0.0	<0.05	<0.05	<0.05	<0.05	<5.0
		Pre-Aeration	Week of 1/16/06	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
		1st Week	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		2nd Week	Week of 1/30/06	12.0	6.59	0.00	24.2	20.0	0.7	NR	NR	NR	NR	NR
	2nd Quarter	3rd Week	Week of 2/6/06	12.0	6.64	0.00	121.0	19.4	0.8	NR	NR	NR	NR	NR
		4th Week	Week of 2/13/06	12.0	6.69	0.00	78.8	19.2	0.8	NR	NR	NR	NR	NR
		2nd Month	Week of 2/20/06	12.0	6.79	0.00	VP	VP	VP	NR	NR	NR	NR	NR
		3rd Month	Week of 3/06/06	12.0	6.78	0.00	12.6	19.1	1.0	0.05	0.17	0.085	1.6	8.6
	3rd Quarter	2nd Quarter	Week of 6/17/06	11.6	6.35	0.00	19.5	18.1	1.0	0.11	0.48	0.11	2.4	27.0
		3rd Quarter	Week of 9/11/06	11.6	6.33	0.00	1.8	18.6	6.9	<0.10	<0.10	<0.10	<0.30	<5.0
		4th Quarter	Week of 12/04/06	11.9	6.51	0.00	13.8	18.5	1.1	<0.10	<0.10	0.18	2.4	18.000

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RIVER TERRACE

Soil Gas Monitoring 2005/2006

Sample Location	Sampling Activities	DATE	Purge Volume (L)	Depth to Water	Pressure (Inches of Water)	PID (PPM)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylben (ug/L)	Xylene (ug/L)	GRO (ug/L)
MW #49	Start-Up	Pre-Dewatering	71.1	9.69	0.00	0.0	17.1	1.0	<0.05	<0.05	0.082	0.340	<5.0
		Week of 1/09/06											
		Pre-Aeration	74.0	10.13	0.00	2.0	19.8	0.7	NR	NR	NR	NR	NR
		Week of 1/16/06											
	1st Quarter	1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		Week of 1/23/06											
		2nd Week	73.0	10.04	0.00	28.8	19.4	0.7	NR	NR	NR	NR	NR
		Week of 1/30/06											
	1st Quarter	3rd Week	75.0	10.06	0.00	51.9	19.1	1.2	NR	NR	NR	NR	NR
		Week of 2/06/06											
		4th Week	73.0	10.05	0.00	89.4	18.7	1.1	NR	NR	NR	NR	NR
		Week of 2/13/06											
	1st Quarter	2nd Month	74.0	10.11	0.00	VP	VP	VP	NR	NR	NR	NR	NR
		Week of 2/20/06											
		3rd Month	74.0	10.07	0.00	20.3	19.2	1.0	<0.05	1.00	0.06	8.90	28.00
		Week of 3/06/06											
DW #1	Start-Up	2nd Quarter	73.0	9.98	0.00	16.1	16.8	2.7	<0.10	<0.10	<0.10	1.4	35.0
		Week of 6/17/06											
		3rd Quarter	68.0	9.38	0.00	3.5	17.7	2.8	<0.10	<0.10	<0.10	<0.30	<5.0
		Week of 9/11/06											
	1st Quarter	4th Quarter	67.0	9.16	0.00	2.1	19.0	1.0	<0.10	<0.10	<0.10	0.46	<5.0
		Week of 12/04/06											
		Pre-Dewatering	113.0	6.9	0.00	0.0	12.7	7.4	0.09	0.14	0.59	1.20	35.00
		Week of 1/09/06											
	1st Quarter	Pre-Aeration	129.0	7.84	0.00	5.7	20.4	0.2	NR	NR	NR	NR	NR
		Week of 1/16/06											
		1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		Week of 1/23/06											
	1st Quarter	2nd Week	124.0	7.52	0.00	252.0	15.8	3.0	NR	NR	NR	NR	NR
		Week of 1/30/06											
		3rd Week	127.0	7.71	0.00	449.0	13.9	4.5	NR	NR	NR	NR	NR
		Week of 2/06/06											
	1st Quarter	4th Week	129.0	7.89	0.00	120.2	13.6	4.2	NR	NR	NR	NR	NR
		Week of 2/13/06											
		2nd Month	130.0	7.91	0.00	VP	VP	VP	NR	NR	NR	NR	NR
		Week of 2/20/06											
	1st Quarter	3rd Month	130.0	7.91	0.00	25.4	9.9	8.7	<0.05	0.61	0.17	5.20	61.00
		Week of 3/06/06											
		2nd Quarter	150.0	6.49	0.00	5.8	16.6	4.4	<0.10	<0.10	<0.10	0.33	8.60
		Week of 6/17/06											
	1st Quarter	3rd Quarter	105.0	6.39	0.00	7.8	18.8	1.3	<0.10	<0.10	<0.10	<0.30	<5.0
		Week of 9/11/06											
	4th Quarter	Week of 12/04/06	92.0	5.58	0.00	1.1	20.9	0.0	<0.10	<0.10	<0.10	<0.30	<5.0

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 ft below TOC = feet below top of casing
 PD = Piezometer Destroyed

River Terrace

Ground Water Monitoring 2005/2006

Field Measurements															EPA Method 8021B					EPA Method 8015B	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)				
																		WQCC/20NMAC/6.2.3103	0.75	0.75	0.82
TP-#1	Start-Up	Baseline	5.35	NPP	9.38	2034	6.92	70.6	NR	183	1.40	0.05	3.80	23.00	<0.050	1.90	66.00				
		Pre-Dewatering	5.14	NPP	9.38	1911	6.93	48.0	4.34	NR	NR	NR	NR	NR	NR	NR	NR				
	1st Quarter	Pre-Aeration	7.88	NPP	9.38	2116	7.05	49.5	0.19	-333	NR	NR	NR	NR	NR	NR	NR				
		1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS				
		2nd Week	6.28	NPP	9.38	1957	6.96	50.1	2.20	70	NR	NR	NR	NR	NR	NR	NR				
		3rd Week	7.25	NPP	9.38	2284	7.04	50.1	4.21	144	NR	NR	NR	NR	NR	NR	NR				
	2nd Quarter	4th Week	7.81	NPP	9.38	2095	6.98	48.5	11.86	87	NR	NR	NR	NR	NR	NR	NR				
		2nd Month	8.15	NPP	9.38	2261	7.06	50.7	0.883	99	NR	NR	NR	NR	NR	NR	NR				
	3rd Quarter	3rd Month	8.04	NPP	9.38	2233	7.04	52.0	0.83	186	150	<0.050	4.10	30.00	<0.120	3.80	72.00				
		2nd Quarter	6.8	NPP	9.38	2372	6.96	67.3	0.56	-15	2.60	<0.250	3.30	18.00	<0.620	4.30	40.00				
	4th Quarter	3rd Quarter	5.68	NPP	9.38	3053	7.00	72.8	0.71	-50	3.20	<0.100	3.80	20.00	<0.250	3.50	98.00				
		4th Quarter	7.42	NPP	9.38	3631	6.99	57.3	NM	96	1.60	<0.100	3.20	20.00	<0.25	3.30	95.00				

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River Terrace

Ground Water Monitoring 2005/2006

Field Measurements															EPA Method 8021B				EPA Method 8015B			
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)					
																		WQCC-20NMAC-6.2-3.103	0.01	0.75	0.55	0.82
TP #2	Start-Up	Baseline	6.84	NPP	9.92	2225	6.85	65.2	NR	NR	6.10	8.70	4.20	25.00	<0.05	1.10	84.00					
		Pre-Dewatering	6.62	NPP	9.92	2001	6.91	48.3	2.56	178	NR	NR	NR	NR	NR	NR	NR					
		Pre-Aeration	9.12	NPP	9.92	1807	7.01	50.3	1.01	120	NR	NR	NR	NR	NR	NR	NR					
	1st Quarter	1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS					
		2nd Week	7.74	NPP	9.92	1694	6.96	49.4	5.64	-531	NR	NR	NR	NR	NR	NR	NR					
		3rd Week	9.25	NPP	9.92	1477	7.05	49.0	10.02	141	NR	NR	NR	NR	NR	NR	NR					
		4th Week	9.73	NPP	9.92	1347	7.03	46.6	18.37	-523	NR	NR	NR	NR	NR	NR	NR					
	2nd Month	Week of 2/20/06	9.83	NPP	9.92	1445	7.03	48.7	15.95	70	NR	NR	NR	NR	NR	NR	NR					
		Week of 3/06/06	9.83	NPP	9.92	1802	7.08	53.2	9.48	184	6.20	1170	0.51	5.00	<0.120	9.90	27.00					
	3rd Quarter	Week of 6/17/06	8.27	NPP	9.92	3586	6.93	62.8	0.94	-216	3.60	2.40	2.80	14.00	<0.120	4.90	42.00					
		Week of 9/11/06	7.37	NPP	9.92	2531	7.03	67.4	0.65	-13	3.30	0.27	2.80	15.00	<0.25	1.30	77.00					
	4th Quarter	Week of 12/04/06	9.03	NPP	9.92	3548	6.92	53.5	2.14	177	4.70	<0.100	2.40	12.00	<0.250	1.50	41.00					

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River Terrace

Ground Water Monitoring 2005/2006

Field Measurements													EPA Method 8021B				EPA Method 8015B			
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	WQCC-20NMAC 6.2.3.103				EPA Method 8015B					
											Benzene (mg/L)	Toluene (mg/L)	Ethylbeni (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)			
TP-#3	Baseline	Week of 8/15/05	6.61	NPP	12.35	1295	6.85	68.4	NR	NR	<0.005	<0.005	0.0012	<0.0025	<1.0	<0.05				
	Pre-Dewatering	Week of 1/09/06	6.44	NPP	12.35	1262	6.96	50.3	2.89	234	NR	NR	NR	NR	NR	NR				
		Week of 1/16/06	6.48	NPP	12.35	1256	6.97	50.3	3.00	239	NR	NR	NR	NR	NR	NR				
	1st Month	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS				
		Week of 1/30/06	7.01	NPP	12.35	1119	6.94	49.6	0.45	217	NR	NR	NR	NR	NR	NR				
		Week of 2/6/06	7.14	NPP	12.35	1134	7.00	48.7	0.52	235	NR	NR	NR	NR	NR	NR				
		Week of 2/13/06	6.15	NPP	12.35	1121	7.03	49.5	0.36	254	NR	NR	NR	NR	NR	NR				
	2nd Month	Week of 2/20/06	PR	PR	PR	PR	PR	PR	PR	PR	PR	NR	NR	NR	NR	NR				
		Week of 3/06/06	8.09	NPP	12.35	1050	6.94	47.9	0.21	256	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.05			
	3rd Quarter	Week of 6/17/06	7.23	NPP	12.35	856	6.99	62.1	0.98	179	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.05			
		Week of 9/11/06	7.41	NPP	12.35	779	6.99	68.0	0.33	233	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.05			
	4th Quarter	Week of 12/04/06	7.77	NPP	12.35	673	7.06	54.8	1.32	242	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.05			

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River Terrace

Ground Water Monitoring 2005/2006

Field Measurements																	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	EPA Method 8021B WQCG 20NMAC 6.2-3103					EPA Method 8015B	
											Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)
TP-#4	Start-Up	Baseline	5.00	NPP	6.49	696	6.88	70.0	NR	NR	<0.01	<0.01	0.42	0.22	<0.05	1.1	8.2
		Week of 8/15/05															
		Pre-Dewatering	4.96	NPP	6.49	409	6.95	39.7	1.55	231	NR	NR	NR	NR	NR	NR	NR
		Week of 10/9/06															
	1st Quarter	Pre-Aeration	NWP	NWP	6.49	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP
		Week of 1/16/06															
		1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		Week of 1/23/06															
	1st Quarter	2nd Week	5.74	NPP	6.49	353	6.94	38.5	0.46	219	NR	NR	NR	NR	NR	NR	NR
		Week of 1/30/06															
		3rd Week	6.06	NPP	6.49	356	7.00	41.4	1.94	217	NR	NR	NR	NR	NR	NR	NR
		Week of 2/6/06															
	1st Quarter	4th Week	6.24	NPP	6.49	364	7.02	42.5	2.72	70	NWP	NWP	NWP	NWP	NWP	NWP	NWP
		Week of 2/13/06															
		2nd Month	NWP	NWP	6.49	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP
		Week of 2/20/06															
2nd Quarter	3rd Month	NWP	NWP	6.49	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	
	Week of 3/06/06																
	2nd Quarter	5.33	NPP	6.49	681	6.95	59.8	0.54	236	<0.010	<0.001	<0.001	5.70	<0.025	1.1000	9.200	
	Week of 6/17/06																
3rd Quarter	3rd Quarter	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	
	Week of 9/1/06																
	4th Quarter	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	
	Week of 12/04/06																

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River Terrace

Ground Water Monitoring 2005/2006

Field Measurements													EPA Method 8021B				EPA Method 8015B			
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	WQCC 2001MAC 6.2.3103				EPA Method 8015B					
											Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)			
TP #5	Start-Up	Baseline	5.91	NPP	8.84	923	6.90	68.7	NR	NR	0.35	<0.005	3.5	21	<0.05	1.2	56			
		Pre-Dewatering	4.7	NPP	8.84	947	6.94	49.0	1.44	-45	NR	NR	NR	NR	NR	NR	NR			
		Pre-Aeration	7.5	NPP	8.84	1390	6.97	49.1	0.03	-160	NR	NR	NR	NR	NR	NR	NR			
	1st Quarter	1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS			
		2nd Week	7.33	NPP	8.84	1222	6.99	51.5	0.94	-151	NR	NR	NR	NR	NR	NR	NR			
		3rd Week	7.60	NPP	8.84	1330	7.06	51.6	0.98	-132	NR	NR	NR	NR	NR	NR	NR			
		4th Week	7.73	NPP	8.84	977	7.07	53.2	0.87	-101	NR	NR	NR	NR	NR	NR	NR			
	2nd Quarter	2nd Month	7.85	NPP	8.84	770	7.02	52.0	0.60	-67	NR	NR	NR	NR	NR	NR	NR			
		3rd Month	7.81	NPP	8.84	747	7.03	54.1	0.52	-51	0.2	<0.02	0.28	20	<0.05	<1.0	59			
	3rd Quarter	2nd Quarter	5.24	NPP	8.84	989	6.94	65.3	0.05	39	0.054	<0.001	1.6	16	<0.025	<3.0	34			
		3rd Quarter	5.32	NPP	8.84	879	7.09	71.0	0.29	149	<0.01	<0.01	3.1	16	<0.025	<1.0	110			
	4th Quarter	4th Quarter	5.95	NPP	8.84	1377	6.99	56.0	1.36	229	0.069	<0.050	1.2	10	<0.120	<1.0	50			

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River Terrace

Ground Water Monitoring 2005/2006

Field Measurements																	EPA Method 8021B				EPA Method 8015B	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)					
																		WQCC-20NMAC-6.2-31031	0.01	0.75	0.75	0.62
TP-#6	Start-Up	Baseline	5.78	NPP	9.94	1128	6.94	68.2	NR	NR	0.28	<0.01	2.8	7.5	<0.05	1	26					
		Pre-De-watering	5.63	NPP	9.94	983	6.94	48.6	0.39	87	NR	NR	NR	NR	NR	NR	NR					
		Pre-Aeration	8.53	NPP	9.94	982	7.05	50.6	0.36	-44	NR	NR	NR	NR	NR	NR	NR					
	1st Quarter	1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS					
		2nd Week	8.15	NPP	9.94	1401	7.02	52.4	2.83	-202	NR	NR	NR	NR	NR	NR	NR	NR				
		3rd Week	8.4	NPP	9.94	1573	7.05	50.4	0.89	-129	NR	NR	NR	NR	NR	NR	NR	NR				
		4th Week	8.54	NPP	9.94	1336	6.97	49.1	2.59	111	NR	NR	NR	NR	NR	NR	NR	NR				
	2nd Month	Week of 2/20/06	8.59	NPP	9.94	995	7.05	49.7	2.06	129	NR	NR	NR	NR	NR	NR	NR	NR				
		3rd Month	8.61	NPP	9.94	602	7.35	52.3	0.63	153	<0.001	<0.001	0.18	0.75	<0.025	<1.0	2.7					
	2nd Quarter	Week of 5/17/06	6.18	NPP	9.94	1216	6.98	66.5	0.38	94	<0.001	<0.001	4.4	0.35	<0.025	<1.0	1.9					
		3rd Quarter	6.17	NPP	9.94	2698	7.02	69.4	0.76	45	0.027	<0.01	0.41	0.045	<0.025	<1.0	5.3					
	4th Quarter	Week of 9/11/06	6.61	NPP	9.94	1826	6.95	54.8	1.03	226	0.006	<0.001	<0.001	<0.003	<0.0025	<1.0	0.48					

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River Terrace

Ground Water Monitoring 2005/2006

Sample Location	Sample Location	Sample Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	EPA Method 8021B					EPA Method 8015B	
												WQCC 2005/2006					DRO (mg/L)	GRO (mg/L)
												Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)		
TP #8		Start-Up	Week of 8/15/05	6.61	NPP	9.72	1934	6.94	72.4	NR	NR	1.1	<0.05	3.20	25	<0.25	7.8	84
			Week of 1/09/06	5.61	NPP	9.72	1802	6.98	49.4	1.13	345	NR	NR	NR	NR	NR	NR	NR
			Week of 1/15/06	8.23	NPP	9.72	1769	7.04	50.9	0.21	200	NR	NR	NR	NR	NR	NR	NR
			Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		1st Quarter	Week of 1/30/06	7.24	NPP	9.72	1704	6.97	50.1	7.49	91	NR	NR	NR	NR	NR	NR	NR
			Week of 2/6/06	8.38	NPP	9.72	2077	7.08	51.0	2.52	89	NR	NR	NR	NR	NR	NR	NR
			Week of 2/13/06	9.02	NPP	9.72	2024	6.92	48.6	1.67	209	NR	NR	NR	NR	NR	NR	NR
			Week of 2/20/06	9.22	NPP	9.72	1627	6.95	48.2	0.81	199	NR	NR	NR	NR	NR	NR	NR
		2nd Quarter	Week of 3/6/06	8.92	NPP	9.72	1613	7.03	52.6	0.61	228	0.35	<0.10	1.10	10	<0.025	18	37
			Week of 6/17/06	7.5	NPP	9.72	2032	7.01	67.6	0.48	143	0.26	<0.100	0.64	6.3	<0.025	6.8	19
			Week of 9/11/05	6.21	NPP	9.72	2977	7.03	74.6	0.43	107	<0.01	<0.010	0.58	1.6	<0.025	5.6	57
			Week of 12/04/06	8.21	NPP	9.72	1855	7.04	57.3	1.56	187	0.041	<0.010	1.30	12	<0.025	1.4	79

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Ground Water Monitoring 2005/2006

Field Measurements																	EPA Method 8021B				EPA Method 8015B		
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)						
TP-#9	Start-Up	Baseline	5.12	NPP	10.97	1968	6.92	62.8	NR	NR	<0.005	<0.001	<0.003	0.02	0.027	<1.0	1.1						
		Pre-Dewatering	5.08	NPP	10.97	1870	6.91	48.0	11.07	222	NR	NR	NR	NR	NR	NR	NR						
		Pre-Aeration	5.14	NPP	10.97	1981	7.00	47.5	0.32	97	NR	NR	NR	NR	NR	NR	NR						
		1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS						
	1st Quarter	2nd Week	5.22	NPP	10.97	2029	6.99	48.1	0.62	251	NR	NR	NR	NR	NR	NR	NR						
		3rd Week	5.25	NPP	10.97	1999	7.03	45.0	0.84	243	NR	NR	NR	NR	NR	NR	NR						
		4th Week	5.24	NPP	10.97	1897	6.93	44.8	1.02	197	NR	NR	NR	NR	NR	NR	NR						
		2nd Month	5.28	NPP	10.97	1850	6.99	44.4	0.73	198	NR	NR	NR	NR	NR	NR	NR						
	2nd Quarter	3rd Month	5.21	NPP	10.97	1944	7.02	47.8	0.75	214	<0.001	<0.001	<0.003	<0.003	<0.0025	<1.0	0.094						
		4th Week	5.26	NPP	10.97	1883	7.02	60.6	0.39	169	<0.001	<0.001	0.001	<0.003	<0.0025	<1.0	<0.050						
	3rd Quarter	Week of 9/11/06	5.48	NPP	10.97	1809	7.04	64.8	1.09	219	<0.001	<0.001	0.001	<0.003	<0.0025	<1.0	0.72						
		Week of 12/04/06	5.39	NPP	10.97	2149	7.06	51.9	1.37	254	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.05						

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Ground Water Monitoring 2005/2006

Field Measurements												EPA Method 8021B						EPA Method 8015B		
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	WQCC:20NMAC 6.2.3103					MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)		
											Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	0.75				0.75	0.62
TP #10	Start-Up	Baseline	5.10	NPP	9.95	377	6.94	71.2	NR	NR	<0.0005	<0.0005	<0.0005	0.0025	<0.0025	<1.0	<0.05			
		Pre-Dewatering	5.08	NPP	9.95	390	7.02	42.6	8.31	179	NR	NR	NR	NR	NR	NR	NR			
		Pre-Aeration	5.09	NPP	9.95	387	7.02	42.4	4.47	182	NR	NR	NR	NR	NR	NR	NR			
	1st Quarter	1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS			
		2nd Week	5.54	NPP	9.95	353	6.93	41.2	1.73	201	NR	NR	NR	NR	NR	NR	NR			
		3rd Week	5.67	NPP	9.95	356	7.00	39.7	3.61	228	NR	NR	NR	NR	NR	NR	NR			
		4th Week	5.74	NPP	9.95	343	7.00	41.2	2.18	107	NR	NR	NR	NR	NR	NR	NR			
	2nd Quarter	2nd Month	5.85	NPP	9.95	352	7.04	41.4	1.83	220	NR	NR	NR	NR	NR	NR	NR			
		3rd Month	5.86	NPP	9.95	355	6.99	42.8	1.72	224	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.05			
	3rd Quarter	2nd Quarter	5.23	NPP	9.95	325	7.01	59.8	1.52	168	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.05			
		3rd Quarter	5.26	NPP	9.95	395	6.97	62.6	0.45	247	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.05			
	4th Quarter	4th Quarter	5.57	NPP	9.95	387	7.00	44.9	1.44	269	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.05			

Field Measurements

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Field Measurements																		
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	EPA Method 8021B WQCG20NMAC:6.2.3103						EPA Method 8015B	
											Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)	
TP #11	Start-Up	Baseline	5.67	NPP	9.98	794	6.93	68.2	NR	NR	<0.0005	<0.0005	0.0028	<0.0025	<1.0	<0.05		
		Pre-Dewatering	5.55	NPP	9.98	967	6.99	48.3	1.35	150	NR	NR	NR	NR	NR	NR		
		Pre-Aeration	5.51	NPP	9.98	1041	6.95	47.6	1.30	158	NR	NR	NR	NR	NR	NR		
	1st Quarter	1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
		2nd Week	6.03	NPP	9.98	556	6.94	46.8	0.56	194	NR	NR	NR	NR	NR	NR		
		3rd Week	6.1	NPP	9.98	831	6.97	45.5	1.75	257	NR	NR	NR	NR	NR	NR		
		4th Week	6.19	NPP	9.98	805	6.97	45.5	0.88	242	NR	NR	NR	NR	NR	NR		
	2nd Quarter	2nd Month	6.29	NPP	9.98	941	7.01	46.2	0.15	240	NR	NR	NR	NR	NR	NR		
		3rd Month	6.31	NPP	9.98	851	6.92	45.4	0.24	243	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.05	
	3rd Quarter	2nd Quarter	5.61	NPP	9.98	551	6.98	62.6	1.11	177	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.050	
		3rd Quarter	5.69	NPP	9.98	632	7.06	67.7	0.36	269	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.050	
	4th Quarter	4th Quarter	6	NPP	9.98	738	7.07	52.8	0.97	257	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.050	

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River Terrace

Ground Water Monitoring 2005/2006

Field Measurements																	EPA Method 8021B						EPA Method 8015B	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	WQCC 20NMAC 6.2.3103					DRO (mg/L)	GRO (mg/L)							
											Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)									
TP-#12	Start-Up	Baseline	7.43	NPP	11.79	2143	6.88	64.1	NR	NR	<0.0005	NR	NR	0.00055	0.0042	0.0028	1.00	<0.050						
		Pre-Dewatering	7.38	NPP	11.79	1072	6.91	47.1	2.01	244	NR	NR	NR	NR	NR	NR	NR	NR						
			Pre-Aeration	7.41	NPP	11.79	1234	7.06	50.3	2.96	219	NR	NR	NR	NR	NR	NR	NR						
	1st Quarter	1st Month	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS						
			Week of 1/30/06	7.73	NPP	11.79	1000	6.97	48.4	1.31	226	NR	NR	NR	NR	NR	NR	NR						
		2nd Month	Week of 2/6/06	7.79	NPP	11.79	1008	6.99	47.6	0.62	268	NR	NR	NR	NR	NR	NR	NR						
			4th Week	7.86	NPP	11.79	1001	6.98	47.5	1.25	228	NR	NR	NR	NR	NR	NR	NR						
	2nd Quarter	Week of 2/20/06	7.94	NPP	11.79	1134	7.00	47.6	0.16	217	NR	NR	NR	NR	NR	NR	NR	NR						
		3rd Month	7.94	NPP	11.79	1234	6.91	48.0	0.19	242	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.050							
	3rd Quarter	2nd Quarter	Week of 6/17/06	7.44	NPP	11.79	1171	7.00	55.9	0.26	157	<0.001	<0.001	<0.001	<0.003	0.0049	<1.0	<0.050						
			Week of 9/11/06	7.48	NPP	11.79	1875	6.98	60.0	0.91	237	<0.001	<0.001	<0.001	<0.003	0.0081	<1.0	<0.050						
	4th Quarter	3rd Quarter	Week of 12/04/06	7.67	NPP	11.79	855	6.99	52.8	3.11	252	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.050						

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River Terrace

Ground Water Monitoring 2005/2006

Field Measurements													EPA Method 8021B				EPA Method 8015B			
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	WQCC-20NMAC-6.2.3103				EPA Method 8015B					
											Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)			
TP-#13	Start-Up	Baseline	6.27	NPP	16.09	1226	6.97	58.4	NR	NR	<0.0005	<0.0005	<0.0005	0.0037	<0.0025	<1.0	<0.050			
		Week of 8/15/05																		
		Pre-Dewatering	6.24	NPP	16.09	1098	6.99	51.7	1.19	215	NR	NR	NR	NR	NR	NR	NR			
		Week of 1/09/06																		
	1st Quarter	Pre-Aeration	6.27	NPP	16.09	1157	7.03	51.6	2.55	210	NR	NR	NR	NR	NR	NR	NR			
		Week of 1/16/06																		
		1st Week	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS			
		Week of 1/23/06																		
	2nd Quarter	2nd Week	6.59	NPP	16.09	803	6.96	49.5	0.66	195	NR	NR	NR	NR	NR	NR	NR			
		Week of 1/30/06																		
		3rd Week	6.64	NPP	16.09	717	7.09	49.0	0.44	241	NR	NR	NR	NR	NR	NR	NR			
		Week of 2/6/06																		
	3rd Quarter	4th Week	6.69	NPP	16.09	573	7.02	48.8	2.25	212	NR	NR	NR	NR	NR	NR	NR			
		Week of 2/13/06																		
		2nd Month	6.79	NPP	16.09	478	7.01	46.7	0.49	218	NR	NR	NR	NR	NR	NR	NR			
		Week of 2/20/06																		
4th Quarter	3rd Month	6.78	NPP	16.09	508	6.90	46.3	0.28	242	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.050				
	Week of 3/06/06																			
	2nd Quarter	6.35	NPP	16.09	526	7.02	58.6	0.28	240	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.050				
	Week of 6/17/06																			
3rd Quarter	3rd Quarter	6.33	NPP	16.09	554	6.98	63.9	0.54	244	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.050				
	Week of 9/11/06																			
4th Quarter	4th Quarter	6.51	NPP	16.09	515	7.08	53.9	0.97	251	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.050				
	Week of 12/04/06																			

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River Terrace

Ground Water Monitoring 2005/2006

Field Measurements															EPA Method 8021B						EPA Method 8015B	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)					
																		WQCC 20NNMAC 6.2.3103	0.01	0.075	0.75	0.62
MW #49	Start-Up	Baseline	9.57	NPP	16.48	2393	6.96	59.8	NR	NR	0.093	<0.002	0.015	0.0041	<0.002	NR	NR					
		Pre-Dewatering	9.69	NPP	16.48	1973	6.99	51.7	2.23	123	NR	NR	NR	NR	NR	NR	NR					
		Week of 1/16/05	9.76	NPP	16.48	1852	7.04	53.2	0.34	83	NR	NR	NR	NR	NR	NR	NR					
		Pre-Aeration	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS					
	1st Quarter	1st Week	Week of 1/23/05	10.04	NPP	16.48	1868	6.98	51.0	0.54	106	NR	NR	NR	NR	NR	NR	NR				
		2nd Week	Week of 1/30/05	10.06	NPP	16.48	1750	7.03	50.5	0.28	190	NR	NR	NR	NR	NR	NR	NR				
		3rd Week	Week of 2/6/05	10.05	NPP	16.48	1497	7.07	50.8	0.37	177	NR	NR	NR	NR	NR	NR	NR				
		4th Week	Week of 2/13/05	10.11	NPP	16.48	2380	7.07	50.3	1.10	245	NR	NR	NR	NR	NR	NR	NR				
	2nd Quarter	2nd Month	Week of 2/20/05	10.07	NPP	16.48	961	7.07	51.9	0.33	190	<0.001	<0.001	<0.001	0.0061	<0.0025	<1.0	0.074				
		3rd Month	Week of 3/06/05	9.98	NPP	16.48	701	7.01	57.9	0.26	181	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.050				
		3rd Quarter	Week of 6/17/05	9.38	NPP	16.48	1736	7.04	64.4	0.89	234	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	0.23				
			Week of 9/11/05	9.16	NPP	16.48	2356	7.07	56.2	0.78	295	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	0.081				
	4th Quarter	Week of 12/04/05																				

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River Terrace

Ground Water Monitoring 2005/2006

Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O. (mg/L)	ORP (mV)	EPA Method 8021B						EPA Method 8015B		
											WQCC/20NMAC/6.2.3.103								
											Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)		
DW #1	Start-Up	Baseline	6.43	NPP	15.62	1226	6.97	58.4	NR	NR	<0.001	<0.001	<0.001	0.0031	<0.001	NR	NR		
		Pre-Deaerating	6.9	NPP	15.62	1405	7.03	54.0	2.42	149	NR	NR	NR	NR	NR	NR	NR		
	Pre-Aeration	Week of 1/15/06	7.84	NPP	15.62	1550	7.01	52.4	0.86	-46	NR	NR	NR	NR	NR	NR	NR		
		Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
	1st Quarter	1st Week	7.52	NPP	15.62	2779	6.99	49.6	1.43	117	NR	NR	NR	NR	NR	NR	NR		
		2nd Week	7.71	NPP	15.62	2488	7.04	48.8	0.53	142	NR	NR	NR	NR	NR	NR	NR		
		3rd Week	7.89	NPP	15.62	2401	7.05	50.3	0.95	54	NR	NR	NR	NR	NR	NR	NR		
		4th Week	7.91	NPP	15.62	1245	7.09	52.3	0.57	188	NR	NR	NR	NR	NR	NR	NR		
	2nd Quarter	Week of 2/20/06	7.91	NPP	15.62	2118	6.95	50.2	0.75	-64	<0.005	<0.005	0.041	0.23	<0.012	2.2	2.8		
		Week of 3/05/06	6.49	NPP	15.62	2329	6.96	58.0	0.42	143	<0.001	<0.001	0.016	0.12	<0.0025	1.6	0.9		
	3rd Quarter	Week of 5/17/06	6.39	NPP	15.62	2067	7.04	66.2	0.30	258	<0.005	<0.005	<0.005	<0.015	<0.012	<1.0	1.2		
		Week of 9/11/06	5.58	NPP	15.62	2789	7.01	52.7	1.24	281	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	0.09		
	4th Quarter	Week of 12/04/06		NPP	15.62														
				NPP	15.62														

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River Terrace

Total Metals 2006

EPA Method 6010 & 7470										
Sampling Activities	Date	Sample Location	Arsenic (mg/L)	Barium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Selenium (mg/L)	Silver (mg/L)	Mercury (mg/L)
Baseline	Jan-06	TP - #1	0.05	2	0.005	0.1	0.015	0.05	0.05	0.002
Baseline	Jan-06	TP - #1	<0.020	0.62	<0.0020	<0.0060	0.038	<0.050	<0.0050	<0.00020
Baseline	Jan-06	TP - #2	<0.020	0.85	<0.0020	<0.0060	0.016	<0.050	<0.0050	<0.00020
Baseline	Jan-06	TP - #3	<0.020	0.11	<0.0020	<0.0060	0.014	<0.050	<0.0050	<0.00020
Baseline	Jan-06	TP - #4	<0.020	0.23	<0.0020	<0.0060	0.068	<0.050	<0.0050	<0.00020
Baseline	Jan-06	TP - #5	<0.020	0.45	<0.0020	<0.0060	0.038	<0.050	<0.0050	<0.00020
Baseline	Jan-06	TP - #6	<0.020	0.46	<0.0020	<0.0060	0.014	<0.050	<0.0050	<0.00020
Baseline	Jan-06	TP - #7	NR	NR	NR	NR	NR	NR	NR	NR
Baseline	Jan-06	TP - #8	<0.020	2.2	<0.0020	<0.0060	0.02	<0.050	<0.0050	<0.00020
Baseline	Jan-06	TP - #9	<0.020	0.38	<0.0020	<0.0060	<0.0050	<0.050	<0.0050	<0.00020
Baseline	Jan-06	TP - #10	<0.020	0.46	<0.0020	0.0072	0.015	<0.050	<0.0050	<0.00020
Baseline	Jan-06	TP - #11	<0.020	0.12	<0.0020	<0.0060	0.0093	<0.050	<0.0050	<0.00020
Baseline	Jan-06	TP - #12	<0.020	0.2	<0.0020	<0.0060	0.016	<0.050	<0.0050	<0.00020

NR = Not Required

River Terrace

Total Metals 2006

EPA Method 6010 & 7470											
Sampling Activities	Date	Sample Location	Arsenic (mg/L)	Barium (mg/L)	Cadmium (mg/L)	Cu (mg/L)	Lead (mg/L)	Se (mg/L)	Silver (mg/L)	Mercury (mg/L)	40GFR 14162
Baseline	Jan-06	TP - #13	<0.020	0.57	<0.0020	<0.006	<0.0050	<0.050	<0.0050	<0.00020	
Baseline	Jan-06	MW - #49	<0.020	0.15	<0.0020	<0.006	<0.0050	<0.050	<0.0050	<0.00020	
1st Quarter	Mar-06		NR	NR	NR	<0.0060	<0.0050	NR	NR	NR	
2nd Quarter	Jun-06		NR	NR	NR	<0.0060	<0.0050	NR	NR	NR	
3rd Quarter	Sep-06		NR	NR	NR	0.006	<0.0050	NR	NR	NR	
4th Quarter	Dec-06		NR	NR	NR	<0.0060	<0.0050	NR	NR	NR	
Baseline	Jan-06	DW - #1	<0.020	0.45	<0.0020	<0.006	<0.0050	<0.050	<0.0050	0.0011	
Resample	Jan-06		NR	NR	NR	NR	NR	NR	NR	0.0016	
1st Quarter	Mar-06		NR	NR	NR	0.0095	<0.0050	NR	NR	0.0021	
2nd Quarter	Jun-06		NR	NR	NR	<0.0060	<0.0050	NR	NR	0.0052	
3rd Quarter	Sep-06		NR	NR	NR	0.023	<0.0050	NR	NR	0.0047	
4th Quarter	Dec-06		NR	NR	NR	<0.0060	<0.0050	NR	NR	0.00069	

NR = Not Required

River Terrace

BV Soil Gas Monitoring - Pre-Aeration

Sample Location	Sampling Activities	Date	Carbon Dioxide (%)	Oxygen (%)	Organic Vapors (ppm)	Pressure (Inches of water)
BV - 1	Pre-Aeration	1/17/2006	0.0	20.9	30.0	0.0
BV - 2	Pre-Aeration	1/17/2006	0.4	14.3	505.0	0.0
BV - 3	Pre-Aeration	1/17/2006	5.6	13.0	18.5	0.0
BV - 4	Pre-Aeration	1/17/2006	0.0	18.6	224.0	0.0
BV - 5	Pre-Aeration	1/17/2006	0.1	11.3	896.0	0.0
BV - 6	Pre-Aeration	1/17/2006	0.2	18.3	234.0	0.0
BV - 7	Pre-Aeration	1/17/2006	0.0	19.0	255.0	0.0
BV - 8	Pre-Aeration	1/17/2006	0.1	15.1	410.5	0.0
BV - 9	Pre-Aeration	1/17/2006	0.0	14.8	315.0	0.0
BV - 10	Pre-Aeration	1/17/2006	0.0	21.0	262.0	0.0
BV - 11	Pre-Aeration	1/17/2006	0.1	14.6	340.1	0.0
BV - 12	Pre-Aeration	1/17/2006	0.0	17.2	256.0	0.0
BV - 13	Pre-Aeration	1/17/2006	0.1	15.0	727.0	0.0

GAC Filter Monitoring 2006			EPA Method 8021B WQCC 20NMAC 6.2.3103 WQCC 20NMAC 6.2.3103				EPA Method 8015B	
			0.01	0.75	0.75	0.82		
			Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	DRO (mg/L)	GRO (mg/L)
GAC INF	Start - Up	01/18/06	0.310	0.044	1.300	6.900	<1.0	17.00
	1st Quarter	03/01/06	0.210	0.110	1.000	6.800	<1.0	16.00
	2nd Quarter	06/08/06	0.480	0.039	1.200	3.900	<1.0	10.00
	3rd Quarter	09/13/06	<0.02	<0.02	0.830	4.100	<1.0	26.00
	4th Quarter	12/13/06	0.029	<0.020	0.590	1.600	<1.0	9.80
GAC 2 EFF	Start - Up	01/18/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
	1st Quarter	03/01/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
	2nd Quarter	06/08/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
	3rd Quarter	09/13/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
	4th Quarter	12/13/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
GAC 1 EFF	Start - Up	01/18/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		01/30/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		02/06/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		02/14/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		02/21/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		03/01/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		03/08/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		03/15/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		03/24/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		04/03/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		04/10/06	<0.001	0.0021	<0.001	<0.003	<1.0	<0.050
		04/17/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		04/24/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		05/02/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		05/08/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		05/16/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		05/22/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		06/01/06	<0.001	<0.001	<0.001	0.003	<1.0	<0.050
		06/08/06	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		06/15/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		06/21/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		06/27/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		07/06/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		07/13/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		07/20/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		07/27/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		08/03/06	River pumps off due to extremely muddy river - Dewatering pumps off - blower left on					
		08/10/06						
		08/17/06						
		08/24/06						
		08/29/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		09/13/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		09/20/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		09/26/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		10/06/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		10/12/06	River pumps off due to extremely muddy river - Dewatering pumps off - blower left on					
		10/18/06						
		10/25/06						
		11/01/06						
		11/08/06						
		11/14/06	River pumps off due to extremely muddy river - Dewatering pumps off - blower left on					
		11/20/06						
		11/28/06						
		12/04/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		12/13/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		12/20/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		12/27/06	<0.001	<0.001	0.002	0.006	<1.0	<0.050

Section 6.0 Summary

Summary

The River Terrace Investigation was initiated in October 2004 with the installation of eight Temporary Piezometers (TP #1 – TP #8), MW #48, and MW #49. In April 2005, five more Temporary Piezometers were drilled (TP #9 – TP #13). During August 2005, Dewatering Wells #1 and #2 were installed. Baseline groundwater monitoring for DW #1 and #2 included EPA Methods 8310 (PAH), 8260B, Dissolved (6010C) and Total (6010, 7470) WQCC Metals, and General Chemistry (106.1, 120.1, 300.0, 310.1). Baseline groundwater monitoring of TP #1 – TP #13 also occurred in August 2005. The TPs were analyzed for Diesel Range Organics (DRO) and Gasoline Range Organics (GRO) by EPA Method 8015B as well as BTEX and MTBE by EPA Method 8021B. MW #48, and MW #49 were analyzed for VOCs by EPA Method 8260B, dissolved metals (EPA Method 6010C), total lead and chromium (EPA Method 6010), and general chemistry (EPA Methods 120.1, 300.0, and 310.1). Field measurements of conductivity, temperature, Total Dissolved Solids (TDS) and pH were taken as well. Thirteen Bioventing wells were also installed in August 2005. Soil from those wells was analyzed for BTEX (8021B), DRO, GRO (8015B), and percent moisture (ASTM 2216).

Construction of the River Terrace Bioventing Project was initiated in August 2005. The system was put on-line in January 2006 at which time the Voluntary Corrective Measure Bioventing Monitoring Plan was followed. DW #2 and MW #48 were set up with pumping systems and used as the de-watering wells and were not included in any of the sampling and analysis proposed in the Bioventing System Monitoring Plan. DW #1 was not used as a de-watering well as it was unable to recharge sufficiently to accommodate pumping requirements. TP -7 was not included in the monitoring program as it appears to have been completed in the River Terrace barrier wall and does not yield sufficient water volume to conduct analysis.

Prior to starting the dewatering pumps, total metals (EPA Methods 6010 & 7470) and groundwater field parameters (temperature, pH, conductivity, dissolved oxygen, and oxidation-reduction potential) were collected during the first week of January 2006 from each of the TP wells (except TP-7) and MW #49 and DW #1. Depth to groundwater measurements and field parameters (pressure, vapor phase organics, oxygen, and carbon dioxide) and soil gas sampling (BTEX - 8021B and gasoline range organics -8015B) was also collected from the TP wells (except TP-7) and MW #49 and DW #1.

After dewatering conditions stabilized and prior to starting the blower, field measurements of soil gas (pressure, hydrocarbons, oxygen and carbon dioxide), depth to groundwater measurements, and groundwater field parameters (temperature, pH, conductivity, dissolved oxygen, and oxidation-reduction potential) were taken during the week of January 18, 2006 from each of the TP

wells (except TP-7), MW #49, DW #1. Pre-aeration analysis of BV#1 – BV #13 included depth to groundwater measurements and field measurements of soil gas (pressure, hydrocarbons, oxygen and carbon dioxide).

Groundwater and soil gas field parameters were collected weekly during the first four weeks of system operation, monthly for the first quarter, and then quarterly thereafter. Soil gas field parameters (vapor-phase organics, oxygen, carbon dioxide, and pressure) and groundwater field parameters (temperature, pH, conductivity, dissolved oxygen, and oxidation-reduction potential) were collected from the TP wells (except TP-7), MW #49 and DW #1. Depth to groundwater and depth to product measurements were also collected prior to sample collection. A malfunction in the system's transformer delayed start of the weekly monitoring. Subsequently weekly monitoring was conducted from the week of January 30, 2006 through the week of February 20, 2006."

First quarter samples were collected during the week of March 6, 2006 from each of the TP wells (except TP-7), MW #49, DW #1. Soil gas analysis included BTEX (8021B) and GRO (8015B). Field measurements of pressure (using a Magnehelic gauge), gas hydrocarbons (using a PID), and oxygen and carbon dioxide concentrations (using a multi-gas meter) were taken. Groundwater samples were analyzed for BTEX and MTBE (8021B), GRO and DRO (8015B). MW #49 and DW #1 were also analyzed for Total Lead, Chromium, and Mercury. Field measurements included temperature, pH, conductivity, dissolved oxygen, and oxidation-reduction potential. Subsequent quarterly monitoring events utilized the same collection sites, methods, and parameters. Second quarter samples were collected the week of June 17, 2006. The third quarter sampling event took place during the week of September 11, 2006. Fourth quarter sampling occurred during the week of December 04, 2006.

An in situ respiration test was performed during the week of May 22, 2006 following methods described in the Bioventing System Monitoring Plan Amendment. The respiration rate test consisted of monitoring the rate at which oxygen is depleted and carbon dioxide is generated when the air supply is turned off. Oxygen, carbon dioxide, and volatile organic compounds were monitored at BV #1 through BV #13 and at TP#1, TP#2, TP#5, TP#6, TP#8, and TP #9 using the PID meter and the multi-gas meter.

Analytical results of the groundwater monitoring indicate that the contaminants of concern are primarily benzene, toluene, ethylbenzene, and xylene (BTEX) at TP #1, TP #2, TP #5, TP #6, and TP #8. BTEX results are below WQCC Standards at TP #9, TP #3, TP #10, TP #11, TP #12 and TP #13. Data from TP #4 has been sporadic (the well is dry at times) which could be due to its location. It is situated in an area that was at one time an inlet pond to the River Station, then filled with dredged material and has had disturbance over a period of time. TP-#4 data is not available for the third and fourth quarter sampling events. Prior to the

third quarter sampling event TP-#4 was inadvertently destroyed by a trackhoe that was cleaning out the freshwater inlet pond adjacent to TP-#4's location. TP #7 was not sampled because it appears to have been drilled into the River Terrace barrier wall and does not yield sufficient water volume.

Depth to groundwater measurements collected over the initial 12 months of operation show that the dewatering system is capable of lowering the water table approximately 2 to 3 feet, increasing the vadose zone and allowing for more effective treatment of the soils within the capillary fringe. In addition, pressure data shows that the dewatering effect helps to increase the radius of influence of the air injection system.

The average oxygen concentration detected at the TP wells within the influenced area (TP-1, -2, -5, -6, and -8) before starting the aeration system and while the dewatering system was operational was approximately 4.2 percent by volume. The low oxygen levels indicate the presence of bioremedial activity. The presence of bioremedial activity is also supported by the results of the in situ respiration test as summarized in Section 6.0 of the RT-Six -Month Report submitted August 2006.

The injection of oxygen into the subsurface often results in rapid changing environment conditions. Oxidation-reduction potential (ORP) of groundwater reflects the relative oxidizing or reducing nature of the groundwater system. ORP in groundwater impacted with petroleum hydrocarbons is usually in the range of a strongly reducing environment. However, both DO and ORP levels may fluctuate due to being influenced by the nature of the biologically mediated degradation of contaminants, water chemistry, and sample technique. Therefore ORP readings collected in the field may easily fluctuate from 800 mV (oxygenated) to less than -400 mV (strongly reducing), and DO readings are anticipated to fluctuate throughout the bioremediation process.

The ORP measurements collected at monitoring well MW-49, located along the river side of the river terrace slurry wall, ranged from 83 millivolts (mV) to 295 mV. Similar ORP readings were collected within the same concentration range at piezometers located outside the bioventing system influence area (TP-3, 4, 9-13). ORP measurements collected from monitoring locations within the influenced area (TP-1, 2, 5, 6, and TP-8) ranged between -531 mV and 345 mV. This fluctuation may be attributed to seasonal changes in groundwater temperatures, seasonal variation in groundwater elevation, and variable bioremedial activity within the influenced area.

Once the aeration system was turned on, the average oxygen concentration at TP wells within the influenced area was approximately 20 percent by volume in soil gas, which shows that the influenced area is well oxygenated. An adequate supply of oxygen is critical to an environment in which aerobic organisms can grow and metabolize the petroleum hydrocarbons. Oxygen becomes a limiting

factor if the concentration within the well field lower below 10 percent by volume, which would eventually lower the biodegradation rate. Positive pressure readings collected from monitoring wells within the influence area (TP-1, 2, and 8), in combination with measured high oxygen readings (above 10%) support the notion of a well oxygenated vadose zone that supports aerobic biodegradation activity.

The low concentrations of carbon dioxide detected at the TP wells within the influenced area while the system was operational during the initial 12-months are not indicators of the absence of bioremedial activity. Oxygen is a more reliable indicator than carbon dioxide because of the complex behavior of carbon dioxide with respect to adsorption by calcium minerals and solution/dissolution from groundwater and soil moisture.

The increase in PID readings at some wells is most likely the result of vapor movement within the subsurface as a result of air injection. As air is constantly injected through the BV wells, a slight stripping effect may occur in the vadose zone, increasing field-detected vapor concentrations at monitoring points within and close to the bioventing well field. This would cause an increase in PID readings when compared to baseline conditions. Since the oxygen is plentiful (above 10 percent by volume) throughout the well field, aerobic biodegradation activity will be sustained.

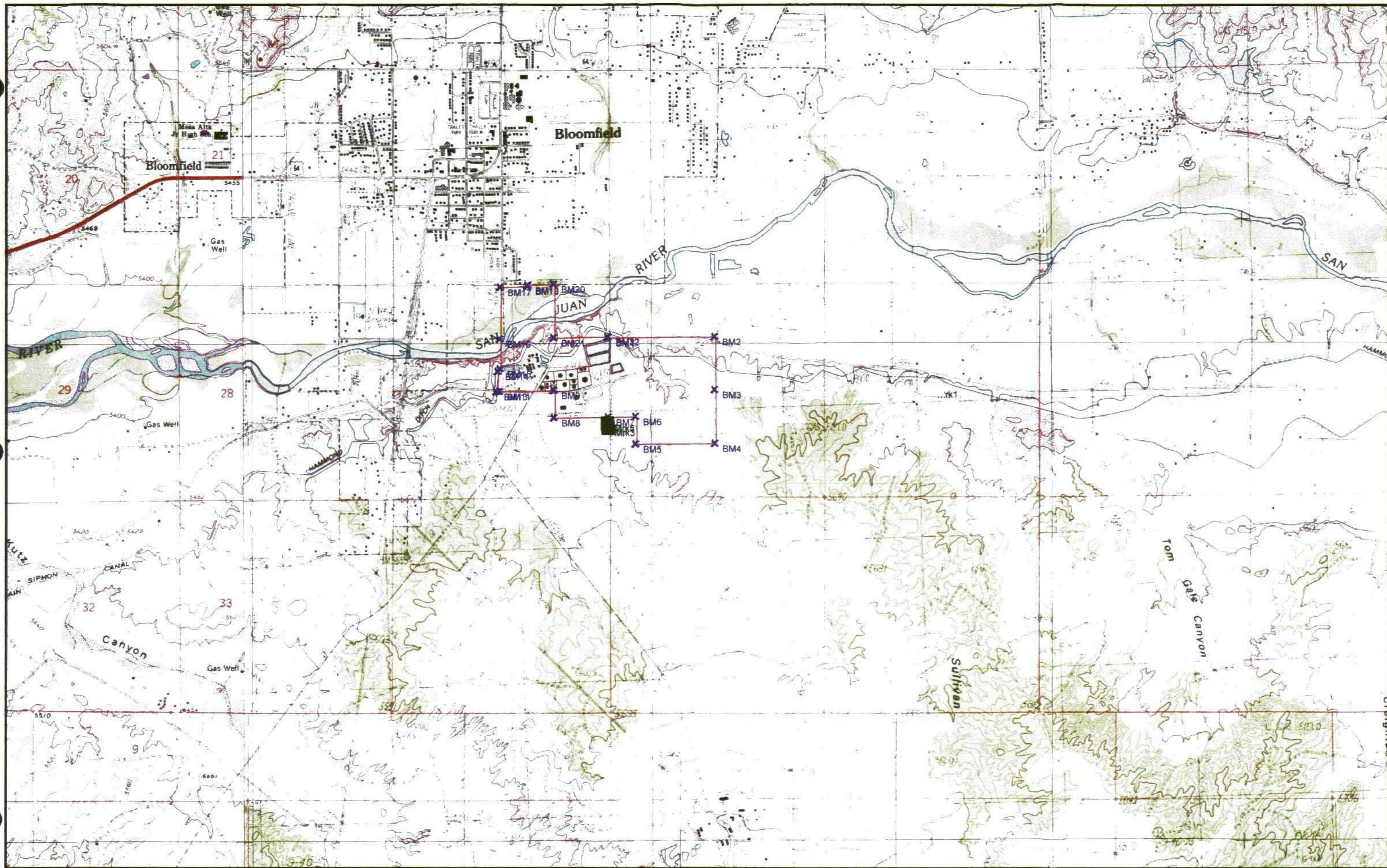
Field data collected during the initial 12-months of system operation indicate the bioventing system is effectively enhancing bioremedial activity within the western portion of the river terrace area. Soil gas concentrations collected in the field show that the bioventing system provides sufficient oxygen supply to fully oxygenate the subsurface, supporting aerobic biodegradation of hydrocarbons.

Performance monitoring will continue on a quarterly basis following the guidelines from the Bioventing System Monitoring Plan. TP #3, TP #9, TP #10, TP #11, TP #12 and TP #13 are located outside the area influenced by the bioventing system and Giant recommends that they be excluded from future performance monitoring.

Extracted groundwater is pumped through two GAC filters positioned in series for removal of dissolved-phase hydrocarbons. Treated groundwater will continue to be sampled and analyzed weekly until breakthrough occurs. Although approximately 1,814,500 gallons of groundwater flowed through the filters, breakthrough did not occur in 2006. Once the breakthrough profile is determined, Giant will continue to analyze GAC 1 EFF for BTEX, GRO, and DRO on a monthly basis. GAC INF and GAC 2 EFF will be analyzed quarterly for BTEX, GRO, and DRO.

