GW - 1

REPORTS

YEAR(S):

2006

RIVER TERRACE VOLUNTARY CORRECTIVE MEASURES
BIOVENTING SYSTEM
SIX MONTH START-UP REPORT

January 2006 through June 2006



SAN JUAN REFINING COMPANY
GIANT – BLOOMFIELD REFINERY
SUBMITTED: AUGUST 2006

GIANT
REFINING COMPANY

August 25, 2006

Hope Monzeglio
New Mexico Environmental Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East
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Re: River Terrace Voluntary Corrective Measures
Bioventing System
Six Month Start-up Report
January 2006 through June 2006

Dear Hope and Wayne,

Giant Refining Company, Bloomfield Refinery submits the River Terrace Voluntary Corrective Measures Bioventing System Six Month Start-up Report as requested by NMED. This report summarizes data gathered during the initiation of the project (August 2005) as well as the six month start-up period from January 2006 to June 2006.

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

Sincerely,

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

Cc: Robert Wilkinson, USEPA – Region VI
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RIVER TERRACE VOLUNTARY CORRECTIVE MEASURES
BIOVENTING SYSTEM
SIX MONTH START-UP REPORT

January 2006 through June 2006

Owner:	San Juan Refining Company 23733 North Scottsdale Road Scottsdale, Arizona 85255	(parent corporation)
Operator:	Giant Refining Company P.O. Box 159 Bloomfield, New Mexico 87413	(postal address)
	Giant Refining Company #50 Rd 4990 Bloomfield, New Mexico 87413	(physical address)
Facility Name:	Bloomfield Refinery	
US EPA ID	NMD089416416	
SIC Code	2911	
Submittal Date:	August 28, 2006	

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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 bioventings were drilled October 2004 through August 2005. A facility plot plan and river terrace project well location plot plan are provided in Section 8.0

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. 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. Soil gas analysis of the TPs show a decrease in vapor-phase organics when comparing the baseline results with the June 2006 (2nd Quarter) results. These results suggest that as treatment progresses, petroleum hydrocarbon concentrations will diminish.

Section 2.0 Introduction

INTRODUCTION

Owner:	San Juan Refining Company 23733 North Scottsdale Road Scottsdale, Arizona 85255	(parent corporation)
Operator:	Giant Refining Company P.O. Box 159 Bloomfield, New Mexico 87413	(postal address)
	Giant Refining Company #50 Rd 4990 Bloomfield, New Mexico 87413	(physical address)
Facility Name:	Bloomfield Refinery: #50 Rd 4990 Bloomfield, New Mexico 87413	(physical address)
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 Naciemento 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.

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 more Temporary Piezometers were drilled (TP #9 – TP #13). In August 2005, Dewatering Wells #1 and #2 were drilled. Baseline groundwater sampling 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). Thirteen Bioventing wells were also drilled at that time. Soil from those wells was analyzed for BTEX (8021B) and Gasoline Range Organics (8015B). Groundwater monitoring included pre-dewater baseline analysis for MW #48, MW #49, and TP #1 through TP #13 occurred in August 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.

Drill logs and installation diagrams can be found in Section 10.0 – Tabs 4, 5, 6, and 7. Analytical results can be found in Section 5.0 – Tabs 1, 2, and 3.

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. Samples were taken from TP#1 through TP #13 (except TP #7) and MW #49 and DW #1. TP #7 is not part of the sampling plan as it appears to have been completed in the River Terrace barrier wall and does not yield a sufficient water volume.

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. Soil gas sampling (vapor phase organics, oxygen, and carbon dioxide) was also collected and analyzed for BTEX (8021B) and gasoline range organics (8015B).

After dewatering conditions stabilized and prior to starting the blower, soil gas samples (hydrocarbons, oxygen and carbon dioxide) and groundwater field parameters were taken during the week of January 18, 2006. Following the start-up of the blower, soil gas samples and groundwater field parameters were scheduled to be collected for the first four weeks of system operation. However, 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. 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. 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. Second quarter samples were collected the week of June 17, 2006 following the same methods and parameters.

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.

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

At least three well volumes were purged from each well prior to sampling. Electrical conductance, pH, and temperature 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, and 3.

All purged water was collected in a fifty-five gallon drum 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 lambia	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-o-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				
acenapthene				
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 HA (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 phthlate	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)		tt	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
chlordane	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 MCLG (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

DDE 1,1'-(2,2-dichloroetheneylidene)-bis/4-chlorobenzene
HA Health Advisory
HMX 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 Uniter 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 considerartion 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

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: The third column presents indicator categories for the NMED SSL residential 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 10 and 11: 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	3.19E+01	sat	3.19E+01	sat	3.19E+01	sat	x	3.65E+02	nc	2.75E+00	5.49E+01
Acetaldehyde	3.39E+01	nc	1.23E+02	nc	1.11E+02	nc	x	1.72E+01	ca		
Acetone	1.26E+04	nc	5.30E+04	nc	4.26E+04	nc	x	5.48E+03	nc	9.55E-01	1.91E+01
Acrylonitrile	1.81E+00	ca	4.70E+00	ca	2.10E+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	3.65E+03	nc	8.86E-01	1.77E+01
Acrolein	6.51E-02	nc	2.37E-01	nc	2.13E-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	1.93E+00	sat	1.93E+00	sat	1.93E+00	sat	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	1.46E-02	2.92E-01
Barium	5.45E+03	nc	7.83E+04	nc	1.44E+03	nc		2.56E+03	nc	1.06E+02	2.11E+03
Benzene	3.32E+00	ca	8.08E+00	ca	5.83E+01	nc	x	3.49E+00	ca	1.01E-03	2.02E-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		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	9.02E-01	ca	3.99E+00	ca	3.00E+01	ca		1.05E-01	ca	2.13E-04	4.25E-03
b-BHC	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	8.91E+01	sat	8.91E+01	sat	8.91E+01	sat	x	3.04E+02	nc	3.61E+00	7.22E+01
Bis(2-chloroethyl) ether	1.05E+00	ca	2.76E+00	ca	5.09E+01	ca	x	9.65E-02	ca	1.90E-05	3.80E-04
Bis(2-chloroisopropyl) ether	4.53E+02	sat	4.53E+02	sat	4.53E+02	sat	x	2.43E+02	nc	6.48E-02	1.30E+00
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	1.64E-03	ca	4.05E-03	ca	8.55E-02	ca	x	5.09E-04	ca	8.96E-08	1.79E-06
Boron	1.22E+04	nc	1.00E+05	max	2.69E+04	nc		7.30E+03	nc	2.40E+01	4.81E+02
Bromobenzene	1.14E+01	nc	4.16E+01	nc	3.72E+01	nc	x	2.06E+01	nc	1.07E-02	2.15E-01
Bromodichloromethane	4.36E+00	ca	1.07E+01	ca	2.29E+02	ca	x	1.78E+00	ca	4.70E-04	9.41E-03
Bromomethane	2.73E+00	nc	1.01E+01	nc	8.95E+00	nc	x	8.66E+00	nc	1.88E-03	3.77E-02
1,3-Butadiene	3.04E-01	ca	7.27E-01	ca	1.40E+00	nc	x	1.26E+00	ca		

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-Butanone (MEK)	4.86E-03	sat	4.86E-03	sat	4.86E-03	sat	x	7.06E+03	nc	1.27E+00	2.54E+01
tert-Butyl methyl ether (MTBE)	6.67E-03	sat	6.67E-03	sat	6.67E-03	sat	x	6.26E+03	nc		
n-Butylbenzene	6.21E+01	sat	6.21E+01	sat	6.21E+01	sat	x	2.43E+02	nc	1.08E+00	2.16E+01
sec-Butylbenzene	6.06E+01	sat	6.06E+01	sat	6.06E+01	sat	x	2.43E+02	nc	8.68E-01	1.74E+01
tert-Butylbenzene	1.06E+02	sat	1.06E+02	sat	1.06E+02	sat	x	2.43E+02	nc	8.60E-01	1.72E+01
Cadmium	3.90E+01	nc	5.64E+02	nc	1.54E+02	nc		1.83E+01		1.37E+00	2.75E+01
Carbon disulfide	1.97E+02	nc	4.60E+02	sat	4.60E+02	sat	x	1.04E+03	nc	4.03E-01	8.06E+00
Carbon tetrachloride	9.65E-01	nc	2.69E+00	ca	3.16E+00	nc	x	1.69E+00	ca	9.88E-04	1.98E-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	1.35E-02	nc	4.97E-02	nc	4.42E-02	nc	x	5.22E-02	nc	4.43E-05	8.85E-04
2-Chloro-1,3-butadiene	1.93E+00	nc	7.00E+00	nc	6.29E+00	nc	x	1.43E+01	nc	5.79E-03	1.16E-01
1-Chloro-1,1-difluoroethane	2.11E+02	sat	2.11E+02	sat	2.11E+02	sat	x	8.66E+04	nc	6.52E+01	1.30E+03
Chlorobenzene	6.44E+01	nc	2.41E+02	nc	2.12E+02	nc	x	1.06E+02	nc	5.51E-02	1.10E+00
1-Chlorobutane	2.99E+02	sat	2.99E+02	sat	2.99E+02	sat	x	2.43E+03	nc	9.84E-01	1.97E+01
Chlorodifluoromethane	2.11E+02	sat	2.11E+02	sat	2.11E+02	sat	x	9.75E+04	nc	7.33E+01	1.47E+03
Chloroethane	1.96E+01	ca	4.71E+01	ca	1.05E+03	ca	x	3.81E+01	ca	9.53E-03	1.91E-01
Chloroform	1.21E+00	ca	2.90E+00	ca	6.53E+01	ca	x	1.65E+00	ca	4.14E-04	8.28E-03
Chloromethane	6.83E+00	ca	1.65E+01	ca	8.63E+01	nc	x	1.49E+01	ca	5.12E-03	1.02E-01
b-Chloronaphthalene	3.09E+01	sat	3.09E+01	sat	3.09E+01	sat	x	4.87E+02	nc	1.25E+00	2.51E+01
o-Chloronitrobenzene	6.72E-01	nc	2.46E+00	nc	2.20E+00	nc	x	1.45E-01	nc	3.94E-05	7.88E-04
p-Chloronitrobenzene	5.37E+00	nc	2.05E+01	nc	1.78E+01	nc	x	1.20E+00	nc	3.25E-04	6.50E-03
2-Chlorophenol	7.25E+01	nc	3.06E+02	nc	2.45E+02	nc	x	3.04E+01	nc	2.36E-02	4.72E-01
2-Chloropropane	9.39E+01	nc	3.52E+02	nc	3.09E+02	nc	x	1.76E+02	nc	4.61E-02	9.21E-01
o-Chlorotoluene	7.15E+01	nc	2.02E+02	sat	2.02E+02	sat	x	1.22E+02	nc	5.23E-02	1.05E+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	9.55E-01	sat	9.55E-01	sat	9.55E-01	sat	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	3.37E+00	ca	1.67E+01	ca	5.27E+01	sat	x	3.49E-01	ca	9.20E-04	1.84E-02
Cumene (isopropylbenzene)	3.41E+01	sat	3.41E+01	sat	3.41E+01	sat	x	6.78E+02	nc	3.79E-01	7.59E+00
Cyanide	1.56E+03	nc	2.27E+04	nc	6.19E+03	nc		7.30E+02	nc	7.35E+00	1.47E+02
Cyanogen	7.68E+01	nc	2.84E+02	nc	2.52E+02	nc	x	2.43E+02	nc	5.78E-02	1.16E+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)
Cyanogen bromide	1.73E+02	nc	6.39E+02	nc	5.67E+02	nc	x	5.48E+02	nc	1.30E-01	2.60E+00
Cyanogen chloride	9.60E+01	nc	3.55E+02	nc	3.15E+02	nc	x	3.04E+02	nc	7.22E-02	1.44E+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	3.66E+01	sat	3.66E+01	sat	3.66E+01	sat	x	1.22E+01	nc	1.44E-01	2.87E+00
1,2-Dibromo-3-chloropropane	1.03E+00	nc	4.52E+00	nc	3.51E+00	nc	x	3.47E-01	nc	7.49E-05	1.50E-03
Dibromochloromethane	4.42E+00	ca	1.09E+01	ca	2.30E+02	ca	x	1.32E+00	ca	1.16E-03	2.32E-02
1,2-Dibromoethane	1.82E-01	ca	4.49E-01	ca	9.49E+00	ca	x	5.53E-02	ca	1.33E-05	2.66E-04
1,4-Dichloro-2-butene	4.29E-02	ca	1.06E-01	ca	2.23E+00	ca	x	1.19E-02	ca	2.93E-06	5.87E-05
1,2-Dichlorobenzene	4.30E+01	sat	4.30E+01	sat	4.30E+01	sat	x	3.70E+02	nc	1.02E-01	2.04E+00
1,3-Dichlorobenzene	1.74E+02	sat	1.74E+02	sat	1.74E+02	sat	x	1.83E+02	nc	2.03E-01	4.06E+00
1,4-Dichlorobenzene	1.33E+01	ca	3.28E+01	ca	8.19E+01	sat	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	4.95E+01	nc	1.80E+02	nc	1.62E+02	nc	x	3.95E+02	nc	2.97E-01	5.94E+00
1,1-Dichloroethane	3.00E+02	nc	1.12E+03	nc	9.88E+02	nc	x	8.11E+02	nc	2.01E-01	4.03E+00
1,2-Dichloroethane	1.82E+00	ca	4.42E+00	ca	1.83E+01	nc	x	1.22E+00	ca	2.48E-04	4.97E-03
cis-1,2-Dichloroethene	2.49E+01	nc	9.24E+01	nc	8.17E+01	nc	x	6.08E+01	nc	1.50E-02	3.00E-01
trans-1,2-Dichloroethene	3.71E+01	nc	1.37E+02	nc	1.22E+02	nc	x	1.22E+02	nc	3.63E-02	7.26E-01
1,1-Dichloroethene	6.41E+01	nc	2.36E+02	nc	2.10E+02	nc	x	3.39E+02	nc	1.33E-01	2.67E+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	1.90E+00	ca	4.60E+00	ca	1.08E+01	nc	x	1.63E+00	ca	4.11E-04	8.22E-03
1,3-Dichloropropene	4.36E+00	ca	1.08E+01	ca	2.87E+01	nc	x	3.90E+00	ca	1.28E-03	2.57E-02
Dicyclopentadiene	1.98E-01	nc	7.19E-01	nc	6.47E-01	nc	x	4.17E-01	nc	4.50E-04	9.01E-03
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
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
2,4-Dimethylphenol	6.11E+00	nc	6.84E+01	nc	2.33E+01	nc		3.65E+00	nc	3.93E-03	7.85E-02
4,6-Dinitro-o-cresol	1.22E+02	nc	1.37E+03	nc	4.66E+02	nc		7.30E+01	nc	5.25E-02	1.05E+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)
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	6.13E+00	nc	2.29E+01	nc	2.02E+01	nc	x	2.03E+00	nc	3.62E-04	7.25E-03
Ethyl acetate	1.09E+04	nc	2.10E+04	sat	2.10E+04	sat	x	5.48E+03	nc	1.44E+00	2.87E+01
Ethyl acrylate	8.61E-01	ca	2.07E+00	ca	4.62E+01	ca	x	2.30E+00	ca	6.01E-03	1.20E-01
Ethyl chloride	1.96E+01	ca	4.71E+01	ca	1.05E+03	ca	x	3.81E+01	ca	9.53E-03	1.91E-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	1.44E+00	2.88E+01
Ethylbenzene	1.28E+02	sat	1.28E+02	sat	1.28E+02	sat	x	1.34E+03	nc	1.01E+00	2.03E+01
Ethylene oxide	1.18E+00	ca	3.13E+00	ca	5.74E+01	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	3.97E+01	sat	3.97E+01	sat	3.97E+01	sat	x	2.43E+02	nc	5.08E+00	1.02E+02
Fluoride	4.68E+03	nc	6.77E+04	nc	1.85E+04	nc		2.19E+03	nc	3.29E+02	6.58E+03
Furan	1.76E+00	nc	6.51E+00	nc	5.78E+00	nc	x	6.08E+00	nc	1.32E-03	2.65E-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	8.78E-01	1.76E+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	7.05E+00	nc	2.57E+01	nc	2.30E+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	8.44E+03	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					
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	9.30E+02	nc	1.61E+03	sat	1.61E+03	sat	x	3.04E+03	nc	8.17E-01	1.63E+01
Manganese	1.02E+04	nc	1.00E+05	max	1.51E+02	nc		5.11E+03	nc	3.34E+02	6.67E+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)
Mercury (elemental)	1.00E+05	max	1.00E+05	max	9.27E+02	nc			ca	1.05E-01	2.09E-03
Mercury (methyl)	6.11E+00	nc	6.84E+01	nc	2.38E+01	nc		3.65E+00	nc	8.37E-04	1.67E-02
Methacrylonitrile	1.83E+00	nc	8.08E+00	nc	6.25E+00	nc	x	1.04E+00	nc	1.83E-04	3.65E-03
Methomyl	2.65E+01	nc	9.72E+01	nc	8.68E+01	nc	x	1.52E+02	nc	5.90E-02	1.18E+00
Methyl acetate	1.94E+04	nc	8.64E+04	nc	6.62E+04	nc	x	6.08E+03	nc	1.08E+00	2.15E+01
Methyl acrylate	2.91E+01	nc	1.06E+02	nc	9.51E+01	nc	x	1.83E+02	nc	4.76E-01	9.52E+00
Methyl isobutyl ketone	4.36E+03	nc	7.01E+03	sat	7.01E+03	sat	x	1.99E+03	nc	7.35E-01	1.47E+01
Methyl methacrylate	1.52E+03	nc	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	3.09E-01	6.17E+00
Methyl styrene (mixture)	5.30E+01	nc	2.10E+02	nc	1.77E+02	nc	x	5.48E+01	nc	3.97E-02	7.93E-01
Methylcyclohexane	7.89E+01	sat	7.89E+01	sat	7.89E+01	sat	x	5.23E+03	nc	2.95E+01	5.89E+02
Methylene bromide	4.22E+01	nc	1.60E+02	nc	1.39E+02	nc	x	6.08E+01	nc	1.31E-02	2.62E-01
Methylene chloride	6.47E+01	ca	1.61E+02	ca	2.63E+03	sat	x	4.22E+01	ca	8.53E-03	1.71E-01
Molybdenum	3.91E+02	nc	5.68E+03	nc	1.55E+03	nc		1.83E+02	nc	3.70E+00	7.41E+01
Naphthalene	2.52E+01	nc	9.25E+01	nc	8.25E+01	nc	x	6.20E+00	nc	1.97E-02	3.94E-01
Nickel	1.56E+03	nc	2.25E+04	nc	5.61E+02	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	1.71E+01	3.43E+02
Nitrite	7.82E+03	nc	1.00E+05	max	3.10E+04	nc		3.65E+03	nc	7.63E-01	1.53E+01
Nitrobenzene	1.29E+01	nc	6.24E+01	nc	4.48E+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	2.81E-02	5.63E-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	1.22E-05	2.44E-04
N-Nitrosodi-n-butylamine	1.99E-01	ca	5.23E-01	ca	9.53E+00	ca	x	1.99E-02	ca	5.27E-05	1.05E-03
N-Nitrosodiphenylamine	7.40E+01	sat	7.40E+01	sat	7.40E+01	sat		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	4.73E+02	nc	5.69E+02	sat	5.69E+02	sat	x	1.22E+02	nc	3.30E-02	6.59E-01
o-Nitrotoluene	5.11E+00	ca	1.35E+01	ca	2.48E+02	ca	x	4.81E-01	ca	1.30E-04	2.61E-03
p-Nitrotoluene	6.91E+01	ca	1.83E+02	ca	5.69E+02	sat	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	9.38E-02	1.88E+00
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

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)
Polychlorinatedbiphenyls											
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	2.43E+02	nc	1.08E+00	2.16E+01
Propylene oxide	1.63E+01	ca	5.71E+01	ca	3.16E+02	nc	x	2.18E+00	ca	4.60E-04	9.20E-03
Pyrene	2.13E+01	sat	2.13E+01	sat	2.13E+01	sat	x	1.83E+02	nc	2.88E+01	5.76E+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	9.53E-01	1.91E+01
Silver	3.91E+02	nc	5.68E+03	nc	1.55E+03	nc		1.83E+02	nc	1.57E+00	3.14E+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	4.21E+02	sat	4.21E+02	sat	4.21E+02	sat	x	1.62E+03	nc	2.20E+00	4.40E+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	1.56E+01	ca	3.86E+01	ca	8.09E+02	ca	x	4.27E+00	ca	1.34E-03	2.68E-02
1,1,2,2-Tetrachloroethane	2.00E+00	ca	4.94E+00	ca	1.04E+02	ca	x	5.46E-01	ca	1.72E-04	3.44E-03
Tetrachloroethene	3.52E+00	ca	8.56E+00	ca	9.93E+01	sat	x	4.32E+00	ca	2.15E-03	4.29E-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	7.23E+02	nc	3.47E-01	6.93E+00
Toxaphene	4.42E+00	ca	1.74E+01	ca	1.48E+02	ca		6.03E-01	ca	2.33E-01	4.65E+00
Tribromomethane	4.11E+02	ca	1.34E+03	ca	2.75E+03	nc		2.44E+01	ca	1.73E-01	3.47E+00
1,1,2-Trichloro-1,2,2-trifluoroethane	3.28E+03	sat	3.28E+03	sat	3.28E+03	sat	x	5.92E+04	nc	1.76E+02	3.53E+03
1,2,4-Trichlorobenzene	2.25E+01	nc	8.34E+01	nc	7.38E+01	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	1.34E+00	2.68E+01
1,1,2-Trichloroethane	3.90E+00	ca	9.52E+00	ca	6.60E+01	nc	x	1.97E+00	ca	4.98E-04	9.96E-03
Trichloroethylene	2.26E-01	ca	5.45E-01	ca	1.21E+01	ca	x	2.77E-01	ca	1.31E-04	2.62E-03
Trichlorofluoromethane	1.82E+02	nc	6.65E+02	nc	5.96E+02	nc	x	1.29E+03	nc	1.15E+00	2.30E+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

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)
1,1,2-Trichloropropane	4.08E+01	nc	1.61E+02	nc	1.36E+02	nc	x	3.04E+01	nc	7.65E-03	1.53E-01
1,2,3-Trichloropropane	1.82E-01	ca	4.50E-01	ca	9.50E+00	ca	x	5.53E-02	ca	1.39E-05	2.78E-04
1,2,3-Trichloropropene	2.63E+00	nc	9.58E+00	nc	8.60E+00	nc	x	2.10E+00	nc	5.29E-04	1.06E-02
Triethylamine	1.98E+01	nc	7.94E+01	nc	6.61E+01	nc	x	1.21E+01	nc	2.14E-03	4.29E-02
1,2,4-Trimethylbenzene	1.77E+01	nc	6.45E+01	nc	5.79E+01	nc	x	1.23E+01	nc	7.09E-02	1.42E+00
1,3,5-Trimethylbenzene	7.54E+00	nc	2.74E+01	nc	2.46E+01	nc	x	1.23E+01	nc	1.78E-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	3.30E+02	nc	1.20E+03	nc	1.08E+03	nc	x	4.12E+02	nc	7.57E-02	1.51E+00
Vinyl bromide	8.65E-01	ca	2.47E+00	ca	6.15E+00	nc	x	1.18E+00	ca	4.73E-04	9.45E-03
Vinyl chloride (Child)	1.04E+00	ca					x	4.28E-01	ca	1.43E-04	2.86E-03
Vinyl chloride (adult)	2.02E+00	ca	5.73E+00	ca	8.07E+01	nc	x	8.33E-01	ca	2.78E-04	5.57E-03
m-Xylene	1.01E+02	nc	1.32E+02	sat	1.32E+02	sat	x	2.03E+02	nc	1.66E-01	3.33E+00
o-Xylene	1.32E+02	sat	1.32E+02	sat	1.32E+02	sat	x	7.30E+03	nc	5.43E+00	1.09E+02
Xylenes	1.02E+02	nc	1.33E+02	sat	1.33E+02	sat	x	2.03E+02	nc	1.67E-01	3.34E+00
Zinc	2.35E+04	nc	1.00E+05	max	9.29E+04	nc		1.10E+04	nc	6.82E+02	1.36E+04

Section 5.0 Monitoring Results

Title	Tab Number
Soil Gas Monitoring	1
Groundwater Monitoring	2
Bioventing Wells Soils Analysis	3

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 (mg/L)	Ethylben (mg/L)	Toluene (mg/L)	Xylene (mg/L)	GRO (mg/L)
TP-#1	Pre-Dewater	Week of 1/09/06	9.40	5.14	0.00	1401.00	15.00	1.30	0.0058	0.0470	0.0035	0.3200	2.800
	Pre-Aeration	Week of 1/16/06	14.50	7.88	0.00	191.00	3.10	4.50	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	11.50	6.28	0.02	1490.00	18.10	0.00	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	13.00	7.25	0.08	1534.00	20.60	0.00	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	13.00	7.81	0.05	1534.00	20.00	0.00	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	14.00	8.15	0.10	1534.00	20.60	0.10	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	15.00	8.04	0.30	1534.00	20.70	0.10	0.022	0.3100	0.0120	2.1000	8.500
	2nd Quarter	Week of 6/17/06	12.50	6.8	0.05	1452.00	18.90	0.50	0.0026	0.0055	<0.002	0.2100	3.100
TP-#2	Pre-Dewater	Week of 1/09/06	12.00	6.62	0.00	1589.00	4.00	6.40	0.0078	0.0110	0.0080	0.0880	11.000
	Pre-Aeration	Week of 1/16/06	16.50	9.12	0.00	1490.00	3.00	2.90	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	14.20	7.74	0.05	732.00	20.90	0.00	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	17.00	9.25	0.10	600.00	20.90	0.00	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	18.00	9.73	0.01	399.80	20.70	0.00	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	18.00	9.83	0.19	223.60	20.90	0.00	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	18.00	9.83	0.05	92.70	20.90	0.00	0.00036	0.0018	0.0014	0.0170	0.150
	2nd Quarter	Week of 6/17/06	15.10	8.27	0.15	23.80	20.90	0.00	0.00021	0.0002	0.0001	0.0028	0.025

NS = Not Sampled due to Transformer Malfunction

PR = Piezometer needs repair - Not Sampled

NM = Not Measured

VP = Vacuum Pump Malfunction - Not Sampled

NR = Not Required

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 (mg/L)	Ethylben (mg/L)	Toluene (mg/L)	Xylene (mg/L)	GRO (mg/L)
TP-#3	Pre-Dewater	Week of 1/09/06	11.8	6.44	0.00	NM	17.80	0.00	<0.000050	<0.000050	<0.000050	0.000093	<0.005
	Pre-Aeration	Week of 1/16/06	NM	NM	NM	NM	NM	NM	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	12.8	7.01	0.00	16.50	20.90	0.00	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	13	7.14	0.00	163.00	20.90	0.00	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	11	6.15	0.00	227.70	20.90	0.00	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	PR	PR	PR	PR	PR	PR	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	15.00	8.09	0.00	179.80	18.60	0.60	0.00055	0.0022	0.00053	0.0230	1.300
	2nd Quarter	Week of 6/17/06	13.20	7.23	0.00	2.90	20.90	1.00	<0.0001	<0.0001	<0.0001	<0.0003	<0.005
TP-#4	Pre-Dewater	Week of 1/09/06	9.10	4.96	0.00	11.90	16.80	0.00	<0.000050	0.000071	0.000073	0.000290	0.017
	Pre-Aeration	Week of 1/16/06	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	10.00	5.74	0.00	658.00	19.30	0.10	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	11.00	6.06	0.00	1534.00	18.50	0.20	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	11.00	6.24	0.00	1534.00	18.10	0.20	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	12.00	6.34	0.00	VP	VP	VP	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	12.00	6.41	0.00	1534.00	18.50	0.60	<0.025	0.0760	0.0230	0.6300	19.000
	2nd Quarter	Week of 6/17/06	9.76	5.33	0.00	198.00	20.90	0.10	<0.0001	<0.0001	<0.0001	0.0120	0.080

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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 (mg/L)	Ethylben (mg/L)	Toluene (mg/L)	Xylene (mg/L)	GRO (mg/L)
TP-#5	Pre-Dewater	Week of 1/09/06	8.60	4.70	0.00	103.50	16.00	1.10	0.0001	0.00540	0.0003	0.0380	0.150
	Pre-Aeration	Week of 1/16/06	13.80	7.57	0.00	1202.00	7.40	0.80	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	13.40	7.33	0.00	1490.00	18.10	0.00	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	13.90	7.60	0.00	1534.00	18.70	0.00	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	14.00	7.73	0.00	1534.00	20.60	0.00	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	14.00	7.85	0.00	1534.00	20.60	0.00	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	14.00	7.81	0.01	1534.00	19.70	0.10	0.0690	0.31000	0.0550	2.0000	34.000
	2nd Quarter	Week of 6/17/06	9.59	5.24	0.00	953.00	18.60	1.40	<0.00010	0.00150	0.0110	0.1300	1.800
TP-#6	Pre-Dewater	Week of 1/09/06	10.4	5.63	0.00	350.00	16.50	1.40	0.0027	0.04100	0.0004	0.2100	0.570
	Pre-Aeration	Week of 1/16/06	15.6	8.53	0.00	415.00	6.20	0.80	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	14.9	8.15	0.00	1359.00	18.00	0.00	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	15	8.4	0.00	1254.00	18.80	0.10	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	16	8.54	0.01	1534.00	20.20	0.20	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	16	8.59	0.00	1534.00	19.70	0.30	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	16.00	8.61	0.00	1534.00	20.00	0.30	0.0079	0.04700	0.0065	0.9500	4.500
	2nd Quarter	Week of 6/17/06	11.30	6.18	0.00	56.90	20.60	0.50	<0.00010	0.00018	<0.0001	0.0031	0.100

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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 (mg/L)	Ethylben (mg/L)	Toluene (mg/L)	Xylene (mg/L)	GRO (mg/L)
TP-#8	Pre-Dewater	Week of 1/09/06	10.3	5.61	0.00	1589.00	4.60	8.90	0.0069	0.03100	0.0029	0.3000	1.800
	Pre-Aeration	Week of 1/16/06	15.8	8.65	0.00	847.00	1.30	5.20	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	13.2	7.24	0.10	1490.00	20.90	0.00	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	15	8.38	0.10	1534.00	20.90	0.00	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	16	9.02	0.09	1534.00	20.70	0.00	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	17	9.22	0.10	1534.00	20.90	0.00	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	16	8.92	0.05	1534.00	20.70	0.10	0.0088	0.22000	0.0130	1.9000	7.700
	2nd Quarter	Week of 6/17/06	13.7	7.5	0.01	1641.00	20.90	0.10	<0.002	0.00660	0.0022	0.4600	3.700
TP-#9	Pre-Dewater	Week of 1/09/06	11.3	5.08	0.00	8.50	17.20	0.20	<0.000050	0.00005	0.0002	0.0004	0.031
	Pre-Aeration	Week of 1/16/06	9.4	5.14	0.00	0.40	15.90	2.00	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	9.5	5.22	0.00	58.30	20.70	0.00	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	9.6	5.25	0.00	27.80	20.90	0.00	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	9.5	5.24	0.00	18.50	20.90	0.00	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	9	5.28	0.00	51.40	20.90	0.00	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	10.00	5.21	0.00	7.70	20.60	0.10	<0.000050	0.00009	0.0001	0.0005	0.008
	2nd Quarter	Week of 6/17/06	9.00	5.26	0.00	13.90	20.90	0.00	<0.0001	<0.00010	0.0001	0.0006	0.031

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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 (mg/L)	Ethylben (mg/L)	Toluene (mg/L)	Xylene (mg/L)	GRO (mg/L)
TP-#10	Pre-Dewater	Week of 1/09/06	9.3	5.08	0.00	0.00	17.80	0.00	<0.000050	<0.000050	<0.000050	0.00028	<0.005
	Pre-Aeration	Week of 1/16/06	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	10	5.54	0.00	31.20	18.10	0.80	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	10	5.67	0.00	52.50	18.50	0.80	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	10	5.74	0.00	110.90	17.60	0.80	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	11	5.85	0.00	VP	VP	VP	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	11	5.86	0.00	21.90	17.10	1.10	0.000069	0.00062	0.000053	0.0061	0.025
	2nd Quarter	Week of 6/17/06	9.6	5.23	0.00	6.70	20.90	0.00	0.00011	0.00016	<0.00010	0.00057	0.014
TP-#11	Pre-Dewater	Week of 1/09/06	10.2	5.55	0.00	0.00	17.50	0.30	<0.00005	<0.00005	<0.00005	0.00014	<0.0005
	Pre-Aeration	Week of 1/16/06	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	11	6.03	0.00	24.00	20.70	0.30	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	11	6.1	0.00	73.20	20.90	0.30	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	11	6.19	0.00	65.20	20.20	0.30	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	12	6.29	0.00	VP	VP	VP	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	11	6.31	0.00	13.20	20.00	0.40	0.000055	0.00032	0.000053	0.0033	0.013
	2nd Quarter	Week of 6/17/06	10.3	5.61	0.00	2.60	18.80	1.40	<0.00010	<0.00010	<0.00010	<0.0003	<0.0050

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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 (mg/L)	Ethylben (mg/L)	Toluene (mg/L)	Xylene (mg/L)	GRO (mg/L)
TP-#12	Pre-Dewater	Week of 1/09/06	13.5	7.38	0.00	0.20	17.80	0.00	<0.00005	<0.00005	<0.00005	0.00032	<0.0005
	Pre-Aeration	Week of 1/16/06	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	14	7.73	0.00	27.00	19.30	1.30	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	14	7.79	0.00	122.00	19.30	1.10	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	14	7.86	0.00	72.50	18.80	1.10	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	15	7.94	0.00	VP	VP	VP	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	15.00	7.94	0.00	10.10	18.70	1.40	0.000052	0.00021	0.000055	0.0023	0.009
	2nd Quarter	Week of 6/17/06	13.60	7.44	0.00	6.70	20.90	0.00	0.00012	0.00019	<0.00012	0.00052	0.017
TP-#13	Pre-Dewater	Week of 1/09/06	11.4	6.24	0.00	0.10	17.80	0.00	<0.00005	<0.00005	<0.00005	<0.00005	<0.0005
	Pre-Aeration	Week of 1/16/06	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	12	6.59	0.00	24.20	20.00	0.70	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	12	6.64	0.00	121.00	19.40	0.80	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	12	6.69	0.00	78.80	19.20	0.80	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	12	6.79	0.00	VP	VP	VP	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	12	6.78	0.00	12.60	19.10	1.00	0.00005	0.00017	0.000085	0.0016	0.009
	2nd Quarter	Week of 6/17/06	11.6	6.35	0.00	19.50	18.10	1.00	0.0001	0.00048	0.00011	0.0024	0.027