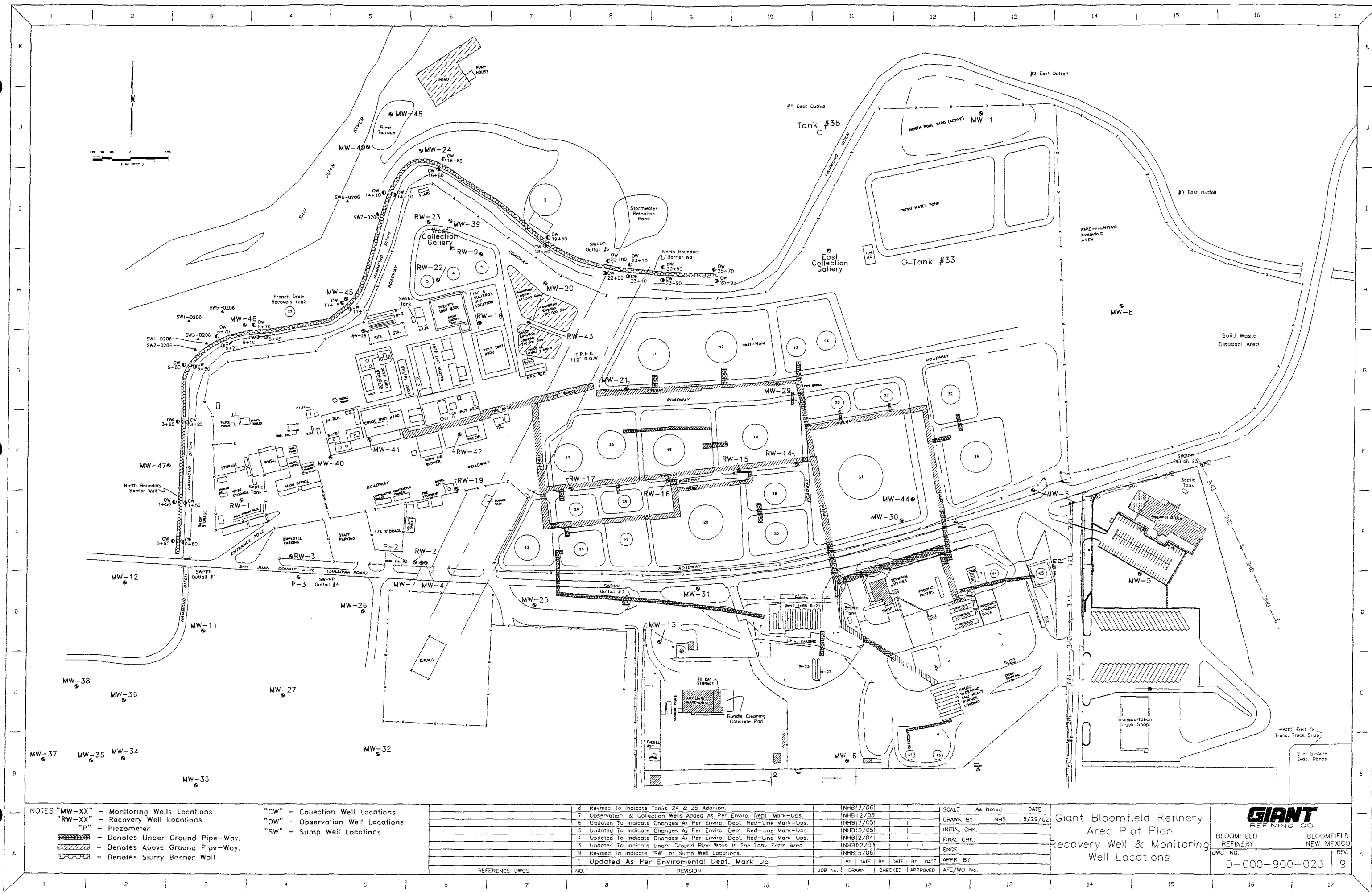
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River Terrace Bioventing Project Plot Plan.....	Figure 3
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Scale: 1 inch equals 2000 feet

GIANT





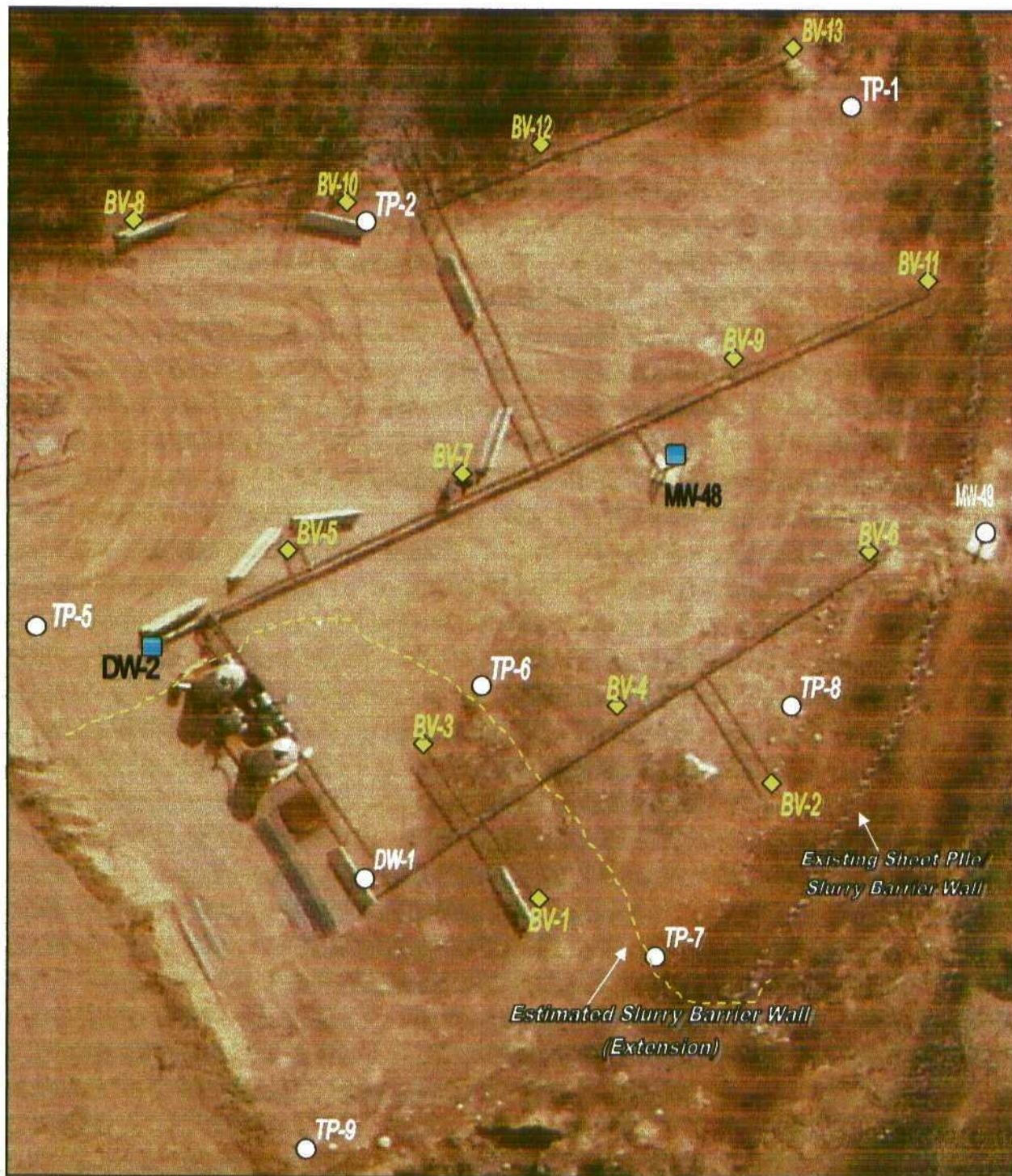
NOTES
Reference Drawings:
B-500-900-022
B-500-900-023

REFERENCE DWGS.		NO.		REVISION		JOB No.		BY	DATE	BY	DATE	BY	DATE	APPR.	BY	DATE

SCALE	As Noted	DATE
DRAWN BY	NHB	1/3/07
INITIAL CHK.		
FINAL CHK.		
ENGR.		
APPR. BY		
AFE/WO No.	NONE	

River Terrace Project
Bioventing & Temporary-
Well Location Plot Plan

GIANT REFINING CO.		
BLOOMFIELD REFINERY	BLOOMFIELD NEW MEXICO	
DWG. NO.	REV.	
B-500-900-024	A	



0' 20' 40'
 (Approximate Scale)

N
 ↓

Figure 4: Area Influenced by the Bioventing System
 (The Western Portion of the River Terrace)

Legend

TP = Temporary Piezometer
 BV = Biovent Well
 DW = Dewatering Well
 MW = Monitoring Well

Section 8.0 Field Methods

Field Methods

Soil Gas Sampling

Sampling Procedure

All water/product levels are determined to an accuracy of 0.01 foot using a Geotech Interface Meter. Soil gas samples are taken before groundwater purging and sampling.

Each well is equipped with an air-tight well cap for sample extraction through a sample port at the top of the well casing. Each well has dedicated flexible Teflon Food Grade tubing which extends through both sides of the sample port with one side continuing down into the well casing to approximately 1 foot above the water table. The other end (topside) protrudes from the cap and is available as a connector.

Before purging, pressure is measured by attaching a hand-held Magnahelic Pressure Gauge to the topside tubing.

A portable vacuum pump is used for purging and sample collection. The topside tubing is connected to the suction of the vacuum pump and three purge volumes are withdrawn from the well prior to sample collection. After sufficient purging, a Tedlar bag is attached to the tubing at the discharge end of the pump for sample collection. All samples are properly labeled and placed in a cooler for delivery to the off-site laboratory or for field measurements of vapor-phase organics

Well Purging Technique

A vacuum pump is used to remove stagnant air from the soil gas sampling assembly. Approximately three well volumes are purged from the well before sampling. Purged volumes are determined by using the following equation:

Conversion Factor X Depth to Water X 28L/ft³ X Three

The conversion factor is determined by the diameter of the well casing.

Casing	Conversion Factor
6"	0.196L/ft
4"	0.0873L/ft
2"	0.0218L/ft
1"	0.005545L/ft

Soil Gas Sampling and Sample Handling Procedure

Equipment and supplies needed for collecting representative soil gas samples include:

- Interface Probe
- Vacuum Pump
- 1 Liter Tedlar Bags
- PID Meter
- RKI Eagle Meter
- Cooler to store Tedlar Bags
- Sharpie Permanent Marker

- Field Paperwork/Logsheet
- Trash container (plastic garbage bag)

Tedlar bags and tubing dedicated for each well are used for field measurements. New Tedlar bags are used for BTEX and GRO collection and analysis. After sufficient purging, samples are collected using the vacuum pump. Field measurements of vapor-phase organics, oxygen, and carbon dioxide concentrations are recorded using portable field instruments. BTEX and GRO samples are labeled immediately with location, date, time, analysis, and sampler and then put in a trash bag and placed in a cooler. The field logsheet is reviewed to verify all entries. Samples are then shipped to the laboratory. To prevent cross-contamination, procedures include dedicated tubing for each of the wells sampled as well as a five minute purge time of the vacuum pump in ambient air.

Instrument Calibration

The RKI Eagle is a portable gas detection system with sensors for oxygen, carbon dioxide, and methane. Calibration of the instrument is conducted at the beginning of each day of sampling.

The meter is turned on and allowed to warm up. Fill the dedicated Tedlar bags with known calibration gas. One bag is used for the carbon dioxide calibration and the other bag contains the oxygen and methane calibration gasses. Press and hold the AIR/▲ button until a tone sounds. The Eagle automatically sets the toxics circuits to zero and the oxygen circuit to 20.9%.

Press and hold the SHIFT /▼ button, then press the DISP/ADJ button. The calibration menu is displayed. Use the AIR/▲ and SHIFT/▼ buttons to place the prompt next to the SINGLE CALIBRATION menu option. Press the POWER/ENTER button to display the Single Calibration menu. Use the AIR/▲ or SHIFT/▼ button to place the prompt next to the channel to calibrate. Press the POWER/ENTER button. Connect the tubing from the Tedlar bag to the Eagle's probe. If necessary, use the AIR/▲ (increase) and SHIFT/▼ (decrease) buttons to adjust the reading to match the concentration listed on the calibration cylinder. Press the POWER/ENTER button to set the span value. Repeat the steps for any other channels you want to calibrate.

The MiniRae 2000 Portable VOC Monitor (PID) is calibrated at the beginning of each day of sampling. Turn on the monitor and wait for the **Ready** message display. Press and hold both (N/-) and (MODE) keys for three seconds to enter programming mode. The first menu item "**Calibrate/select Gas?**" will be displayed. Press (N/-) to scroll to **Fresh Air Cal?** And press (Y/-) to select that menu item. Clean ambient air can be used for the "fresh air" calibration. Press (Y/-) to begin the zeroing process.

After zeroing is complete, press (N/-) to scroll to the next menu item. When **Span Cal?** is displayed press (Y/-) to select that menu item. Connect the monitor to a known calibration gas cylinder (isobutylene) after the display shows **Apply gas now!** The monitor will then perform the calibration. When calibration is

completed, turn off the flow of gas, disconnect the cylinder, and exit the programming mode by pressing the **(MODE)** key once.

Groundwater Sampling

Groundwater Elevation

All water/product levels are determined to an accuracy of 0.01 foot using a Geotech Interface Meter. The technician records separate phase hydrocarbon, depth to water, and total well depth using this probe.

Water Quality/Groundwater Sampling

Prior to purging, a YSI 550A Dissolved Oxygen Probe is used to determine dissolved oxygen (DO) levels. Water quality parameters are measured using an Ultrameter 6P by the Myron L Company. Electrical conductance, oxidation-reduction potential (ORP), pH, and temperature are monitored during purging.

Well Purging Technique

At least three well volumes are purged from the well. Purge volumes are determined using the following equation:

Well Depth – Casing Height – Depth to Liquid X Conversion Factor X Three.
The conversion factor is determined by the diameter of the well casing.

Casing	Conversion Factor
6"	1.50 gal/ft
5"	1.02 gal/ft
4"	0.74 gal/ft
3"	0.367 gal/ft
2"	0.163 gal/ft

Well Sampling and Sample Handling Procedure

Equipment and supplies needed for collecting representative groundwater samples include:

- Interface Probe
- Ultrameter 6P
- YSI 550A Dissolved Oxygen Instrument
- Distilled Water
- Disposable Latex Gloves
- Disposable Bailers
- String/Twine
- Cooler with Ice
- Bottle kits with Preservatives (provided by the contract laboratory)
- Glass Filters and Syringes Jar (usually 4 oz.)
- Sharpie Permanent Marker
- Field Paperwork/Log sheet
- Two 5-gallon buckets
- Trash container (plastic garbage bag)

- Ziploc Bags
- Paper towels

Typically disposable bailers are used for purging and sampling. Each bailer holds one liter of liquid. Three well volumes can be calculated by counting the number of times a well is bailed.

All purged water is poured into a 55-gallon drum designated for sampling events.

After sufficient purging, samples are collected with the bailer and poured into the appropriate sample containers. Two people are usually utilized for sampling. Sampling takes place over a bucket to insure that spills are contained

Samples are labeled immediately with location, date, time, analysis, preservative, and sampler. Then they are put in a Ziploc bag and placed in a cooler holding sufficient ice to keep them cool. The field log sheet is reviewed to verify all entries.

Purge and Decontamination Water Disposal

The Ultrameter 6P, YSI 550A DO Probe, and the interface probe are rinsed with distilled water after every well. The rinse procedure takes place over a bucket to insure that spills are contained.

All rinse and purge water is contained and then disposed of through the refinery wastewater system.

Instrument Calibration

Calibration of the YSI 550A Dissolved Oxygen Instrument occurs at the beginning of each day of sampling. The probe is powered on and allowed to stabilize, which usually takes 15 minutes. Enter the calibration menu. The LCD will prompt you to enter the local altitude in hundreds of feet. When the proper altitude appears on the LCD, press the **ENTER** key.

The LCD will then prompt you to enter the salinity of the water you are about to analyze. After entering the correct salinity, the instrument will return to normal operation.

The Ultrameter 6P instrument calibration occurs at the beginning of each day of sampling. For Conductivity and TDS calibration, the cell is rinsed three times with a 3000 umhos/cm NaCl Standard. The cell cup is refilled with the standard. Either the **COND** or the **TDS** button is pressed and then the **CAL** button is pushed. Press the up or down arrow until the display agrees with the standard. The **CAL** button is pressed to accept the value.

The Ultrameter 6P has an electronic ORP calibration which is automatically calibrated with the 7 pH. The pH sensor well is rinsed three times with 7.0 buffer solution and then refilled again with that buffer. The **pH** button is pressed then the **CAL** button. The up or down arrow is adjusted until the display agrees with the buffer value. The **CAL** button is pushed to accept that value. Repeat the

calibration steps using an acid buffer solution and then again with a base buffer solution.

Section 9.0 Chemical Analytical Program

hallenvironmental.com

QUALITY ASSURANCE PLAN

October 2004

Revision 6

Control Number: 0000038

Approved By:

Approved By:

Nancy McDuffie Date
Laboratory Manager

Scott Hallenbeck Date
Laboratory Director



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

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3.0 Introduction

Purpose of Document

The purpose of this Quality Assurance Manual is to formally document the quality assurance policies and procedures of Hall Environmental Analysis Laboratory, Inc. (HEAL), for the benefit of its employees, clients, and accrediting organizations. This laboratory continually implements the aspects of this plan as an essential and integral part of laboratory operations in order to assure that the results and work produced are accurate, precise, and reliable.

Objectives

The objective of HEAL is to achieve and maintain excellence in environmental testing. This is accomplished by developing, incorporating and documenting the procedures and policies specified in this manual. A laboratory staff that is analytically competent, well qualified, and highly trained carries out these activities. An experienced management team, knowledgeable in their area of expertise, monitors them. Finally, a comprehensive Quality Assurance program governs laboratory practices and assures that the analytical results are valid and defensible.

HEAL establishes and thoroughly documents its practices so that there is no uncertainty in determining appropriate procedures. Routine laboratory activities are detailed in method specific Standard Operating Procedures (SOP's) and Quality Assurance practices are outlined in this QA/QC manual.

The management assures that this documentation is correct in terms of required accuracy, data reproducibility, and that the procedures contain proper Quality Control measures. The management additionally assures that all equipment is reliable, well maintained and calibrated. The procedures and practices of the laboratory are able to conform to client specifications and regulatory requirements. Meticulous records are maintained for all samples and their respective analyses so that results are well documented and defensible in a court of law.

The HEAL management is responsible for supervising and administering this quality assurance program, insuring each individual is responsible for its proper implementation. Accordingly, the HEAL management remains committed to the encouragement of excellence in analytical testing and will continue to provide the necessary resources and environment conducive to its achievement.

Understanding that quality cannot be mandated, it is the policy of this laboratory to provide an environment that encourages all staff members to take pride in the quality of their work. In addition to furnishing proper equipment and supplies, HEAL stresses the importance of continued training and professional development. Further, HEAL recognizes the time required for data interpretation. Therefore, no analyst feels pressure to sacrifice data quality for data quantity. Each staff member must perform with the highest level of integrity and professional competence, always being alert to problems that could compromise the quality of technical work. Management and senior personnel supervise analysts closely in all operations. The laboratory staff is encouraged to speak

with lab managers or senior management if they feel that there are any commercial, financial, or other undue pressures, which might adversely affect the quality of their work.

When properly conceived and executed, our quality assurance program will result in a measurement system that operates in analytical control and where error is at a minimum level. The goal of HEAL is to produce quality results that are accurate, reliable and reflect the analytical needs of our clients.

This is a controlled document. Each copy is assigned a unique tracking number and when released to a client or accrediting agency the QA Officer keeps the tracking number on file.

4.0 Organization and Responsibility

Company

HEAL is accredited in accordance with NELAC standards (see NELAC accredited analysis list). Additionally, HEAL is qualified as defined under the Petroleum Storage Tank Regulations of the State of New Mexico Environmental Improvement Board (USTR §1201) and the State of New Mexico Water Quality Control Commission regulations. It is a locally owned small business that was established in 1991. HEAL is a full service Environmental Analysis Laboratory with analytical capabilities that include both organic and inorganic methodologies and has performed analyses of soil, water and air samples for many sites statewide. HEAL's client base includes local, state and federal governmental agencies, private consultants as well as individual homeowners. It has performed as a subcontractor to the state of New Mexico and to the State Highway and Transportation Department. HEAL has been acclaimed by its customers as producing quality results and as being adaptive to client-specific needs.

The laboratory is divided into a volatile organic section, a semi-volatile organic section, and an inorganic section. Each section has a designated supervisor. The section supervisors report directly to the laboratory manager, who oversees all of the operations.

Certifications

National Environmental Laboratory Accreditation Program (NELAP) – Oregon Primary accrediting authority. Accredited for EPA methods 8260, 8310, 8015, 8021.

Personnel

Laboratory Manager

The Laboratory Manager is responsible for the daily operations of the laboratory. Additionally, the laboratory manager reviews and approves new analytical procedures and methods, and performs a technical review of most analytical results. The Lab Manager also observes the performance of supervisors to ensure good laboratory practices and proper techniques are being taught and utilized. Also, the Lab Manager is responsible for meeting with clients, assisting in overall quality control implementation, and strategic planning for the future of the company. Other duties include assisting in establishing laboratory policies which lead to the fulfillment of requirements for various certification programs, assuring that all Quality Assurance and Quality Control documents are reviewed and approved, and assisting in conducting Quality Assurance Audits. The lab manager addresses questions or complaints that cannot be answered by the section managers. Someone with a minimum of 7 years of directly related experience and a scientific degree should fill this position.

Business/ Project Manager

The role of the business/project manager is to act as a liaison between the client and the laboratory. The business project manager reviews reports, updates clients on the status of projects in-house, prepares quotations for new work, and is responsible for the marketing effort. All new work is assessed by the project manager and reviewed with the other managers so as to not exceed the laboratory's capacity. It is also the duty of the project manager to work with government agencies and accrediting authorities to make certain that the laboratory is compliant on new regulations or policies. Someone with a minimum of 5 years of directly related experience and a scientific degree should fill this position.

Quality Assurance Officer

The Quality Assurance Officer (QAO) is responsible for developing and carrying out the approved Quality Assurance Program, and advising and assisting management in meeting these requirements. The QAO monitors quality control activities of the laboratory in order to determine conformance with the Quality Assurance Program, performing Quality Assurance Audits, writing reports, providing follow-up action, and issuing Observation and Corrective Action Reports as needed. Additional responsibilities include cataloged documentation of the following: Staff Training and Demonstration Of Capability (DOC) records, Instrument Detection Limits (IDL), Method Detection Limits (MDL), and Instrument/Equipment Certification and/or Maintenance records. Complaints from clients are logged on a complaint form, which is reviewed by the QAO to ensure that it is handled according to the Quality Systems Section 5.5.3.1 and kept on file. When procedures are not in compliance with the requirements of this plan, "stop work orders" can be issued. Finally, the QAO provides clients with Quality Control data and Quality Assurance reports as requested. This position should be filled by someone with a minimum of 3 years of directly related experience and can also be filled by a senior manager.

Section Supervisors

The Section Supervisors are responsible for training and supervising departmental staff. The Section Supervisors schedule incoming work and monitor laboratory personnel to ensure that proper procedures and techniques are being used. The section supervisors implement new Quality Control procedures as directed by the QAO, update and maintain quality control records and evaluate laboratory personnel in their Quality Control activities. They are the technical director of the associated section and review analytical data to acknowledge that data meets all criteria set forth for good Quality Assurance practices. Someone with a minimum of 3 years of directly related experience should fill this position.

Senior Analyst

A senior analyst performs soil and water analysis in a section of the laboratory. A senior analyst shall have a minimum of one year of analytical instrument experience. A scientific degree is strongly recommended.

Analyst

An analyst performs soil and water analysis in the laboratory. The analyst also performs instrument maintenance. All analysts shall have a minimum 6 months of relevant prior experience or training. A scientific degree is encouraged. An analyst may also perform the duties of a lab technician.

Lab Technician

A lab technician performs multiple duties in the laboratory. These duties may include, but not be limited to sample preparation, glassware washing, sample kit preparation.

Sample Control Manager

The sample control manager is responsible for receiving samples and reviewing the sample login information after it has been entered into the computer. The sample control manager also checks the samples against the chain-of-custody for any sample and/or labeling discrepancies prior to distribution.

The sample control manager is also responsible for sending out samples to the sub-contractors along with the review and shipping of field sampling bottle kits. The sample control manager acts as a liaison between the laboratory and field sampling crew to assure the appropriate analytical tests is assigned.

Delegations in the Absence of Key Personnel

Planned absences shall be preceded by notification to the laboratory manager. The appropriate staff members shall be informed of the absence. In the case of unplanned absences, the organizational superior shall either assume the responsibilities and duties or delegate the responsibilities and duties to an appropriately qualified member.

Laboratory Personnel Qualification and Training

All personnel joining HEAL shall undergo orientation and training. During this period the new personnel shall be introduced to the organization and their responsibilities, as well as the policies and procedures of the company. They shall also undergo on the job training and shall work with trained staff. They will be shown required tasks and be observed while performing them. Initial demonstration of capability must be completed and documented prior to performing assignments unsupervised. New employees that do not have prior analysis experience will not be allowed to perform analysis until they have demonstrated attention to detail with minimal errors in the assigned tasks. To ensure a

sustained level of quality performance among staff members, continuing demonstration of capability shall be performed at least once a year. Laboratory staff must successfully pass an external Proficiency Evaluation (PE) sample or initial PE sample. Each new employee shall sign an ethics and data integrity agreement to ensure that they know that data quality is our main objective. Every HEAL employee recognizes that although turn around time is important, quality is put above any pressure to complete the task expediently. Analysts are not compensated for passing QC parameters nor are incentives given for the quantity of work produced.

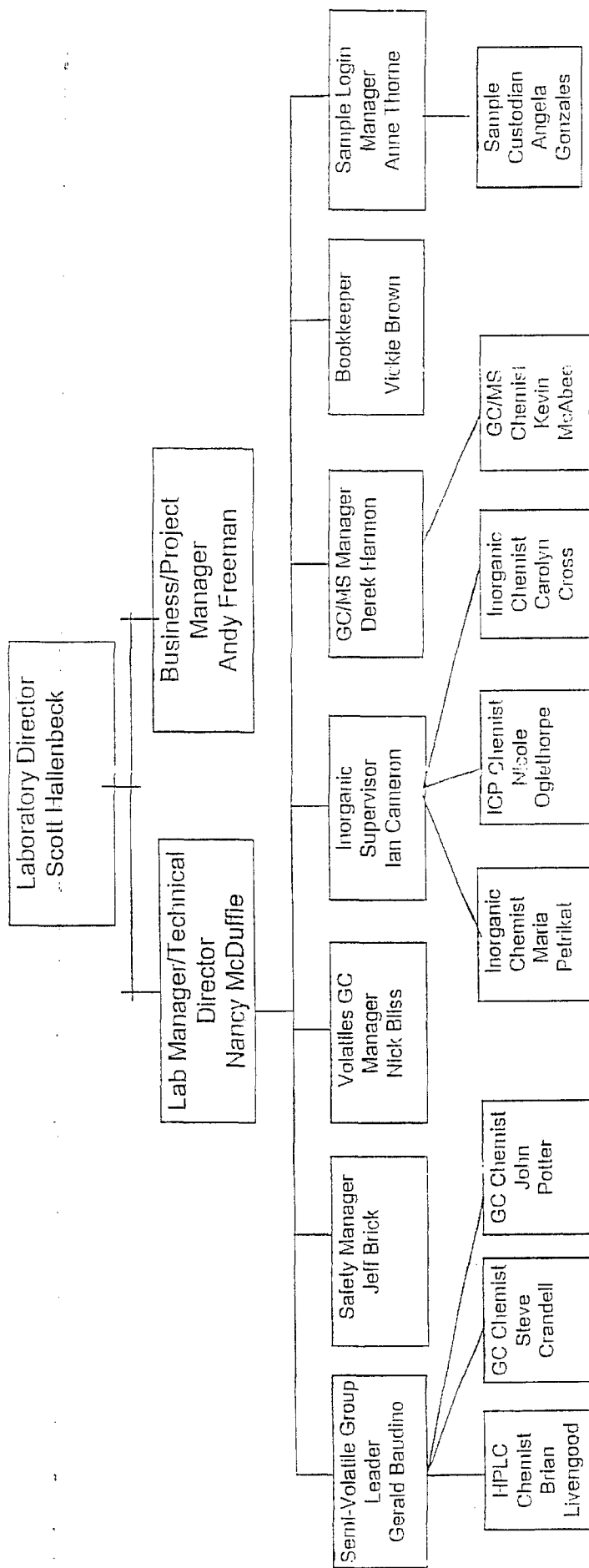


Diagram of organizational Structure

5.0 Receipt and Handling of Samples

Sampling

Procedures

HEAL does not provide field sampling for any projects. Sample kits are prepared and provided for clients upon request. The sample kits contain the appropriate sampling containers (with a preservative when necessary), labels, blue ice, a cooler, chain-of-custody forms, plastic bags, bubble wrap, and any special sampling instructions. The sample control manager reviews the kits prior to shipment.

Containers

Containers which are sent out for sampling are purchased by HEAL from a commercial source. Glass containers are certified "EPA Cleaned" QA level 1. Those containers are received with a Certificate of Analysis verifying that the containers have been cleaned according to the EPA wash procedure.

Preservation

If sampling for an analyte(s) requires preservation, the sample custodians fortify the containers prior to shipment to the field. The required preservative is introduced into the vials in uniform amounts and done so rapidly to minimize the risk of contamination. Vials that contain a preservative are labeled appropriately.

The following pages contain tables specifying additional preservation requirements for samples.

Tables of Standard Holding Times, Preservation, and Containers

Organic Compounds

Compound	Matrix	Container	Preservative	Holding Time
Purgeable halocarbons and aromatics	aqueous	40 mL glass voas, teflon-lined septum	HgCl ₂ , or HCl, pH <2; cool	14 days to analysis
Purgeable halocarbons and aromatics	Soil/MeOH*	4 oz. Jar/2-20 ml VOAs w/ methanol	cool, 4° C	14 days to analysis
Semi-volatiles	aqueous	1 L amber	cool, 4° C	7 days to extract, 40 days after extraction to analyze
Semi-volatiles	soil	8 oz. Jar	cool, 4° C	14 days to extract, 40 days after extraction to analyze
PCBs, pesticides, herbicides	aqueous	1 L amber	cool, 4° C	7 days to extract, 40 days after extraction to analyze
PCBs, pesticides, herbicides	soil	8 oz. Jar	cool, 4° C	14 days to extract, 40 days after extraction to analyze

*Use of field methanol kits are available and recommended for the PSTB.

Inorganic Compounds

Compound	Medium	Container	Preservative	Stability
Acidity	aqueous	250-mL HDP	cool, 4° C	14 days
Alkalinity	aqueous	250-mL HDP	cool, 4° C	14 days
Ammonia	aqueous	1-L HDP	cool, 4° C, H ₂ SO ₄ pH<2	28 days
Biochemical Oxygen Demand	aqueous	2-L HDP	cool, 4° C	48 hours
Bromide	aqueous	250-mL HDP	none required	28 days
Chemical Oxygen Demand	aqueous	125-mL HDP	cool, 4° C, H ₂ SO ₄ pH<2	28 days
Chloride	aqueous	125-mL HDP	none required	28 days
Chloride	solid	4-oz jar	none required	28 days
Chlorine, total residual	aqueous	500-mL HDP	none required	analyze immediately
Chromium VI	aqueous	250-mL HDP	cool, 4° C	24 hours
Chromium VI	solid	8-oz jar	cool, 4° C	as soon as possible
Color	aqueous	125-mL HDP	cool, 4° C	48 hours
Cyanide	aqueous	1-L HDP	cool, 4° C NaOH pH>12	14 days
Cyanide	solid	4-oz jar	cool, 4° C	14 days
Fluoride	aqueous	500-mL HDP	none required	28 days
Hardness	aqueous	250-mL HDP	HNO ₃ or H ₂ SO ₄ pH<2	6 months
Hydrogen ion (pH)	aqueous	60-mL HDP	none required	analyze immediately
Hydrogen ion (pH)	solid	4-oz jar	none required	analyze immediately
Kjeldahl and organic nitrogen	aqueous	1-L HDP	cool, 4° C, H ₂ SO ₄ pH<2	28 days

Compound	Matrix	Container	Preservative	Holding Time
Mercury	aqueous	250-mL HDP	HNO ₃ pH < 2	28 days
Mercury	solid	8-oz jar	none required	28 days
Metals (except Cr VI and Hg)	aqueous	500-mL HDP	HNO ₃ pH < 2	6 months
Metals (except Cr VI and Hg)	solid	8-oz jar		6 months
Nitrate	aqueous	250-mL HDP	cool, 4° C	48 hours
Nitrate	solid	8-oz jar	cool, 4° C	analyze immediately
Nitrate-Nitrite	aqueous	250-mL HDP	cool, 4° C, H ₂ SO ₄ pH<2	28 days
Nitrate-Nitrite	solid	8-oz jar	cool, 4° C	28 days
Nitrite	aqueous	125-mL HDP	cool, 4° C	48 hours
Oil and Grease	aqueous	2-L wide-mouth glass	cool, 4° C, H ₂ SO ₄ pH<2	28 days
Oil and Grease	solid	2-L wide-mouth glass	cool, 4° C	28 days
Organic Carbon	aqueous	125-mL HDP	cool, 4° C, HCl or H ₂ SO ₄ pH<2	28 days
Organic Carbon	solid	4-oz jar	cool, 4° C	28 days
Orthophosphate	aqueous	125-mL HDP	Cool, 4° C	48 hours
Phenolics	aqueous	1-L Boston Round	cool, 4° C, H ₂ SO ₄ pH<2	28 days
Phenolics	solid	8-oz jar (glass only)	cool, 4° C	28 days
Phosphorous (elemental)	aqueous	1-L Boston Round	cool, 4° C	48 hours
Phosphorous (total)	aqueous	125-mL HDP	cool, 4° C, H ₂ SO ₄ pH<2	28 days
Residue, total	aqueous	250-mL HDP	cool, 4° C	7 days
Residue, filterable(TDS)	aqueous	250-mL HDP	cool, 4° C	7 days
Residue, non-filterable (TSS)	aqueous	250-mL HDP	cool, 4° C	7 days
Residue, settleable	aqueous	Imhoff Cone	cool, 4° C	48 hours
Residue, volatile	aqueous	250-mL HDP	cool, 4° C	7 days

Organism	Media	Concentration	Incubation	Hold time
Silica	aqueous	125-mL HDP	cool, 4° C	28 days
Specific conductance	aqueous	250-mL HDP	cool, 4° C	28 days
Specific conductance	solid	8-oz jar	cool, 4° C	28 days
Sulfate	aqueous	125-mL HDP	cool, 4° C	28 days
Sulfate	solid	4-oz jar	cool, 4° C	28 days
Sulfide	aqueous	1-L HDP	cool, 4° C, ZnAc + NaOH pH>9	7 days
Sulfide	solid	8-oz jar	cool, 4° C	7 days
Surfactants	aqueous	500-mL HDP	cool, 4° C	48 hours
Turbidity	aqueous	250-mL HDP	cool, 4° C	48 hours

Sample Custody

Chain-of-Custody Form

A Chain-of-Custody (CoC) form is used to provide a record of sample chronology starting with the field sampling through laboratory analysis. HEALs CoC contains the client's name, address, phone and fax numbers, the project name and number, the project manager's name, and the field sampler's name. It also identifies the date and time of sample collection, sample matrix, field sample ID number, number/volume of sample containers, sample temperature upon receipt, and any sample preservative information.

There is also a space to record the HEAL ID number assigned to samples after they are received. Next to the sample information is a space for the client to indicate the desired analyses to be performed. Finally, there is a section to track the actual custody of the samples. The custody section contains lines for signatures, dates and times when samples are relinquished and received. The CoC form also includes a space to record special sample related instructions, sampling anomalies, time constraints, and any sample disposal considerations.

A sample chain-of-custody form can be found at the end of this section.

Receiving Samples

Samples are received by authorized HEAL personnel. Upon arrival, the CoC is compared to the respective samples. After the samples and CoC have been determined to be complete and accurate, the sampler signs over the CoC. The HEAL staff member in turn signs the chain-of-custody, also noting the current date and time. This relinquishes custody of the samples from the sampler and delegates sample custody to HEAL. The third (pink) copy of the CoC form is given to the person who has relinquished custody of the samples.

Logging in Samples and Storage

Each sample set is given a unique HEAL tracking ID number. Individual sample locations within a defined sample set are given a unique sample ID suffix-number. Labels with the HEAL numbers, and analytes requested, are generated and placed on their respective containers. The samples are reviewed by the sample control manager prior to being distributed to the storage refrigerators or appropriate laboratory personnel.

Samples are stored in the volatile section refrigerator, the semi-volatile section refrigerator, or the inorganic section refrigerator. If a soil sample must be extracted for both volatile and semi-volatile analysis, it is first placed into the volatile soil sample refrigerator. After the volatile extraction, the sample is moved to the semi-volatile refrigerator to minimize any risk of contamination.

Each project (sample set) is entered into the Laboratory Information Management System (LIMS) with a unique ID given to every container. The ID tag includes the Lab ID, Client ID, date and time of collection, and the analysis/analyses to be performed. The LIMS continually updates throughout the lab. Therefore, at any time, an analyst or manager may inquire about a project and/or samples status. For more information about the login procedures, reference the Sample Login SOP.

Disposal of Samples

Analytical results are used to characterize their respective sample contamination level(s) so that the proper disposal can be performed. These wastes will be disposed of according to their hazard as well as their type and level of contamination. Refer to the Hall Environmental Analysis Laboratory Chemical Hygiene Plan for details regarding waste disposal.

Waste drums are provided by an outside agency. These drums are removed by the outside agency and disposed of in a proper manner.

~~The wastes that are determined to be non-hazardous are disposed of as non-hazardous waste.~~

Accreditation Applied: ☐ NEAAG ☐ USAACE ☐

Other: _____

Accreditation Applied:

MEAC ☐ USATF ☐

Oulier:

Project Name:

Address:

Project #:

Project Manager:

Phone #:

Sampler:

$$F_{\alpha, \frac{1}{\alpha}};$$

Sample Temperature:

Date	Time	Latitude	Sample I.D. No.
1967	10:00	10° 15' N	101
1967	10:05	10° 15' N	102
1967	10:10	10° 15' N	103
1967	10:15	10° 15' N	104
1967	10:20	10° 15' N	105
1967	10:25	10° 15' N	106
1967	10:30	10° 15' N	107
1967	10:35	10° 15' N	108
1967	10:40	10° 15' N	109
1967	10:45	10° 15' N	110
1967	10:50	10° 15' N	111
1967	10:55	10° 15' N	112
1967	11:00	10° 15' N	113
1967	11:05	10° 15' N	114
1967	11:10	10° 15' N	115
1967	11:15	10° 15' N	116
1967	11:20	10° 15' N	117
1967	11:25	10° 15' N	118
1967	11:30	10° 15' N	119
1967	11:35	10° 15' N	120
1967	11:40	10° 15' N	121
1967	11:45	10° 15' N	122
1967	11:50	10° 15' N	123
1967	11:55	10° 15' N	124
1967	12:00	10° 15' N	125
1967	12:05	10° 15' N	126
1967	12:10	10° 15' N	127
1967	12:15	10° 15' N	128
1967	12:20	10° 15' N	129
1967	12:25	10° 15' N	130
1967	12:30	10° 15' N	131
1967	12:35	10° 15' N	132
1967	12:40	10° 15' N	133
1967	12:45	10° 15' N	134
1967	12:50	10° 15' N	135
1967	12:55	10° 15' N	136
1967	13:00	10° 15' N	137
1967	13:05	10° 15' N	138
1967	13:10	10° 15' N	139
1967	13:15	10° 15' N	140
1967	13:20	10° 15' N	141
1967	13:25	10° 15' N	142
1967	13:30	10° 15' N	143
1967	13:35	10° 15' N	144
1967	13:40	10° 15' N	145
1967	13:45	10° 15' N	146
1967	13:50	10° 15' N	147
1967	13:55	10° 15' N	148
1967	14:00	10° 15' N	149
1967	14:05	10° 15' N	150
1967	14:10	10° 15' N	151
1967	14:15	10° 15' N	152
1967	14:20	10° 15' N	153
1967	14:25	10° 15' N	154
1967	14:30	10° 15' N	155
1967	14:35	10° 15' N	156
1967	14:40	10° 15' N	157
1967	14:45	10° 15' N	158
1967	14:50	10° 15' N	159
1967	14:55	10° 15' N	160
1967	15:00	10° 15' N	161
1967	15:05	10° 15' N	162
1967	15:10	10° 15' N	163
1967	15:15	10° 15' N	164
1967	15:20	10° 15' N	165
1967	15:25	10° 15' N	166
1967	15:30	10° 15' N	167
1967	15:35	10° 15' N	168
1967	15:40	10° 15' N	169
1967	15:45	10° 15' N	170
1967	15:50	10° 15' N	171
1967	15:55	10° 15' N	172
1967	16:00	10° 15' N	173
1967	16:05	10° 15' N	174
1967	16:10	10° 15' N	175
1967	16:15	10° 15' N	176
1967	16:20	10° 15' N	177
1967	16:25	10° 15' N	178
1967	16:30	10° 15' N	179
1967			

Number/Volume

Preservative	HgCl_2	HNO_3
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HEAL No.

BTEX + MTBE + TMB's (B021)

BTEX + MTBE + TPH (Gasoline Only)

TPH Method 8015B MOD (Gas/Diesel)

TPH (Method 418.1)

EDB (Method 504.1)

EDC (Method 8021)

B31D (PNA or PAH)

RCRA 8 Metals

Cations (Na, K, Ca, Mg)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCB's (8082)

8260 (VOA)

8270 (Semi-VOA)

Air Bubbles or Headspace (Y or N)



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

ANALYSIS REQUEST

Remarks:

6.0 Analytical Procedures

All analytical methods used at HEAL incorporate necessary and sufficient Quality Assurance and Quality Control practices. A Standard Operating Procedure is used for each method to provide the necessary criteria to yield acceptable results. These procedures are updated each year or more often if necessary and are attached as a pdf file in the Laboratory Information Management System (LIMS) for easy access by each analyst. The sample is almost always consumed or altered during the analytical process. Therefore, it is important that each step in the analytical process be correctly followed in order to yield valid data.

When unforeseen problems arise, the analyst, section supervisor, and lab manager meet to discuss the factors involved. The analytical requirements are evaluated and a suitable corrective action, or resolution is established.

List of Procedures Used

Typically, the procedures used by HEAL are EPA approved methodologies. However, proprietary methods for client specific samples, are sometimes used. The following tables list EPA Method numbers with their corresponding analytes and/or instrument classification.

Organic Analysis

Methodology	Title of Method
8021B	"Halogenated and Aromatic Volatile Organics by Gas Chromatography"
8015B	"Nonhalogenated Volatile Organics by Gas Chromatography" (Gasoline Range and Diesel Range Organics)
8081A	"Organochlorine Pesticides by Gas Chromatography"
8082	"PCBs as Aroclors by Gas Chromatography"
8151A	"Chlorinated Herbicides by GC using Methylation or Pentafluorobenzoylation Derivatization"
8310	"Polynuclear Aromatic Hydrocarbons"
8330	"Nitroaromatics and Nitramines"
8315	"Formaldehyde"
1005	"TNRCC – Total Petroleum Hydrocarbons"
504.1	"EDB" & "DBCP"
418.1	"Total Petroleum Hydrocarbons"
413.2	"Oil and Grease"

Gas Chromatographic/Mass Spectrometric Methods

Methodology	Title of Method
8260B	"Volatile Organic Compounds by GC/MS: Capillary Column Technique"
8270D	"Semivolatile Organic Compounds by GC/MS: Capillary Column Technique"
624	"Purgeables"
625	"Base/Neutrals and Acids"

Inorganic Analysis

Methodology	Title of Method
310.1	Alkalinity
350.3	Ammonia
300.0/300.1	Anions (aqueous)
9065	Anion (soil)
120.1	Electrical Conductivity
3500	Ferrous Iron
351.2	Total Kjeldhal Nitrogen (TKN)
9095	Paint Filter
150.1	pH
420.3	Phenols
160.1	Total Dissolved Solids (TDS)
160.2	Total Suspended Solids (TSS)
180.1	Turbidity

Metals

200.7/6010C	ICP Metals
7470	Mercury (aqueous)
7471	Mercury (soil)

Preparative Methodologies

Methodology	Title of Method
1311	Toxicity Characteristic Leaching Procedure
1312	Synthetic Precipitation Leaching Procedure
3005	Acid Digestion of Waters for Total Recoverable or Dissolved Metals
3010	Acid Digestion of Aqueous Samples and Extracts for Total Metals
3050	Acid Digestion of Sediment, Sludge, and Soil samples
3510C	Separatory Funnel Liquid-Liquid Extraction
3540	Soxhlet Extraction
3665	Sulfuric Acid/Permanganate Cleanup (PCB)
5030	Purge-and-Trap for Aqueous Samples
5035	Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples

7.0 Calibration

Instrument Calibration

An instrument calibration is the relationship between the known concentrations of a set of calibration standards introduced into an analytical instrument and the measured response they produce. Calibration curve standards are a prepared series of aliquots at various known concentrations levels from a primary source reference standard. Specific mathematical types of calibration techniques are outlined in SW-846 8000B. Analysts choose the proper calibration type following guidelines set fourth in their method specific protocol. Field samples are then analyzed on the instrument. The unknown concentration in the sample can be extrapolated from the calibration curve as a function of the instrument response. Any sample with an analyte response which exceeds the highest calibration standard response must be diluted to fall within the calibration range (ideally at or near the mid-level calibration standard response) of that analyte.

Standards

All of the source reference standards used are ordered from a reliable commercial vendor. A Certificate of Analysis (CoA), which verifies the quality of the standard, accompanies the standards from the vendor. The Certificates of Analysis are dated and stored on file by the QAO. These standards are traceable to the National Institute of Standards (NIST).

All standard solutions, calibration curve preparations, and all other quality control solutions are labeled in a manner that can be traced back to the original source reference standard. All source reference standards are entered into the LIMS with an appropriate description of the standard. Dilutions of the source reference standard (or any mixes of the source standards) are fully tracked in the LIMS as well. Standards are labeled with the date received, date opened for use, and an expiration date. New source standards received into the laboratory are checked with current standard solutions. Source standard vials will never be altered. Rather, small aliquots are removed and stored in working standard solution vials from which measured amounts can be withdrawn.

As part of the quality assurance procedures at HEAL, analysts strictly adhere to method protocols for storage times and policies of analytical standards and quality control solutions.

Procedures

Reagents

HEAL assures that the reagents used are of acceptable quality for their intended purpose. This is accomplished by ordering high quality reagents and adhering to good laboratory practices so as to minimize contamination or chemical degradation. All reagents must meet any specifications noted in the analytical method.

Upon receipt, all reagents are assigned a separate ID number, and logged into the LIMS. All reagents shall be labeled with the date received into the laboratory and again with the date opened for use. Recommended shelf life shall be documented and controlled. Dilutions or solutions prepared shall be clearly labeled, dated, and signed. These solutions are traceable back to their primary reagents.

All gases used with an instrument shall meet specifications of the manufacturer. Recommended shelf life shall be documented and controlled. All safety requirements that relate to maximum and/or minimum allowed pressure, fitting types, and leak test frequency, shall be followed. When a new tank of gas is delivered, it shall be checked for leaks and marked with the date put in use. The date and initial pressure of a new tank will be noted on the new tank.

HEAL has a Quality Assurance Procedure designed to assure that the quality of laboratory reagent water meets established criteria for all analytical methods. HEAL continuously monitors the quality of the reagent water and provides the necessary indicators for maintenance of the purification systems.

Analytical balance

All of the analytical balances are capable of weighing to a minimum precision of 0.1 grams. Records are kept of daily calibration checks for the balances in use. Class S weights are used in these checks. The balances are annually certified by an outside source and the certifications are on file with the QAO.

pH Meter

The pH meter measures to a precision of 0.01 pH units. Records showing its calibration before each use, or each day, if used more than once per day. It is calibrated using a certified buffer. Also available with the pH meter is a magnetic stirrer with a temperature sensor.

Thermometers

The thermometers in the laboratory are used to measure the temperatures of the refrigerators/freezers, ovens, water baths, TCLP Extractions and sample log-in.

Refrigerators/Freezers

Each laboratory refrigerator or freezer contains a thermometer capable of measuring to a minimum precision of 1°C. The thermometers are kept with the bulb immersed in liquid. Each workday, the temperatures of the refrigerators are recorded in a designated logbook to insure that the refrigerators are between $\pm 2^\circ \text{C}$. Samples are stored separately from the standards to reduce the risk of contamination.

Ovens

The oven contains a thermometer graduated by 1° C. the temperature is measured before and after a cycle when the operating procedure demands this level of precision.

Analytical Instrumentation (GC, IC, HPLC, ICP, Hg analyzer, IR, GCMS)

A calibration curve is analyzed on each instrument according to specific method protocols. The calibration curve typically consists of the analysis a blank and a minimum of five dilutions of the analyte list (or lists) outlined in the analytical method. The quality assurance program requires a second source verification of a calibration curve. Ideally, a second source verification is provided from a separate vendor. However, a different Lot Number from the same vendor is acceptable for second source verification. In the absence of standards from a separate vendor or the same vendor with two different Lot Numbers, two separate preparations from the same source standard can be used for second source verification.

Each day that an analysis is performed on the instrument, the calibration must be verified. This is accomplished by analyzing a calibration standard usually (but not exclusively), a mid-point standard. Another calibration verification is analyzed according to method specific protocols. If during the analysis the specified QC criteria are no longer satisfied, then the analysis should be stopped and the problem examined. When the calibration curve is determined to be no longer acceptable, a new curve is prepared and the instrument re-calibrated. Any samples not bracketed with acceptable daily calibration verifications should be re-analyzed or the results may be subject data qualification or rejection.

Reagent blank samples are also analyzed to ensure that no contamination is present at detectable levels. The frequency of reagent blank analysis is the same as calibration verification samples. The reagent blank and calibration verification should be analyzed successively.

Analytical methods vary in QC acceptance criteria. HEAL follows the method specific guidelines for QC acceptance. The specific acceptance criteria are outlined in the analytical methods and its corresponding SOP.

Other Analytical Instrumentation and Equipment

The conductivity probe constant shall be determined prior to use.

Eppendorf (or equivalent brands) pipettes are calibrated gravimetrically prior to use.

8.0 Maintenance

Maintenance logs are kept for each major instrument. In the front of the log, the following information is included:

Unique name of the item or equipment
Manufacturer
Type of Instrument
Model Number
Serial Number
Date received and date placed into service
Location of Instrument
Condition of instrument upon receipt

For routine maintenance, the following information shall be included in the log:

Maintenance Date
Maintenance Description
Maintenance Performed by Initials

A manufacturer service agreement (or equivalent) covers most major instrumentation to assure prompt and reliable response to maintenance needs beyond HEAL instrument operator capabilities.

9.0 Quality Control

Internal Quality Control Checks

Hall Environmental Analysis Laboratory, Inc. utilizes various internal quality control checks, including replicates, spiked samples, blanks, quality control samples, calibration standards, quality control charts, and surrogate samples.

Replicates, or duplicates, are identical tests repeated for the same sample in order to determine the precision of such a method. A Relative Percent Difference (RPD) is calculated as a measure of this precision.

Spiked Samples are samples evaluated with a known added quantity of a target compound. This is to help determine the accuracy of the analyses. A percent recovery is calculated to assess the quality of the accuracy.

Duplicate samples and spiked samples are performed according to the following schedule for each area:

Organics: LCS and MS/MSD samples are analyzed for every batch of 20 samples (sufficient sample volume permitting for the MS/MSD).

Metals and wet chemistry: LCS, MS, and sample duplicate analysis are performed, at a minimum, for every batch of 20 samples (sufficient sample volume permitting for the MS and sample duplicate).

Anions: LCS, MS, and sample duplicate analysis are performed, at a minimum, for every batch of 10 samples (sufficient sample volume permitting for the MS and sample duplicate).

Blanks consist of all the reagents measured and treated as they are with samples, except without the samples. This enables the laboratory to assure clean reagents and procedures.

Blind Quality Control Samples are samples provided by an unbiased third party. They contain a pre-determined concentration of the target compound, which is unknown to the analyst. They are analyzed quarterly, and enable the laboratory to assess the quality of its results.

Calibration standards are standards run to calibrate and confirm the consistency of the instrumentation. Calibration standards are utilized at the beginning and end of each batch, and more frequently for larger batches.

Quality Control Charts are charts with acceptable ranges of the values of quality control checks. If a value falls outside the appropriate range, immediate evaluation and assessment of the procedures is required.

A surrogate compound, a substance that has similar properties to the target compounds (but not expected to be present), is added in all applicable tests. It is a measure of the level of recovery achieved in testing.

The specific types and frequency of QC sample analysis differ from method to method and section to section. Individual method specific QC sample criteria are outlined in the each Methods SOP.

SOPs will be update annually or more often if changes are deemed necessary. SOPs are stored as a linked pdf file in the test portion of the LIMS. This is done by right clicking on the SOP tab of the test screen and adding the appropriate path where the current SOPs are located on the server. The QAO will update these links as necessary.

An initial demonstration of capability is performed everytime there is a change in instrument type, personnel, or test method. A minimum of 4 replicate samples are prepared and analyzed according to the test method. Sample results are compared against current acceptable LCS recovery limits. On-going DOCs are performed annually through the use of proficiency testing, LCS recoveries, and/or MDL analysis.

Precision, Accuracy, Detection Levels

Precision

The laboratory uses sample duplicates to assess precision. A duplicate sample is analyzed for each batch of 20 samples (5% frequency) when possible. HEAL requires the RPD to fall within the 99% confidence interval of established control charts or a RPD of less than 20 if control charts are not available. RPDs greater than these limits are considered out-of-control and require an appropriate response. Allowances can be made for high RPD values when the sample results are above the detection limit but less than 5X the detection limit. Criteria (based on sample matrix and methodology) for these situations require analyst/supervisor review to determine appropriate corrective action required.

Accuracy

The accuracy of an analysis refers to the difference between the calculated value and the actual value of a measurement. The accuracy of a laboratory result is evaluated by comparing the measured amount of QC reference material recovered from a sample and the known amount added. Control limits are established for each analytical method and sample matrix. Recoveries are assessed to determine the method efficiency and/or the matrix effect.

Analytical accuracy is expressed as the percent recovery (%R) of an analyte or parameter. A known amount of analyte is added to an environmental sample before the sample is prepared and subsequently analyzed. The equation used to calculate percent recovery is:

$$\% \text{Recovery} = \{(\text{concentration} * \text{recovered}) / (\text{concentration} * \text{added})\} \times 100$$

*or amount

HEAL requires that the Percent Recovery to fall within the 99 % confidence interval of established control limits. A value that falls outside of the confidence interval requires a warning and process evaluation. The confidence intervals are calculated by determining the mean and sample standard deviation. If control limits are not available, the range of 85 to 115% is used unless the specific method dictates otherwise. Percent Recoveries outside of this range mandate additional action such as analyses by Method of Standard Additions, additional sample preparation(s) where applicable, method changes, out-of-control action or data qualification.

Detection Limit

Current practices at HEAL define the Detection Limit (DL) as the smallest amount that can be detected above the baseline noise in a procedure within a stated confidence level.

HEAL presently utilize an Instrument Detection Limit (IDL), a Method Detection Limit (MDL), and a Practical Quantitation Limit (PQL). The relationship between these levels is approximately

IDL: MDL: PQL = 1:5:5.

The IDL is a measure of the sensitivity of an analytical instrument. The IDL is the amount which, when injected, produces a detectable signal in 99% of the analyses at that concentration. An IDL can be considered the minimum level of analyte concentration that is detectable above random baseline noise.

The MDL is a laboratories measure of the sensitivity of an analytical method. An MDL determination (also outlined in SW-846 Chapter 1) consists of replicate spiked samples carried through all necessary preparation steps. The spike concentration is three to five times the lowest calibration standard level. The replicates are then analyzed successively and their Standard Deviation (s) calculated. The method detection limit (MDL) can be calculated using the standard deviation according to the formula:

$$\text{MDL} = s * t (99\%)$$

Where t (99%) is the student's t value for the 99% confidence interval. It depends on the number of trials used in calculating the sample standard deviation, so choose the appropriate value according to the number of trials.

Number of Trials	$t(99\%)$
3	6.96
4	4.54
5	3.75
6	3.36
7	3.14
8	3.00
9	2.90

The PQL is significant because different laboratories can produce different MDLs although they may employ the same analytical procedures, instruments and sample matrices. The PQL is about two to five times the MDL and represents a practical, and routinely achievable, reporting level with a good certainty that the reported value is reliable. The reported PQL for a sample is dependent on the dilution factor utilized during sample analysis.

Quality Control Parameter Calculations

Mean

The sample mean is also known as the arithmetic average. It can be calculated by adding all of the appropriate values together, and dividing this sum by the number of values.

$$\text{Average} = (\sum x_i) / n$$

x_i = the value x in the i^{th} trial
 n = the number of trials

Standard Deviation

The sample standard deviation, represented by s , is a measure of dispersion. The dispersion is considered to be the difference between the average and each of the values x_i . The variance, s^2 , can be calculated by summing the squares of the differences and dividing by the number of differences. The sample standard deviation, s , can be found by taking the square root of the variance.

$$\text{Standard deviation} = s = \left[\sum (x_i - \text{average})^2 / (n - 1) \right]^{1/2}$$

Percent Recovery (MS, MSD, LCS and LCSD)

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

Confidence Intervals

Confidence intervals are calculated using the average (\bar{x}), the sample standard deviation (s), and the Student's t distribution ($s\text{-dist}$), which depends on the number of values used to calculate the average and sample standard deviation.

The formula is:

$$\text{confidence interval} = \bar{x} \pm s * s\text{-dist}$$

Student's t Distribution

# values	10	15	20	25	30	40	60	120	> 120
95 %	2.262	2.145	2.093	2.064	2.042	2.021	2.000	1.980	1.960
99%	3.250	2.977	2.861	2.797	2.750	2.704	2.660	2.617	2.576

Unless there is insufficient data, at least 20 values will always be used in calculating the confidence intervals.

RPD (Relative Percent Difference)

Analytical precision is expressed as a percentage of the difference between the results of duplicate samples for a given analyst. Relative percent difference (RPD) is calculated as follows:

$$\text{RPD} = 2 \times \frac{(\text{Sample Result} - \text{Duplicate Result}) \times 100}{(\text{Sample Result} + \text{Duplicate Result})}$$

10.0 Data Reduction, Validation, Reporting, and Record Keeping

All data reported must be of the highest possible accuracy and quality. During the processes of data reduction, validation, and report generation, the work is thoroughly checked to insure that error is minimized.

Data Reduction

The analyst who generated the data usually performs the data reduction. The calculations include evaluation of surrogate recoveries (where applicable), response factor calculations for manual calculations, and other miscellaneous calculations related to the sample quantitation.

If the results are computer generated, then the formulas must be confirmed by hand calculations.

Validation

A senior analyst, most often the section supervisor, validates the data. The data is checked at a minimum of 20% after an analyst has shown analytical proficiency. If an error is detected, all of the current data generated by that analyst is reviewed. Previous and/or common mistake areas are stringently monitored throughout the validation process. Data is reported using appropriate significant figure criteria. In most cases, two significant digits are utilized, but three significant digits can be used in QC calculations. Significant digits are not rounded until after the last step of a sample calculation.

If data is to be manually transferred from one medium to another, the transcribed data is checked at a minimum of 20%. This includes data typing, computer data entry, chromatographic data transfer, data table inclusion to a cover letter, or when data results are combined with other data fields.

All hand written data from run logs, analytical standard logbooks, hand entered data logbooks, or on instrument generated chromatograms, are systematically archived should the need for future retrieval arise.

Data that is being reported is treated with the utmost respect and care to help eliminate errors. Unethical practices will be detected through peer review and be dealt with the utmost severity.

Reports and Records

The reports are compiled by the Laboratory Information Management System (LIMS). Most data is transferred directly from the instruments to the LIMS. After being processed by the analyst and reviewed by the section supervisor, reports are approved and signed by the senior laboratory management. A comparative analysis of the data is performed at this point. For example, if TKN and NH₃ are analyzed on the same sample the NH₃ result should never be greater than the TKN result. Lab

results and reports are released only to appropriately designated individuals. Release of the data can be by fax, email, diskette deliverables, or mailed hard copy.

When a project is completed, the project file folder is stored with a hard copy of the report, relevant supporting data, and the quality assurance/control worksheets. These folders are kept on file and are arranged by project number. Additionally, all electronic data is backed up daily on the HEAL main server. The backup includes raw data, chromatograms and report documents. Hard copies of chromatograms are stored separately according to the instrument and the analysis date. All records and analytical data reports are retained in a secure location as permanent records for a minimum period of five years (unless specified otherwise in a client contract). Access to archived information shall be documented with an access log. Access to archived electronic reports and data will be protected by a project manager password. In the event that HEAL transfers ownership or terminates business practices, complete records will be maintained or transferred according to the client's instructions.

After issuance, the original report shall remain unchanged. If a correction to the report is necessary, then an additional document shall be issued. This document shall have a title of "Addendum to Test Report or Correction to Original Report", or equivalent. Demonstration of original report integrity comes in two forms. First, the report date is included on each page of the final report. Second, each page is numbered in sequential order, making the addition or omission of any data page(s) readily detectable.

11.0 Corrective Action

The limits that have been defined for data acceptability also form the basis for corrective action initiation. Initiation of corrective action occurs when the data generated from continuing calibration standard, sample surrogate recovery, laboratory control spike, matrix spike or sample duplicates exceed acceptance criteria. If corrective action is necessary, the analyst or the section supervisor will coordinate to take the following steps to determine and correct the measurement system deficiency:

Check all calculations and data measurements systems (Calibrations, reagents, instrument performance checks etc.).

Assure that proper procedures were followed.

Unforeseen problems that arise during sample preparation and/or sample analysis that lead to treating a sample differently from documented procedures shall be documented with a corrective action report. The section supervisor and lab manager shall be made aware of the problem at the time of the occurrence. See the SOP regarding departures from documented procedures.

Continuing calibration standards below acceptance criteria can not be used for reporting analytical data unless method specific criteria states otherwise.

An analyte above control limits in a Continuing Calibration may be acceptable if the previous continuing calibration standard was acceptable for that analyte. Further, the target analyte in the samples analyzed after the acceptable calibration standard and before calibration standard with the high bias, are reported as non-detected. Finally, the samples following an analyte that is above control limits for a continuing calibration standard can not be reported for that analyte.

Samples with non-compliant surrogate recoveries should be reanalyzed unless deemed un-necessary by the supervisor for matrix, historical data, or other analysis related anomalies.

Laboratory and Matrix Spike acceptance criteria vary significantly depending on method and matrix. Analysts and supervisors meet and discuss appropriate corrective action measures as spike failures occur.

Sample duplicates with RPD values outside control limits require supervisor evaluation and possible reanalysis.

A second mechanism for initiation of corrective action is that resulting from Quality Assurance performance audits, system audits, inter and intra-laboratory comparison studies. Corrective Actions initiated through this mechanism will be monitored and coordinated by the laboratory QA officer.

All corrective action forms are reviewed by and filed with the QA Officer.

12.0 Quality Assurance Audits, Reports and Complaints

Internal/External Systems' Audits, Performance Evaluations, and Complaints

Several procedures are used to assess the effectiveness of the quality control system. One of the methods includes internal performance evaluations, which are conducted by the use of control samples, replicate measurements and use control charts. Another method is external performance audits, which are conducted by the use of inter-laboratory checks, such as participation in laboratory evaluation programs and performance evaluation samples available from ERA (Environmental Resource Associates).

Proficiency samples will be obtained twice per year from ERA. We also participate in soil and water Underground Storage Tank PE studies. Copies of our results are available upon request.

Quality Assurance Audits are performed annually by the Quality Assurance Officer. They are performed using the guidelines outlined below:

The system audit consists of a qualitative inspection of the QA system in the laboratory and an assessment of the adequacy of the physical facilities for sampling, calibration, and measurement. This audit includes a careful evaluation and review of laboratory quality control procedures. Including but not limited to:

1. Review of staff qualifications, demonstration of capability, and personnel training programs
2. Storage and handling of reagents, standards and samples
3. Standard preparation logbook and LIMS procedures
4. Extraction logbooks
5. Raw data logbooks
6. Analytical logbooks or batch printouts and instrument maintenance logbooks
7. Data review procedures
8. Corrective action procedures

Review of data packages is performed regularly by the lab manager/QA Officer.

The Quality Assurance Officer will conduct these audits on an annual basis. Performance evaluation will, in part, be based upon the results obtained on the ERA proficiency results.

Complaints

Complaints from clients are documented and given to the laboratory manager. The lab manager shall review the information and contact the client. If doubt is raised concerning the laboratories policies or procedures, then an audit of the section or sections may be performed. All records of complaints and subsequent actions shall be maintained for 3 years unless otherwise stated.

Internal and External Reports

The Quality Assurance Officer is responsible for preparation and submission of quality assurance reports to the appropriate management personnel as problems and issues arise. These reports include the assessment of measurement systems, data precision and accuracy, and the results of performance and system audits. Additionally, they also include significant QA problems, corrective actions, and recommended resolution measures. Reports of these Quality Assurance Audits describe the particular activities audited, procedures utilized in the examination and evaluation of laboratory records, and data validation procedures. Finally, there are procedures for evaluating the performance of Quality Control and Quality Assurance activities, and laboratory deficiencies and the implementation of corrective actions with the review requirements.

13.0 Analytical Protocols Utilized at Hall Environmental Analysis Laboratory, Inc.

1. Standard Methods for the Examination of Water and Wastewater: AOWA, AWWA, and WPCG; 20th Edition, 1999.
2. Methods for Chemical Analysis of Water and Wastes, USEPA, EPA-600/4-79-020, March 1979 and as amended December, 1982 (EPA-600/4-82-055)
3. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, USEPA SW-846, 3rd Edition, Updates I, II, IIA, IIB, III, December, 1996.
4. Methods of Soil Analysis: Parts 1 & 2, 2nd Edition, Agronomy Society of America, Monograph 9
5. Diagnosis & Improvement of Saline & Alkali Soils, Agriculture Handbook No. 60, USDA, 1954
6. Handbook on Reference Methods for Soil Testing, The Council on Soil Testing & Plant Analysis, 1980 and 1992
7. Field and Laboratory Methods Applicable to Overburdens and Mine Soils, USEPA, EPA-600/2-78-054, March 1978
8. Laboratory Procedures for Analyses of Oilfield Waste, Department of Natural Resources, Office of Conservation, Injection and Mining Division, Louisiana, August 1988
9. Soil Testing Methods Used at Colorado State University for the Evaluation of Fertility, Salinity and Trace Element Toxicity, Technical Bulletin LT B88-2 January, 1988
10. Manual of Operating Procedures for the Analysis of Selected Soil, Water, Plant Tissue and Wastes Chemical and physical Parameter, Soil, Water, and Plant Analysis Laboratory, Dept. of Soil and Water Science, The University of Arizona, August 1989
11. Sampling Procedures and Chemical Methods in Use at the U.S. Salinity Laboratory for Characterizing Salt-Affected Soils and Water, USDA Salinity Laboratory.
12. Procedures for Collecting Soil Samples and Methods of Analysis for Soil Survey, USDA Soil Conservation Service, SSIR No. 1.
13. Soil Survey Laboratory Methods Manual, Soil Survey Laboratory Staff, Soil Survey Investigations Report No. 42, version 2.0, August 1992.
14. Methods for the Determination of Metals in Environmental Samples, USEPA, EPA-600/4-91-010, June 1991
15. The Merck Index, Eleventh Edition, Merck & Co., Inc. 1989.
16. Handbook of Chemistry and Physics, 62nd Edition, CRC Press, Inc. 1981-1982.

17. Analytical Chemistry of PCB's. Erickson, Mitchell D., CRC Press, Inc. 1992.
18. Environmental Perspective on the Emerging Oil Shale Industry, EPA Oil & Shale Research Group.
19. Polycyclic Aromatic Hydrocarbons in Water Systems, CRC Press, Inc.

Section 10.0 Chemical Analytical Reports

<u>Title</u>	<u>Tab Number</u>
Soil Gas Third Quarter 2006.....	5
Soil Gas Fourth Quarter 2006.....	6
Groundwater Third Quarter 2006.....	7
Groundwater Fourth Quarter 2006.....	8
GAC Filter Monitoring 2006.....	9

COVER LETTER

Monday, September 18, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: River Terrace - 3rd Quarter 2006-VS

Order No.: 0609106

Dear Cindy Hurtado:

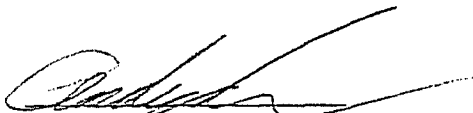
Hall Environmental Analysis Laboratory, Inc. received 6 sample(s) on 9/12/2006 for the analyses presented in the following report.

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, Inc.

Date: 18-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#2
Lab Order:	0609106	Collection Date:	9/11/2006 10:00:00 AM
Project:	River Terrace - 3rd Quarter 2006-VS	Date Received:	9/12/2006
Lab ID:	0609106-01	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	9/15/2006 10:49:33 AM
Surr: BFB	90.0	84.5-129		%REC	1	9/15/2006 10:49:33 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	9/15/2006 10:49:33 AM
Toluene	ND	0.10		µg/L	1	9/15/2006 10:49:33 AM
Ethylbenzene	ND	0.10		µg/L	1	9/15/2006 10:49:33 AM
Xylenes, Total	ND	0.30		µg/L	1	9/15/2006 10:49:33 AM
Surr: 4-Bromofluorobenzene	80.8	80-116		%REC	1	9/15/2006 10:49:33 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	

Hall Environmental Analysis Laboratory, Inc.

Date: 18-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#1
Lab Order:	0609106	Collection Date:	9/11/2006 10:25:00 AM
Project:	River Terrace - 3rd Quarter 2006-VS	Date Received:	9/12/2006
Lab ID:	0609106-02	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	920	100		µg/L	20	9/15/2006 11:19:38 AM
Surr: BFB	105	84.5-129		%REC	20	9/15/2006 11:19:38 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	29	2.0		µg/L	20	9/15/2006 11:19:38 AM
Toluene	ND	2.0		µg/L	20	9/15/2006 11:19:38 AM
Ethylbenzene	36	2.0		µg/L	20	9/15/2006 11:19:38 AM
Xylenes, Total	170	6.0		µg/L	20	9/15/2006 11:19:38 AM
Surr: 4-Bromofluorobenzene	95.0	80-116		%REC	20	9/15/2006 11:19:38 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, Inc.

Date: 18-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#6
Lab Order:	0609106	Collection Date:	9/11/2006 10:45:00 AM
Project:	River Terrace - 3rd Quarter 2006-VS	Date Received:	9/12/2006
Lab ID:	0609106-03	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	17	5.0		µg/L	1	9/15/2006 11:49:50 AM
Surr: BFB	126	84.5-129		%REC	1	9/15/2006 11:49:50 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	9/15/2006 11:49:50 AM
Toluene	ND	0.10		µg/L	1	9/15/2006 11:49:50 AM
Ethylbenzene	0.18	0.10		µg/L	1	9/15/2006 11:49:50 AM
Xylenes, Total	0.97	0.30		µg/L	1	9/15/2006 11:49:50 AM
Surr: 4-Bromofluorobenzene	87.6	80-116		%REC	1	9/15/2006 11:49:50 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	

Hall Environmental Analysis Laboratory, Inc.

Date: 18-Sep-06

CLIENT: San Juan Refining

Client Sample ID: TP-#8

Lab Order: 0609106

Collection Date: 9/11/2006 11:10:00 AM

Project: River Terrace - 3rd Quarter 2006-VS

Date Received: 9/12/2006

Lab ID: 0609106-04

Matrix: AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	14	5.0		µg/L	1	9/15/2006 12:20:15 PM
Surr: BFB	101	84.5-129		%REC	1	9/15/2006 12:20:15 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	9/15/2006 12:20:15 PM
Toluene	ND	0.10		µg/L	1	9/15/2006 12:20:15 PM
Ethylbenzene	0.13	0.10		µg/L	1	9/15/2006 12:20:15 PM
Xylenes, Total	0.43	0.30		µg/L	1	9/15/2006 12:20:15 PM
Surr: 4-Bromofluorobenzene	89.5	80-116		%REC	1	9/15/2006 12:20:15 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, Inc.

Date: 18-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#5
Lab Order:	0609106	Collection Date:	9/11/2006 12:35:00 PM
Project:	River Terrace - 3rd Quarter 2006-VS	Date Received:	9/12/2006
Lab ID:	0609106-05	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	1200	120		µg/L	25	9/15/2006 12:50:32 PM
Surr: BFB	98.6	84.5-129		%REC	25	9/15/2006 12:50:32 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	2.5		µg/L	25	9/15/2006 12:50:32 PM
Toluene	ND	2.5		µg/L	25	9/15/2006 12:50:32 PM
Ethylbenzene	79	2.5		µg/L	25	9/15/2006 12:50:32 PM
Xylenes, Total	380	7.5		µg/L	25	9/15/2006 12:50:32 PM
Surr: 4-Bromofluorobenzene	94.8	80-116		%REC	25	9/15/2006 12:50:32 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, Inc.

Date: 18-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#11
Lab Order:	0609106	Collection Date:	9/11/2006 12:50:00 PM
Project:	River Terrace - 3rd Quarter 2006-VS	Date Received:	9/12/2006
Lab ID:	0609106-06	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	9.0	5.0		µg/L	1	9/15/2006 1:50:56 PM
Surr: BFB	97.8	84.5-129		%REC	1	9/15/2006 1:50:56 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	9/15/2006 1:50:56 PM
Toluene	ND	0.10		µg/L	1	9/15/2006 1:50:56 PM
Ethylbenzene	0.24	0.10		µg/L	1	9/15/2006 1:50:56 PM
Xylenes, Total	1.5	0.30		µg/L	1	9/15/2006 1:50:56 PM
Surr: 4-Bromofluorobenzene	91.8	80-116		%REC	1	9/15/2006 1:50:56 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	

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 3rd Quarter 2006-VS

Work Order: 0609106

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8015

Sample ID: 0609106-05A DUP

DUP

Batch ID: R20703 Analysis Date: 9/15/2006 1:20:43 PM

Gasoline Range Organics (GRO)	1205	µg/L	120				0.833	27.8	
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Method: SW8021

Sample ID: 0609106-05A DUP

DUP

Batch ID: R20703 Analysis Date: 9/15/2006 1:20:43 PM

Benzene	ND	µg/L	2.5				0	25	
Toluene	ND	µg/L	2.5				0	25	
Ethylbenzene	86.10	µg/L	2.5				8.87	25	
Xylenes, Total	415.5	µg/L	7.5				8.21	25	

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

9/12/2006

Work Order Number 0609106

Received by GLS

Checklist completed by

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?

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: SAN JUAN Refining

Address: #50 Rd 4990

Bloomfield, NM

87413

Phone #: 505-632-4101

Fax #: 505-632-3911

Date

Time

Matrix

Sample I.D. No.

Number/Volume

Preservative

HgCl₂

HNO₃

HEAL No.

0609106

9-11-06 10AM TP-#2 1-Tedlar 1

1025am " TP-#1 " 2

1045A " TP-#6 " 3

1110A " TP-#8 " 4

1235p " TP-#5 " 5

1250p " TP-#11 " 6

Date:

Time:

Relinquished By: (Signature)

Time:

Received By: (Signature)

Time:

Remarks:

9-12-06

10:50

TPH Method 8015B (Gas/Headspace)

BTEX + MTBE + TPH (Gasoline Only)

BTEX + MTBE + PAHs (B021)

TPH (Method 418.1)

EDB (Method 504.1)

EDC (Method B021)

B310 (PNA or PAH)

RCRA 8 Metals

Anions (F, Cl, NO₂, NO₃, PO₄, SO₄)

8081 Pesticides / PCB's (B082)

B260B (VOA)

B270 (Semi-VOA)

Air Bubbles or Headspace (Y or N)

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



COVER LETTER

Monday, September 18, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 3rd QTR-2006-VS

Order No.: 0609130

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 7 sample(s) on 9/13/2006 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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

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, Inc.

Date: 18-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP #12
Lab Order:	0609130	Collection Date:	9/12/2006 8:20:00 AM
Project:	River Terrace - 3rd QTR-2006-VS	Date Received:	9/13/2006
Lab ID:	0609130-01	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	9/15/2006 2:21:20 PM
Surr: BFB	95.6	84.5-129		%REC	1	9/15/2006 2:21:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	9/15/2006 2:21:20 PM
Toluene	ND	0.10		µg/L	1	9/15/2006 2:21:20 PM
Ethylbenzene	0.10	0.10		µg/L	1	9/15/2006 2:21:20 PM
Xylenes, Total	ND	0.30		µg/L	1	9/15/2006 2:21:20 PM
Surr: 4-Bromofluorobenzene	86.9	80-116		%REC	1	9/15/2006 2:21:20 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, Inc.

Date: 18-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP #13
Lab Order:	0609130	Collection Date:	9/12/2006 9:10:00 AM
Project:	River Terrace - 3rd QTR-2006-VS	Date Received:	9/13/2006
Lab ID:	0609130-02	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	9/15/2006 2:51:45 PM
Surr: BFB	98.6	84.5-129		%REC	1	9/15/2006 2:51:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	9/15/2006 2:51:45 PM
Toluene	ND	0.10		µg/L	1	9/15/2006 2:51:45 PM
Ethylbenzene	ND	0.10		µg/L	1	9/15/2006 2:51:45 PM
Xylenes, Total	ND	0.30		µg/L	1	9/15/2006 2:51:45 PM
Surr: 4-Bromofluorobenzene	89.8	80-116		%REC	1	9/15/2006 2:51:45 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, Inc.

Date: 18-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP #10
Lab Order:	0609130	Collection Date:	9/12/2006 9:35:00 AM
Project:	River Terrace - 3rd QTR-2006-VS	Date Received:	9/13/2006
Lab ID:	0609130-03	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	9/15/2006 3:22:00 PM
Surr: BFB	96.5	84.5-129		%REC	1	9/15/2006 3:22:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	9/15/2006 3:22:00 PM
Toluene	ND	0.10		µg/L	1	9/15/2006 3:22:00 PM
Ethylbenzene	ND	0.10		µg/L	1	9/15/2006 3:22:00 PM
Xylenes, Total	ND	0.30		µg/L	1	9/15/2006 3:22:00 PM
Surr: 4-Bromofluorobenzene	87.0	80-116		%REC	1	9/15/2006 3:22:00 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, Inc.

Date: 18-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP #3
Lab Order:	0609130	Collection Date:	9/12/2006 10:20:00 AM
Project:	River Terrace - 3rd QTR-2006-VS	Date Received:	9/13/2006
Lab ID:	0609130-04	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	9/16/2006 10:27:18 PM
Surr: BFB	83.6	72.2-129		%REC	1	9/16/2006 10:27:18 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	9/16/2006 10:27:18 PM
Toluene	ND	0.10		µg/L	1	9/16/2006 10:27:18 PM
Ethylbenzene	ND	0.10		µg/L	1	9/16/2006 10:27:18 PM
Xylenes, Total	ND	0.30		µg/L	1	9/16/2006 10:27:18 PM
Surr: 4-Bromofluorobenzene	82.9	80-116		%REC	1	9/16/2006 10:27:18 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, Inc.

Date: 18-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	DW #1
Lab Order:	0609130	Collection Date:	9/12/2006 12:40:00 PM
Project:	River Terrace - 3rd QTR-2006-VS	Date Received:	9/13/2006
Lab ID:	0609130-05	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	9/16/2006 11:27:45 PM
Surr: BFB	85.1	72.2-129		%REC	1	9/16/2006 11:27:45 PM
EPA METHOD 8021B: VOLATILES						
Benzene	ND	0.10		µg/L	1	9/16/2006 11:27:45 PM
Toluene	ND	0.10		µg/L	1	9/16/2006 11:27:45 PM
Ethylbenzene	ND	0.10		µg/L	1	9/16/2006 11:27:45 PM
Xylenes, Total	ND	0.30		µg/L	1	9/16/2006 11:27:45 PM
Surr: 4-Bromofluorobenzene	82.8	80-116		%REC	1	9/16/2006 11:27:45 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, Inc.

Date: 18-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	MW #49
Lab Order:	0609130	Collection Date:	9/12/2006 1:20:00 PM
Project:	River Terrace - 3rd QTR-2006-VS	Date Received:	9/13/2006
Lab ID:	0609130-06	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	9/15/2006 6:55:17 PM
Surr: BFB	92.6	84.5-129		%REC	1	9/15/2006 6:55:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	9/15/2006 6:55:17 PM
Toluene	ND	0.10		µg/L	1	9/15/2006 6:55:17 PM
Ethylbenzene	ND	0.10		µg/L	1	9/15/2006 6:55:17 PM
Xylenes, Total	ND	0.30		µg/L	1	9/15/2006 6:55:17 PM
Surr: 4-Bromofluorobenzene	82.0	80-116		%REC	1	9/15/2006 6:55:17 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, Inc.

Date: 18-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP #9
Lab Order:	0609130	Collection Date:	9/12/2006 2:10:00 PM
Project:	River Terrace - 3rd QTR-2006-VS	Date Received:	9/13/2006
Lab ID:	0609130-07	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	140	5.0		µg/L	1	9/15/2006 7:25:59 PM
Surr: BFB	114	84.5-129		%REC	1	9/15/2006 7:25:59 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	9/15/2006 7:25:59 PM
Toluene	0.21	0.10		µg/L	1	9/15/2006 7:25:59 PM
Ethylbenzene	0.18	0.10		µg/L	1	9/15/2006 7:25:59 PM
Xylenes, Total	2.5	0.30		µg/L	1	9/15/2006 7:25:59 PM
Surr: 4-Bromofluorobenzene	94.1	80-116		%REC	1	9/15/2006 7:25:59 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	

QA/QC SUMMARY REPORT

Client: San Juan Refining
 Project: River Terrace - 3rd QTR-2006-VS

Work Order: 0609130

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
---------	--------	-------	-----	------	----------	-----------	------	----------	------

Method: SW8015

Sample ID: 0609106-05A DUP

DUP

Batch ID: R20703 Analysis Date: 9/15/2006 1:20:43 PM

Gasoline Range Organics (GRO)

1205

µg/L

120

0.833 27.8

Sample ID: 0609130-04A DUP

DUP

Batch ID: R20705 Analysis Date: 9/16/2006 10:57:30 PM

Gasoline Range Organics (GRO)

ND

µg/L

5.0

0 27.8

Method: SW8021

Sample ID: 0609106-05A DUP

DUP

Batch ID: R20703 Analysis Date: 9/15/2006 1:20:43 PM

Benzene

ND

µg/L

2.5

0 25

Toluene

ND

µg/L

2.5

0 25

Ethylbenzene

86.10

µg/L

2.5

8.87 25

Xylenes, Total

415.5

µg/L

7.5

8.21 25

Sample ID: 0609130-04A DUP

DUP

Batch ID: R20705 Analysis Date: 9/16/2006 10:57:30 PM

Benzene

ND

µg/L

0.10

0 25

Toluene

ND

µg/L

0.10

0 25

Ethylbenzene

ND

µg/L

0.10

0 25

Xylenes, Total

ND

µg/L

0.30

0 25

Qualifiers:

E Value above quantitation range
 J Analyte detected below quantitation limits
 R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 S Spike Recovery outside accepted recovery limits

Page 1

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

9/13/2006

Work Order Number 0609130

Received by GLS

Checklist completed by

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?

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

pc CH TP# 3 collection time is 1020/

Corrective Action

COVER LETTER

Monday, December 11, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 4th Quarter 2006 - VS

Order No.: 0612041

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 4 sample(s) on 12/5/2006 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

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001



Hall Environmental Analysis Laboratory, Inc.

Date: 11-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#8
Lab Order:	0612041	Collection Date:	12/4/2006 10:20:00 AM
Project:	River Terrace - 4th Quarter 2006 - VS	Date Received:	12/5/2006
Lab ID:	0612041-01	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	4700	250		µg/L	50	12/6/2006 10:32:49 AM
Surr: BFB	114	84.5-129		%REC	50	12/6/2006 10:32:49 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	5.0		µg/L	50	12/6/2006 10:32:49 AM
Toluene	7.4	5.0		µg/L	50	12/6/2006 10:32:49 AM
Ethylbenzene	50	5.0		µg/L	50	12/6/2006 10:32:49 AM
Xylenes, Total	710	15		µg/L	50	12/6/2006 10:32:49 AM
Surr: 4-Bromofluorobenzene	91.0	70.2-105		%REC	50	12/6/2006 10:32:49 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 11-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#6
Lab Order:	0612041	Collection Date:	12/4/2006 11:00:00 AM
Project:	River Terrace - 4th Quarter 2006 - VS	Date Received:	12/5/2006
Lab ID:	0612041-02	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	320	25		µg/L	5	12/6/2006 3:40:40 PM
Surr: BFB	143	84.5-129	S	%REC	5	12/6/2006 3:40:40 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.50		µg/L	5	12/6/2006 3:40:40 PM
Toluene	ND	0.50		µg/L	5	12/6/2006 3:40:40 PM
Ethylbenzene	2.3	0.50		µg/L	5	12/6/2006 3:40:40 PM
Xylenes, Total	37	1.5		µg/L	5	12/6/2006 3:40:40 PM
Surr: 4-Bromofluorobenzene	93.8	70.2-105		%REC	5	12/6/2006 3:40:40 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	MCL	Maximum Contaminant Level
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

Page 2 of 4

Hall Environmental Analysis Laboratory, Inc.

Date: 11-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#1
Lab Order:	0612041	Collection Date:	12/4/2006 1:05:00 PM
Project:	River Terrace - 4th Quarter 2006 - VS	Date Received:	12/5/2006
Lab ID:	0612041-03	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	8000	250		µg/L	50	12/6/2006 11:34:37 AM
Surr: BFB	129	84.5-129		%REC	50	12/6/2006 11:34:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	5.0		µg/L	50	12/6/2006 11:34:37 AM
Toluene	8.3	5.0		µg/L	50	12/6/2006 11:34:37 AM
Ethylbenzene	140	5.0		µg/L	50	12/6/2006 11:34:37 AM
Xylenes, Total	1000	15		µg/L	50	12/6/2006 11:34:37 AM
Surr: 4-Bromofluorobenzene	97.1	70.2-105		%REC	50	12/6/2006 11:34:37 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	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Date: 11-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#2
Lab Order:	0612041	Collection Date:	12/4/2006 1:40:00 PM
Project:	River Terrace - 4th Quarter 2006 - VS	Date Received:	12/5/2006
Lab ID:	0612041-04	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	120	5.0		µg/L	1	12/6/2006 12:05:08 PM
Surr: BFB	136	84.5-129	S	%REC	1	12/6/2006 12:05:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	0.11	0.10		µg/L	1	12/6/2006 12:05:08 PM
Toluene	ND	0.10		µg/L	1	12/6/2006 12:05:08 PM
Ethylbenzene	1.6	0.10		µg/L	1	12/6/2006 12:05:08 PM
Xylenes, Total	18	0.30		µg/L	1	12/6/2006 12:05:08 PM
Surr: 4-Bromofluorobenzene	92.3	70.2-105		%REC	1	12/6/2006 12:05:08 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	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

QA/QC SUMMARY REPORT

Client: San Juan Refining
 Project: River Terrace - 4th Quarter 2006 - VS

Work Order: 0612041

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
---------	--------	-------	-----	------	----------	-----------	------	----------	------

Method: SW8015

Sample ID: 5ML RB MBLK Batch ID: R21693 Analysis Date: 12/6/2006 8:42:28 AM

Gasoline Range Organics (GRO) ND mg/Kg 5.0

Sample ID: 2.5UG GRO LCS Batch ID: R21693 Analysis Date: 12/6/2006 8:43:39 PM

Gasoline Range Organics (GRO) 25.10 mg/Kg 5.0 98.0 69.5 120

Method: SW8015

Sample ID: 5ML RB MBLK Batch ID: R21693 Analysis Date: 12/6/2006 8:42:28 AM

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: 2.5UG GRO LCS Batch ID: R21693 Analysis Date: 12/6/2006 8:43:39 PM

Gasoline Range Organics (GRO) 0.5020 mg/L 0.050 100 80 115

Method: SW8021

Sample ID: 5ML RB MBLK Batch ID: R21693 Analysis Date: 12/6/2006 8:42:28 AM

Benzene ND µg/L 1.0

Toluene ND µg/L 1.0

Ethylbenzene ND µg/L 1.0

Xylenes, Total ND µg/L 3.0

1,2,4-Trimethylbenzene ND µg/L 1.0

1,3,5-Trimethylbenzene ND µg/L 1.0

Sample ID: 100NG BTEX LCS LCS Batch ID: R21693 Analysis Date: 12/6/2006 5:42:33 PM

Benzene 18.21 µg/L 1.0 91.0 85.9 113

Toluene 18.34 µg/L 1.0 91.7 86.4 113

Ethylbenzene 17.85 µg/L 1.0 89.2 83.5 118

Xylenes, Total 37.37 µg/L 3.0 93.4 83.4 122

1,2,4-Trimethylbenzene 16.78 µg/L 1.0 83.9 83.5 115

1,3,5-Trimethylbenzene 17.39 µg/L 1.0 86.9 85.2 113

Qualifiers:

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits

5 / 6

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

12/5/2006

Work Order Number 0612041

Received by AT

Checklist completed by

Signature

Date

12/5/06

Matrix

Carrier name UPS

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

Container/Temp Blank temperature?

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: SAP Juan Refining

Address: #50 Rd 990

Bloomfield, NM

87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Date

Time

Matrix

Sample I.D. No.

Number/Volume

Preservative

HgCl₂ HNO₃

HEAL No.

2012041

-1

-2

-3

-4

1-Tedlar

1

1

1

Vapor

TP-#8

TP-#6

TP-#1

12/4/06

11 AM

105m

1140pm

12/4/06

11 AM

105m

1140pm

Date

Time

Relinquished By: (Signature)

Croy Hurtado

Received By: (Signature)

Jana Romo

Remarks:

12/5/06 1003

Date

Time

Relinquished By: (Signature)

Croy Hurtado

Received By: (Signature)

Jana Romo

Remarks:

12/5/06 1003

QA/QC Package:

Std ☐ Level 4 ☐

Other:

Project Name: River Terrace - 4th

Project #: 200-200-VS

Project Manager:

Sampler: Croy Hurtado

Sample Temperature: 150

ANALYSIS REQUEST

TPH Method 8015B (Gas/Phase)

TPH Method 418.1

EDC (Method 8021)

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COVER LETTER

Monday, December 11, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: River Terrace - 4th Quarter 2006-VS

Order No.: 0612061

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 4 sample(s) on 12/6/2006 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

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001



Hall Environmental Analysis Laboratory, Inc.

Date: 11-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#13
Lab Order:	0612061	Collection Date:	12/5/2006 10:25:00 AM
Project:	River Terrace - 4th Quarter 2006-VS	Date Received:	12/6/2006
Lab ID:	0612061-01	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	18	5.0		µg/L	1	12/6/2006 12:36:11 PM
Surr: BFB	108	84.5-129		%REC	1	12/6/2006 12:36:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	12/6/2006 12:36:11 PM
Toluene	ND	0.10		µg/L	1	12/6/2006 12:36:11 PM
Ethylbenzene	0.18	0.10		µg/L	1	12/6/2006 12:36:11 PM
Xylenes, Total	2.4	0.30		µg/L	1	12/6/2006 12:36:11 PM
Surr: 4-Bromofluorobenzene	80.3	70.2-105		%REC	1	12/6/2006 12:36:11 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	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Date: 11-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#10
Lab Order:	0612061	Collection Date:	12/5/2006 10:55:00 AM
Project:	River Terrace - 4th Quarter 2006-VS	Date Received:	12/6/2006
Lab ID:	0612061-02	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	22	5.0		µg/L	1	12/6/2006 1:06:57 PM
Surr: BFB	114	84.5-129		%REC	1	12/6/2006 1:06:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	12/6/2006 1:06:57 PM
Toluene	ND	0.10		µg/L	1	12/6/2006 1:06:57 PM
Ethylbenzene	0.20	0.10		µg/L	1	12/6/2006 1:06:57 PM
Xylenes, Total	2.7	0.30		µg/L	1	12/6/2006 1:06:57 PM
Surr: 4-Bromofluorobenzene	84.9	70.2-105		%REC	1	12/6/2006 1:06:57 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	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

Page 2 of 4

Hall Environmental Analysis Laboratory, Inc.

Date: 11-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#5
Lab Order:	0612061	Collection Date:	12/5/2006 1:25:00 PM
Project:	River Terrace - 4th Quarter 2006-VS	Date Received:	12/6/2006
Lab ID:	0612061-03	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	8900	250		µg/L	50	12/6/2006 1:37:49 PM
Surr: BFB	113	84.5-129		%REC	50	12/6/2006 1:37:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	6.1	5.0		µg/L	50	12/6/2006 1:37:49 PM
Toluene	15	5.0		µg/L	50	12/6/2006 1:37:49 PM
Ethylbenzene	14	5.0		µg/L	50	12/6/2006 1:37:49 PM
Xylenes, Total	1400	30		µg/L	100	12/6/2006 2:39:06 PM
Surr: 4-Bromofluorobenzene	93.8	70.2-105		%REC	50	12/6/2006 1:37:49 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	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Date: 11-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#12
Lab Order:	0612061	Collection Date:	12/5/2006 2:05:00 PM
Project:	River Terrace - 4th Quarter 2006-VS	Date Received:	12/6/2006
Lab ID:	0612061-04	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	120	10		µg/L	2	12/6/2006 3:09:54 PM
Sum: BFB	127	84.5-129		%REC	2	12/6/2006 3:09:54 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.20		µg/L	2	12/6/2006 3:09:54 PM
Toluene	ND	0.20		µg/L	2	12/6/2006 3:09:54 PM
Ethylbenzene	0.28	0.20		µg/L	2	12/6/2006 3:09:54 PM
Xylenes, Total	24	0.60		µg/L	2	12/6/2006 3:09:54 PM
Sum: 4-Bromofluorobenzene	96.6	70.2-105		%REC	2	12/6/2006 3:09:54 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	MCL	Maximum Contaminant Level
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

Page 4 of 4

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 4th Quarter 2006-VS

Work Order: 0612061

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8015

Sample ID: 5ML RB MBLK Batch ID: R21693 Analysis Date: 12/6/2006 8:42:28 AM

Gasoline Range Organics (GRO) ND mg/Kg 5.0

Sample ID: 2.5UG GRO LCS Batch ID: R21693 Analysis Date: 12/6/2006 8:43:39 PM

Gasoline Range Organics (GRO) 25.10 mg/Kg 5.0 98.0 69.5 120

Method: SW8015

Sample ID: 5ML RB MBLK Batch ID: R21693 Analysis Date: 12/6/2006 8:42:28 AM

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: 2.5UG GRO LCS Batch ID: R21693 Analysis Date: 12/6/2006 8:43:39 PM

Gasoline Range Organics (GRO) 0.5020 mg/L 0.050 100 80 115

Method: SW8021

Sample ID: 5ML RB MBLK Batch ID: R21693 Analysis Date: 12/6/2006 8:42:28 AM

Benzene ND µg/L 1.0

Toluene ND µg/L 1.0

Ethylbenzene ND µg/L 1.0

Xylenes, Total ND µg/L 3.0

1,2,4-Trimethylbenzene ND µg/L 1.0

1,3,5-Trimethylbenzene ND µg/L 1.0

Sample ID: 100NG BTEX LCS LCS Batch ID: R21693 Analysis Date: 12/6/2006 5:42:33 PM

Benzene 18.21 µg/L 1.0 91.0 85.9 113

Toluene 18.34 µg/L 1.0 91.7 86.4 113

Ethylbenzene 17.85 µg/L 1.0 89.2 83.5 118

Xylenes, Total 37.37 µg/L 3.0 93.4 83.4 122

1,2,4-Trimethylbenzene 16.78 µg/L 1.0 83.9 83.5 115

1,3,5-Trimethylbenzene 17.39 µg/L 1.0 86.9 85.2 113

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

12/6/2006

Work Order Number 0612061

Received by TLS

Checklist completed by

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?

14°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Corrective Action



COVER LETTER

Tuesday, December 12, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 4th Quarter 2006 VS

Order No.: 0612093

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 5 sample(s) on 12/7/2006 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

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001



Hall Environmental Analysis Laboratory, Inc.

Date: 12-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP #9
Lab Order:	0612093	Collection Date:	12/6/2006 10:00:00 AM
Project:	River Terrace - 4th Quarter 2006 VS	Date Received:	12/7/2006
Lab ID:	0612093-01	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	20	5.0		µg/L	1	12/8/2006 11:06:51 AM
Surr: BFB	119	84.5-129		%REC	1	12/8/2006 11:06:51 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	12/8/2006 11:06:51 AM
Toluene	ND	0.10		µg/L	1	12/8/2006 11:06:51 AM
Ethylbenzene	0.16	0.10		µg/L	1	12/8/2006 11:06:51 AM
Xylenes, Total	3.5	0.30		µg/L	1	12/8/2006 11:06:51 AM
Surr: 4-Bromofluorobenzene	83.9	70.2-105		%REC	1	12/8/2006 11:06:51 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	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Date: 12-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	DW-#1
Lab Order:	0612093	Collection Date:	12/6/2006 10:45:00 AM
Project:	River Terrace - 4th Quarter 2006 VS	Date Received:	12/7/2006
Lab ID:	0612093-02	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	12/8/2006 11:37:36 AM
Surr: BFB	117	84.5-129		%REC	1	12/8/2006 11:37:36 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	12/8/2006 11:37:36 AM
Toluene	ND	0.10		µg/L	1	12/8/2006 11:37:36 AM
Ethylbenzene	ND	0.10		µg/L	1	12/8/2006 11:37:36 AM
Xylenes, Total	ND	0.30		µg/L	1	12/8/2006 11:37:36 AM
Surr: 4-Bromofluorobenzene	84.4	70.2-105		%REC	1	12/8/2006 11:37:36 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	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Date: 12-Dec-06

CLIENT: San Juan Refining

Client Sample ID: MW #49

Lab Order: 0612093

Collection Date: 12/6/2006 1:30:00 PM

Project: River Terrace - 4th Quarter 2006 VS

Date Received: 12/7/2006

Lab ID: 0612093-03

Matrix: AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	12/8/2006 12:07:56 PM
Surr: BFB	114	84.5-129		%REC	1	12/8/2006 12:07:56 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	12/8/2006 12:07:56 PM
Toluene	ND	0.10		µg/L	1	12/8/2006 12:07:56 PM
Ethylbenzene	ND	0.10		µg/L	1	12/8/2006 12:07:56 PM
Xylenes, Total	0.46	0.30		µg/L	1	12/8/2006 12:07:56 PM
Surr: 4-Bromofluorobenzene	82.4	70.2-105		%REC	1	12/8/2006 12:07:56 PM

Qualifiers: * Value exceeds Maximum Contaminant Level

E Value above quantitation range

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits 3 / 7

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

MCL Maximum Contaminant Level

RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 12-Dec-06

CLIENT: San Juan Refining

Client Sample ID: TP- #11

Lab Order: 0612093

Collection Date: 12/6/2006 2:25:00 PM

Project: River Terrace - 4th Quarter 2006 VS

Date Received: 12/7/2006

Lab ID: 0612093-04

Matrix: AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	12/8/2006 12:43:31 PM
Surr: BFB	112	84.5-129		%REC	1	12/8/2006 12:43:31 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	12/8/2006 12:43:31 PM
Toluene	ND	0.10		µg/L	1	12/8/2006 12:43:31 PM
Ethylbenzene	ND	0.10		µg/L	1	12/8/2006 12:43:31 PM
Xylenes, Total	ND	0.30		µg/L	1	12/8/2006 12:43:31 PM
Surr: 4-Bromofluorobenzene	78.8	70.2-105		%REC	1	12/8/2006 12:43:31 PM

Qualifiers: * Value exceeds Maximum Contaminant Level

E Value above quantitation range

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits 4 / 7

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

MCL Maximum Contaminant Level

RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 12-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#3
Lab Order:	0612093	Collection Date:	12/6/2006 2:50:00 PM
Project:	River Terrace - 4th Quarter 2006 VS	Date Received:	12/7/2006
Lab ID:	0612093-05	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	12/8/2006 1:14:11 PM
Surr: BFB	114	84.5-129		%REC	1	12/8/2006 1:14:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.10		µg/L	1	12/8/2006 1:14:11 PM
Toluene	ND	0.10		µg/L	1	12/8/2006 1:14:11 PM
Ethylbenzene	ND	0.10		µg/L	1	12/8/2006 1:14:11 PM
Xylenes, Total	ND	0.30		µg/L	1	12/8/2006 1:14:11 PM
Surr: 4-Bromofluorobenzene	80.9	70.2-105		%REC	1	12/8/2006 1:14:11 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	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

QA/QC SUMMARY REPORT

Client: San Juan Refining
 Project: River Terrace - 4th Quarter 2006 VS

Work Order: 0612093

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8015

Sample ID: 5ML RB MBLK Batch ID: R21733 Analysis Date: 12/8/2006 8:24:48 AM

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: 2.5UG GRO LCS Batch ID: R21733 Analysis Date: 12/8/2006 8:50:53 PM

Gasoline Range Organics (GRO) 0.4860 mg/L 0.050 97.2 80 115

Method: SW8021

Sample ID: 5ML RB MBLK Batch ID: R21733 Analysis Date: 12/8/2006 8:24:48 AM

Benzene ND µg/L 1.0

Toluene ND µg/L 1.0

Ethylbenzene ND µg/L 1.0

Xylenes, Total ND µg/L 3.0

1,2,4-Trimethylbenzene ND µg/L 1.0

1,3,5-Trimethylbenzene ND µg/L 1.0

Sample ID: 100NG BTEX LCS Batch ID: R21733 Analysis Date: 12/8/2006 9:52:19 PM

Benzene 18.53 µg/L 1.0 92.6 85.9 113

Toluene 18.71 µg/L 1.0 93.5 86.4 113

Ethylbenzene 18.08 µg/L 1.0 90.4 83.5 118

Xylenes, Total 38.03 µg/L 3.0 95.1 83.4 122

1,2,4-Trimethylbenzene 16.83 µg/L 1.0 84.2 83.5 115

1,3,5-Trimethylbenzene 17.47 µg/L 1.0 87.4 85.2 113

Qualifiers:

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S 6/7² recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

12/7/2016

Work Order Number 0612093

Received by AT

Checklist completed by

Signature

Date

12/7/16

Matrix

Carrier name UPS

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

Container/Temp Blank temperature?

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____



COVER LETTER

Thursday, September 21, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 3rd Quarter 2006

Order No.: 0609104

Dear Cindy Hurtado:

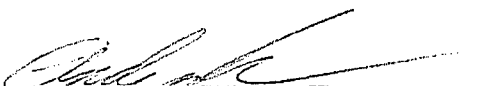
Hall Environmental Analysis Laboratory, Inc. received 6 sample(s) on 9/12/2006 for the analyses presented in the following report.

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, Inc.

Date: 21-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#2
Lab Order:	0609104	Collection Date:	9/11/2006 10:10:00 AM
Project:	River Terrace - 3rd Quarter 2006	Date Received:	9/12/2006
Lab ID:	0609104-01	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	1.3	1.0		mg/L	1	9/16/2006 2:36:32 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/16/2006 2:36:32 PM
Surr: DNOP	117	58-140		%REC	1	9/16/2006 2:36:32 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	77	5.0		mg/L	100	9/16/2006 4:44:42 AM
Surr: BFB	121	84.5-129		%REC	100	9/16/2006 4:44:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	9/16/2006 4:44:42 AM
Benzene	3300	100		µg/L	100	9/16/2006 4:44:42 AM
Toluene	270	100		µg/L	100	9/16/2006 4:44:42 AM
Ethylbenzene	2800	100		µg/L	100	9/16/2006 4:44:42 AM
Xylenes, Total	15000	300		µg/L	100	9/16/2006 4:44:42 AM
Surr: 4-Bromofluorobenzene	92.6	72.2-125		%REC	100	9/16/2006 4:44:42 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	

Hall Environmental Analysis Laboratory, Inc.

Date: 21-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#1
Lab Order:	0609104	Collection Date:	9/11/2006 10:35:00 AM
Project:	River Terrace - 3rd Quarter 2006	Date Received:	9/12/2006
Lab ID:	0609104-02	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	3.5	1.0		mg/L	1	9/16/2006 3:12:34 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/16/2006 3:12:34 PM
Surr: DNOP	111	58-140		%REC	1	9/16/2006 3:12:34 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	98	5.0		mg/L	100	9/16/2006 5:16:15 AM
Surr: BFB	126	84.5-129		%REC	100	9/16/2006 5:16:15 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	9/16/2006 5:16:15 AM
Benzene	3200	100		µg/L	100	9/16/2006 5:16:15 AM
Toluene	ND	100		µg/L	100	9/16/2006 5:16:15 AM
Ethylbenzene	3800	100		µg/L	100	9/16/2006 5:16:15 AM
Xylenes, Total	20000	300		µg/L	100	9/16/2006 5:16:15 AM
Surr: 4-Bromofluorobenzene	86.1	72.2-125		%REC	100	9/16/2006 5:16:15 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	

Hall Environmental Analysis Laboratory, Inc.

Date: 21-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#6
Lab Order:	0609104	Collection Date:	9/11/2006 11:00:00 AM
Project:	River Terrace - 3rd Quarter 2006	Date Received:	9/12/2006
Lab ID:	0609104-03	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						
						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/16/2006 3:48:33 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/16/2006 3:48:33 PM
Surr: DNOP	111	58-140		%REC	1	9/16/2006 3:48:33 PM
EPA METHOD 8015B: GASOLINE RANGE						
						Analyst: NSB
Gasoline Range Organics (GRO)	5.3	0.50		mg/L	10	9/16/2006 5:47:47 AM
Surr: BFB	200	84.5-129	S	%REC	10	9/16/2006 5:47:47 AM
EPA METHOD 8021B: VOLATILES						
						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	9/16/2006 5:47:47 AM
Benzene	27	10		µg/L	10	9/16/2006 5:47:47 AM
Toluene	ND	10		µg/L	10	9/16/2006 5:47:47 AM
Ethylbenzene	410	10		µg/L	10	9/16/2006 5:47:47 AM
Xylenes, Total	45	30		µg/L	10	9/16/2006 5:47:47 AM
Surr: 4-Bromofluorobenzene	98.0	72.2-125		%REC	10	9/16/2006 5:47:47 AM

Qualifiers:	<p>▼ Value exceeds Maximum Contaminant Level</p> <p>E Value above quantitation range</p> <p>J Analyte detected below quantitation limits</p> <p>S Spike Recovery outside accepted recovery limits</p>	<p>B Analyte detected in the associated Method Blank</p> <p>H Holding times for preparation or analysis exceeded</p> <p>ND Not Detected at the Reporting Limit</p>
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Hall Environmental Analysis Laboratory, Inc.

Date: 21-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#8
Lab Order:	0609104	Collection Date:	9/11/2006 11:25:00 AM
Project:	River Terrace - 3rd Quarter 2006	Date Received:	9/12/2006
Lab ID:	0609104-04	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	5.6	1.0		mg/L	1	9/16/2006 5:00:16 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/16/2006 5:00:16 PM
Surr: DNOP	111	58-140		%REC	1	9/16/2006 5:00:16 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	57	0.50		mg/L	10	9/16/2006 6:19:10 AM
Surr: BFB	201	84.5-129	S	%REC	10	9/16/2006 6:19:10 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	9/16/2006 6:19:10 AM
Benzene	ND	10		µg/L	10	9/16/2006 6:19:10 AM
Toluene	ND	10		µg/L	10	9/16/2006 6:19:10 AM
Ethylbenzene	580	10		µg/L	10	9/16/2006 6:19:10 AM
Xylenes, Total	1600	30		µg/L	10	9/17/2006 1:18:10 AM
Surr: 4-Bromofluorobenzene	96.3	72.2-125		%REC	10	9/16/2006 6:19:10 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	

Hall Environmental Analysis Laboratory, Inc.

Date: 21-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#5
Lab Order:	0609104	Collection Date:	9/11/2006 12:45:00 PM
Project:	River Terrace - 3rd Quarter 2006	Date Received:	9/12/2006
Lab ID:	0609104-05	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/16/2006 5:35:57 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/16/2006 5:35:57 PM
Surr: DNOP	119	58-140		%REC	1	9/16/2006 5:35:57 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	110	5.0		mg/L	100	9/16/2006 6:50:47 AM
Surr: BFB	124	84.5-129		%REC	100	9/16/2006 6:50:47 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	9/17/2006 3:24:46 AM
Benzene	ND	10		µg/L	10	9/17/2006 3:24:46 AM
Toluene	ND	10		µg/L	10	9/17/2006 3:24:46 AM
Ethylbenzene	3100	100		µg/L	100	9/16/2006 6:50:47 AM
Xylenes, Total	16000	750		µg/L	250	9/17/2006 2:53:06 AM
Surr: 4-Bromofluorobenzene	89.5	72.2-125		%REC	100	9/16/2006 6:50:47 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	

Hall Environmental Analysis Laboratory, Inc.

Date: 21-Sep-06

CLIENT: San Juan Refining

Client Sample ID: TP-#11

Lab Order: 0609104

Collection Date: 9/11/2006 1:00:00 PM

Project: River Terrace - 3rd Quarter 2006

Date Received: 9/12/2006

Lab ID: 0609104-06

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/16/2006 6:11:33 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/16/2006 6:11:33 PM
Surr: DNOP	111	58-140		%REC	1	9/16/2006 6:11:33 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/16/2006 7:19:46 AM
Surr: BFB	118	84.5-129		%REC	1	9/16/2006 7:19:46 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	9/18/2006 11:56:57 AM
Benzene	ND	1.0		µg/L	1	9/18/2006 11:56:57 AM
Toluene	ND	1.0		µg/L	1	9/18/2006 11:56:57 AM
Ethylbenzene	ND	1.0		µg/L	1	9/18/2006 11:56:57 AM
Xylenes, Total	ND	3.0		µg/L	1	9/18/2006 11:56:57 AM
Surr: 4-Bromofluorobenzene	107	72.2-125		%REC	1	9/18/2006 11:56:57 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

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 3rd Quarter 2006

Work Order: 0609104

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8015

Sample ID: MB-11265

MBLK

Batch ID: 11265 Analysis Date: 9/16/2006 12:48:52 PM

Diesel Range Organics (DRO) ND mg/L 1.0

Motor Oil Range Organics (MRO) ND mg/L 5.0

Sample ID: LCS-11265

LCS

Batch ID: 11265 Analysis Date: 9/16/2006 1:24:35 PM

Diesel Range Organics (DRO) 4.714 mg/L 1.0 94.3

74 157

Sample ID: LCSD-11265

LCSD

Batch ID: 11265 Analysis Date: 9/16/2006 2:00:33 PM

Diesel Range Organics (DRO) 4.689 mg/L 1.0 93.8

74 157 0.534 23

Method: SW8015

Sample ID: 5ML REAGENT BLA

MBLK

Batch ID: R20704 Analysis Date: 9/15/2006 8:32:48 AM

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: 2.5UG GRO LCS

LCS

Batch ID: R20704 Analysis Date: 9/15/2006 10:18:03 PM

Gasoline Range Organics (GRO) 0.5400 mg/L 0.050 108

73.3 119

Qualifiers:

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike Recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 3rd Quarter 2006

Work Order: 0609104

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8021

Sample ID: 5ML REAGENT BLA MBLK Batch ID: R20704 Analysis Date: 9/15/2006 8:32:48 AM

Methyl tert-butyl ether (MTBE) ND µg/L 2.5
Benzene ND µg/L 1.0
Toluene ND µg/L 1.0
Ethylbenzene ND µg/L 1.0
Xylenes, Total ND µg/L 3.0

Sample ID: 5ML REAGENT BLA MBLK Batch ID: R20706 Analysis Date: 9/16/2006 8:46:34 PM

Methyl tert-butyl ether (MTBE) ND µg/L 2.5
Benzene ND µg/L 1.0
Toluene ND µg/L 1.0
Ethylbenzene ND µg/L 1.0
Xylenes, Total ND µg/L 3.0

Sample ID: 5ML REAGENT BLA MBLK Batch ID: R20734 Analysis Date: 9/18/2006 9:02:53 AM

Methyl tert-butyl ether (MTBE) ND µg/L 2.5
Benzene ND µg/L 1.0
Toluene ND µg/L 1.0
Ethylbenzene ND µg/L 1.0
Xylenes, Total ND µg/L 3.0

Sample ID: 100NG BTEX LCS Batch ID: R20704 Analysis Date: 9/16/2006 12:42:51 AM

Methyl tert-butyl ether (MTBE) 38.62 µg/L 2.5 96.6 51.2 138
Benzene 20.99 µg/L 1.0 105 85 115
Toluene 21.12 µg/L 1.0 106 85 118
Ethylbenzene 22.88 µg/L 1.0 114 85 116
Xylenes, Total 65.62 µg/L 3.0 109 85 119

Sample ID: 100NG BTEX LCS Batch ID: R20706 Analysis Date: 9/17/2006 5:25:46 AM

Methyl tert-butyl ether (MTBE) 36.19 µg/L 2.5 90.5 51.2 138
Benzene 18.82 µg/L 1.0 94.1 85 115
Toluene 18.26 µg/L 1.0 91.3 85 118
Ethylbenzene 22.14 µg/L 1.0 111 85 116
Xylenes, Total 62.10 µg/L 3.0 104 85 119

Sample ID: 100NG BTEX LCS Batch ID: R20734 Analysis Date: 9/18/2006 6:03:20 PM

Methyl tert-butyl ether (MTBE) 38.33 µg/L 2.5 95.8 51.2 138
Benzene 20.61 µg/L 1.0 103 85 115
Toluene 21.12 µg/L 1.0 106 85 118
Ethylbenzene 22.71 µg/L 1.0 114 85 116
Xylenes, Total 65.35 µg/L 3.0 109 85 119

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

9/12/2006

Work Order Number 0609104

Received by GLS

Checklist completed by

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?