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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 (mg/L)	Ethylben (mg/L)	Toluene (mg/L)	Xylene (mg/L)	GRO (mg/L)
MW #49	Pre-Dewater	Week of 1/09/06	71.10	9.69	0.00	0.00	17.10	1.00	<0.000050	<0.000050	0.000820	0.000340	<0.005
	Pre-Aeration	Week of 1/16/06	74.00	10.13	0.00	2.00	19.80	0.70	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	73.00	10.04	0.00	28.80	19.40	0.70	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	75.00	10.06	0.00	51.90	19.10	1.20	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	73.00	10.05	0.00	89.40	18.70	1.10	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	74.00	10.11	0.00	VP	VP	VP	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	74.00	10.07	0.00	20.30	19.20	1.00	<0.000050	0.000100	0.000056	0.008900	0.028000
	2nd Quarter	Week of 6/17/06	73.00	9.98	0.00	16.10	16.80	2.70	<0.00010	<0.00010	<0.00010	0.001400	0.035000
DW #1	Pre-Dewater	Week of 1/09/06	113	6.9	0.00	0.00	12.70	7.40	0.000090	0.000140	0.000590	0.001200	0.035000
	Pre-Aeration	Week of 1/16/06	129	7.84	0.00	5.70	20.40	0.20	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	124	7.52	0.00	252.00	15.80	3.00	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	127	7.71	0.00	449.00	13.90	4.50	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	129	7.89	0.00	120.20	13.60	4.20	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	130	7.91	0.00	VP	VP	VP	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	130	7.91	0.00	25.40	9.90	8.70	<0.000050	0.000610	0.000170	0.005200	0.061000
	2nd Quarter	Week of 6/17/06	150	6.49	0.00	5.80	16.60	4.40	<0.00010	<0.00010	<0.00010	0.000330	0.008600

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River Terrace

Ground Water Monitoring 2005/2006

Field Measurements											EPA Method 8021B WQCC 20NMAC 6.2.3103					EPA Method 8021B	
											0.01	0.75	0.75	0.62			
Sample Location	Sampling Activities	DATE	Depth to Water (ft)	Depth to Product (ft)	Well Depth (ft)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP	Benzene (mg/L)	Ethylben (mg/L)	Toluene (mg/L)	Xylene (mg/L)	MTBE mg/L	DRO mg/L	GRO (mg/L)
TP-#1	Baseline	week of 8/15/05	5.35	NPP	9.38	2034	6.92	70.6	NR	NR	1.4	3.8	0.049	23	<0.050	1.9	66
	Pre-Dewater	Week of 1/09/06	5.14	NPP	9.38	1911	6.93	48.0	4.34	183.3	NR	NR	NR	NR	NR	NR	NR
	Pre-Aeration	Week of 1/16/06	7.88	NPP	9.38	2116	7.05	49.5	0.19	-333	NR	NR	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	6.28	NPP	9.38	1957	6.96	50.1	2.20	70.0	NR	NR	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	7.25	NPP	9.38	2284	7.04	50.1	4.21	144.0	NR	NR	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	7.81	NPP	9.38	2095	6.98	48.5	11.86	86.7	NR	NR	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	8.15	NPP	9.38	2261	7.06	50.7	0.883	98.67	NR	NR	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	8.04	NPP	9.38	2233	7.04	52.0	1705	186	1.5	4.1000	<0.050	30.00	<0.120	3.80	72.00
	2nd Quarter	Week of 6/17/06	6.8	NPP	9.38	2372	6.96	67.3	1802	-15	2.6	3.3000	<0.250	18.00	<0.620	4.30	40.00
TP-#2	Baseline	week of 8/15/05	6.84	NPP	9.92	2225	6.85	65.2	NR	NR	6.1	4.2	8.7	25	<0.05	1.1	84
	Pre-Dewater	Week of 1/09/06	6.62	NPP	9.92	2001	6.91	48.3	2.560	178.00	NR	NR	NR	NR	NR	NR	NR
	Pre-Aeration	Week of 1/16/06	9.12	NPP	9.92	1807	7.01	50.3	1.010	119.67	NR	NR	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	7.74	NPP	9.92	1694	6.96	49.4	5.640	-531.00	NR	NR	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	9.25	NPP	9.92	1477	7.05	49.0	10.020	140.67	NR	NR	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	9.73	NPP	9.92	1347	7.03	46.6	18.370	-522.67	NR	NR	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	9.83	NPP	9.92	1445	7.03	48.7	15.950	69.67	NR	NR	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	9.83	NPP	9.92	1802	7.08	53.2	1350	184	6.2	0.51	1.1	5	<0.120	9.9	27
	2nd Quarter	Week of 6/17/06	8.27	NPP	9.92	3586	6.93	62.8	2835	-216	3.6	2.8	2.4	14	<0.120	4.9	42

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NWP = No Water Present

NM = Not Measured

River Terrace

Ground Water Monitoring 2005/2006

Field Measurements											EPA Method 8021B WQCC 20NMAC 6.2.3103					EPA Method 8021B	
											0.01	0.75	0.75	0.62			
Sample Location	Sampling Activities	DATE	Depth to Water (ft)	Depth to Product (ft)	Well Depth (ft)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP	Benzene (mg/L)	Ethylben (mg/L)	Toluene (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	<0.005	0.0012	<0.0025	<1.0	<0.05
	Pre-Dewater	Week of 1/09/06	6.44	NPP	12.35	1262	6.96	50.3	2.89	234.00	NR	NR	NR	NR	NR	NR	NR
	Pre-Aeration	Week of 1/16/06	6.48	NPP	12.35	1256	6.97	50.3	3.00	239.33	NR	NR	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	7.01	NPP	12.35	1119	6.94	49.6	0.45	217.33	NR	NR	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	7.14	NPP	12.35	1134	7.00	48.7	0.52	234.67	NR	NR	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	6.15	NPP	12.35	1121	7.03	49.5	0.36	253.67	NR	NR	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	PR	PR	PR	PR	PR	PR	PR	PR	NR	NR	NR	NR	NR	NR	NR
	1st Quarter	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
	2nd 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
TP-#4	Baseline	week of 8/15/05	5.00	NPP	6.49	696	6.88	70.0	NR	NR	<0.01	0.42	<0.01	0.22	<0.05	1.1	8.2
	Pre-Dewater	Week of 1/09/06	4.96	NPP	6.49	409	6.95	39.7	1.550	231.33	NR	NR	NR	NR	NR	NR	NR
	Pre-Aeration	Week of 1/16/06	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	5.74	NPP	6.49	353	6.94	38.5	0.463	218.67	NR	NR	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	6.06	NPP	6.49	356	7.00	41.4	1.94	217.00	NR	NR	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	6.24	NPP	6.49	364	7.02	42.5	271.67	69.67	NR	NR	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	NWP	NWP	6.49	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP
	1st Quarter	Week of 3/06/06	NWP	NWP	6.49	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP	NWP
	2nd Quarter	Week of 6/17/06	5.33	NPP	6.49	681	6.95	59.8	0.54	236	<0.010	<0.001	<0.001	0.70	<0.025	1.1000	9.200

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River Terrace

Ground Water Monitoring 2005/2006

Field Measurements											EPA Method 8021B WQCC 20NMAC 6.2.3103					EPA Method 8021B	
											0.01	0.75	0.75	0.62	1		
Sample Location	Sampling Activities	DATE	Depth to Water (ft)	Depth to Product (ft)	Well Depth (ft)	E.C. (umhos/cm)	pH	TEMP. (°F)	D.O (mg/L)	ORP	Benzene (mg/L)	Ethylben (mg/L)	Toluene (mg/L)	Xylene (mg/L)	MTBE mg/L	DRO mg/L	GRO (mg/L)
TP-#5	Baseline	week of 8/15/05	5.91	NPP	8.84	923	6.90	68.7	NR	NR	0.35	3.5	<0.005	21	<0.05	1.2	56
	Pre-Dewater	Week of 1/09/06	4.7	NPP	8.84	947	6.94	49.0	1.435	-44.7	NR	NR	NR	NR	NR	NR	NR
	Pre-Aeration	Week of 1/16/06	7.5	NPP	8.84	1390	6.97	49.1	0.030	-160.0	NR	NR	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	7.33	NPP	8.84	1222	6.99	51.5	0.943	-150.7	NR	NR	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	7.60	NPP	8.84	1330	7.06	51.6	0.983	-131.7	NR	NR	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	7.73	NPP	8.84	977	7.07	53.2	0.870	-101.3	NR	NR	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	7.85	NPP	8.84	770	7.02	52.0	0.603	-67.3	NR	NR	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	7.81	NPP	8.84	747	7.03	1.1	0.52	-51.0	0.2	0.28	<0.02	20	<0.05	<1.0	59
	2nd Quarter	Week of 6/17/06	5.24	NPP	8.84	989	6.94	65.3	0.053	39.0	0.054	1.6	<0.001	16	<0.025	<3.0	34
TP-#6	Baseline	week of 8/15/05	5.78	NPP	9.94	1128	6.94	68.2	NR	NR	0.28	2.8	<0.01	7.5	<0.05	1	26
	Pre-Dewater	Week of 1/09/06	5.63	NPP	9.94	983	6.94	48.6	0.390	87.00	NR	NR	NR	NR	NR	NR	NR
	Pre-Aeration	Week of 1/16/06	8.53	NPP	9.94	982	7.05	50.6	0.360	-44.00	NR	NR	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	8.15	NPP	9.94	1401	7.02	52.4	2.830	-202.33	NR	NR	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	8.4	NPP	9.94	1573	7.05	50.4	0.893	-129.00	NR	NR	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	8.54	NPP	9.94	1336	6.97	49.1	2.590	111.33	NR	NR	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	8.59	NPP	9.94	995	7.05	49.7	2.060	129.00	NR	NR	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	8.61	NPP	9.94	602	7.35	52.3	429	153	<0.001	0.18	<0.001	0.75	<0.025	<1.0	2.7
	2nd Quarter	Week of 6/17/06	6.18	NPP	9.94	1216	6.98	66.5	881	94	<0.001	4.4	<0.001	0.35	<0.025	<1.0	1.9

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River Terrace

Ground Water Monitoring 2005/2006

Field Measurements											EPA Method 8021B WQCC 20NMAC 6.2.3103					EPA Method 8021B	
											0.01	0.75	0.75	0.62			
Sample Location	Sampling Activities	DATE	Depth to Water (ft)	Depth to Product (ft)	Well Depth (ft)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP	Benzene (mg/L)	Ethylben (mg/L)	Toluene (mg/L)	Xylene (mg/L)	MTBE mg/L	DRO mg/L	GRO (mg/L)
TP-#8	Baseline	week of 8/15/05	6.61	NPP	9.72	1934	6.94	72.4	NR	NR	1.1	3.2000	<0.05	6.25	<0.25	7.8	84
	Pre-Dewater	Week of 1/09/06	5.61	NPP	9.72	1802	6.98	49.4	1.130	344.70	NR	NR	NR	NR	NR	NR	NR
	Pre-Aeration	Week of 1/16/06	8.23	NPP	9.72	1769	7.04	50.9	0.210	200.00	NR	NR	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	7.24	NPP	9.72	1704	6.97	50.1	7.490	90.67	NR	NR	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	8.38	NPP	9.72	2077	7.08	51.0	2.520	89.33	NR	NR	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	9.02	NPP	9.72	2024	6.92	48.6	1.670	209.33	NR	NR	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	9.22	NPP	9.72	1627	6.95	48.2	0.807	199.30	NR	NR	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	8.92	NPP	9.72	1613	7.03	52.6	0.61	228	0.35	1.1000	<0.1	10	<0.025	18	37
	2nd Quarter	Week of 6/17/06	7.5	NPP	9.72	2032	7.01	67.6	0.48	143	0.26	0.6400	<0.100	6.3	<0.025	6.8	19
TP-#9	Baseline	week of 8/15/05	5.12	NPP	10.97	1968	6.92	62.8	NR	NR	<0.005	<0.003	<0.001	0.02	0.027	<1.0	1.1
	Pre-Dewater	Week of 1/09/06	5.08	NPP	10.97	1870	6.91	48.0	11.070	222	NR	NR	NR	NR	NR	NR	NR
	Pre-Aeration	Week of 1/16/06	5.14	NPP	10.97	1981	7.00	47.5	0.320	97	NR	NR	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	5.22	NPP	10.97	2029	6.99	48.1	0.623	251	NR	NR	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	5.25	NPP	10.97	1999	7.03	45.0	0.837	243	NR	NR	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	5.24	NPP	10.97	1897	6.93	44.8	1.020	197	NR	NR	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	5.28	NPP	10.97	1850	6.99	44.4	0.730	198	NR	NR	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	5.21	NPP	10.97	1944	7.02	47.8	0.75	214	<0.001	<0.003	<0.001	<0.003	<0.0025	<1.0	0.094
	2nd Quarter	Week of 6/17/06	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

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River Terrace

Ground Water Monitoring 2005/2006

Field Measurements											EPA Method 8021B or WQCC 20NMAC 6.2.3103					EPA Method 8021B	
											0.001	0.0075	0.075	0.062			
Sample Location	Sampling Activities	DATE	Depth to Water (ft)	Depth to Product (ft)	Well Depth (ft)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP	Benzene (mg/L)	Ethylben (mg/L)	Toluene (mg/L)	Xylene (mg/L)	MTBE mg/L	DRO mg/L	GRO (mg/L)
TP-#10	Baseline	week of 8/15/05	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-Dewater	Week of 1/09/06	5.08	NPP	9.95	390	7.02	42.6	8.31	179.33	NR	NR	NR	NR	NR	NR	NR
	Pre-Aeration	Week of 1/16/06	5.09	NPP	9.95	387	7.02	42.4	4.47	181.67	NR	NR	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	5.54	NPP	9.95	353	6.93	41.2	1.73	200.67	NR	NR	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	5.67	NPP	9.95	356	7.00	39.7	3.61	228.33	NR	NR	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	5.74	NPP	9.95	343	7.00	41.2	2.18	107.3	NR	NR	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	5.85	NPP	9.95	352	7.04	41.4	183.30	220.33	NR	NR	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	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
	2nd Quarter	Week of 6/17/06	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
TP-#11	Baseline	week of 8/15/05	5.67	NPP	9.98	794	6.93	68.2	NR	NR	<0.0005	<0.0005	<0.0005	0.0028	<0.0025	<1.0	<0.05
	Pre-Dewater	Week of 1/09/06	5.55	NPP	9.98	967	6.99	48.3	1.35	149.67	NR	NR	NR	NR	NR	NR	NR
	Pre-Aeration	Week of 1/16/06	5.51	NPP	9.98	1041	6.95	47.6	1.30	158.00	NR	NR	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	6.03	NPP	9.98	556	6.94	46.8	0.56	193.67	NR	NR	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	6.1	NPP	9.98	831	6.97	45.5	1.75	257.00	NR	NR	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	6.19	NPP	9.98	805	6.97	45.5	0.88	242.33	NR	NR	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	6.29	NPP	9.98	941	7.01	46.2	0.15	239.67	NR	NR	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	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
	2nd Quarter	Week of 6/17/06	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

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River Terrace

Ground Water Monitoring 2005/2006

			Field Measurements								EPA Method 8021B WQCC 20NMAC 6.2.3103					EPA Method 8021B	
											0.01	0.75	0.75	0.62			
Sample Location	Sampling Activities	DATE	Depth to Water (ft)	Depth to Product (ft)	Well Depth (ft)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP	Benzene (mg/L)	Ethylben (mg/L)	Toluene (mg/L)	Xylene (mg/L)	MTBE mg/L	DRO mg/L	GRO (mg/L)
TP-#12	Baseline	week of 8/15/05	7.43	NPP	11.79	2143	6.88	64.1	NR	NR	<0.0005	0.00055	<0.0005	0.0042	0.0028	1.00	<0.05
	Pre-Dewater	Week of 1/09/06	7.38	NPP	11.79	1072	6.91	47.1	2.01	244.00	NR	NR	NR	NR	NR	NR	NR
	Pre-Aeration	Week of 1/16/06	7.41	NPP	11.79	1234	7.06	50.3	2.96	219	NR	NR	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	7.73	NPP	11.79	1000	6.97	48.4	1.31	225.67	NR	NR	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	7.79	NPP	11.79	1008	6.99	47.6	0.62	267.67	NR	NR	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	7.86	NPP	11.79	1001	6.98	47.5	1.25	228.33	NR	NR	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	7.94	NPP	11.79	1134	7.00	47.6	0.16	217.330	NR	NR	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	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	<0.05
	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
TP-#13	Baseline	week of 8/15/05	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
	Pre-Dewater	Week of 1/09/06	6.24	NPP	16.09	7	51.70	1.2	215.00	NM	NR	NR	NR	NR	NR	NR	NR
	Pre-Aeration	Week of 1/16/06	6.27	NPP	16.09	1157	7.03	51.6	2.55	210.00	NR	NR	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	6.59	NPP	16.09	803	6.96	49.5	0.66	195.00	NR	NR	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	6.64	NPP	16.09	717	7.09	49.0	0.44	240.67	NR	NR	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	6.69	NPP	16.09	573	7.02	48.8	2.25	211.7	NR	NR	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	6.79	NPP	16.09	478	7.01	46.7	0.49	218.00	NR	NR	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	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
	2nd Quarter	Week of 6/17/06	6.35	NPP	16.06	526	7.02	58.6	0.28	240	<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 WQCC 20NMAC 6.2.3103					EPA Method 8021B	
											0.01	0.75	0.75	0.62			
Sample Location	Sampling Activities	DATE	Depth to Water (ft)	Depth to Product (ft)	Well Depth (ft)	E.C. (umhos/cm)	pH	TEMP. (°F)	D.O (mg/L)	ORP	Benzene (mg/L)	Ethylben (mg/L)	Toluene (mg/L)	Xylene (mg/L)	MTBE mg/L	DRO mg/L	GRO (mg/L)
MW #49	Baseline	week of 8/15/05	9.57	NPP	16.48	2393	6.96	59.8	NR	NR	0.093	0.015	<0.002	0.0041	<0.002	NR	NR
	Pre-Dewater	Week of 1/09/06	9.69	NPP	16.48	1973	6.99	51.7	2.23	123.33	NR	NR	NR	NR	NR	NR	NR
	Pre-Aeration	Week of 1/16/06	9.76	NPP	16.48	1852	7.04	53.2	0.34	83.00	NR	NR	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	10.04	NPP	16.48	1868	6.98	51.0	0.54	106.33	NR	NR	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	10.06	NPP	16.48	1750	7.03	7.0	0.28	190.33	NR	NR	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	10.05	NPP	16.48	1497	7.07	50.8	0.37	177.00	NR	NR	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	10.11	NPP	16.48	2380	7.07	50.3	1.10	245.00	NR	NR	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	10.07	NPP	16.48	961	7.07	51.9	0.33	190.00	<0.001	<0.001	<0.001	0.0061	<0.0025	<1.0	0.074
	2nd Quarter	Week of 6/17/06	9.98	NPP	16.48	701	7.01	57.9	0.26	181.00	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0	<0.050
DW #1	Baseline	week of 8/15/05	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-Dewater	Week of 1/09/06	6.9	NPP	15.62	1405	7.03	54.0	2.42	148.67	NR	NR	NR	NR	NR	NR	NR
	Pre-Aeration	Week of 1/16/06	7.84	NPP	15.62	1550	7.01	52.4	0.86	-46.33	NR	NR	NR	NR	NR	NR	NR
	Not Sampled	Week of 1/23/06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Week 1	Week of 1/30/06	7.52	NPP	15.62	2779	6.99	49.6	1.43	117.33	NR	NR	NR	NR	NR	NR	NR
	Week 2	Week of 2/6/06	7.71	NPP	15.62	2488	7.04	48.8	0.53	142.00	NR	NR	NR	NR	NR	NR	NR
	Week 3	Week of 2/13/06	7.89	NPP	15.62	2401	7.05	50.3	0.95	53.67	NR	NR	NR	NR	NR	NR	NR
	Week 4	Week of 2/20/06	7.91	NPP	15.62	1245	7.09	52.3	0.57	188.33	NR	NR	NR	NR	NR	NR	NR
	1st Quarter	Week of 3/06/06	7.91	NPP	15.62	2118	6.95	50.2	0.75	-64.00	<0.005	0.041	<0.005	0.23	<0.012	2.2	2.8
	2nd Quarter	Week of 6/17/06	6.49	NPP	15.62	2329	6.96	58.0	0.42	143.00	<0.001	0.016	<0.001	0.12	<0.0025	1.6	0.9

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River Terrace

Total Metals 2006

EPA Method 6010 & 7470											
Sampling Activities	Date	Sample Location	0.05 mg/L Arsenic	2 mg/L Barium	0.005 mg/L Cadmium	0.1 mg/L Cr	0.015 mg/L Lead	0.05 mg/L Se	0.05 mg/L Silver	0.002 mg/L Mercury	MCL 40CFR 141.62
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	

NR = Not Required

River Terrace

Total Metals 2006

			EPA Method 6010 & 7470								
Sampling Activities	Date	Sample Location	0.05 mg/L Arsenic	2 mg/L Barium	0.005 mg/L Cadmium	0.1 mg/L Cr	0.015 mg/L Lead	0.05 mg/L Se	0.05 mg/L Silver	0.002 mg/L Mercury	MCL 40CFR 141.62
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	<0.006	0.0093	<0.050	<0.0050	<0.00020	
Baseline	Jan-06	TP - #12	<0.020	0.2	<0.0020	<0.006	0.016	<0.050	<0.0050	<0.00020	
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	
Baseline	Jan-06	DW - #1	<0.020	0.45	<0.0020	<0.006	<0.0050	<0.050	<0.0050	0.011	
Resample	Jan-06		NR	NR	NR	NR	NR	NR	NR	0.016	
1st Quarter	Mar-06		NR	NR	NR	0.0095	<0.0050	NR	NR	0.021	
2nd Quarter	Jun-06		NR	NR	NR	<0.0060	<0.0050	NR	NR	0.052	

NR = Not Required

River Terrace - Bioventing Wells

Soils Analysis

	EPA Method 8015B			EPA Method 8021B				ASTM 2216
Sample ID	Date Sampled	mg/KG DRO	mg/KG MRO	mg/KG GRO	mg/KG benzene	mg/KG toluene	mg/KG ethylbenzene	mg/KG total xylene	Percent Moisture
BV1-6	8/15/05	<12	<60	<6	<0.03	<0.03	<0.03	0.086	17
BV2-3	8/15/05	48	<59	1400	<1.5	4.4	12	360	16
BV2-10	8/15/05	<11	<55	7.6	<0.027	<0.027	0.11	0.82	8.9
BV3-7	8/15/05	<12	<60	<6	<0.03	<0.03	0.11	0.24	17
BV4-3	8/15/05	230	<55	3800	<1.4	31	49	840	9.6
BV5-6	8/15/05	27	<60	340	<0.6	<0.6	0.82	23	17
BV5-10	8/15/05	<12	<58	<5.8	<0.029	<0.029	0.18	103	14
BV6-3	8/15/05	250	<60	3400	<1.5	9.5	20	590	16
BV6-9	8/16/05	14	<61	64	0.054	0.24	1.1	11	18
BV7-3	8/17/05	250	<61	3400	<3.1	4.8	48	650	19
BV7-8	8/17/05	27	<59	650	<0.59	0.76	13	110	15
BV8-10	8/17/05	170	<59	5200	12	180	170	1100	15
BV8-13	8/17/05	34	<61	940	1.9	5.6	31	180	18
BV9-3	8/17/05	38	<51	420	<0.64	<0.64	5.8	56	2.3
BV9-8	8/17/05	<12	<62	16	0.13	0.036	0.77	2.9	19
BV10-3	8/16/05	240	<54	5400	<2.7	4.7	82	660	8
BV10-8	8/16/05	71	<62	1900	3	40	59	370	20
BV11-3	8/16/05	930	82	7400	<3.2	29	190	2200	22

River Terrace - Bioventing Wells

Soils Analysis

	EPA Method 8015B				EPA Method 8021B				ASTM 2216
Sample ID	Date Sampled	mg/KG DRO	mg/KG MRO	mg/KG GRO	mg/KG benzene	mg/KG toluene	mg/KG ethylbenzene	mg/KG total xylene	Percent Moisture
BV11-8	8/16/05	20	<62	310	<0.62	<0.62	6.4	18	19
BV12-3	8/16/05	110	<61	370	<0.61	<0.61	5.7	28	19
BV12-8	8/16/05	550	<59	11000	45	200	360	2100	15
BV13-7	8/16/05	490	73	2300	5.1	5.4	87	330	15

Section 6.0 In-Situ Respiration Test

River Terrace Bioventing System In Situ Respiration Test Summary
Giant Refinery – Bloomfield, New Mexico

INTRODUCTION

Purpose

The purpose of the in situ respiration test was to evaluate the effectiveness of the river terrace bioventing system by assessing the in situ biodegradation rates in the impacted soil zone. The respiration rate test consisted of monitoring the rate at which oxygen is depleted and carbon dioxide is generated after the air supply is turned off.

An amendment to the *Bioventing System Monitoring Plan (Revised)* dated October 28, 2005 (MPI, 2005) was submitted and approved by New Mexico Environmental Department (NMED) on May 22, 2006. This report includes a summary of the sampling regimen followed, data collected, conclusions derived, and recommendations proposed for on-going performance monitoring of the bioventing system. The in situ respiration test was performed following methods consistent with the sampling regimen described in Soil Bioventing Principles and Practice (Lesson, 1997) and as described in the Bioventing System Monitoring Plan Amendment (MPI, 2006).

Background

The objective of a bioventing system is to elevate depressed oxygen concentrations in soil gas in the presence of biodegradable organic compounds, like petroleum hydrocarbons. When petroleum hydrocarbons are introduced to soils, naturally-occurring bacteria use oxygen to metabolize the hydrocarbons for energy and cell growth. Hydrocarbon impacted shallow soils (approximately 0 to 3 feet below grade) are commonly treated under natural conditions because oxygen is constantly replenished from the atmosphere, supporting constant microbial activity. Hydrocarbon releases that penetrate deeper into the subsurface may reach a depth at which the atmosphere is unable to naturally replenish oxygen that is consumed by the microbes as hydrocarbons are consumed. Therefore, in a deeper impacted soil zone, oxygen concentrations in soil gas commonly decrease to near 0 % by volume while carbon dioxide concentrations increase. Once the oxygen is gone, biodegradation of hydrocarbons by aerobic processes stops.

Bioventing systems are designed to provide adequate oxygen to support continuing aerobic metabolism of organics by soil microbes within the deeper area of the subsurface. Once oxygen levels in soil gas are elevated above 5% by volume through air injection, the concentration of oxygen is no longer limiting the rate at which the biodegradation reaction proceeds. With such abundant oxygen, the concentration of the food source, or hydrocarbon, is usually the factor that determines biodegradation rates.

At the Giant Bloomfield Refinery, a 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 to a depth of

approximately 8 feet below existing grade surface (bgs). The bioventing system includes a dewatering system to enhance the effectiveness of the bioventing system by dewatering the influenced area to an average depth of approximately 9 feet bgs.

IN SITU RESPIRATION TEST

During the week of May 22nd, 2006, an in situ respiration test was performed in order to estimate the rate at which oxygen is depleted by microbial activity in the soil. During the respiration test, the supply of oxygen from the engineered system was turned off while the dewatering system remained operational. With no oxygen being added to the subsurface, oxygen, carbon dioxide, and VOC concentrations in soil gas were monitored over a 72-hour period. Oxygen concentration trend graphs were developed to estimate oxygen utilization and biodegradation rates within the soils.

Data Collection

Groundwater Level Monitoring

Prior to starting the respiration test, depth-to-groundwater measurements were collected from each of the BV and TP wells within the bioventing system well field. The dewatering system, which consists of two wells (DW-2 and MW-48) each equipped with variable-speed pumps, extracts approximately 15 gallons per minute of groundwater in order to sufficiently dewater the well field and enhance the effects of the bioventing system.

The groundwater level measurements were used to determine how far to extend dedicated sample tubing into each well casing for soil gas sample collection. Table 1 summarizes the depth-to-groundwater measurements collected prior to initiating the respiration test, and the approximate depth to which the sampling tubing was set for each sampling location.

Table 1
Groundwater Level Data Summary

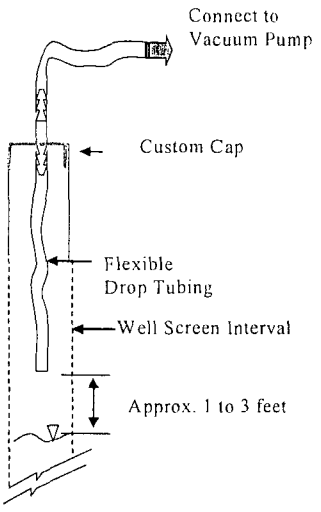
Well ID	Depth to Groundwater Below Grade *(ft bgs)*	Soil Gas Sample Depth *(ft bgs)*
TP-1	6.7	5.0
TP-2	8.5	7.5
TP-5	7.6	6.0
TP-6	7.4	4.0
TP-8	6.8	5.0
TP-9	4.3	3.0
BV-1	6.2	4.5
BV-2	6.5	5
BV-3	8.0	6
BV-4	7.1	5
BV-5	8.8	7
BV-6	7.0	5
BV-7	7.1	5
BV-8	12.6	9
BV-9	7.0	5
BV-10	9.1	7
BV-11	7.1	5
BV-12	9.0	7
BV-13	8.2	7

Note:
ft bgs = feet below grade surface

Soil Gas Sampling

Initial soil gas samples were collected from each temporary piezometer (TP) within the bioventing area before the air supply was turned off, and then again as soon as possible after the air supply was turned off. The initial baseline samples were collected to ensure the entire well field was sufficiently oxygenated (with oxygen concentrations above 10% by volume) and to be able to calculate the change in oxygen concentration levels over the 72 hour test period.

With the supply of oxygen from the engineered system turned off, soil gas samples were collected from each BV well (BV-1 through BW-13) and specified TP wells (TP-1, -2, -5, -6, -8, and -9) at a frequency outlined in the Bioventing System Monitoring Plan Amendment letter (MPI, 2006). In order to collect soil gas samples, each sample well was equipped with dedicated Teflon tubing and an air-tight well seal to prevent ambient air from filling the well casing between sample collection intervals. Sample tubing extended down into each well casing to approximately 2 to 4 feet above the groundwater surface (refer to Table 1). Samples collected from different intervals throughout the well field allowed for interpretation of biodegradation rates representative of the entire influence area.



Typical Set-Up for Soil Gas Sampling

A minimum of three well volumes of soil gas was purged before collecting each soil gas sample. After the soil sample is collected, the end of the dedicated tubing at each well head was sealed to prevent air from being drawn into the well between sample collection events.

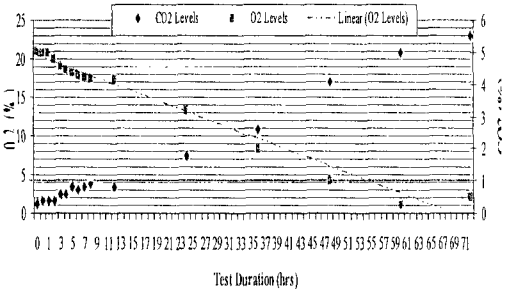
Oxygen, carbon dioxide, and volatile organic compound (VOC) concentrations were monitored at each BV and specified TP well using a multi-gas meter and VOC analyzer. Soil gas samples were collected from the TP wells every hour for the first eight hours, and every 12 hours for the remainder of the 72 hour respiration test. Soil gas samples were collected from each BV well every 12 hours for 72 hours. Attachment A includes the summary of soil gas sample results for each sample location.

ANALYSIS AND CONCLUSIONS

Data Analysis

The most important data that reflects the in situ biodegradation rate is the rate at which oxygen is consumed by soil microbes, known as the oxygen utilization rate (OUR). The rate at which petroleum hydrocarbons are being degraded in situ is derived from the OUR by using stoichiometry and estimates of soil properties at the Site. This in situ biodegradation rate is expressed in terms of the mass of hydrocarbons (in mg) being degraded per unit soil (in kilograms) per unit of time (usually days), or mg/kg-d.

Example of Soil Gas Data Trend Graph



Oxygen Utilization Rate

Oxygen and carbon dioxide concentration versus time plots were developed for each TP and BV well within the influenced area. A linear trend line was fitted to each O_2 data set using Microsoft Excel. The negative slope of the trend line is interpreted as the oxygen utilization rate, which by

using soil properties and stoichiometry, translates into an estimate of the rate at which organics are being biodegraded by the soil microbes. The oxygen utilization rate trend graphs for each data set are provided in Attachment B. Oxygen concentration levels greater than 5% by volume represent in situ conditions in which oxygen is not limiting the rate of biodegradation.

The R^2 value for each linear regression line reflects the precision of the data. Higher R^2 values are indicators of consistent sample collection techniques. Table 2 below summarizes the R^2 values for each data set.

Biodegradation Rate

Variables used in calculating the biodegradation rate from the oxidation utilization rate, chemical properties, and soil properties are as follows:

Biodegradation Rate, *mg/kg*day*	k_b	Calculated
Oxygen Utilization Rate, *%/day*	k_o	from linear regression
Gas-Filled Pore Space, *mg3*gas / cm3*soil*	θ_a =	0.25
Density of Oxygen, *mg/liter*	ρ_{o2} =	1330
Mass Ratio of Hydrocarbons to Oxygen Required for Mineralization, *gm of HC / gm of O_2*	C =	0.283
Soil Bulk Density, *gm/cm3*	ρ_s =	1.4

Therefore, the biodegradation rate is calculated using the following equation:

Biodegradation Rate

$$k_b = \frac{(-k_o * \rho_{O2} * \theta_a * C * 0.01)}{\rho s}$$

The biodegradation rate for each data set was calculated using the above equation and calculated OUR. A summary of the biodegradation rates calculated for each TP and BV well are summarized in Table 2.

Table 2: Oxygen Utilization and Biodegradation Rate Summary

Well ID	Oxygen Utilization Rate *(%/hr)*	Biodegradation Rate *(mg/kg*day)*	R^2 Data Correlation
TP-1	0.2937	4.74	0.9725
TP-2	0.1919	3.10	0.9728
TP-5	0.2463	3.97	0.9779
TP-6	0.0561	0.90	0.8209
TP-8	0.1924	3.10	0.9938
TP-9	N/A	N/A	N/A

Table 2: Oxygen Utilization and Biodegradation Rate Summary (continued)

Well ID	Oxygen Utilization Rate *(%/hr)*	Biodegradation Rate *(mg/kg*day)*	R^2 Data Correlation
BV-1	N/A	N/A	N/A
BV-2	0.1317	2.12	0.91
BV-3	N/A	N/A	N/A
BV-4	0.1492	2.41	0.92
BV-5	0.095	1.53	0.93
BV-6	0.1625	2.62	0.97
BV-7	0.1058	1.71	0.93
BV-8	0.1225	1.98	0.76
BV-9	0.1092	1.76	0.76
BV-10	0.1108	1.79	0.90
BV-11	0.0758	1.22	0.58
BV-12	0.125	2.02	0.47
BV-13	0.0525	0.85	0.59

Note:
N/A = Not Applicable

The calculated biodegradation rate for each monitoring location was plotted on a well location map to show the biodegradation rate distribution throughout the area influenced by the bioventing system (refer to Figure 1).