4°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

0609104 - 4 "TP- # 8" 2 of 4 sample VOA's were broken in Lab. GLS - 9/12/06

Corrective Action

COVER LETTER

Friday, September 22, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: River Terrace 3rd Quarter 2006

Order No.: 0609129

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 7 sample(s) on 9/13/2006 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



Hall Environmental Analysis Laboratory, Inc.

Date: 22-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP #12
Lab Order:	0609129	Collection Date:	9/12/2006 8:30:00 AM
Project:	River Terrace 3rd Quarter 2006	Date Received:	9/13/2006
Lab ID:	0609129-01	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/16/2006 6:47:03 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/16/2006 6:47:03 PM
Surr: DNOP	91.7	58-140		%REC	1	9/16/2006 6:47:03 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/20/2006 12:46:32 PM
Surr: BFB	89.3	84.5-129		%REC	1	9/20/2006 12:46:32 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	8.1	2.5		µg/L	1	9/20/2006 12:46:32 PM
Benzene	ND	1.0		µg/L	1	9/20/2006 12:46:32 PM
Toluene	ND	1.0		µg/L	1	9/20/2006 12:46:32 PM
Ethylbenzene	ND	1.0		µg/L	1	9/20/2006 12:46:32 PM
Xylenes, Total	ND	3.0		µg/L	1	9/20/2006 12:46:32 PM
Surr: 4-Bromofluorobenzene	103	72.2-125		%REC	1	9/20/2006 12:46:32 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, Inc.

Date: 22-Sep-06

CLIENT: San Juan Refining

Client Sample ID: TP #13

Lab Order: 0609129

Collection Date: 9/12/2006 9:20:00 AM

Project: River Terrace 3rd Quarter 2006

Date Received: 9/13/2006

Lab ID: 0609129-02

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/16/2006 7:22:25 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/16/2006 7:22:25 PM
Surr: DNOP	85.7	58-140		%REC	1	9/16/2006 7:22:25 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/20/2006 1:15:23 PM
Surr: BFB	93.8	84.5-129		%REC	1	9/20/2006 1:15:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	9/20/2006 1:15:23 PM
Benzene	ND	1.0		µg/L	1	9/20/2006 1:15:23 PM
Toluene	ND	1.0		µg/L	1	9/20/2006 1:15:23 PM
Ethylbenzene	ND	1.0		µg/L	1	9/20/2006 1:15:23 PM
Xylenes, Total	ND	3.0		µg/L	1	9/20/2006 1:15:23 PM
Surr: 4-Bromofluorobenzene	97.0	72.2-125		%REC	1	9/20/2006 1:15:23 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, Inc.

Date: 22-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	TP #10
Lab Order:	0609129	Collection Date:	9/12/2006 9:45:00 AM
Project:	River Terrace 3rd Quarter 2006	Date Received:	9/13/2006
Lab ID:	0609129-03	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/16/2006 7:57:46 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/16/2006 7:57:46 PM
Surr: DNOP	110	58-140		%REC	1	9/16/2006 7:57:46 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/20/2006 1:44:17 PM
Surr: BFB	87.8	84.5-129		%REC	1	9/20/2006 1:44:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	9/20/2006 1:44:17 PM
Benzene	ND	1.0		µg/L	1	9/20/2006 1:44:17 PM
Toluene	ND	1.0		µg/L	1	9/20/2006 1:44:17 PM
Ethylbenzene	ND	1.0		µg/L	1	9/20/2006 1:44:17 PM
Xylenes, Total	ND	3.0		µg/L	1	9/20/2006 1:44:17 PM
Surr: 4-Bromofluorobenzene	98.3	72.2-125		%REC	1	9/20/2006 1:44:17 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, Inc.

Date: 22-Sep-06

CLIENT: San Juan Refining
Lab Order: 0609129
Project: River Terrace 3rd Quarter 2006
Lab ID: 0609129-04

Client Sample ID: TP #3
Collection Date: 9/12/2006 10:30:00 AM
Date Received: 9/13/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/16/2006 8:33:08 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/16/2006 8:33:08 PM
Surr: DNOP	87.2	58-140		%REC	1	9/16/2006 8:33:08 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/20/2006 2:13:19 PM
Surr: BFB	87.8	84.5-129		%REC	1	9/20/2006 2:13:19 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	9/20/2006 2:13:19 PM
Benzene	ND	1.0		µg/L	1	9/20/2006 2:13:19 PM
Toluene	ND	1.0		µg/L	1	9/20/2006 2:13:19 PM
Ethylbenzene	ND	1.0		µg/L	1	9/20/2006 2:13:19 PM
Xylenes, Total	ND	3.0		µg/L	1	9/20/2006 2:13:19 PM
Surr: 4-Bromofluorobenzene	99.7	72.2-125		%REC	1	9/20/2006 2:13:19 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, Inc.

Date: 22-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	DW #1
Lab Order:	0609129	Collection Date:	9/12/2006 1:00:00 PM
Project:	River Terrace 3rd Quarter 2006	Date Received:	9/13/2006
Lab ID:	0609129-05	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						
						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/16/2006 11:30:02 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/16/2006 11:30:02 PM
Surr: DNOP	105	58-140		%REC	1	9/16/2006 11:30:02 PM
EPA METHOD 8015B: GASOLINE RANGE						
						Analyst: NSB
Gasoline Range Organics (GRO)	1.2	0.25		mg/L	5	9/20/2006 2:45:01 PM
Surr: BFB	104	84.5-129		%REC	5	9/20/2006 2:45:01 PM
EPA METHOD 8021B: VOLATILES						
						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	12		µg/L	5	9/20/2006 2:45:01 PM
Benzene	ND	5.0		µg/L	5	9/20/2006 2:45:01 PM
Toluene	ND	5.0		µg/L	5	9/20/2006 2:45:01 PM
Ethylbenzene	ND	5.0		µg/L	5	9/20/2006 2:45:01 PM
Xylenes, Total	ND	15		µg/L	5	9/20/2006 2:45:01 PM
Surr: 4-Bromofluorobenzene	94.0	72.2-125		%REC	5	9/20/2006 2:45:01 PM
EPA METHOD 7470: MERCURY						
						Analyst: MAP
Mercury	0.0047	0.00020		mg/L	1	9/19/2006
EPA 6010: TOTAL RECOVERABLE METALS						
						Analyst: NMO
Chromium	0.023	0.0060		mg/L	1	9/20/2006 11:20:47 AM
Lead	ND	0.0050		mg/L	1	9/20/2006 11:20:47 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, Inc.

Date: 22-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	MW #49
Lab Order:	0609129	Collection Date:	9/12/2006 1:35:00 PM
Project:	River Terrace 3rd Quarter 2006	Date Received:	9/13/2006
Lab ID:	0609129-06	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						
						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/17/2006 12:05:24 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/17/2006 12:05:24 AM
Surr: DNOP	101	58-140		%REC	1	9/17/2006 12:05:24 AM
EPA METHOD 8015B: GASOLINE RANGE						
						Analyst: NSB
Gasoline Range Organics (GRO)	0.23	0.050		mg/L	1	9/20/2006 3:13:58 PM
Surr: BFB	92.3	84.5-129		%REC	1	9/20/2006 3:13:58 PM
EPA METHOD 8021B: VOLATILES						
						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	9/20/2006 3:13:58 PM
Benzene	ND	1.0		µg/L	1	9/20/2006 3:13:58 PM
Toluene	ND	1.0		µg/L	1	9/20/2006 3:13:58 PM
Ethylbenzene	ND	1.0		µg/L	1	9/20/2006 3:13:58 PM
Xylenes, Total	ND	3.0		µg/L	1	9/20/2006 3:13:58 PM
Surr: 4-Bromofluorobenzene	99.4	72.2-125		%REC	1	9/20/2006 3:13:58 PM
EPA 6010: TOTAL RECOVERABLE METALS						
						Analyst: NMO
Chromium	ND	0.0060		mg/L	1	9/20/2006 11:43:23 AM
Lead	ND	0.0050		mg/L	1	9/20/2006 11:43:23 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	

Hall Environmental Analysis Laboratory, Inc.

Date: 22-Sep-06.

CLIENT:	San Juan Refining	Client Sample ID:	TP #9
Lab Order:	0609129	Collection Date:	9/12/2006 2:20:00 PM
Project:	River Terrace 3rd Quarter 2006	Date Received:	9/13/2006
Lab ID:	0609129-07	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/17/2006 12:40:50 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/17/2006 12:40:50 AM
Surr: DNOP	101	58-140		%REC	1	9/17/2006 12:40:50 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.72	0.050		mg/L	1	9/20/2006 3:42:52 PM
Surr: BFB	105	84.5-129		%REC	1	9/20/2006 3:42:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	9/20/2006 3:42:52 PM
Benzene	ND	1.0		µg/L	1	9/20/2006 3:42:52 PM
Toluene	ND	1.0		µg/L	1	9/20/2006 3:42:52 PM
Ethylbenzene	ND	1.0		µg/L	1	9/20/2006 3:42:52 PM
Xylenes, Total	ND	3.0		µg/L	1	9/20/2006 3:42:52 PM
Surr: 4-Bromofluorobenzene	94.1	72.2-125		%REC	1	9/20/2006 3:42:52 PM

Qualifiers:	<ul style="list-style-type: none"> * Value exceeds Maximum Contaminant Level E Value above quantitation range J Analyte detected below quantitation limits S Spike Recovery outside accepted recovery limits 	<ul style="list-style-type: none"> B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
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QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 3rd Quarter 2006

Work Order: 0609129

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-11265		MBLK			Batch ID: 11265	Analysis Date: 9/16/2006 12:48:52 PM			
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: MB-11267		MBLK			Batch ID: 11267	Analysis Date: 9/16/2006 8:08:30 PM			
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-11265		LCS			Batch ID: 11265	Analysis Date: 9/16/2006 1:24:35 PM			
Diesel Range Organics (DRO)	4.714	mg/L	1.0	94.3	74	157			
Sample ID: LCS-11267		LCS			Batch ID: 11267	Analysis Date: 9/16/2006 9:43:56 PM			
Diesel Range Organics (DRO)	4.770	mg/L	1.0	95.4	74	157			
Sample ID: LCSD-11265		LCSD			Batch ID: 11265	Analysis Date: 9/16/2006 2:00:33 PM			
Diesel Range Organics (DRO)	4.689	mg/L	1.0	93.8	74	157	0.534	23	
Sample ID: LCSD-11267		LCSD			Batch ID: 11267	Analysis Date: 9/16/2006 10:19:17 PM			
Diesel Range Organics (DRO)	5.308	mg/L	1.0	106	74	157	10.7	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		MBLK			Batch ID: R20748	Analysis Date: 9/20/2006 9:52:55 AM			
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS			Batch ID: R20748	Analysis Date: 9/21/2006 12:41:00 AM			
Gasoline Range Organics (GRO)	0.4600	mg/L	0.050	92.0	73.3	119			

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

Page 1

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 3rd Quarter 2006

Work Order: 0609129

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8021

Sample ID: 0609129-02A MSD

MSD

Batch ID: R20748 Analysis Date: 9/21/2006 6:26:57 AM

Methyl tert-butyl ether (MTBE)	37.44	µg/L	2.5	93.6	51.2	138	0.294	28	
Benzene	20.06	µg/L	1.0	100	85	115	3.75	27	
Toluene	20.40	µg/L	1.0	102	85	118	4.38	19	
Ethylbenzene	20.36	µg/L	1.0	102	85	116	2.38	10	
Xylenes, Total	61.34	µg/L	3.0	102	85	119	4.12	13	

Sample ID: 5ML REAGENT BLA

MBLK

Batch ID: R20748 Analysis Date: 9/20/2006 9:52:55 AM

Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						

Sample ID: 100NG BTEX LCS

LCS

Batch ID: R20748 Analysis Date: 9/20/2006 6:39:35 PM

Methyl tert-butyl ether (MTBE)	39.85	µg/L	2.5	99.6	51.2	138			
Benzene	18.43	µg/L	1.0	92.1	85	115			
Toluene	18.58	µg/L	1.0	92.9	85	118			
Ethylbenzene	19.05	µg/L	1.0	95.2	85	116			
Xylenes, Total	58.23	µg/L	3.0	97.1	85	119			

Sample ID: 0609129-02A MS

MS

Batch ID: R20748 Analysis Date: 9/21/2006 5:58:04 AM

Methyl tert-butyl ether (MTBE)	37.33	µg/L	2.5	93.3	51.2	138			
Benzene	19.32	µg/L	1.0	96.6	85	115			
Toluene	19.53	µg/L	1.0	97.6	85	118			
Ethylbenzene	19.88	µg/L	1.0	99.4	85	116			
Xylenes, Total	58.87	µg/L	3.0	98.1	85	119			

Method: SW7470

Sample ID: MB-11302

MBLK

Batch ID: 11302 Analysis Date: 9/19/2006

Mercury	ND	mg/L	0.00020						
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Sample ID: LCS-11302

LCS

Batch ID: 11302 Analysis Date: 9/19/2006

Mercury	0.005880	mg/L	0.00020	118	80	120			
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Method: SW6010A

Sample ID: MB-11266

MBLK

Batch ID: 11266 Analysis Date: 9/20/2006 10:58:30 AM

Chromium	ND	mg/L	0.0060						
Lead	ND	mg/L	0.0050						

Sample ID: LCS-11266

LCS

Batch ID: 11266 Analysis Date: 9/20/2006 10:20:40 AM

Chromium	0.5089	mg/L	0.0060	101	80	120			
Lead	0.5040	mg/L	0.0050	101	80	120			

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

9/13/2006

Work Order Number 0609129

Received by GLS

Checklist completed by

Signature

Date

Matrix

Carrier name UPS

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

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 _____

COVER LETTER

Wednesday, December 13, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 4th Quarter 2006

Order No.: 0612042

Dear Cindy Hurtado:

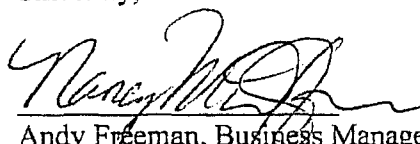
Hall Environmental Analysis Laboratory, Inc. received 4 sample(s) on 12/5/2006 for the analyses presented in the following report.

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

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001



CLIENT: San Juan Refining
Project: River Terrace - 4th Quarter 2006
Lab Order: 0612042

CASE NARRATIVE

See Corrective Action: [467] High DNOP on CCV's and some samples.

Hall Environmental Analysis Laboratory, Inc.

Date: 13-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#8
Lab Order:	0612042	Collection Date:	12/4/2006 10:20:00 AM
Project:	River Terrace - 4th Quarter 2006	Date Received:	12/5/2006
Lab ID:	0612042-01	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	1.4	1.0		mg/L	1	12/12/2006 9:21:00 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2006 9:21:00 AM
Surr: DNOP	147	58-140	S	%REC	1	12/12/2006 9:21:00 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	79	5.0		mg/L	100	12/8/2006 11:21:53 AM
Surr: BFB	114	79.2-121		%REC	100	12/8/2006 11:21:53 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	12/6/2006 4:44:07 PM
Benzene	41	10		µg/L	10	12/6/2006 4:44:07 PM
Toluene	ND	10		µg/L	10	12/6/2006 4:44:07 PM
Ethylbenzene	1300	100		µg/L	100	12/8/2006 11:21:53 AM
Xylenes, Total	12000	300		µg/L	100	12/8/2006 11:21:53 AM
Surr: 4-Bromofluorobenzene	88.8	70.2-105		%REC	100	12/8/2006 11:21:53 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	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Date: 13-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#6
Lab Order:	0612042	Collection Date:	12/4/2006 11:15:00 AM
Project:	River Terrace - 4th Quarter 2006	Date Received:	12/5/2006
Lab ID:	0612042-02	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/12/2006 9:55:40 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2006 9:55:40 AM
Surr: DNOP	165	58-140	S	%REC	1	12/12/2006 9:55:40 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.48	0.050		mg/L	1	12/8/2006 11:52:00 AM
Surr: BFB	122	79.2-121	S	%REC	1	12/8/2006 11:52:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	12/8/2006 11:52:00 AM
Benzene	6.0	1.0		µg/L	1	12/8/2006 11:52:00 AM
Toluene	ND	1.0		µg/L	1	12/8/2006 11:52:00 AM
Ethylbenzene	ND	1.0		µg/L	1	12/8/2006 11:52:00 AM
Xylenes, Total	ND	3.0		µg/L	1	12/8/2006 11:52:00 AM
Surr: 4-Bromofluorobenzene	86.8	70.2-105		%REC	1	12/8/2006 11:52:00 AM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

Page 2 of 4

Hall Environmental Analysis Laboratory, Inc.

Date: 13-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#1
Lab Order:	0612042	Collection Date:	12/4/2006 1:15:00 PM
Project:	River Terrace - 4th Quarter 2006	Date Received:	12/5/2006
Lab ID:	0612042-03	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	3.3	1.0		mg/L	1	12/11/2006 7:27:41 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/11/2006 7:27:41 PM
Surr: DNOP	120	58-140		%REC	1	12/11/2006 7:27:41 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	95	5.0		mg/L	100	12/11/2006 11:10:41 AM
Surr: BFB	110	79.2-121		%REC	100	12/11/2006 11:10:41 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	12/11/2006 11:10:41 AM
Benzene	1600	100		µg/L	100	12/11/2006 11:10:41 AM
Toluene	ND	100		µg/L	100	12/11/2006 11:10:41 AM
Ethylbenzene	3200	100		µg/L	100	12/11/2006 11:10:41 AM
Xylenes, Total	20000	1500		µg/L	500	12/8/2006 12:52:09 PM
Surr: 4-Bromofluorobenzene	81.9	70.2-105		%REC	100	12/11/2006 11:10:41 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	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Date: 13-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#2
Lab Order:	0612042	Collection Date:	12/4/2006 1:45:00 PM
Project:	River Terrace - 4th Quarter 2006	Date Received:	12/5/2006
Lab ID:	0612042-04	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	1.5	1.0		mg/L	1	12/12/2006 10:30:19 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2006 10:30:19 AM
Surr: DNOP	167	58-140	S	%REC	1	12/12/2006 10:30:19 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	41	5.0		mg/L	100	12/11/2006 12:10:49 PM
Surr: BFB	106	79.2-121		%REC	100	12/11/2006 12:10:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	12/11/2006 12:10:49 PM
Benzene	1700	100		µg/L	100	12/11/2006 12:10:49 PM
Toluene	ND	100		µg/L	100	12/11/2006 12:10:49 PM
Ethylbenzene	2400	100		µg/L	100	12/11/2006 12:10:49 PM
Xylenes, Total	12000	300		µg/L	100	12/11/2006 12:10:49 PM
Surr: 4-Bromofluorobenzene	80.6	70.2-105		%REC	100	12/11/2006 12:10:49 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

MCL Maximum Contaminant Level

RL Reporting Limit

QA/QC SUMMARY REPORT

Client: San Juan Refining
 Project: River Terrace - 4th Quarter 2006

Work Order: 0612042

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8015

Sample ID: MB-11919 MBLK Batch ID: 11919 Analysis Date: 12/12/2006 6:28:32 AM

Diesel Range Organics (DRO) ND mg/L 1.0

Motor Oil Range Organics (MRO) ND mg/L 5.0

Sample ID: LCS-11919 LCS Batch ID: 11919 Analysis Date: 12/12/2006 7:02:56 AM

Diesel Range Organics (DRO) 6.769 mg/L 1.0 135 74 157

Sample ID: LCSD-11919 LCSD Batch ID: 11919 Analysis Date: 12/12/2006 7:37:19 AM

Diesel Range Organics (DRO) 7.314 mg/L 1.0 146 74 157 7.74 23

Method: SW8015

Sample ID: 5ML RB MBLK Batch ID: R21694 Analysis Date: 12/6/2006 9:16:14 AM

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: b 2 MBLK Batch ID: R21734 Analysis Date: 12/8/2006 8:57:17 AM

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: b 2 MBLK Batch ID: R21752 Analysis Date: 12/11/2006 9:07:05 AM

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: 2.5UG GRO LCS LCS Batch ID: R21694 Analysis Date: 12/6/2006 11:55:32 PM

Gasoline Range Organics (GRO) 0.4506 mg/L 0.050 90.1 80 115

Sample ID: 2.5UG GRO LCS LCS Batch ID: R21734 Analysis Date: 12/9/2006 6:59:21 AM

Gasoline Range Organics (GRO) 0.4428 mg/L 0.050 88.6 80 115

Sample ID: 2.5UG GRO LCS LCS Batch ID: R21752 Analysis Date: 12/12/2006 6:36:27 AM

Gasoline Range Organics (GRO) 0.4452 mg/L 0.050 89.0 80 115

Qualifiers:

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits

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QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 4th Quarter 2006

Work Order: 0612042

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8021

Sample ID: 5ML RB

MBLK

Batch ID: R21694 Analysis Date: 12/6/2006 8:16:14 AM

Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5
Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	3.0

Sample ID: b 2

MBLK

Batch ID: R21734 Analysis Date: 12/8/2006 8:57:17 AM

Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5
Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	3.0

Sample ID: b 2

MBLK

Batch ID: R21752 Analysis Date: 12/11/2006 9:07:05 AM

Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5
Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	3.0

Sample ID: 100NG BTEX LCS

LCS

Batch ID: R21694 Analysis Date: 12/6/2006 9:25:17 PM

Methyl tert-butyl ether (MTBE)	41.10	µg/L	2.5	103	51.2	138
Benzene	19.07	µg/L	1.0	95.4	85.9	113
Toluene	18.76	µg/L	1.0	93.8	86.4	113
Ethylbenzene	18.38	µg/L	1.0	91.9	83.5	118
Xylenes, Total	55.86	µg/L	3.0	93.1	83.4	122

Sample ID: 100NG BTEX LCS

LCS

Batch ID: R21734 Analysis Date: 12/8/2006 9:23:06 PM

Methyl tert-butyl ether (MTBE)	36.39	µg/L	2.5	91.0	51.2	138
Benzene	17.85	µg/L	1.0	89.2	85.9	113
Toluene	17.86	µg/L	1.0	89.3	86.4	113
Ethylbenzene	17.28	µg/L	1.0	86.4	83.5	118
Xylenes, Total	51.93	µg/L	3.0	86.5	83.4	122

Sample ID: 100NG BTEX LCS

LCS

Batch ID: R21752 Analysis Date: 12/11/2006 6:30:06 PM

Methyl tert-butyl ether (MTBE)	37.28	µg/L	2.5	93.2	51.2	138
Benzene	17.89	µg/L	1.0	89.5	85.9	113
Toluene	17.80	µg/L	1.0	89.0	86.4	113
Ethylbenzene	17.43	µg/L	1.0	87.2	83.5	118
Xylenes, Total	52.14	µg/L	3.0	86.9	83.4	122

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

12/5/2006

Work Order Number 0612042

Received by AT

Checklist completed by

Signature

Date

12/5/06

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?

6°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Corrective Action

COVER LETTER

Wednesday, December 13, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 4th Quarter 2006

Order No.: 0612062

Dear Cindy Hurtado:

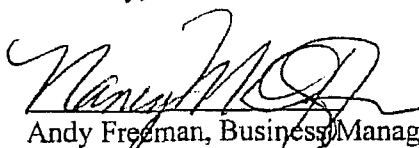
Hall Environmental Analysis Laboratory, Inc. received 4 sample(s) on 12/6/2006 for the analyses presented in the following report.

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

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001



Hall Environmental Analysis Laboratory, Inc.

Date: 13-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#13
Lab Order:	0612062	Collection Date:	12/5/2006 10:35:00 AM
Project:	River Terrace - 4th Quarter 2006	Date Received:	12/6/2006
Lab ID:	0612062-01	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/11/2006 10:52:17 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/11/2006 10:52:17 PM
Surr: DNOP	99.7	58-140		%REC	1	12/11/2006 10:52:17 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/8/2006 2:22:19 PM
Surr: BFB	111	79.2-121		%REC	1	12/8/2006 2:22:19 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	12/8/2006 2:22:19 PM
Benzene	ND	1.0		µg/L	1	12/8/2006 2:22:19 PM
Toluene	ND	1.0		µg/L	1	12/8/2006 2:22:19 PM
Ethylbenzene	ND	1.0		µg/L	1	12/8/2006 2:22:19 PM
Xylenes, Total	ND	3.0		µg/L	1	12/8/2006 2:22:19 PM
Surr: 4-Bromofluorobenzene	85.8	70.2-105		%REC	1	12/8/2006 2:22:19 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	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Date: 13-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#10
Lab Order:	0612062	Collection Date:	12/5/2006 11:05:00 AM
Project:	River Terrace - 4th Quarter 2006	Date Received:	12/6/2006
Lab ID:	0612062-02	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/11/2006 11:26:19 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/11/2006 11:26:19 PM
Surr: DNOP	100	58-140		%REC	1	12/11/2006 11:26:19 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/7/2006 12:55:48 AM
Surr: BFB	110	79.2-121		%REC	1	12/7/2006 12:55:48 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	12/7/2006 12:55:48 AM
Benzene	ND	1.0		µg/L	1	12/7/2006 12:55:48 AM
Toluene	ND	1.0		µg/L	1	12/7/2006 12:55:48 AM
Ethylbenzene	ND	1.0		µg/L	1	12/7/2006 12:55:48 AM
Xylenes, Total	ND	3.0		µg/L	1	12/7/2006 12:55:48 AM
Surr: 4-Bromofluorobenzene	84.3	70.2-105		%REC	1	12/7/2006 12:55:48 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 13-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#5
Lab Order:	0612062	Collection Date:	12/5/2006 1:35:00 PM
Project:	River Terrace - 4th Quarter 2006	Date Received:	12/6/2006
Lab ID:	0612062-03	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/12/2006 12:00:24 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2006 12:00:24 AM
Surr: DNOP	101	58-140		%REC	1	12/12/2006 12:00:24 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	50	2.5		mg/L	50	12/8/2006 3:22:29 PM
Surr: BFB	117	79.2-121		%REC	50	12/8/2006 3:22:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	120		µg/L	50	12/8/2006 3:22:29 PM
Benzene	69	50		µg/L	50	12/8/2006 3:22:29 PM
Toluene	ND	50		µg/L	50	12/8/2006 3:22:29 PM
Ethylbenzene	1200	50		µg/L	50	12/8/2006 3:22:29 PM
Xylenes, Total	10000	150		µg/L	50	12/8/2006 3:22:29 PM
Surr: 4-Bromofluorobenzene	88.1	70.2-105		%REC	50	12/8/2006 3:22:29 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

Page 3 of 4

Hall Environmental Analysis Laboratory, Inc.

Date: 13-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#12
Lab Order:	0612062	Collection Date:	12/5/2006 2:15:00 PM
Project:	River Terrace - 4th Quarter 2006	Date Received:	12/6/2006
Lab ID:	0612062-04	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/12/2006 12:34:30 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2006 12:34:30 AM
Surr: DNOP	103	58-140		%REC	1	12/12/2006 12:34:30 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/7/2006 3:01:01 AM
Surr: BFB	109	79.2-121		%REC	1	12/7/2006 3:01:01 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	12/7/2006 3:01:01 AM
Benzene	ND	1.0		µg/L	1	12/7/2006 3:01:01 AM
Toluene	ND	1.0		µg/L	1	12/7/2006 3:01:01 AM
Ethylbenzene	ND	1.0		µg/L	1	12/7/2006 3:01:01 AM
Xylenes, Total	ND	3.0		µg/L	1	12/7/2006 3:01:01 AM
Surr: 4-Bromofluorobenzene	83.0	70.2-105		%REC	1	12/7/2006 3:01:01 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	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 4th Quarter 2006

Work Order: 0612062

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8015

Sample ID: MB-11946 MBLK Batch ID: 11946 Analysis Date: 12/11/2006 8:36:12 PM

Diesel Range Organics (DRO) ND mg/L 1.0

Motor Oil Range Organics (MRO) ND mg/L 5.0

Sample ID: LCS-11946 LCS Batch ID: 11946 Analysis Date: 12/11/2006 9:10:18 PM

Diesel Range Organics (DRO) 4.987 mg/L 1.0 99.7 74 157

Sample ID: LCSD-11946 LCSD Batch ID: 11946 Analysis Date: 12/11/2006 9:44:23 PM

Diesel Range Organics (DRO) 6.255 mg/L 1.0 125 74 157 22.6 23

Method: SW8015

Sample ID: 5ML RB MBLK Batch ID: R21694 Analysis Date: 12/8/2006 9:16:14 AM

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: b 2 MBLK Batch ID: R21734 Analysis Date: 12/8/2006 8:57:17 AM

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: 2.5UG GRO LCS LCS Batch ID: R21694 Analysis Date: 12/6/2006 11:55:32 PM

Gasoline Range Organics (GRO) 0.4506 mg/L 0.050 90.1 80 115

Sample ID: 2.5UG GRO LCS LCS Batch ID: R21734 Analysis Date: 12/9/2006 8:59:21 AM

Gasoline Range Organics (GRO) 0.4428 mg/L 0.050 88.6 80 115

Method: SW8021

Sample ID: 5ML RB MBLK Batch ID: R21694 Analysis Date: 12/6/2006 9:16:14 AM

Methyl tert-butyl ether (MTBE) ND µg/L 2.5

Benzene ND µg/L 1.0

Toluene ND µg/L 1.0

Ethylbenzene ND µg/L 1.0

Xylenes, Total ND µg/L 3.0

Sample ID: b 2 MBLK Batch ID: R21734 Analysis Date: 12/8/2006 8:57:17 AM

Methyl tert-butyl ether (MTBE) ND µg/L 2.5

Benzene ND µg/L 1.0

Toluene ND µg/L 1.0

Ethylbenzene ND µg/L 1.0

Xylenes, Total ND µg/L 3.0

Sample ID: 100NG BTEX LCS LCS Batch ID: R21694 Analysis Date: 12/6/2006 9:25:17 PM

Methyl tert-butyl ether (MTBE) 41.10 µg/L 2.5 103 51.2 138

Benzene 19.07 µg/L 1.0 95.4 85.9 113

Toluene 18.76 µg/L 1.0 93.8 86.4 113

Ethylbenzene 18.38 µg/L 1.0 91.9 83.5 118

Xylenes, Total 55.86 µg/L 3.0 93.1 83.4 122

Sample ID: 100NG BTEX LCS LCS Batch ID: R21734 Analysis Date: 12/8/2006 9:23:06 PM

Methyl tert-butyl ether (MTBE) 36.39 µg/L 2.5 91.0 51.2 138

Benzene 17.85 µg/L 1.0 89.2 85.9 113

Toluene 17.86 µg/L 1.0 89.3 86.4 113

Ethylbenzene 17.28 µg/L 1.0 86.4 83.5 118

Xylenes, Total 51.93 µg/L 3.0 86.5 83.4 122

Qualifiers:

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

12/6/2006

Work Order Number 0612062

Received by GLS

Checklist completed by

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?

2°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Corrective Action



COVER LETTER

Thursday, December 21, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 4th Quarter 2006

Order No.: 0612092

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 6 sample(s) on 12/7/2006 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

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001



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

CLIENT: San Juan Refining
Project: River Terrace - 4th Quarter 2006
Lab Order: 0612092

CASE NARRATIVE

Analytical Comments for METHOD 8015GRO_W, SAMPLE 0612092-03A: Elevated surrogate due to matrix interference.

Hall Environmental Analysis Laboratory, Inc.

Date: 21-Dec-06

CLIENT: San Juan Refining
Lab Order: 0612092
Project: River Terrace - 4th Quarter 2006
Lab ID: 0612092-01

Client Sample ID: TP #9
Collection Date: 12/6/2006 10:15:00 AM
Date Received: 12/7/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/12/2006 1:08:36 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2006 1:08:36 AM
Surr: DNOP	98.8	58-140		%REC	1	12/12/2006 1:08:36 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/9/2006 2:56:16 AM
Surr: BFB	112	79.2-121		%REC	1	12/9/2006 2:56:16 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	12/9/2006 2:56:16 AM
Benzene	ND	1.0		µg/L	1	12/9/2006 2:56:16 AM
Toluene	ND	1.0		µg/L	1	12/9/2006 2:56:16 AM
Ethylbenzene	ND	1.0		µg/L	1	12/9/2006 2:56:16 AM
Xylenes, Total	ND	3.0		µg/L	1	12/9/2006 2:56:16 AM
Surr: 4-Bromofluorobenzene	86.2	70.2-105		%REC	1	12/9/2006 2:56:16 AM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 21-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	DW #1
Lab Order:	0612092	Collection Date:	12/6/2006 11:15:00 AM
Project:	River Terrace - 4th Quarter 2006	Date Received:	12/7/2006
Lab ID:	0612092-02	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/12/2006 1:42:37 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2006 1:42:37 AM
Surr: DNOP	105	58-140		%REC	1	12/12/2006 1:42:37 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.090	0.050		mg/L	1	12/11/2006 1:16:02 PM
Surr: BFB	106	79.2-121		%REC	1	12/11/2006 1:16:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	12/11/2006 1:16:02 PM
Benzene	ND	1.0		µg/L	1	12/11/2006 1:16:02 PM
Toluene	ND	1.0		µg/L	1	12/11/2006 1:16:02 PM
Ethylbenzene	ND	1.0		µg/L	1	12/11/2006 1:16:02 PM
Xylenes, Total	ND	3.0		µg/L	1	12/11/2006 1:16:02 PM
Surr: 4-Bromofluorobenzene	81.2	70.2-105		%REC	1	12/11/2006 1:16:02 PM
EPA METHOD 7470: MERCURY						Analyst: MAP
Mercury	0.00069	0.00020		mg/L	1	12/18/2006
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: CMS
Chromium	ND	0.0060		mg/L	1	12/14/2006 8:34:26 PM
Lead	ND	0.0050		mg/L	1	12/14/2006 8:34:26 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 21-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	MW #49
Lab Order:	0612092	Collection Date:	12/6/2006 1:45:00 PM
Project:	River Terrace - 4th Quarter 2006	Date Received:	12/7/2006
Lab ID:	0612092-03	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						
						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/12/2006 2:16:30 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2006 2:16:30 AM
Surr: DNOP	98.5	58-140		%REC	1	12/12/2006 2:16:30 AM
EPA METHOD 8015B: GASOLINE RANGE						
						Analyst: NSB
Gasoline Range Organics (GRO)	0.081	0.050		mg/L	1	12/9/2006 4:59:11 AM
Surr: BFB	128	79.2-121	S	%REC	1	12/9/2006 4:59:11 AM
EPA METHOD 8021B: VOLATILES						
						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	12/9/2006 4:59:11 AM
Benzene	ND	1.0		µg/L	1	12/9/2006 4:59:11 AM
Toluene	ND	1.0		µg/L	1	12/9/2006 4:59:11 AM
Ethylbenzene	ND	1.0		µg/L	1	12/9/2006 4:59:11 AM
Xylenes, Total	ND	3.0		µg/L	1	12/9/2006 4:59:11 AM
Surr: 4-Bromofluorobenzene	88.6	70.2-105		%REC	1	12/9/2006 4:59:11 AM
EPA 6010B: TOTAL RECOVERABLE METALS						
						Analyst: CMS
Chromium	ND	0.0060		mg/L	1	12/14/2006 8:38:20 PM
Lead	ND	0.0050		mg/L	1	12/14/2006 8:38:20 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	MCL	Maximum Contaminant Level
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: 21-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	River N of MW #49
Lab Order:	0612092	Collection Date:	12/6/2006 1:35:00 PM
Project:	River Terrace - 4th Quarter 2006	Date Received:	12/7/2006
Lab ID:	0612092-04	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/12/2006 2:50:28 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2006 2:50:28 AM
Surr: DNOP	101	58-140		%REC	1	12/12/2006 2:50:28 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/9/2006 5:29:17 AM
Surr: BFB	112	79.2-121		%REC	1	12/9/2006 5:29:17 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	12/9/2006 5:29:17 AM
Benzene	ND	1.0		µg/L	1	12/9/2006 5:29:17 AM
Toluene	ND	1.0		µg/L	1	12/9/2006 5:29:17 AM
Ethylbenzene	ND	1.0		µg/L	1	12/9/2006 5:29:17 AM
Xylenes, Total	ND	3.0		µg/L	1	12/9/2006 5:29:17 AM
Surr: 4-Bromofluorobenzene	86.3	70.2-105		%REC	1	12/9/2006 5:29:17 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	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Date: 21-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#11
Lab Order:	0612092	Collection Date:	12/6/2006 2:30:00 PM
Project:	River Terrace - 4th Quarter 2006	Date Received:	12/7/2006
Lab ID:	0612092-05	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/12/2006 3:24:34 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2006 3:24:34 AM
Surr: DNOP	101	58-140		%REC	1	12/12/2006 3:24:34 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/9/2006 7:59:26 AM
Surr: BFB	114	79.2-121		%REC	1	12/9/2006 7:59:26 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	12/9/2006 7:59:26 AM
Benzene	ND	1.0		µg/L	1	12/9/2006 7:59:26 AM
Toluene	ND	1.0		µg/L	1	12/9/2006 7:59:26 AM
Ethylbenzene	ND	1.0		µg/L	1	12/9/2006 7:59:26 AM
Xylenes, Total	ND	3.0		µg/L	1	12/9/2006 7:59:26 AM
Surr: 4-Bromofluorobenzene	87.7	70.2-105		%REC	1	12/9/2006 7:59:26 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	MCL	Maximum Contaminant Level
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: 21-Dec-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-#3
Lab Order:	0612092	Collection Date:	12/6/2006 2:55:00 PM
Project:	River Terrace - 4th Quarter 2006	Date Received:	12/7/2006
Lab ID:	0612092-06	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/12/2006 3:58:39 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2006 3:58:39 AM
Surr: DNOP	97.9	58-140		%REC	1	12/12/2006 3:58:39 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/9/2006 8:29:20 AM
Surr: BFB	114	79.2-121		%REC	1	12/9/2006 8:29:20 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	12/9/2006 8:29:20 AM
Benzene	ND	1.0		µg/L	1	12/9/2006 8:29:20 AM
Toluene	ND	1.0		µg/L	1	12/9/2006 8:29:20 AM
Ethylbenzene	ND	1.0		µg/L	1	12/9/2006 8:29:20 AM
Xylenes, Total	ND	3.0		µg/L	1	12/9/2006 8:29:20 AM
Surr: 4-Bromofluorobenzene	86.5	70.2-105		%REC	1	12/9/2006 8:29:20 AM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 4th Quarter 2006

Work Order: 0612092

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-11946		MBLK			Batch ID: 11946	Analysis Date: 12/11/2006	1:36:12 PM		
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-11946		LCS			Batch ID: 11946	Analysis Date: 12/11/2006	9:10:18 PM		
Diesel Range Organics (DRO)	4.987	mg/L	1.0	99.7	74	157			
Sample ID: LCSD-11946		LCSD			Batch ID: 11946	Analysis Date: 12/11/2006	9:44:23 PM		
Diesel Range Organics (DRO)	6.255	mg/L	1.0	125	74	157	22.6	23	

Method: SW8015									
Sample ID: 0612092-05A MSD		MSD			Batch ID: R21734	Analysis Date: 12/9/2006	6:29:23 AM		
Gasoline Range Organics (GRO)	0.4218	mg/L	0.050	84.4	80	115	0.714	8.39	
Sample ID: b 2		MBLK			Batch ID: R21734	Analysis Date: 12/8/2006	8:57:17 AM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: b 2		MBLK			Batch ID: R21752	Analysis Date: 12/11/2006	9:07:05 AM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS			Batch ID: R21734	Analysis Date: 12/9/2006	6:59:21 AM		
Gasoline Range Organics (GRO)	0.4428	mg/L	0.050	88.6	80	115			
Sample ID: 2.5UG GRO LCS		LCS			Batch ID: R21752	Analysis Date: 12/12/2006	6:36:27 AM		
Gasoline Range Organics (GRO)	0.4452	mg/L	0.050	89.0	80	115			
Sample ID: 0612092-05A MS		MS			Batch ID: R21734	Analysis Date: 12/9/2006	6:59:21 AM		
Gasoline Range Organics (GRO)	0.4188	mg/L	0.050	83.8	80	115			

Qualifiers:

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

Page 1

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 4th Quarter 2006

Work Order: 0612092

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8021

Sample ID: b 2 MBLK Batch ID: R21734 Analysis Date: 12/8/2006 8:57:17 AM

Methyl tert-butyl ether (MTBE) ND µg/L 2.5
Benzene ND µg/L 1.0
Toluene ND µg/L 1.0
Ethylbenzene ND µg/L 1.0
Xylenes, Total ND µg/L 3.0
1,2,4-Trimethylbenzene ND µg/L 1.0
1,3,5-Trimethylbenzene ND µg/L 1.0

Sample ID: B MBLK Batch ID: R21737 Analysis Date: 12/8/2006 4:52:38 PM

Methyl tert-butyl ether (MTBE) ND µg/L 2.5
Benzene ND µg/L 1.0
Toluene ND µg/L 1.0
Ethylbenzene ND µg/L 1.0
Xylenes, Total ND µg/L 3.0

Sample ID: b 2 MBLK Batch ID: R21752 Analysis Date: 12/11/2006 9:07:05 AM

Methyl tert-butyl ether (MTBE) ND µg/L 2.5
Benzene ND µg/L 1.0
Toluene ND µg/L 1.0
Ethylbenzene ND µg/L 1.0
Xylenes, Total ND µg/L 3.0

Sample ID: 100NG BTEX LCS LCS Batch ID: R21734 Analysis Date: 12/8/2006 9:23:06 PM

Methyl tert-butyl ether (MTBE) 36.39 µg/L 2.5 91.0 51.2 138
Benzene 17.85 µg/L 1.0 89.2 85.9 113
Toluene 17.86 µg/L 1.0 89.3 86.4 113
Ethylbenzene 17.28 µg/L 1.0 86.4 83.5 118
Xylenes, Total 51.93 µg/L 3.0 86.5 83.4 122
1,2,4-Trimethylbenzene 17.76 µg/L 1.0 88.8 83.5 115
1,3,5-Trimethylbenzene 17.75 µg/L 1.0 88.7 85.2 113

Sample ID: 100NG BTEX LCS-II LCS Batch ID: R21737 Analysis Date: 12/9/2006 7:13:26 PM

Methyl tert-butyl ether (MTBE) 38.55 µg/L 2.5 96.4 51.2 138
Benzene 18.62 µg/L 1.0 93.1 85.9 113
Toluene 18.44 µg/L 1.0 92.2 86.4 113
Ethylbenzene 18.45 µg/L 1.0 92.2 83.5 118
Xylenes, Total 55.45 µg/L 3.0 92.4 83.4 122

Sample ID: 100NG BTEX LCS LCS Batch ID: R21752 Analysis Date: 12/11/2006 6:30:06 PM

Methyl tert-butyl ether (MTBE) 37.28 µg/L 2.5 93.2 51.2 138
Benzene 17.89 µg/L 1.0 89.5 85.9 113
Toluene 17.80 µg/L 1.0 89.0 86.4 113
Ethylbenzene 17.43 µg/L 1.0 87.2 83.5 118
Xylenes, Total 52.14 µg/L 3.0 86.9 83.4 122

Qualifiers:

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 4th Quarter 2006

Work Order: 0612092

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW7470									
Sample ID: MB-12001		MBLK			Batch ID: 12001	Analysis Date: 12/18/2006			
Mercury	ND	mg/L	0.00020						
Sample ID: LCS-12001		LCS			Batch ID: 12001	Analysis Date: 12/18/2006			
Mercury	0.005007	mg/L	0.00020	100	80	120			
Method: SW8010A									
Sample ID: MB-11969		MBLK			Batch ID: 11969	Analysis Date: 12/14/2006 1:45:58 PM			
Chromium	ND	mg/L	0.0060						
Lead	ND	mg/L	0.0050						
Sample ID: LCS-11969		LCS			Batch ID: 11969	Analysis Date: 12/14/2006 7:49:01 PM			
Chromium	0.4824	mg/L	0.0060	96.5	80	120			
Lead	0.4655	mg/L	0.0050	93.1	80	120			

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

12/7/2006

Work Order Number 0612092

Received by AT

Checklist completed by



12/7/06

Signature

Date

Matrix

Carrier name UPS

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

Container/Temp Blank temperature?

1°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

Client: SAN JUAN REGION

Bloomfield, NM

Fax #: 505-632-3911

Std ☐ Level 4 ☐

Project Name:

River Terrace - 4th Ave - 2006

Project #:

Project Manager:

Supplier: Hurtado / Bruce Gutten

Sample Temperature:

Date	Time	Matrix	Sample I.D. No.
------	------	--------	-----------------

12/06/06	1015A	1170	42#9
----------	-------	------	------

	115A	D10#1
--	------	-------

11	11
----	----

67# 11/17 w/c 5/1

01/11/2025	12/
------------	-----

TP-#11

757m	TP-#3
------	-------

Date: /	Time: -	Relinquished/By: (Signature) /
---------	---------	--------------------------------

30600	315m	Wm/Sm	2
-------	------	-------	---

Relinquished/By: (Signature)

un/Quat

Received By (Signature) 12/7/06

1220

1901 Hawking NE Suite D

Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.3456
www.hallenvirginmental.com

ANALYSIS REQUEST

[illegible]

Remarks:

COVER LETTER

Tuesday, January 31, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4161
FAX (505) 632-3911

RE: Baseline River Terrace Prior to Air Inj.

Order No.: 0601179

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 3 sample(s) on 1/19/2006 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: 31-Jan-06

CLIENT: San Juan Refining
Lab Order: 0601179
Project: Baseline River Terrace Prior to Air Inj.
Lab ID: 0601179-01

Client Sample ID: Gac Inf
Collection Date: 1/18/2006 10:20:00 AM
Date Received: 1/19/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	1/24/2006 5:35:37 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/24/2006 5:35:37 PM
Surr: DNOP	114	58-140		%REC	1	1/24/2006 5:35:37 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	17	2.0		mg/L	40	1/27/2006 1:05:27 PM
Surr: BFB	104	79.7-118		%REC	40	1/27/2006 1:05:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	310	40		µg/L	40	1/27/2006 1:05:27 PM
Toluene	44	40		µg/L	40	1/27/2006 1:05:27 PM
Ethylbenzene	1300	40		µg/L	40	1/27/2006 1:05:27 PM
Xylenes, Total	6900	120		µg/L	40	1/27/2006 1:05:27 PM
Surr: 4-Bromofluorobenzene	105	82.2-119		%REC	40	1/27/2006 1:05:27 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 10:35:24 AM
Barium	0.078	0.020		mg/L	1	1/20/2006 10:35:24 AM
Cadmium	ND	0.0020		mg/L	1	1/20/2006 10:35:24 AM
Chromium	ND	0.0060		mg/L	1	1/20/2006 10:35:24 AM
Lead	0.013	0.0050		mg/L	1	1/20/2006 10:35:24 AM
Selenium	ND	0.050		mg/L	1	1/20/2006 10:35:24 AM
Silver	ND	0.0050		mg/L	1	1/20/2006 10:35:24 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: 31-Jan-06

CLIENT: San Juan Refining
Lab Order: 0601179
Project: Baseline River Terrace Prior to Air Inj.
Lab ID: 0601179-02

Client Sample ID: Gac 1 Eff
Collection Date: 1/18/2006 10:25:00 AM
Date Received: 1/19/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	1/24/2006 6:08:38 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/24/2006 6:08:38 PM
Surr: DNOP	114	58-140		%REC	1	1/24/2006 6:08:38 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/27/2006 1:36:01 PM
Surr: BFB	104	79.7-118		%REC	1	1/27/2006 1:36:01 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	1/27/2006 1:36:01 PM
Toluene	ND	1.0		µg/L	1	1/27/2006 1:36:01 PM
Ethylbenzene	ND	1.0		µg/L	1	1/27/2006 1:36:01 PM
Xylenes, Total	ND	3.0		µg/L	1	1/27/2006 1:36:01 PM
Surr: 4-Bromofluorobenzene	100	82.2-119		%REC	1	1/27/2006 1:36:01 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: 31-Jan-06

CLIENT: San Juan Refining

Client Sample ID: Gac 2 Eff

Lab Order: 0601179

Collection Date: 1/18/2006 10:30:00 AM

Project: Baseline River Terrace Prior to Air Inj.

Date Received: 1/19/2006

Lab ID: 0601179-03

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	1/24/2006 6:41:45 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/24/2006 6:41:45 PM
Surr: DNOP	114	58-140		%REC	1	1/24/2006 6:41:45 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/27/2006 3:38:52 PM
Surr: BFB	102	79.7-118		%REC	1	1/27/2006 3:38:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	1/27/2006 3:38:52 PM
Toluene	ND	1.0		µg/L	1	1/27/2006 3:38:52 PM
Ethylbenzene	ND	1.0		µg/L	1	1/27/2006 3:38:52 PM
Xylenes, Total	ND	3.0		µg/L	1	1/27/2006 3:38:52 PM
Surr: 4-Bromofluorobenzene	96.3	82.2-119		%REC	1	1/27/2006 3:38:52 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

CLIENT: San Juan Refining

Work Order: 0601179

Project: Baseline River Terrace Prior to Air Inj.

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DRO_W

Sample ID: MB-9636	SampType: MBLK	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 1/24/2006	RunNo: 17998
Client ID: ZZZZZ	Batch ID: 9636	TestNo: SW8015		Analysis Date: 1/24/2006	SeqNo: 444110
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-9636	SampType: LCS	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 1/24/2006	RunNo: 17998
Client ID: ZZZZZ	Batch ID: 9636	TestNo: SW8015		Analysis Date: 1/24/2006	SeqNo: 444111
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Diesel Range Organics (DRO) 5.020 1.0 5 0 100 81.2 149

Sample ID: LCSD-9636	SampType: LCSD	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 1/24/2006	RunNo: 17998
Client ID: ZZZZZ	Batch ID: 9636	TestNo: SW8015		Analysis Date: 1/24/2006	SeqNo: 444112
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Diesel Range Organics (DRO) 4.355 1.0 5 0 87.1 81.2 149 5.02 14.2 23

4 / 11

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: San Juan Refining
Work Order: 0601179
Project: Baseline River Terrace Prior to Air Inj.

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18080
Client ID: ZZZZZ	Batch ID: R18080	TestNo: SW8015		Analysis Date: 1/27/2006	SeqNo: 445668
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: 18080
Client ID: ZZZZZ	Batch ID: R18080	TestNo: SW8015		Analysis Date: 1/27/2006	SeqNo: 445669
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	0.5180	0.050	0.5	0	104 82.6 114

Sample ID: 0601179-03A MS	SampType: MS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18080
Client ID: Gac 2 Eff	Batch ID: R18080	TestNo: SW8015		Analysis Date: 1/27/2006	SeqNo: 445676
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: 0601179-03A MSD	SampType: MSD	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18080
Client ID: Gac 2 Eff	Batch ID: R18080	TestNo: SW8015		Analysis Date: 1/27/2006	SeqNo: 445677
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	0.5020	0.050	0.5	0	100 82.6 114 0.474 5.74 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

ANALYTICAL QC SUMMARY REPORT

CLIENT: San Juan Refining
Work Order: 0601179

Project: Baseline River Terrace Prior to Air Inj.

TestCode: 8021BTEX_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18080						
Client ID: ZZZZZ	Batch ID: R18080	TestNo: SW8021		Analysis Date: 1/27/2006	SeqNo: 445658						
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									
Xylenes, Total	ND	3.0									

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18080						
Client ID: ZZZZZ	Batch ID: R18080	TestNo: SW8021		Analysis Date: 1/27/2006	SeqNo: 445659						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	19.97	1.0	20	0	99.8	88.5	114				
Toluene	19.97	1.0	20	0	99.8	87.2	114				
Ethylbenzene	20.08	1.0	20	0	100	88.6	113				
Xylenes, Total	41.18	3.0	40	0	103	83.3	114				

Sample ID: 0601179-02A MS	SampType: MS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18080						
Client ID: Gac 1 Eff	Batch ID: R18080	TestNo: SW8021		Analysis Date: 1/27/2006	SeqNo: 445663						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	19.31	1.0	20	0	96.5	88.5	114				
Toluene	18.84	1.0	20	0	94.2	87.2	114				
Ethylbenzene	19.12	1.0	20	0	95.6	88.6	113				
Xylenes, Total	38.80	3.0	40	0	97.0	83.3	114				

Sample ID: 0601179-02A MSD	SampType: MSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18080						
Client ID: Gac 1 Eff	Batch ID: R18080	TestNo: SW8021		Analysis Date: 1/27/2006	SeqNo: 445664						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	19.40	1.0	20	0	97.0	88.5	114	19.31	0.506	27	
Toluene	19.27	1.0	20	0	96.3	87.2	114	18.84	2.23	19	
Ethylbenzene	19.32	1.0	20	0	96.6	88.6	113	19.12	1.01	10	

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

ANALYTICAL QC SUMMARY REPORT

CLIENT: San Juan Refining

Work Order: 0601179

Project: Baseline River Terrace Prior to Air Inj.

TestCode: 8021BTEX_W

Sample ID: 0601179-02A MSD	SampType: MSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18080						
Client ID: Gac 1 Eff	Batch ID: R18080	TestNo: SW8021		Analysis Date: 1/27/2006	SeqNo: 445664						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Xylenes, Total	39.19	3.0	40	0	98.0	83.3	114	38.8	0.985		13

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: San Juan Refining

Work Order: 0601179

Project: Baseline River Terrace Prior to Air Inj.

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

Sample ID: 0601179-01BMS	SampType: MS	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: 442385						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.004129 0.00020 0.005 0 82.6 75 125

Sample ID: 0601179-01BMSD	SampType: MSD	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: 442386						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.004262 0.00020 0.005 0 85.2 75 125 0.004129 3.18 20

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

ANALYTICAL QC SUMMARY REPORT

CLIENT: San Juan Refining

Work Order: 0601179

Project: Baseline River Terrace Prior to Air Inj.

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						
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: San Juan Refining
 Work Order: 0601179
 Project: Baseline River Terrace Prior to Air Inj.

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	

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 SJR

Date and Time Receive

1/19/2006

Work Order Number 0601179

Received by LMM

Checklist completed by Lisa Holenkes 1/19/06
Signature Date

Reviewed by [Signature] 1/19/06
Initials Date

Matrix

Carrier name UPS

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Not Present <input type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Water - VOA vials have zero headspace?	No VOA vials submitted <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section below

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: temp 3°

Corrective Action _____

COVER LETTER

Thursday, February 09, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: River Terrace GAC Analysis

Order No.: 0601298

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 3 sample(s) on 1/31/2006 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: 09-Feb-06

CLIENT: San Juan Refining
Lab Order: 0601298
Project: River Terrace GAC Analysis
Lab ID: 0601298-01

Client Sample ID: GAC INF
Collection Date: 1/30/2006 10:00:00 AM
Date Received: 1/31/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/7/2006 10:06:10 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/7/2006 10:06:10 AM
Surr: DNOP	118	58-140		%REC	1	2/7/2006 10:06:10 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	16	2.0		mg/L	40	2/3/2006 10:58:51 PM
Surr: BFB	108	79.7-118		%REC	40	2/3/2006 10:58:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	110	40		µg/L	40	2/3/2006 10:58:51 PM
Toluene	ND	40		µg/L	40	2/3/2006 10:58:51 PM
Ethylbenzene	1100	40		µg/L	40	2/3/2006 10:58:51 PM
Xylenes, Total	6400	120		µg/L	40	2/3/2006 10:58:51 PM
Surr: 4-Bromofluorobenzene	109	82.2-119		%REC	40	2/3/2006 10:58:51 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: 09-Feb-06

CLIENT: San Juan Refining
Lab Order: 0601298
Project: River Terrace GAC Analysis
Lab ID: 0601298-02

Client Sample ID: GAC 1 EFF
Collection Date: 1/30/2006 10:15:00 AM
Date Received: 1/31/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/7/2006 10:39:07 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/7/2006 10:39:07 AM
Surr: DNOP	116	58-140		%REC	1	2/7/2006 10:39:07 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/3/2006 11:29:20 PM
Surr: BFB	106	79.7-118		%REC	1	2/3/2006 11:29:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	2/3/2006 11:29:20 PM
Toluene	ND	1.0		µg/L	1	2/3/2006 11:29:20 PM
Ethylbenzene	ND	1.0		µg/L	1	2/3/2006 11:29:20 PM
Xylenes, Total	ND	3.0		µg/L	1	2/3/2006 11:29:20 PM
Surr: 4-Bromofluorobenzene	99.4	82.2-119		%REC	1	2/3/2006 11:29:20 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: 09-Feb-06

CLIENT: San Juan Refining
Lab Order: 0601298
Project: River Terrace GAC Analysis
Lab ID: 0601298-03

Client Sample ID: GAC 2 EFF
Collection Date: 1/30/2006 10:30:00 AM
Date Received: 1/31/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/7/2006 10:59:21 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/7/2006 10:59:21 AM
Surr: DNOP	121	58-140		%REC	1	2/7/2006 10:59:21 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/3/2006 11:59:54 PM
Surr: BFB	105	79.7-118		%REC	1	2/3/2006 11:59:54 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	2/3/2006 11:59:54 PM
Toluene	ND	1.0		µg/L	1	2/3/2006 11:59:54 PM
Ethylbenzene	ND	1.0		µg/L	1	2/3/2006 11:59:54 PM
Xylenes, Total	ND	3.0		µg/L	1	2/3/2006 11:59:54 PM
Surr: 4-Bromofluorobenzene	98.1	82.2-119		%REC	1	2/3/2006 11:59:54 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: 09-Feb-06

CLIENT: San Juan Refining

Work Order: 0601298

Project: River Terrace GAC Analysis

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 (MIRO)	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
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

4 / 7

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: San Juan Refining
Work Order: 0601298
Project: River Terrace GAC Analysis

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18156						
Client ID: ZZZZZ	Batch ID: R18156	TestNo: SW8015		Analysis Date: 2/3/2006	SeqNo: 447595						
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: 18156						
Client ID: ZZZZZ	Batch ID: R18156	TestNo: SW8015		Analysis Date: 2/3/2006	SeqNo: 447596						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO) 0.4900 0.050 0.5 0 98.0 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

ANALYTICAL QC SUMMARY REPORT

CLIENT: San Juan Refining

Work Order: 0601298

Project: River Terrace GAC Analysis

TestCode: 8021BTEX_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18156						
Client ID: ZZZZZ	Batch ID: R18156	TestNo: SW8021		Analysis Date: 2/3/2006	SeqNo: 447505						
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									
Xylenes, Total	ND	3.0									

Xylenes, Total											
Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18156						
Client ID: ZZZZZ	Batch ID: R18156	TestNo: SW8021		Analysis Date: 2/3/2006	SeqNo: 447513						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	19.64	1.0	20	0	98.2	88.5	114				
Toluene	19.54	1.0	20	0	97.7	87.2	114				
Ethylbenzene	19.68	1.0	20	0	98.4	88.6	113				
Xylenes, Total	40.05	3.0	40	0	100	83.3	114				

6/7

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

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

1/31/2006

Work Order Number 0601298

Received by LMM

Checklist completed by

Lise Hedeker
Signature

1/31/06
Date

Matrix

Carrier name UPS

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	Not Shipped <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Water - VOA vials have zero headspace?	No VOA vials submitted <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	
Container/Temp Blank temperature?	4°	4° C ± 2 Acceptable If given sufficient time to cool.		

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

GAC Inf 2 vials frozen (broken) upon receipt
GAC EH 1 vial " " " " " "

AT
1/31/06

Corrective Action

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.
www.hallenvironmental.com

Project Name: River Terrace-GAC Analysis

Bloomfield, NM 87413

Fax #: 505-632-3911

Sample I.D. No.

GAC INF

11

	1
	1

17

Reinquished By (Signature)

Relinquished By: (Signature)

Received By: (Signature)

QA/QC Package: ☐ Level 4 ☐

Other:

Project Name:

Project #:

Project Manager:

Sampler:

Sample Temperature:

Number/Volume

HEAL No.

Preservative

$$\text{HgCl}_2 \cdot \text{HNO}_3$$

1-2020-1

1

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1

3.

3

Remarks:

ANALYSIS REQUEST

[illegible]

Remarks:

COVER LETTER

Wednesday, February 15, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - GAC Analysis

Order No.: 0602064

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 3 sample(s) on 2/7/2006 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: 15-Feb-06

CLIENT: San Juan Refining

Client Sample ID: GAC Inf

Lab Order: 0602064

Collection Date: 2/6/2006 11:15:00 AM

Project: River Terrace - GAC Analysis

Date Received: 2/7/2006

Lab ID: 0602064-01

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/14/2006 7:39:44 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/14/2006 7:39:44 AM
Surr: DNOP	129	58-140		%REC	1	2/14/2006 7:39:44 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	15	2.0		mg/L	40	2/7/2006 2:44:36 PM
Surr: BFB	109	79.7-118		%REC	40	2/7/2006 2:44:36 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	100	40		µg/L	40	2/7/2006 2:44:36 PM
Toluene	ND	40		µg/L	40	2/7/2006 2:44:36 PM
Ethylbenzene	1000	40		µg/L	40	2/7/2006 2:44:36 PM
Xylenes, Total	6000	120		µg/L	40	2/7/2006 2:44:36 PM
Surr: 4-Bromofluorobenzene	107	82.2-119		%REC	40	2/7/2006 2:44:36 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: 15-Feb-06

CLIENT: San Juan Refining
Lab Order: 0602064
Project: River Terrace - GAC Analysis
Lab ID: 0602064-02

Client Sample ID: GAC 1 Eff
Collection Date: 2/6/2006 11:30:00 AM
Date Received: 2/7/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/14/2006 8:12:31 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/14/2006 8:12:31 AM
Surr: DNOP	125	58-140		%REC	1	2/14/2006 8:12:31 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/7/2006 3:15:21 PM
Surr: BFB	107	79.7-118		%REC	1	2/7/2006 3:15:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	2/7/2006 3:15:21 PM
Toluene	ND	1.0		µg/L	1	2/7/2006 3:15:21 PM
Ethylbenzene	ND	1.0		µg/L	1	2/7/2006 3:15:21 PM
Xylenes, Total	ND	3.0		µg/L	1	2/7/2006 3:15:21 PM
Surr: 4-Bromofluorobenzene	99.6	82.2-119		%REC	1	2/7/2006 3:15:21 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: 15-Feb-06

CLIENT: San Juan Refining
Lab Order: 0602064
Project: River Terrace - GAC Analysis
Lab ID: 0602064-03

Client Sample ID: GAC 2 Eff
Collection Date: 2/6/2006 11:45:00 AM
Date Received: 2/7/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/14/2006 8:45:33 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/14/2006 8:45:33 AM
Surr: DNOP	126	58-140		%REC	1	2/14/2006 8:45:33 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/7/2006 4:47:01 PM
Surr: BFB	104	79.7-118		%REC	1	2/7/2006 4:47:01 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	2/7/2006 4:47:01 PM
Toluene	ND	1.0		µg/L	1	2/7/2006 4:47:01 PM
Ethylbenzene	ND	1.0		µg/L	1	2/7/2006 4:47:01 PM
Xylenes, Total	ND	3.0		µg/L	1	2/7/2006 4:47:01 PM
Surr: 4-Bromofluorobenzene	98.7	82.2-119		%REC	1	2/7/2006 4:47:01 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: 15-Feb-06

CLIENT: San Juan Refining
Work Order: 0602064
Project: River Terrace - GAC Analysis

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 5ML RB	SampleType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18182
Client ID: ZZZZZ	Batch ID: R18182	TestNo: SW8015		Analysis Date: 2/7/2006	SeqNo: 448126
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	SampleType: LCS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18182
Client ID: ZZZZZ	Batch ID: R18182	TestNo: SW8015		Analysis Date: 2/7/2006	SeqNo: 448127
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

Sample ID: 0602064-03A MS	SampleType: MS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18182
Client ID: GAC 2 Eff	Batch ID: R18182	TestNo: SW8015		Analysis Date: 2/7/2006	SeqNo: 448135
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Gasoline Range Organics (GRO) 0.5020 0.050 0.5 0 100 82.6 114

Sample ID: 0602064-03A MSD	SampleType: MSD	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18182
Client ID: GAC 2 Eff	Batch ID: R18182	TestNo: SW8015		Analysis Date: 2/7/2006	SeqNo: 448136
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Gasoline Range Organics (GRO) 0.5040 0.050 0.5 0 101 82.6 114 0.502 0.398 8.39

Quantifiers: 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: San Juan Refining

Work Order: 0602064

Project: River Terrace - GAC Analysis

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEx_W

Sample ID: 5ML RB	SampleType: MBLK	TestCode: 8021BTEx_W	Units: µg/L	Prep Date:	RunNo: 18182						
Client ID: ZZZZZ	Batch ID: R18182	TestNo: SW8021		Analysis Date: 2/7/2006	SeqNo: 448115						
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									
Xylenes, Total	ND	3.0									

Sample ID: 100NG BTEX LCS	SampleType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18182						
Client ID: ZZZZZ	Batch ID: R18182	TestNo: SW8021		Analysis Date: 2/7/2006	SeqNo: 448116						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	19.93	1.0	20	0	99.6	88.5	114				
Toluene	19.07	1.0	20	0	95.4	87.2	114				
Ethylbenzene	19.51	1.0	20	0	97.6	88.6	113				
Xylenes, Total	39.79	3.0	40	0	99.5	83.3	114				

Sample ID: 0602064-02A MS	SampleType: MS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18182						
Client ID: GAC 1 Eff	Batch ID: R18182	TestNo: SW8021		Analysis Date: 2/7/2006	SeqNo: 448124						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	19.01	1.0	20	0	95.0	88.5	114				
Toluene	18.83	1.0	20	0	94.1	87.2	114				
Ethylbenzene	18.86	1.0	20	0	94.3	88.6	113				
Xylenes, Total	57.23	3.0	60	0	95.4	83.3	114				

Sample ID: 0602064-02A MSD	Sample Type: MSD	TestCode: 8021BTEx_W	Units: µg/L	Prep Date:	RunNo: 18182						
Client ID: GAC 1 Eff	Batch ID: R18182	TestNo: SW8021		Analysis Date: 2/7/2006	SeqNo: 448125						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	18.63	1.0	20	0	93.2	88.5	114	19.01	1.98	27	
Toluene	18.34	1.0	20	0	91.7	87.2	114	18.83	2.63	19	
Ethylbenzene	18.78	1.0	20	0	93.9	88.6	113	18.86	0.425	10	

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:

San Juan Refining

Work Order:

0602064

Project:

River Terrace - GAC Analysis

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: 0602064-02A MSD	Sample Type: MSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18182						
Client ID: GAC 1 Eff	Batch ID: R18182	TestNo: SW8021		Analysis Date: 2/7/2006	SeqNo: 448125						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Xylenes, Total	56.48	3.0	60	0	94.1	83.3	114	57.23	1.32	13	

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 SJR

Date and Time Received:

2/7/2006

Work Order Number 0602064

Received by LMM

Checklist completed by

Lise Healy
Signature

2/7/06
Date

Matrix

Carrier name UPS

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

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 _____

Remarks:

COVER LETTER

Monday, February 27, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: River Terrace - GAC Analysis

Order No.: 0602139

Dear Cindy Hurtado:

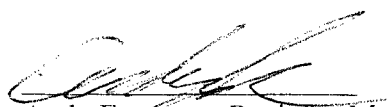
Hall Environmental Analysis Laboratory received 3 sample(s) on 2/15/2006 for the analyses presented in the following report.

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: 27-Feb-06

CLIENT: San Juan Refining
Lab Order: 0602139
Project: River Terrace - GAC Analysis
Lab ID: 0602139-01

Client Sample ID: GAC Inf
Collection Date: 2/14/2006 1:00:00 PM
Date Received: 2/15/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/22/2006 11:49:25 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/22/2006 11:49:25 PM
Surr: DNOP	107	58-140		%REC	1	2/22/2006 11:49:25 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	14	2.0		mg/L	40	2/15/2006 4:30:08 PM
Surr: BFB	109	79.7-118		%REC	40	2/15/2006 4:30:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	310	40		µg/L	40	2/15/2006 4:30:08 PM
Toluene	170	40		µg/L	40	2/15/2006 4:30:08 PM
Ethylbenzene	1000	40		µg/L	40	2/15/2006 4:30:08 PM
Xylenes, Total	5800	120		µg/L	40	2/15/2006 4:30:08 PM
Surr: 4-Bromofluorobenzene	110	82.2-119		%REC	40	2/15/2006 4:30:08 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: 27-Feb-06

CLIENT: San Juan Refining
Lab Order: 0602139
Project: River Terrace - GAC Analysis
Lab ID: 0602139-02

Client Sample ID: GAC 1 Eff
Collection Date: 2/14/2006 1:15:00 PM
Date Received: 2/15/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/23/2006 12:22:29 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/23/2006 12:22:29 AM
Surr: DNOP	133	58-140		%REC	1	2/23/2006 12:22:29 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/15/2006 5:01:30 PM
Surr: BFB	104	79.7-118		%REC	1	2/15/2006 5:01:30 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	2/15/2006 5:01:30 PM
Toluene	ND	1.0		µg/L	1	2/15/2006 5:01:30 PM
Ethylbenzene	ND	1.0		µg/L	1	2/15/2006 5:01:30 PM
Xylenes, Total	ND	3.0		µg/L	1	2/15/2006 5:01:30 PM
Surr: 4-Bromofluorobenzene	100	82.2-119		%REC	1	2/15/2006 5:01:30 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: 27-Feb-06

CLIENT: San Juan Refining
Lab Order: 0602139
Project: River Terrace - GAC Analysis
Lab ID: 0602139-03

Client Sample ID: GAC 2 Eff
Collection Date: 2/14/2006 1:25:00 PM
Date Received: 2/15/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/23/2006 12:55:36 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/23/2006 12:55:36 AM
Surr: DNOP	95.7	58-140		%REC	1	2/23/2006 12:55:36 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/15/2006 7:37:26 PM
Surr: BFB	104	79.7-118		%REC	1	2/15/2006 7:37:26 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	2/15/2006 7:37:26 PM
Toluene	ND	1.0		µg/L	1	2/15/2006 7:37:26 PM
Ethylbenzene	ND	1.0		µg/L	1	2/15/2006 7:37:26 PM
Xylenes, Total	ND	3.0		µg/L	1	2/15/2006 7:37:26 PM
Surr: 4-Bromofluorobenzene	100	82.2-119		%REC	1	2/15/2006 7:37:26 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

CLIENT: San Juan Refining

Work Order: 0602139

Project: River Terrace - GAC Analysis

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
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

ANALYTICAL QC SUMMARY REPORT

CLIENT: San Juan Refining
 Work Order: 0602139
 Project: River Terrace - GAC Analysis

TestCode: 8015GRO_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18289						
Client ID: ZZZZZ	Batch ID: R18289	TestNo: SW8015		Analysis Date: 2/15/2006	SeqNo: 450932						
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: 18289						
Client ID: ZZZZZ	Batch ID: R18289	TestNo: SW8015		Analysis Date: 2/15/2006	SeqNo: 450933						
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				

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

ANALYTICAL QC SUMMARY REPORT

CLIENT: San Juan Refining
 Work Order: 0602139
 Project: River Terrace - GAC Analysis

TestCode: 8021BTEX_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18289						
Client ID: ZZZZZ	Batch ID: R18289	TestNo: SW8021		Analysis Date: 2/15/2006	SeqNo: 450923						
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									
Xylenes, Total	ND	3.0									

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18289						
Client ID: ZZZZZ	Batch ID: R18289	TestNo: SW8021		Analysis Date: 2/15/2006	SeqNo: 450924						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	19.30	1.0	20	0	96.5	88.5	114				
Toluene	19.33	1.0	20	0	96.6	87.2	114				
Ethylbenzene	20.44	1.0	20	0	102	88.6	113				
Xylenes, Total	41.25	3.0	40	0	103	83.3	114				

6/7

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

COVER LETTER

Tuesday, February 28, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - GAC Analysis

Order No.: 0602206

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 3 sample(s) on 2/22/2006 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: San Juan Refining
Lab Order: 0602206
Project: River Terrace - GAC Analysis
Lab ID: 0602206-01

Client Sample ID: GAC Inf.
Collection Date: 2/21/2006 10:30:00 AM
Date Received: 2/22/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/28/2006 7:56:22 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2006 7:56:22 AM
Surr: DNOP	139	58-140		%REC	1	2/28/2006 7:56:22 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	18	2.5		mg/L	50	2/22/2006 7:35:17 PM
Surr: BFB	98.5	79.7-118		%REC	50	2/22/2006 7:35:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	290	50		µg/L	50	2/22/2006 7:35:17 PM
Toluene	170	50		µg/L	50	2/22/2006 7:35:17 PM
Ethylbenzene	1100	50		µg/L	50	2/22/2006 7:35:17 PM
Xylenes, Total	6300	150		µg/L	50	2/22/2006 7:35:17 PM
Surr: 4-Bromofluorobenzene	102	82.2-119		%REC	50	2/22/2006 7:35:17 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: 28-Feb-06

CLIENT: San Juan Refining
 Lab Order: 0602206
 Project: River Terrace - GAC Analysis
 Lab ID: 0602206-02

Client Sample ID: GAC 1 Eff
 Collection Date: 2/21/2006 10:45:00 AM
 Date Received: 2/22/2006
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/28/2006 8:29:26 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2006 8:29:26 AM
Surr: DNOP	115	58-140		%REC	1	2/28/2006 8:29:26 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/22/2006 8:32:03 PM
Surr: BFB	89.6	79.7-118		%REC	1	2/22/2006 8:32:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	2/22/2006 8:32:03 PM
Toluene	ND	1.0		µg/L	1	2/22/2006 8:32:03 PM
Ethylbenzene	ND	1.0		µg/L	1	2/22/2006 8:32:03 PM
Xylenes, Total	ND	3.0		µg/L	1	2/22/2006 8:32:03 PM
Surr: 4-Bromofluorobenzene	104	82.2-119		%REC	1	2/22/2006 8:32:03 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: 28-Feb-06

CLIENT: San Juan Refining
Lab Order: 0602206
Project: River Terrace - GAC Analysis
Lab ID: 0602206-03

Client Sample ID: GAC 2 Eff
Collection Date: 2/21/2006 11:00:00 AM
Date Received: 2/22/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/28/2006 9:02:29 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2006 9:02:29 AM
Surr: DNOP	108	58-140		%REC	1	2/28/2006 9:02:29 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/22/2006 10:25:21 PM
Surr: BFB	88.7	79.7-118		%REC	1	2/22/2006 10:25:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	2/22/2006 10:25:21 PM
Toluene	ND	1.0		µg/L	1	2/22/2006 10:25:21 PM
Ethylbenzene	ND	1.0		µg/L	1	2/22/2006 10:25:21 PM
Xylenes, Total	ND	3.0		µg/L	1	2/22/2006 10:25:21 PM
Surr: 4-Bromofluorobenzene	103	82.2-119		%REC	1	2/22/2006 10:25:21 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

CLIENT: San Juan Refining

Work Order: 0602206

Project: River Terrace - GAC Analysis

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

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: San Juan Refining
Work Order: 0602206
Project: River Terrace - GAC Analysis

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18364						
Client ID: ZZZZZ	Batch ID: R18364	TestNo: SW8015		Analysis Date: 2/22/2006	SeqNo: 453009						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 2.5UG GRO LCS	SampType: LCS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18364						
Client ID: ZZZZZ	Batch ID: R18364	TestNo: SW8015		Analysis Date: 2/23/2006	SeqNo: 453011						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 0602206-03A MS	SampType: MS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18364						
Client ID: GAC 2 Eff	Batch ID: R18364	TestNo: SW8015		Analysis Date: 2/22/2006	SeqNo: 453015						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

51
8

Sample ID: 0602206-03A MSD	SampType: MSD	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18364						
Client ID: GAC 2 Eff	Batch ID: R18364	TestNo: SW8015		Analysis Date: 2/22/2006	SeqNo: 453016						
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: San Juan Refining
 Work Order: 0602206
 Project: River Terrace - GAC Analysis

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18364						
Client ID: ZZZZZ	Batch ID: R18364	TestNo: SW8021		Analysis Date: 2/22/2006	SeqNo: 453076						
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									
Xylenes, Total	ND	3.0									

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18364						
Client ID: ZZZZZ	Batch ID: R18364	TestNo: SW8021		Analysis Date: 2/23/2006	SeqNo: 453077						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	20.78	1.0	20	0	104	88.5	114				
Toluene	21.35	1.0	20	0	107	87.2	114				
Ethylbenzene	21.32	1.0	20	0	107	88.6	113				
Xylenes, Total	43.89	3.0	40	0	110	83.3	114				

Sample ID: 0602206-02A MS	SampType: MS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18364						
Client ID: GAC 1 Eff	Batch ID: R18364	TestNo: SW8021		Analysis Date: 2/22/2006	SeqNo: 453081						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	20.99	1.0	20	0	105	88.5	114				
Toluene	21.18	1.0	20	0	106	87.2	114				
Ethylbenzene	21.34	1.0	20	0	107	88.6	113				
Xylenes, Total	43.81	3.0	40	0	110	83.3	114				

Sample ID: 0602206-02A MSD	SampType: MSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18364						
Client ID: GAC 1 Eff	Batch ID: R18364	TestNo: SW8021		Analysis Date: 2/22/2006	SeqNo: 453082						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	20.90	1.0	20	0	104	88.5	114	20.99	0.420	27	
Toluene	20.92	1.0	20	0	105	87.2	114	21.18	1.25	19	
Ethylbenzene	21.07	1.0	20	0	105	88.6	113	21.34	1.29	10	

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: San Juan Refining
Work Order: 0602206
Project: River Terrace - GAC Analysis

TestCode: 8021BTEX_W

ANALYTICAL QC SUMMARY REPORT

Sample ID: 0602206-02A MSD	SampType: MSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18364						
Client ID: GAC 1 Eff	Batch ID: R18364	TestNo: SW8021		Analysis Date: 2/22/2006	SeqNo: 453082						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Xylenes, Total	43.28	3.0	40	0	108	83.3	114	43.81	1.22	13	

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 SJR

Date and Time Received:

2/22/2006

Work Order Number 0602206

Received by AT

Checklist completed by

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?

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: San Juan Refining

Address: #50 Road 4990
Bloomfield, NM
87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Date

Time

Matrix

Sample I.D. No.

Number/Volume

Preservative

HgCl₂ HNO₃

HEAL No.

HEAL No.

HEAL No.

HEAL No.

HEAL No.

HEAL No.

HEAL No.

HEAL No.

HEAL No.

HEAL No.

HEAL No.

HEAL No.

HEAL No.

HEAL No.

2/21/06 10:30 H₂O GAC INF.

10:45 GAC1 EFF

11:00 GAC2 EFF

2-VOL

2-VOL

2-VOL

2-VOL

2-VOL

2-VOL

2-VOL

2-VOL

2-VOL

2-VOL

2-VOL

2-VOL

2-VOL

2-VOL

2-VOL

QA/QC Package:

Std ☐ Level 4 ☐

Other:

Project Name:

River Terrace - GAC Analysis

Project #:

Project Manager:

Cindy Hurtado

Sampler: Shelly Couder

Sample Temperature:

5

BTEX + MTBE + TPH (Gasoline Only)

BTEX

MTBE

TPH

TPH Method 8015B (Gas/Diesel)

TPH (Method 418.1)

EDB (Method 504.1)

EDC (Method 8021)

8310 (PNA or PAH)

HCRA 8 Metals

Anions (F, Cl, NO₂, NO₃, PO₄, SO₄)

8081 Pesticides / PCB's (8082)

8260B (VOA)

8270 (Semi-VOA)

Air Bubbles or Headspace (Y or N)

ANALYSIS REQUEST

HALL ENVIRONMENTAL
ANALYSIS LABORATORY

4901 Hawkins NE, Suite D

Albuquerque, New Mexico 87109

Tel. 505.345.3975 Fax 505.345.4107

www.hallenvironmental.com

Remarks:

Received By: (Signature)

Relinquished By: (Signature)

Received By: (Signature)

Relinquished By: (Signature)

1015

COVER LETTER

Tuesday, March 07, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: River Terrace - GAC Analysis

Order No.: 0603016

Dear Cindy Hurtado:

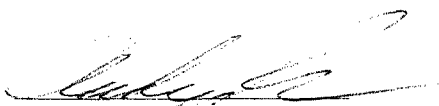
Hall Environmental Analysis Laboratory received 3 sample(s) on 3/2/2006 for the analyses presented in the following report.

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: 07-Mar-06

CLIENT: San Juan Refining
Lab Order: 0603016
Project: River Terrace - GAC Analysis
Lab ID: 0603016-01

Client Sample ID: GAC INF
Collection Date: 3/1/2006 9:15:00 AM
Date Received: 3/2/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/5/2006 12:24:59 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/5/2006 12:24:59 AM
Surr: DNOP	119	58-140		%REC	1	3/5/2006 12:24:59 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	16	2.5		mg/L	50	3/4/2006 11:30:09 AM
Surr: BFB	100	79.7-118		%REC	50	3/4/2006 11:30:09 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	210	50		µg/L	50	3/4/2006 11:30:09 AM
Toluene	110	50		µg/L	50	3/4/2006 11:30:09 AM
Ethylbenzene	1000	50		µg/L	50	3/4/2006 11:30:09 AM
Xylenes, Total	5800	150		µg/L	50	3/4/2006 11:30:09 AM
Surr: 4-Bromofluorobenzene	99.4	82.2-119		%REC	50	3/4/2006 11:30:09 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: 07-Mar-06

CLIENT: San Juan Refining
Lab Order: 0603016
Project: River Terrace - GAC Analysis
Lab ID: 0603016-02

Client Sample ID: GAC EFF 1
Collection Date: 3/1/2006 9:30:00 AM
Date Received: 3/2/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/5/2006 12:57:45 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/5/2006 12:57:45 AM
Surr: DNOP	115	58-140		%REC	1	3/5/2006 12:57:45 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/4/2006 11:58:06 AM
Surr: BFB	92.9	79.7-118		%REC	1	3/4/2006 11:58:06 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/4/2006 11:58:06 AM
Toluene	ND	1.0		µg/L	1	3/4/2006 11:58:06 AM
Ethylbenzene	ND	1.0		µg/L	1	3/4/2006 11:58:06 AM
Xylenes, Total	ND	3.0		µg/L	1	3/4/2006 11:58:06 AM
Surr: 4-Bromofluorobenzene	103	82.2-119		%REC	1	3/4/2006 11:58:06 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: 07-Mar-06

CLIENT: San Juan Refining
Lab Order: 0603016
Project: River Terrace - GAC Analysis
Lab ID: 0603016-03

Client Sample ID: GAC 2 EFF
Collection Date: 3/1/2006 9:45:00 AM
Date Received: 3/2/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/5/2006 1:30:29 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/5/2006 1:30:29 AM
Surr: DNOP	136	58-140		%REC	1	3/5/2006 1:30:29 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/4/2006 1:22:09 PM
Surr: BFB	94.9	79.7-118		%REC	1	3/4/2006 1:22:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/4/2006 1:22:09 PM
Toluene	ND	1.0		µg/L	1	3/4/2006 1:22:09 PM
Ethylbenzene	ND	1.0		µg/L	1	3/4/2006 1:22:09 PM
Xylenes, Total	ND	3.0		µg/L	1	3/4/2006 1:22:09 PM
Surr: 4-Bromofluorobenzene	100	82.2-119		%REC	1	3/4/2006 1:22:09 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

CLIENT:

San Juan Refining

Work Order:

0603016

Project:

River Terrace - GAC Analysis

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DRO_W

Sample ID: MB-9910	SampType: MBLK	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 3/3/2006	RunNo: 18472						
Client ID: ZZZZZ	Batch ID: 9910	TestNo: SW8015		Analysis Date: 3/4/2006	SeqNo: 456143						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: LCS-9910	SampType: LCS	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 3/3/2006	RunNo: 18472						
Client ID: ZZZZZ	Batch ID: 9910	TestNo: SW8015		Analysis Date: 3/4/2006	SeqNo: 456144						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.062	1.0	5	0	101	81.2	149				

Sample ID: LCSD-9910	SampType: LCSD	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 3/3/2006	RunNo: 18472						
Client ID: ZZZZZ	Batch ID: 9910	TestNo: SW8015		Analysis Date: 3/4/2006	SeqNo: 456145						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.370	1.0	5	0	107	81.2	149	5.062	5.90		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: San Juan Refining
Work Order: 0603016
Project: River Terrace - GAC Analysis

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

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

Sample ID: 0603016-03A MS	SampType: MS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18480						
Client ID: GAC 2 EFF	Batch ID: R18480	TestNo: SW8015		Analysis Date: 3/4/2006	SeqNo: 456366						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 0603016-03A MSD	SampType: MSD	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18480						
Client ID: GAC 2 EFF	Batch ID: R18480	TestNo: SW8015		Analysis Date: 3/4/2006	SeqNo: 456367						
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: San Juan Refining
 Work Order: 0603016
 Project: River Terrace - GAC Analysis

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEx_W	Units: µg/L	Prep Date:	RunNo: 18480						
Client ID: ZZZZZ	Batch ID: R18480	TestNo: SW8021		Analysis Date: 3/3/2006	SeqNo: 456368						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18480						
Client ID: ZZZZZ	Batch ID: R18480	TestNo: SW8021		Analysis Date: 3/4/2006	SeqNo: 456369						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 0603016-02A MS		SampType: MS	TestCode: 8021BTEX_W		Units: µg/L	Prep Date:		RunNo: 18480			
Client ID: GAC EFF 1		Batch ID: R18480	TestNo: SW8021			Analysis Date: 3/4/2006		SeqNo: 456383			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 0603016-02A MSD	SampType: MSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18480						
Client ID: GAC EFF 1	Batch ID: R18480	TestNo: SW8021		Analysis Date: 3/4/2006	SeqNo: 456384						
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: San Juan Refining
Work Order: 0603016
Project: River Terrace - GAC Analysis

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: 0603016-02A MSD	SampType: MSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18480						
Client ID: GAC EFF 1	Batch ID: R18480	TestNo: SW8021		Analysis Date: 3/4/2006	SeqNo: 456384						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Xylenes, Total	42.88	3.0	40	0.736	105	83.3	114	42.37	1.20	13	

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 SJR

Date and Time Received:

3/2/2006

Work Order Number 0603016

Received by LMM

Checklist completed by

Signature

3/2/06

Date

Matrix

Carrier name UPS

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

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: Per CH collection times on LOC areCorrect / AT 3/2/06 /

Corrective Action _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Std	Level 4

Other:

Project Name:

River Terrace - CAC Analysis

Project #:

Project Manager:

Cindy Hurtado

Sampler: Shellen Cadden

Sample Temperature:

Preservative

HEAL No.

HEAL No. 0603016

Number/Volume

Sample I.D. No.

Matrix

Date _____ Time _____

3/1/06	9:15	HOAC, INC
--------	------	-----------

1

9:30	CAC FCE
------	---------

525

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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1957

Date: _____ Time: _____

Relinquished By: (Signature)

Received By (Signature)

0007

Date: 3/1/0

Relinquished By: (Signature)

Received By: (Signature)

3/2/06

Remarks:

ANALYSIS REQUEST

Parameter	10/10/2010	11/10/2010	12/10/2010
BTEX + MTBE + TPH (Gasoline Only)	X	X	X
BTEX + MTBE + TPH (Gasoline Only)			
TPH Method 8015B (Gas/Diesel)	X	X	X
TPH (Method 418.1)			
EDB (Method 504.1)			
EDC (Method 8021)			
8310 (PNA or PAH)			
RCRA 8 Metals			
Anions (F, Cl, NO ₂ , NO ₃ , PO ₄ , SO ₄)			
8081 Pesticides / PCB's (8082)			
8260B (VOA)			
8270 (Semi-VOA)			
Air Bubbles or Headspace (Y or N)			

COVER LETTER

Thursday, March 16, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis - 3/08/06

Order No.: 0603111

Dear Cindy Hurtado:

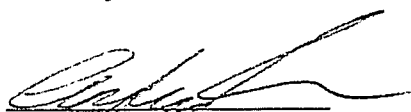
Hall Environmental Analysis Laboratory received 3 sample(s) on 3/9/2006 for the analyses presented in the following report.

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: 16-Mar-06

CLIENT: San Juan Refining
 Lab Order: 0603111
 Project: GAC Analysis - 3/08/06
 Lab ID: 0603111-01

Client Sample ID: GAC INF
 Collection Date: 3/8/2006 9:00:00 AM
 Date Received: 3/9/2006
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/16/2006 3:52:04 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/16/2006 3:52:04 AM
Surr: DNOP	120	58-140		%REC	1	3/16/2006 3:52:04 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	14	2.5		mg/L	50	3/14/2006 3:45:18 AM
Surr: BFB	100	79.7-118		%REC	50	3/14/2006 3:45:18 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	220	50		µg/L	50	3/14/2006 3:45:18 AM
Toluene	130	50		µg/L	50	3/14/2006 3:45:18 AM
Ethylbenzene	920	50		µg/L	50	3/14/2006 3:45:18 AM
Xylenes, Total	5200	150		µg/L	50	3/14/2006 3:45:18 AM
Surr: 4-Bromofluorobenzene	109	82.2-119		%REC	50	3/14/2006 3:45:18 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: 16-Mar-06

CLIENT: San Juan Refining
Lab Order: 0603111
Project: GAC Analysis - 3/08/06
Lab ID: 0603111-02

Client Sample ID: GAC 1 EFF
Collection Date: 3/8/2006 9:10:00 AM
Date Received: 3/9/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/16/2006 4:25:22 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/16/2006 4:25:22 AM
Surr: DNOP	127	58-140		%REC	1	3/16/2006 4:25:22 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/14/2006 10:56:13 AM
Surr: BFB	90.5	79.7-118		%REC	1	3/14/2006 10:56:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/14/2006 10:56:13 AM
Toluene	ND	1.0		µg/L	1	3/14/2006 10:56:13 AM
Ethylbenzene	ND	1.0		µg/L	1	3/14/2006 10:56:13 AM
Xylenes, Total	ND	3.0		µg/L	1	3/14/2006 10:56:13 AM
Surr: 4-Bromofluorobenzene	99.2	82.2-119		%REC	1	3/14/2006 10:56:13 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: 16-Mar-06

CLIENT: San Juan Refining
Lab Order: 0603111
Project: GAC Analysis - 3/08/06
Lab ID: 0603111-03

Client Sample ID: GAC 2 EFF
Collection Date: 3/8/2006 9:15:00 AM
Date Received: 3/9/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/16/2006 4:58:43 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/16/2006 4:58:43 AM
Surr: DNOP	120	58-140		%REC	1	3/16/2006 4:58:43 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/14/2006 11:24:08 AM
Surr: BFB	94.7	79.7-118		%REC	1	3/14/2006 11:24:08 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/14/2006 11:24:08 AM
Toluene	ND	1.0		µg/L	1	3/14/2006 11:24:08 AM
Ethylbenzene	ND	1.0		µg/L	1	3/14/2006 11:24:08 AM
Xylenes, Total	ND	3.0		µg/L	1	3/14/2006 11:24:08 AM
Surr: 4-Bromofluorobenzene	99.2	82.2-119		%REC	1	3/14/2006 11:24:08 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: 16-Mar-06

CLIENT: San Juan Refining
Work Order: 0603111
Project: GAC Analysis - 3/08/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DRO_W

Sample ID: LCSD-9976	Sample Type: LCSD	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 3/14/2006	RunNo: 18596						
Client ID: ZZZZZ	Batch ID: 9976	TestNo: SW8015		Analysis Date: 3/16/2006	SeqNo: 461040						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.766	1.0	5	0	115	81.2	149				
Motor Oil Range Organics (MRO)	ND	5.0									

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: San Juan Refining
 Work Order: 0603111
 Project: GAC Analysis - 3/08/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 5ML RB	SampleType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18565
Client ID: ZZZZZ	Batch ID: R18565	TestNo: SW8015		Analysis Date: 3/13/2006	SeqNo: 460322
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	SampleType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18562
Client ID: ZZZZZ	Batch ID: R18582	TestNo: SW8015		Analysis Date: 3/14/2006	SeqNo: 460723
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	SampleType: LCS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18565
Client ID: ZZZZZ	Batch ID: R18565	TestNo: SW8015		Analysis Date: 3/13/2006	SeqNo: 460323
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		
Sample ID: 2.5UG GRO LCS		Sample Type: LCS		Test Code: 8015GRO_W		Units: mg/L		Prep Date:		Run No: 18582								
Client ID: ZZZZZ		Batch ID: R18582		Test No: SW8015				Analysis Date: 3/15/2006		Seq No: 460724								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual							

Gasoline Range Organics (GRO)				0.4820	0.050	0.5	0	96.4	82.6	114	
Sample ID: 2.5UG GRO LCSD	SampleType: LCSD	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18565						
Client ID: ZZZZZ	Batch ID: R18565	TestNo: SW8015		Analysis Date: 3/13/2006	SeqNo: 460324						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline Range Organics (GRO)	0.5180	0.050	0.5	0	104	82.6	114	0.486	6.37	8.39
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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: San Juan Refining
 Work Order: 0603111
 Project: GAC Analysis - 3/08/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: 5ML RB	SampleType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18582
Client ID: ZZZZZ	Batch ID: R18582	TestNo: SW8021		Analysis Date: 3/13/2006	SeqNo: 460299
Analyte	Result	POL	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
 Xylenes, Total ND 3.0

Sample ID: 5ML RB	SampleType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18582
Client ID: ZZZZZ	Batch ID: R18582	TestNo: SW8021		Analysis Date: 3/14/2006	SeqNo: 460824
Analyte	Result	POL	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
 Xylenes, Total ND 3.0

Sample ID: 100NG BTEX LCSD	SampleType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18585
Client ID: ZZZZZ	Batch ID: R18585	TestNo: SW8021		Analysis Date: 3/13/2006	SeqNo: 460301
Analyte	Result	POL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Benzene 20.42 1.0 20 0 102 88.5 114
 Toluene 21.05 1.0 20 0 105 87.2 114
 Ethylbenzene 20.76 1.0 20 0 104 88.6 113
 Xylenes, Total 43.58 3.0 40 0 109 83.3 114

Sample ID: 75NG BTEX CCV-B	SampleType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18582
Client ID: ZZZZZ	Batch ID: R18582	TestNo: SW8021		Analysis Date: 3/14/2006	SeqNo: 460825
Analyte	Result	POL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Benzene 13.95 1.0 15 0 93.0 88.5 114
 Toluene 15.27 1.0 15 0 102 87.2 114
 Ethylbenzene 14.05 1.0 15 0 93.7 88.6 113

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

ANALYTICAL QC SUMMARY REPORT

CLIENT: San Juan Refining
 Work Order: 0603111
 Project: GAC Analysis - 3/08/06

TestCode: 8021BTX_W

Sample ID: 75NG BTEX CCV-B	SampleType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18582						
Client ID: ZZZZZ	Batch ID: R18582	TestNo: SW8021		Analysis Date: 3/14/2006	SeqNo: 460825						
Analyte	Result	POL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Xylenes, Total	43.93	3.0	45	0	97.6	83.3	114				

Quantifiers: 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

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

3/9/2006

Work Order Number 0603111

Received by LMM

Checklist completed by

Lisa Hedrick
Signature

3/9/06
Date

Matrix

Carrier name UPS

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

Container/Temp Blank temperature?

1°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Corrective Action

COVER LETTER

Thursday, March 23, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC 3/16/06

Order No.: 0603192

Dear Cindy Hurtado:

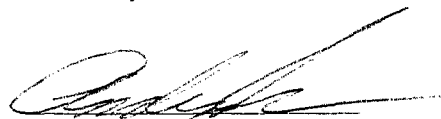
Hall Environmental Analysis Laboratory received 3 sample(s) on 3/16/2006 for the analyses presented in the following report.

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: 23-Mar-06

CLIENT: San Juan Refining
Lab Order: 0603192
Project: GAC 3/16/06
Lab ID: 0603192-02

Client Sample ID: GAC 1 EFF
Collection Date: 3/15/2006 10:35:00 AM
Date Received: 3/16/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/22/2006 4:57:19 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/22/2006 4:57:19 PM
Surr: DNOP	111	58-140		%REC	1	3/22/2006 4:57:19 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/20/2006 12:42:07 PM
Surr: BFB	92.1	79.7-118		%REC	1	3/20/2006 12:42:07 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/20/2006 12:42:07 PM
Toluene	ND	1.0		µg/L	1	3/20/2006 12:42:07 PM
Ethylbenzene	ND	1.0		µg/L	1	3/20/2006 12:42:07 PM
Xylenes, Total	ND	3.0		µg/L	1	3/20/2006 12:42:07 PM
Surr: 4-Bromofluorobenzene	83.9	82.2-119		%REC	1	3/20/2006 12:42:07 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

CLIENT: San Juan Refining

Work Order: 0603192

Project: GAC 3/16/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DRO_W

Sample ID: MB-10024	SampType: MBLK	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 3/22/2006	RunNo: 18674
Client ID: ZZZZZ	Batch ID: 10024	TestNo: SW8015		Analysis Date: 3/22/2006	SeqNo: 463915
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-10024	SampType: LCS	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 3/22/2006	RunNo: 18674
Client ID: ZZZZZ	Batch ID: 10024	TestNo: SW8015		Analysis Date: 3/22/2006	SeqNo: 463916
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Diesel Range Organics (DRO)	6.073	1.0	5	0	121 81.2 149

Sample ID: LCSD-10024	SampType: LCSD	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 3/22/2006	RunNo: 18674
Client ID: ZZZZZ	Batch ID: 10024	TestNo: SW8015		Analysis Date: 3/22/2006	SeqNo: 463917
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Diesel Range Organics (DRO)	6.268	1.0	5	0	125 81.2 149 6.073 3.16 23

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

ANALYTICAL QC SUMMARY REPORT

CLIENT: San Juan Refining
 Work Order: 0603192
 Project: GAC 3/16/06

TestCode: 8021BTEX_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18652						
Client ID: ZZZZZ	Batch ID: R18652	TestNo: SW8021		Analysis Date: 3/20/2006	SeqNo: 462985						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18652						
Client ID: ZZZZZ	Batch ID: R18652	TestNo: SW8021		Analysis Date: 3/20/2006	SeqNo: 462986						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

6/7

Sample ID: 100NG BTEX LCSD	SampType: LCSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18652						
Client ID: ZZZZZ	Batch ID: R18652	TestNo: SW8021		Analysis Date: 3/20/2006	SeqNo: 462987						
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

**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:

Project Name:

GAC 3/16/06

Project #:

Project Manager:

Sample: City of Hartford
Sample Temperature: _____

Number/Volume

HEAL No.

Preservative

 $\text{HgCl}_2 \quad \text{HNO}_3$

3-Vol-

一

1

2

1

3

3

Date: 3/15/00 Date:

Time: 2pm

Relinquished By: (Signature) *Wendy Smith*
Relinquished By: (Signature)

--	--

Received By: (Signature)

3-16-06 855

Remarks:

ANALYSIS REQUEST

BTEX + MTBE + TMS (8021)	X	X	X
BTEX + MTBE + TPH (Gasoline Only)			
TPH Method 8015B (Gas/Diesel)	X	X	X
TPH (Method 418.1)			
EDB (Method 504.1)			
EDC (Method 8021)			
8310 (PNA or PAH)			
HCPA 8 Metals			
Anions (F ⁻ , Cl ⁻ , NO ₂ ⁻ , PO ₄ ⁻ , SO ₄ ⁻)			
8081 Pesticides / PCB's (8082)			
8260B (VOA)			
8270 (Semi-VOA)			
Air Bubbles or Headspace (Y or N)			

[illegible]

COVER LETTER

Tuesday, April 04, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 3/24/06

Order No.: 0603287

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 3 sample(s) on 3/24/2006 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



Hall Environmental Analysis Laboratory

Date: 04-Apr-06

CLIENT: San Juan Refining
Lab Order: 0603287
Project: GAC 3/24/06
Lab ID: 0603287-01

Client Sample ID: GAC INF
Collection Date: 3/24/2006 10:00:00 AM
Date Received: 3/24/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/27/2006 9:03:38 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/27/2006 9:03:38 PM
Surr: DNOP	109	58-140		%REC	1	3/27/2006 9:03:38 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	12	2.0		mg/L	40	3/30/2006 6:02:47 PM
Surr: BFB	103	79.7-118		%REC	40	3/30/2006 6:02:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	140	40		µg/L	40	3/30/2006 6:02:47 PM
Toluene	51	40		µg/L	40	3/30/2006 6:02:47 PM
Ethylbenzene	930	40		µg/L	40	3/30/2006 6:02:47 PM
Xylenes, Total	4300	120		µg/L	40	3/30/2006 6:02:47 PM
Surr: 4-Bromofluorobenzene	109	82.2-119		%REC	40	3/30/2006 6:02:47 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: 04-Apr-06

CLIENT: San Juan Refining

Client Sample ID: GAC 1 EFF

Lab Order: 0603287

Collection Date: 3/24/2006 10:05:00 AM

Project: GAC 3/24/06

Date Received: 3/24/2006

Lab ID: 0603287-02

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/27/2006 9:37:16 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/27/2006 9:37:16 PM
Surr: DNOP	115	58-140		%REC	1	3/27/2006 9:37:16 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/30/2006 6:35:40 PM
Surr: BFB	97.2	79.7-118		%REC	1	3/30/2006 6:35:40 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/30/2006 6:35:40 PM
Toluene	ND	1.0		µg/L	1	3/30/2006 6:35:40 PM
Ethylbenzene	ND	1.0		µg/L	1	3/30/2006 6:35:40 PM
Xylenes, Total	ND	3.0		µg/L	1	3/30/2006 6:35:40 PM
Surr: 4-Bromofluorobenzene	92.4	82.2-119		%REC	1	3/30/2006 6:35:40 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: 04-Apr-06

CLIENT: San Juan Refining

Client Sample ID: GAC 2 EFF

Lab Order: 0603287

Collection Date: 3/24/2006 10:15:00 AM

Project: GAC 3/24/06

Date Received: 3/24/2006

Lab ID: 0603287-03

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/27/2006 10:10:54 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/27/2006 10:10:54 PM
Surr: DNOP	116	58-140		%REC	1	3/27/2006 10:10:54 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/30/2006 7:08:31 PM
Surr: BFB	96.1	79.7-118		%REC	1	3/30/2006 7:08:31 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	3/30/2006 7:08:31 PM
Toluene	ND	1.0		µg/L	1	3/30/2006 7:08:31 PM
Ethylbenzene	ND	1.0		µg/L	1	3/30/2006 7:08:31 PM
Xylenes, Total	ND	3.0		µg/L	1	3/30/2006 7:08:31 PM
Surr: 4-Bromofluorobenzene	89.9	82.2-119		%REC	1	3/30/2006 7:08:31 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

CLIENT: San Juan Refining

Work Order: 0603287

Project: GAC 3/24/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DRO_W

Sample ID: MB-10054	SampType: MBLK	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 3/27/2006	RunNo: 18723
Client ID: ZZZZZ	Batch ID: 10054	TestNo: SW8015		Analysis Date: 3/27/2006	SeqNo: 465260
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-10054	SampType: LCS	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 3/27/2006	RunNo: 18723
Client ID: ZZZZZ	Batch ID: 10054	TestNo: SW8015		Analysis Date: 3/27/2006	SeqNo: 465261
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Diesel Range Organics (DRO) 5.473 1.0 5 0 109 81.2 149

Sample ID: LCSD-10054	SampType: LCSD	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 3/27/2006	RunNo: 18723
Client ID: ZZZZZ	Batch ID: 10054	TestNo: SW8015		Analysis Date: 3/27/2006	SeqNo: 465262
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Diesel Range Organics (DRO) 5.726 1.0 5 0 115 81.2 149 5.473 4.52 23

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: San Juan Refining
 Work Order: 0603287
 Project: GAC 3/24/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 5ML REAGENT BLA	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18778
Client ID: ZZZZZ	Batch ID: R18778	TestNo: SW8015		Analysis Date: 3/30/2006	SeqNo: 466135
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: 18778
Client ID: ZZZZZ	Batch ID: R18778	TestNo: SW8015		Analysis Date: 3/31/2006	SeqNo: 466136
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

Sample ID: 0603287-02A MS	SampType: MS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18778
Client ID: GAC 1 EFF	Batch ID: R18778	TestNo: SW8015		Analysis Date: 3/30/2006	SeqNo: 466146
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	0.4420	0.050	0.5	0	88.4 82.6 114

Sample ID: 0603287-02A MSD	SampType: MSD	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18778
Client ID: GAC 1 EFF	Batch ID: R18778	TestNo: SW8015		Analysis Date: 3/30/2006	SeqNo: 466147
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	0.4440	0.050	0.5	0	88.8 82.6 114 0.442 0.451 8.39

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: San Juan Refining
 Work Order: 0603287
 Project: GAC 3/24/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: 5ML REAGENT BLA	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18778						
Client ID: ZZZZZ	Batch ID: R18778	TestNo: SW8021		Analysis Date: 3/30/2006	SeqNo: 466112						
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									
Xylenes, Total	ND	3.0									

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18778						
Client ID: ZZZZZ	Batch ID: R18778	TestNo: SW8021		Analysis Date: 3/30/2006	SeqNo: 466113						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	20.12	1.0	20	0	101	88.5	114				
Toluene	20.68	1.0	20	0	103	87.2	114				
Ethylbenzene	21.10	1.0	20	0	105	88.6	113				
Xylenes, Total	43.91	3.0	40	0	110	83.3	114				

Sample ID: 0603287-03A MS	SampType: MS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18778						
Client ID: GAC 2 EFF	Batch ID: R18778	TestNo: SW8021		Analysis Date: 3/30/2006	SeqNo: 466132						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	20.69	1.0	20	0	103	88.5	114				
Toluene	21.14	1.0	20	0	106	87.2	114				
Ethylbenzene	21.14	1.0	20	0	106	88.6	113				
Xylenes, Total	44.30	3.0	40	0.654	109	83.3	114				

Sample ID: 0603287-03A MSD	SampType: MSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18778						
Client ID: GAC 2 EFF	Batch ID: R18778	TestNo: SW8021		Analysis Date: 3/30/2006	SeqNo: 466133						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	20.30	1.0	20	0	102	88.5	114	20.69	1.88	27	
Toluene	20.93	1.0	20	0	105	87.2	114	21.14	0.989	19	
Ethylbenzene	20.74	1.0	20	0	104	88.6	113	21.14	1.91	10	

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

ANALYTICAL QC SUMMARY REPORT

CLIENT: San Juan Refining
 Work Order: 0603287
 Project: GAC 3/24/06

TestCode: 8021BTEX_W

Sample ID: 0603287-03A MSD	SampType: MSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18778						
Client ID: GAC 2 EFF	Batch ID: R18778	TestNo: SW8021		Analysis Date: 3/30/2006	SeqNo: 466133						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Xylenes, Total	43.94	3.0	40	0.654	108	83.3	114	44.3	0.811		13

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

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

3/24/2006

Work Order Number 0603287

Received by LMM

Checklist completed by

Signature

Date

Matrix

Carrier name Greyhound

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

Container/Temp Blank temperature?

1°

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: SAN JUAN Refining

Address: #50 Rd 4990

Bloomfield, NM 87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Date

Time

Matrix

Sample I.D. No.

Number/Volume

Preservative

HEAL No.

1

2

3

3-VOA

GAC INF

H₂O

10:40

10:50

10:57

GAC 1 EFF

GAC 2 EFF

HCL

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0603287

3-VOA

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COVER LETTER

Wednesday, April 12, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC Annalysis-4/3/06

Order No.: 0604014

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 3 sample(s) on 4/4/2006 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: 12-Apr-06

CLIENT: San Juan Refining
Lab Order: 0604014
Project: GAC Annalysis-4/3/06
Lab ID: 0604014-01

Client Sample ID: GAC INF
Collection Date: 4/3/2006 9:40:00 AM
Date Received: 4/4/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	15	2.5		mg/L	50	4/10/2006 3:34:49 PM
Surr: BFB	115	79.7-118		%REC	50	4/10/2006 3:34:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	200	50		µg/L	50	4/10/2006 3:34:49 PM
Toluene	54	50		µg/L	50	4/10/2006 3:34:49 PM
Ethylbenzene	880	50		µg/L	50	4/10/2006 3:34:49 PM
Xylenes, Total	4700	150		µg/L	50	4/10/2006 3:34:49 PM
Surr: 4-Bromofluorobenzene	103	82.2-119		%REC	50	4/10/2006 3:34:49 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: 12-Apr-06

CLIENT: San Juan Refining
Lab Order: 0604014
Project: GAC Annalysis-4/3/06
Lab ID: 0604014-02

Client Sample ID: GAC 1 EFF
Collection Date: 4/3/2006 9:50:00 AM
Date Received: 4/4/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/7/2006 9:09:36 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/7/2006 9:09:36 PM
Surr: DNOP	105	58-140		%REC	1	4/7/2006 9:09:36 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/10/2006 3:04:19 PM
Surr: BFB	107	79.7-118		%REC	1	4/10/2006 3:04:19 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/10/2006 3:04:19 PM
Toluene	ND	1.0		µg/L	1	4/10/2006 3:04:19 PM
Ethylbenzene	ND	1.0		µg/L	1	4/10/2006 3:04:19 PM
Xylenes, Total	ND	3.0		µg/L	1	4/10/2006 3:04:19 PM
Surr: 4-Bromofluorobenzene	93.8	82.2-119		%REC	1	4/10/2006 3:04:19 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: 12-Apr-06

CLIENT: San Juan Refining
Lab Order: 0604014
Project: GAC Annalysis-4/3/06
Lab ID: 0604014-03

Client Sample ID: GAC 2 EFF
Collection Date: 4/3/2006 10:00:00 AM
Date Received: 4/4/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/7/2006 9:42:34 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/7/2006 9:42:34 PM
Surr: DNOP	110	58-140		%REC	1	4/7/2006 9:42:34 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/10/2006 2:36:22 PM
Surr: BFB	109	79.7-118		%REC	1	4/10/2006 2:36:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/10/2006 2:36:22 PM
Toluene	ND	1.0		µg/L	1	4/10/2006 2:36:22 PM
Ethylbenzene	ND	1.0		µg/L	1	4/10/2006 2:36:22 PM
Xylenes, Total	ND	3.0		µg/L	1	4/10/2006 2:36:22 PM
Surr: 4-Bromofluorobenzene	95.8	82.2-119		%REC	1	4/10/2006 2:36:22 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

CLIENT: San Juan Refining

Work Order: 0604014

Project: GAC Annalysis-4/3/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DRO_W

Sample ID: MB-10126	SampType: MBLK	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 4/6/2006	RunNo: 18854						
Client ID: ZZZZZ	Batch ID: 10126	TestNo: SW8015		Analysis Date: 4/7/2006	SeqNo: 468281						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: LCS-10126	SampType: LCS	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 4/6/2006	RunNo: 18854						
Client ID: ZZZZZ	Batch ID: 10126	TestNo: SW8015		Analysis Date: 4/7/2006	SeqNo: 468282						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.771	1.0	5	0	135	81.2	149				

Sample ID: LCSD-10126	SampType: LCSD	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 4/6/2006	RunNo: 18854						
Client ID: ZZZZZ	Batch ID: 10126	TestNo: SW8015		Analysis Date: 4/7/2006	SeqNo: 468283						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	7.155	1.0	5	0	143	81.2	149	6.771	5.52		23

4 / 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

ANALYTICAL QC SUMMARY REPORT

CLIENT: San Juan Refining
 Work Order: 0604014
 Project: GAC Annalysis-4/3/06

TestCode: 8015GRO_W

Sample ID: 5ML REAGENT BLA	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18887						
Client ID: ZZZZZ	Batch ID: R18887	TestNo: SW8015		Analysis Date: 4/10/2006	SeqNo: 468681						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 2.5UG GRO LCS	SampType: LCS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18887						
Client ID: ZZZZZ	Batch ID: R18887	TestNo: SW8015		Analysis Date: 4/10/2006	SeqNo: 468682						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 2.5UG GRO LCSD	SampType: LCSD	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18887						
Client ID: ZZZZZ	Batch ID: R18887	TestNo: SW8015		Analysis Date: 4/10/2006	SeqNo: 468683						
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

ANALYTICAL QC SUMMARY REPORT

CLIENT: San Juan Refining
 Work Order: 0604014
 Project: GAC Annalysis-4/3/06

TestCode: 8021BTEX_W

Sample ID: 5ML REAGENT BLA	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18887						
Client ID: ZZZZZ	Batch ID: R18887	TestNo: SW8021		Analysis Date: 4/10/2006	SeqNo: 468647						
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									
Xylenes, Total	ND	3.0									

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18887						
Client ID: ZZZZZ	Batch ID: R18887	TestNo: SW8021		Analysis Date: 4/10/2006	SeqNo: 468648						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	21.40	1.0	20	0	107	88.5	114				
Toluene	21.19	1.0	20	0	106	87.2	114				
Ethylbenzene	20.64	1.0	20	0	103	88.6	113				
Xylenes, Total	41.64	3.0	40	0	104	83.3	114				

Sample ID: 100NG BTEX LCSD	SampType: LCSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18887						
Client ID: ZZZZZ	Batch ID: R18887	TestNo: SW8021		Analysis Date: 4/10/2006	SeqNo: 468649						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	22.44	1.0	20	0	112	88.5	114	21.4	4.77	27	
Toluene	22.28	1.0	20	0	111	87.2	114	21.19	5.04	19	
Ethylbenzene	21.19	1.0	20	0	106	88.6	113	20.64	2.60	10	
Xylenes, Total	42.92	3.0	40	0	107	83.3	114	41.64	3.02	13	

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 SJR

Date and Time Received:

4/4/2006

Work Order Number 0604014

Received by GLS

Checklist completed by

Signature

Date

Matrix

Carrier name UPS

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87106
Tel. 505.345.3975 Fax 505.345.3976
www.hallenvironmental.com

Other:

Project Name:

Project #: CIAC Analysis - 4/03/20

Project #:

Project Manager:

Cindy Hurtado

Samplers Shelly Gordon

Sample Temperature:

Number/Volume

HEAL No.