Conclusions

Based on evaluation of the data collected during the in situ respiration, the following interpretations were made:

- The linear regression line R^2 (data correlation) value for each data set reflects the precision of the data. The data correlation values were higher than 0.8. Linear regression lines with R^2 values above 0.7 are considered indicators of good and consistent sample collection techniques.
- The distribution of the data sorted by biodegradation rate revealed that the TPs consistently yielded greater oxidation utilization rates than the BV wells (even though spatial distribution of both well types is about the same). The average biodegradation rate based on data collected from the BV wells is 1.82 mg/kg-d, with the highest rate detected at BV-6 (2.62 mg/kg-d). The average biodegradation rate from data collected at the TP wells is 3.16 mg/kg-d, with the highest rate detected at TP-1 (4.74 mg/kg-d).

  The calculated range of biodegradation rates within the well field is approximately 1 to 5 mg/kg-d, which indicates a narrow variability in the data. The average biodegradation rate observed in the TP wells within the bioventing area is within the expected range of in situ biodegradation rates observed at many TPH bioventing

systems operated around the country (1 to 20 mg/kg-d). It is likely that immediately after subsurface aeration began, higher in situ biodegradation rates were achieved during the initial 5-months of system operations. It is also likely that much of the more readily-biodegradable and more toxic BTEX compounds were disproportionately metabolized early in the treatment process.

- The increasing concentration of carbon dioxide during a respiration test is a common indicator of biodegradation. Therefore, the general trend in increasing carbon dioxide concentrations in both the TP and BV wells support the presence of active biodegradation within the river terrace area.
- The lag in the oxygen utilization rates and thus lower biodegradation rates at the BV wells is likely attributed to how the wells are constructed. The larger bore hole and filter pack around the BV well casings create a longer diffusion pathway for vapors from the soil to migrate, and thus requires a longer time to equilibrate between the soil formation and the inside of the well bore. The TP wells yielded more responsive and representative results because the wells are constructed with smaller diameter well casings and constructed without filter pack. Those features allow for more responsive monitoring of in situ gas changes.
- The data results from BV-1, BV-3, and TP-9 indicate that the wells are positioned outside the influenced area. The wells are most likely separated from the system's influence by the existing river terrace slurry wall. Figure 1 notes the estimated extent of the wall based on the results of the respiration test.

RECOMMENDATIONS

Over time, as treatment progresses, the representative biodegradation rate is expected to decrease as petroleum hydrocarbon concentrations are reduced. Eventually, the biodegradation rate will reduce to a level that is no longer cost effective given constant operational costs.

To minimize monitoring costs while ensuring system operation efficiency, the following recommendations are proposed for consideration:

- Bioventing wells should not be used for monitoring representative biodegradation activity. The construction details of the BV wells most likely cause a lag in response, and thus are not representative of in situ conditions. The TP wells are spatially distributed about the influenced area and have shown to provide responsive and more representative in situ conditions.
- BV-1 and BV-3 are most likely outside the bioventing system influenced area. Therefore, any future data collected from these wells should not be considered representative of microbial activity within the bioventing system well field.
- TP-9 should not be used to monitor future system performance progress. Recent in situ respiration data indicates that TP-9 is located outside the area influenced by the bioventing system.
- Continue monitoring the effectiveness of the dewatering system by collecting quarterly depth-to-groundwater levels at each of the five TP wells within the

influenced area (TP-1, -2, -5, -6, and -8). Operation of the dewatering wells lowers the groundwater elevation within the influenced area, and thus increases the vadose zone for bioremedial activity.

- Continue to monitor blower operations by periodically checking to ensure the blower is operating properly. Continuous blower operation is key to ensuring sufficient oxygen replenishment within the subsurface to sustain microbial activity.
- Continue quarterly monitoring of oxygen concentration levels at each of the five TP wells (TP-1, -2, -5, -6, and -8). Detected oxygen concentrations above 10% by volume ensure that the entire area is sufficiently oxygenated to sustain bioremedial activity. The TP wells are spatially distributed about the influenced area and have shown to provide responsive and more representative in situ condition.
- Based on the initial soil concentrations, cost effective treatment can probably continue without further monitoring for one year. At that time, the respiration rates can be reassessed to determine if cost effective treatment continues.

REFERENCES

1. Leeson, A. and R.E. Hinchee. 1997. "Soil Bioventing Principles and Practice," CRC Press. NY.
2. Malcolm Pirnie, Inc. (MPI), 2005. "Bioventing System Monitoring Plan (Revised)," Giant Refinery Company Bloomfield, October 28, 2005.
3. Malcolm Pirnie, Inc. 2006. "Bioventing System Monitoring Plan Amendment," Giant Refinery Company Bloomfield, May 18, 2006.

FIGURES



Figure 1: Summary of Biodegradation Rates

River Terrace Bioventing System – In Situ Respiration Test Summary

Legend

TP = Temporary Piezometer
BV = Biovent Well
DW = Dewatering Well
MW = Monitoring Well
NA = Not Applicable

Giant Refining Company
Bloomfield, NM

ATTACHMENT A

BV Well Soil Gas Data Summary
River Terrace Bioventing System - In Situ Respiration Test Results

BV-1

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
12	5/23/2006	BV-1	20.9	0.1	0.0
24	5/24/2006	BV-1	21	0.1	558
36	5/24/2006	BV-1	20.2	0.1	307
48	5/25/2006	BV-1	21.7	0	991
60	5/25/2006	BV-1	20.7	0.2	36
72	5/26/2006	BV-1	20	0	68.2

BV-2

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
12	5/23/2006	BV-2	20.9	0.1	1262
24	5/24/2006	BV-2	20.5	0.3	965
36	5/24/2006	BV-2	17	0.9	914
48	5/25/2006	BV-2	16.4	1.6	1159
60	5/25/2006	BV-2	15.6	2	671
72	5/26/2006	BV-2	13.3	3.2	442

BV-3

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
12	5/23/2006	BV-3	20.9	0.1	0.0
24	5/24/2006	BV-3	21.2	0.1	33.2
36	5/24/2006	BV-3	20.5	0.3	55.1
48	5/25/2006	BV-3	20.9	0.2	9
60	5/25/2006	BV-3	18.8	0.5	850
72	5/26/2006	BV-3	20.7	0.4	70

BV-4

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
12	5/23/2006	BV-4	20.9	0.1	1715
24	5/24/2006	BV-4	20.9	0.1	820
36	5/24/2006	BV-4	17.9	0.4	116
48	5/25/2006	BV-4	17.9	0.4	41.2
60	5/25/2006	BV-4	14.2	0.8	701
72	5/26/2006	BV-4	13.8	0.8	7.6

BV-5

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
12	5/23/2006	BV-5	20.9	0.1	1323
24	5/24/2006	BV-5	20.9	0.1	49.5
36	5/24/2006	BV-5	18.7	0.2	910
48	5/25/2006	BV-5	18.2	0.3	856
60	5/25/2006	BV-5	16.5	0.4	89.3
72	5/26/2006	BV-5	16.3	0.3	55.1

BV-6

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
12	5/23/2006	BV-6	20.9	0.1	1423
24	5/24/2006	BV-6	19.4	0.2	920
36	5/24/2006	BV-6	16.4	0.6	1184
48	5/25/2006	BV-6	14.8	0.9	122
60	5/25/2006	BV-6	12.5	1.2	867
72	5/26/2006	BV-6	11.6	1.6	100

BV-7

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
12	5/23/2006	BV-7	20.9	0.1	1356
24	5/24/2006	BV-7	21.4	0	1220
36	5/24/2006	BV-7	18.8	0.2	1985
48	5/25/2006	BV-7	18.8	0.2	902
60	5/25/2006	BV-7	16.9	0.4	1059
72	5/26/2006	BV-7	16	0.3	32.2

BV-8

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
12	5/23/2006	BV-8	20.9	0.1	108
24	5/24/2006	BV-8	21.2	0.1	890
36	5/24/2006	BV-8	17.7	0.2	1049
48	5/25/2006	BV-8	18.5	0.4	640
60	5/25/2006	BV-8	14.4	0.9	865
72	5/26/2006	BV-8	15.5	0.9	38.2

BV Well Soil Gas Data Summary
River Terrace Bioventing System - In Situ Respiration Test Results

BV-9

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
12	5/23/2006	BV-9	20.9	0.1	1511
24	5/24/2006	BV-9	20.9	0.2	691
36	5/24/2006	BV-9	18.2	0.5	75
48	5/25/2006	BV-9	19.4	0.5	856
60	5/25/2006	BV-9	15.3	0.9	1226
72	5/26/2006	BV-9	15.8	0.9	200

BV-10

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
12	5/23/2006	BV-10	20.9	0.1	2838
24	5/24/2006	BV-10	21.0	0.1	800
36	5/24/2006	BV-10	18.3	0.3	133
48	5/25/2006	BV-10	18.4	0.4	70
60	5/25/2006	BV-10	15.8	0.7	952
72	5/26/2006	BV-10	15.6	0.8	74.4

BV-11

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
12	5/23/2006	BV-11	20.9	0.1	1621
24	5/24/2006	BV-11	20.9	0.4	857
36	5/24/2006	BV-11	18.8	0.9	84
48	5/25/2006	BV-11	20	1.3	945
60	5/25/2006	BV-11	16.1	1.5	709
72	5/26/2006	BV-11	17.7	1.5	258

BV-12

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
12	5/23/2006	BV-12	20.9	0.1	4499
24	5/24/2006	BV-12	21.4	0.1	1247
36	5/24/2006	BV-12	18.5	0.8	2307
48	5/25/2006	BV-12	20	0.6	1220
60	5/25/2006	BV-12	12.4	2.4	2765
72	5/26/2006	BV-12	17	1.2	2758

BV-13

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
12	5/23/2006	BV-13	20.9	0.1	2403
24	5/24/2006	BV-13	20.9	0.1	951
36	5/24/2006	BV-13	20	0.1	317
48	5/25/2006	BV-13	20.5	0.2	1024
60	5/25/2006	BV-13	17.7	0.7	1285
72	5/26/2006	BV-13	18.9	0.4	163

TP Well DataSummary
River Terrace Bioventing System - In Situ Respiration Test Results

TP-1

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	5/23/2006	TP-1	21.1	0.3	836
0.2	5/23/2006	TP-1	20.9	0.4	605
1	5/23/2006	TP-1	20.9	0.4	1794
2	5/23/2006	TP-1	20.0	0.4	1120
3	5/23/2006	TP-1	19.0	0.6	1594
4	5/23/2006	TP-1	18.6	0.6	3253
5	5/23/2006	TP-1	18.2	0.8	3982
6	5/23/2006	TP-1	17.9	0.7	3590
7	5/23/2006	TP-1	17.6	0.8	3320
8	5/23/2006	TP-1	17.4	0.9	3379
12	5/23/2006	TP-1	17.3	0.8	2774
24	5/24/2006	TP-1	13.2	1.8	1223
36	5/25/2006	TP-1	8.3	2.6	2020
48	5/25/2006	TP-1	4.2	4.1	1265
60	5/25/2006	TP-1	1.1	5	2369
72	5/26/2006	TP-1	2	5.5	1676

TP-2

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	5/23/2006	TP-2	21.8	0	12.6
0.2	5/23/2006	TP-2	21.7	0.1	10.4
1	5/23/2006	TP-2	21.0	0.0	837
2	5/23/2006	TP-2	20.9	0.1	250
3	5/23/2006	TP-2	20.3	0.1	630
4	5/23/2006	TP-2	20.0	0.2	134
5	5/23/2006	TP-2	19.7	0.3	145
6	5/23/2006	TP-2	19.4	0.3	210
7	5/23/2006	TP-2	19.3	0.4	325
8	5/23/2006	TP-2	19.1	0.1	281
12	5/23/2006	TP-2	18.6	0.5	865
24	5/24/2006	TP-2	18.1	0.8	48.2
36	5/25/2006	TP-2	14.2	1.5	81
48	5/25/2006	TP-2	10.7	0.3	726
60	5/25/2006	TP-2	8.5	3.4	592
72	5/26/2006	TP-2	8.5	3.3	120

TP-5

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	5/23/2006	TP-5	19.1	1.8	1616
0.2	5/23/2006	TP-5	18.5	2.2	1485
1	5/23/2006	TP-5	18.6	1.8	1785
2	5/23/2006	TP-5	17.0	2.4	3019
3	5/23/2006	TP-5	16.5	2.4	2270
4	5/23/2006	TP-5	16.5	2.4	4163
5	5/23/2006	TP-5	16.0	2.5	3564
6	5/23/2006	TP-5	15.6	2.8	8473
7	5/23/2006	TP-5	15.3	2.9	5935
8	5/23/2006	TP-5	15.0	3.0	5988
12	5/23/2006	TP-5	15.3	2.8	4945
24	5/24/2006	TP-5	13.7	3.8	1951
36	5/25/2006	TP-5	9.3	5.1	3779
48	5/25/2006	TP-5	7.0	6.7	2225
60	5/25/2006	TP-5	1.9	8.1	3520
72	5/26/2006	TP-5	0.1	9.9	3157

TP-6

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	5/23/2006	TP-6	20.9	1.0	625
0.2	5/23/2006	TP-6	20.9	0.6	281
1	5/23/2006	TP-6	20.9	0.9	868
2	5/23/2006	TP-6	20.0	0.9	738
3	5/23/2006	TP-6	19.7	0.9	543
4	5/23/2006	TP-6	19.4	0.5	838
5	5/23/2006	TP-6	19.1	0.8	1422
6	5/23/2006	TP-6	19.1	1.0	803
7	5/23/2006	TP-6	19.3	0.8	875
8	5/23/2006	TP-6	19.2	0.6	954
12	5/23/2006	TP-6	19.3	1.0	981
24	5/24/2006	TP-6	19.7	1.1	729
36	5/25/2006	TP-6	17.6	1.3	1337
48	5/25/2006	TP-6	18.2	1.3	377
60	5/25/2006	TP-6	16.2	1.7	735
72	5/26/2006	TP-6	16.2	1.5	854

TP-8

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	5/23/2006	TP-8	21.0	0.2	1526
0.2	5/23/2006	TP-8	21.1	0.3	1281
1	5/23/2006	TP-8	20.9	0.2	1381
2	5/23/2006	TP-8	20.7	0.4	1402
3	5/23/2006	TP-8	20.3	0.4	1730
4	5/23/2006	TP-8	19.8	0.4	3130
5	5/23/2006	TP-8	19.4	0.5	3730
6	5/23/2006	TP-8	19.3	0.5	4257
7	5/23/2006	TP-8	19.1	0.5	4333
8	5/23/2006	TP-8	19.1	0.5	4128
12	5/23/2006	TP-8	18.7	0.6	2500
24	5/24/2006	TP-8	16.2	1.2	1280
36	5/25/2006	TP-8	13.0	1.8	1927
48	5/25/2006	TP-8	11.6	2.3	900
60	5/25/2006	TP-8	9.2	2.5	1870
72	5/26/2006	TP-8	7.3	3.1	1588

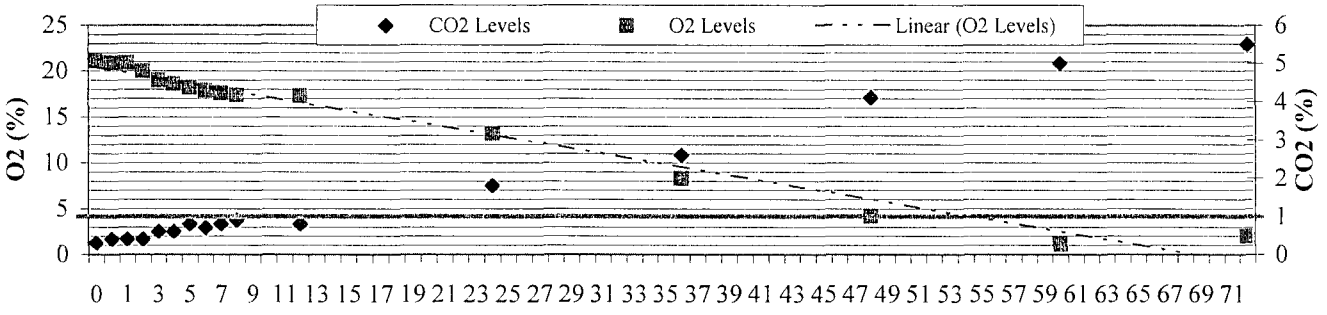
TP-9

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	5/23/2006	TP-9	21.1	0	11.4
0.2	5/23/2006	TP-9	21.9	0	10.1
1	5/23/2006	TP-9	21.4	0.1	157
2	5/23/2006	TP-9	20.9	0.0	189
3	5/23/2006	TP-9	20.9	0.0	780
4	5/23/2006	TP-9	20.9	0.1	1495
5	5/23/2006	TP-9	20.9	0.1	1254
6	5/23/2006	TP-9	20.9	0.2	900
7	5/23/2006	TP-9	20.9	0.1	555
8	5/23/2006	TP-9	20.9	0.1	521
12	5/23/2006	TP-9	20.9	0.1	634
24	5/24/2006	TP-9	22.0	0.0	127
36	5/24/2006	TP-9	20.9	0.1	545
48	5/25/2006	TP-9	21.9	0.2	107
60	5/25/2006	TP-9	20.9	0.2	334
72	5/26/2006	TP-9	21	0.2	85.6

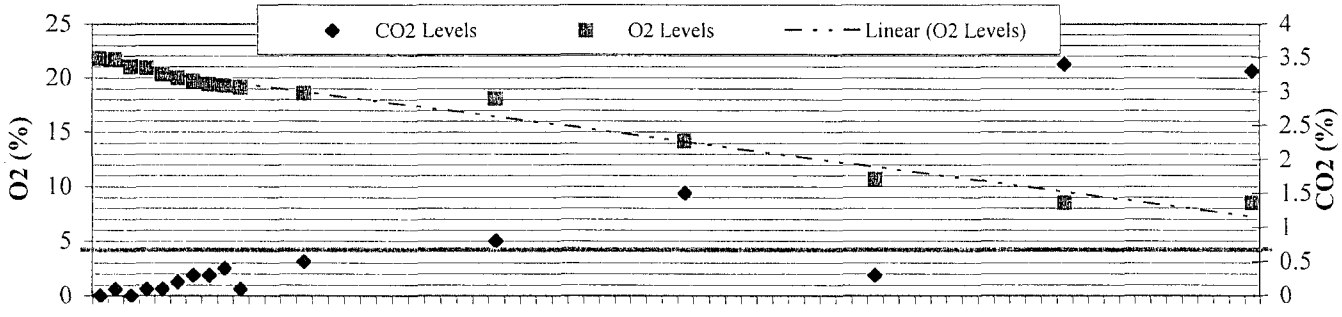
ATTACHMENT B

TP Well Soil Gas Concentration Trends
River Terrace Bioventing System In Situ Respiration Test Summary

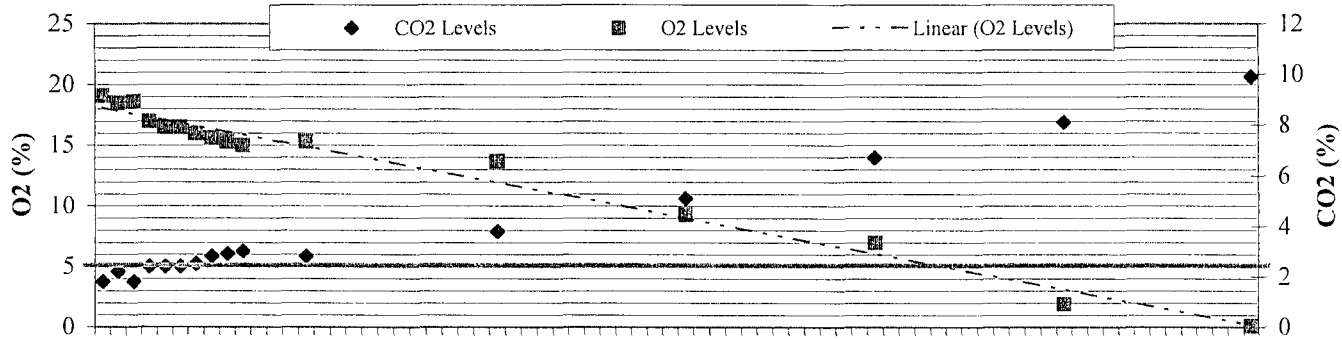
TP-1 Respiration Test Data



TP-2 Respiration Test Data

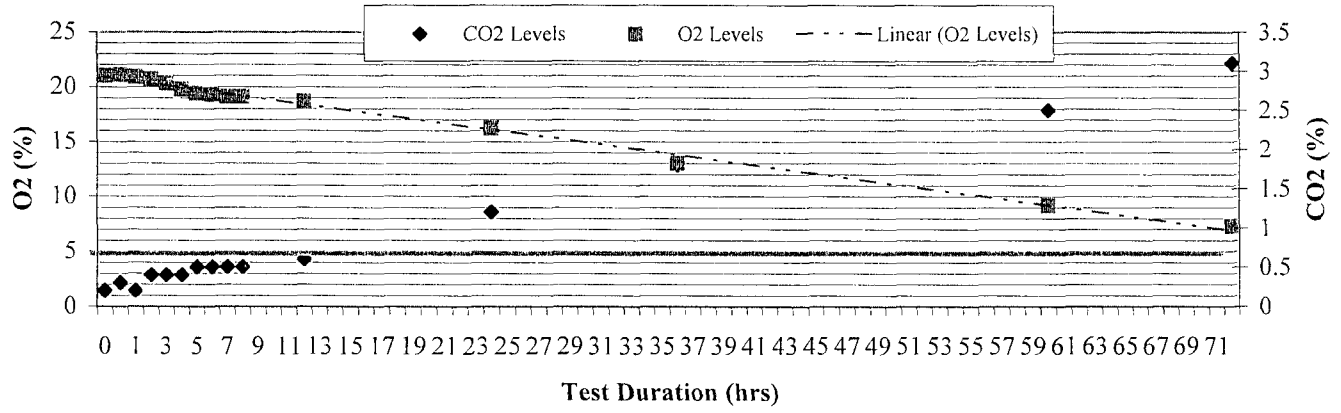


TP-5 Respiration Test Data

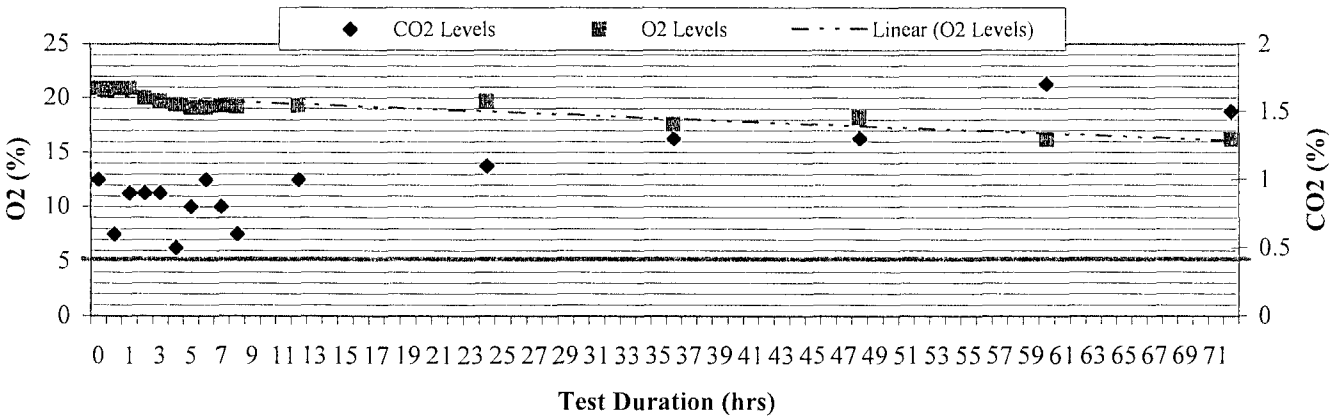


TP Well Soil Gas Concentration Trends
River Terrace Bioventing System In Situ Respiration Test Summary

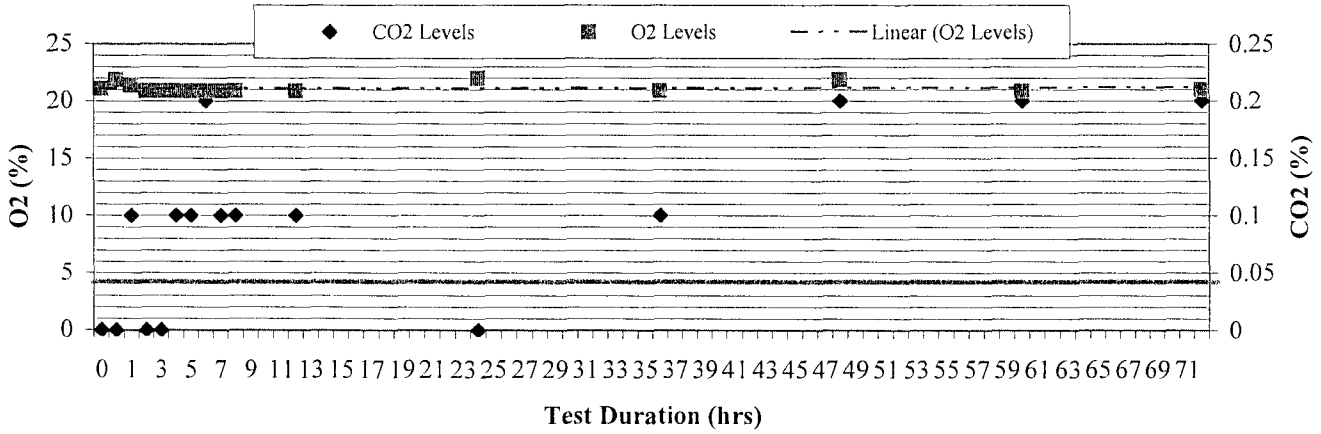
TP-8 Respiration Test Data



TP-6 Respiration Test Data

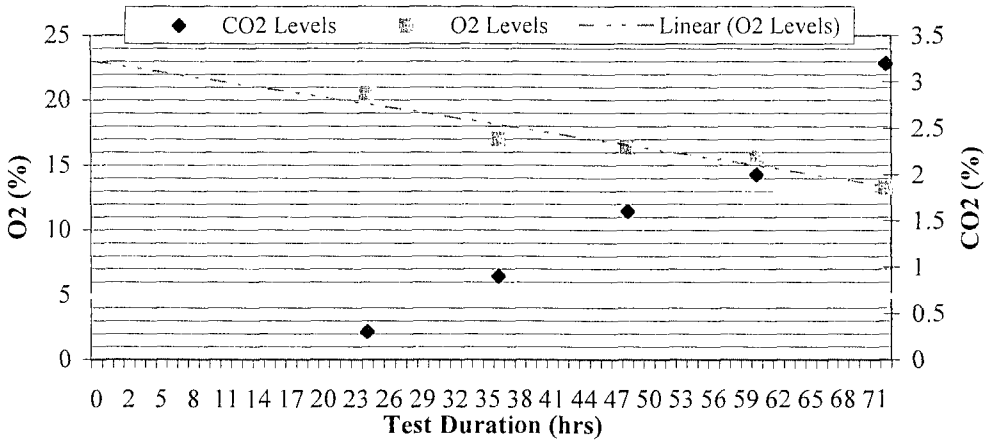


TP-9 Respiration Test Data

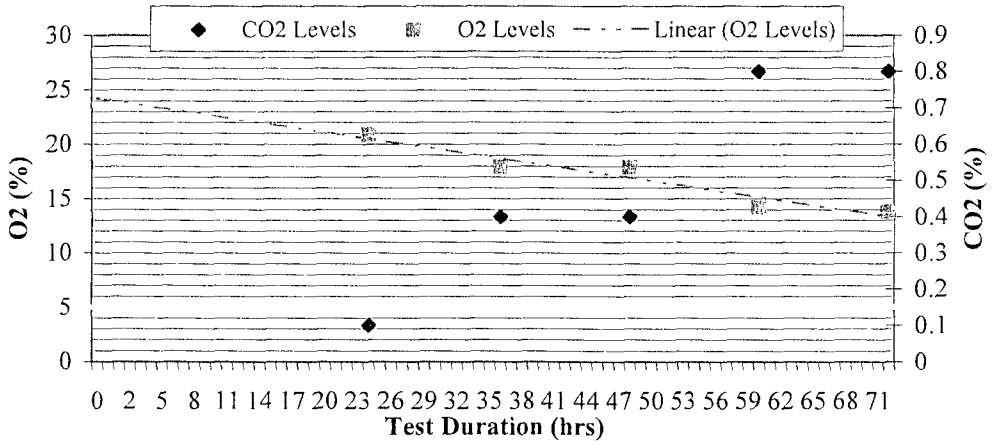


Bioventing Well Soil Gas Data Summary
River Terrace Bioventing System In Situ Respiration Test Summary

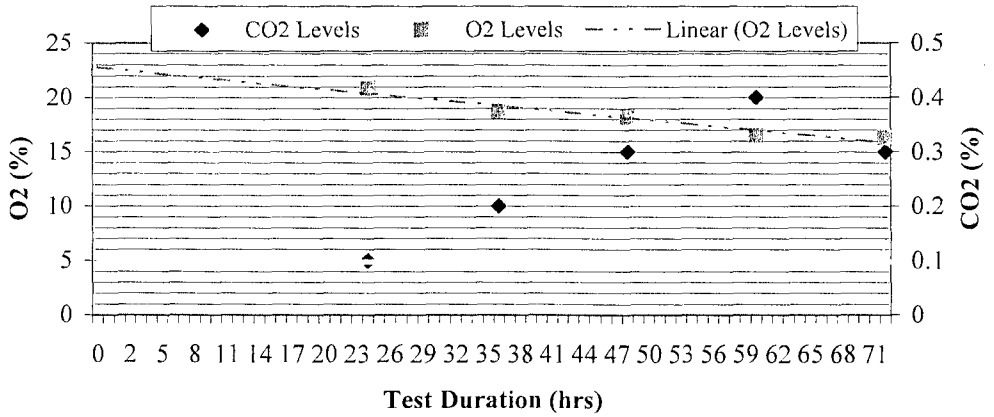
BV-2 Respiration Test Data



BV-4 Respiration Test Data

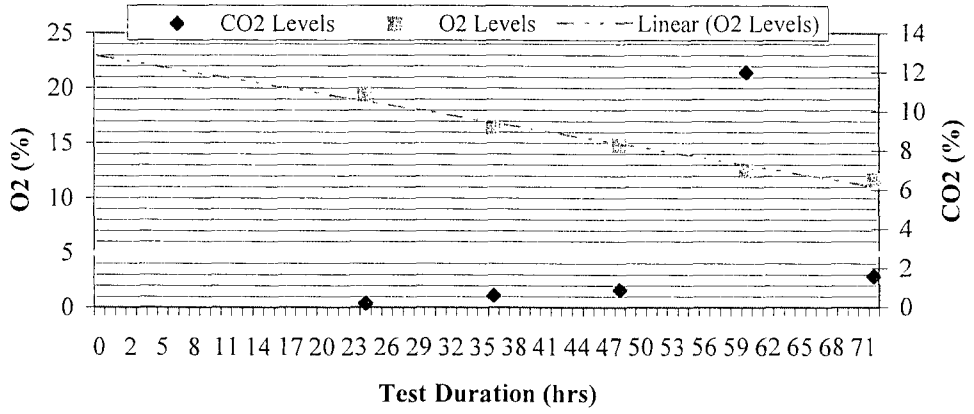


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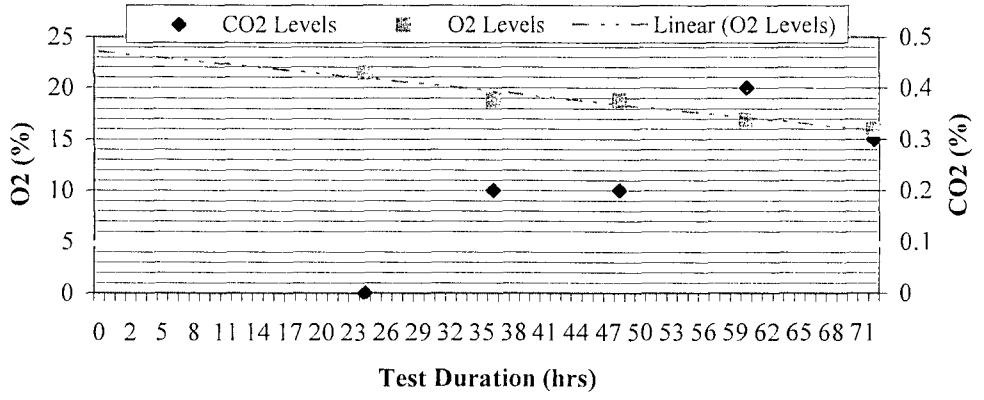


Bioventing Well Soil Gas Data Summary
River Terrace Bioventing System In Situ Respiration Test Summary

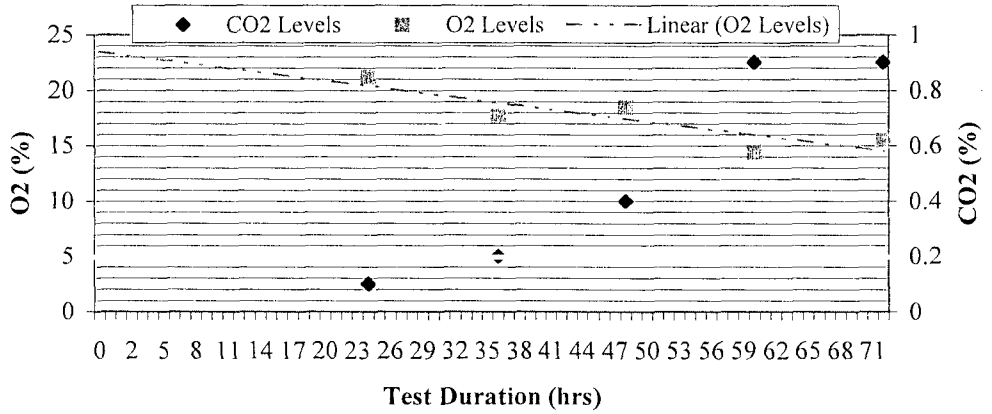
BV-6 Respiration Test Data



BV-7 Respiration Test Data

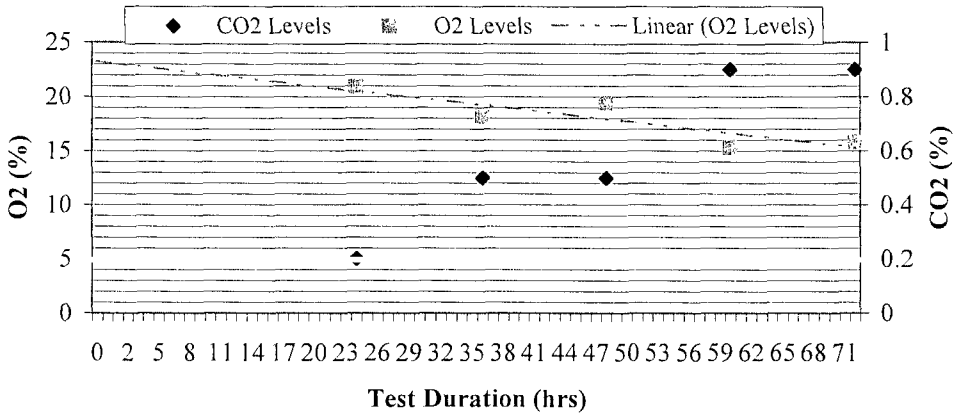


BV-8 Respiration Test Data

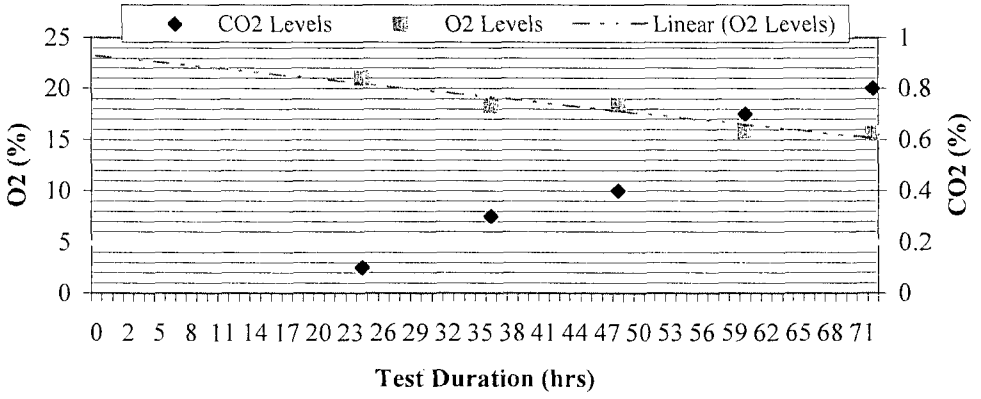


Bioventing Well Soil Gas Data Summary
River Terrace Bioventing System In Situ Respiration Test Summary