10/10/20

4-602

GACINE

9.40

67110

DATE _____

010

7-1002

27.11.11

4.50

4-602

GAC2EF

10:00

Relinquished By: (Signature)

Received By: (Signature)

4.4.26

Relinquished By: (Signature)

Received By: (Signature)

[illegible]

Remarks:

COVER LETTER

Friday, April 21, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC Analysis - 4/10/06

Order No.: 0604096

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 4 sample(s) on 4/12/2006 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: 21-Apr-06

CLIENT: San Juan Refining
Project: GAC Analysis - 4/10/06

Lab Order: 0604096

Lab ID:	0604096-01	Collection Date: 4/10/2006 10:00:00 AM				
Client Sample ID:	GAC INF	Matrix: AQUEOUS				
Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: BDH
Benzene	86	10		µg/L	10	4/18/2006 2:33:26 AM
Toluene	13	10		µg/L	10	4/18/2006 2:33:26 AM
Ethylbenzene	790	20		µg/L	20	4/18/2006 8:29:28 PM
Xylenes, Total	4500	60		µg/L	20	4/18/2006 8:29:28 PM
Surr: 4-Bromofluorobenzene	103	82.2-119		%REC	10	4/18/2006 2:33:26 AM

Lab ID:	0604096-02	Collection Date:	4/10/2006 10:15:00 AM			
Client Sample ID:	GAC 1 EFF	Matrix:	AQUEOUS			
Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: BDH
Benzene	ND	1.0		µg/L	1	4/18/2006 3:08:37 AM
Toluene	2.1	1.0		µg/L	1	4/18/2006 3:08:37 AM
Ethylbenzene	ND	1.0		µg/L	1	4/18/2006 3:08:37 AM
Xylenes, Total	ND	3.0		µg/L	1	4/18/2006 3:08:37 AM
Surr: 4-Bromofluorobenzene	97.3	82.2-119		%REC	1	4/18/2006 3:08:37 AM

Lab ID:	0604096-03	Collection Date:	4/10/2006 10:30:00 AM			
Client Sample ID:	GAC 2 EFF	Matrix:	AQUEOUS			
Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: BDH
Benzene	ND	1.0		µg/L	1	4/18/2006 3:43:33 AM
Toluene	ND	1.0		µg/L	1	4/18/2006 3:43:33 AM
Ethylbenzene	ND	1.0		µg/L	1	4/18/2006 3:43:33 AM
Xylenes, Total	ND	3.0		µg/L	1	4/18/2006 3:43:33 AM
Surr: 4-Bromofluorobenzene	92.4	82.2-119		%REC	1	4/18/2006 3:43:33 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	

Hall Environmental Analysis Laboratory

Date: 21-Apr-06

CLIENT: San Juan Refining
Project: GAC Analysis - 4/10/06

Lab Order: 0604096

Lab ID: 0604096-04

Collection Date:

Client Sample ID: Trip Blank

Matrix: TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						
Benzene	ND	1.0		µg/L	1	4/21/2006 12:27:08 AM
Toluene	ND	1.0		µg/L	1	4/21/2006 12:27:08 AM
Ethylbenzene	ND	1.0		µg/L	1	4/21/2006 12:27:08 AM
Xylenes, Total	ND	3.0		µg/L	1	4/21/2006 12:27:08 AM
Surr: 4-Bromofluorobenzene	109	82.2-119		%REC	1	4/21/2006 12:27:08 AM

Analyst: NSB

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: 21-Apr-06

CLIENT:

San Juan Refining

Work Order:

0604096

Project:

GAC Analysis - 4/10/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: 5ml rb 1	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18956						
Client ID: ZZZZZ	Batch ID: R18956	TestNo: SW8021		Analysis Date: 4/17/2006	SeqNo: 471095						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18971						
Client ID: ZZZZZ	Batch ID: R18971	TestNo: SW8021		Analysis Date: 4/18/2006	SeqNo: 471459						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

W
 U

Sample ID: 5ML REAGENT BLA	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18990						
Client ID: ZZZZZ	Batch ID: R18990	TestNo: SW8021		Analysis Date: 4/20/2006	SeqNo: 472245						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18956						
Client ID: ZZZZZ	Batch ID: R18956	TestNo: SW8021		Analysis Date: 4/17/2006	SeqNo: 471096						
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

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

CLIENT: San Juan Refining
Work Order: 0604096
Project: GAC Analysis - 4/10/06

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18956						
Client ID: ZZZZZ	Batch ID: R18956	TestNo: SW8021		Analysis Date: 4/17/2006	SeqNo: 471096						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18971						
Client ID: ZZZZZ	Batch ID: R18971	TestNo: SW8021		Analysis Date: 4/18/2006	SeqNo: 471460						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.86	1.0	20	0	99.3	88.5	114				
Toluene	19.32	1.0	20	0	96.6	87.2	114				
Ethylbenzene	19.97	1.0	20	0	99.8	88.6	113				
Xylenes, Total	40.76	3.0	40	0	102	83.3	114				

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18990						
Client ID: ZZZZZ	Batch ID: R18990	TestNo: SW8021		Analysis Date: 4/20/2006	SeqNo: 472246						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 100NG BTEX LCSD	SampType: LCSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18956						
Client ID: ZZZZZ	Batch ID: R18956	TestNo: SW8021		Analysis Date: 4/18/2006	SeqNo: 471097						
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

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

4/12/2006

Work Order Number 0604096

Received by LMM

Checklist completed by Lisa Hulek 4/12/06
Signature Date

Matrix

Carrier name UPS

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

Container/Temp Blank temperature?

4° C ± 2 Acceptable
If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: 3 vials for each sample were frozen/broken
upon receipt/AT

Corrective Action _____

.....

COVER LETTER

Thursday, April 27, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC - 4/17/06

Order No.: 0604155

Dear Cindy Hurtado:

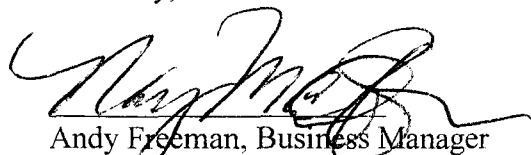
Hall Environmental Analysis Laboratory received 3 sample(s) on 4/18/2006 for the analyses presented in the following report.

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: 27-Apr-06

CLIENT: San Juan Refining
Lab Order: 0604155
Project: GAC - 4/17/06
Lab ID: 0604155-01

Client Sample ID: GAC INF
Collection Date: 4/17/2006 10:00:00 AM
Date Received: 4/18/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/19/2006 10:45:17 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/19/2006 10:45:17 AM
Surr: DNOP	115	58-140		%REC	1	4/19/2006 10:45:17 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	14	1.0		mg/L	20	4/22/2006 8:03:33 AM
Surr: BFB	97.7	79.7-118		%REC	20	4/22/2006 8:03:33 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	65	20		µg/L	20	4/22/2006 8:03:33 AM
Toluene	ND	20		µg/L	20	4/22/2006 8:03:33 AM
Ethylbenzene	820	20		µg/L	20	4/22/2006 8:03:33 AM
Xylenes, Total	5300	150		µg/L	50	4/24/2006 1:43:08 PM
Surr: 4-Bromofluorobenzene	106	82.2-119		%REC	20	4/22/2006 8:03:33 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		

Hall Environmental Analysis Laboratory

Date: 27-Apr-06

CLIENT: San Juan Refining
Lab Order: 0604155
Project: GAC - 4/17/06
Lab ID: 0604155-02

Client Sample ID: GAC 1 EFF
Collection Date: 4/17/2006 10:15:00 AM
Date Received: 4/18/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/19/2006 11:31:12 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/19/2006 11:31:12 AM
Surr: DNOP	128	58-140		%REC	1	4/19/2006 11:31:12 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/22/2006 8:32:32 AM
Surr: BFB	96.6	79.7-118		%REC	1	4/22/2006 8:32:32 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/22/2006 8:32:32 AM
Toluene	ND	1.0		µg/L	1	4/22/2006 8:32:32 AM
Ethylbenzene	ND	1.0		µg/L	1	4/22/2006 8:32:32 AM
Xylenes, Total	ND	3.0		µg/L	1	4/22/2006 8:32:32 AM
Surr: 4-Bromofluorobenzene	105	82.2-119		%REC	1	4/22/2006 8:32:32 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: 27-Apr-06

CLIENT: San Juan Refining
Lab Order: 0604155
Project: GAC - 4/17/06
Lab ID: 0604155-03

Client Sample ID: GAC 2 EFF
Collection Date: 4/17/2006 10:30:00 AM
Date Received: 4/18/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/19/2006 12:04:15 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/19/2006 12:04:15 PM
Surr: DNOP	97.9	58-140		%REC	1	4/19/2006 12:04:15 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/22/2006 9:01:39 AM
Surr: BFB	98.6	79.7-118		%REC	1	4/22/2006 9:01:39 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	4/22/2006 9:01:39 AM
Toluene	ND	1.0		µg/L	1	4/22/2006 9:01:39 AM
Ethylbenzene	ND	1.0		µg/L	1	4/22/2006 9:01:39 AM
Xylenes, Total	ND	3.0		µg/L	1	4/22/2006 9:01:39 AM
Surr: 4-Bromofluorobenzene	107	82.2-119		%REC	1	4/22/2006 9:01:39 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

CLIENT: San Juan Refining

Work Order: 0604155

Project: GAC - 4/17/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DRO_W

Sample ID: MB-10205	SampType: MBLK	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 4/19/2006	RunNo: 18955						
Client ID: ZZZZZ	Batch ID: 10205	TestNo: SW8015		Analysis Date: 4/19/2006	SeqNo: 471491						
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-10205	SampType: LCS	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 4/19/2006	RunNo: 18955						
Client ID: ZZZZZ	Batch ID: 10205	TestNo: SW8015		Analysis Date: 4/19/2006	SeqNo: 471492						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.308	1.0	5	0	106	81.2	149				

Diesel Range Organics (DRO) 5.308 1.0 5 0 106 81.2 149

Sample ID: LCSD-10205	SampType: LCSD	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 4/19/2006	RunNo: 18955						
Client ID: ZZZZZ	Batch ID: 10205	TestNo: SW8015		Analysis Date: 4/19/2006	SeqNo: 471493						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.916	1.0	5	0	118	81.2	149	5.308	10.8		23

Diesel Range Organics (DRO) 5.916 1.0 5 0 118 81.2 149 5.308 10.8 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: San Juan Refining
Work Order: 0604155
Project: GAC - 4/17/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 5ML REAGENT BLA	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 19011
Client ID: ZZZZZ	Batch ID: R19011	TestNo: SW8015		Analysis Date: 4/21/2006	SeqNo: 472823
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 REAGENT BLA	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 19029
Client ID: ZZZZZ	Batch ID: R19029	TestNo: SW8015		Analysis Date: 4/24/2006	SeqNo: 473119
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: 19011
Client ID: ZZZZZ	Batch ID: R19011	TestNo: SW8015		Analysis Date: 4/22/2006	SeqNo: 472824
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	0.4880	0.050	0.5	0	97.6 82.6 114

Sample ID: 2.5UG GRO LCS	SampType: LCS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 19029
Client ID: ZZZZZ	Batch ID: R19029	TestNo: SW8015		Analysis Date: 4/24/2006	SeqNo: 473120
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	0.4800	0.050	0.5	0	96.0 73.3 119

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: San Juan Refining
Work Order: 0604155
Project: GAC - 4/17/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: 5ML REAGENT BLA	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 19011						
Client ID: ZZZZZ	Batch ID: R19011	TestNo: SW8021		Analysis Date: 4/21/2006	SeqNo: 472742						
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
Xylenes, Total ND 3.0

Sample ID: 5ML RB-II	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 19011						
Client ID: ZZZZZ	Batch ID: R19011	TestNo: SW8021		Analysis Date: 4/22/2006	SeqNo: 472803						
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
Xylenes, Total ND 3.0

Sample ID: 5ML REAGENT BLA	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 19029						
Client ID: ZZZZZ	Batch ID: R19029	TestNo: SW8021		Analysis Date: 4/24/2006	SeqNo: 473100						
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
Xylenes, Total ND 3.0

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 19011						
Client ID: ZZZZZ	Batch ID: R19011	TestNo: SW8021		Analysis Date: 4/21/2006	SeqNo: 472743						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene 20.49 1.0 20 0 102 88.5 114
Toluene 20.65 1.0 20 0 103 87.2 114
Ethylbenzene 20.53 1.0 20 0 103 88.6 113

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: San Juan Refining
 Work Order: 0604155
 Project: GAC - 4/17/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 19011						
Client ID: ZZZZZ	Batch ID: R19011	TestNo: SW8021		Analysis Date: 4/21/2006	SeqNo: 472743						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 100NG BTEX LCS-II	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 19011						
Client ID: ZZZZZ	Batch ID: R19011	TestNo: SW8021		Analysis Date: 4/22/2006	SeqNo: 472804						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 19029						
Client ID: ZZZZZ	Batch ID: R19029	TestNo: SW8021		Analysis Date: 4/25/2006	SeqNo: 473101						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 100NG BTEX LCSD	SampType: LCSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 19029						
Client ID: ZZZZZ	Batch ID: R19029	TestNo: SW8021		Analysis Date: 4/25/2006	SeqNo: 473102						
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

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

4/18/2006

Work Order Number 0604155

Received by LMM

Checklist completed by

Lise Halukos
Signature

4/18/06
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?

1°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Corrective Action

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4
www.hallenvironmental.com

Client: San Juan Refining

Address: #57 R/4990

Wm. J. P. 874/13

Phone #: 505-632-4161

Fax #: 505-632-3911

Date	Time	Matrix	Sample I.D. No.
17/06	10AM	H ₂ O	GAC INF
/	1015A	/	GAC 1 EFF
/	1030A	/	GAC 2 EFF

17/06	10AM	H ₂ O	GAC INF
/	/	1015A	GAC 1 EFF
/	/	1030A	GAC 2 EFF

1030A	GAC 2 Eff
-------	-----------

Date:	17/06	Time:	3:30 PM
Date:		Time:	

Relinquished By: (Signature) _____
Relinquished By: (Signature) _____

Received By: (Signature)
 Received By: (Signature)

Received By: (Signature) *[Signature]* 05/19/2006
Received By: (Signature) *[Signature]* 05/18/2006

Remarks:

ANALYSIS REQUEST

[illegible]

Remarks:

COVER LETTER

Friday, April 28, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 4/24/06

Order No.: 0604235

Dear Cindy Hurtado:

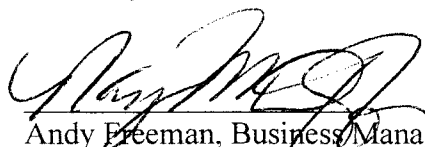
Hall Environmental Analysis Laboratory received 3 sample(s) on 4/25/2006 for the analyses presented in the following report.

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-Apr-06

CLIENT: San Juan Refining
Lab Order: 0604235
Project: GAC Analysis 4/24/06
Lab ID: 0604235-01

Client Sample ID: GAC INF
Collection Date: 4/24/2006 1:00:00 PM
Date Received: 4/25/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/27/2006 10:51:55 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/27/2006 10:51:55 PM
Surr: DNOP	137	58-140		%REC	1	4/27/2006 10:51:55 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	13	1.0		mg/L	20	4/25/2006 4:08:04 PM
Surr: BFB	109	80-123		%REC	20	4/25/2006 4:08:04 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	65	20		µg/L	20	4/25/2006 4:08:04 PM
Toluene	ND	20		µg/L	20	4/25/2006 4:08:04 PM
Ethylbenzene	820	20		µg/L	20	4/25/2006 4:08:04 PM
Xylenes, Total	4600	60		µg/L	20	4/25/2006 4:08:04 PM
Surr: 4-Bromofluorobenzene	99.0	85-115		%REC	20	4/25/2006 4:08:04 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: 28-Apr-06

CLIENT: San Juan Refining
Lab Order: 0604235
Project: GAC Analysis 4/24/06
Lab ID: 0604235-02

Client Sample ID: GAC 1 EFF
Collection Date: 4/24/2006 1:10:00 PM
Date Received: 4/25/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/27/2006 11:25:33 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/27/2006 11:25:33 PM
Surr: DNOP	128	58-140		%REC	1	4/27/2006 11:25:33 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/25/2006 4:38:55 PM
Surr: BFB	90.7	80-123		%REC	1	4/25/2006 4:38:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	ND	1.0		µg/L	1	4/26/2006 4:32:53 PM
Toluene	ND	1.0		µg/L	1	4/26/2006 4:32:53 PM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2006 4:32:53 PM
Xylenes, Total	ND	3.0		µg/L	1	4/26/2006 4:32:53 PM
Surr: 4-Bromofluorobenzene	102	85-115		%REC	1	4/26/2006 4:32:53 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: 28-Apr-06

CLIENT: San Juan Refining
Lab Order: 0604235
Project: GAC Analysis 4/24/06
Lab ID: 0604235-03

Client Sample ID: GAC 2 EFF
Collection Date: 4/24/2006 1:20:00 PM
Date Received: 4/25/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/27/2006 11:59:10 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/27/2006 11:59:10 PM
Surr: DNOP	123	58-140		%REC	1	4/27/2006 11:59:10 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/25/2006 5:09:54 PM
Surr: BFB	93.2	80-123		%REC	1	4/25/2006 5:09:54 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	ND	1.0		µg/L	1	4/26/2006 5:02:00 PM
Toluene	ND	1.0		µg/L	1	4/26/2006 5:02:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2006 5:02:00 PM
Xylenes, Total	ND	3.0		µg/L	1	4/26/2006 5:02:00 PM
Surr: 4-Bromofluorobenzene	105	85-115		%REC	1	4/26/2006 5:02:00 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

CLIENT:

San Juan Refining

Work Order:

0604235

Project:

GAC Analysis 4/24/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DRO_W

Sample ID: MB-10270	SampType: MBLK	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 4/26/2006	RunNo: 19081
Client ID: ZZZZZ	Batch ID: 10270	TestNo: SW8015		Analysis Date: 4/27/2006	SeqNo: 474478
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-10270	SampType: LCS	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 4/26/2006	RunNo: 19081
Client ID: ZZZZZ	Batch ID: 10270	TestNo: SW8015		Analysis Date: 4/27/2006	SeqNo: 474479
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Diesel Range Organics (DRO)	5.461	1.0	5	0	109 81.2 149

Sample ID: LCSD-10270	SampType: LCSD	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 4/26/2006	RunNo: 19081
Client ID: ZZZZZ	Batch ID: 10270	TestNo: SW8015		Analysis Date: 4/27/2006	SeqNo: 474481
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Diesel Range Organics (DRO)	5.477	1.0	5	0	110 81.2 149 5.461 0.294 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: San Juan Refining
Work Order: 0604235
Project: GAC Analysis 4/24/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 19043						
Client ID: ZZZZZ	Batch ID: R19043	TestNo: SW8015		Analysis Date: 4/25/2006	SeqNo: 473397						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 5ML REAGENT BLA	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 19069						
Client ID: ZZZZZ	Batch ID: R19069	TestNo: SW8015		Analysis Date: 4/26/2006	SeqNo: 474215						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 2.5UG GRO LCS	SampType: LCS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 19043						
Client ID: ZZZZZ	Batch ID: R19043	TestNo: SW8015		Analysis Date: 4/25/2006	SeqNo: 473398						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 2.5UG GRO LCS	SampType: LCS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 19069						
Client ID: ZZZZZ	Batch ID: R19069	TestNo: SW8015		Analysis Date: 4/25/2006	SeqNo: 474216						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 0604235-03A MS	SampType: MS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 19043						
Client ID: GAC 2 EFF	Batch ID: R19043	TestNo: SW8015		Analysis Date: 4/25/2006	SeqNo: 473409						
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

ANALYTICAL QC SUMMARY REPORT

CLIENT: San Juan Refining
 Work Order: 0604235
 Project: GAC Analysis 4/24/06

TestCode: 8015GRO_W

Sample ID: 0604235-03A MSD	SampType: MSD	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 19043						
Client ID: GAC 2 EFF	Batch ID: R19043	TestNo: SW8015		Analysis Date: 4/25/2006	SeqNo: 473410						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.4660	0.050	0.5	0	93.2	73.3	119	0.468	0.428		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: San Juan Refining
Work Order: 0604235
Project: GAC Analysis 4/24/06

ANALYTICAL QC SUMMARY REPORT
TestCode: 8021BTEx_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEx_W	Units: µg/L	Prep Date:	RunNo: 19043						
Client ID: ZZZZZ	Batch ID: R19043	TestNo: SW8021		Analysis Date: 4/25/2006	SeqNo: 473382						
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									
Xylenes, Total	ND	3.0									

Sample ID: 5ML REAGENT BLA	SampType: MBLK	TestCode: 8021BTEx_W	Units: µg/L	Prep Date:	RunNo: 19069						
Client ID: ZZZZZ	Batch ID: R19069	TestNo: SW8021		Analysis Date: 4/26/2006	SeqNo: 474175						
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									
Xylenes, Total	ND	3.0									

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 19043						
Client ID: ZZZZZ	Batch ID: R19043	TestNo: SW8021		Analysis Date: 4/25/2006	SeqNo: 473383						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.89	1.0	20	0	99.4	85	115				
Toluene	19.37	1.0	20	0	96.9	85	118				
Ethylbenzene	19.97	1.0	20	0	99.8	85	116				
Xylenes, Total	40.26	3.0	40	0	101	85	119				

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 19069						
Client ID: ZZZZZ	Batch ID: R19069	TestNo: SW8021		Analysis Date: 4/26/2006	SeqNo: 474203						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.61	1.0	20	0	108	85	115				
Toluene	22.04	1.0	20	0	110	85	118				
Ethylbenzene	21.77	1.0	20	0	109	85	116				

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: San Juan Refining
Work Order: 0604235
Project: GAC Analysis 4/24/06

ANALYTICAL QC SUMMARY REPORT
TestCode: 8021BTEX_W

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 19069						
Client ID: ZZZZZ	Batch ID: R19069	TestNo: SW8021		Analysis Date: 4/26/2006	SeqNo: 474203						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 0604235-02A MS	SampType: MS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 19043						
Client ID: GAC 1 EFF	Batch ID: R19043	TestNo: SW8021		Analysis Date: 4/25/2006	SeqNo: 473395						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 0604235-02A MSD	SampType: MSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 19043						
Client ID: GAC 1 EFF	Batch ID: R19043	TestNo: SW8021		Analysis Date: 4/25/2006	SeqNo: 473396						
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

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

4/25/2006

Work Order Number 0604235

Received by LMM

Checklist completed by Lisa T. Fedurko
Signature

4/25/06
Date

Matrix

Carrier name UPS

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/> Not Shipped <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Water - VOA vials have zero headspace?	No VOA vials submitted <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Container/Temp Blank temperature?	<p>2° 4° C ± 2 Acceptable If given sufficient time to cool.</p>		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

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:

Project Name:

Project Name: MAC ANALYSTS 4/24/06

Project #:

Project Manager:

Project Manager: Cindy Hurtado

Sample: Shelly Condon
Sample Temperature: 5

Sample Temperature:

Number/Volume	HEAL No.

HEAL No.

Preservative

$$\text{HgCl}_2 \quad \text{HNO}_3$$

125

4/24/06	1pm	H2O	GAC INF	3-V02	✓	-1
	110pm	↓	GAC 1 EFF	3-V02	✓	-2
✓	120pm	↓	GAC 2 EFF	3-V02	✓	-3

Date:	4/24/06	Time:	2:30 pm	Relinquished By: (Signature)	Cindy Quintana	Received By: (Signature)	J. A. [Signature]	09144
Date:		Time:		Relinquished By: (Signature)		Received By: (Signature)		455026

ANALYSIS REQUEST

BTX + ~~WIDE + WIDE~~ (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, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / PCB's (8082)

82608 (VOA)

8270 (Semi-VOA)

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%

Air Bubbles or Headspace (Y or N)

COVER LETTER

Wednesday, May 10, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC Analysis 5/2/06

Order No.: 0605028

Dear Cindy Hurtado:

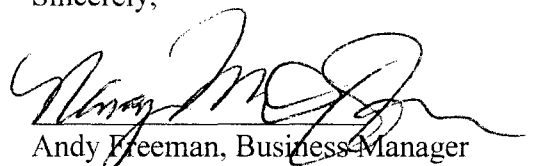
Hall Environmental Analysis Laboratory received 3 sample(s) on 5/3/2006 for the analyses presented in the following report.

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 Analysis Laboratory

Date: 10-May-06

CLIENT: San Juan Refining
Lab Order: 0605028
Project: GAC Analysis 5/2/06
Lab ID: 0605028-01

Client Sample ID: GAC INF
Collection Date: 5/2/2006 8:15:00 AM
Date Received: 5/3/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/10/2006 6:39:50 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/10/2006 6:39:50 AM
Surr: DNOP	93.9	58-140		%REC	1	5/10/2006 6:39:50 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	13	1.0		mg/L	20	5/4/2006 1:49:50 AM
Surr: BFB	93.8	80-123		%REC	20	5/4/2006 1:49:50 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	60	20		µg/L	20	5/4/2006 1:49:50 AM
Toluene	ND	20		µg/L	20	5/4/2006 1:49:50 AM
Ethylbenzene	830	20		µg/L	20	5/4/2006 1:49:50 AM
Xylenes, Total	4500	60		µg/L	20	5/4/2006 1:49:50 AM
Surr: 4-Bromofluorobenzene	99.9	85-115		%REC	20	5/4/2006 1:49:50 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: 10-May-06

CLIENT: San Juan Refining
Lab Order: 0605028
Project: GAC Analysis 5/2/06
Lab ID: 0605028-02

Client Sample ID: GAC 1 EFF
Collection Date: 5/2/2006 8:25:00 AM
Date Received: 5/3/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/10/2006 7:12:02 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/10/2006 7:12:02 AM
Surr: DNOP	139	58-140		%REC	1	5/10/2006 7:12:02 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/4/2006 2:48:02 AM
Surr: BFB	88.7	80-123		%REC	1	5/4/2006 2:48:02 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	5/4/2006 2:48:02 AM
Toluene	ND	1.0		µg/L	1	5/4/2006 2:48:02 AM
Ethylbenzene	ND	1.0		µg/L	1	5/4/2006 2:48:02 AM
Xylenes, Total	ND	3.0		µg/L	1	5/4/2006 2:48:02 AM
Surr: 4-Bromofluorobenzene	93.7	85-115		%REC	1	5/4/2006 2:48:02 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: 10-May-06

CLIENT: San Juan Refining
Lab Order: 0605028
Project: GAC Analysis 5/2/06
Lab ID: 0605028-03

Client Sample ID: GAC 2 EFF
Collection Date: 5/2/2006 8:40:00 AM
Date Received: 5/3/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/10/2006 7:44:15 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/10/2006 7:44:15 AM
Surr: DNOP	127	58-140		%REC	1	5/10/2006 7:44:15 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/4/2006 3:17:05 AM
Surr: BFB	92.1	80-123		%REC	1	5/4/2006 3:17:05 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	5/4/2006 3:17:05 AM
Toluene	ND	1.0		µg/L	1	5/4/2006 3:17:05 AM
Ethylbenzene	ND	1.0		µg/L	1	5/4/2006 3:17:05 AM
Xylenes, Total	ND	3.0		µg/L	1	5/4/2006 3:17:05 AM
Surr: 4-Bromofluorobenzene	97.1	85-115		%REC	1	5/4/2006 3:17:05 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

QA/QC SUMMARY REPORT

Client: San Juan Refining
 Project: GAC Analysis 5/2/06

Work Order: 0605028

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
---------	--------	-------	-----	------	----------	-----------	------	----------	------

Method: SW8015

Batch ID: 10375

Sample ID: MB-10375

MBLK

Analysis Date: 5/9/2006

Diesel Range Organics (DRO) ND mg/L 1.0

Motor Oil Range Organics (MRO) ND mg/L 5.0

Sample ID: LCS-10375

LCS

Analysis Date: 5/9/2006

Diesel Range Organics (DRO) 5.552 mg/L 1.0 111 74 157

Sample ID: LCSD-10375

LCSD

Analysis Date: 5/9/2006

Diesel Range Organics (DRO) 5.738 mg/L 1.0 115 74 157 3.29

23

Method: SW8015

Batch ID: R19148

Sample ID: 5ML REAGENT BLA

MBLK

Analysis Date: 5/3/2006

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: 2.5UG GRO LCS

LCS

Analysis Date: 5/3/2006

Gasoline Range Organics (GRO) 0.4860 mg/L 0.050 97.2 73.3 119

Method: SW8021

Batch ID: R19148

Sample ID: 5ML REAGENT BLA

MBLK

Analysis Date: 5/3/2006

Benzene ND µg/L 1.0

Toluene ND µg/L 1.0

Ethylbenzene ND µg/L 1.0

Xylenes, Total ND µg/L 3.0

Sample ID: 100NG BTEX LCS

LCS

Analysis Date: 5/3/2006

Benzene 21.72 µg/L 1.0 109 85 115

Toluene 23.07 µg/L 1.0 115 85 118

Ethylbenzene 22.01 µg/L 1.0 110 85 116

Xylenes, Total 44.11 µg/L 3.0 110 85 119

Notes:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Split 4/5 very outside accepted recovery limits

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

5/3/2006

Work Order Number 0605028

Received by LMM

Checklist completed by

Signature

Date

Matrix

Carrier name UPS

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

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
1	1
2	2
3	3
4	4
5	5
6	6
7	7
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11	11
12	12
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92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Other:

Project Name: GAC ANALYSIS 5/2/06

Project #:

Project Manager:

Sampler: C1

Sample Temperature:

Preservative:

Number/Volume

HEAL No.

 $\text{HgCl}_2 \quad \text{HNO}_3$

PCED 10

7/2/16	8:15	H2O	GAC INF
✓	8:25	✓	GAC 1 EFF
✓	8:40	✓	GAC 2 EFF

3/02	X	1
3/02	X	2
3/02	X	3

Date:	Time:	Relinquished By: (Signature)
-------	-------	------------------------------

9.00

Received By: (Signature)

三

Date: _____ Time: _____ Relinquished By: (Signature) _____

Received By: (Signature)

ANALYSIS REQUEST

[illegible]

Remarks:

COVER LETTER

Tuesday, May 16, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC Analysis - 5/8/06

Order No.: 0605088

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 3 sample(s) on 5/9/2006 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: 16-May-06

CLIENT: San Juan Refining
Lab Order: 0605088
Project: GAC Analysis - 5/8/06
Lab ID: 0605088-01

Client Sample ID: GAC Inf
Collection Date: 5/8/2006 9:00:00 AM
Date Received: 5/9/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/12/2006 7:26:41 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/12/2006 7:26:41 AM
Surr: DNOP	123	58-140		%REC	1	5/12/2006 7:26:41 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	13	1.0		mg/L	20	5/10/2006 1:59:09 PM
Surr: BFB	95.5	80-123		%REC	20	5/10/2006 1:59:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	60	20		µg/L	20	5/10/2006 1:59:09 PM
Toluene	ND	20		µg/L	20	5/10/2006 1:59:09 PM
Ethylbenzene	850	20		µg/L	20	5/10/2006 1:59:09 PM
Xylenes, Total	4500	60		µg/L	20	5/10/2006 1:59:09 PM
Surr: 4-Bromofluorobenzene	106	85-115		%REC	20	5/10/2006 1:59:09 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: 16-May-06

CLIENT: San Juan Refining
Lab Order: 0605088
Project: GAC Analysis - 5/8/06
Lab ID: 0605088-02

Client Sample ID: GAC-1 Eff
Collection Date: 5/8/2006 9:10:00 AM
Date Received: 5/9/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/12/2006 7:59:09 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/12/2006 7:59:09 AM
Surr: DNOP	127	58-140		%REC	1	5/12/2006 7:59:09 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/10/2006 2:28:25 PM
Surr: BFB	95.6	80-123		%REC	1	5/10/2006 2:28:25 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	ND	1.0		µg/L	1	5/10/2006 2:28:25 PM
Toluene	ND	1.0		µg/L	1	5/10/2006 2:28:25 PM
Ethylbenzene	ND	1.0		µg/L	1	5/10/2006 2:28:25 PM
Xylenes, Total	ND	3.0		µg/L	1	5/10/2006 2:28:25 PM
Surr: 4-Bromofluorobenzene	105	85-115		%REC	1	5/10/2006 2:28:25 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: 16-May-06

CLIENT: San Juan Refining
Lab Order: 0605088
Project: GAC Analysis - 5/8/06
Lab ID: 0605088-03

Client Sample ID: GAC-2 Eff
Collection Date: 5/8/2006 9:20:00 AM
Date Received: 5/9/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/12/2006 8:30:11 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/12/2006 8:30:11 AM
Surr: DNOP	123	58-140		%REC	1	5/12/2006 8:30:11 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/10/2006 2:57:26 PM
Surr: BFB	96.5	80-123		%REC	1	5/10/2006 2:57:26 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	ND	1.0		µg/L	1	5/10/2006 2:57:26 PM
Toluene	ND	1.0		µg/L	1	5/10/2006 2:57:26 PM
Ethylbenzene	ND	1.0		µg/L	1	5/10/2006 2:57:26 PM
Xylenes, Total	ND	3.0		µg/L	1	5/10/2006 2:57:26 PM
Surr: 4-Bromofluorobenzene	107	85-115		%REC	1	5/10/2006 2:57:26 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

QA/QC SUMMARY REPORT

Client: San Juan Refining
 Project: GAC Analysis - 5/8/06

Work Order: 0605088

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
---------	--------	-------	-----	------	----------	-----------	------	----------	------

Method: SW8015

Batch ID: 10398

Sample ID: MB-10398

MBLK

Analysis Date: 5/11/2006

Diesel Range Organics (DRO) ND mg/L 1.0

Motor Oil Range Organics (MRO) ND mg/L 5.0

Sample ID: LCS-10398

LCS

Analysis Date: 5/11/2006

Diesel Range Organics (DRO) 6.604 mg/L 1.0 132 74 157

Sample ID: LCSD-10398

LCSD

Analysis Date: 5/11/2006

Diesel Range Organics (DRO) 6.004 mg/L 1.0 120 74 157 9.52 23

Method: SW8015

Batch ID: R19214

Sample ID: 5ML REAGENT BLA

MBLK

Analysis Date: 5/10/2006

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: 2.5UG GRO LCS

LCS

Analysis Date: 5/10/2006

Gasoline Range Organics (GRO) 0.4740 mg/L 0.050 94.8 73.3 119

Sample ID: 2.5UG GRO LCSD

LCSD

Analysis Date: 5/10/2006

Gasoline Range Organics (GRO) 0.4740 mg/L 0.050 94.8 73.3 119 0 8.39

Method: SW8021

Batch ID: R19214

Sample ID: 5ML REAGENT BLA

MBLK

Analysis Date: 5/10/2006

Benzene ND µg/L 1.0

Toluene ND µg/L 1.0

Ethylbenzene ND µg/L 1.0

Xylenes, Total ND µg/L 3.0

Sample ID: 100NG BTEX LCS

LCS

Analysis Date: 5/10/2006

Benzene 21.20 µg/L 1.0 106 85 115

Toluene 22.66 µg/L 1.0 113 85 118

Ethylbenzene 22.30 µg/L 1.0 111 85 116

Xylenes, Total 45.45 µg/L 3.0 114 85 119

Sample ID: 100NG BTEX LCSD

LCSD

Analysis Date: 5/10/2006

Benzene 21.66 µg/L 1.0 108 85 115 2.16 27

Toluene 23.51 µg/L 1.0 118 85 118 3.67 19

Ethylbenzene 22.97 µg/L 1.0 115 85 116 2.98 10

Xylenes, Total 46.57 µg/L 3.0 116 85 119 2.42 13

ifiers:
 Value above quantitation range
 J Analyte detected below quantitation limits
 R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

5/9/2006

Work Order Number 0605088

Received by GLS

Checklist completed by

Lisa Theodorakis

5/9/06

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?

2°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____



COVER LETTER

Tuesday, May 30, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 5/16/06

Order No.: 0605171

Dear Cindy Hurtado:

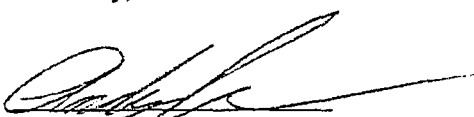
Hall Environmental Analysis Laboratory received 3 sample(s) on 5/17/2006 for the analyses presented in the following report.

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: 30-May-06

CLIENT: San Juan Refining
Lab Order: 0605171
Project: GAC Analysis 5/16/06
Lab ID: 0605171-01

Client Sample ID: GAC INF
Collection Date: 5/16/2006 8:35:00 AM
Date Received: 5/17/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/26/2006 2:47:57 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/26/2006 2:47:57 AM
Surr: DNOP	140	58-140		%REC	1	5/26/2006 2:47:57 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	14	1.0		mg/L	20	5/18/2006 1:00:20 PM
Surr: BFB	95.3	80-123		%REC	20	5/18/2006 1:00:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	84	20		µg/L	20	5/18/2006 1:00:20 PM
Toluene	ND	20		µg/L	20	5/18/2006 1:00:20 PM
Ethylbenzene	930	20		µg/L	20	5/18/2006 1:00:20 PM
Xylenes, Total	4600	60		µg/L	20	5/18/2006 1:00:20 PM
Surr: 4-Bromofluorobenzene	99.5	85-115		%REC	20	5/18/2006 1:00:20 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: 30-May-06

CLIENT: San Juan Refining
Lab Order: 0605171
Project: GAC Analysis 5/16/06
Lab ID: 0605171-02

Client Sample ID: GAC 1 EFF
Collection Date: 5/16/2006 8:45:00 AM
Date Received: 5/17/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/26/2006 3:20:41 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/26/2006 3:20:41 AM
Surr: DNOP	112	58-140		%REC	1	5/26/2006 3:20:41 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/18/2006 1:29:22 PM
Surr: BFB	88.0	80-123		%REC	1	5/18/2006 1:29:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	ND	1.0		µg/L	1	5/18/2006 1:29:22 PM
Toluene	ND	1.0		µg/L	1	5/18/2006 1:29:22 PM
Ethylbenzene	ND	1.0		µg/L	1	5/18/2006 1:29:22 PM
Xylenes, Total	ND	3.0		µg/L	1	5/18/2006 1:29:22 PM
Surr: 4-Bromofluorobenzene	91.8	85-115		%REC	1	5/18/2006 1:29:22 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: 30-May-06

CLIENT: San Juan Refining
Lab Order: 0605171
Project: GAC Analysis 5/16/06
Lab ID: 0605171-03

Client Sample ID: GAC 2 EFF
Collection Date: 5/16/2006 8:55:00 AM
Date Received: 5/17/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/26/2006 3:53:32 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/26/2006 3:53:32 AM
Surr: DNOP	113	58-140		%REC	1	5/26/2006 3:53:32 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/18/2006 1:58:19 PM
Surr: BFB	88.0	80-123		%REC	1	5/18/2006 1:58:19 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	ND	1.0		µg/L	1	5/18/2006 1:58:19 PM
Toluene	ND	1.0		µg/L	1	5/18/2006 1:58:19 PM
Ethylbenzene	ND	1.0		µg/L	1	5/18/2006 1:58:19 PM
Xylenes, Total	ND	3.0		µg/L	1	5/18/2006 1:58:19 PM
Surr: 4-Bromofluorobenzene	91.8	85-115		%REC	1	5/18/2006 1:58:19 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	

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 5/16/06

Work Order: 0605171

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Batch ID: 10456									
Sample ID: MB-10456		MBLK							Analysis Date: 5/26/2006
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-10456									
Batch ID: 10456									
Diesel Range Organics (DRO)	6.750	mg/L	1.0	135	74	157			Analysis Date: 5/26/2006
Sample ID: LCSD-10456									
Batch ID: 10456									
Diesel Range Organics (DRO)	6.576	mg/L	1.0	132	74	157	2.60	23	
Method: SW8015									
Batch ID: R19320									
Sample ID: 5ML REAGENT BLA		MBLK							Analysis Date: 5/18/2006
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS									
Batch ID: 2.5UG GRO LCS									
Gasoline Range Organics (GRO)	0.5060	mg/L	0.050	101	73.3	119			Analysis Date: 5/18/2006
Method: SW8021									
Batch ID: R19320									
Sample ID: 5ML REAGENT BLA		MBLK							Analysis Date: 5/18/2006
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS									
Batch ID: 100NG BTEX LCS									
Benzene	19.91	µg/L	1.0	99.6	85	115			
Toluene	21.02	µg/L	1.0	105	85	118			
Ethylbenzene	20.65	µg/L	1.0	103	85	116			
Xylenes, Total	41.75	µg/L	3.0	104	85	119			

Qualifiers:

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

5/17/2006

Work Order Number 0605171

Received by AT

Checklist completed by

Lisa Haddock
Signature

5/17/06
Date

Matrix

Carrier name UPS

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

Container/Temp Blank temperature?

16°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

COVER LETTER

Monday, June 05, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC Analysis - 5/22/06

Order No.: 0605250

Dear Cindy Hurtado:

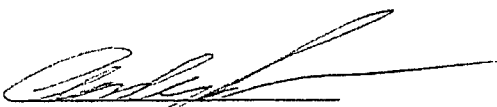
Hall Environmental Analysis Laboratory received 3 sample(s) on 5/23/2006 for the analyses presented in the following report.

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: 05-Jun-06

CLIENT: San Juan Refining
Lab Order: 0605250
Project: GAC Analysis - 5/22/06
Lab ID: 0605250-01

Client Sample ID: GAC INF
Collection Date: 5/22/2006 1:25:00 PM
Date Received: 5/23/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/26/2006 7:43:02 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/26/2006 7:43:02 AM
Surr: DNOP	113	58-140		%REC	1	5/26/2006 7:43:02 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	8.8	1.0		mg/L	20	6/1/2006 4:12:27 PM
Surr: BFB	91.7	80-123		%REC	20	6/1/2006 4:12:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	37	20		µg/L	20	6/1/2006 4:12:27 PM
Toluene	ND	20		µg/L	20	6/1/2006 4:12:27 PM
Ethylbenzene	870	20		µg/L	20	6/1/2006 4:12:27 PM
Xylenes, Total	3300	60		µg/L	20	6/1/2006 4:12:27 PM
Surr: 4-Bromofluorobenzene	97.7	84-115		%REC	20	6/1/2006 4:12:27 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: 05-Jun-06

CLIENT: San Juan Refining
Lab Order: 0605250
Project: GAC Analysis - 5/22/06
Lab ID: 0605250-02

Client Sample ID: GAC 1-EFF
Collection Date: 5/22/2006 1:35:00 PM
Date Received: 5/23/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/26/2006 8:15:50 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/26/2006 8:15:50 AM
Surr: DNOP	110	58-140		%REC	1	5/26/2006 8:15:50 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/1/2006 4:42:51 PM
Surr: BFB	86.2	80-123		%REC	1	6/1/2006 4:42:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	6/1/2006 4:42:51 PM
Toluene	ND	1.0		µg/L	1	6/1/2006 4:42:51 PM
Ethylbenzene	ND	1.0		µg/L	1	6/1/2006 4:42:51 PM
Xylenes, Total	ND	3.0		µg/L	1	6/1/2006 4:42:51 PM
Surr: 4-Bromofluorobenzene	84.7	84-115		%REC	1	6/1/2006 4:42:51 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: 05-Jun-06

CLIENT: San Juan Refining
Lab Order: 0605250
Project: GAC Analysis - 5/22/06
Lab ID: 0605250-03

Client Sample ID: GAC 2-EFF
Collection Date: 5/22/2006 1:45:00 PM
Date Received: 5/23/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/26/2006 8:48:41 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/26/2006 8:48:41 AM
Surr: DNOP	110	58-140		%REC	1	5/26/2006 8:48:41 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/1/2006 5:13:09 PM
Surr: BFB	85.1	80-123		%REC	1	6/1/2006 5:13:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	6/1/2006 5:13:09 PM
Toluene	ND	1.0		µg/L	1	6/1/2006 5:13:09 PM
Ethylbenzene	ND	1.0		µg/L	1	6/1/2006 5:13:09 PM
Xylenes, Total	ND	3.0		µg/L	1	6/1/2006 5:13:09 PM
Surr: 4-Bromofluorobenzene	85.8	84-115		%REC	1	6/1/2006 5:13:09 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

QA/QC SUMMARY REPORT

Client: San Juan Refining
 Subject: GAC Analysis - 5/22/06

Work Order: 0605250

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015								Batch ID: 10500	
Sample ID: MB-10500		MBLK						Analysis Date: 5/26/2006	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-10500		LCS						Analysis Date: 5/26/2006	
Diesel Range Organics (DRO)	5.150	mg/L	1.0	103	74	157			
Sample ID: LCSD-10500		LCSD						Analysis Date: 5/26/2006	
Diesel Range Organics (DRO)	5.271	mg/L	1.0	105	74	157	2.33	23	
Method: SW8015								Batch ID: R19469	
Sample ID: 5ML RB		MBLK						Analysis Date: 6/1/2006	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG LCS		LCS						Analysis Date: 6/1/2006	
Gasoline Range Organics (GRO)	0.4320	mg/L	0.050	86.4	73.3	119			
Method: SW8021								Batch ID: R19469	
Sample ID: 5ML RB		MBLK						Analysis Date: 6/1/2006	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		LCS						Analysis Date: 6/1/2006	
Benzene	19.05	µg/L	1.0	95.2	85	115			
Toluene	19.50	µg/L	1.0	97.5	85	118			
Ethylbenzene	19.25	µg/L	1.0	96.3	85	116			
Xylenes, Total	55.73	µg/L	3.0	99.6	85	119			

Qualifiers:

Value above quantitation range
 Analyte detected below quantitation limits
 R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 S Split / Every outside accepted recovery limits

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

5/23/2006

Work Order Number 0605250

Received by LMM

Checklist completed by [Signature] 5/23/06
Signature Date

Matrix

Carrier name Greyhound

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

Container/Temp Blank temperature?

1°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenviro.com

[illegible]

Phone #:	505-632-4111	Sample:	C. Howard / S. Gorden
Fax #:	505-632-3911	Sample Temperature:	10

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative	HEAL No.
				HgCl ₂	HNO ₃	472605250
BTEX +	BTEX +					
TPH Meq/L	TPH Meq/L					
EDB (Mm)	EDB (Mm)					
EDC (Mm)	EDC (Mm)					
B310 (P)	RGRA B1	Anions (L)				
8081 Pe	8260B I	827D IS				

1:25	H2C	GAC-INTF	3V02	X	-1	X
1:35	↓	GAC1-EFF	3V02	X	-2	X
1:45	↓	GAC2-EFF	3V02	X	-3	X

[illegible][illegible][illegible][illegible][illegible]

Date:	2/24/06	Time:	2:00	Relinquished By: (Signature)	Received By: (Signature)
				<i>[Signature]</i>	<i>[Signature]</i>

ANALYSIS REQUEST

[illegible]

Remarks:

COVER LETTER

Monday, June 12, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 6/1/2006

Order No.: 0606035

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 3 sample(s) on 6/2/2006 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: 12-Jun-06

CLIENT: San Juan Refining
Project: GAC Analysis 6/1/2006
Lab Order: 0606035

CASE NARRATIVE

Analytical Comments for METHOD 8021BTEX_W, SAMPLE 0606035-01A: Elevated surrogate due to matrix interference

Hall Environmental Analysis Laboratory

Date: 12-Jun-06

CLIENT: San Juan Refining
Lab Order: 0606035
Project: GAC Analysis 6/1/2006
Lab ID: 0606035-01

Client Sample ID: GAC INF
Collection Date: 6/1/2006 9:00:00 AM
Date Received: 6/2/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/7/2006 6:47:53 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/7/2006 6:47:53 PM
Surr: DNOP	116	58-140		%REC	1	6/7/2006 6:47:53 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	6.2	1.0		mg/L	20	6/8/2006 2:33:26 PM
Surr: BFB	113	80-123		%REC	20	6/8/2006 2:33:26 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	59	20		µg/L	20	6/8/2006 2:33:26 PM
Toluene	ND	20		µg/L	20	6/8/2006 2:33:26 PM
Ethylbenzene	640	20		µg/L	20	6/8/2006 2:33:26 PM
Xylenes, Total	3100	60		µg/L	20	6/8/2006 2:33:26 PM
Surr: 4-Bromofluorobenzene	115	85-115	S	%REC	20	6/8/2006 2:33:26 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: 12-Jun-06

CLIENT: San Juan Refining
Lab Order: 0606035
Project: GAC Analysis 6/1/2006
Lab ID: 0606035-02

Client Sample ID: GAC 1 EFF
Collection Date: 6/1/2006 9:10:00 AM
Date Received: 6/2/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/7/2006 7:20:57 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/7/2006 7:20:57 PM
Surr: DNOP	123	58-140		%REC	1	6/7/2006 7:20:57 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/8/2006 3:02:37 PM
Surr: BFB	88.2	80-123		%REC	1	6/8/2006 3:02:37 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	ND	1.0		µg/L	1	6/8/2006 3:02:37 PM
Toluene	ND	1.0		µg/L	1	6/8/2006 3:02:37 PM
Ethylbenzene	ND	1.0		µg/L	1	6/8/2006 3:02:37 PM
Xylenes, Total	3.2	3.0		µg/L	1	6/8/2006 3:02:37 PM
Surr: 4-Bromofluorobenzene	87.9	85-115		%REC	1	6/8/2006 3:02:37 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: 12-Jun-06

CLIENT: San Juan Refining
Lab Order: 0606035
Project: GAC Analysis 6/1/2006
Lab ID: 0606035-03

Client Sample ID: GAC 2 EFF
Collection Date: 6/1/2006 9:20:00 AM
Date Received: 6/2/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/7/2006 7:54:00 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/7/2006 7:54:00 PM
Surr: DNOP	121	58-140		%REC	1	6/7/2006 7:54:00 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/8/2006 3:31:51 PM
Surr: BFB	88.4	80-123		%REC	1	6/8/2006 3:31:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	ND	1.0		µg/L	1	6/8/2006 3:31:51 PM
Toluene	ND	1.0		µg/L	1	6/8/2006 3:31:51 PM
Ethylbenzene	ND	1.0		µg/L	1	6/8/2006 3:31:51 PM
Xylenes, Total	ND	3.0		µg/L	1	6/8/2006 3:31:51 PM
Surr: 4-Bromofluorobenzene	88.9	85-115		%REC	1	6/8/2006 3:31:51 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

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 6/1/2006

Work Order: 0606035

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual.
Method: SW8015									
Sample ID: MB-10573		MBLK							
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-10573		LCS							
Diesel Range Organics (DRO)	5.228	mg/L	1.0	105	74	157			
Sample ID: LCSD-10573		LCSD							
Diesel Range Organics (DRO)	5.511	mg/L	1.0	110	74	157	5.27	23	
Method: SW8015									
Sample ID: 5ML RB		MBLK							
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS							
Gasoline Range Organics (GRO)	0.4380	mg/L	0.050	87.6	73.3	119			
Sample ID: 2.5UG GRO LCSD		LCSD							
Gasoline Range Organics (GRO)	0.4400	mg/L	0.050	88.0	73.3	119	0.456	8.39	
Method: SW8021									
Sample ID: 5ML RB		MBLK							
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		LCS							
Benzene	20.86	µg/L	1.0	104	85	115			
Toluene	18.34	µg/L	1.0	91.7	85	118			
Ethylbenzene	18.92	µg/L	1.0	94.6	85	116			
Xylenes, Total	57.89	µg/L	3.0	96.5	85	119			
Sample ID: 100NG BTEX LCSD		LCSD							
Benzene	20.53	µg/L	1.0	103	85	115	1.61	27	
Toluene	18.62	µg/L	1.0	93.1	85	118	1.47	19	
Ethylbenzene	19.23	µg/L	1.0	96.2	85	116	1.64	10	
Xylenes, Total	58.60	µg/L	3.0	97.7	85	119	1.23	13	

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	Sp 5 / 6 overy outside accepted recovery limits

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

6/2/2006

Work Order Number 0606035

Received by AT

Checklist completed by



Date 6/2/06

Matrix

Carrier name UPS

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

Container/Temp Blank temperature?

22°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____



COVER LETTER

Tuesday, June 13, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 6/8/06

Order No.: 0606102

Dear Cindy Hurtado:

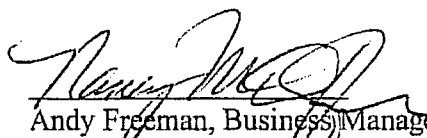
Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 6/9/2006 for the analyses presented in the following report.

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, Inc.

Date: 13-Jun-06

CLIENT: San Juan Refining
Project: GAC Analysis 6/8/06
Lab Order: 0606102

CASE NARRATIVE

Analytical Comments for METHOD 8015GRO & 8021BTEX, SAMPLE 0606102-01A: elevated surrogate due to matrix interference.

Hall Environmental Analysis Laboratory, Inc.

Date: 13-Jun-06

CLIENT: San Juan Refining
Lab Order: 0606102
Project: GAC Analysis 6/8/06
Lab ID: 0606102-01

Client Sample ID: GAC INF
Collection Date: 6/8/2006 12:30:00 PM
Date Received: 6/9/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/12/2006 12:54:24 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/12/2006 12:54:24 PM
Surr: DNOP	115	58-140		%REC	1	6/12/2006 12:54:24 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	10	1.0		mg/L	20	6/12/2006 1:09:14 PM
Surr: BFB	128	80-123	S	%REC	20	6/12/2006 1:09:14 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	480	20		µg/L	20	6/12/2006 1:09:14 PM
Toluene	39	20		µg/L	20	6/12/2006 1:09:14 PM
Ethylbenzene	1200	20		µg/L	20	6/12/2006 1:09:14 PM
Xylenes, Total	3900	60		µg/L	20	6/12/2006 1:09:14 PM
Surr: 4-Bromofluorobenzene	120	85-115	S	%REC	20	6/12/2006 1:09:14 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, Inc.

Date: 13-Jun-06

CLIENT: San Juan Refining
Lab Order: 0606102
Project: GAC Analysis 6/8/06
Lab ID: 0606102-02

Client Sample ID: GAC-1 EFF
Collection Date: 6/8/2006 12:40:00 PM
Date Received: 6/9/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						
						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/12/2006 1:28:03 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/12/2006 1:28:03 PM
Surr: DNOP	118	58-140		%REC	1	6/12/2006 1:28:03 PM
EPA METHOD 8015B: GASOLINE RANGE						
						Analyst: HLM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/12/2006 12:37:34 PM
Surr: BFB	94.1	80-123		%REC	1	6/12/2006 12:37:34 PM
EPA METHOD 8021B: VOLATILES						
						Analyst: HLM
Benzene	ND	1.0		µg/L	1	6/12/2006 12:37:34 PM
Toluene	ND	1.0		µg/L	1	6/12/2006 12:37:34 PM
Ethylbenzene	ND	1.0		µg/L	1	6/12/2006 12:37:34 PM
Xylenes, Total	ND	3.0		µg/L	1	6/12/2006 12:37:34 PM
Surr: 4-Bromofluorobenzene	93.9	85-115		%REC	1	6/12/2006 12:37:34 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

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 6/8/06

Work Order: 0606102

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Batch ID: 10597									
Sample ID: MB-10597		MBLK							Analysis Date: 6/12/2006
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-10597		LCS							Analysis Date: 6/12/2006
Diesel Range Organics (DRO)	5.846	mg/L	1.0	117	74	157			
Sample ID: LCSD-10597		LCSD							Analysis Date: 6/12/2006
Diesel Range Organics (DRO)	5.631	mg/L	1.0	113	74	157	3.75	23	
Method: SW8015									
Batch ID: R19577									
Sample ID: 5ML RB		MBLK							Analysis Date: 6/12/2006
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS							Analysis Date: 6/12/2006
Gasoline Range Organics (GRO)	0.4980	mg/L	0.050	99.6	73.3	119			
Method: SW8021									
Batch ID: R19577									
Sample ID: 5ML RB		MBLK							Analysis Date: 6/12/2006
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		LCS							Analysis Date: 6/12/2006
Benzene	19.95	µg/L	1.0	99.8	85	115			
Toluene	19.22	µg/L	1.0	92.7	85	118			
Ethylbenzene	19.46	µg/L	1.0	94.2	85	116			
Xylenes, Total	60.15	µg/L	3.0	97.4	85	119			

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	Sp ⁴ recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

6/9/2006

Work Order Number 0606102

Received by GLS

Checklist completed by

Signature

Date

Matrix

Carrier name UPS

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

Client: San Juan Refining


Phone #: 505-632-4161
Fax #: 505-632-3911

Date: 6/8/06 Time: 1:10 p

Relinquished By: (Signature)

Date: 6/8/06 Time: 1:10 p

Relinquished By: (Signature)

Date: 6/8/06	Time: 1:10p	Relinquished By: (Signature) 
Date:	Time:	Relinquished By: (Signature)

Received By: (Signature)	6-9-06
Received By: (Signature)	6-9-06

Remarks:

QA / QC Package:	Std <input type="checkbox"/> Level 4 <input type="checkbox"/>
Other:	
Project Name:	GAC Analysis 6/8/06
Project #:	
Project Manager:	Cindy Hurtado
Sampler:	Jolly Cordero
Sample temperature:	30

Number/Volume	Preservative			HEAL No.
	HgCl ₂	HNO ₃	HCL	
3-102			X	1
3-102			X	2

[illegible]

Received By: (Signature)	6-9-06
Received By: (Signature)	6-9-06

Remarks:

ANALYSIS REQUEST

[illegible]

COVER LETTER

Wednesday, June 28, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC Analysis 6/15/06

Order No.: 0606170

Dear Cindy Hurtado:

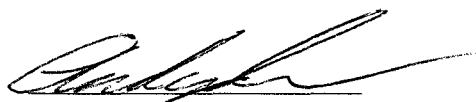
Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 6/16/2006 for the analyses presented in the following report.

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



CLIENT: San Juan Refining
Project: GAC Analysis 6/15/06
Lab Order: 0606170

CASE NARRATIVE

Analytical Comments for METHOD 8021BTEX_W, SAMPLE 0606170-01A: elevated surrogate due to matrix interference Analytical Comments for METHOD 8015GRO_W, SAMPLE 0606170-01A: elevated surrogate due to matrix interference

Hall Environmental Analysis Laboratory, Inc.

Date: 28-Jun-06

CLIENT: San Juan Refining
Lab Order: 0606170
Project: GAC Analysis 6/15/06
Lab ID: 0606170-01

Client Sample ID: GAC INF
Collection Date: 6/15/2006 8:10:00 AM
Date Received: 6/16/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	1.1	1.0		mg/L	1	6/20/2006 11:55:38 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/20/2006 11:55:38 AM
Surr: DNOP	112	58-140		%REC	1	6/20/2006 11:55:38 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	12	1.0		mg/L	20	6/16/2006 1:28:05 PM
Surr: BFB	136	80-123	S	%REC	20	6/16/2006 1:28:05 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	550	20		µg/L	20	6/16/2006 1:28:05 PM
Toluene	ND	20		µg/L	20	6/16/2006 1:28:05 PM
Ethylbenzene	1300	20		µg/L	20	6/16/2006 1:28:05 PM
Xylenes, Total	4600	60		µg/L	20	6/16/2006 1:28:05 PM
Surr: 4-Bromofluorobenzene	126	85-115	S	%REC	20	6/16/2006 1:28:05 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, Inc.

Date: 28-Jun-06

CLIENT: San Juan Refining
Lab Order: 0606170
Project: GAC Analysis 6/15/06
Lab ID: 0606170-02

Client Sample ID: GAC-1 EFF
Collection Date: 6/15/2006 8:20:00 AM
Date Received: 6/16/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/20/2006 12:28:41 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/20/2006 12:28:41 PM
Surr: DNOP	109	58-140		%REC	1	6/20/2006 12:28:41 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/16/2006 1:57:13 PM
Surr: BFB	93.7	80-123		%REC	1	6/16/2006 1:57:13 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	ND	1.0		µg/L	1	6/16/2006 1:57:13 PM
Toluene	ND	1.0		µg/L	1	6/16/2006 1:57:13 PM
Ethylbenzene	1.7	1.0		µg/L	1	6/16/2006 1:57:13 PM
Xylenes, Total	5.7	3.0		µg/L	1	6/16/2006 1:57:13 PM
Surr: 4-Bromofluorobenzene	88.6	85-115		%REC	1	6/16/2006 1:57:13 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, Inc.

Date: 28-Jun-06

CLIENT: San Juan Refining
Lab Order: 0606170
Project: GAC Analysis 6/15/06
Lab ID: 0606170-03

Client Sample ID: GAC-2 EFF
Collection Date: 6/15/2006 8:30:00 AM
Date Received: 6/16/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/20/2006 1:00:11 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/20/2006 1:00:11 PM
Surr: DNOP	116	58-140		%REC	1	6/20/2006 1:00:11 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/16/2006 2:26:20 PM
Surr: BFB	94.0	80-123		%REC	1	6/16/2006 2:26:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	ND	1.0		µg/L	1	6/16/2006 2:26:20 PM
Toluene	ND	1.0		µg/L	1	6/16/2006 2:26:20 PM
Ethylbenzene	ND	1.0		µg/L	1	6/16/2006 2:26:20 PM
Xylenes, Total	ND	3.0		µg/L	1	6/16/2006 2:26:20 PM
Surr: 4-Bromofluorobenzene	89.7	85-115		%REC	1	6/16/2006 2:26:20 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

QA/QC SUMMARY REPORT

Client: San Juan Refining
 Project: GAC Analysis 6/15/06

Work Order: 0606170

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
---------	--------	-------	-----	------	----------	-----------	------	----------	------

Method: SW8015 Batch ID: 10636

Sample ID: MB-10636 MBLK Analysis Date: 6/20/2006

Diesel Range Organics (DRO) ND mg/L 1.0

Motor Oil Range Organics (MRO) ND mg/L 5.0

Sample ID: LCS-10636 LCS Analysis Date: 6/20/2006

Diesel Range Organics (DRO) 5.244 mg/L 1.0 105 74 157

Sample ID: LCSD-10636 LCSD Analysis Date: 6/20/2006

Diesel Range Organics (DRO) 5.056 mg/L 1.0 101 74 157 3.66 23

Method: SW8015 Batch ID: R19614

Sample ID: 5ML RB MBLK Analysis Date: 6/16/2006

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: 2.5UG GRO LCS LCS Analysis Date: 6/16/2006

Gasoline Range Organics (GRO) 0.5200 mg/L 0.050 104 73.3 119

Method: SW8021 Batch ID: R19614

Sample ID: 5ML RB MBLK Analysis Date: 6/16/2006

Benzene ND µg/L 1.0

Toluene ND µg/L 1.0

Ethylbenzene ND µg/L 1.0

Xylenes, Total ND µg/L 3.0

Sample ID: 100NG BTEX LCS LCS Analysis Date: 6/16/2006

Benzene 19.07 µg/L 1.0 95.3 85 115

Toluene 17.79 µg/L 1.0 89.0 85 118

Ethylbenzene 18.12 µg/L 1.0 90.6 85 116

Xylenes, Total 55.36 µg/L 3.0 92.3 85 119

Qualifiers:

E Value above quantitation range
 J Analyte detected below quantitation limits
 R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

6/16/2006

Work Order Number 0606170

Received by AT

Checklist completed by

Signature

Date

6/16/06

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?

7°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenviro.com

QA/QC Package: ☐ Level 4 ☐

Other:

Project Name:

Client: San Juan delina

Address: #50 Rd. 4990

Bloomfield, NM 87113

Project Manager:

Cindy Hurtado

Sampler: Shirley A. Johnson

Sample Temperature: 7 °C

Phone #: 505-632-4161

Fax #: 505-632-3911

Date _____

Time

Matrix

Sample I.D. No.

Number/Volume

HEAL No.

Preservative

$$\text{HgCl}_2 \quad \text{HNO}_3$$
$$\text{HgCl}_2 \quad \text{HNO}_3$$
$$\text{HgCl}_2 \quad \text{HNO}_3$$

10/5/06	8:10	430	CAC, INF	3-102	X-100-176-1
---------	------	-----	----------	-------	-------------

[illegible]

1	11:00	CAF-3 EFF	3-162
2	11:00	CAF-3 EFF	3-162
3	11:00	CAF-3 EFF	3-162
4	11:00	CAF-3 EFF	3-162
5	11:00	CAF-3 EFF	3-162
6	11:00	CAF-3 EFF	3-162
7	11:00	CAF-3 EFF	3-162
8	11:00	CAF-3 EFF	3-162
9	11:00	CAF-3 EFF	3-162
10	11:00	CAF-3 EFF	3-162
11	11:00	CAF-3 EFF	3-162
12	11:00	CAF-3 EFF	3-162
13	11:00	CAF-3 EFF	3-162
14	11:00	CAF-3 EFF	3-162
15	11:00	CAF-3 EFF	3-162
16	11:00	CAF-3 EFF	3-162
17	11:00	CAF-3 EFF	3-162
18	11:00	CAF-3 EFF	3-162
19	11:00	CAF-3 EFF	3-162
20	11:00	CAF-3 EFF	3-162
21	11:00	CAF-3 EFF	3-162
22	11:00	CAF-3 EFF	3-162
23	11:00	CAF-3 EFF	3-162
24	11:00	CAF-3 EFF	3-162
25	11:00	CAF-3 EFF	3-162
26	11:00	CAF-3 EFF	3-162
27	11:00	CAF-3 EFF	3-162
28	11:00	CAF-3 EFF	3-162
29	11:00	CAF-3 EFF	3-162
30	11:00	CAF-3 EFF	3-162
31	11:00	CAF-3 EFF	3-162
32	11:00	CAF-3 EFF	3-162
33	11:00	CAF-3 EFF	3-162
34	11:00	CAF-3 EFF	3-162
35	11:00	CAF-3 EFF	3-162
36	11:00	CAF-3 EFF	3-162
37	11:00	CAF-3 EFF	3-162
38	11:00	CAF-3 EFF	3-162
39	11:00	CAF-3 EFF	3-162
40	11:00	CAF-3 EFF	3-162
41	11:00	CAF-3 EFF	3-162
42	11:00	CAF-3 EFF	3-162
43	11:00	CAF-3 EFF	3-162
44	11:00	CAF-3 EFF	3-162
45	11:00	CAF-3 EFF	3-162
46	11:00	CAF-3 EFF	3-162
47	11:00	CAF-3 EFF	3-162
48	11:00	CAF-3 EFF	3-162
49	11:00	CAF-3 EFF	3-162
50	11:00	CAF-3 EFF	3-162
51	11:00	CAF-3 EFF	3-162
52	11:00	CAF-3 EFF	3-162
53	11:00	CAF-3 EFF	3-162
54	11:00	CAF-3 EFF	3-162
55	11:00	CAF-3 EFF	3-162
56	11:00	CAF-3 EFF	3-162
57	11:00	CAF-3 EFF	3-162
58	11:00	CAF-3 EFF	3-162
59	11:00	CAF-3 EFF	3-162
60	11:00	CAF-3 EFF	3-162
61	11:00	CAF-3 EFF	3-162
62	11:00	CAF-3 EFF	3-162
63	11:00	CAF-3 EFF	3-162
64	11:00	CAF-3 EFF	3-162
65	11:00	CAF-3 EFF	3-162
66	11:00	CAF-3 EFF	3-162
67	11:00	CAF-3 EFF	3-162
68	11:00	CAF-3 EFF	3-162
69	11:00	CAF-3 EFF	3-162
70	11:00	CAF-3 EFF	3-162
71	11:00	CAF-3 EFF	3-162
72	11:00	CAF-3 EFF	3-162
73	11:00	CAF-3 EFF	3-162
74	11:00	CAF-3 EFF	3-162
75	11:00	CAF-3 EFF	3-162
76	11:00	CAF-3 EFF	3-162
77	11:00	CAF-3 EFF	3-162
78	11:00	CAF-3 EFF	3-162
79	11:00	CAF-3 EFF	3-162
80	11:00	CAF-3 EFF	3-162
81	11:00	CAF-3 EFF	3-162
82	11:00	CAF-3 EFF	3-162
83	11:00	CAF-3 EFF	3-162
84	11:00	CAF-3 EFF	3-162
85	11:00	CAF-3 EFF	3-162
86	11:00	CAF-3 EFF	3-162
87	11:00	CAF-3 EFF	3-162
88			

Date:	Time:
-------	-------

Time:

Relinquished By: (Signature)

Relinquished By: (Signature)

Received By: (Signature)

Received By: (Signature)

Date:	Time:
-------	-------

Time:

Relinquished By: (Signature)

Relinquished By: (Signature)

Received By: (Signature)

Received By: (Signature)

ANALYSIS REQUEST

[illegible]

Remarks:

COVER LETTER

Wednesday, June 28, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC Analysis - 6/21/2006

Order No.: 0606237

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 6/22/2006 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



CLIENT: San Juan Refining
Project: GAC Analysis - 6/21/2006
Lab Order: 0606237

CASE NARRATIVE

Analytical Comments for METHOD 8015GRO_W, SAMPLE 0606237-01A: elevated surrogate due to matrix interference

Hall Environmental Analysis Laboratory, Inc.

Date: 28-Jun-06

CLIENT: San Juan Refining
Lab Order: 0606237
Project: GAC Analysis - 6/21/2006
Lab ID: 0606237-01

Client Sample ID: GAC Inf
Collection Date: 6/21/2006 8:20:00 AM
Date Received: 6/22/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	1.3	1.0		mg/L	1	6/27/2006 8:58:59 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2006 8:58:59 AM
Surr: DNOP	121	58-140		%REC	1	6/27/2006 8:58:59 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	13	1.0		mg/L	20	6/22/2006 7:13:52 PM
Surr: BFB	136	80-123	S	%REC	20	6/22/2006 7:13:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	780	20		µg/L	20	6/22/2006 7:13:52 PM
Toluene	ND	20		µg/L	20	6/22/2006 7:13:52 PM
Ethylbenzene	1600	20		µg/L	20	6/22/2006 7:13:52 PM
Xylenes, Total	5000	60		µg/L	20	6/22/2006 7:13:52 PM
Surr: 4-Bromofluorobenzene	122	72.2-125		%REC	20	6/22/2006 7:13:52 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, Inc.

Date: 28-Jun-06

CLIENT: San Juan Refining
Lab Order: 0606237
Project: GAC Analysis - 6/21/2006
Lab ID: 0606237-02

Client Sample ID: GAC 1 - Eff
Collection Date: 6/21/2006 8:30:00 AM
Date Received: 6/22/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/27/2006 9:31:26 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2006 9:31:26 AM
Surr: DNOP	115	58-140		%REC	1	6/27/2006 9:31:26 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/23/2006 2:15:55 PM
Surr: BFB	91.9	80-123		%REC	1	6/23/2006 2:15:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	ND	1.0		µg/L	1	6/23/2006 2:15:55 PM
Toluene	ND	1.0		µg/L	1	6/23/2006 2:15:55 PM
Ethylbenzene	ND	1.0		µg/L	1	6/23/2006 2:15:55 PM
Xylenes, Total	ND	3.0		µg/L	1	6/23/2006 2:15:55 PM
Surr: 4-Bromofluorobenzene	86.5	72.2-125		%REC	1	6/23/2006 2:15:55 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, Inc.

Date: 28-Jun-06

CLIENT: San Juan Refining
Lab Order: 0606237
Project: GAC Analysis - 6/21/2006
Lab ID: 0606237-03

Client Sample ID: GAC 2 - Eff
Collection Date: 6/21/2006 8:40:00 AM
Date Received: 6/22/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/27/2006 10:03:55 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2006 10:03:55 AM
Surr: DNOP	108	58-140		%REC	1	6/27/2006 10:03:55 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/22/2006 8:41:11 PM
Surr: BFB	89.9	80-123		%REC	1	6/22/2006 8:41:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Benzene	ND	1.0		µg/L	1	6/22/2006 8:41:11 PM
Toluene	ND	1.0		µg/L	1	6/22/2006 8:41:11 PM
Ethylbenzene	ND	1.0		µg/L	1	6/22/2006 8:41:11 PM
Xylenes, Total	ND	3.0		µg/L	1	6/22/2006 8:41:11 PM
Surr: 4-Bromofluorobenzene	82.4	72.2-125		%REC	1	6/22/2006 8:41:11 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

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis - 6/21/2006

Work Order: 0606237

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Batch ID: 10667									
Sample ID: MB-10667									
MBLK									
Analysis Date: 6/27/2006									
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-10667									
LCS									
Analysis Date: 6/27/2006									
Diesel Range Organics (DRO)	6.384	mg/L	1.0	128	74	157			
Sample ID: LCSD-10667									
LCSD									
Analysis Date: 6/27/2006									
Diesel Range Organics (DRO)	5.478	mg/L	1.0	110	74	157	15.3	23	
Method: SW8015									
Batch ID: R19665									
Sample ID: 5ML RB									
MBLK									
Analysis Date: 6/22/2006									
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB									
MBLK									
Analysis Date: 6/23/2006									
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS									
LCS									
Analysis Date: 6/22/2006									
Gasoline Range Organics (GRO)	0.5040	mg/L	0.050	101	73.3	119			
Sample ID: 2.5UG GRO LCS									
LCS									
Analysis Date: 6/23/2006									
Gasoline Range Organics (GRO)	0.4780	mg/L	0.050	95.6	73.3	119			
Method: SW8021									
Batch ID: R19665									
Sample ID: 5ML RB									
MBLK									
Analysis Date: 6/22/2006									
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 5ML RB									
MBLK									
Analysis Date: 6/23/2006									
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS									
LCS									
Analysis Date: 6/22/2006									
Benzene	18.63	µg/L	1.0	93.2	85	115			
Toluene	17.48	µg/L	1.0	87.4	85	118			
Ethylbenzene	17.83	µg/L	1.0	89.2	85	116			
Xylenes, Total	55.30	µg/L	3.0	92.2	85	119			
Sample ID: 100NG BTEX LCS									
LCS									
Analysis Date: 6/23/2006									
Benzene	19.05	µg/L	1.0	95.3	85	115			
Toluene	18.52	µg/L	1.0	89.5	85	118			
Ethylbenzene	18.95	µg/L	1.0	94.8	85	116			
Xylenes, Total	58.28	µg/L	3.0	94.8	85	119			

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

6/22/2006

Work Order Number 0606237

Received by GLS

Checklist completed by

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?

15°

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: San Juan Refining

Address: #50204990

Blomfield, NM 87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Date

Time

Matrix

Sample I.D. No.

Number/Volume

Preservative

HgCl₂

HNO₃

HEAL No.

6/21/06 8:20 H2O GAC INF 3-Vol

6/21/06 8:30 H2O GAC 1-EFF 3-Vol

6/21/06 8:40 H2O GAC 2-EFF 3-Vol

Date: 6/21/06 Time: 8:55

Date: 6/21/06 Time: 8:55

Date: 6/21/06 Time: 8:55

Date: 6/21/06 Time: 8:55

Relinquished By: (Signature)

Relinquished By: (Signature)

Relinquished By: (Signature)

Relinquished By: (Signature)

Received By: (Signature)

Received By: (Signature)

Received By: (Signature)

Received By: (Signature)

Remarks:

Remarks:

Remarks:

Remarks:

QA/QC Package:

Std ☐ Level 4 ☐

Other:

Project Name:

CrAC Analysis - 6/21/06

Project #:

Project Manager:

Cindy Hurtado

Sampler:

Shelly Cowden

Sample Temperature:

15

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

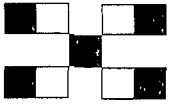
Anions (F, Cl, NO₂, NO₃, PO₄, SO₄)

8081 Pesticides / PCB's (8082)

8260B (VOA)

8270 (Semi-VOA)

Air Bubbles or Headspace (Y or N)



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

COVER LETTER

Friday, July 07, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC Analysis 6/27/06

Order No.: 0606303

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 6/28/2006 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



CLIENT: San Juan Refining
Project: GAC Analysis 6/27/06
Lab Order: 0606303

CASE NARRATIVE

Analytical Comments for METHOD 8015GRO_W, SAMPLE 0606303-01A: Elevated surrogate due to matrix interference.

Hall Environmental Analysis Laboratory, Inc.

Date: 07-Jul-06

CLIENT: San Juan Refining
Lab Order: 0606303
Project: GAC Analysis 6/27/06
Lab ID: 0606303-01

Client Sample ID: GAC INF
Collection Date: 6/27/2006 9:15:00 AM
Date Received: 6/28/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/3/2006 12:38:18 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/3/2006 12:38:18 AM
Surr: DNOP	120	58-140		%REC	1	7/3/2006 12:38:18 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	13	1.0		mg/L	20	7/5/2006 12:51:21 AM
Surr: BFB	144	80-123	S	%REC	20	7/5/2006 12:51:21 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	880	20		µg/L	20	7/5/2006 12:51:21 AM
Toluene	170	20		µg/L	20	7/5/2006 12:51:21 AM
Ethylbenzene	1700	20		µg/L	20	7/5/2006 12:51:21 AM
Xylenes, Total	5000	150		µg/L	50	7/6/2006 9:41:55 PM
Surr: 4-Bromofluorobenzene	110	72.2-125		%REC	50	7/6/2006 9:41:55 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, Inc.

Date: 07-Jul-06

CLIENT: San Juan Refining
Lab Order: 0606303
Project: GAC Analysis 6/27/06
Lab ID: 0606303-02

Client Sample ID: GAC-1EFF
Collection Date: 6/27/2006 9:25:00 AM
Date Received: 6/28/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/3/2006 1:11:07 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/3/2006 1:11:07 AM
Surr: DNOP	125	58-140		%REC	1	7/3/2006 1:11:07 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/5/2006 1:49:10 AM
Surr: BFB	97.6	80-123		%REC	1	7/5/2006 1:49:10 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	7/6/2006 11:09:22 PM
Toluene	ND	1.0		µg/L	1	7/6/2006 11:09:22 PM
Ethylbenzene	ND	1.0		µg/L	1	7/6/2006 11:09:22 PM
Xylenes, Total	ND	3.0		µg/L	1	7/6/2006 11:09:22 PM
Surr: 4-Bromofluorobenzene	97.7	72.2-125		%REC	1	7/6/2006 11:09:22 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, Inc.

Date: 07-Jul-06

CLIENT: San Juan Refining
Lab Order: 0606303
Project: GAC Analysis 6/27/06
Lab ID: 0606303-03

Client Sample ID: GAC-2EFF
Collection Date: 6/27/2006 9:35:00 AM
Date Received: 6/28/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/3/2006 2:16:44 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/3/2006 2:16:44 AM
Surr: DNOP	124	58-140		%REC	1	7/3/2006 2:16:44 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/5/2006 2:18:23 AM
Surr: BFB	93.0	80-123		%REC	1	7/5/2006 2:18:23 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	7/6/2006 11:38:25 PM
Toluene	ND	1.0		µg/L	1	7/6/2006 11:38:25 PM
Ethylbenzene	ND	1.0		µg/L	1	7/6/2006 11:38:25 PM
Xylenes, Total	ND	3.0		µg/L	1	7/6/2006 11:38:25 PM
Surr: 4-Bromofluorobenzene	97.8	72.2-125		%REC	1	7/6/2006 11:38:25 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

QA/QC SUMMARY REPORT

Client: San Juan Refining
 Project: GAC Analysis 6/27/06

Work Order: 0606303

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-10713		MBLK			Batch ID: 10713	Analysis Date: 7/2/2006 4:58:10 PM			
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-10713		LCS			Batch ID: 10713	Analysis Date: 7/2/2006 5:31:29 PM			
Diesel Range Organics (DRO)	7.056	mg/L	1.0	141	74	157			
Sample ID: LCSD-10713		LCSD			Batch ID: 10713	Analysis Date: 7/2/2006 6:37:38 PM			
Diesel Range Organics (DRO)	6.177	mg/L	1.0	124	74	157	13.3	23	
Method: SW8015									
Sample ID: 5ML RB		MBLK			Batch ID: R19780	Analysis Date: 7/3/2006 9:15:29 AM			
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS			Batch ID: R19780	Analysis Date: 7/3/2006 11:12:04 AM			
Gasoline Range Organics (GRO)	0.4500	mg/L	0.050	90.0	73.3	119			
Sample ID: 2.5UG GRO LCSD		LCSD			Batch ID: R19780	Analysis Date: 7/5/2006 5:44:42 AM			
Gasoline Range Organics (GRO)	0.4080	mg/L	0.050	81.6	73.3	119	9.79	15	
Method: SW8021									
Sample ID: B		MBLK			Batch ID: R19780	Analysis Date: 7/4/2006 7:11:53 PM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: B		MBLK			Batch ID: R19810	Analysis Date: 7/6/2006 7:08:46 PM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS-II		LCS			Batch ID: R19780	Analysis Date: 7/4/2006 5:44:51 PM			
Benzene	21.10	µg/L	1.0	106	85	115			
Toluene	20.86	µg/L	1.0	104	85	118			
Ethylbenzene	21.25	µg/L	1.0	106	85	116			
Xylenes, Total	63.10	µg/L	3.0	105	85	119			
Sample ID: 100NG BTEX ICV		LCS			Batch ID: R19810	Analysis Date: 7/6/2006 4:18:18 PM			
Benzene	20.54	µg/L	1.0	103	85	115			
Toluene	19.67	µg/L	1.0	98.4	85	118			
Ethylbenzene	19.91	µg/L	1.0	99.6	85	116			
Xylenes, Total	60.07	µg/L	3.0	100	85	119			
Sample ID: 100NG BTEX ICV-B		LCSD			Batch ID: R19810	Analysis Date: 7/6/2006 4:47:28 PM			
Benzene	19.23	µg/L	1.0	96.2	85	115	6.57	27	
Toluene	20.02	µg/L	1.0	100	85	118	1.74	19	
Ethylbenzene	20.32	µg/L	1.0	102	85	116	2.00	10	
Xylenes, Total	61.62	µg/L	3.0	103	85	119	2.55	13	

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	Spik - recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

6/28/2006

Work Order Number 0606303

Received by GLS

Checklist completed by

Signature

Date

Matrix

Carrier name UPS

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

Container/Temp Blank temperature?

16°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

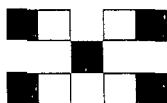
Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenviro.com



BTEX + MTBE + TPAH (Gasoline Or BTEX + MTBE + TPAH (8021)
TPH Method 8015B (Gas/Diesel)
TPH (Method 418.1)
EDB (Method 504.1)
EDC (Method 8021)
8310 (PNA or PAH)
RCA 8 Metals
Anions (F^{-} , Cl^{-} , NO_3^{-} , PO_4^{3-} , SO_4^{2-})
8081 Pesticides / PCB's (8082)
8260B (VOA)
8270 (Semi)-VOA
Air Bubbles or Headspace (Y or N)

[illegible]

COVER LETTER

Wednesday, July 12, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 7/6/06

Dear Cindy Hurtado:

Order No.: 0607055

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 7/7/2006 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, Inc.

Date: 12-Jul-06

CLIENT: San Juan Refining
Lab Order: 0607055
Project: GAC Analysis 7/6/06
Lab ID: 0607055-01

Client Sample ID: GAC-Inf
Collection Date: 7/6/2006 8:00:00 AM
Date Received: 7/7/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/10/2006 1:14:24 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/10/2006 1:14:24 PM
Surr: DNOP	117	58-140		%REC	1	7/10/2006 1:14:24 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	11	2.5		mg/L	50	7/11/2006 4:22:50 PM
Surr: BFB	120	80-123		%REC	50	7/11/2006 4:22:50 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	640	50		µg/L	50	7/11/2006 4:22:50 PM
Toluene	ND	50		µg/L	50	7/11/2006 4:22:50 PM
Ethylbenzene	1400	50		µg/L	50	7/11/2006 4:22:50 PM
Xylenes, Total	3900	150		µg/L	50	7/11/2006 4:22:50 PM
Surr: 4-Bromofluorobenzene	107	72.2-125		%REC	50	7/11/2006 4:22:50 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, Inc.

Date: 12-Jul-06

CLIENT: San Juan Refining
Lab Order: 0607055
Project: GAC Analysis 7/6/06
Lab ID: 0607055-02

Client Sample ID: GAC-1-EFF
Collection Date: 7/6/2006 8:10:00 AM
Date Received: 7/7/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/10/2006 1:47:26 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/10/2006 1:47:26 PM
Surr: DNOP	123	58-140		%REC	1	7/10/2006 1:47:26 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/11/2006 5:21:01 PM
Surr: BFB	103	80-123		%REC	1	7/11/2006 5:21:01 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	7/11/2006 5:21:01 PM
Toluene	ND	1.0		µg/L	1	7/11/2006 5:21:01 PM
Ethylbenzene	ND	1.0		µg/L	1	7/11/2006 5:21:01 PM
Xylenes, Total	ND	3.0		µg/L	1	7/11/2006 5:21:01 PM
Surr: 4-Bromofluorobenzene	99.1	72.2-125		%REC	1	7/11/2006 5:21:01 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, Inc.

Date: 12-Jul-06

CLIENT: San Juan Refining
Lab Order: 0607055
Project: GAC Analysis 7/6/06
Lab ID: 0607055-03

Client Sample ID: GAC-2-EFF
Collection Date: 7/6/2006 8:20:00 AM
Date Received: 7/7/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/10/2006 2:20:29 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/10/2006 2:20:29 PM
Surr: DNOP	120	58-140		%REC	1	7/10/2006 2:20:29 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/11/2006 5:50:14 PM
Surr: BFB	103	80-123		%REC	1	7/11/2006 5:50:14 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	7/11/2006 5:50:14 PM
Toluene	ND	1.0		µg/L	1	7/11/2006 5:50:14 PM
Ethylbenzene	ND	1.0		µg/L	1	7/11/2006 5:50:14 PM
Xylenes, Total	ND	3.0		µg/L	1	7/11/2006 5:50:14 PM
Surr: 4-Bromofluorobenzene	100	72.2-125		%REC	1	7/11/2006 5:50:14 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

QA/QC SUMMARY REPORT

Client: San Juan Refining
 Project: GAC Analysis 7/6/06

Work Order: 0607055

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-10772		MBLK			Batch ID: 10772	Analysis Date: 7/10/2006 11:36:04 AM			
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-10772		LCS			Batch ID: 10772	Analysis Date: 7/10/2006 12:08:51 PM			
Diesel Range Organics (DRO)	5.884	mg/L	1.0	118	74	157			
Sample ID: LCSD-10772		LCSD			Batch ID: 10772	Analysis Date: 7/10/2006 12:41:38 PM			
Diesel Range Organics (DRO)	6.480	mg/L	1.0	130	74	157	9.65	23	
Method: SW8015									
Sample ID: 5ML RB		MBLK			Batch ID: R19868	Analysis Date: 7/11/2006 8:11:30 AM			
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS			Batch ID: R19868	Analysis Date: 7/12/2006 2:06:53 AM			
Gasoline Range Organics (GRO)	0.4700	mg/L	0.050	94.0	73.3	119			
Sample ID: 2.5UG GRO LCSD		LCSD			Batch ID: R19868	Analysis Date: 7/12/2006 2:35:53 AM			
Gasoline Range Organics (GRO)	0.4760	mg/L	0.050	95.2	73.3	119	1.27	8.39	
Method: SW8021									
Sample ID: 5ML RB		MBLK			Batch ID: R19868	Analysis Date: 7/11/2006 8:11:30 AM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R19868	Analysis Date: 7/11/2006 7:20:12 PM			
Benzene	18.97	µg/L	1.0	94.8	85	115			
Toluene	17.83	µg/L	1.0	89.1	85	118			
Ethylbenzene	18.23	µg/L	1.0	91.1	85	116			
Xylenes, Total	56.77	µg/L	3.0	93.1	85	119			
Sample ID: 100NG BTEX LCSD		LCSD			Batch ID: R19868	Analysis Date: 7/11/2006 7:49:12 PM			
Benzene	19.72	µg/L	1.0	98.6	85	115	3.88	27	
Toluene	19.09	µg/L	1.0	95.4	85	118	6.84	19	
Ethylbenzene	19.91	µg/L	1.0	99.6	85	116	8.83	10	
Xylenes, Total	61.88	µg/L	3.0	102	85	119	8.61	13	

Modifiers:

V	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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

7/7/2006

Work Order Number 0607085

Received by AT

Checklist completed by

Signature

Date

7/7/06

Matrix

Carrier name UPS

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

Container/Temp Blank temperature?

10°

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: San Juan Refining

Address: #50 Rd 4990
Bloomfield, NM 87413

Phone #: 505-632-4161
 Fax #: 505-632-3911

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative	HEAL No.
7/6/06	8:00	H2O	GAC-INF	3-VOL	X	0607055-1
7/6/06	8:10	H2O	GAC 1-EFF	3-VOL	X	-2
7/6/06	8:30	H2O	GAC 2-EFF	3-VOL	X	-3

Date: 7/6/06 Time: 9:05a Relinquished By: (Signature) [Signature]
 Date: 7/6/06 Time: 9:26 Relinquished By: (Signature) [Signature]

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

Project Name: GAC Analysis 7/6/06

Project #:

Project Manager: Cindy Hurtado

Sampler: Shelly Cowden

Sample Temperature: 60

TPH Method 8015B (Gas/Diesel)	BTEX + MTBE + TPH (Gasoline Only)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PMA or PAH)	PCRA 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										
X	X										

Received By: (Signature) [Signature] 7/6/06
 Received By: (Signature) [Signature] 0926

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

COVER LETTER

Wednesday, July 26, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC Analysis 7/13/06

Order No.: 0607160

Dear Cindy Hurtado:

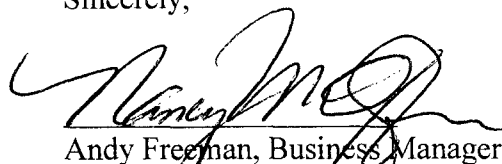
Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 7/14/2006 for the analyses presented in the following report.

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, Inc.

Date: 26-Jul-06

CLIENT: San Juan Refining
Lab Order: 0607160
Project: GAC Analysis 7/13/06
Lab ID: 0607160-01

Client Sample ID: GAC-Inf
Collection Date: 7/13/2006 12:30:00 PM
Date Received: 7/14/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	1.3	1.0		mg/L	1	7/19/2006 10:35:50 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/19/2006 10:35:50 PM
Surr: DNOP	133	58-140		%REC	1	7/19/2006 10:35:50 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	16	2.5		mg/L	50	7/25/2006 1:35:01 PM
Surr: BFB	120	80-123		%REC	50	7/25/2006 1:35:01 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	260	50		µg/L	50	7/25/2006 1:35:01 PM
Toluene	ND	50		µg/L	50	7/25/2006 1:35:01 PM
Ethylbenzene	740	50		µg/L	50	7/25/2006 1:35:01 PM
Xylenes, Total	2100	150		µg/L	50	7/25/2006 1:35:01 PM
Surr: 4-Bromofluorobenzene	95.6	72.2-125		%REC	50	7/25/2006 1:35:01 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, Inc.

Date: 26-Jul-06

CLIENT: San Juan Refining
Lab Order: 0607160
Project: GAC Analysis 7/13/06
Lab ID: 0607160-02

Client Sample ID: GAC-1-Eff
Collection Date: 7/13/2006 12:40:00 PM
Date Received: 7/14/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/20/2006 8:40:36 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/20/2006 8:40:36 AM
Surr: DNOP	131	58-140		%REC	1	7/20/2006 8:40:36 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/25/2006 2:04:04 PM
Surr: BFB	115	80-123		%REC	1	7/25/2006 2:04:04 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	7/25/2006 2:04:04 PM
Toluene	ND	1.0		µg/L	1	7/25/2006 2:04:04 PM
Ethylbenzene	ND	1.0		µg/L	1	7/25/2006 2:04:04 PM
Xylenes, Total	ND	3.0		µg/L	1	7/25/2006 2:04:04 PM
Surr: 4-Bromofluorobenzene	99.4	72.2-125		%REC	1	7/25/2006 2:04:04 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, Inc.

Date: 26-Jul-06

CLIENT: San Juan Refining
Lab Order: 0607160
Project: GAC Analysis 7/13/06
Lab ID: 0607160-03

Client Sample ID: GAC-2-Eff
Collection Date: 7/13/2006 12:50:00 PM
Date Received: 7/14/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/20/2006 9:11:34 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/20/2006 9:11:34 AM
Surr: DNOP	129	58-140		%REC	1	7/20/2006 9:11:34 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/25/2006 2:33:08 PM
Surr: BFB	116	80-123		%REC	1	7/25/2006 2:33:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	7/25/2006 2:33:08 PM
Toluene	ND	1.0		µg/L	1	7/25/2006 2:33:08 PM
Ethylbenzene	ND	1.0		µg/L	1	7/25/2006 2:33:08 PM
Xylenes, Total	ND	3.0		µg/L	1	7/25/2006 2:33:08 PM
Surr: 4-Bromofluorobenzene	100	72.2-125		%REC	1	7/25/2006 2:33:08 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

QA/QC SUMMARY REPORT

Client: San Juan Refining
 Project: GAC Analysis 7/13/06

Work Order: 0607160

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-10823		MBLK			Batch ID: 10823	Analysis Date: 7/19/2006 8:58:44 PM			
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-10823		LCS			Batch ID: 10823	Analysis Date: 7/19/2006 9:31:45 PM			
Diesel Range Organics (DRO)	6.061	mg/L	1.0	121	74	157			
Sample ID: LCSD-10823		LCSD			Batch ID: 10823	Analysis Date: 7/19/2006 10:03:04 PM			
Diesel Range Organics (DRO)	6.292	mg/L	1.0	126	74	157	3.73	23	
Method: SW8015									
Sample ID: 5ML RB-II		MBLK			Batch ID: R20028	Analysis Date: 7/25/2006 11:36:36 AM			
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS			Batch ID: R20028	Analysis Date: 7/25/2006 9:18:46 PM			
Gasoline Range Organics (GRO)	0.4820	mg/L	0.050	96.4	73.3	119			
Method: SW8021									
Sample ID: 5ML RB-II		MBLK			Batch ID: R20028	Analysis Date: 7/25/2006 11:36:36 AM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R20028	Analysis Date: 7/25/2006 6:54:04 PM			
Benzene	18.39	µg/L	1.0	92.0	85	115			
Toluene	18.61	µg/L	1.0	89.0	85	118			
Ethylbenzene	18.21	µg/L	1.0	91.0	85	116			
Xylenes, Total	55.85	µg/L	3.0	91.7	85	119			

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	Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

7/14/2006

Work Order Number 0607160

Received by NJM

Checklist completed by

Signature

Date

Matrix:

Carrier name: Greyhound

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?

1°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____



Corrective Action _____

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

QA/QC Package:

Std  Level 4 

Other:

Project Name:

GAC Analysis 7/3/06
Project #:

Project #:

Project Manager:

Cindy Hertado

Sampler: Shelly Carden

Sample Temperature:

Number	Volume	Preservative	HEAL No.
--------	--------	--------------	----------

Sample I.D. No.

Matrix

Date _____ Time _____

12.30	H ₂ O	GAC-Inf	3-Vol	X	2/2/2017
12.40	↓	GAC1-Eff	3-Vol	X	2
12.50	↓	GAC2-Eff	3-Vol	X	3

Remarks:

Received By: (Signature)	7/14/12
Received By: (Signature)	10:10

Date: 7/5/06	Time: 1:40	Relinquished By: (Signature)
Date:	Time:	Relinquished By: (Signature)

COVER LETTER

Wednesday, July 26, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC Analysis 7/20/06

Order No.: 0607245

Dear Cindy Hurtado:

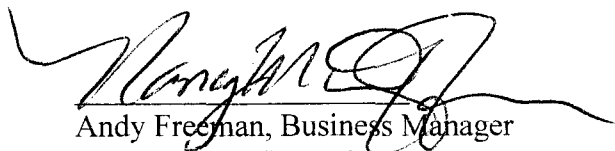
Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 7/21/2006 for the analyses presented in the following report.

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, Inc.

Date: 26-Jul-06

CLIENT: San Juan Refining
Lab Order: 0607245
Project: GAC Analysis 7/20/06
Lab ID: 0607245-01

Client Sample ID: GAC Inf.
Collection Date: 7/20/2006 8:20:00 AM
Date Received: 7/21/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	1.2	1.0		mg/L	1	7/24/2006 5:16:51 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/24/2006 5:16:51 PM
Surr: DNOP	131	58-140		%REC	1	7/24/2006 5:16:51 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	19	2.5		mg/L	50	7/26/2006 2:11:10 AM
Surr: BFB	123	80-123		%REC	50	7/26/2006 2:11:10 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	420	50		µg/L	50	7/26/2006 2:11:10 AM
Toluene	ND	50		µg/L	50	7/26/2006 2:11:10 AM
Ethylbenzene	1200	50		µg/L	50	7/26/2006 2:11:10 AM
Xylenes, Total	2900	150		µg/L	50	7/26/2006 2:11:10 AM
Surr: 4-Bromofluorobenzene	92.0	72.2-125		%REC	50	7/26/2006 2:11:10 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, Inc.

Date: 26-Jul-06

CLIENT: San Juan Refining
Lab Order: 0607245
Project: GAC Analysis 7/20/06
Lab ID: 0607245-02

Client Sample ID: GAC1-EFF
Collection Date: 7/20/2006 8:30:00 AM
Date Received: 7/21/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/24/2006 5:50:14 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/24/2006 5:50:14 PM
Surr: DNOP	126	58-140		%REC	1	7/24/2006 5:50:14 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/26/2006 2:40:01 AM
Surr: BFB	112	80-123		%REC	1	7/26/2006 2:40:01 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	7/26/2006 2:40:01 AM
Toluene	ND	1.0		µg/L	1	7/26/2006 2:40:01 AM
Ethylbenzene	ND	1.0		µg/L	1	7/26/2006 2:40:01 AM
Xylenes, Total	ND	3.0		µg/L	1	7/26/2006 2:40:01 AM
Surr: 4-Bromofluorobenzene	97.8	72.2-125		%REC	1	7/26/2006 2:40:01 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, Inc.

Date: 26-Jul-06

CLIENT: San Juan Refining
Lab Order: 0607245
Project: GAC Analysis 7/20/06
Lab ID: 0607245-03

Client Sample ID: GAC2-EFF
Collection Date: 7/20/2006 8:40:00 AM
Date Received: 7/21/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/24/2006 6:23:32 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/24/2006 6:23:32 PM
Surr: DNOP	134	58-140		%REC	1	7/24/2006 6:23:32 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/26/2006 3:09:01 AM
Surr: BFB	108	80-123		%REC	1	7/26/2006 3:09:01 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	7/26/2006 3:09:01 AM
Toluene	ND	1.0		µg/L	1	7/26/2006 3:09:01 AM
Ethylbenzene	ND	1.0		µg/L	1	7/26/2006 3:09:01 AM
Xylenes, Total	ND	3.0		µg/L	1	7/26/2006 3:09:01 AM
Surr: 4-Bromofluorobenzene	90.8	72.2-125		%REC	1	7/26/2006 3:09:01 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

QA/QC SUMMARY REPORT

Client: San Juan Refining
 Project: GAC Analysis 7/20/06

Work Order: 0607245

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-10860		MBLK			Batch ID: 10860	Analysis Date: 7/24/2006 3:35:57 PM			
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-10860		LCS			Batch ID: 10860	Analysis Date: 7/24/2006 4:09:35 PM			
Diesel Range Organics (DRO)	6.831	mg/L	1.0	137	74	157			
Sample ID: LCSD-10860		LCSD			Batch ID: 10860	Analysis Date: 7/24/2006 4:43:13 PM			
Diesel Range Organics (DRO)	6.671	mg/L	1.0	133	74	157	2.38	23	
Method: SW8015									
Sample ID: 5ML RB-II		MBLK			Batch ID: R20028	Analysis Date: 7/25/2006 11:36:36 AM			
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS			Batch ID: R20028	Analysis Date: 7/25/2006 9:18:46 PM			
Gasoline Range Organics (GRO)	0.4820	mg/L	0.050	96.4	73.3	119			
Method: SW8021									
Sample ID: 5ML RB-II		MBLK			Batch ID: R20028	Analysis Date: 7/25/2006 11:36:36 AM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R20028	Analysis Date: 7/25/2006 6:54:04 PM			
Benzene	18.39	µg/L	1.0	92.0	85	115			
Toluene	18.61	µg/L	1.0	89.0	85	118			
Ethylbenzene	18.21	µg/L	1.0	91.0	85	116			
Xylenes, Total	55.85	µg/L	3.0	91.7	85	119			

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

7/21/2006

Work Order Number 0607245

Received by GLS

Checklist completed by

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?

22°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____



COVER LETTER

Tuesday, August 01, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 7/27/06

Order No.: 0607324

Dear Cindy Hurtado:


Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 7/28/2006 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, Inc.

Date: 01-Aug-06

CLIENT: San Juan Refining
Lab Order: 0607324
Project: GAC Analysis 7/27/06
Lab ID: 0607324-01

Client Sample ID: GAC Inf.
Collection Date: 7/27/2006 8:20:00 AM
Date Received: 7/28/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/29/2006 12:45:28 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/29/2006 12:45:28 AM
Surr: DNOP	122	58-140		%REC	1	7/29/2006 12:45:28 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	16	2.5		mg/L	50	7/31/2006 12:36:15 PM
Surr: BFB	118	80-123		%REC	50	7/31/2006 12:36:15 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	140	50		µg/L	50	7/31/2006 12:36:15 PM
Toluene	ND	50		µg/L	50	7/31/2006 12:36:15 PM
Ethylbenzene	590	50		µg/L	50	7/31/2006 12:36:15 PM
Xylenes, Total	1800	150		µg/L	50	7/31/2006 12:36:15 PM
Surr: 4-Bromofluorobenzene	90.1	72.2-125		%REC	50	7/31/2006 12:36:15 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, Inc.

Date: 01-Aug-06

CLIENT: San Juan Refining
Lab Order: 0607324
Project: GAC Analysis 7/27/06
Lab ID: 0607324-02

Client Sample ID: GAC1-EFF
Collection Date: 7/27/2006 8:30:00 AM
Date Received: 7/28/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/29/2006 1:18:13 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/29/2006 1:18:13 AM
Surr: DNOP	113	58-140		%REC	1	7/29/2006 1:18:13 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/31/2006 1:05:11 PM
Surr: BFB	117	80-123		%REC	1	7/31/2006 1:05:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	7/31/2006 1:05:11 PM
Toluene	ND	1.0		µg/L	1	7/31/2006 1:05:11 PM
Ethylbenzene	ND	1.0		µg/L	1	7/31/2006 1:05:11 PM
Xylenes, Total	ND	3.0		µg/L	1	7/31/2006 1:05:11 PM
Surr: 4-Bromofluorobenzene	101	72.2-125		%REC	1	7/31/2006 1:05:11 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, Inc.

Date: 01-Aug-06

CLIENT: San Juan Refining
Lab Order: 0607324
Project: GAC Analysis 7/27/06
Lab ID: 0607324-03

Client Sample ID: GAC2-EFF
Collection Date: 7/27/2006 8:40:00 AM
Date Received: 7/28/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/29/2006 1:51:00 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/29/2006 1:51:00 AM
Surr: DNOP	121	58-140		%REC	1	7/29/2006 1:51:00 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/31/2006 1:34:08 PM
Surr: BFB	106	80-123		%REC	1	7/31/2006 1:34:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	7/31/2006 1:34:08 PM
Toluene	ND	1.0		µg/L	1	7/31/2006 1:34:08 PM
Ethylbenzene	ND	1.0		µg/L	1	7/31/2006 1:34:08 PM
Xylenes, Total	ND	3.0		µg/L	1	7/31/2006 1:34:08 PM
Surr: 4-Bromofluorobenzene	98.0	72.2-125		%REC	1	7/31/2006 1:34:08 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

QA/QC SUMMARY REPORT

Client: San Juan Refining
 Project: GAC Analysis 7/27/06

Work Order: 0607324

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-10899		MBLK			Batch ID: 10899		Analysis Date: 7/28/2006 10:02:09 PM		
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-10899		LCS			Batch ID: 10899		Analysis Date: 7/28/2006 10:34:54 PM		
Diesel Range Organics (DRO)	6.142	mg/L	1.0	123	74	157			
Sample ID: LCSD-10899		LCSD			Batch ID: 10899		Analysis Date: 7/28/2006 11:07:25 PM		
Diesel Range Organics (DRO)	6.015	mg/L	1.0	120	74	157	2.09	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		MBLK			Batch ID: R20102		Analysis Date: 7/31/2006 9:39:32 AM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS			Batch ID: R20102		Analysis Date: 7/31/2006 6:26:40 PM		
Gasoline Range Organics (GRO)	0.5140	mg/L	0.050	96.0	73.3	119			
Sample ID: 2.5UG GRO LCSD		LCSD			Batch ID: R20102		Analysis Date: 7/31/2006 6:57:18 PM		
Gasoline Range Organics (GRO)	0.5080	mg/L	0.050	94.8	73.3	119	1.17	8.39	
Method: SW8021									
Sample ID: 5ML REAGENT BLA		MBLK			Batch ID: R20102		Analysis Date: 7/31/2006 9:39:32 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R20102		Analysis Date: 7/31/2006 8:24:15 PM		
Benzene	19.10	µg/L	1.0	95.5	85	115			
Toluene	20.09	µg/L	1.0	100	85	118			
Ethylbenzene	20.01	µg/L	1.0	100	85	116			
Xylenes, Total	62.35	µg/L	3.0	103	85	119			
Sample ID: 100NG BTEX LCSD		LCSD			Batch ID: R20102		Analysis Date: 7/31/2006 8:53:12 PM		
Benzene	20.10	µg/L	1.0	100	85	115	5.09	27	
Toluene	19.97	µg/L	1.0	99.8	85	118	0.629	19	
Ethylbenzene	19.96	µg/L	1.0	99.8	85	116	0.250	10	
Xylenes, Total	61.47	µg/L	3.0	101	85	119	1.42	13	

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	Snike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

7/28/2006

Work Order Number 0607324

Received by GLS

Checklist completed by

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?

4°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

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

87BTEX + MTBE + THS (8021)
BTEX + MTBE + TPH (Gasoline On
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, NO₃, NO₂, PO₄, SO₄)
8081 Pesticides / PCB's (8082)
8260B (VOA)
8270 (Semi-VOA)
Air Bubbles or Headspace (Y or N)

Remarks:

[illegible]



COVER LETTER

Friday, September 08, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 8/29/06

Order No.: 0608345

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 8/30/2006 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, Inc.

Date: 08-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	GAC Inf.
Lab Order:	0608345	Collection Date:	8/29/2006 8:30:00 AM
Project:	GAC Analysis 8/29/06	Date Received:	8/30/2006
Lab ID:	0608345-01	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/7/2006 7:39:31 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/7/2006 7:39:31 PM
Surr: DNOP	139	58-140		%REC	1	9/7/2006 7:39:31 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	24	1.0		mg/L	20	9/6/2006 4:58:24 PM
Surr: BFB	142	84.5-129	S	%REC	20	9/6/2006 4:58:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	61	20		µg/L	20	9/6/2006 4:58:24 PM
Toluene	ND	20		µg/L	20	9/6/2006 4:58:24 PM
Ethylbenzene	970	20		µg/L	20	9/6/2006 4:58:24 PM
Xylenes, Total	4100	60		µg/L	20	9/6/2006 4:58:24 PM
Surr: 4-Bromofluorobenzene	86.5	72.2-125		%REC	20	9/6/2006 4:58:24 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, Inc.

Date: 08-Sep-06

CLIENT: San Juan Refining
Lab Order: 0608345
Project: GAC Analysis 8/29/06
Lab ID: 0608345-02

Client Sample ID: GAC 1 Eff.
Collection Date: 8/29/2006 8:40:00 AM
Date Received: 8/30/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/7/2006 8:14:51 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/7/2006 8:14:51 PM
Surr: DNOP	133	58-140		%REC	1	9/7/2006 8:14:51 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/6/2006 5:56:21 PM
Surr: BFB	112	84.5-129		%REC	1	9/6/2006 5:56:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	9/6/2006 5:56:21 PM
Toluene	ND	1.0		µg/L	1	9/6/2006 5:56:21 PM
Ethylbenzene	ND	1.0		µg/L	1	9/6/2006 5:56:21 PM
Xylenes, Total	ND	3.0		µg/L	1	9/6/2006 5:56:21 PM
Surr: 4-Bromofluorobenzene	93.2	72.2-125		%REC	1	9/6/2006 5:56:21 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, Inc.