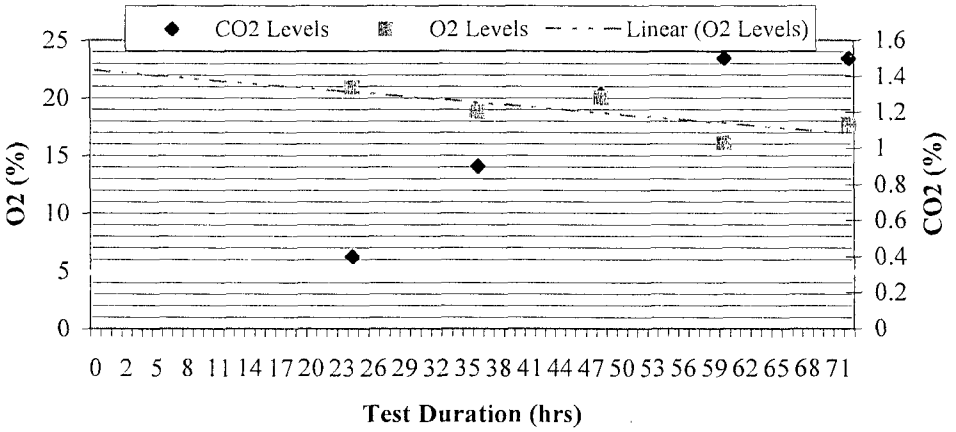
BV-9 Respiration Test Data



BV-10 Respiration Test Data

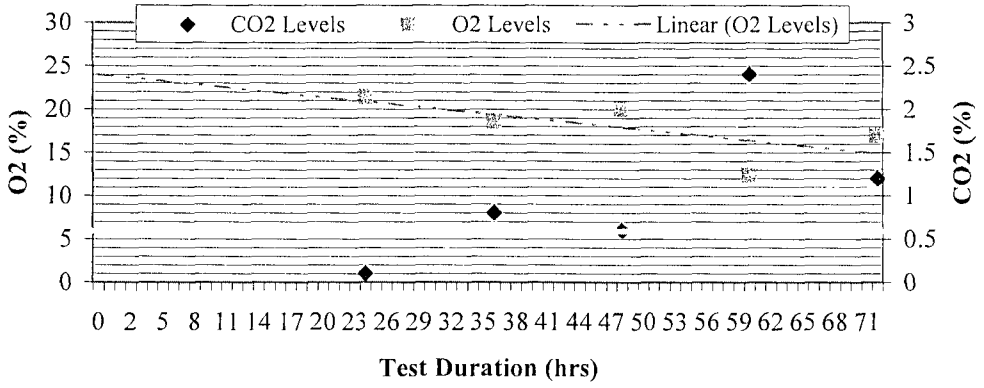


BV-11 Respiration Test Data

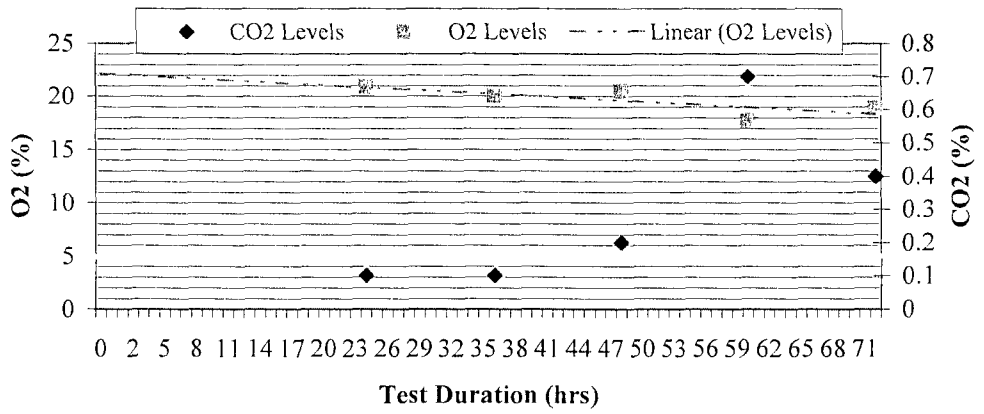


Bioventing Well Soil Gas Data Summary
River Terrace Bioventing System In Situ Respiration Test Summary

BV-12 Respiration Test Data



BV-13 Respiration Test Data



Section 7.0 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 drilled. 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, MW #48, and MW #49 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. Field measurements of conductivity, temperature, and pH were taken as well. Thirteen Bioventing wells were also drilled at that time. Soil from those wells was analyzed for BTEX (8021B) and Gasoline Range Organics (8015B).

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 #1 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.

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. Soil gas sampling (vapor phase organics, oxygen, and carbon dioxide) was also collected and analyzed for BTEX (8021B) and gasoline range organics (8015B).

After dewatering conditions stabilized and prior to starting the blower, field measurements of soil gas (hydrocarbons, oxygen and carbon dioxide) and groundwater field parameters were taken during the week of January 18, 2006. Following the start-up of the blower, soil gas samples and groundwater field parameters were scheduled to be collected for the first four weeks of system operation. However, 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. 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. 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. Second quarter samples were collected the week of June 17, 2006 following the same methods and parameters.

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 #7 was not sampled because it appears to have been drilled into the River Terrace barrier wall and does not yield sufficient water volume.

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 this report.

Once the aeration system was turned on, the average oxygen concentration at TP wells within the influenced area was approximately 20 percent by volume, 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.

The low concentrations of carbon dioxide detected at the TP wells within the influenced area while the system was operational during the initial 6-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 in 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.

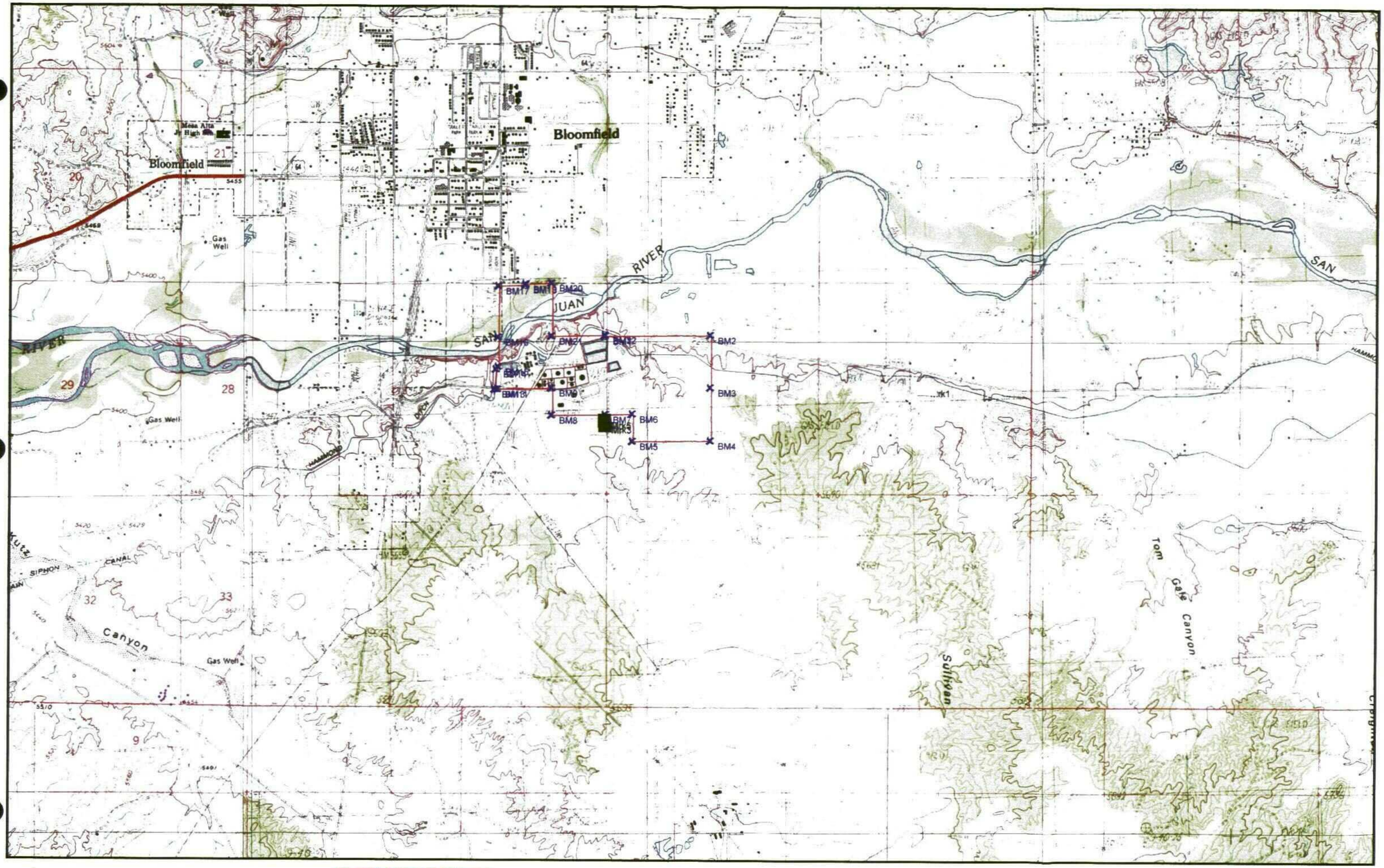
Field data collected during the initial 6-months of system operation indicate the bioventing system is effectively enhancing bioremedial activity within the western portion of the river terrace area. Groundwater level measurements show that the dewatering system is able to lower the water table approximately 3 feet below static conditions, thus increasing the vadose zone for improved bioremedial activity. 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 should be excluded from future performance monitoring.

Treated groundwater will continue to be sampled and analyzed weekly until breakthrough occurs. Once the breakthrough profile is determined, GAC 1 EFF samples will be obtained monthly and analyzed for BTEX, MTBE, GRO, and DRO.

Section 8.0 Maps

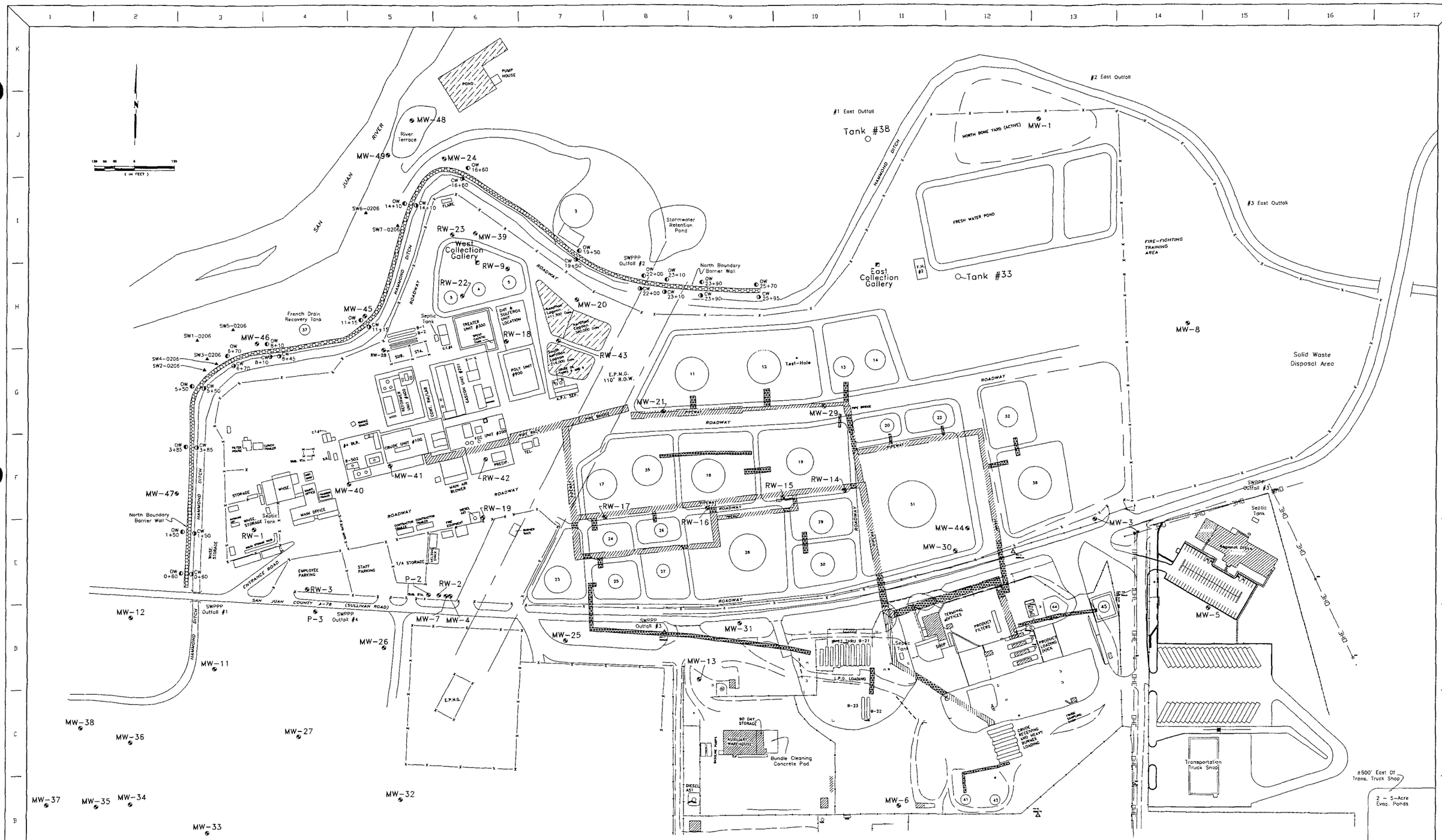
Title	Figure
Vicinity Map	Figure 1
Facility Site Plan	Figure 2
TP Well Locations	Figure 3
BV Well Locations	Figure 4



N

Scale: 1 inch equals 2000 feet

GIANT



NOTES "MW-XX" – Monitoring Wells Locations
"RW-XX" – Recovery Well Locations
"P" – Piezometer
– Denotes Under Ground Pipe-Way.
– Denotes Above Ground Pipe-Way.
– Denotes Slurry Barrier Wall
"CW" – Collection Well Locations
"OW" – Observation Well Locations
"SW" – Sump Well Locations

REFERENCE DWGS.

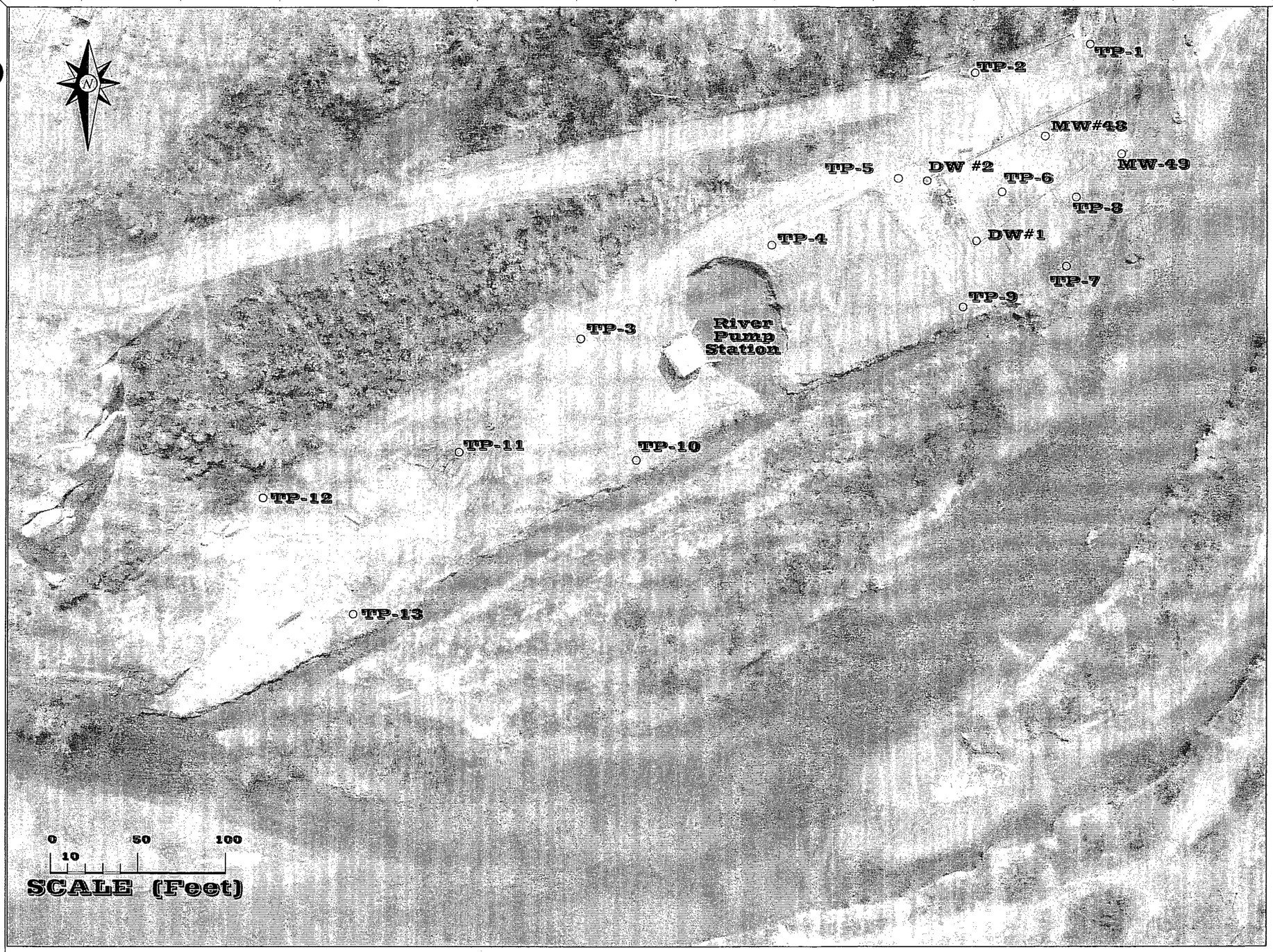
NO.	REVISION	JOB No.	DRAWN	CHECKED	APPROVED
8	Revised To Indicate Tanks 24 & 25 Addition.		NHB 3/06		
7	Observation, & Collection Wells Added As Per Enviro. Dept. Mark-Ups.		NHB 12/05		
6	Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups.		NHB 7/05		
5	Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups.		NHB 3/05		
4	Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups.		NHB 2/04		
3	Updated To Indicate Under Ground Pipe Ways In The Tank Farm Area		NHB 12/03		
9	Revised To Indicate "SW" or Sump Well Locations.		NHB 5/06		
1	Updated As Per Environental Dept. Mark Up				

SCALE	As Noted
DRAWN BY	NHB
DATE	8/29/02
INITIAL CHK.	
FINAL CHK.	
ENGR.	
APPR. BY	
AFE/WO No.	

Giant Bloomfield Refinery Area Plot Plan Recovery Well & Monitoring Well Locations

GIANT REFINING CO.
BLOOMFIELD REFINERY — BLOOMFIELD NEW MEXICO

DWG. NO. D-000-900-023 — REV. 9



NOTES

1. TP - Temporary Piezometer
2. MW - Monitoring Well
3. DW - De-watering Well

NO.	REVISION	BY	DATE
2	Revised as per Enviromental Dept. Added TP-7		
1	Revised as per Enviromental Dept.		

REFERENCE DWGS.

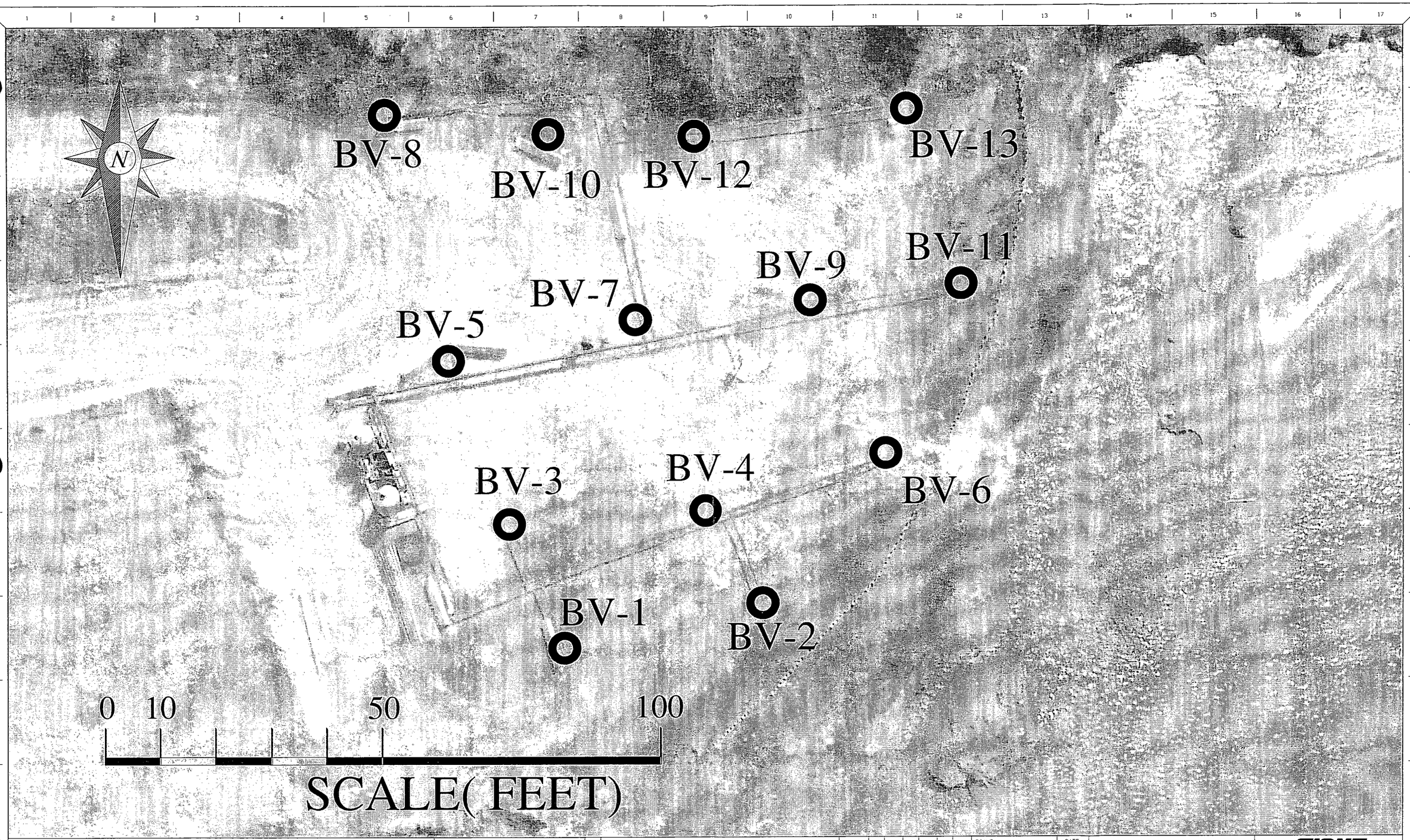
	BY	DATE
JOB No.		
DRAWN		
CHECKED		
APPROVED		

SCALE	NONE	DATE
DRAWN BY	LDB	3/20/06
INITIAL CHK.		
FINAL CHK.		
ENGR.		
APPR. BY		
AFE/WO No.	NONE	

GIANT REFINING INC.
BLOOMFIELD FACILITY
RIVER TERRACE PROJECT
TP WELL LOCATIONS PLOT

GIANT REFINING CO.
BLOOMFIELD REFINERY
BLOOMFIELD NEW MEXICO

DWG. NO. B-500-900-022
REV. 2



NOTES

BV - Denotes Biovent Well

NO.	REVISION	JOB No.	BY	DATE	BY	DATE	BY	DATE
1	Revisied as per Enviromental Depart.							

REFERENCE DWGS.

		DATE
SCALE		
DRAWN BY	LDB	3-21-06
INITIAL CHK.		
FINAL CHK.		
ENGR.		
APPR. BY		
AFE/WO No.		

GIANT REFINING INC.
BLOOMFIELD FACILITY
RIVER TERRACE PROJECT
BIOVENT WELL LOCATION PLOT

GIANT REFINING CO.
BLOOMFIELD REFINERY
BLOOMFIELD NEW MEXICO

DWG. NO. B-500-900-023 REV. 1

Section 9.0 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"	0.0.0218L/ft
1"	0.0.005545L/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 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 diplay. 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/Logsheet
- 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 logsheet 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.

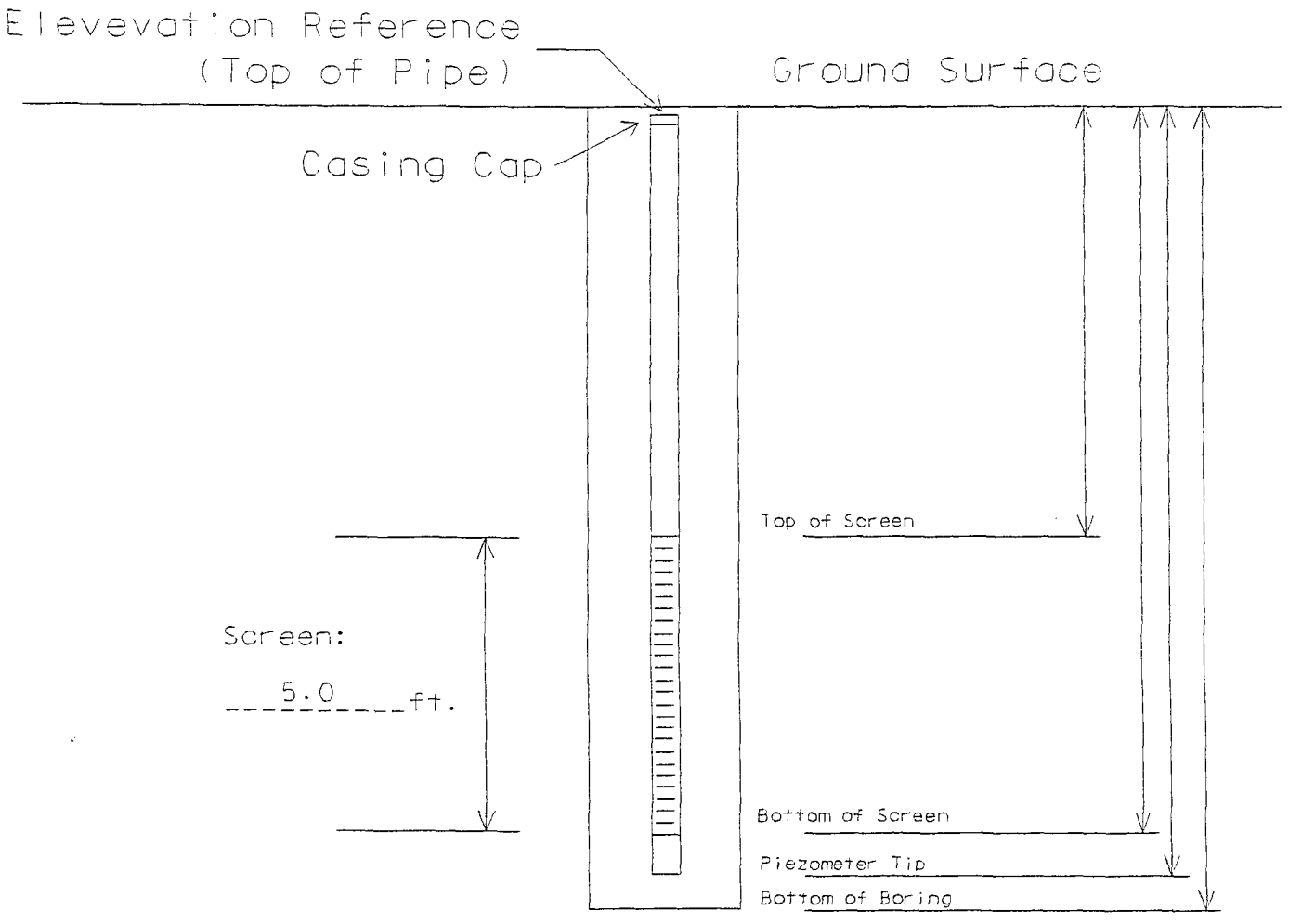
Section 10.0 Drilling Logs and Installation Diagrams

Title	Tab Number
TP Well Boring Logs and Installation Diagram	4
Dewatering Well Boring Logs and Installation Diagrams	5
BV Well Boring Logs and Installation Diagrams	6
MW #48 and MW #49 Boring Logs and Installation Diagrams	7

505-523-7674

Temporary Piezometer Installation - Typical

See Logs for Depth Details



Boring Diameter: 8 5/8"

Sand Type: Native Backfill

Bollards, Type/Size: None

Bentonite: None

Screen Type/Size: 2" PVC Sch. 40, 0.060" Hand Slotted @ 3" Intervals

Cement/Grout: None

Riser Type/Size: 2" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? No (Slip Cap)

Site Northing:

Other: N/A

Bottom Cap Used? Yes

Site Easting:

Giant Refining Co.

Project #: 03-122

Project Name: Bloomfield Wells

Elevation:

Sheet: 1 of 1
Bore Point: See plan
Water Elevation: 4.6' below ground surface
Boring No.: TP1-1004

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

File #: 03-122
Site: Bloomfield
Giant Refining
Elevation:
Date: 10/27/2004

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-2		O-*--O*- O-*--O*- O-*--O*- O-*--O*-		**Silt**, sand, very fine to fine, cobbles, gravel, brown, moist				
	2-2.5		*-*--*-*	2.5	**Clay**, sandy, very fine, brown, wet				
	2.5-9.0		*********	5.0	**Sand**, fine to medium, black, damp, water bearing				
				7.5					
				10.0	T.D. 9.0 Placed 2" PVC, 5' hand slotted screen Backfilled with clean cuttings				
				15.0					
				20.0					

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER — LOGGED BY: KM

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Sheet: 1 of 1
Bore Point: See plan
Water Elevation: 6.3' below ground surface
Boring No.: TP2-1004

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

File #: 03-122
Site: Bloomfield
Giant Refining
Elevation:
Date: 10/27/2004

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-2		O-*--O*- O-*--O*- O-*--O*- O-*--O*-		**Silt**, sand, very fine to fine, cobbles, gravel, brown, moist				
	2-2.5		*-*--*-*	2.5	**Clay**, sandy, very fine, brown, wet				
	2.5-9.0		*********	5.0	**Sand**, fine to medium, black, damp, water bearing				
				7.5					
				10.0	T.D. 9.0 Placed 2" PVC, 5' hand slotted screen Backfilled with clean cuttings				
				15.0					
				20.0					

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER — LOGGED BY: KM

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Sheet: 1 of 1
Bore Point: See plan
Water Elevation: 5.8' below ground surface
Boring No.: TP3-1004

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

File #: 03-122
Site: Bloomfield
Giant Refining
Elevation:
Date: 10/28/2004

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-2		O-*--O*- O-*--O*- O-*--O*- O-*--O*-		**Silt**, sand, very fine to fine, cobbles, gravel, brown, moist				
	2-3.5		*--*--*--* *--*--*--* *--*--*--*	2.5	**Clay**, sandy, very fine, brown				
	3.5-13.0		*********	5.0 7.5 10.0	**Sand**, medium to coarse, brown, damp,				
				15.0 20.0	T.D. 13.0 Placed 2" PVC, 5' hand slotted screen Backfilled with clean cuttings				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER LOGGED BY: KM

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Sheet: 1 of 1
Bore Point: See plan
Water Elevation: 5.4' below ground surface
Boring No.: TP4-1004

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

File #: 03-122
Site: Bloomfield
Giant Refining
Elevation:
Date: 10/28/2004

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-2		O-*--O*- O-*--O*- O-*--O*- O-*--O*-		**Silt**, sand, very fine to fine, cobbles, gravel, brown, moist				
	2-10.0		*-*--*-* *-*--*-* ********* ********* ********* ********* ********* ********* ********* ********* ********* ********* ********* ********* ********* *********	2.5 5.0 7.5 10.0	**Sand**, silty, very fine, gravel to 2", brown black, hydrocarbon odor water bearing				
				15.0

Sheet: 1 of 1
Bore Point: See plan
Water Elevation: 5.4' below ground surface
Boring No.: TP5-1004

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

File #: 03-122
Site: Bloomfield
Giant Refining
Elevation:
Date: 10/28/2004

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-2		O-*--O*- O-*--O*- O-*--O*- O-*--O*-		**Silt**, sand, very fine to fine, cobbles, gravel, brown, moist				
	2-10.0		****o**** ****o**** ****o**** ****o**** ****o**** *********	2.5	**Sand**, silty, very fine; gravel to 2", brown				
			********* ********* ********* ********* ********* ********* ********* ********* *********	5.0 7.5 10.0	sand, coarse, black Hydrocarbon odor water bearing				
				15.0

Sheet: 1 of 1
Bore Point: See plan
Water Elevation: 4.8' below ground surface
Boring No.: TP6-1004

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

File #: 03-122
Site: Bloomfield
Giant Refining
Elevation:
Date: 10/28/2004

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-1		O-*--O*- O-*--O*-		**Silt**, sand, very fine to fine, cobbles, gravel, brown, moist				
	1-10.0		****O**** ****O**** ****O**** ****O**** ****O**** ****O**** ********* ********* ********* ********* ********* ********* ********* ********* ********* ********* *********	2.5 5.0 7.5 10.0	**Sand**; silty, very fine, cobbly, brown sand, coarse, black Hydrocarbon odor				
				15.0 20.0	T.D. 10.0 Placed 2" PVC, 5' machine slotted screen Backfilled with clean cuttings				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER — LOGGED BY: KM

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Sheet: 1 of 1
Bore Point: See plan
Water Elevation: 5.7' below ground surface
Boring No.: TP7-1004

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

File #: 03-122
Site: Bloomfield
Giant Refining
Elevation:
Date: 10/28/2004

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-2		O-*--O*- O-*--O*- O-*--O*- O-*--O*-		**Silt**, sand, very fine to fine, cobbles, gravel, brown, moist				
	2-5.0		*-*--o-* *-*--o-* *-*--o-* *-*--o-* *-*--o-* *-*--o-*	2.5 5.0	**Sand**, silty, very fine, cobbly, brown				
	5-10.0		********* ********* ********* ********* ********* ********* ********* ********* ********* *********	 7.5 10.0	**Sand**, fine to medium, dark brown, moist slight hydrocarbon odor, black				
				15.0 20.0	T.D. 10.0 Placed 2" PVC, 5' hand slotted screen Backfilled with clean cuttings				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER — LOGGED BY: KM

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Sheet: 1 of 1
Bore Point: See plan
Water Elevation: 4.6' below ground surface
Boring No.: TP8-1004

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

File #: 03-122
Site: Bloomfield
Giant Refining
Elevation:
Date: 10/28/2004

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-1		O-*--O*- O-*--O*-		**Silt**, sand, very fine to fine, cobbles, gravel, brown, moist				
	1-3.5		****O**** ****O**** ****O**** ****O**** ****O****	2.5	**Sand**, silty, very fine, cobbly, brown				
	3.5-10.0		********* ********* ********* ********* ********* ********* ********* ********* ********* ********* ********* *********	5.0 7.5 10.0	**Sand**, silty, fine to medium, cobbly, grey, Hydrocarbon odor, moist, black				
				15.0 20.0	T.D. 10.0 Placed 2" PVC, 5' machine, slotted screen Backfilled with clean cuttings				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER — LOGGED BY: KM

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Sheet: 1 OF 5
Bore Point: River Terrace
Water Elevation: 7.0'
Boring No.: TP-9

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

File #: 05-038
Site: Bloomfield
Giant Refining
Elevation: EXISTING
Date: 4/5/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0.0-7.5		///**///		**Clay**, Slightly Sandy, Very Fine, Brown,				
			///**///		Moist, Gravel, Cobbles				
			///**///						
			///**///						
			///**///	2.5					
			///**///						
			///**///						
			///**///						
			///**///						
			///**///	5.0					
			///**///						
			///**///						
			///**///						
	7.0		///**///		Water				
			///**///	7.5					
	7.5-10.0		*********		Sand, Very Fine, Grey, Water Bearing				
			*********						
			*********						
			*********						
			*********	10.0					
	10.0				TD				
					Set 2" Well @ 10.0'				
					5' of Screen, 6' of Riser				
					Top of Sand 3.1'				
					Top of Bentonite 1.5'				
				15.0					
				20.0					

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER — LOGGED BY: KMM

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Sheet: 2 OF 5
Bore Point: River Terrace
Water Elevation: 4'2"
Boring No.: TP-10

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

File #: 05-038
Site: Bloomfield
Giant Refining
Elevation: EXISTING
Date: 4/5/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0.0-2.0		*-------* *-------* *-------*		**Silt**, Sandy, Very Fine, Brown, Gravel, Cobbles Moist				
	2.0-8.5		***--*** ***--*** ***--*** ***--*** ***--***	2.5	**Sand**, Very Fine to Fine, Silty, Brown, Gravel, Cobbles, Damp				
			-- ***--*** ***--*** ***--*** ***--*** ***--*** ***--*** ***--*** ***--***	5.0 7.5	Water				
	8.5			10.0 15.0 20.0	TD Set 2" Well @ 8.5' 5' of Screen, 5' of Riser Top of Sand 2.5' Top of Bentonite 1.5'				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER LOGGED BY: KMM

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Sheet: 3 OF 5
Bore Point: River Terrace
Water Elevation: 5.3'
Boring No.: TP-11

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

File #: 05-038
Site: Bloomfield
Giant Refining
Elevation: EXISTING
Date: 4/5/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0.0-2.0		////////// ////////// //////////		**Clay**, Brown, Moist, Gravel, Cobbles				
	2.0-3.5		***//*** ***//*** ***//***	2.5	**Sand**, Clayey, Brown, Moist, Gravel, Cobbles				
	3.5-5.0		***--*** ***--*** ***--*** ***--***	5.0	**Sand**, Silty, Brown, Damp, Gravel, Cobbles				
	5.0-9.5		********		**Sand**, Fine to Coarse,.Tan, Damp, Wet				
	5.3'		******** ******** ******** ******** ******** ******** ********	7.5	Water				
	9.5			10.0	TD Set 2" Well @ 9.5' 5' of Screen, 5' of Riser Top of Sand 3.5' Top of Bentonite 1.4'				
				15.0					
				20.0					

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER — LOGGED BY: KMM

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Sheet: 4 OF 5
Bore Point: RiverTerrace
Water Elevation: 7.5'
Boring No.: TP-12

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

File #: 05-058
Site: Bloomfield
Giant Refining
Elevation: EXISTING
Date: 4/5/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR.ETC.)	%M	LL	PI	CLASS.
	0.0-3.0		***--***		**Sand**, Very Fine to Fine, Slightly Silty, Brown,				
			--		Gravel, Cobbles, Moist				
			--						
			--						
			--	2.5					
	3.0-4.5		////**///		**Clay**, Sandy, Very Fine, Brown, Some Gravel/				
			////**///		Cobbles, Moist				
			////**///						
	4.5-9.0		***//***		**Sand**, Very Fine to Fine, Clayey, Brown,				
			//	5.0	Moist, Some Gravel				
			//						
			//						
			//						
			//						
			//	7.5					
			********		Water				
			********						
	9.0-13.0		********		**Sand**, Fine to Coarse, Tan, Water Bearing				
			********						
			********	10.0					
			********						
			********						
			********						
			********						
			********						
			********						
	13.0				TD				
					Set 2" Well @ 12.0'				
				15.0	5' of Screen, 8' of Riser				
					Top of Sand 5'2"				
					Top of Bentonite 4'2"				
				20.0					

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER — LOGGED BY: KMM

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Sheet: 5 OF 5
Bore Point: River Terrace
Water Elevation: 6.0'
Boring No.: TP-13

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

File #: 05-036
Site: Bloomfield
Giant Refining
Elevation: EXISTING
Date: 4/5/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0.0-1.5		*-------* *-------*		**Silt**, Sandy, Very Fine to Fine, Brown, Moist, Gravel, Cobbles				
	1.5-8.5		***//*** ***//*** ***//*** ***//*** ***//*** ***//*** ***//*** ***//*** ***//*** ***//***	2.5 5.0	**Sand**, Very Fine, Clayey, Brown, Moist, Gravel, Cobbles				
	6.0		***//*** ***//*** ***//*** ***//***	7.5	Water Level 6.0'				
	8.5-14.0		//////// //////// //////// //////// //////// //////// //////// //////// //////// //////// //////// ////////	10.0	**Clay**, Grey/Black, Moist, No Hydrocarbon Odor				
	14.0			15.0 20.0	TD Set 2"' Well @ 14.5' 10' of Screen, 5' of Riser Top of Sand 2.5' Top of Bentonite 1.5'				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER LOGGED BY: KMM

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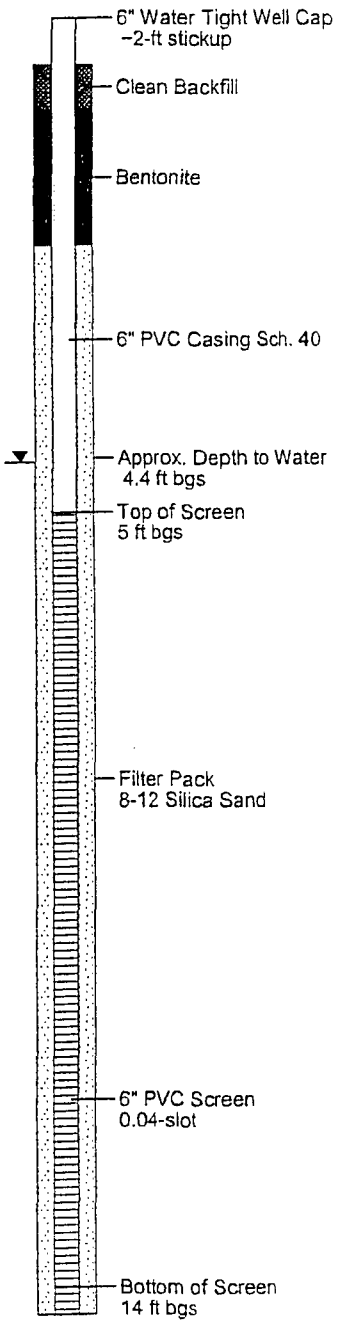
Boring Log and Construction for Dewatering Well DW-1

Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 16, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 16, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0	ML		NOTE: Lithologic Description from Boring #2.					
1								
2			Poorly Graded Sandy SILT, brown, fine sand, non-plastic fines, trace of fine gravel, moist/damp.	T	30	70	1	12
3								
4								
5								
6	SM		Black staining starts.				3	
7			Poorly Graded SILTY SAND, gray/black, fine sand, non-plastic fines, trace of fine gravel.	T	70	30	1	12
8							1	
9								
10								
11	ML		Clayey SILT, gray, low plasticity fines, fine to coarse sand, fine gravel.	5	20	75	1	9
12								
13								
14								



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Boring Log and Construction for Dewatering Well DW-2

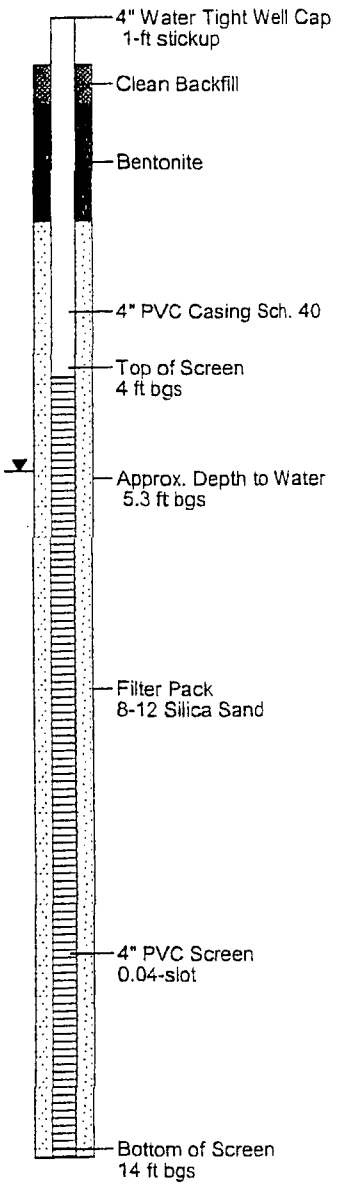
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 18, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 18, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: *Envirotech*	*Easting*	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0–5	ML		SILT, brown, non-plastic fines, fine sand, fine gravel. Clay 2" thick.	5	35	60	1 2 2	10
5–9	SM		Poorly Graded SILTY SAND, black, med. sand, non-plastic fines. Clay 3" thick.	5	70	25	1 2 5	12
9–13	SP-SM		POORLY GRADED SAND WITH SILT, coarse sand, fine gravel, non-plastic fines.	10	75	15		
13–16	SW		WELL GRADED Gravelly SAND, black, fine to med. gravel, fine to coarse sand, non-plastic fines.	25	70	5	10 17 23	24

Well Name: DW-2
Borehole Diameter: 12 inch



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Boring Log and Construction for Bio-Venting Well BV-1

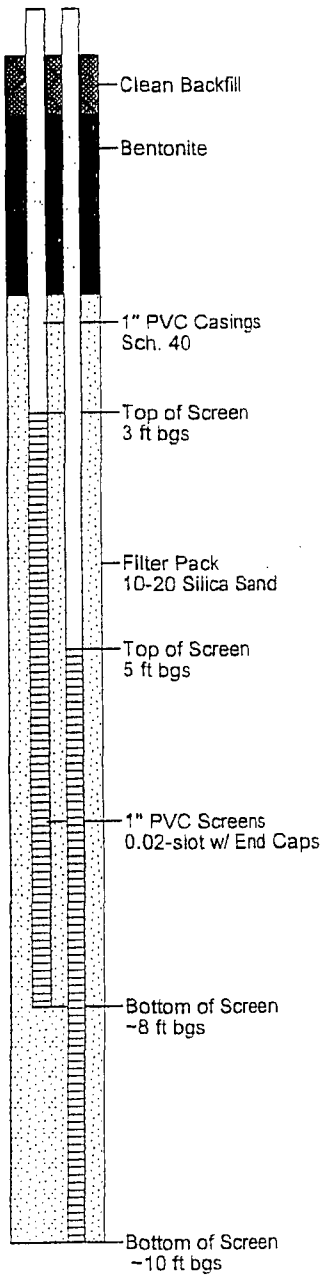
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 15, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 15, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1								
2	ML/SM		Sandy SILT/ SILTY SAND, light brown, non-plastic fines with intermittent clays, fine to coarse sand, fine subrounded gravel.	T	40	60	3 2 3	8
3								
4			Clay 3" thick					
5							5	
6			POORLY GRADED SAND with gravel, black staining starts.	20	80	T	5 9	12
7	SP		Cobbles and gravel at 7' bgs, increasing coarsenes with depth, split-spoon refusal no sample at 8 ft bgs.					
8				40	60			
9								
10								

Well Name1: BV-1a
Well Name2: BV-1b
Borehole Diameter: 6-inch



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Boring Log and Construction for Bio-Venting Well BV-2

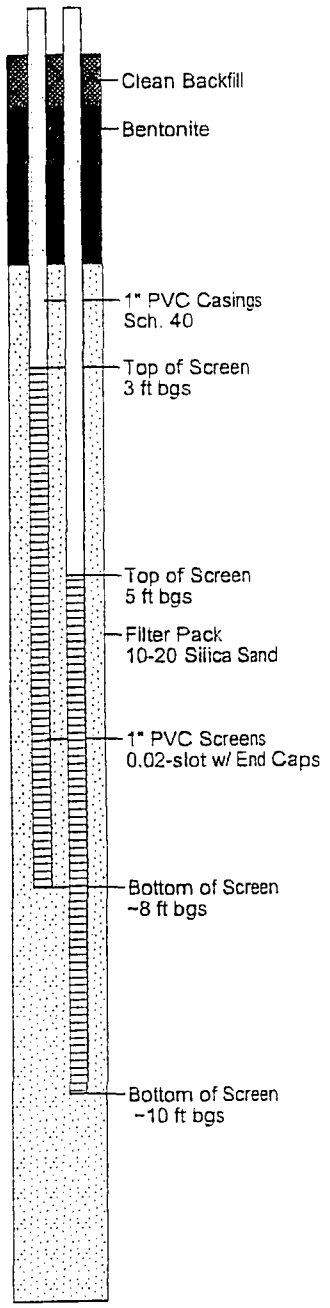
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 15, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 15, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: *Envirotech*	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0–5	ML		Poorly Graded Sandy SILT, light brown, non-plastic fines, fine sand, fine gravel, damp, very dense, black from 3'-4'. Odor.	T	30	70	50|6	0
5–9	SW-SM		WELL GRADED Gravelly SAND WITH SILT, dark brown/black, fine to coarse sand, fine to med. gravel, non-plastic fines, trace of cobbles, damp, dense.	35	50	15		
9–12	SW		WELL GRADED SAND, black, medium density, wet. Alternating 1'-2' thick layers of brown and black soil varying in odor. Staining continues to total depth	10	90	T	12 12 50|6	12

Well Name1: BV-2a
Well Name2: BV-2b
Borehole Diameter: 6-inch



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Boring Log and Construction for Bio-Venting Well BV-3

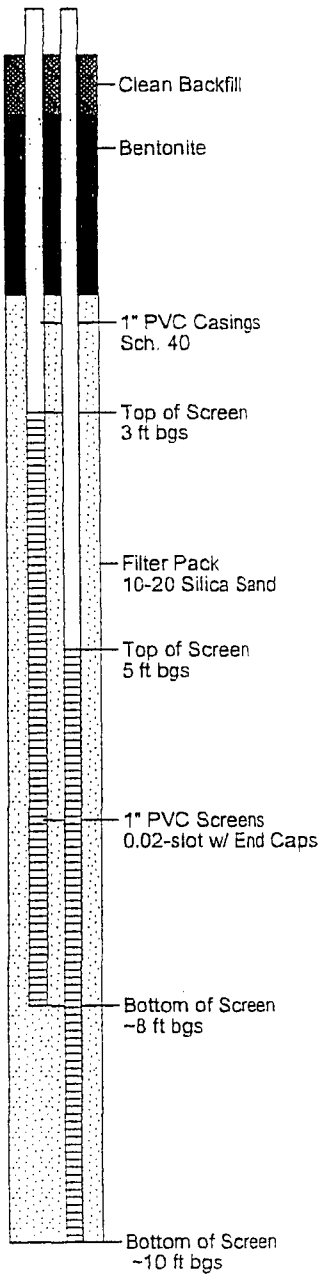
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 15, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 15, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils: % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0–5	ML		Sandy SILT					
5–10	SP		POORLY GRADED SAND with gravel, black starting at 6' bgs.				7 10 21	18
			3" thick clay layers at 7' bgs.					
			Gravelly sand starts at 8' bgs.					

Well Name1: BV-3a
Well Name2: BV-3b
Borehole Diameter: 6-inch



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Boring Log and Construction for Bio-Venting Well BV-4

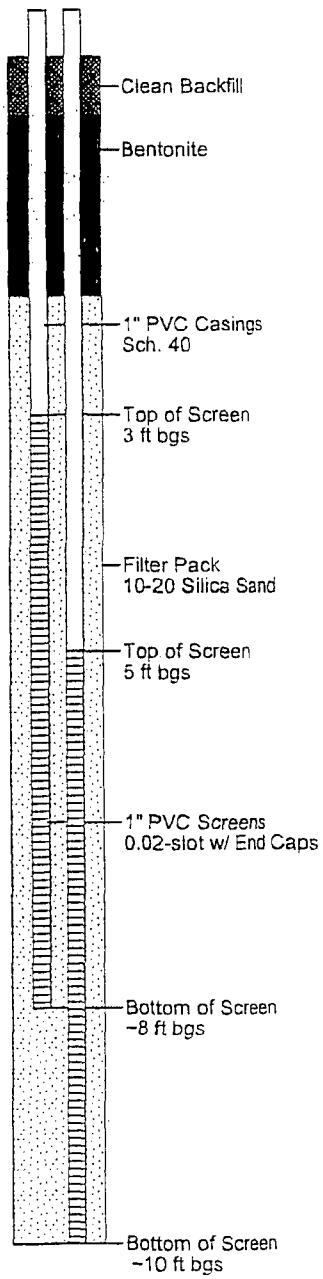
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 15, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 15, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recoevery (in.)
0								
2			Cobble				8	
	ML		Poorly Graded Sandy SILT, light brown, slight to med. plasticity fines, fine to med. sand, fine subrounded gravel, damp.	T	30	70	7	12
3			Black staining starts				7	
5								
	SW		WELL GRADED Gravelly SAND, black, fine to coarse sand, fine subrounded gravel, non-plastic fines, damp to wet.	20	80	T	31	1
							32	
8							10	
10								

Well Name1: BV-4a
Well Name2: BV-4b
Borehole Diameter: 6-inch



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Boring Log and Construction for Bio-Venting Well BV-5

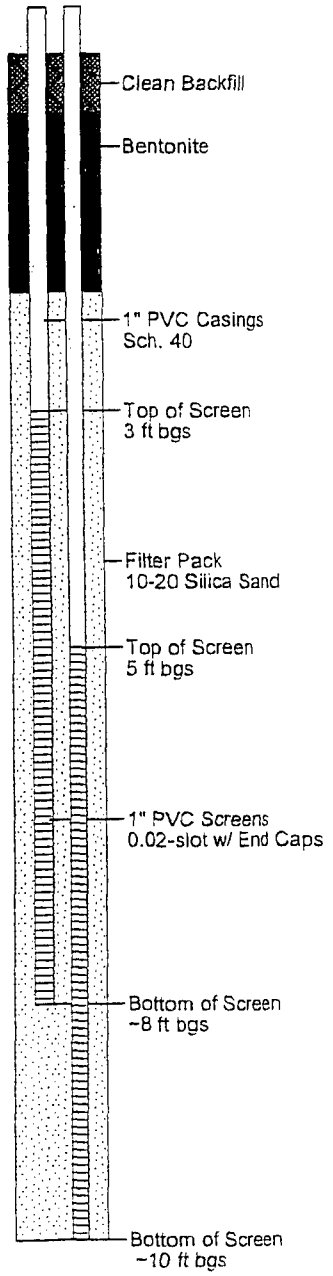
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 15, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 15, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils: % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1								
2								
3	ML		Poorly Graded Sandy SILT, light brown, non-plastic fines, fine sand, fine gravel, damp.				4 8 12	12
4								
5			Clay 2" thick					
6	SP		POORLY GRADED SAND, black, coarse sand, fine gravel. Black staining starts.				5 2 3	12
7								
8								
9			3" layer of clay at 10' bgs, followed by more gravel.				5 12 13	18
10								

Well Name1: BV-5a
Well Name2: BV-5b
Borehole Diameter: 6-inch



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Boring Log and Construction for Bio-Venting Well BV-6

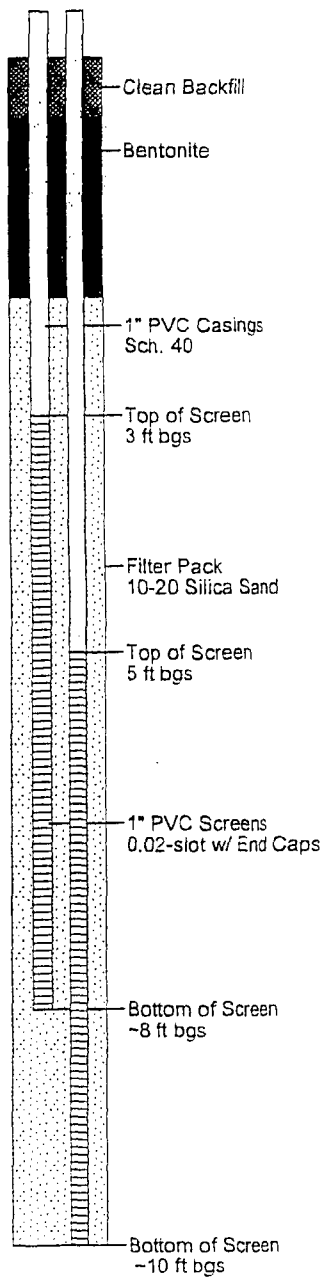
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 16, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 16, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1								
2							4	
	SP-SM		POORLY GRADED SAND WITH SILT, brown, med. sand, fine gravel, non-plastic fines, damp.	5	80	15	3	15
3			Black staining starts.				4	
4								
5								
	SW		WELL GRADED SAND, black, fine to coarse sand, fine gravel, trace of fines, wet.	10	90	T		
6								
7								
8			Clay 2" thick					
9							7	
			WELL GRADED Gravelly SAND, black, med. to coarse sand, fine to med. gravel, trace of fines, wet.	30	70	T	17	15
10							31	

Well Name1: BV-6a
Well Name2: BV-6b
Borehole Diameter: 6-inch



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Boring Log and Construction for Bio-Venting Well BV-7

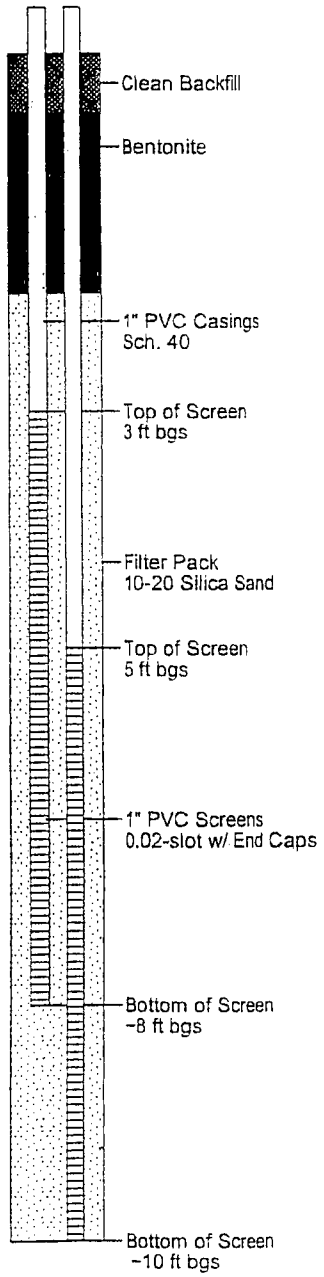
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 17, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 17, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1	SM/ML		WELL GRADED SILTY SAND/ Sandy SILT, brown, fine to coarse sand, non-plastic fines, fine gravel, damp.	10	50	40	8	
2							7 12	18
3	SM		Black staining starts. POORLY GRADED SILTY SAND, black, fine to med. sand, non-plastic fines, damp. PID = 2647 ppm.	0	70	30		
4								
5								
6								
7			Clay 2" thick					
8	SP-SM		POORLY GRADED SAND WITH SILT, black, med. sand, non-plastic fines. PID = 2253 ppm.	0	90	10	2 1 1	6
9								
10								

Well Name1: BV-7a
Well Name2: BV-7b
Borehole Diameter: 6-inch



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Boring Log and Construction for Bio-Venting Well BV-8

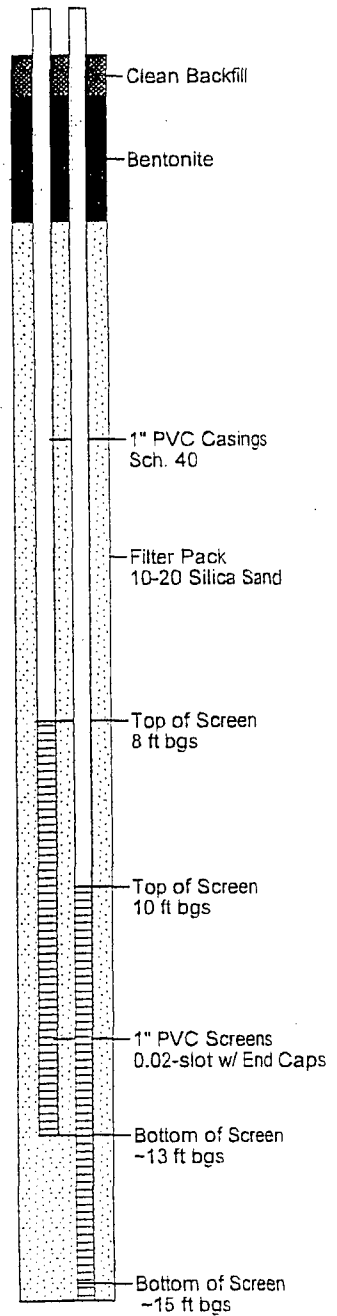
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 17, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 17, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0	ML		Sandy SILT	0	30	70		
1	SW-SM		WELL GRADED SAND WITH SILT, gray, fine to coarse sand, non-plastic fines, med. to high cementation. PID = 1.3 ppm.	0	90	10	27 35 18	18
8	ML		Sandy SILT, brown. PID = 0.7 ppm.	0	20	80	6 5 6	15
9	SP-SM		Black staining starts.					
11			POORLY GRADED SAND WITH SILT, black, med. sand, non-plastic fines, fine gravel, wet. PID = 2380 ppm.	5	85	10	3 4 7	15
13			Clay 2" thick Increasing sand with depth. PID = 2709 ppm.				2 3 8	24
15								

Well Name1: BV-8a
Well Name2: BV-8b
Borehole Diameter: 6-inch



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MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-9

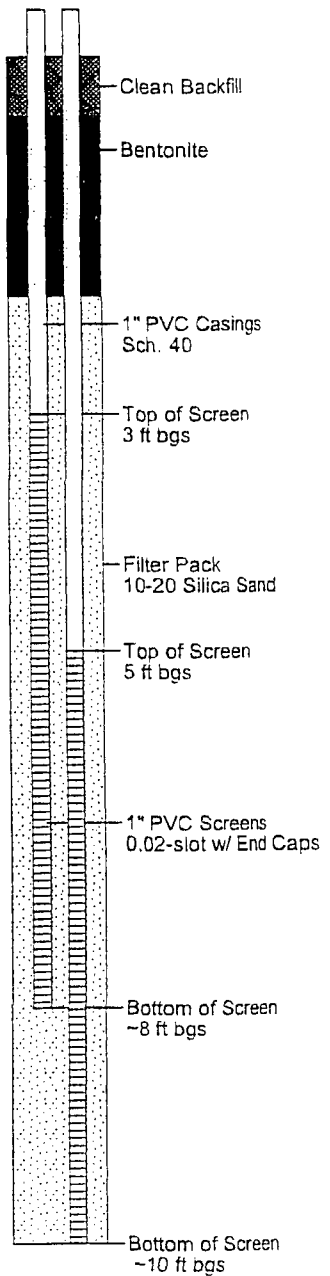
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 17, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 17, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1			WELL GRADED SAND WITH SILT, brown, fine to coarse sand, fine gravel, non-plastic fines, dry. PID = 1871 ppm.	10	80	10	11 17 11	12
2								
3	SW-SM		Poorly graded and black, odor. Black staining starts.					
4								
5								
6								
7								
8	SP-SM		POORLY GRADED SAND WITH SILT, black, wet, fine to med. sand, fine gravel, non-plastic fines, rotten egg odor. PID 56 ppm	10	80	10	5 6 8	12
9								
10								

Well Name1: BV-9a
Well Name2: BV-9b
Borehole Diameter: 6-inch



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MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-10

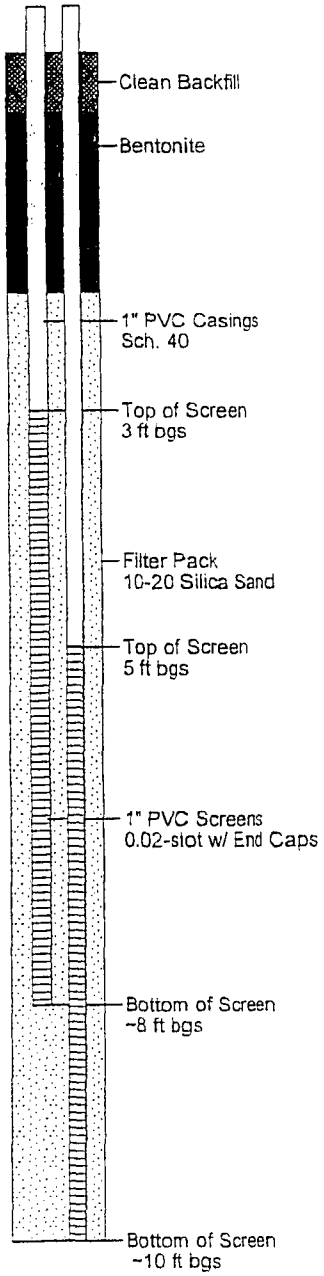
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 16, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 16, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1	SM		WELL GRADED SILTY SAND, brown, fine to coarse sand, non-plastic fines, fine gravel, cementation present, damp. PID = 2812 ppm.	10	70	20	8 7 8	18
2								
3			Black staining starts.					
4	SM		Poorly Graded SILTY SAND, gray/black, fine sand, non-plastic fines.	0	70	30		
5								
6								
7								
8	SP-SM		POORLY GRADED SAND WITH SILT, black, fine to med. sand, non-plastic fines. PID = 3247 ppm.	0	85	15	3 2 3	15
9								
10								

Well Name1: BV-10a
Well Name2: BV-10b
Borehole Diameter: 6-inch



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MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-11

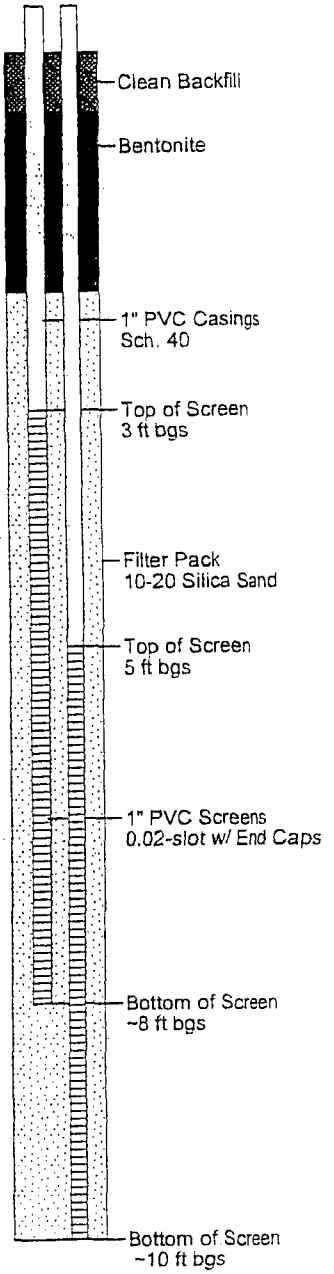
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 16, 2005	Drill Rig	: Hollow Stem Auger
Finisn Date	: Aug. 16, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils: % Gravel	% Sand	% Fines	Blows per 6"	Recoevery (in.)
0			Background PID 2- 12 ppm					
2	SM/ML		POORLY GRADED SILTY SAND/ Sandy SILT, brown, fine sand, non-plastic fines, fine gravel, damp. PID = 145 ppm.	5	60	35	3 4 7	18
3			Black staining starts.					
5	SP-SM		POORLY GRADED SAND WITH SILT, black, fine to med. sand, fine gravel, non-plastic fines. PID = 137 ppm.	15	70	15	4 2 3	6
10								

Well Name1: BV-11a
Well Name2: BV-11b
Borehole Diameter: 6-inch



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MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

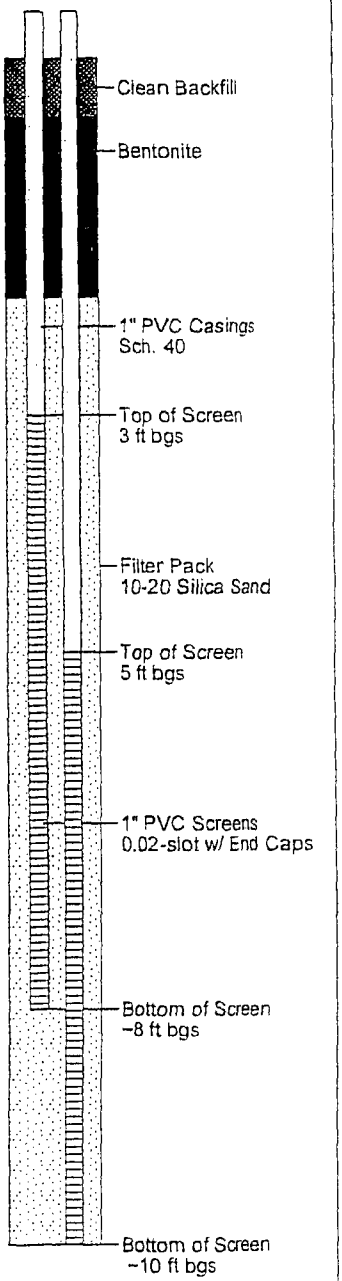
Boring Log and Construction for Bio-Venting Well BV-12

Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico
Project No. 5127-003

Start Date	: Aug. 16, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 16, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils: % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1	SM		WELL GRADED SILTY SAND, brown, fine to med. sand, non-plastic fines, fine gravel, damp. PID = 350 ppm.				7 7 7	18
2								
3			Black staining starts.					
4								
5								
6								
6	SP-SM						2	
7			POORLY GRADED SAND WITH SILT, fine sand, trace of gravel. PID = 2091 ppm.				1 3	12
8								
9								
10								

Well Name1: BV-12a
Well Name2: BV-12b
Borehole Diameter: 6-inch



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MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-13

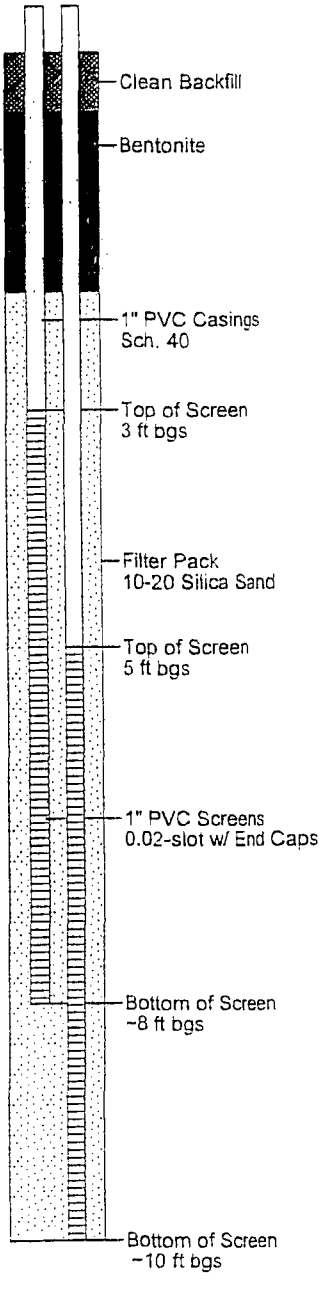
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 16, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 16, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0–1	ML		Poorly Graded Sandy SILT, brown, non-plastic fines, fine to med. sand, fine gravel.	T	40	60		
3–4	SW-SM		WELL GRADED SAND WITH SILT, gray.				6 2 2	15
4–5	SM		Black staining starts. POORLY GRADED SILTY SAND, black and brown, well graded and poorly graded layers.	0	60	40		
7–8	SP-SM		POORLY GRADED SAND WITH SILT, black, slight cementation. PID = 225 ppm.					12

Well Name1: BV-13a
Well Name2: BV-13b
Borehole Diameter: 6-inch



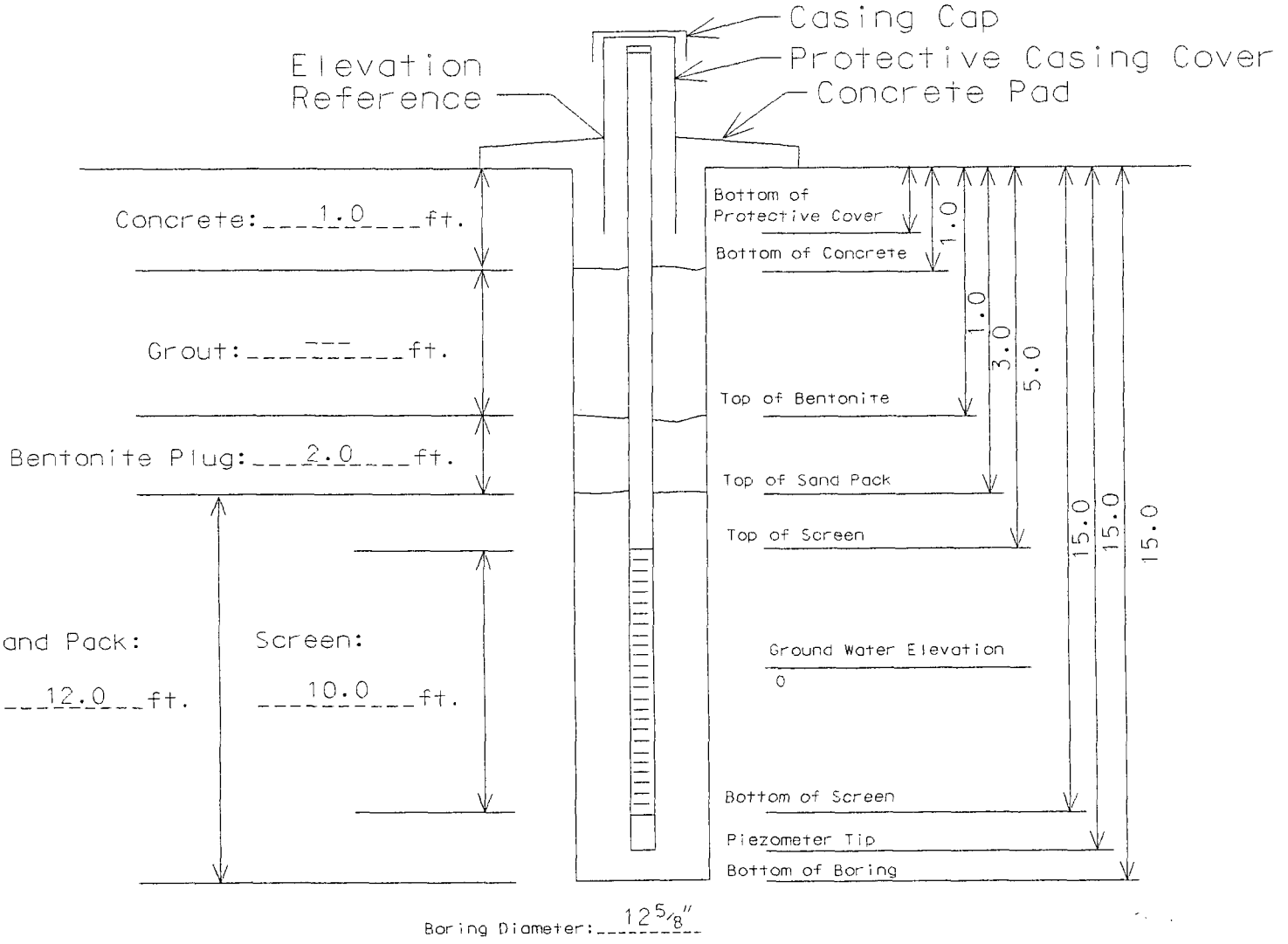
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PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. MW-48



Boring Diameter: 12 5/8"

Sand Type: 8-12 Silica

Bollards, Type/Size: Steel, 3"

Bentonite: 3/8" Chips

Screen Type/Size: 4" PVC Sch. 40, 0.020" Slotted

Cement/Grout:

Riser Type/Size: 4" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? Yes

Site Northing: 6204.63

Other: N/A

Bottom Cap Used? Yes

Site Easting: 2700.70

Giant Refining Co.

Project #: 03-122

Project Name: Bloomfield Wells

Elevation: not surveyed

Sheet: 1 of 1
Bore Point: See plan
Water Elevation: 7.70
Boring No.: MW-48

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

File #: 03-122
Site: Bloomfield
Giant Refining
Elevation:
Date: 10/28/2004

Log of Test Borings

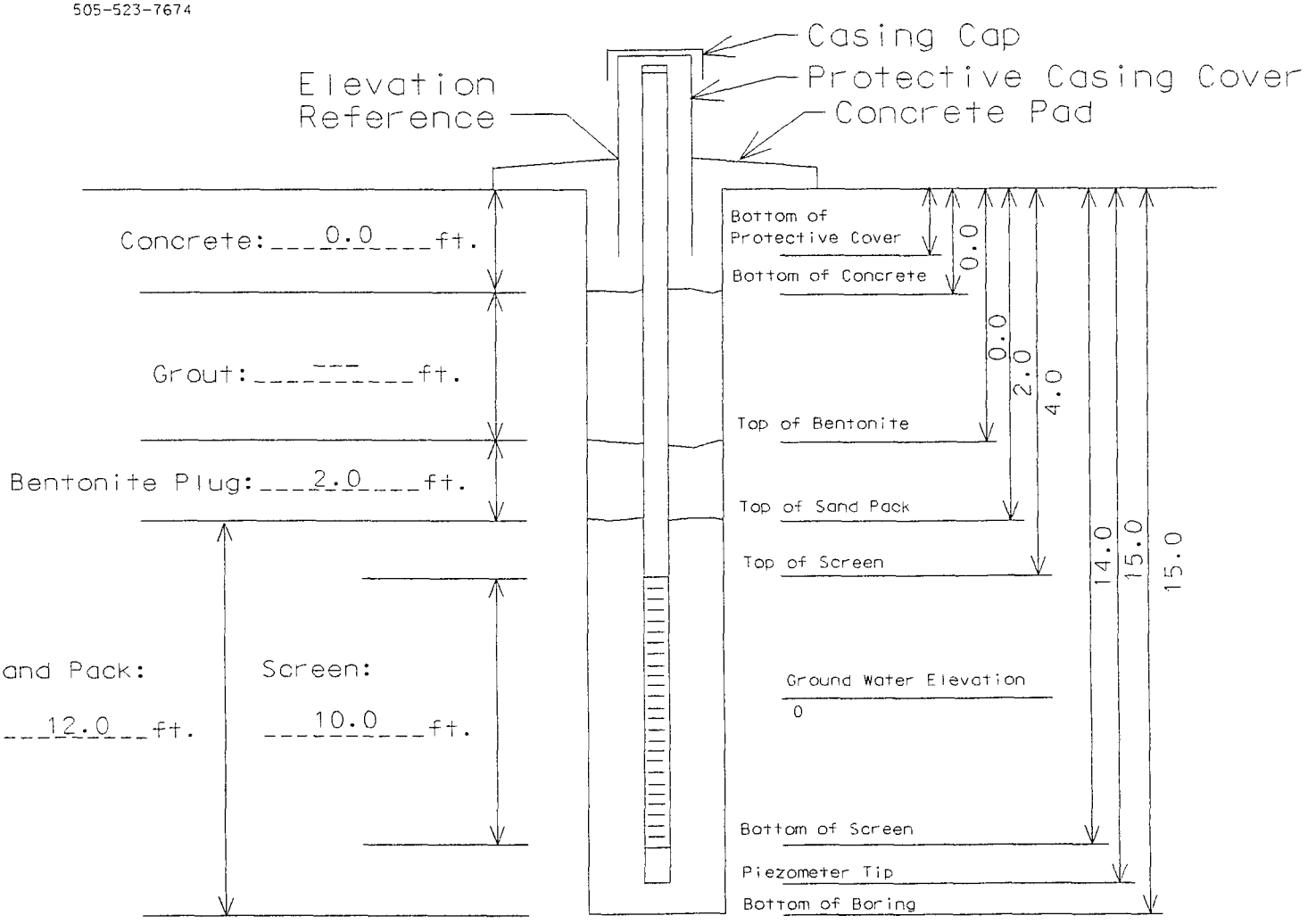
LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-1		*-**-*-* *-*O-*-*		**Silt**, sand, very fine to fine, brown, damp, a few cobbles				
	1-15.0		*-*o-*-* *-*o-*-*		**Sand**, silty, very fine to fine, brown, damp, gravelly				
	2.0		*-*o-*-* *-*o-*-* *-*o-*-* *-*o-*-*	2.5	Black with hydrocarbon odor				
			******** ******** ********

PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. MW-49



Boring Diameter: $12\frac{5}{8}$"

Sand Type: 8-12 Silica

Bollards, Type/Size: Steel, 3"

Bentonite: $\frac{3}{8}$" Chips

Screen Type/Size: 4" PVC Sch. 40, 0.020" Slotted

Cement/Grout: ---

Riser Type/Size: 4" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? Yes

Site Northing: 6196.16

Other: N/A

Bottom Cap Used? Yes

Site Easting: 2653.14

Giant Refining Co.

Project #: 03-122

Project Name: Bloomfield Wells

Elevation: Not Surveyed

Sheet: 1 of 1
Bore Point: See plan
Water Elevation: 9.00
Boring No.: MW49

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

File #: 03-122
Site: Bloomfield
Giant Refining
Elevation:
Date: 10/28/2004

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0-3		*O*-*-O *O*-*-O *O*-*-O *O*-*-O *O*-*-O *O*-*-O	2.5	**Cobbles**, sand, very fine to fine, gravel, brown, damp, cobbles				
	3-15.0		*-*o-*-* *-*o-*-* ******** ******** ******** ******** ******** **O**O* **O**O* **O**O* ******** ******** ******** ******** ******** ******** ******** ******** ******** ******** ******** ******** ********	5.0 7.5 10.0 15.0	**Sand**, silty, very fine to fine, brown, moist, fine to medium sand Black with hydrocarbon odor, wet some cobbles water bearing medium to coarse sand, grey				
				20.0	T.D. 15.0 Bottom of well 14' Placed 4" PVC, 10' factory slotted .020" screen Sanded with 8-12 Silica Sand to 2' bgs Bentonite Plug to gs				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER LOGGED BY: KM

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Section 11.0 Chemical Analytical Program

HALL ENVIRONMENTAL ANALYSIS LABORATORY

hallenvironmental.com

QUALITY ASSURANCE PLAN

October 2004

Revision 6

Control Number: 0000038

Approved By:

Nancy McDuffie Date
Laboratory Manager

Approved By:

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 undo 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 the not exceed the laboratories 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.

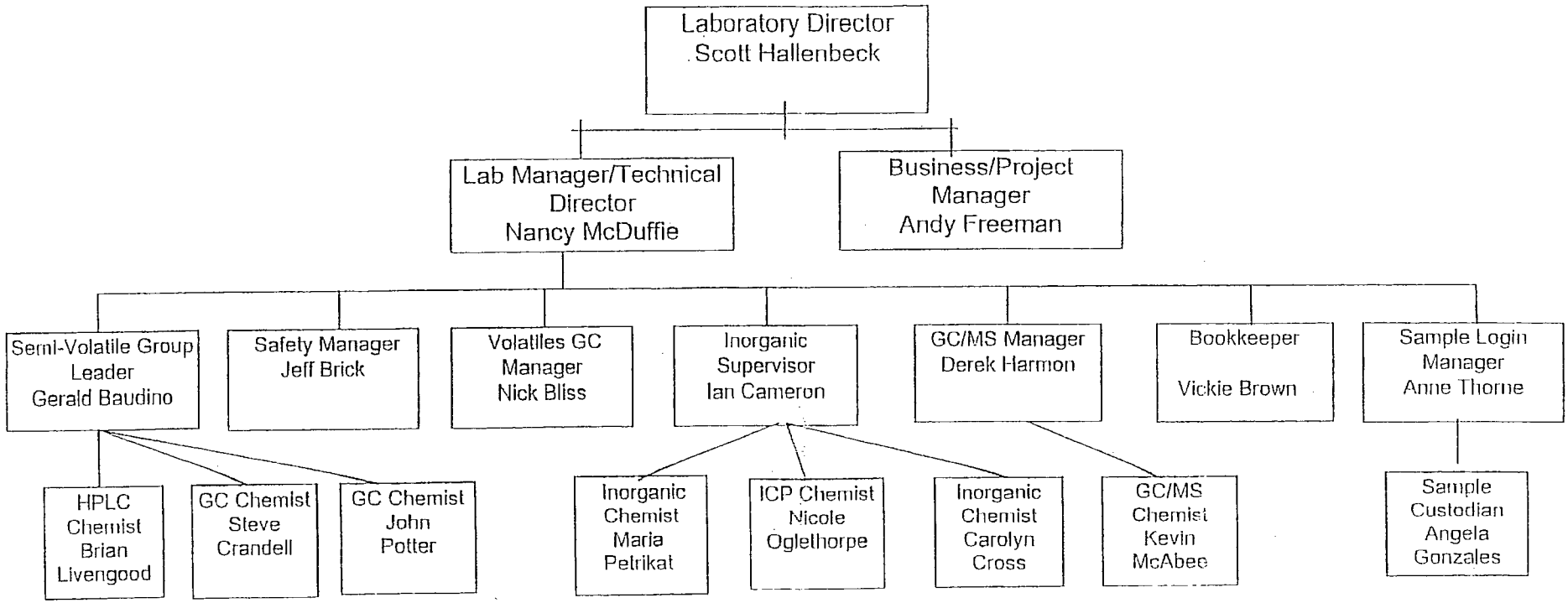


Diagram of organizational Structure

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

Analyte	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	Matrix	Container	Preservative	Holding time
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_2SO_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_2SO_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_2SO_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_2SO_4 pH<2	28 days

Constituents	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_2SO_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_2SO_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_2SO_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_2SO_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_2SO_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

Compound	Matrix	Container	Preservative	Holding 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.

CHAIN-OF-CUSTODY RECORD

Accreditation Applied:
NELAC ☐ USACE ☐
Other: _____

Client:

Address:

Phone #:

Fax #:

Project Name:

Project #:

Project Manager:

Sampler:

Sample Temperature:

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.
					H_2Cl_2	HNO_3		

Date: | Time: | Relinquished By: (Signature) | Remarks:

Date: | Time: | Relinquished By: (Signature) | 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

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

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 Pentafluorobenzylation Derivitization"
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"

Section 12.0 Chemical Analytical Reports

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HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

August 16, 2005

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

RE: River Terrace Baseline

Order No.: 0508095

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 13 samples on 8/9/2005 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

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

Hall Environmental Analysis Laboratory

Date: *16-Aug-05*

CLIENT: San Juan Refining
Client Sample ID: TP-1
Lab Order: 0508095
Collection Date: 8/8/2005 9:45:00 AM
Project: River Terrace Baseline
Lab ID: 0508095-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	1.9	1.0		mg/L	1	8/12/2005 2:55:17 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/12/2005 2:55:17 AM
Surr: DNOP	135	58-140		%REC	1	8/12/2005 2:55:17 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	66	1.0		mg/L	20	8/12/2005 5:13:41 PM
Surr: BFB	113	79.7-118		%REC	20	8/12/2005 5:13:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	20	8/12/2005 5:13:41 PM
Benzene	1400	100		µg/L	200	8/15/2005 10:11:02 AM
Toluene	49	10		µg/L	20	8/12/2005 5:13:41 PM
Ethylbenzene	3800	100		µg/L	200	8/15/2005 10:11:02 AM
Xylenes, Total	23000	100		µg/L	200	8/15/2005 10:11:02 AM
Surr: 4-Bromofluorobenzene	104	82.2-119		%REC	200	8/15/2005 10:11:02 AM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Aug-05*

CLIENT: San Juan Refining
Client Sample ID: TP-2
Lab Order: 0508095
Collection Date: 8/8/2005 9:15:00 AM
Project: River Terrace Baseline
Lab ID: 0508095-02
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	8/12/2005 3:28:22 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/12/2005 3:28:22 AM
Surr: DNOP	133	58-140		%REC	1	8/12/2005 3:28:22 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	84	1.0		mg/L	20	8/12/2005 5:45:11 PM
Surr: BFB	115	79.7-118		%REC	20	8/12/2005 5:45:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	20	8/12/2005 5:45:11 PM
Benzene	6100	100		µg/L	200	8/15/2005 10:41:41 AM
Toluene	8700	100		µg/L	200	8/15/2005 10:41:41 AM
Ethylbenzene	4200	100		µg/L	200	8/15/2005 10:41:41 AM
Xylenes, Total	25000	100		µg/L	200	8/15/2005 10:41:41 AM
Surr: 4-Bromofluorobenzene	101	82.2-119		%REC	200	8/15/2005 10:41:41 AM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Aug-05*

CLIENT: San Juan Refining
Client Sample ID: TP-3
Lab Order: 0508095
Collection Date: 8/8/2005 10:50:00 AM
Project: River Terrace Baseline
Lab ID: 0508095-03
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	8/12/2005 4:01:10 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/12/2005 4:01:10 AM
Surr: DNOP	132	58-140		%REC	1	8/12/2005 4:01:10 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/12/2005 7:50:36 PM
Surr: BFB	96.6	79.7-118		%REC	1	8/12/2005 7:50:36 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/12/2005 7:50:36 PM
Benzene	ND	0.50		µg/L	1	8/12/2005 7:50:36 PM
Toluene	ND	0.50		µg/L	1	8/12/2005 7:50:36 PM
Ethylbenzene	ND	0.50		µg/L	1	8/12/2005 7:50:36 PM
Xylenes, Total	1.2	0.50		µg/L	1	8/12/2005 7:50:36 PM
Surr: 4-Bromofluorobenzene	93.1	82.2-119		%REC	1	8/12/2005 7:50:36 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Aug-05*

CLIENT:	San Juan Refining	Client Sample ID:	TP-4
Lab Order:	0508095	Collection Date:	8/8/2005 10:15:00 AM
Project:	River Terrace Baseline		
Lab ID:	0508095-04	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	8/12/2005 6:12:22 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/12/2005 6:12:22 AM
Surr: DNOP	133	58-140		%REC	1	8/12/2005 6:12:22 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	8.2	1.0		mg/L	20	8/12/2005 8:21:40 PM
Surr: BFB	109	79.7-118		%REC	20	8/12/2005 8:21:40 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	20	8/12/2005 8:21:40 PM
Benzene	ND	10		µg/L	20	8/12/2005 8:21:40 PM
Toluene	ND	10		µg/L	20	8/12/2005 8:21:40 PM
Ethylbenzene	420	10		µg/L	20	8/12/2005 8:21:40 PM
Xylenes, Total	220	10		µg/L	20	8/12/2005 8:21:40 PM
Surr: 4-Bromofluorobenzene	103	82.2-119		%REC	20	8/12/2005 8:21:40 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Aug-05*

CLIENT: San Juan Refining
Client Sample ID: TP-5
Lab Order: 0508095
Collection Date: 8/8/2005 9:30:00 AM
Project: River Terrace Baseline
Lab ID: 0508095-05
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	8/12/2005 7:17:59 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/12/2005 7:17:59 AM
Surr: DNOP	136	58-140		%REC	1	8/12/2005 7:17:59 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	56	1.0		mg/L	20	8/12/2005 8:52:49 PM
Surr: BFB	108	79.7-118		%REC	20	8/12/2005 8:52:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	20	8/12/2005 8:52:49 PM
Benzene	350	10		µg/L	20	8/12/2005 8:52:49 PM
Toluene	25	10		µg/L	20	8/12/2005 8:52:49 PM
Ethylbenzene	3500	100		µg/L	200	8/15/2005 11:12:25 AM
Xylenes, Total	21000	100		µg/L	200	8/15/2005 11:12:25 AM
Surr: 4-Bromofluorobenzene	107	82.2-119		%REC	20	8/12/2005 8:52:49 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Aug-05*

CLIENT: San Juan Refining
Client Sample ID: TP-6
Lab Order: 0508095
Collection Date: 8/8/2005 10:45:00 AM
Project: River Terrace Baseline
Lab ID: 0508095-06
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	1.0	1.0		mg/L	1	8/12/2005 7:50:45 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/12/2005 7:50:45 AM
Surr: DNOP	135	58-140		%REC	1	8/12/2005 7:50:45 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	26	1.0		mg/L	20	8/12/2005 9:23:52 PM
Surr: BFB	113	79.7-118		%REC	20	8/12/2005 9:23:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	20	8/12/2005 9:23:52 PM
Benzene	280	10		µg/L	20	8/12/2005 9:23:52 PM
Toluene	ND	10		µg/L	20	8/12/2005 9:23:52 PM
Ethylbenzene	2800	50		µg/L	100	8/15/2005 11:43:08 AM
Xylenes, Total	7500	50		µg/L	100	8/15/2005 11:43:08 AM
Surr: 4-Bromofluorobenzene	106	82.2-119		%REC	20	8/12/2005 9:23:52 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Aug-05*

CLIENT: San Juan Refining
Client Sample ID: TP-7
Lab Order: 0508095
Collection Date: 8/8/2005 1:05:00 PM
Project: River Terrace Baseline
Lab ID: 0508095-07
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	8/12/2005 8:22:04 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/12/2005 8:22:04 AM
Surr: DNOP	132	58-140		%REC	1	8/12/2005 8:22:04 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/12/2005 9:54:54 PM
Surr: BFB	105	79.7-118		%REC	1	8/12/2005 9:54:54 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/12/2005 9:54:54 PM
Benzene	ND	0.50		µg/L	1	8/12/2005 9:54:54 PM
Toluene	ND	0.50		µg/L	1	8/12/2005 9:54:54 PM
Ethylbenzene	0.65	0.50		µg/L	1	8/12/2005 9:54:54 PM
Xylenes, Total	4.9	0.50		µg/L	1	8/12/2005 9:54:54 PM
Surr: 4-Bromofluorobenzene	99.4	82.2-119		%REC	1	8/12/2005 9:54:54 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Aug-05*

CLIENT: San Juan Refining
Client Sample ID: TP-8
Lab Order: 0508095
Collection Date: 8/8/2005 11:00:00 AM
Project: River Terrace Baseline
Lab ID: 0508095-08
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	7.8	1.0		mg/L	1	8/12/2005 8:54:49 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/12/2005 8:54:49 AM
Surr: DNOP	139	58-140		%REC	1	8/12/2005 8:54:49 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	84	5.0		mg/L	100	8/12/2005 11:27:48 PM
Surr: BFB	107	79.7-118		%REC	100	8/12/2005 11:27:48 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	8/12/2005 11:27:48 PM
Benzene	1100	50		µg/L	100	8/12/2005 11:27:48 PM
Toluene	ND	50		µg/L	100	8/12/2005 11:27:48 PM
Ethylbenzene	3200	50		µg/L	100	8/12/2005 11:27:48 PM
Xylenes, Total	25000	100		µg/L	200	8/15/2005 12:13:53 PM
Surr: 4-Bromofluorobenzene	105	82.2-119		%REC	100	8/12/2005 11:27:48 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Aug-05*

CLIENT: San Juan Refining
Client Sample ID: TP-9
Lab Order: 0508095
Collection Date: 8/8/2005 1:20:00 PM
Project: River Terrace Baseline
Lab ID: 0508095-09
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	8/12/2005 9:27:34 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/12/2005 9:27:34 AM
Surr: DNOP	139	58-140		%REC	1	8/12/2005 9:27:34 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	1.1	0.10		mg/L	2	8/12/2005 11:58:41 PM
Surr: BFB	110	79.7-118		%REC	2	8/12/2005 11:58:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	2	8/12/2005 11:58:41 PM
Benzene	ND	1.0		µg/L	2	8/12/2005 11:58:41 PM
Toluene	ND	1.0		µg/L	2	8/12/2005 11:58:41 PM
Ethylbenzene	20	1.0		µg/L	2	8/12/2005 11:58:41 PM
Xylenes, Total	27	1.0		µg/L	2	8/12/2005 11:58:41 PM
Surr: 4-Bromofluorobenzene	105	82.2-119		%REC	2	8/12/2005 11:58:41 PM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Aug-05*

CLIENT: San Juan Refining
Client Sample ID: TP-10
Lab Order: 0508095
Collection Date: 8/8/2005 1:35:00 PM
Project: River Terrace Baseline
Lab ID: 0508095-10
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	8/12/2005 10:00:23 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/12/2005 10:00:23 AM
Surr: DNOP	139	58-140		%REC	1	8/12/2005 10:00:23 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/13/2005 12:29:37 AM
Surr: BFB	98.6	79.7-118		%REC	1	8/13/2005 12:29:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/13/2005 12:29:37 AM
Benzene	ND	0.50		µg/L	1	8/13/2005 12:29:37 AM
Toluene	ND	0.50		µg/L	1	8/13/2005 12:29:37 AM
Ethylbenzene	ND	0.50		µg/L	1	8/13/2005 12:29:37 AM
Xylenes, Total	2.5	0.50		µg/L	1	8/13/2005 12:29:37 AM
Surr: 4-Bromofluorobenzene	97.1	82.2-119		%REC	1	8/13/2005 12:29:37 AM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Aug-05*

CLIENT: San Juan Refining
Client Sample ID: TP-11
Lab Order: 0508095
Collection Date: 8/8/2005 2:35:00 PM
Project: River Terrace Baseline
Lab ID: 0508095-11
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	8/12/2005 10:33:11 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/12/2005 10:33:11 AM
Surr: DNOP	136	58-140		%REC	1	8/12/2005 10:33:11 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/13/2005 1:00:42 AM
Surr: BFB	101	79.7-118		%REC	1	8/13/2005 1:00:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/13/2005 1:00:42 AM
Benzene	ND	0.50		µg/L	1	8/13/2005 1:00:42 AM
Toluene	ND	0.50		µg/L	1	8/13/2005 1:00:42 AM
Ethylbenzene	ND	0.50		µg/L	1	8/13/2005 1:00:42 AM
Xylenes, Total	2.8	0.50		µg/L	1	8/13/2005 1:00:42 AM
Surr: 4-Bromofluorobenzene	96.4	82.2-119		%REC	1	8/13/2005 1:00:42 AM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Aug-05*

CLIENT: San Juan Refining
Client Sample ID: TP-12
Lab Order: 0508095
Collection Date: 8/8/2005 2:45:00 PM
Project: River Terrace Baseline
Lab ID: 0508095-12
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	8/12/2005 11:05:58 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/12/2005 11:05:58 AM
Surr: DNOP	133	58-140		%REC	1	8/12/2005 11:05:58 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/13/2005 1:31:32 AM
Surr: BFB	105	79.7-118		%REC	1	8/13/2005 1:31:32 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	2.8	2.5		µg/L	1	8/13/2005 1:31:32 AM
Benzene	ND	0.50		µg/L	1	8/13/2005 1:31:32 AM
Toluene	ND	0.50		µg/L	1	8/13/2005 1:31:32 AM
Ethylbenzene	0.55	0.50		µg/L	1	8/13/2005 1:31:32 AM
Xylenes, Total	4.2	0.50		µg/L	1	8/13/2005 1:31:32 AM
Surr: 4-Bromofluorobenzene	97.9	82.2-119		%REC	1	8/13/2005 1:31:32 AM

Qualifiers:
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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Aug-05*

CLIENT: San Juan Refining
Lab Order: 0508095
Project: River Terrace Baseline
Lab ID: 0508095-13

Client Sample ID: TP-13
Collection Date: 8/8/2005 3:05:00 PM
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	8/15/2005 9:40:21 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/15/2005 9:40:21 PM
Surr: DNOP	188	58-140	S	%REC	1	8/15/2005 9:40:21 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/13/2005 3:35:13 AM
Surr: BFB	98.6	79.7-118		%REC	1	8/13/2005 3:35:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/13/2005 3:35:13 AM
Benzene	ND	0.50		µg/L	1	8/13/2005 3:35:13 AM
Toluene	ND	0.50		µg/L	1	8/13/2005 3:35:13 AM
Ethylbenzene	ND	0.50		µg/L	1	8/13/2005 3:35:13 AM
Xylenes, Total	3.7	0.50		µg/L	1	8/13/2005 3:35:13 AM
Surr: 4-Bromofluorobenzene	97.0	82.2-119		%REC	1	8/13/2005 3:35:13 AM

Qualifiers:
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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Aug-05*

CLIENT: San Juan Refining
Work Order: 0508095
Project: River Terrace Baseline

QC SUMMARY REPORT
Method Blank

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID MB-8515	**Batch ID: 8515**	**Test Code: SW8015**		**Units: mg/L**		**Analysis Date 8/11/2005 8:53:07 PM**			**Prep Date 8/11/2005**		
Client ID:		Run ID: FID(17A) 2_050811A				SeqNo: 387292					
Diesel Range Organics (DRO)	ND	1									
Motor Oil Range Organics (MRO)	ND	5									
Surr: DNOP	1.196	0	1	0	120	58	140	0			
Sample ID MB-8520	**Batch ID: 8520**	**Test Code: SW8015**		**Units: mg/L**		**Analysis Date 8/12/2005 4:33:57 AM**			**Prep Date 8/11/2005**		
Client ID:		Run ID: FID(17A) 2_050811A				SeqNo: 387306					
Diesel Range Organics (DRO)	ND	1									
Motor Oil Range Organics (MRO)	ND	5									
Surr: DNOP	1.23	0	1	0	123	58	140	0			
Sample ID Reagent Blank	**Batch ID: R16277**	**Test Code: SW8015**		**Units: mg/L**		**Analysis Date 8/12/2005 9:04:34 AM**			**Prep Date**		
Client ID:		Run ID: PIDFID_050812A				SeqNo: 387495					
Gasoline Range Organics (GRO)	0.0192	0.05									J
Surr: BFB	20.37	0	20	0	102	79.7	118	0			
Sample ID Reagent Blank	**Batch ID: R16309**	**Test Code: SW8015**		**Units: mg/L**		**Analysis Date 8/15/2005 8:29:09 AM**			**Prep Date**		
Client ID:		Run ID: PIDFID_050815A				SeqNo: 388461					
Gasoline Range Organics (GRO)	0.0118	0.05									J
Surr: BFB	20.47	0	20	0	102	79.7	118	0			

Qualifiers: ND - Not Detected at the Reporting Limit
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B - Analyte detected in the associated Method Blank

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CLIENT: San Juan Refining
Work Order: 0508095
Project: River Terrace Baseline

QC SUMMARY REPORT
Method Blank

Sample ID Reagent Blank Batch ID: R16277 Test Code: SW8021 Units: µg/L Analysis Date 8/12/2005 9:04:34 AM Prep Date
Client ID: Run ID: PIDFID_050812A SeqNo: 387493

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	2.5									
Benzene	ND	0.5									
Toluene	ND	0.5									
Ethylbenzene	ND	0.5									
Xylenes, Total	ND	0.5									
Surr: 4-Bromofluorobenzene	19.08	0	20	0	95.4	82.2	119	0			

Sample ID Reagent Blank Batch ID: R16309 Test Code: SW8021 Units: µg/L Analysis Date 8/15/2005 8:29:09 AM Prep Date
Client ID: Run ID: PIDFID_050815A SeqNo: 388351

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	2.5									
Benzene	ND	0.5									
Toluene	ND	0.5									
Ethylbenzene	ND	0.5									
Xylenes, Total	ND	0.5									
Surr: 4-Bromofluorobenzene	19.37	0	20	0	96.9	82.2	119	0			

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508095
Project: River Terrace Baseline

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID GRO lcs 2.5ug Batch ID: R16309 Test Code: SW8015 Units: mg/L Analysis Date 8/15/2005 9:34:19 PM Prep Date
Client ID: Run ID: PIDFID_050815A SeqNo: 388462

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.498	0.05	0.5	0.0118	97.2	82.6	114	0			

Sample ID BTEX lcs 100ng Batch ID: R16277 Test Code: SW8021 Units: µg/L Analysis Date 8/13/2005 4:37:07 AM Prep Date
Client ID: Run ID: PIDFID_050812A SeqNo: 387869

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	19.92	2.5	20	0	99.6	64.5	133	0			
Benzene	18.34	0.5	20	0	91.7	88.5	114	0			
Toluene	18.5	0.5	20	0	92.5	87.2	114	0			
Ethylbenzene	18.45	0.5	20	0	92.2	88.6	113	0			
Xylenes, Total	37	0.5	40	0	92.5	83.3	114	0			

Sample ID BTEX lcs 100ng Batch ID: R16309 Test Code: SW8021 Units: µg/L Analysis Date 8/15/2005 10:36:03 PM Prep Date
Client ID: Run ID: PIDFID_050815A SeqNo: 388448

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	19.76	2.5	20	0	98.8	64.5	133	0			
Benzene	18.32	0.5	20	0	91.6	88.5	114	0			
Toluene	18	0.5	20	0	90.0	87.2	114	0			
Ethylbenzene	18.11	0.5	20	0	90.6	88.6	113	0			
Xylenes, Total	35.87	0.5	40	0	89.7	83.3	114	0			

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Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 8/9/2005

Work Order Number 0508095 | Received by AT

Checklist completed by _____ (Signature) 8-10-05 (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? 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

September 26, 2005

Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite D
Albuquerque, NM 87109

San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

Dear Ms. Hurtado:

Hall Environmental Analysis Laboratory received 1 sample on 8/24/2005 for the analyses presented in the following report.