Date: 08-Sep-06

CLIENT:	San Juan Refining	Client Sample ID:	GAC 2 Eff.
Lab Order:	0608345	Collection Date:	8/29/2006 8:50:00 AM
Project:	GAC Analysis 8/29/06	Date Received:	8/30/2006
Lab ID:	0608345-03	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/7/2006 8:50:13 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/7/2006 8:50:13 PM
Surr: DNOP	131	58-140		%REC	1	9/7/2006 8:50:13 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/6/2006 6:25:20 PM
Surr: BFB	116	84.5-129		%REC	1	9/6/2006 6:25:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	9/6/2006 6:25:20 PM
Toluene	ND	1.0		µg/L	1	9/6/2006 6:25:20 PM
Ethylbenzene	ND	1.0		µg/L	1	9/6/2006 6:25:20 PM
Xylenes, Total	ND	3.0		µg/L	1	9/6/2006 6:25:20 PM
Surr: 4-Bromofluorobenzene	95.5	72.2-125		%REC	1	9/6/2006 6:25:20 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	

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 8/29/06

Work Order: 0608345

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-11186		MBLK			Batch ID: 11186	Analysis Date: 9/7/2006 5:53:18 PM			
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-11186		LCS			Batch ID: 11186	Analysis Date: 9/7/2006 6:28:42 PM			
Diesel Range Organics (DRO)	6.756	mg/L	1.0	135	74	157			
Sample ID: LCSD-11186		LCSD			Batch ID: 11186	Analysis Date: 9/7/2006 7:04:04 PM			
Diesel Range Organics (DRO)	7.587	mg/L	1.0	152	74	157	11.6	23	
Method: SW8015									
Sample ID: 5ml reagent blank 2		MBLK			Batch ID: R20581	Analysis Date: 9/6/2006 11:07:46 AM			
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5ug gro lcs 24		LCS			Batch ID: R20581	Analysis Date: 9/6/2006 9:48:09 PM			
Gasoline Range Organics (GRO)	0.4740	mg/L	0.050	94.8	73.3	119			
Sample ID: 2.5ug gro lcscd 25		LCSD			Batch ID: R20581	Analysis Date: 9/6/2006 10:17:00 PM			
Gasoline Range Organics (GRO)	0.5040	mg/L	0.050	101	73.3	119	6.13	8.39	
Method: SW8021									
Sample ID: 5ML REAGENT BLA		MBLK			Batch ID: R20581	Analysis Date: 9/6/2006 11:07:46 AM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R20581	Analysis Date: 9/6/2006 10:45:52 PM			
Benzene	21.00	µg/L	1.0	105	85	115			
Toluene	21.78	µg/L	1.0	109	85	118			
Ethylbenzene	23.42	µg/L	1.0	117	85	116			S
Xylenes, Total	67.49	µg/L	3.0	111	85	119			
Sample ID: 100NG BTEX LCSD		LCSD			Batch ID: R20581	Analysis Date: 9/6/2006 11:14:40 PM			
Benzene	20.84	µg/L	1.0	104	85	115	0.746	27	
Toluene	20.71	µg/L	1.0	104	85	118	5.06	19	
Ethylbenzene	21.79	µg/L	1.0	109	85	116	7.20	10	
Xylenes, Total	64.96	µg/L	3.0	107	85	119	3.83	13	

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

8/30/2006

Work Order Number 0608345

Received by GLS

Checklist completed by

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?

7°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Corrective Action

Client: San Juan Refining

Address: #50 Rd 1490

Barfield N18713

Phone #: 505-633-7161

EX #: 505-633-3911

Date	Time	Matrix	Sample I.D. No.
------	------	--------	-----------------

8/29/06	8:30	H2O	CAC Inf
---------	------	-----	---------

8.40	CALIF
------	-------

8:50	GAC 2 ECF
------	-----------

Date: 10/1/11 Date: 10/1/11

Time: 9:00	Relinquished By: (Signature)
Time: 9:00	Relinquished By: (Signature)

Time: Relinquished By: (Signature)

Received By: (Signature) *[Signature]* 8-30-02
1130
Received By: (Signature)

Received By: (Signature)

QA/QC Package: ☐ Std ☐ Level 4 ☐

Other:

Project Name:

Project Name: CAC Analysis 8/29/06

Project #:

Project Manager:

Sampler: Shelly Cowden

Sample Temperature:	70
---------------------	----

Number/Volume

HEAL No. 3-

100	100	100
-----	-----	-----

HgCl ₂	HND ₃	HC	Q008345	HEAL No.
-------------------	------------------	----	---------	----------

X		

X		

4		

Remarks:

**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

[illegible]

COVER LETTER

Wednesday, September 27, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC Analysis 9/13/06

Order No.: 0609153

Dear Cindy Hurtado:

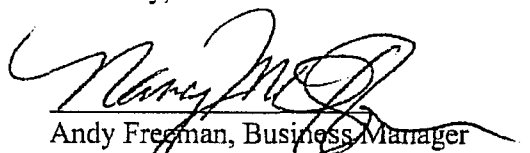
Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 9/14/2006 for the analyses presented in the following report.

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, Inc.

Date: 27-Sep-06

CLIENT: San Juan Refining
Lab Order: 0609153
Project: GAC Analysis 9/13/06
Lab ID: 0609153-01

Client Sample ID: GAC Inf.
Collection Date: 9/13/2006 8:10:00 AM
Date Received: 9/14/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/20/2006 8:21:03 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/20/2006 8:21:03 PM
Surr: DNOP	113	58-140		%REC	1	9/20/2006 8:21:03 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	26	1.0		mg/L	20	9/21/2006 4:40:43 PM
Surr: BFB	117	84.5-129		%REC	20	9/21/2006 4:40:43 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	20		µg/L	20	9/21/2006 4:40:43 PM
Toluene	ND	20		µg/L	20	9/21/2006 4:40:43 PM
Ethylbenzene	830	20		µg/L	20	9/21/2006 4:40:43 PM
Xylenes, Total	4100	60		µg/L	20	9/21/2006 4:40:43 PM
Surr: 4-Bromofluorobenzene	87.7	72.2-125		%REC	20	9/21/2006 4:40:43 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, Inc.

Date: 27-Sep-06

CLIENT: San Juan Refining
Lab Order: 0609153
Project: GAC Analysis 9/13/06
Lab ID: 0609153-02

Client Sample ID: GAC 1 EFF
Collection Date: 9/13/2006 8:20:00 AM
Date Received: 9/14/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						
						Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/20/2006 8:55:51 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/20/2006 8:55:51 PM
Surr: DNOP	118	58-140		%REC	1	9/20/2006 8:55:51 PM
EPA METHOD 8015B: GASOLINE RANGE						
						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/21/2006 5:09:36 PM
Surr: BFB	94.6	84.5-129		%REC	1	9/21/2006 5:09:36 PM
EPA METHOD 8021B: VOLATILES						
						Analyst: NSB
Benzene	ND	1.0		µg/L	1	9/21/2006 5:09:36 PM
Toluene	ND	1.0		µg/L	1	9/21/2006 5:09:36 PM
Ethylbenzene	ND	1.0		µg/L	1	9/21/2006 5:09:36 PM
Xylenes, Total	ND	3.0		µg/L	1	9/21/2006 5:09:36 PM
Surr: 4-Bromofluorobenzene	91.7	72.2-125		%REC	1	9/21/2006 5:09:36 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, Inc.

Date: 27-Sep-06

CLIENT: San Juan Refining
Lab Order: 0609153
Project: GAC Analysis 9/13/06
Lab ID: 0609153-03

Client Sample ID: GAC 2 EFF
Collection Date: 9/13/2006 8:30:00 AM
Date Received: 9/14/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/20/2006 9:30:58 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/20/2006 9:30:58 PM
Surr: DNOP	116	58-140		%REC	1	9/20/2006 9:30:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/21/2006 5:38:35 PM
Surr: BFB	90.2	84.5-129		%REC	1	9/21/2006 5:38:35 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	9/21/2006 5:38:35 PM
Toluene	ND	1.0		µg/L	1	9/21/2006 5:38:35 PM
Ethylbenzene	ND	1.0		µg/L	1	9/21/2006 5:38:35 PM
Xylenes, Total	ND	3.0		µg/L	1	9/21/2006 5:38:35 PM
Surr: 4-Bromofluorobenzene	89.8	72.2-125		%REC	1	9/21/2006 5:38:35 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	

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 9/13/06

Work Order: 0609153

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-11311		MBLK							
					Batch ID: 11311	Analysis Date: 9/20/2006 6:35:38 PM			
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-11311		LCS							
					Batch ID: 11311	Analysis Date: 9/20/2006 7:10:46 PM			
Diesel Range Organics (DRO)	5.221	mg/L	1.0	104	74	157			
Sample ID: LCSD-11311		LCSD							
					Batch ID: 11311	Analysis Date: 9/20/2006 7:45:54 PM			
Diesel Range Organics (DRO)	5.241	mg/L	1.0	105	74	157	0.386	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		MBLK							
					Batch ID: R20767	Analysis Date: 9/21/2006 9:21:21 AM			
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS							
					Batch ID: R20767	Analysis Date: 9/22/2006 5:38:01 AM			
Gasoline Range Organics (GRO)	0.5080	mg/L	0.050	102	73.3	119			
Method: SW8021									
Sample ID: b 5		MBLK							
					Batch ID: R20767	Analysis Date: 9/21/2006 10:48:20 AM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		LCS							
					Batch ID: R20767	Analysis Date: 9/21/2006 6:07:28 PM			
Benzene	19.01	µg/L	1.0	95.0	85	115			
Toluene	19.38	µg/L	1.0	96.9	85	118			
Ethylbenzene	20.21	µg/L	1.0	101	85	116			
Xylenes, Total	60.43	µg/L	3.0	101	85	119			

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

9/14/2006

Work Order Number 0609153

Received by GLS

Checklist completed by

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?

14°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Corrective Action

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvirmental.com

CHAIN-OF-CUSTODY RECORD							
QA / QC Package:							
Std <input type="checkbox"/> Level 4 <input type="checkbox"/>							
Other: _____							
Project Name: <u>GAC Analysis 9/13/06</u>							
Project #: _____							
Project Manager: _____							
Sampler: <u>Shelly Gooden</u>							
Sample Temperature: <u>14°</u>							
Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative		HEAL No.
					HgCl ₂	HNO ₃	
<u>9/13/06</u>	<u>8:10</u>	<u>H₂O</u>	<u>GAC INF</u>	<u>3-Vo2</u>		<u>X</u>	<u>HL 0609153</u>
	<u>8:20</u>	<u>I</u>	<u>GAC 1 EFF</u>	<u>3-Vo2</u>		<u>X</u>	<u>1</u>
	<u>8:30</u>	<u>↓</u>	<u>GAC 2 EFF</u>	<u>3-Vo2</u>		<u>X</u>	<u>2</u>
							<u>3</u>
Date: <u>9/13/06</u>	Time: <u>9:10</u>	Relinquished By: (Signature) <u>[Signature]</u>		Received By: (Signature) <u>[Signature]</u>		9-14-06 1145	
Date: _____	Time: _____	Relinquished By: (Signature)		Received By: (Signature)			



COVER LETTER

Monday, October 02, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 9/20/06

Order No.: 0609254

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 9/21/2006 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, Inc.

Date: 02-Oct-06

CLIENT: San Juan Refining
Lab Order: 0609254
Project: GAC Analysis 9/20/06
Lab ID: 0609254-01

Client Sample ID: GAC Inf.
Collection Date: 9/20/2006 8:20:00 AM
Date Received: 9/21/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/27/2006 2:42:49 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/27/2006 2:42:49 AM
Surr: DNOP	115	58-140		%REC	1	9/27/2006 2:42:49 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: BDH
Gasoline Range Organics (GRO)	5.6	1.0		mg/L	20	9/29/2006 1:23:22 PM
Surr: BFB	109	84.5-129		%REC	20	9/29/2006 1:23:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: BDH
Benzene	220	20		µg/L	20	9/29/2006 1:23:22 PM
Toluene	ND	20		µg/L	20	9/29/2006 1:23:22 PM
Ethylbenzene	1000	20		µg/L	20	9/29/2006 1:23:22 PM
Xylenes, Total	550	60		µg/L	20	9/29/2006 1:23:22 PM
Surr: 4-Bromofluorobenzene	105	72.2-125		%REC	20	9/29/2006 1:23:22 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, Inc.

Date: 02-Oct-06

CLIENT: San Juan Refining
Lab Order: 0609254
Project: GAC Analysis 9/20/06
Lab ID: 0609254-02

Client Sample ID: GAC 1 EFF
Collection Date: 9/20/2006 8:30:00 AM
Date Received: 9/21/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/27/2006 3:17:22 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/27/2006 3:17:22 AM
Surr: DNOP	108	58-140		%REC	1	9/27/2006 3:17:22 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: BDH
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/29/2006 1:54:02 PM
Surr: BFB	105	84.5-129		%REC	1	9/29/2006 1:54:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: BDH
Benzene	ND	1.0		µg/L	1	9/29/2006 1:54:02 PM
Toluene	ND	1.0		µg/L	1	9/29/2006 1:54:02 PM
Ethylbenzene	ND	1.0		µg/L	1	9/29/2006 1:54:02 PM
Xylenes, Total	ND	3.0		µg/L	1	9/29/2006 1:54:02 PM
Surr: 4-Bromofluorobenzene	92.1	72.2-125		%REC	1	9/29/2006 1:54:02 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, Inc.

Date: 02-Oct-06

CLIENT:	San Juan Refining	Client Sample ID:	GAC 2 EFF
Lab Order:	0609254	Collection Date:	9/20/2006 8:40:00 AM
Project:	GAC Analysis 9/20/06	Date Received:	9/21/2006
Lab ID:	0609254-03	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						
						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/27/2006 3:51:58 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/27/2006 3:51:58 AM
Surr: DNOP	116	58-140		%REC	1	9/27/2006 3:51:58 AM
EPA METHOD 8015B: GASOLINE RANGE						
						Analyst: BDH
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/29/2006 2:55:07 PM
Surr: BFB	107	84.5-129		%REC	1	9/29/2006 2:55:07 PM
EPA METHOD 8021B: VOLATILES						
						Analyst: BDH
Benzene	ND	1.0		µg/L	1	9/29/2006 2:55:07 PM
Toluene	ND	1.0		µg/L	1	9/29/2006 2:55:07 PM
Ethylbenzene	ND	1.0		µg/L	1	9/29/2006 2:55:07 PM
Xylenes, Total	ND	3.0		µg/L	1	9/29/2006 2:55:07 PM
Surr: 4-Bromofluorobenzene	94.1	72.2-125		%REC	1	9/29/2006 2:55:07 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

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 9/20/06

Work Order: 0609254

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-11347		MBLK				Batch ID: 11347	Analysis Date: 9/27/2006 12:59:13 AM		
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-11347		LCS				Batch ID: 11347	Analysis Date: 9/27/2006 1:33:47 AM		
Diesel Range Organics (DRO)	5.215	mg/L	1.0	104	74	157			
Sample ID: LCSD-11347		LCSD				Batch ID: 11347	Analysis Date: 9/27/2006 2:08:20 AM		
Diesel Range Organics (DRO)	5.269	mg/L	1.0	105	74	157	1.02	23	
Method: SW8015									
Sample ID: 0609254-02A MSD		MSD				Batch ID: R20871	Analysis Date: 9/29/2006 5:31:36 PM		
Gasoline Range Organics (GRO)	0.4900	mg/L	0.050	98.0	73.3	119	0.813	8.39	
Sample ID: 5ml rb1		MBLK				Batch ID: R20871	Analysis Date: 9/29/2006 8:43:22 AM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS				Batch ID: R20871	Analysis Date: 9/29/2006 4:26:41 PM		
Gasoline Range Organics (GRO)	0.5580	mg/L	0.050	112	73.3	119			
Sample ID: 0609254-02A MS		MS				Batch ID: R20871	Analysis Date: 9/29/2006 5:01:15 PM		
Gasoline Range Organics (GRO)	0.4940	mg/L	0.050	98.8	73.3	119			
Method: SW8021									
Sample ID: 0609254-02A MSD		MSD				Batch ID: R20871	Analysis Date: 9/29/2006 5:31:36 PM		
Benzene	5.990	µg/L	1.0	99.8	85	115	1.52	27	
Toluene	38.17	µg/L	1.0	99.3	85	118	1.56	19	
Ethylbenzene	7.884	µg/L	1.0	93.4	85	116	1.54	10	
Xylenes, Total	43.36	µg/L	3.0	96.4	85	119	0.355	13	
Sample ID: b 12		MBLK				Batch ID: R20871	Analysis Date: 9/29/2006 2:24:38 PM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG LCS		LCS				Batch ID: R20871	Analysis Date: 9/29/2006 6:02:25 PM		
Benzene	21.49	µg/L	1.0	107	85	115			
Toluene	21.18	µg/L	1.0	104	85	118			
Ethylbenzene	20.86	µg/L	1.0	104	85	116			
Xylenes, Total	43.86	µg/L	3.0	110	85	119			
Sample ID: 0609254-02A MS		MS				Batch ID: R20871	Analysis Date: 9/29/2006 5:01:15 PM		
Benzene	6.082	µg/L	1.0	101	85	115			
Toluene	38.77	µg/L	1.0	101	85	118			
Ethylbenzene	8.006	µg/L	1.0	94.9	85	116			
Xylenes, Total	43.51	µg/L	3.0	96.7	85	119			

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

9/21/2006

Work Order Number 0609254

Received by BLM

Checklist completed by

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?

6°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Corrective Action



COVER LETTER

Friday, October 06, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 9/26/06

Order No.: 0609335

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 9/27/2006 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

NM Lab # NM9425
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, Inc.

Date: 06-Oct-06

CLIENT: San Juan Refining
Lab Order: 0609335
Project: GAC Analysis 9/26/06
Lab ID: 0609335-01

Client Sample ID: GAC Inf.
Collection Date: 9/26/2006 8:15:00 AM
Date Received: 9/27/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/27/2006 9:19:33 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/27/2006 9:19:33 PM
Surr: DNOP	115	58-140		%REC	1	9/27/2006 9:19:33 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	3.6	1.0		mg/L	20	10/5/2006 5:08:04 PM
Surr: BFB	117	84.5-129		%REC	20	10/5/2006 5:08:04 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	160	20		µg/L	20	10/5/2006 5:08:04 PM
Toluene	ND	20		µg/L	20	10/5/2006 5:08:04 PM
Ethylbenzene	730	20		µg/L	20	10/5/2006 5:08:04 PM
Xylenes, Total	210	60		µg/L	20	10/5/2006 5:08:04 PM
Surr: 4-Bromofluorobenzene	111	72.2-125		%REC	20	10/5/2006 5:08:04 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 06-Oct-06

CLIENT: San Juan Refining
Lab Order: 0609335
Project: GAC Analysis 9/26/06
Lab ID: 0609335-02

Client Sample ID: GAC 1 EFF
Collection Date: 9/26/2006 8:30:00 AM
Date Received: 9/27/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/27/2006 9:54:20 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/27/2006 9:54:20 PM
Surr: DNOP	116	58-140		%REC	1	9/27/2006 9:54:20 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	10/5/2006 5:37:05 PM
Surr: BFB	96.8	84.5-129		%REC	1	10/5/2006 5:37:05 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	10/5/2006 5:37:05 PM
Toluene	ND	1.0		µg/L	1	10/5/2006 5:37:05 PM
Ethylbenzene	ND	1.0		µg/L	1	10/5/2006 5:37:05 PM
Xylenes, Total	ND	3.0		µg/L	1	10/5/2006 5:37:05 PM
Surr: 4-Bromofluorobenzene	98.6	72.2-125		%REC	1	10/5/2006 5:37:05 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 06-Oct-06

CLIENT:	San Juan Refining	Client Sample ID:	GAC 2 EFF
Lab Order:	0609335	Collection Date:	9/26/2006 8:45:00 AM
Project:	GAC Analysis 9/26/06	Date Received:	9/27/2006
Lab ID:	0609335-03	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	9/28/2006 8:30:46 PM
Motor Oil Range Organics (MRO)	ND	15		mg/L	1	9/28/2006 8:30:46 PM
Surr: DNOP	105	58-140		%REC	1	9/28/2006 8:30:46 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	10/5/2006 6:06:02 PM
Surr: BFB	95.5	84.5-129		%REC	1	10/5/2006 6:06:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	10/5/2006 6:06:02 PM
Toluene	ND	1.0		µg/L	1	10/5/2006 6:06:02 PM
Ethylbenzene	ND	1.0		µg/L	1	10/5/2006 6:06:02 PM
Xylenes, Total	ND	3.0		µg/L	1	10/5/2006 6:06:02 PM
Surr: 4-Bromofluorobenzene	97.8	72.2-125		%REC	1	10/5/2006 6:06:02 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	MCL Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL Reporting Limit
S	Spike recovery outside accepted recovery limits	

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 9/26/06

Work Order: 0609335

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-11380		MBLK			Batch ID: 11380	Analysis Date: 9/27/2006 6:25:07 PM			
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-11380		LCS			Batch ID: 11380	Analysis Date: 9/27/2006 7:00:14 PM			
Diesel Range Organics (DRO)	5.148	mg/L	1.0	103	74	157			
Sample ID: LCSD-11380		LCSD			Batch ID: 11380	Analysis Date: 9/27/2006 7:35:06 PM			
Diesel Range Organics (DRO)	4.735	mg/L	1.0	94.7	74	157	8.36	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		MBLK			Batch ID: R20958	Analysis Date: 10/5/2006 10:03:16 AM			
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS			Batch ID: R20958	Analysis Date: 10/6/2006 12:25:44 AM			
Gasoline Range Organics (GRO)	0.5020	mg/L	0.050	100	73.3	119			
Sample ID: 2.5UG GRO LCSD		LCSD			Batch ID: R20958	Analysis Date: 10/6/2006 12:54:39 AM			
Gasoline Range Organics (GRO)	0.5340	mg/L	0.050	107	73.3	119	6.18	8.39	
Method: SW8021									
Sample ID: 5ML REAGENT BLA		MBLK			Batch ID: R20958	Analysis Date: 10/5/2006 10:03:16 AM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R20958	Analysis Date: 10/5/2006 1:42:53 PM			
Benzene	20.96	µg/L	1.0	105	85	115			
Toluene	20.53	µg/L	1.0	103	85	118			
Ethylbenzene	20.82	µg/L	1.0	104	85	116			
Xylenes, Total	63.12	µg/L	3.0	105	85	119			
Sample ID: 100NG BTEX LCSD		LCSD			Batch ID: R20958	Analysis Date: 10/5/2006 9:31:35 PM			
Benzene	21.14	µg/L	1.0	106	85	115	0.855	27	
Toluene	20.72	µg/L	1.0	104	85	118	0.892	19	
Ethylbenzene	20.79	µg/L	1.0	104	85	116	0.173	10	
Xylenes, Total	63.10	µg/L	3.0	105	85	119	0.0317	13	

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

9/27/2006

Work Order Number 0609335

Received by BLM

Checklist completed by

Signature

Date

Matrix

Carrier name UPS

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	Not Shipped <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Water - VOA vials have zero headspace?	No VOA vials submitted <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	
Container/Temp Blank temperature?	2°	4° C ± 2 Acceptable		If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenviro.com

[illegible]

COVER LETTER

Thursday, October 12, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 10/5/06

Order No.: 0610067

Dear Cindy Hurtado:

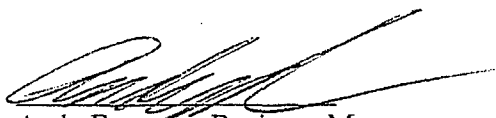
Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 10/6/2006 for the analyses presented in the following report.

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

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001



Hall Environmental Analysis Laboratory, Inc.

Date: 12-Oct-06

CLIENT: San Juan Refining
 Lab Order: 0610067
 Project: GAC Analysis 10/5/06
 Lab ID: 0610067-01

Client Sample ID: GAC Inf.
 Collection Date: 10/5/2006 7:30:00 AM
 Date Received: 10/6/2006
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	10/12/2006 9:23:10 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	10/12/2006 9:23:10 AM
Surr: DNOP	113	58-140		%REC	1	10/12/2006 9:23:10 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	4.6	1.0		mg/L	20	10/10/2006 9:32:40 PM
Surr: BFB	90.8	84.5-129		%REC	20	10/10/2006 9:32:40 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	200	20		µg/L	20	10/10/2006 9:32:40 PM
Toluene	ND	20		µg/L	20	10/10/2006 9:32:40 PM
Ethylbenzene	940	20		µg/L	20	10/10/2006 9:32:40 PM
Xylenes, Total	350	60		µg/L	20	10/10/2006 9:32:40 PM
Surr: 4-Bromofluorobenzene	91.2	72.2-125		%REC	20	10/10/2006 9:32:40 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
 E Value above quantitation range
 J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 MCL Maximum Contaminant Level
 RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 12-Oct-06

CLIENT: San Juan Refining
Lab Order: 0610067
Project: GAC Analysis 10/5/06
Lab ID: 0610067-02

Client Sample ID: GAC 1 EFF
Collection Date: 10/5/2006 7:40:00 AM
Date Received: 10/6/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	10/12/2006 9:57:58 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	10/12/2006 9:57:58 AM
Surr: DNOP	110	58-140		%REC	1	10/12/2006 9:57:58 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	10/10/2006 10:03:00 PM
Surr: BFB	94.4	64.5-129		%REC	1	10/10/2006 10:03:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	10/10/2006 10:03:00 PM
Toluene	ND	1.0		µg/L	1	10/10/2006 10:03:00 PM
Ethylbenzene	ND	1.0		µg/L	1	10/10/2006 10:03:00 PM
Xylenes, Total	ND	3.0		µg/L	1	10/10/2006 10:03:00 PM
Surr: 4-Bromofluorobenzene	89.1	72.2-125		%REC	1	10/10/2006 10:03:00 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 10/5/06

Work Order: 0610067

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-11452		MBLK							
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-11452		LCS							
Diesel Range Organics (DRO)	4.820	mg/L	1.0	96.4	74	157			
Sample ID: LCSD-11452		LCSD							
Diesel Range Organics (DRO)	4.104	mg/L	1.0	82.1	74	157	16.0	23	
Method: SW8015									
Sample ID: 5ML RB		MBLK							
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO ICV		LCS							
Gasoline Range Organics (GRO)	0.4600	mg/L	0.050	92.0	73.3	119			
Sample ID: 2.5UG GRO ICV-B		LCSD							
Gasoline Range Organics (GRO)	0.4300	mg/L	0.050	86.0	73.3	119	6.74	8.39	
Method: SW8021									
Sample ID: 5ML RB		MBLK							
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		LCS							
Benzene	19.98	µg/L	1.0	99.9	85	115			
Toluene	19.59	µg/L	1.0	97.9	85	118			
Ethylbenzene	19.69	µg/L	1.0	98.5	85	116			
Xylenes, Total	40.52	µg/L	3.0	101	85	119			

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	Sample recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

10/6/2006

Work Order Number 0610067

Received by GLS

Checklist completed by

B. Schipper
Signature

10-6-06
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?

4°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Corrective Action

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.3976
www.hallenviroental.com

Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

ANALYSIS REQUEST

Air Bubbles or Headspace (Y or N)

CHAIN-OF-CUSTODY RECORD						QA / QC Package:	
						<input type="checkbox"/> Std <input type="checkbox"/> Level 4 <input type="checkbox"/>	Other: _____
Client: San Juan Helixing						Project Name: GAC Analysis 10/5/06	
Address: #50 Road 4990						Project #: _____	
Bloomfield, NM 87413						Project Manager: Cindy Harkob	
Phone #: 505-632-4161						Sampler: Shelby Carden	
Fax #: 505-1032-3911						Sample Temperature: _____	
Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative HgCl ₂ HNO ₃		HEAL No.
10/5/06	7:30	H ₂ O	GAC INF.	3-VOL	X		1
✓ 10/5/06	7:40	↓	GAC 1 EFF	3-VOL	X		2
✓ 10/5/06	7:40	↓	GAC 2 EFF	3-VOL	X		3
✓ 10/5/06	7:40	↓	GAC 3 EFF	3-VOL	X		4
✓ 10/5/06	7:40	↓	GAC 4 EFF	3-VOL	X		5
✓ 10/5/06	7:40	↓	GAC 5 EFF	3-VOL	X		6
✓ 10/5/06	7:40	↓	GAC 6 EFF	3-VOL	X		7
✓ 10/5/06	7:40	↓	GAC 7 EFF	3-VOL	X		8
✓ 10/5/06	7:40	↓	GAC 8 EFF	3-VOL	X		9
✓ 10/5/06	7:40	↓	GAC 9 EFF	3-VOL	X		10
✓ 10/5/06	7:40	↓	GAC 10 EFF	3-VOL	X		11
✓ 10/5/06	7:40	↓	GAC 11 EFF	3-VOL	X		12
✓ 10/5/06	7:40	↓	GAC 12 EFF	3-VOL	X		13
✓ 10/5/06	7:40	↓	GAC 13 EFF	3-VOL	X		14
✓ 10/5/06	7:40	↓	GAC 14 EFF	3-VOL	X		15
✓ 10/5/06	7:40	↓	GAC 15 EFF	3-VOL	X		16
✓ 10/5/06	7:40	↓	GAC 16 EFF	3-VOL	X		17
✓ 10/5/06	7:40	↓	GAC 17 EFF	3-VOL	X		18
✓ 10/5/06	7:40	↓	GAC 18 EFF	3-VOL	X		19
✓ 10/5/06	7:40	↓	GAC 19 EFF	3-VOL	X		20
✓ 10/5/06	7:40	↓	GAC 20 EFF	3-VOL	X		21
✓ 10/5/06	7:40	↓	GAC 21 EFF	3-VOL	X		22
✓ 10/5/06	7:40	↓	GAC 22 EFF	3-VOL	X		23
✓ 10/5/06	7:40	↓	GAC 23 EFF	3-VOL	X		24
✓ 10/5/06	7:40	↓	GAC 24 EFF	3-VOL	X		25
✓ 10/5/06	7:40	↓	GAC 25 EFF	3-VOL	X		26
✓ 10/5/06	7:40	↓	GAC 26 EFF	3-VOL	X		27
✓ 10/5/06	7:40	↓	GAC 27 EFF	3-VOL	X		28
✓ 10/5/06	7:40	↓	GAC 28 EFF	3-VOL	X		29
✓ 10/5/06	7:40	↓	GAC 29 EFF	3-VOL	X		30
✓ 10/5/06	7:40	↓	GAC 30 EFF	3-VOL	X		31
✓ 10/5/06	7:40	↓	GAC 31 EFF	3-VOL	X		32
✓ 10/5/06	7:40	↓	GAC 32 EFF	3-VOL	X		33
✓ 10/5/06	7:40	↓	GAC 33 EFF	3-VOL	X		34
✓ 10/5/06	7:40	↓	GAC 34 EFF	3-VOL	X		35
✓ 10/5/06	7:40	↓	GAC 35 EFF	3-VOL	X		36
✓ 10/5/06	7:40	↓	GAC 36 EFF	3-VOL	X		37
✓ 10/5/06	7:40	↓	GAC 37 EFF	3-VOL	X		38
✓ 10/5/06	7:40	↓	GAC 38 EFF	3-VOL	X		39
✓ 10/5/06	7:40	↓	GAC 39 EFF	3-VOL	X		40
✓ 10/5/06	7:40	↓	GAC 40 EFF	3-VOL	X		41
✓ 10/5/06	7:40	↓	GAC 41 EFF	3-VOL	X		42
✓ 10/5/06	7:40	↓	GAC 42 EFF	3-VOL	X		43
✓ 10/5/06	7:40	↓	GAC 43 EFF	3-VOL	X		44
✓ 10/5/06	7:40	↓	GAC 44 EFF	3-VOL	X		45
✓ 10/5/06	7:40	↓	GAC 45 EFF	3-VOL	X		46
✓ 10/5/06	7:40	↓	GAC 46 EFF	3-VOL	X		47
✓ 10/5/06	7:40	↓					

COVER LETTER

Wednesday, December 13, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC Analysis - 12/04/06

Order No.: 0612040

Dear Cindy Hurtado:

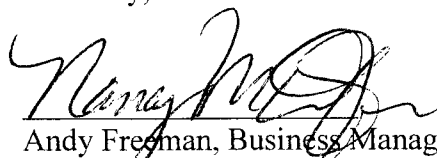
Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 12/5/2006 for the analyses presented in the following report.

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

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001



Hall Environmental Analysis Laboratory, Inc.

Date: 13-Dec-06

CLIENT: San Juan Refining
Lab Order: 0612040
Project: GAC Analysis - 12/04/06
Lab ID: 0612040-01

Client Sample ID: GAC INF
Collection Date: 12/4/2006 2:25:00 PM
Date Received: 12/5/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/12/2006 8:11:41 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2006 8:11:41 AM
Surr: DNOP	128	58-140		%REC	1	12/12/2006 8:11:41 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	12	1.0		mg/L	20	12/6/2006 3:11:17 PM
Surr: BFB	115	79.2-121		%REC	20	12/6/2006 3:11:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	320	20		µg/L	20	12/6/2006 3:11:17 PM
Toluene	ND	20		µg/L	20	12/6/2006 3:11:17 PM
Ethylbenzene	1300	20		µg/L	20	12/6/2006 3:11:17 PM
Xylenes, Total	1700	60		µg/L	20	12/6/2006 3:11:17 PM
Surr: 4-Bromofluorobenzene	85.7	70.2-105		%REC	20	12/6/2006 3:11:17 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 13-Dec-06

CLIENT: San Juan Refining
Lab Order: 0612040
Project: GAC Analysis - 12/04/06
Lab ID: 0612040-02

Client Sample ID: GAC 1 Eff
Collection Date: 12/4/2006 2:15:00 PM
Date Received: 12/5/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/12/2006 8:46:20 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2006 8:46:20 AM
Surr: DNOP	147	58-140	S	%REC	1	12/12/2006 8:46:20 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/6/2006 3:41:25 PM
Surr: BFB	110	79.2-121		%REC	1	12/6/2006 3:41:25 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	12/6/2006 3:41:25 PM
Toluene	ND	1.0		µg/L	1	12/6/2006 3:41:25 PM
Ethylbenzene	ND	1.0		µg/L	1	12/6/2006 3:41:25 PM
Xylenes, Total	ND	3.0		µg/L	1	12/6/2006 3:41:25 PM
Surr: 4-Bromofluorobenzene	85.2	70.2-105		%REC	1	12/6/2006 3:41:25 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 13-Dec-06

CLIENT: San Juan Refining
Lab Order: 0612040
Project: GAC Analysis - 12/04/06
Lab ID: 0612040-03

Client Sample ID: GAC 2 Eff
Collection Date: 12/4/2006 2:35:00 PM
Date Received: 12/5/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/11/2006 5:44:14 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/11/2006 5:44:14 PM
Surr: DNOP	134	58-140		%REC	1	12/11/2006 5:44:14 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/6/2006 4:11:28 PM
Surr: BFB	111	79.2-121		%REC	1	12/6/2006 4:11:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	12/6/2006 4:11:28 PM
Toluene	ND	1.0		µg/L	1	12/6/2006 4:11:28 PM
Ethylbenzene	ND	1.0		µg/L	1	12/6/2006 4:11:28 PM
Xylenes, Total	ND	3.0		µg/L	1	12/6/2006 4:11:28 PM
Surr: 4-Bromofluorobenzene	85.2	70.2-105		%REC	1	12/6/2006 4:11:28 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis - 12/04/06

Work Order: 0612040

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-11919		MBLK			Batch ID: 11919		Analysis Date: 12/12/2006 6:28:32 AM		
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-11919		LCS			Batch ID: 11919		Analysis Date: 12/12/2006 7:02:56 AM		
Diesel Range Organics (DRO)	6.769	mg/L	1.0	135	74	157			
Sample ID: LCSD-11919		LCSD			Batch ID: 11919		Analysis Date: 12/12/2006 7:37:19 AM		
Diesel Range Organics (DRO)	7.314	mg/L	1.0	146	74	157	7.74	23	
Method: SW8015									
Sample ID: 0612040-03A MSD		MSD			Batch ID: R21694		Analysis Date: 12/6/2006 11:25:33 PM		
Gasoline Range Organics (GRO)	0.4318	mg/L	0.050	86.4	80	115	0.139	8.39	
Sample ID: 5ML RB		MBLK			Batch ID: R21694		Analysis Date: 12/6/2006 9:16:14 AM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS			Batch ID: R21694		Analysis Date: 12/6/2006 11:55:32 PM		
Gasoline Range Organics (GRO)	0.4506	mg/L	0.050	90.1	80	115			
Sample ID: 0612040-03A MS		MS			Batch ID: R21694		Analysis Date: 12/6/2006 10:55:31 PM		
Gasoline Range Organics (GRO)	0.4324	mg/L	0.050	86.5	80	115			
Method: SW8021									
Sample ID: 0612040-02A MSD		MSD			Batch ID: R21694		Analysis Date: 12/6/2006 8:55:17 PM		
Benzene	18.70	µg/L	1.0	93.5	85.9	113	0.182	27	
Toluene	18.54	µg/L	1.0	92.7	86.4	113	0.0108	19	
Ethylbenzene	18.13	µg/L	1.0	89.4	83.5	118	0.165	10	
Xylenes, Total	55.34	µg/L	3.0	92.2	83.4	122	0.0289	13	
Sample ID: 5ML RB		MBLK			Batch ID: R21694		Analysis Date: 12/6/2006 9:16:14 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R21694		Analysis Date: 12/6/2006 9:25:17 PM		
Benzene	19.07	µg/L	1.0	95.4	85.9	113			
Toluene	18.76	µg/L	1.0	93.8	86.4	113			
Ethylbenzene	18.38	µg/L	1.0	91.9	83.5	118			
Xylenes, Total	55.86	µg/L	3.0	93.1	83.4	122			
Sample ID: 0612040-02A MS		MS			Batch ID: R21694		Analysis Date: 12/6/2006 8:25:12 PM		
Benzene	18.73	µg/L	1.0	93.6	85.9	113			
Toluene	18.54	µg/L	1.0	92.7	86.4	113			
Ethylbenzene	18.16	µg/L	1.0	89.6	83.5	118			
Xylenes, Total	55.36	µg/L	3.0	92.3	83.4	122			

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

12/5/2006

Work Order Number 0612040

Received by AT

Checklist completed by

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?

6°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Corrective Action

COVER LETTER

Wednesday, December 20, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC Analysis 12/13/06

Order No.: 0612197

Dear Cindy Hurtado:

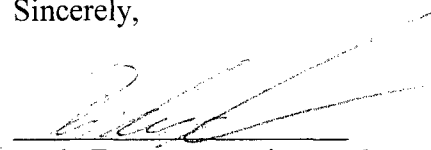
Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 12/15/2006 for the analyses presented in the following report.

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

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001



Hall Environmental Analysis Laboratory, Inc.

Date: 20-Dec-06

CLIENT: San Juan Refining
Lab Order: 0612197
Project: GAC Analysis 12/13/06
Lab ID: 0612197-01

Client Sample ID: GAC INF
Collection Date: 12/13/2006 8:30:00 AM
Date Received: 12/15/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/19/2006 9:34:39 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/19/2006 9:34:39 AM
Surr: DNOP	105	58-140		%REC	1	12/19/2006 9:34:39 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	9.8	1.0		mg/L	20	12/15/2006 3:54:39 PM
Surr: BFB	109	79.2-121		%REC	20	12/15/2006 3:54:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	29	20		µg/L	20	12/15/2006 3:54:39 PM
Toluene	ND	20		µg/L	20	12/15/2006 3:54:39 PM
Ethylbenzene	590	20		µg/L	20	12/15/2006 3:54:39 PM
Xylenes, Total	1600	60		µg/L	20	12/15/2006 3:54:39 PM
Surr: 4-Bromofluorobenzene	82.4	70.2-105		%REC	20	12/15/2006 3:54:39 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 20-Dec-06

CLIENT: San Juan Refining
Lab Order: 0612197
Project: GAC Analysis 12/13/06
Lab ID: 0612197-02

Client Sample ID: GAC 1 Eff
Collection Date: 12/13/2006 8:35:00 AM
Date Received: 12/15/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/18/2006 9:30:32 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/18/2006 9:30:32 PM
Surr: DNOP	119	58-140		%REC	1	12/18/2006 9:30:32 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/15/2006 4:54:43 PM
Surr: BFB	104	79.2-121		%REC	1	12/15/2006 4:54:43 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	12/15/2006 4:54:43 PM
Toluene	ND	1.0		µg/L	1	12/15/2006 4:54:43 PM
Ethylbenzene	ND	1.0		µg/L	1	12/15/2006 4:54:43 PM
Xylenes, Total	ND	3.0		µg/L	1	12/15/2006 4:54:43 PM
Surr: 4-Bromofluorobenzene	80.2	70.2-105		%REC	1	12/15/2006 4:54:43 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 20-Dec-06

CLIENT: San Juan Refining
Lab Order: 0612197
Project: GAC Analysis 12/13/06
Lab ID: 0612197-03

Client Sample ID: GAC 2 Eff
Collection Date: 12/13/2006 8:40:00 AM
Date Received: 12/15/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/18/2006 10:04:18 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/18/2006 10:04:18 PM
Surr: DNOP	95.8	58-140		%REC	1	12/18/2006 10:04:18 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/15/2006 5:24:49 PM
Surr: BFB	103	79.2-121		%REC	1	12/15/2006 5:24:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	1.0		µg/L	1	12/15/2006 5:24:49 PM
Toluene	ND	1.0		µg/L	1	12/15/2006 5:24:49 PM
Ethylbenzene	ND	1.0		µg/L	1	12/15/2006 5:24:49 PM
Xylenes, Total	ND	3.0		µg/L	1	12/15/2006 5:24:49 PM
Surr: 4-Bromofluorobenzene	80.7	70.2-105		%REC	1	12/15/2006 5:24:49 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

QA/QC SUMMARY REPORT

Client: San Juan Refining
 Project: GAC Analysis 12/13/06

Work Order: 0612197

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
---------	--------	-------	-----	------	----------	-----------	------	----------	------

Method: SW8015

Sample ID: MB-11997 MBLK Batch ID: 11997 Analysis Date: 12/18/2006 6:40:40 PM

Diesel Range Organics (DRO) ND mg/L 1.0

Motor Oil Range Organics (MRO) ND mg/L 5.0

Sample ID: LCS-11997 LCS Batch ID: 11997 Analysis Date: 12/18/2006 7:48:48 PM

Diesel Range Organics (DRO) 4.568 mg/L 1.0 91.4 74 157

Sample ID: LCSD-11997 LCSD Batch ID: 11997 Analysis Date: 12/18/2006 8:22:54 PM

Diesel Range Organics (DRO) 5.529 mg/L 1.0 111 74 157 19.0 23

Method: SW8015

Sample ID: 0612197-03A MSD MSD Batch ID: R21844 Analysis Date: 12/15/2006 6:24:52 PM

Gasoline Range Organics (GRO) 0.4612 mg/L 0.050 92.2 80 115 2.48 8.39

Sample ID: 5ML REAGENT BLA MBLK Batch ID: R21844 Analysis Date: 12/15/2006 9:10:31 AM

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: 2.5UG GRO LCS LCS Batch ID: R21844 Analysis Date: 12/15/2006 10:25:20 PM

Gasoline Range Organics (GRO) 0.4626 mg/L 0.050 92.5 80 115

Sample ID: 0612197-03A MS MS Batch ID: R21844 Analysis Date: 12/15/2006 5:54:49 PM

Gasoline Range Organics (GRO) 0.4728 mg/L 0.050 94.6 80 115

Method: SW8021

Sample ID: 5ML REAGENT BLA MBLK Batch ID: R21844 Analysis Date: 12/15/2006 9:10:31 AM

Benzene ND µg/L 1.0

Toluene ND µg/L 1.0

Ethylbenzene ND µg/L 1.0

Xylenes, Total ND µg/L 3.0

Sample ID: 100NG BTEX LCS LCS Batch ID: R21844 Analysis Date: 12/15/2006 8:55:11 PM

Benzene 19.67 µg/L 1.0 98.4 85.9 113

Toluene 19.54 µg/L 1.0 97.7 86.4 113

Ethylbenzene 19.17 µg/L 1.0 95.8 83.5 118

Xylenes, Total 57.83 µg/L 3.0 96.4 83.4 122

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

12/15/2006

Work Order Number 0612197

Received by AT

Checklist completed by

[Signature]
Signature

Date

12/15/06

Matrix

Carrier name Greyhound

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?

6°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____


Corrective Action _____

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

QA/QC Package:

Std  Level 4 

Other:

Project Name:

Project Name: GC Analysis - 12/13/06

Project #: _____

Project #:

Project Manager:

Sampler.

Sample Temperature: _____

Date _____

Time

Matrix

Sample I.D. No.

Number/Volume

Preservative

$$\text{HgCl}_2 \quad \text{HNO}_3$$
$$\text{HgCl}_2 \quad \text{HNO}_3$$

HEAL No.

0102107

of 1980

11

M
!

Date: _____ Time: _____

Relinquished By: (Signature)

Received By: (Signature) 12/15/20

Date: Time:

Relinquished By (Signature)

Received By: (Signature)

COVER LETTER

Wednesday, December 27, 2006

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161

FAX (505) 632-3911

RE: GAC Analysis 12/20/06

Order No.: 0612243

Dear Cindy Hurtado:

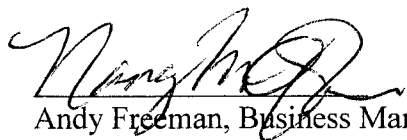
Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 12/21/2006 for the analyses presented in the following report.

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

NM Lab # NM9425

AZ license # AZ0682

ORELAP Lab # NM100001



Hall Environmental Analysis Laboratory, Inc.

Date: 27-Dec-06

CLIENT: San Juan Refining
Lab Order: 0612243
Project: GAC Analysis 12/20/06
Lab ID: 0612243-01

Client Sample ID: GAC INF
Collection Date: 12/20/2006 9:15:00 AM
Date Received: 12/21/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/26/2006 7:51:29 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/26/2006 7:51:29 PM
Surr: DNOP	113	58-140		%REC	1	12/26/2006 7:51:29 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: BDH
Gasoline Range Organics (GRO)	10	0.50		mg/L	10	12/26/2006 2:21:05 PM
Surr: BFB	125	79.2-121	S	%REC	10	12/26/2006 2:21:05 PM
EPA METHOD 8021B: VOLATILES						Analyst: BDH
Benzene	26	10		µg/L	10	12/26/2006 2:21:05 PM
Toluene	ND	10		µg/L	10	12/26/2006 2:21:05 PM
Ethylbenzene	660	10		µg/L	10	12/26/2006 2:21:05 PM
Xylenes, Total	1500	30		µg/L	10	12/26/2006 2:21:05 PM
Surr: 4-Bromofluorobenzene	93.3	70.2-105		%REC	10	12/26/2006 2:21:05 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 27-Dec-06

CLIENT: San Juan Refining
Lab Order: 0612243
Project: GAC Analysis 12/20/06
Lab ID: 0612243-02

Client Sample ID: GAC 1EFF
Collection Date: 12/20/2006 9:23:00 AM
Date Received: 12/21/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/26/2006 8:25:17 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/26/2006 8:25:17 PM
Surr: DNOP	92.5	58-140		%REC	1	12/26/2006 8:25:17 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: BDH
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/26/2006 2:51:03 PM
Surr: BFB	118	79.2-121		%REC	1	12/26/2006 2:51:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: BDH
Benzene	ND	1.0		µg/L	1	12/26/2006 2:51:03 PM
Toluene	ND	1.0		µg/L	1	12/26/2006 2:51:03 PM
Ethylbenzene	ND	1.0		µg/L	1	12/26/2006 2:51:03 PM
Xylenes, Total	ND	3.0		µg/L	1	12/26/2006 2:51:03 PM
Surr: 4-Bromofluorobenzene	89.4	70.2-105		%REC	1	12/26/2006 2:51:03 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 27-Dec-06

CLIENT: San Juan Refining
Lab Order: 0612243
Project: GAC Analysis 12/20/06
Lab ID: 0612243-03

Client Sample ID: GAC 2 EFF
Collection Date: 12/20/2006 9:32:00 AM
Date Received: 12/21/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/26/2006 8:59:07 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/26/2006 8:59:07 PM
Surr: DNOP	112	58-140		%REC	1	12/26/2006 8:59:07 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: BDH
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/26/2006 3:21:00 PM
Surr: BFB	118	79.2-121		%REC	1	12/26/2006 3:21:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BDH
Benzene	ND	1.0		µg/L	1	12/26/2006 3:21:00 PM
Toluene	ND	1.0		µg/L	1	12/26/2006 3:21:00 PM
Ethylbenzene	ND	1.0		µg/L	1	12/26/2006 3:21:00 PM
Xylenes, Total	ND	3.0		µg/L	1	12/26/2006 3:21:00 PM
Surr: 4-Bromofluorobenzene	88.5	70.2-105		%REC	1	12/26/2006 3:21:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 12/20/06

Work Order: 0612243

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12026		MBLK			Batch ID: 12026	Analysis Date: 12/26/2006 6:09:47 PM			
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12026		LCS			Batch ID: 12026	Analysis Date: 12/26/2006 6:43:52 PM			
Diesel Range Organics (DRO)	5.628	mg/L	1.0	113	74	157			
Sample ID: LCSD-12026		LCSD			Batch ID: 12026	Analysis Date: 12/27/2006 9:11:54 AM			
Diesel Range Organics (DRO)	5.007	mg/L	1.0	100	74	157	11.7	23	
Method: SW8015									
Sample ID: 0612243-03A MSD		MSD			Batch ID: R21941	Analysis Date: 12/26/2006 6:51:30 PM			
Gasoline Range Organics (GRO)	0.4660	mg/L	0.050	93.2	80	115	0.897	8.39	
Sample ID: 5ml rb 2		MBLK			Batch ID: R21941	Analysis Date: 12/26/2006 10:13:56 AM			
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS			Batch ID: R21941	Analysis Date: 12/26/2006 1:48:26 PM			
Gasoline Range Organics (GRO)	0.4582	mg/L	0.050	91.6	80	115			
Sample ID: 0612243-03A MS		MS			Batch ID: R21941	Analysis Date: 12/26/2006 6:21:27 PM			
Gasoline Range Organics (GRO)	0.4702	mg/L	0.050	94.0	80	115			
Method: SW8021									
Sample ID: 0612243-03A MSD		MSD			Batch ID: R21941	Analysis Date: 12/26/2006 6:51:30 PM			
Benzene	5.236	µg/L	1.0	105	85.9	113	1.18	27	
Toluene	36.94	µg/L	1.0	97.2	86.4	113	0.249	19	
Ethylbenzene	6.884	µg/L	1.0	98.3	83.5	118	1.21	10	
Xylenes, Total	40.69	µg/L	3.0	99.2	83.4	122	1.06	13	
Sample ID: 5ML RB		MBLK			Batch ID: R21941	Analysis Date: 12/26/2006 10:13:56 AM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R21941	Analysis Date: 12/26/2006 1:18:26 PM			
Benzene	18.69	µg/L	1.0	93.4	85.9	113			
Toluene	18.54	µg/L	1.0	92.7	86.4	113			
Ethylbenzene	18.05	µg/L	1.0	90.2	83.5	118			
Xylenes, Total	54.61	µg/L	3.0	91.0	83.4	122			
Sample ID: 0612243-03A MS		MS			Batch ID: R21941	Analysis Date: 12/26/2006 6:21:27 PM			
Benzene	5.298	µg/L	1.0	106	85.9	113			
Toluene	37.03	µg/L	1.0	97.5	86.4	113			
Ethylbenzene	6.968	µg/L	1.0	99.5	83.5	118			
Xylenes, Total	41.12	µg/L	3.0	100	83.4	122			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

12/21/2006

Work Order Number 0612243

Received by AT

Checklist completed by

Signature

Date

12/21/06

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?

2°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

per CH collection time for GAC INF is 0915

AT 12/21/06

Corrective Action

CHAIN-OF-CUSTODY RECORD

Client: SAN JUAN Refining

Address: #50 Road 4990

Bloomfield, NM

87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Date

Time

Matrix

Sample I.D. No.

Number/Volume

Preservative

HgCl₂

HNO₃

HEAL No.

12/20/06

9:15

H₂O

GAC INF

- VOA

HEAL -1

9:31A

GAC 1 EFF

- VOA

HEAL -2

9:32A

GAC 2 EFF

- VOA

HEAL -3

12/20/06

9:51A

Relinquished By: (Signature)

Time:

12/20/06

9:51A

Relinquished By: (Signature)

Time:

12/20/06

9:51A

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9:51A

Relinquished By: (Signature)

COVER LETTER

Thursday, January 04, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4161
FAX (505) 632-3911
RE: GAC - 12/27/06

Order No.: 0612288

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 12/28/2006 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

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001



Hall Environmental Analysis Laboratory, Inc.

Date: 04-Jan-07

CLIENT: San Juan Refining
Lab Order: 0612288
Project: GAC - 12/27/06
Lab ID: 0612288-01

Client Sample ID: GAC 1 Eff
Collection Date: 12/27/2006 9:30:00 AM
Date Received: 12/28/2006
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	1/3/2007 11:14:39 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/3/2007 11:14:39 AM
Surr: DNOP	85.9	58-140		%REC	1	1/3/2007 11:14:39 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: LMM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/28/2006 6:24:56 PM
Surr: BFB	102	79.2-121		%REC	1	12/28/2006 6:24:56 PM
EPA METHOD 8021B: VOLATILES						Analyst: LMM
Benzene	ND	1.0		µg/L	1	12/28/2006 6:24:56 PM
Toluene	ND	1.0		µg/L	1	12/28/2006 6:24:56 PM
Ethylbenzene	ND	1.0		µg/L	1	12/28/2006 6:24:56 PM
Xylenes, Total	ND	3.0		µg/L	1	12/28/2006 6:24:56 PM
Surr: 4-Bromofluorobenzene	81.2	70.2-105		%REC	1	12/28/2006 6:24:56 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
E Value above quantitation range
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

Page 1 of 1

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC - 12/27/06

Work Order: 0612288

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12052		MBLK			Batch ID: 12052	Analysis Date: 1/3/2007 9:32:38 AM			
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12052		LCS			Batch ID: 12052	Analysis Date: 1/3/2007 9:55:51 AM			
Diesel Range Organics (DRO)	4.986	mg/L	1.0	99.7	74	157			
Sample ID: LCSD-12052		LCSD			Batch ID: 12052	Analysis Date: 1/3/2007 10:40:34 AM			
Diesel Range Organics (DRO)	5.550	mg/L	1.0	111	74	157	10.7	23	
Method: SW8015									
Sample ID: 5ML RB		MBLK			Batch ID: R21975	Analysis Date: 12/28/2006 9:42:29 AM			
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		LCS			Batch ID: R21975	Analysis Date: 12/28/2006 12:00:56 PM			
Gasoline Range Organics (GRO)	0.4874	mg/L	0.050	97.5	80	115			
Sample ID: 2.5UG GRO LCSD		LCSD			Batch ID: R21975	Analysis Date: 12/28/2006 4:22:08 PM			
Gasoline Range Organics (GRO)	0.4836	mg/L	0.050	96.7	80	115	0.783	8.39	
Method: SW8021									
Sample ID: 5ML RB		MBLK			Batch ID: R21975	Analysis Date: 12/28/2006 9:42:29 AM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		LCS			Batch ID: R21975	Analysis Date: 12/28/2006 11:30:42 AM			
Benzene	18.08	µg/L	1.0	90.4	85.9	113			
Toluene	18.48	µg/L	1.0	92.4	86.4	113			
Ethylbenzene	18.09	µg/L	1.0	90.4	83.5	118			
Xylenes, Total	55.05	µg/L	3.0	91.8	83.4	122			
Sample ID: 100NG BTEX LCSD		LCSD			Batch ID: R21975	Analysis Date: 12/28/2006 3:51:55 PM			
Benzene	17.77	µg/L	1.0	88.8	85.9	113	1.72	27	
Toluene	17.59	µg/L	1.0	87.9	86.4	113	4.94	19	
Ethylbenzene	17.33	µg/L	1.0	86.7	83.5	118	4.28	10	
Xylenes, Total	52.35	µg/L	3.0	87.3	83.4	122	5.02	13	

Qualifiers:

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received:

12/28/2006

Work Order Number 0612288

Received by GLS

Checklist completed by

Signature

Date

Matrix

Carrier name UPS

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	Not Shipped <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Water - VOA vials have zero headspace?	No VOA vials submitted <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	
Container/Temp Blank temperature?	1°	4° C ± 2 Acceptable		If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

Client: SAN JUAN REFINING

Address: 1520 R/ 1990

Bloomfield, NM 97413

Phone #: 856-32-4161

Fax #: 805-637-3911

[illegible]

Date: 12/27/06	Time: 4:24	Relinquished By: (Signature) Wendy Puttalo
Date:	Time:	Relinquished By: (Signature)

Received By: (Signature) *P. Schloper*
Received By: (Signature)

12-28-06
1015

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

Project Name:

GAC-12/27/06

Project #:

Project Manager:

Cindy Hertel

Samuel Krakow

Sample Temperature:

Q

Preservative

11.9	11.9
------	------

Number/Volume

HEAL No.

0612288

此

3-V_A

1

ANALYSIS REQUEST

[illegible]

Remarks:

Received By: (Signature) *S. Schipper* 12-29-06
Received By: (Signature) *S. Schipper* 10/5

Date: 12/27/06	Time: 9:24	Relinquished By: (Signature) Wendy Puttalo
Date:	Time:	Relinquished By: (Signature)

**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4111
www.hallenvironmental.com