These were analyzed acccording 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

0508276-A/DW #1 - Baseline

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

Hall Environmental Analysis Laboratory

Date: *26-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: DW #1
Lab Order: 0508276
Collection Date: 8/23/2005 10:45:00 AM
Project: DW #1 Baseline
Lab ID: 0508276-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **MAP**
Fluoride	0.39	0.10		mg/L	1	8/24/2005
Chloride	42	0.50		mg/L	5	8/25/2005
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/24/2005
Bromide	ND	0.50		mg/L	1	8/24/2005
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/24/2005
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/24/2005
Sulfate	230	2.5		mg/L	5	8/25/2005
EPA METHOD 310.1: ALKALINITY						Analyst: **MAP**
Alkalinity, Total (As CaCO3)	370	2.0		mg/L CaCO3	1	9/2/2005
Carbonate	ND	2.0		mg/L CaCO3	1	9/2/2005
Bicarbonate	370	2.0		mg/L CaCO3	1	9/2/2005
EPA METHOD 8260B: VOLATILES						Analyst: **HLM**
Benzene	ND	1.0		µg/L	1	8/25/2005
Toluene	ND	1.0		µg/L	1	8/25/2005
Ethylbenzene	ND	1.0		µg/L	1	8/25/2005
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/25/2005
1,2,4-Trimethylbenzene	1.3	1.0		µg/L	1	8/25/2005
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2005
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/25/2005
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/25/2005
Naphthalene	ND	2.0		µg/L	1	8/25/2005
1-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2005
2-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2005
Acetone	ND	10		µg/L	1	8/25/2005
Bromobenzene	ND	1.0		µg/L	1	8/25/2005
Bromochloromethane	ND	1.0		µg/L	1	8/25/2005
Bromodichloromethane	ND	1.0		µg/L	1	8/25/2005
Bromoform	ND	1.0		µg/L	1	8/25/2005
Bromomethane	ND	2.0		µg/L	1	8/25/2005
2-Butanone	ND	10		µg/L	1	8/25/2005
Carbon disulfide	ND	10		µg/L	1	8/25/2005
Carbon Tetrachloride	ND	1.0		µg/L	1	8/25/2005
Chlorobenzene	ND	1.0		µg/L	1	8/25/2005
Chloroethane	ND	2.0		µg/L	1	8/25/2005
Chloroform	ND	1.0		µg/L	1	8/25/2005
Chloromethane	ND	1.0		µg/L	1	8/25/2005
2-Chlorotoluene	ND	1.0		µg/L	1	8/25/2005
4-Chlorotoluene	ND	1.0		µg/L	1	8/25/2005
cis-1,2-DCE	ND	1.0		µg/L	1	8/25/2005
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2005

Qualifiers:

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R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *26-Sep-05*

CLIENT: San Juan Refining
Lab Order: 0508276
Project: DW #1 Baseline
Lab ID: 0508276-01

Client Sample ID: DW #1
Collection Date: 8/23/2005 10:45:00 AM
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/25/2005
Dibromochloromethane	ND	1.0		µg/L	1	8/25/2005
Dibromomethane	ND	2.0		µg/L	1	8/25/2005
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2005
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2005
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2005
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/25/2005
1,1-Dichloroethane	ND	1.0		µg/L	1	8/25/2005
1,1-Dichloroethene	ND	1.0		µg/L	1	8/25/2005
1,2-Dichloropropane	ND	1.0		µg/L	1	8/25/2005
1,3-Dichloropropane	ND	1.0		µg/L	1	8/25/2005
2,2-Dichloropropane	ND	1.0		µg/L	1	8/25/2005
1,1-Dichloropropene	ND	1.0		µg/L	1	8/25/2005
Hexachlorobutadiene	ND	1.0		µg/L	1	8/25/2005
2-Hexanone	ND	10		µg/L	1	8/25/2005
Isopropylbenzene	ND	1.0		µg/L	1	8/25/2005
4-Isopropyltoluene	ND	1.0		µg/L	1	8/25/2005
4-Methyl-2-pentanone	ND	10		µg/L	1	8/25/2005
Methylene Chloride	ND	3.0		µg/L	1	8/25/2005
n-Butylbenzene	ND	1.0		µg/L	1	8/25/2005
n-Propylbenzene	ND	1.0		µg/L	1	8/25/2005
sec-Butylbenzene	ND	1.0		µg/L	1	8/25/2005
Styrene	ND	1.0		µg/L	1	8/25/2005
tert-Butylbenzene	ND	1.0		µg/L	1	8/25/2005
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/25/2005
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	8/25/2005
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/25/2005
trans-1,2-DCE	ND	1.0		µg/L	1	8/25/2005
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2005
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2005
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2005
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/25/2005
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/25/2005
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/25/2005
Trichlorofluoromethane	ND	1.0		µg/L	1	8/25/2005
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/25/2005
Vinyl chloride	ND	1.0		µg/L	1	8/25/2005
Xylenes, Total	3.1	1.0		µg/L	1	8/25/2005
Surr: 1,2-Dichloroethane-d4	99.2	87.7-108		%REC	1	8/25/2005
Surr: 4-Bromofluorobenzene	96.6	88.8-113		%REC	1	8/25/2005
Surr: Dibromofluoromethane	98.7	84.1-111		%REC	1	8/25/2005
Surr: Toluene-d8	98.6	85.9-109		%REC	1	8/25/2005

Qualifiers:

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R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *26-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: DW #1
Lab Order: 0508276
Collection Date: 8/23/2005 10:45:00 AM
Project: DW #1 Baseline
Lab ID: 0508276-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8310: PAHS						Analyst: **JMP**
Naphthalene	ND	2.5		µg/L	1	9/2/2005 4:05:05 PM
1-Methylnaphthalene	ND	2.5		µg/L	1	9/2/2005 4:05:05 PM
2-Methylnaphthalene	ND	2.5		µg/L	1	9/2/2005 4:05:05 PM
Acenaphthylene	ND	2.5		µg/L	1	9/2/2005 4:05:05 PM
Acenaphthene	ND	2.5		µg/L	1	9/2/2005 4:05:05 PM
Fluorene	ND	0.80		µg/L	1	9/2/2005 4:05:05 PM
Phenanthrene	ND	0.60		µg/L	1	9/2/2005 4:05:05 PM
Anthracene	ND	0.60		µg/L	1	9/2/2005 4:05:05 PM
Fluoranthene	ND	0.30		µg/L	1	9/2/2005 4:05:05 PM
Pyrene	ND	0.30		µg/L	1	9/2/2005 4:05:05 PM
Benz(a)anthracene	ND	0.020		µg/L	1	9/2/2005 4:05:05 PM
Chrysene	ND	0.20		µg/L	1	9/2/2005 4:05:05 PM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	9/2/2005 4:05:05 PM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	9/2/2005 4:05:05 PM
Benzo(a)pyrene	ND	0.020		µg/L	1	9/2/2005 4:05:05 PM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	9/2/2005 4:05:05 PM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	9/2/2005 4:05:05 PM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	9/2/2005 4:05:05 PM
Surr: Benzo(e)pyrene	71.5	54-102		%REC	1	9/2/2005 4:05:05 PM
TOTAL CARBON DIOXIDE CALCULATION						Analyst: **MAP**
Total Carbon Dioxide	330	1.0		mg CO2/L	1	9/2/2005
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **DK**
Specific Conductance	1200	0.010		µmhos/cm	1	8/26/2005
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	9/7/2005
EPA METHOD 6010C: DISSOLVED METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	9/8/2005 3:21:44 PM
Barium	0.12	0.0020		mg/L	1	9/8/2005 3:21:44 PM
Cadmium	ND	0.0020		mg/L	1	9/8/2005 3:21:44 PM
Calcium	61	1.0		mg/L	1	9/8/2005 3:21:44 PM
Chromium	ND	0.0060		mg/L	1	9/8/2005 3:21:44 PM
Copper	ND	0.0060		mg/L	1	9/8/2005 3:21:44 PM
Iron	0.97	0.020		mg/L	1	9/8/2005 3:21:44 PM
Lead	ND	0.0050		mg/L	1	9/8/2005 3:21:44 PM
Magnesium	10	1.0		mg/L	1	9/8/2005 3:21:44 PM
Manganese	1.9	0.0020		mg/L	1	9/8/2005 3:21:44 PM
Potassium	3.6	1.0		mg/L	1	9/8/2005 3:21:44 PM
Selenium	ND	0.050		mg/L	1	9/8/2005 3:21:44 PM
Silver	ND	0.0050		mg/L	1	9/8/2005 3:21:44 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *26-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: DW #1
Lab Order: 0508276
Collection Date: 8/23/2005 10:45:00 AM
Project: DW #1 Baseline
Lab ID: 0508276-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Sodium	210	10		mg/L	10	9/9/2005 10:28:08 AM
Uranium	ND	0.10		mg/L	1	9/8/2005 3:21:44 PM
Zinc	0.10	0.0050		mg/L	1	9/8/2005 3:21:44 PM
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	9/9/2005 10:34:05 AM
Barium	0.11	0.020		mg/L	1	9/9/2005 10:34:05 AM
Cadmium	ND	0.0020		mg/L	1	9/9/2005 10:34:05 AM
Chromium	ND	0.0060		mg/L	1	9/9/2005 10:34:05 AM
Copper	ND	0.0060		mg/L	1	9/9/2005 10:34:05 AM
Iron	1.4	0.020		mg/L	1	9/9/2005 10:34:05 AM
Lead	ND	0.0050		mg/L	1	9/9/2005 10:34:05 AM
Manganese	1.8	0.0020		mg/L	1	9/9/2005 10:34:05 AM
Selenium	ND	0.050		mg/L	1	9/9/2005 10:34:05 AM
Silver	ND	0.0050		mg/L	1	9/9/2005 10:34:05 AM
Uranium	ND	0.10		mg/L	1	9/9/2005 10:34:05 AM
Zinc	ND	0.050		mg/L	1	9/9/2005 10:34:05 AM
EPA METHOD 160.1: TDS						Analyst: **DK**
Total Dissolved Solids	830	50		mg/L	1	8/26/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: 26-Sep-05

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Method Blank

Sample ID: **MBLK** Batch ID: **R16423** Test Code: **E300** Units: **mg/L** Analysis Date: **8/24/2005** Prep Date:
Client ID: Run ID: **LC_050824A** SeqNo: **391843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.1									
Chloride	ND	0.1									
Nitrogen, Nitrite (As N)	ND	0.1									
Bromide	ND	0.5									
Nitrogen, Nitrate (As N)	ND	0.1									
Phosphorus, Orthophosphate (As P)	ND	0.5									
Sulfate	ND	0.5									

Sample ID: **MBLK** Batch ID: **R16546** Test Code: **E310.1** Units: **mg/L CaCO3** Analysis Date: **9/2/2005** Prep Date:
Client ID: Run ID: **WC_050902B** SeqNo: **395705**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	2									
Carbonate	ND	2									
Bicarbonate	ND	2									

5/23

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Method Blank

Sample ID: **5ml rb** Batch ID: **R16424** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **8/24/2005** Prep Date:
Client ID: Run ID: **VAL_050824A** SeqNo: **391929**

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

6/23

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Method Blank

1,2-Dibromo-3-chloropropane	ND	2
Dibromochloromethane	ND	1
Dibromomethane	ND	2
1,2-Dichlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
Dichlorodifluoromethane	ND	1
1,1-Dichloroethane	ND	1
1,1-Dichloroethene	ND	1
1,2-Dichloropropane	ND	1
1,3-Dichloropropane	ND	1
2,2-Dichloropropane	ND	1
1,1-Dichloropropene	ND	1
Hexachlorobutadiene	ND	1
2-Hexanone	ND	10
Isopropylbenzene	ND	1
4-Isopropyltoluene	ND	1
4-Methyl-2-pentanone	ND	10
Methylene Chloride	ND	3
n-Butylbenzene	ND	1
n-Propylbenzene	ND	1
sec-Butylbenzene	ND	1
Styrene	ND	1
tert-Butylbenzene	ND	1
1,1,1,2-Tetrachloroethane	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Tetrachloroethene (PCE)	ND	1
trans-1,2-DCE	ND	1
trans-1,3-Dichloropropene	ND	1
1,2,3-Trichlorobenzene	ND	1
1,2,4-Trichlorobenzene	ND	1
1,1,1-Trichloroethane	ND	1
1,1,2-Trichloroethane	ND	1

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Method Blank

Trichloroethene (TCE)	ND	1						
Trichlorofluoromethane	ND	1						
1,2,3-Trichloropropane	0.482	2						J
Vinyl chloride	ND	1						
Xylenes, Total	ND	1						
Surr: 1,2-Dichloroethane-d4	9.346	0	10	0	93.5	87.7	108	0
Surr: 4-Bromofluorobenzene	9.56	0	10	0	95.6	88.8	113	0
Surr: Dibromofluoromethane	10.07	0	10	0	101	84.1	111	0
Surr: Toluene-d8	9.752	0	10	0	97.5	85.9	109	0

8/23

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Method Blank

Sample ID: 5ml rb | Batch ID: R16442 | Test Code: SW8260B | Units: µg/L | Analysis Date: 8/25/2005 | Prep Date:
Client ID: | Run ID: VAL_050825A | SeqNo: 392288

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

9/23

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Method Blank

1,2-Dibromo-3-chloropropane	ND	2
Dibromochloromethane	ND	1
Dibromomethane	ND	2
1,2-Dichlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
Dichlorodifluoromethane	ND	1
1,1-Dichloroethane	ND	1
1,1-Dichloroethene	ND	1
1,2-Dichloropropane	ND	1
1,3-Dichloropropane	ND	1
2,2-Dichloropropane	ND	1
1,1-Dichloropropene	ND	1
Hexachlorobutadiene	ND	1
2-Hexanone	ND	10
Isopropylbenzene	ND	1
4-Isopropyltoluene	ND	1
4-Methyl-2-pentanone	ND	10
Methylene Chloride	ND	3
n-Butylbenzene	ND	1
n-Propylbenzene	ND	1
sec-Butylbenzene	ND	1
Styrene	ND	1
tert-Butylbenzene	ND	1
1,1,1,2-Tetrachloroethane	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Tetrachloroethene (PCE)	ND	1
trans-1,2-DCE	ND	1
trans-1,3-Dichloropropene	ND	1
1,2,3-Trichlorobenzene	ND	1
1,2,4-Trichlorobenzene	ND	1
1,1,1-Trichloroethane	ND	1
1,1,2-Trichloroethane	ND	1

10/23

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Method Blank

Trichloroethene (TCE)	ND	1								
Trichlorofluoromethane	ND	1								
1,2,3-Trichloropropane	0.48	2								J
Vinyl chloride	ND	1								
Xylenes, Total	ND	1								
Surr: 1,2-Dichloroethane-d4	9.626	0	10	0	96.3	87.7	108	0		
Surr: 4-Bromofluorobenzene	10.31	0	10	0	103	88.8	113	0		
Surr: Dibromofluoromethane	10.18	0	10	0	102	84.1	111	0		
Surr: Toluene-d8	9.714	0	10	0	97.1	85.9	109	0		

Sample ID: **MB-8618** Batch ID: **8618** Test Code: **SW8310** Units: **µg/L** Analysis Date: **9/2/2005 1:41:05 PM** Prep Date: **8/25/2005**
Client ID: Run ID: **HUGO_050901A** SeqNo: **395655**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	2.5									
1-Methylnaphthalene	ND	2.5									
2-Methylnaphthalene	ND	2.5									
Acenaphthylene	ND	2.5									
Acenaphthene	ND	2.5									
Fluorene	ND	0.8									
Phenanthrene	ND	0.6									
Anthracene	ND	0.6									
Fluoranthene	ND	0.3									
Pyrene	ND	0.3									
Benz(a)anthracene	ND	0.02									
Chrysene	ND	0.2									
Benzo(b)fluoranthene	ND	0.05									
Benzo(k)fluoranthene	ND	0.02									
Benzo(a)pyrene	ND	0.02									
Dibenz(a,h)anthracene	ND	0.04									
Benzo(g,h,i)perylene	ND	0.03									
Indeno(1,2,3-cd)pyrene	ND	0.08									
Surr: Benzo(e)pyrene	7.92	0	10	0	79.2	54	102	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Method Blank

Sample ID: MB-8699	Batch ID: 8699	Test Code: SW7470	Units: mg/L	Analysis Date: 9/7/2005	Prep Date: 9/7/2005
Client ID:		Run ID: MI-LA254_050907A		SeqNo: 396456	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.0002									

Sample ID: MB	Batch ID: R16596	Test Code: SW6010A	Units: mg/L	Analysis Date: 9/8/2005 1:19:39 PM	Prep Date:
Client ID:		Run ID: ICP_050908C		SeqNo: 397842	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.02									
Barium	0.0003229	0.02									J
Cadmium	ND	0.002									
Calcium	ND	1									
Chromium	ND	0.006									
Copper	ND	0.006									
Iron	ND	0.02									
Lead	ND	0.005									
Magnesium	ND	1									
Manganese	ND	0.002									
Potassium	ND	1									
Selenium	ND	0.02									
Silver	ND	0.005									
Sodium	ND	1									
Uranium	ND	0.1									
Zinc	ND	0.05									

12/23

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Method Blank

Sample ID: **MB-8694** Batch ID: **8694** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **9/9/2005 10:04:29 AM** Prep Date: **9/7/2005**
Client ID: Run ID: **ICP_050909B** SeqNo: **398132**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.02									
Barium	ND	0.02									
Cadmium	ND	0.002									
Chromium	ND	0.006									
Copper	0.001572	0.006									J
Iron	ND	0.05									
Lead	ND	0.005									
Manganese	ND	0.002									
Selenium	ND	0.05									
Silver	ND	0.005									
Uranium	ND	0.1									
Zinc	ND	0.05									

Sample ID: **MB-8625** Batch ID: **8625** Test Code: **E160.1** Units: **mg/L** Analysis Date: **8/26/2005** Prep Date: **8/26/2005**
Client ID: Run ID: **WC_050826F** SeqNo: **395152**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	50									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *26-Sep-05*

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Sample Duplicate

Sample ID: **0508276-01C DUP** Batch ID: **R16423** Test Code: **E300** Units: **mg/L** Analysis Date: **8/24/2005** Prep Date:
Client ID: **DW #1** Run ID: **LC_050824A** SeqNo: **391846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.3844	0.1	0	0	0	0	0	0.3909	1.68	20	
Nitrogen, Nitrite (As N)	ND	0.1	0	0	0	0	0	0	0	20	
Bromide	0.2215	0.5	0	0	0	0	0	0.2659	0	20	J
Nitrogen, Nitrate (As N)	ND	0.1	0	0	0	0	0	0	0	20	
Phosphorus, Orthophosphate (As P)	ND	0.5	0	0	0	0	0	0	0	20	

Sample ID: **0508276-02C DUP** Batch ID: **R16596** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **9/8/2005 3:34:56 PM** Prep Date:
Client ID: **DW #2** Run ID: **ICP_050908C** SeqNo: **397872**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.02	0	0	0	0	0	0	0	30	
Barium	0.09721	0.02	0	0	0	0	0	0.09721	0.00473	30	
Cadmium	ND	0.002	0	0	0	0	0	0	0	30	
Calcium	59.1	1	0	0	0	0	0	58.92	0.311	30	
Chromium	ND	0.006	0	0	0	0	0	0	0	30	
Copper	ND	0.006	0	0	0	0	0	0	0	30	
Iron	0.02466	0.02	0	0	0	0	0	0.0252	2.16	30	
Lead	ND	0.005	0	0	0	0	0	0	0	30	
Magnesium	12.84	1	0	0	0	0	0	13.03	1.49	30	
Manganese	0.3092	0.002	0	0	0	0	0	0.3073	0.617	30	
Potassium	2.546	1	0	0	0	0	0	2.417	5.20	30	
Selenium	ND	0.02	0	0	0	0	0	0.02171	0	30	
Silver	ND	0.005	0	0	0	0	0	0	0	30	
Sodium	89.34	1	0	0	0	0	0	88.81	0.595	30	
Uranium	ND	0.1	0	0	0	0	0	0	0	30	
Zinc	0.01777	0.05	0	0	0	0	0	0.01776	0	30	J

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Sample Duplicate

Sample ID: **0508276-02D DUP** Batch ID: **8694** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **9/9/2005 11:46:31 AM** Prep Date: **9/7/2005**
Client ID: **DW #2** Run ID: **ICP_050909B** SeqNo: **398154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.02	0	0	0	0	0	0	0	30	
Barium	0.1281	0.02	0	0	0	0	0	0.1274	0.568	30	
Cadmium	ND	0.002	0	0	0	0	0	0	0	30	
Chromium	ND	0.006	0	0	0	0	0	0	0	30	
Copper	0.001204	0.006	0	0	0	0	0	0	0	30	J
Iron	0.9111	0.05	0	0	0	0	0	0.911	0.00717	30	
Lead	0.005425	0.005	0	0	0	0	0	0.004544	17.7	30	
Manganese	0.3875	0.002	0	0	0	0	0	0.3851	0.612	30	
Selenium	ND	0.05	0	0	0	0	0	0	0	30	
Silver	ND	0.005	0	0	0	0	0	0	0	30	
Uranium	ND	0.1	0	0	0	0	0	0	0	30	
Zinc	ND	0.05	0	0	0	0	0	0.01218	0	30	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: 26-Sep-05

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: LCS ST300-05021 Batch ID: R16423 Test Code: E300 Units: mg/L Analysis Date: 8/24/2005 Prep Date:
Client ID: Run ID: LC_050824A SeqNo: 391844

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.5134	0.1	0.5	0	103	90	110	0			
Chloride	4.804	0.1	5	0	96.1	90	110	0			
Nitrogen, Nitrite (As N)	0.9619	0.1	1	0	96.2	90	110	0			
Bromide	2.533	0.5	2.5	0	101	90	110	0			
Nitrogen, Nitrate (As N)	2.441	0.1	2.5	0	97.6	90	110	0			
Phosphorus, Orthophosphate (As P)	4.966	0.5	5	0	99.3	90	110	0			
Sulfate	9.911	0.5	10	0	99.1	90	110	0			

Sample ID: 100ng lcs Batch ID: R16424 Test Code: SW8260B Units: µg/L Analysis Date: 8/24/2005 Prep Date:
Client ID: Run ID: VAL_050824A SeqNo: 391931

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.6	1	20	0	98.0	81.4	130	0			
Toluene	22.17	1	20	0	111	90.8	128	0			
Chlorobenzene	21.97	1	20	0	110	89.6	134	0			
1,1-Dichloroethene	18.69	1	20	0	93.5	75.1	120	0			
Trichloroethene (TCE)	18.26	1	20	0	91.3	75.8	110	0			

Sample ID: 100ng lcs Batch ID: R16442 Test Code: SW8260B Units: µg/L Analysis Date: 8/25/2005 Prep Date:
Client ID: Run ID: VAL_050825A SeqNo: 392314

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.51	1	20	0	97.5	81.4	130	0			
Toluene	20.57	1	20	0	103	90.8	128	0			
Chlorobenzene	21.38	1	20	0	107	89.6	134	0			
1,1-Dichloroethene	18.1	1	20	0	90.5	75.1	120	0			
Trichloroethene (TCE)	17.64	1	20	0	88.2	75.8	110	0			

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: LCS-8618 Batch ID: 8618 Test Code: SW8310 Units: µg/L Analysis Date: 9/2/2005 2:29:05 PM Prep Date: 8/25/2005
Client ID: Run ID: HUGO_050901A SeqNo: 395688

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	24.62	2.5	40	0	61.6	34.8	97.4	0			
1-Methylnaphthalene	25.82	2.5	40.1	0	64.4	34.7	100	0			
2-Methylnaphthalene	25.63	2.5	40	0	64.1	35	98.1	0			
Acenaphthylene	28.27	2.5	40.1	0	70.5	48.3	95.1	0			
Acenaphthene	27.21	2.5	40	0	68.0	45	95	0			
Fluorene	2.93	0.8	4.01	0	73.1	46.8	93.4	0			
Phenanthrene	1.52	0.6	2.01	0	75.6	48.7	104	0			
Anthracene	1.48	0.6	2.01	0	73.6	47.5	102	0			
Fluoranthene	3.01	0.3	4.01	0	75.1	46.3	108	0			
Pyrene	3	0.3	4.01	0	74.8	43.8	109	0			
Benz(a)anthracene	0.3	0.02	0.401	0	74.8	40.3	115	0			
Chrysene	1.55	0.2	2.01	0	77.1	42.6	107	0			
Benzo(b)fluoranthene	0.36	0.05	0.501	0	71.9	48.6	107	0			
Benzo(k)fluoranthene	0.19	0.02	0.25	0	76.0	23.3	136	0			
Benzo(a)pyrene	0.19	0.02	0.251	0	75.7	33.4	117	0			
Dibenz(a,h)anthracene	0.35	0.04	0.501	0	69.9	27.3	139	0			
Benzo(g,h,i)perylene	0.37	0.03	0.5	0	74.0	38.2	117	0			
Indeno(1,2,3-cd)pyrene	0.747	0.08	1.002	0	74.6	39.9	125	0			

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Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID: **LCSD-8618** Batch ID: **8618** Test Code: **SW8310** Units: **µg/L** Analysis Date: **9/2/2005 3:17:05 PM** Prep Date: **8/25/2005**
Client ID: Run ID: **HUGO_050901A** SeqNo: **395689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	22.84	2.5	40	0	57.1	34.8	97.4	24.62	7.50	32.1	
1-Methylnaphthalene	22.66	2.5	40.1	0	56.5	34.7	100	25.82	13.0	32.7	
2-Methylnaphthalene	22.88	2.5	40	0	57.2	35	98.1	25.63	11.3	34	
Acenaphthylene	24.94	2.5	40.1	0	62.2	48.3	95.1	28.27	12.5	38.8	
Acenaphthene	23.78	2.5	40	0	59.5	45	95	27.21	13.5	38.6	
Fluorene	2.61	0.8	4.01	0	65.1	46.8	93.4	2.93	11.6	39.3	
Phenanthrene	1.26	0.6	2.01	0	62.7	48.7	104	1.52	18.7	25	
Anthracene	1.33	0.6	2.01	0	66.2	47.5	102	1.48	10.7	23.9	
Fluoranthene	2.84	0.3	4.01	0	70.8	46.3	108	3.01	5.81	15.7	
Pyrene	2.81	0.3	4.01	0	70.1	43.8	109	3	6.54	15.3	
Benz(a)anthracene	0.29	0.02	0.401	0	72.3	40.3	115	0.3	3.39	119	
Chrysene	1.38	0.2	2.01	0	68.7	42.6	107	1.55	11.6	16.6	
Benzo(b)fluoranthene	0.36	0.05	0.501	0	71.9	48.6	107	0.36	0	21.7	
Benzo(k)fluoranthene	0.18	0.02	0.25	0	72.0	23.3	136	0.19	5.41	19.4	
Benzo(a)pyrene	0.18	0.02	0.251	0	71.7	33.4	117	0.19	5.41	16.7	
Dibenz(a,h)anthracene	0.35	0.04	0.501	0	69.9	27.3	139	0.35	0	17.3	
Benzo(g,h,i)perylene	0.35	0.03	0.5	0	70.0	38.2	117	0.37	5.56	118	
Indeno(1,2,3-cd)pyrene	0.677	0.08	1.002	0	67.6	39.9	125	0.747	9.83	17.7	

Sample ID: **LCS-8699** Batch ID: **8699** Test Code: **SW7470** Units: **mg/L** Analysis Date: **9/7/2005** Prep Date: **9/7/2005**
Client ID: Run ID: **MI-LA254_050907A** SeqNo: **396457**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.005182	0.0002	0.005	0	104	75.2	134	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID: **LCSD-8699** Batch ID: **8699** Test Code: **SW7470** Units: **mg/L** Analysis Date: **9/7/2005** Prep Date: **9/7/2005**
Client ID: Run ID: **MI-LA254_050907A** SeqNo: **396471**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.005394	0.0002	0.005	0	108	75.2	134	0.005182	4.01	0	

Sample ID: **LCS** Batch ID: **R16596** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **9/8/2005 1:22:38 PM** Prep Date:
Client ID: Run ID: **ICP_050908C** SeqNo: **397843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.4847	0.02	0.5	0	96.9	80	120	0			
Barium	0.4728	0.02	0.5	0.0003229	94.5	80	120	0			
Cadmium	0.481	0.002	0.5	0	96.2	80	120	0			
Calcium	45.55	1	50.5	0	90.2	80	120	0			
Chromium	0.4737	0.006	0.5	0	94.7	80	120	0			
Copper	0.4854	0.006	0.5	0	97.1	80	120	0			
Iron	0.4595	0.02	0.5	0	91.9	80	120	0			
Lead	0.4768	0.005	0.5	0	95.4	80	120	0			
Magnesium	45.86	1	50.5	0	90.8	80	120	0			
Manganese	0.4497	0.002	0.5	0	89.9	80	120	0			
Potassium	48.13	1	55	0	87.5	80	120	0			
Selenium	0.4503	0.02	0.5	0	90.1	80	120	0			
Silver	0.4774	0.005	0.5	0	95.5	80	120	0			
Sodium	49.03	1	50.5	0	97.1	80	120	0			
Uranium	2.38	0.1	2.5	0	95.2	80	120	0			
Zinc	0.4678	0.05	0.5	0	93.6	80	120	0			

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID: LCSD | Batch ID: R16596 | Test Code: SW6010A | Units: mg/L | Analysis Date: 9/8/2005 1:25:54 PM | Prep Date:
Client ID: | Run ID: ICP_050908C | SeqNo: 397844

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.4688	0.02	0.5	0	93.8	80	120	0.4847	3.34	20	
Barium	0.4734	0.02	0.5	0.0003229	94.6	80	120	0.4728	0.128	20	
Cadmium	0.4784	0.002	0.5	0	95.7	80	120	0.481	0.538	20	
Calcium	45.68	1	50.5	0	90.5	80	120	45.55	0.302	20	
Chromium	0.4748	0.006	0.5	0	95.0	80	120	0.4737	0.238	20	
Copper	0.4852	0.006	0.5	0	97.0	80	120	0.4854	0.0417	20	
Iron	0.455	0.02	0.5	0	91.0	80	120	0.4595	0.979	20	
Lead	0.477	0.005	0.5	0	95.4	80	120	0.4768	0.0606	20	
Magnesium	46.07	1	50.5	0	91.2	80	120	45.86	0.451	20	
Manganese	0.451	0.002	0.5	0	90.2	80	120	0.4497	0.283	20	
Potassium	48.32	1	55	0	87.9	80	120	48.13	0.409	20	
Selenium	0.4449	0.02	0.5	0	89.0	80	120	0.4503	1.20	20	
Silver	0.4816	0.005	0.5	0	96.3	80	120	0.4774	0.868	20	
Sodium	49.22	1	50.5	0	97.5	80	120	49.03	0.398	20	
Uranium	2.399	0.1	2.5	0	96.0	80	120	2.38	0.811	20	
Zinc	0.4673	0.05	0.5	0	93.5	80	120	0.4678	0.116	20	

20/23

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #1 Baseline

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID: LCSD-8694 Batch ID: 8694 Test Code: SW6010A Units: mg/L Analysis Date: 9/9/2005 10:10:27 AM Prep Date: 9/7/2005
Client ID: Run ID: ICP_050909B SeqNo: 398134

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.4981	0.02	0.5	0	99.6	80	120	0.4949	0.637	20	
Barium	0.4717	0.02	0.5	0	94.3	80	120	0.4782	1.37	20	
Cadmium	0.4791	0.002	0.5	0	95.8	80	120	0.4845	1.12	20	
Chromium	0.4694	0.006	0.5	0	93.9	80	120	0.4776	1.72	20	
Copper	0.487	0.006	0.5	0.001572	97.1	80	120	0.4956	1.76	20	
Iron	0.461	0.05	0.5	0	92.2	80	120	0.4615	0.124	20	
Lead	0.477	0.005	0.5	0	95.4	80	120	0.4774	0.0730	20	
Manganese	0.4485	0.002	0.5	0	89.7	80	120	0.455	1.46	20	
Selenium	0.4723	0.05	0.5	0	94.5	80	120	0.4728	0.109	20	
Silver	0.481	0.005	0.5	0	96.2	80	120	0.4891	1.68	20	
Uranium	2.339	0.1	2.5	0	93.6	80	120	2.364	1.06	20	
Zinc	0.4676	0.05	0.5	0	93.5	80	120	0.4724	1.01	20	

Sample ID: LCS-8625 Batch ID: 8625 Test Code: E160.1 Units: mg/L Analysis Date: 8/26/2005 Prep Date: 8/26/2005
Client ID: Run ID: WC_050826F SeqNo: 395153

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	910	50	1000	0	91.0	80	120	0			

22123

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 8/24/2005

Work Order Number 0508276 | Received by AT

Checklist completed by _____ Signature _____ Date 8/24/05

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

QA / QC
Std ☐ Level 4 ☐
Other:

Client: San Juan Refining

Address: #50 CR 4990
Bloomfield, NM
87413

Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: DW#1 - Baseline

Project #:

Project Manager:

Sampler: Cindy Hurtado/Angela Folk

Sample Temperature: 5°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.
8/23/05	1045Am	H_2O	DW #1	2-VOA	X			0508276-1
				1-liter			Amber	-1
				1-500ml		X	Filtered	-1
				1-500ml		X		-1
				1-500ml			H_2SO_4	-1
				1-500ml				-1

Date: 8/23/05 Time: 332pm Relinquished By: (Signature) Cindy Hurtado

Received By: (Signature)

Date: Time: Relinquished By: (Signature)

Received By: (Signature) 8/24/05 11:5

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

ANALYSIS REQUEST

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

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

September 28, 2005

Hall Environmental Analysis Laboratory
4901 Hawkins NE, Suite D
Albuquerque, NM 87109

San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

Dear Ms. Hurtado:

Hall Environmental Analysis Laboratory received 1 sample on 8/24/2005 for the analyses presented in the following report.

These were analyzed acccording 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

0508276-B/DW #2 - Baseline

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

Hall Environmental Analysis Laboratory

Date: *28-Sep-05*

CLIENT: San Juan Refining
Lab Order: 0508276
Project: DW #2 Baseline
Lab ID: 0508276-02

Client Sample ID: DW #2
Collection Date: 8/23/2005 3:00:00 PM
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **MAP**
Fluoride	0.50	0.10		mg/L	1	8/24/2005
Chloride	9.0	0.10		mg/L	1	8/24/2005
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/24/2005
Bromide	ND	0.50		mg/L	1	8/24/2005
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/24/2005
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/24/2005
Sulfate	12	0.50		mg/L	1	8/24/2005
EPA METHOD 310.1: ALKALINITY						Analyst: **MAP**
Alkalinity, Total (As CaCO3)	380	2.0		mg/L CaCO3	1	9/2/2005
Carbonate	ND	2.0		mg/L CaCO3	1	9/2/2005
Bicarbonate	380	2.0		mg/L CaCO3	1	9/2/2005
EPA METHOD 8260B: VOLATILES						Analyst: **HLM**
Benzene	12	10		µg/L	10	8/25/2005
Toluene	ND	10		µg/L	10	8/25/2005
Ethylbenzene	1100	50		µg/L	50	8/25/2005
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	8/25/2005
1,2,4-Trimethylbenzene	2200	50		µg/L	50	8/25/2005
1,3,5-Trimethylbenzene	120	10		µg/L	10	8/25/2005
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	8/25/2005
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	8/25/2005
Naphthalene	210	20		µg/L	10	8/25/2005
1-Methylnaphthalene	180	40		µg/L	10	8/25/2005
2-Methylnaphthalene	66	40		µg/L	10	8/25/2005
Acetone	ND	100		µg/L	10	8/25/2005
Bromobenzene	ND	10		µg/L	10	8/25/2005
Bromochloromethane	ND	10		µg/L	10	8/25/2005
Bromodichloromethane	ND	10		µg/L	10	8/25/2005
Bromoform	ND	10		µg/L	10	8/25/2005
Bromomethane	ND	20		µg/L	10	8/25/2005
2-Butanone	ND	100		µg/L	10	8/25/2005
Carbon disulfide	ND	100		µg/L	10	8/25/2005
Carbon Tetrachloride	ND	10		µg/L	10	8/25/2005
Chlorobenzene	ND	10		µg/L	10	8/25/2005
Chloroethane	ND	20		µg/L	10	8/25/2005
Chloroform	ND	10		µg/L	10	8/25/2005
Chloromethane	ND	10		µg/L	10	8/25/2005
2-Chlorotoluene	ND	10		µg/L	10	8/25/2005
4-Chlorotoluene	ND	10		µg/L	10	8/25/2005
cis-1,2-DCE	ND	10		µg/L	10	8/25/2005
cis-1,3-Dichloropropene	ND	10		µg/L	10	8/25/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *28-Sep-05*

CLIENT: San Juan Refining
Lab Order: 0508276
Project: DW #2 Baseline
Lab ID: 0508276-02

Client Sample ID: DW #2
Collection Date: 8/23/2005 3:00:00 PM
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	8/25/2005
Dibromochloromethane	ND	10		µg/L	10	8/25/2005
Dibromomethane	ND	20		µg/L	10	8/25/2005
1,2-Dichlorobenzene	ND	10		µg/L	10	8/25/2005
1,3-Dichlorobenzene	ND	10		µg/L	10	8/25/2005
1,4-Dichlorobenzene	ND	10		µg/L	10	8/25/2005
Dichlorodifluoromethane	ND	10		µg/L	10	8/25/2005
1,1-Dichloroethane	ND	10		µg/L	10	8/25/2005
1,1-Dichloroethene	ND	10		µg/L	10	8/25/2005
1,2-Dichloropropane	ND	10		µg/L	10	8/25/2005
1,3-Dichloropropane	ND	10		µg/L	10	8/25/2005
2,2-Dichloropropane	ND	10		µg/L	10	8/25/2005
1,1-Dichloropropene	ND	10		µg/L	10	8/25/2005
Hexachlorobutadiene	ND	10		µg/L	10	8/25/2005
2-Hexanone	ND	100		µg/L	10	8/25/2005
Isopropylbenzene	140	10		µg/L	10	8/25/2005
4-Isopropyltoluene	21	10		µg/L	10	8/25/2005
4-Methyl-2-pentanone	ND	100		µg/L	10	8/25/2005
Methylene Chloride	ND	30		µg/L	10	8/25/2005
n-Butylbenzene	50	10		µg/L	10	8/25/2005
n-Propylbenzene	320	10		µg/L	10	8/25/2005
sec-Butylbenzene	37	10		µg/L	10	8/25/2005
Styrene	ND	10		µg/L	10	8/25/2005
tert-Butylbenzene	ND	10		µg/L	10	8/25/2005
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	8/25/2005
1,1,2,2-Tetrachloroethane	ND	10		µg/L	10	8/25/2005
Tetrachloroethene (PCE)	ND	10		µg/L	10	8/25/2005
trans-1,2-DCE	ND	10		µg/L	10	8/25/2005
trans-1,3-Dichloropropene	ND	10		µg/L	10	8/25/2005
1,2,3-Trichlorobenzene	ND	10		µg/L	10	8/25/2005
1,2,4-Trichlorobenzene	ND	10		µg/L	10	8/25/2005
1,1,1-Trichloroethane	ND	10		µg/L	10	8/25/2005
1,1,2-Trichloroethane	ND	10		µg/L	10	8/25/2005
Trichloroethene (TCE)	ND	10		µg/L	10	8/25/2005
Trichlorofluoromethane	ND	10		µg/L	10	8/25/2005
1,2,3-Trichloropropane	ND	20		µg/L	10	8/25/2005
Vinyl chloride	ND	10		µg/L	10	8/25/2005
Xylenes, Total	2300	50		µg/L	50	8/25/2005
Surr: 1,2-Dichloroethane-d4	94.7	87.7-108		%REC	10	8/25/2005
Surr: 4-Bromofluorobenzene	100	88.8-113		%REC	10	8/25/2005
Surr: Dibromofluoromethane	102	84.1-111		%REC	10	8/25/2005
Surr: Toluene-d8	100	85.9-109		%REC	10	8/25/2005

Qualifiers:

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *28-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: DW #2
Lab Order: 0508276
Collection Date: 8/23/2005 3:00:00 PM
Project: DW #2 Baseline
Lab ID: 0508276-02
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8310: PAHS						Analyst: **JMP**
Naphthalene	140	2.5		µg/L	1	9/2/2005 4:53:05 PM
1-Methylnaphthalene	95	2.5		µg/L	1	9/2/2005 4:53:05 PM
2-Methylnaphthalene	43	2.5		µg/L	1	9/2/2005 4:53:05 PM
Acenaphthylene	ND	2.5		µg/L	1	9/2/2005 4:53:05 PM
Acenaphthene	2.9	2.5		µg/L	1	9/2/2005 4:53:05 PM
Fluorene	ND	0.80		µg/L	1	9/2/2005 4:53:05 PM
Phenanthrene	4.0	0.60		µg/L	1	9/2/2005 4:53:05 PM
Anthracene	ND	0.60		µg/L	1	9/2/2005 4:53:05 PM
Fluoranthene	ND	0.30		µg/L	1	9/2/2005 4:53:05 PM
Pyrene	ND	0.30		µg/L	1	9/2/2005 4:53:05 PM
Benz(a)anthracene	ND	0.020		µg/L	1	9/2/2005 4:53:05 PM
Chrysene	ND	0.20		µg/L	1	9/2/2005 4:53:05 PM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	9/2/2005 4:53:05 PM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	9/2/2005 4:53:05 PM
Benzo(a)pyrene	ND	0.020		µg/L	1	9/2/2005 4:53:05 PM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	9/2/2005 4:53:05 PM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	9/2/2005 4:53:05 PM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	9/2/2005 4:53:05 PM
Surr: Benzo(e)pyrene	76.6	54-102		%REC	1	9/2/2005 4:53:05 PM
TOTAL CARBON DIOXIDE CALCULATION						Analyst: **MAP**
Total Carbon Dioxide	330	1.0		mg CO2/L	1	9/2/2005
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **DK**
Specific Conductance	750	0.010		µmhos/cm	1	8/26/2005
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	9/7/2005
EPA METHOD 6010C: DISSOLVED METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	9/8/2005 3:32:31 PM
Barium	0.097	0.0020		mg/L	1	9/8/2005 3:32:31 PM
Cadmium	ND	0.0020		mg/L	1	9/8/2005 3:32:31 PM
Calcium	59	1.0		mg/L	1	9/8/2005 3:32:31 PM
Chromium	ND	0.0060		mg/L	1	9/8/2005 3:32:31 PM
Copper	ND	0.0060		mg/L	1	9/8/2005 3:32:31 PM
Iron	0.025	0.020		mg/L	1	9/8/2005 3:32:31 PM
Lead	ND	0.0050		mg/L	1	9/8/2005 3:32:31 PM
Magnesium	13	1.0		mg/L	1	9/8/2005 3:32:31 PM
Manganese	0.31	0.0020		mg/L	1	9/8/2005 3:32:31 PM
Potassium	2.4	1.0		mg/L	1	9/8/2005 3:32:31 PM
Selenium	ND	0.050		mg/L	1	9/8/2005 3:32:31 PM
Silver	ND	0.0050		mg/L	1	9/8/2005 3:32:31 PM

Qualifiers:

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *28-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: DW #2
Lab Order: 0508276
Collection Date: 8/23/2005 3:00:00 PM
Project: DW #2 Baseline
Lab ID: 0508276-02
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Sodium	89	1.0		mg/L	1	9/8/2005 3:32:31 PM
Uranium	ND	0.10		mg/L	1	9/8/2005 3:32:31 PM
Zinc	0.018	0.0050		mg/L	1	9/8/2005 3:32:31 PM
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	9/9/2005 11:19:18 AM
Barium	0.13	0.020		mg/L	1	9/9/2005 11:19:18 AM
Cadmium	ND	0.0020		mg/L	1	9/9/2005 11:19:18 AM
Chromium	ND	0.0060		mg/L	1	9/9/2005 11:19:18 AM
Copper	ND	0.0060		mg/L	1	9/9/2005 11:19:18 AM
Iron	0.91	0.020		mg/L	1	9/9/2005 11:19:18 AM
Lead	ND	0.0050		mg/L	1	9/9/2005 11:19:18 AM
Manganese	0.39	0.0020		mg/L	1	9/9/2005 11:19:18 AM
Selenium	ND	0.050		mg/L	1	9/9/2005 11:19:18 AM
Silver	ND	0.0050		mg/L	1	9/9/2005 11:19:18 AM
Uranium	ND	0.10		mg/L	1	9/9/2005 11:19:18 AM
Zinc	ND	0.050		mg/L	1	9/9/2005 11:19:18 AM
EPA METHOD 160.1: TDS						Analyst: **DK**
Total Dissolved Solids	480	50		mg/L	1	8/26/2005

Qualifiers:

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- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *28-Sep-05*

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Method Blank

Sample ID **MBLK** Batch ID: **R16423** Test Code: **E300** Units: **mg/L** Analysis Date **8/24/2005** Prep Date
Client ID: Run ID: **LC_050824A** SeqNo: **391843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.1									
Chloride	ND	0.1									
Nitrogen, Nitrite (As N)	ND	0.1									
Bromide	ND	0.5									
Nitrogen, Nitrate (As N)	ND	0.1									
Phosphorus, Orthophosphate (As P)	ND	0.5									
Sulfate	ND	0.5									

Sample ID **MBLK** Batch ID: **R16546** Test Code: **E310.1** Units: **mg/L CaCO3** Analysis Date **9/2/2005** Prep Date
Client ID: Run ID: **WC_050902B** SeqNo: **395705**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	2									
Carbonate	ND	2									
Bicarbonate	ND	2									

5/23

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Method Blank

Sample ID **5ml rb** Batch ID: **R16424** Test Code: **SW8260B** Units: **µg/L** Analysis Date **8/24/2005** Prep Date

Client ID: Run ID: **VAL_050824A** SeqNo: **391929**

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

6/23

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Method Blank

1,2-Dibromo-3-chloropropane	ND	2
Dibromochloromethane	ND	1
Dibromomethane	ND	2
1,2-Dichlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
Dichlorodifluoromethane	ND	1
1,1-Dichloroethane	ND	1
1,1-Dichloroethene	ND	1
1,2-Dichloropropane	ND	1
1,3-Dichloropropane	ND	1
2,2-Dichloropropane	ND	1
1,1-Dichloropropene	ND	1
Hexachlorobutadiene	ND	1
2-Hexanone	ND	10
Isopropylbenzene	ND	1
4-Isopropyltoluene	ND	1
4-Methyl-2-pentanone	ND	10
Methylene Chloride	ND	3
n-Butylbenzene	ND	1
n-Propylbenzene	ND	1
sec-Butylbenzene	ND	1
Styrene	ND	1
tert-Butylbenzene	ND	1
1,1,1,2-Tetrachloroethane	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Tetrachloroethene (PCE)	ND	1
trans-1,2-DCE	ND	1
trans-1,3-Dichloropropene	ND	1
1,2,3-Trichlorobenzene	ND	1
1,2,4-Trichlorobenzene	ND	1
1,1,1-Trichloroethane	ND	1
1,1,2-Trichloroethane	ND	1

7/23

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Method Blank

Trichloroethene (TCE)	ND	1							
Trichlorofluoromethane	ND	1							
1,2,3-Trichloropropane	0.482	2							J
Vinyl chloride	ND	1							
Xylenes, Total	ND	1							
Surr: 1,2-Dichloroethane-d4	9.346	0	10	0	93.5	87.7	108	0	
Surr: 4-Bromofluorobenzene	9.56	0	10	0	95.6	88.8	113	0	
Surr: Dibromofluoromethane	10.07	0	10	0	101	84.1	111	0	
Surr: Toluene-d8	9.752	0	10	0	97.5	85.9	109	0	

8/23

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Method Blank

Sample ID 5ml rb | Batch ID: **R16442** | Test Code: **SW8260B** | Units: **µg/L** | Analysis Date **8/25/2005** | Prep Date
Client ID: | Run ID: **VAL_050825A** | SeqNo: **392288**

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

9/23

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Method Blank

1,2-Dibromo-3-chloropropane	ND	2
Dibromochloromethane	ND	1
Dibromomethane	ND	2
1,2-Dichlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
Dichlorodifluoromethane	ND	1
1,1-Dichloroethane	ND	1
1,1-Dichloroethene	ND	1
1,2-Dichloropropane	ND	1
1,3-Dichloropropane	ND	1
2,2-Dichloropropane	ND	1
1,1-Dichloropropene	ND	1
Hexachlorobutadiene	ND	1
2-Hexanone	ND	10
Isopropylbenzene	ND	1
4-Isopropyltoluene	ND	1
4-Methyl-2-pentanone	ND	10
Methylene Chloride	ND	3
n-Butylbenzene	ND	1
n-Propylbenzene	ND	1
sec-Butylbenzene	ND	1
Styrene	ND	1
tert-Butylbenzene	ND	1
1,1,1,2-Tetrachloroethane	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Tetrachloroethene (PCE)	ND	1
trans-1,2-DCE	ND	1
trans-1,3-Dichloropropene	ND	1
1,2,3-Trichlorobenzene	ND	1
1,2,4-Trichlorobenzene	ND	1
1,1,1-Trichloroethane	ND	1
1,1,2-Trichloroethane	ND	1

10 / 23

Qualifiers: ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Method Blank

Trichloroethene (TCE)	ND	1							
Trichlorofluoromethane	ND	1							
1,2,3-Trichloropropane	0.48	2							J
Vinyl chloride	ND	1							
Xylenes, Total	ND	1							
Surr: 1,2-Dichloroethane-d4	9.626	0	10	0	96.3	87.7	108	0	
Surr: 4-Bromofluorobenzene	10.31	0	10	0	103	88.8	113	0	
Surr: Dibromofluoromethane	10.18	0	10	0	102	84.1	111	0	
Surr: Toluene-d8	9.714	0	10	0	97.1	85.9	109	0	

Sample ID **MB-8618** Batch ID: **8618** Test Code: **SW8310** Units: **µg/L** Analysis Date **9/2/2005 1:41:05 PM** Prep Date **8/25/2005**
Client ID: Run ID: **HUGO_050901A** SeqNo: **395655**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	2.5									
1-Methylnaphthalene	ND	2.5									
2-Methylnaphthalene	ND	2.5									
Acenaphthylene	ND	2.5									
Acenaphthene	ND	2.5									
Fluorene	ND	0.8									
Phenanthrene	ND	0.6									
Anthracene	ND	0.6									
Fluoranthene	ND	0.3									
Pyrene	ND	0.3									
Benz(a)anthracene	ND	0.02									
Chrysene	ND	0.2									
Benzo(b)fluoranthene	ND	0.05									
Benzo(k)fluoranthene	ND	0.02									
Benzo(a)pyrene	ND	0.02									
Dibenz(a,h)anthracene	ND	0.04									
Benzo(g,h,i)perylene	ND	0.03									
Indeno(1,2,3-cd)pyrene	ND	0.08									
Surr: Benzo(e)pyrene	7.92	0	10	0	79.2	54	102	0			

11/23

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Method Blank

Sample ID **MB-8699** Batch ID: **8699** Test Code: **SW7470** Units: **mg/L** Analysis Date **9/7/2005** Prep Date **9/7/2005**
Client ID: Run ID: **MI-LA254_050907A** SeqNo: **396456**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.0002									

Sample ID **MB** Batch ID: **R16596** Test Code: **SW6010A** Units: **mg/L** Analysis Date **9/8/2005 1:19:39 PM** Prep Date
Client ID: Run ID: **ICP_050908C** SeqNo: **397842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.02									
Barium	0.0003229	0.02									J
Cadmium	ND	0.002									
Calcium	ND	1									
Chromium	ND	0.006									
Copper	ND	0.006									
Iron	ND	0.02									
Lead	ND	0.005									
Magnesium	ND	1									
Manganese	ND	0.002									
Potassium	ND	1									
Selenium	ND	0.02									
Silver	ND	0.005									
Sodium	ND	1									
Uranium	ND	0.1									
Zinc	ND	0.05									

12/23

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Method Blank

Sample ID **MB-8694** Batch ID: **8694** Test Code: **SW6010A** Units: **mg/L** Analysis Date **9/9/2005 10:04:29 AM** Prep Date **9/7/2005**
Client ID: Run ID: **ICP_050909B** SeqNo: **398132**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.02									
Barium	ND	0.02									
Cadmium	ND	0.002									
Chromium	ND	0.006									
Copper	0.001572	0.006									J
Iron	ND	0.05									
Lead	ND	0.005									
Manganese	ND	0.002									
Selenium	ND	0.05									
Silver	ND	0.005									
Uranium	ND	0.1									
Zinc	ND	0.05									

Sample ID **MB-8625** Batch ID: **8625** Test Code: **E160.1** Units: **mg/L** Analysis Date **8/26/2005** Prep Date **8/26/2005**
Client ID: Run ID: **WC_050826F** SeqNo: **395152**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	50									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT

Sample Duplicate

Sample ID **0508276-01C DUP** Batch ID: **R16423** Test Code: **E300** Units: **mg/L** Analysis Date **8/24/2005** Prep Date

Client ID: **DW #1** Run ID: **LC_050824A** SeqNo: **391846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.3844	0.1	0	0	0	0	0	0.3909	1.68	20	
Nitrogen, Nitrite (As N)	ND	0.1	0	0	0	0	0	0	0	20	
Bromide	0.2215	0.5	0	0	0	0	0	0.2659	0	20	J
Nitrogen, Nitrate (As N)	ND	0.1	0	0	0	0	0	0	0	20	
Phosphorus, Orthophosphate (As P)	ND	0.5	0	0	0	0	0	0	0	20	

Sample ID **0508276-02C DUP** Batch ID: **R16596** Test Code: **SW6010A** Units: **mg/L** Analysis Date **9/8/2005 3:34:56 PM** Prep Date

Client ID: **DW #2** Run ID: **ICP_050908C** SeqNo: **397872**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.02	0	0	0	0	0	0	0	30	
Barium	0.09721	0.02	0	0	0	0	0	0.09721	0.00473	30	
Cadmium	ND	0.002	0	0	0	0	0	0	0	30	
Calcium	59.1	1	0	0	0	0	0	58.92	0.311	30	
Chromium	ND	0.006	0	0	0	0	0	0	0	30	
Copper	ND	0.006	0	0	0	0	0	0	0	30	
Iron	0.02466	0.02	0	0	0	0	0	0.0252	2.16	30	
Lead	ND	0.005	0	0	0	0	0	0	0	30	
Magnesium	12.84	1	0	0	0	0	0	13.03	1.49	30	
Manganese	0.3092	0.002	0	0	0	0	0	0.3073	0.617	30	
Potassium	2.546	1	0	0	0	0	0	2.417	5.20	30	
Selenium	ND	0.02	0	0	0	0	0	0.02171	0	30	
Silver	ND	0.005	0	0	0	0	0	0	0	30	
Sodium	89.34	1	0	0	0	0	0	88.81	0.595	30	
Uranium	ND	0.1	0	0	0	0	0	0	0	30	
Zinc	0.01777	0.05	0	0	0	0	0	0.01776	0	30	J

Qualifiers: *ND - Not Detected at the Reporting Limit*
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Sample Duplicate

Sample ID **0508276-02D DUP** Batch ID: **8694** Test Code: **SW6010A** Units: **mg/L** Analysis Date **9/9/2005 11:46:31 AM** Prep Date **9/7/2005**
Client ID: **DW #2** Run ID: **ICP_050909B** SeqNo: **398154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.02	0	0	0	0	0	0	0	30	
Barium	0.1281	0.02	0	0	0	0	0	0.1274	0.568	30	
Cadmium	ND	0.002	0	0	0	0	0	0	0	30	
Chromium	ND	0.006	0	0	0	0	0	0	0	30	
Copper	0.001204	0.006	0	0	0	0	0	0	0	30	J
Iron	0.9111	0.05	0	0	0	0	0	0.911	0.00717	30	
Lead	0.005425	0.005	0	0	0	0	0	0.004544	17.7	30	
Manganese	0.3875	0.002	0	0	0	0	0	0.3851	0.612	30	
Selenium	ND	0.05	0	0	0	0	0	0	0	30	
Silver	ND	0.005	0	0	0	0	0	0	0	30	
Uranium	ND	0.1	0	0	0	0	0	0	0	30	
Zinc	ND	0.05	0	0	0	0	0	0.01218	0	30	

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Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: 28-Sep-05

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID **LCS ST300-05021** Batch ID: **R16423** Test Code: **E300** Units: **mg/L** Analysis Date **8/24/2005** Prep Date

Client ID: Run ID: **LC_050824A** SeqNo: **391844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.5134	0.1	0.5	0	103	90	110	0			
Chloride	4.804	0.1	5	0	96.1	90	110	0			
Nitrogen, Nitrite (As N)	0.9619	0.1	1	0	96.2	90	110	0			
Bromide	2.533	0.5	2.5	0	101	90	110	0			
Nitrogen, Nitrate (As N)	2.441	0.1	2.5	0	97.6	90	110	0			
Phosphorus, Orthophosphate (As P)	4.966	0.5	5	0	99.3	90	110	0			
Sulfate	9.911	0.5	10	0	99.1	90	110	0			

Sample ID **100ng lcs** Batch ID: **R16424** Test Code: **SW8260B** Units: **µg/L** Analysis Date **8/24/2005** Prep Date

Client ID: Run ID: **VAL_050824A** SeqNo: **391931**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.6	1	20	0	98.0	81.4	130	0			
Toluene	22.17	1	20	0	111	90.8	128	0			
Chlorobenzene	21.97	1	20	0	110	89.6	134	0			
1,1-Dichloroethene	18.69	1	20	0	93.5	75.1	120	0			
Trichloroethene (TCE)	18.26	1	20	0	91.3	75.8	110	0			

Sample ID **100ng lcs** Batch ID: **R16442** Test Code: **SW8260B** Units: **µg/L** Analysis Date **8/25/2005** Prep Date

Client ID: Run ID: **VAL_050825A** SeqNo: **392314**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.51	1	20	0	97.5	81.4	130	0			
Toluene	20.57	1	20	0	103	90.8	128	0			
Chlorobenzene	21.38	1	20	0	107	89.6	134	0			
1,1-Dichloroethene	18.1	1	20	0	90.5	75.1	120	0			
Trichloroethene (TCE)	17.64	1	20	0	88.2	75.8	110	0			

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **LCS-8618** Batch ID: **8618** Test Code: **SW8310** Units: **µg/L** Analysis Date **9/2/2005 2:29:05 PM** Prep Date **8/25/2005**
Client ID: Run ID: **HUGO_050901A** SeqNo: **395688**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	24.62	2.5	40	0	61.6	34.8	97.4	0			
1-Methylnaphthalene	25.82	2.5	40.1	0	64.4	34.7	100	0			
2-Methylnaphthalene	25.63	2.5	40	0	64.1	35	98.1	0			
Acenaphthylene	28.27	2.5	40.1	0	70.5	48.3	95.1	0			
Acenaphthene	27.21	2.5	40	0	68.0	45	95	0			
Fluorene	2.93	0.8	4.01	0	73.1	46.8	93.4	0			
Phenanthrene	1.52	0.6	2.01	0	75.6	48.7	104	0			
Anthracene	1.48	0.6	2.01	0	73.6	47.5	102	0			
Fluoranthene	3.01	0.3	4.01	0	75.1	46.3	108	0			
Pyrene	3	0.3	4.01	0	74.8	43.8	109	0			
Benz(a)anthracene	0.3	0.02	0.401	0	74.8	40.3	115	0			
Chrysene	1.55	0.2	2.01	0	77.1	42.6	107	0			
Benzo(b)fluoranthene	0.36	0.05	0.501	0	71.9	48.6	107	0			
Benzo(k)fluoranthene	0.19	0.02	0.25	0	76.0	23.3	136	0			
Benzo(a)pyrene	0.19	0.02	0.251	0	75.7	33.4	117	0			
Dibenz(a,h)anthracene	0.35	0.04	0.501	0	69.9	27.3	139	0			
Benzo(g,h,i)perylene	0.37	0.03	0.5	0	74.0	38.2	117	0			
Indeno(1,2,3-cd)pyrene	0.747	0.08	1.002	0	74.6	39.9	125	0			

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Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID **LCSD-8618** Batch ID: **8618** Test Code: **SW8310** Units: **µg/L** Analysis Date **9/2/2005 3:17:05 PM** Prep Date **8/25/2005**
Client ID: Run ID: **HUGO_050901A** SeqNo: **395689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	22.84	2.5	40	0	57.1	34.8	97.4	24.62	7.50	32.1	
1-Methylnaphthalene	22.66	2.5	40.1	0	56.5	34.7	100	25.82	13.0	32.7	
2-Methylnaphthalene	22.88	2.5	40	0	57.2	35	98.1	25.63	11.3	34	
Acenaphthylene	24.94	2.5	40.1	0	62.2	48.3	95.1	28.27	12.5	38.8	
Acenaphthene	23.78	2.5	40	0	59.5	45	95	27.21	13.5	38.6	
Fluorene	2.61	0.8	4.01	0	65.1	46.8	93.4	2.93	11.6	39.3	
Phenanthrene	1.26	0.6	2.01	0	62.7	48.7	104	1.52	18.7	25	
Anthracene	1.33	0.6	2.01	0	66.2	47.5	102	1.48	10.7	23.9	
Fluoranthene	2.84	0.3	4.01	0	70.8	46.3	108	3.01	5.81	15.7	
Pyrene	2.81	0.3	4.01	0	70.1	43.8	109	3	6.54	15.3	
Benz(a)anthracene	0.29	0.02	0.401	0	72.3	40.3	115	0.3	3.39	119	
Chrysene	1.38	0.2	2.01	0	68.7	42.6	107	1.55	11.6	16.6	
Benzo(b)fluoranthene	0.36	0.05	0.501	0	71.9	48.6	107	0.36	0	21.7	
Benzo(k)fluoranthene	0.18	0.02	0.25	0	72.0	23.3	136	0.19	5.41	19.4	
Benzo(a)pyrene	0.18	0.02	0.251	0	71.7	33.4	117	0.19	5.41	16.7	
Dibenz(a,h)anthracene	0.35	0.04	0.501	0	69.9	27.3	139	0.35	0	17.3	
Benzo(g,h,i)perylene	0.35	0.03	0.5	0	70.0	38.2	117	0.37	5.56	118	
Indeno(1,2,3-cd)pyrene	0.677	0.08	1.002	0	67.6	39.9	125	0.747	9.83	17.7	

Sample ID **LCS-8699** Batch ID: **8699** Test Code: **SW7470** Units: **mg/L** Analysis Date **9/7/2005** Prep Date **9/7/2005**
Client ID: Run ID: **MI-LA254_050907A** SeqNo: **396457**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.005182	0.0002	0.005	0	104	75.2	134	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID **LCSD-8699** Batch ID: **8699** Test Code: **SW7470** Units: **mg/L** Analysis Date **9/7/2005** Prep Date **9/7/2005**
Client ID: Run ID: **MI-LA254_050907A** SeqNo: **396471**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.005394	0.0002	0.005	0	108	75.2	134	0.005182	4.01	0	

Sample ID **LCS** Batch ID: **R16596** Test Code: **SW6010A** Units: **mg/L** Analysis Date **9/8/2005 1:22:38 PM** Prep Date
Client ID: Run ID: **ICP_050908C** SeqNo: **397843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.4847	0.02	0.5	0	96.9	80	120	0			
Barium	0.4728	0.02	0.5	0.0003229	94.5	80	120	0			
Cadmium	0.481	0.002	0.5	0	96.2	80	120	0			
Calcium	45.55	1	50.5	0	90.2	80	120	0			
Chromium	0.4737	0.006	0.5	0	94.7	80	120	0			
Copper	0.4854	0.006	0.5	0	97.1	80	120	0			
Iron	0.4595	0.02	0.5	0	91.9	80	120	0			
Lead	0.4768	0.005	0.5	0	95.4	80	120	0			
Magnesium	45.86	1	50.5	0	90.8	80	120	0			
Manganese	0.4497	0.002	0.5	0	89.9	80	120	0			
Potassium	48.13	1	55	0	87.5	80	120	0			
Selenium	0.4503	0.02	0.5	0	90.1	80	120	0			
Silver	0.4774	0.005	0.5	0	95.5	80	120	0			
Sodium	49.03	1	50.5	0	97.1	80	120	0			
Uranium	2.38	0.1	2.5	0	95.2	80	120	0			
Zinc	0.4678	0.05	0.5	0	93.6	80	120	0			

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Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID **LCSD** Batch ID: **R16596** Test Code: **SW6010A** Units: **mg/L** Analysis Date **9/8/2005 1:25:54 PM** Prep Date

Client ID: Run ID: **ICP_050908C** SeqNo: **397844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.4688	0.02	0.5	0	93.8	80	120	0.4847	3.34	20	
Barium	0.4734	0.02	0.5	0.0003229	94.6	80	120	0.4728	0.128	20	
Cadmium	0.4784	0.002	0.5	0	95.7	80	120	0.481	0.538	20	
Calcium	45.68	1	50.5	0	90.5	80	120	45.55	0.302	20	
Chromium	0.4748	0.006	0.5	0	95.0	80	120	0.4737	0.238	20	
Copper	0.4852	0.006	0.5	0	97.0	80	120	0.4854	0.0417	20	
Iron	0.455	0.02	0.5	0	91.0	80	120	0.4595	0.979	20	
Lead	0.477	0.005	0.5	0	95.4	80	120	0.4768	0.0606	20	
Magnesium	46.07	1	50.5	0	91.2	80	120	45.86	0.451	20	
Manganese	0.451	0.002	0.5	0	90.2	80	120	0.4497	0.283	20	
Potassium	48.32	1	55	0	87.9	80	120	48.13	0.409	20	
Selenium	0.4449	0.02	0.5	0	89.0	80	120	0.4503	1.20	20	
Silver	0.4816	0.005	0.5	0	96.3	80	120	0.4774	0.868	20	
Sodium	49.22	1	50.5	0	97.5	80	120	49.03	0.398	20	
Uranium	2.399	0.1	2.5	0	96.0	80	120	2.38	0.811	20	
Zinc	0.4673	0.05	0.5	0	93.5	80	120	0.4678	0.116	20	

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Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **LCS-8694** Batch ID: **8694** Test Code: **SW6010A** Units: **mg/L** Analysis Date **9/9/2005 10:07:21 AM** Prep Date **9/7/2005**
Client ID: Run ID: **ICP_050909B** SeqNo: **398133**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.4949	0.02	0.5	0	99.0	80	120	0			
Barium	0.4782	0.02	0.5	0	95.6	80	120	0			
Cadmium	0.4845	0.002	0.5	0	96.9	80	120	0			
Chromium	0.4776	0.006	0.5	0	95.5	80	120	0			
Copper	0.4956	0.006	0.5	0.001572	98.8	80	120	0			
Iron	0.4615	0.05	0.5	0	92.3	80	120	0			
Lead	0.4774	0.005	0.5	0	95.5	80	120	0			
Manganese	0.455	0.002	0.5	0	91.0	80	120	0			
Selenium	0.4728	0.05	0.5	0	94.6	80	120	0			
Silver	0.4891	0.005	0.5	0	97.8	80	120	0			
Uranium	2.364	0.1	2.5	0	94.6	80	120	0			
Zinc	0.4724	0.05	0.5	0	94.5	80	120	0			

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Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508276
Project: DW #2 Baseline

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID **LCSD-8694** Batch ID: **8694** Test Code: **SW6010A** Units: **mg/L** Analysis Date **9/9/2005 10:10:27 AM** Prep Date **9/7/2005**
Client ID: Run ID: **ICP_050909B** SeqNo: **398134**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.4981	0.02	0.5	0	99.6	80	120	0.4949	0.637	20	
Barium	0.4717	0.02	0.5	0	94.3	80	120	0.4782	1.37	20	
Cadmium	0.4791	0.002	0.5	0	95.8	80	120	0.4845	1.12	20	
Chromium	0.4694	0.006	0.5	0	93.9	80	120	0.4776	1.72	20	
Copper	0.487	0.006	0.5	0.001572	97.1	80	120	0.4956	1.76	20	
Iron	0.461	0.05	0.5	0	92.2	80	120	0.4615	0.124	20	
Lead	0.477	0.005	0.5	0	95.4	80	120	0.4774	0.0730	20	
Manganese	0.4485	0.002	0.5	0	89.7	80	120	0.455	1.46	20	
Selenium	0.4723	0.05	0.5	0	94.5	80	120	0.4728	0.109	20	
Silver	0.481	0.005	0.5	0	96.2	80	120	0.4891	1.68	20	
Uranium	2.339	0.1	2.5	0	93.6	80	120	2.364	1.06	20	
Zinc	0.4676	0.05	0.5	0	93.5	80	120	0.4724	1.01	20	

Sample ID **LCS-8625** Batch ID: **8625** Test Code: **E160.1** Units: **mg/L** Analysis Date **8/26/2005** Prep Date **8/26/2005**
Client ID: Run ID: **WC_050826F** SeqNo: **395153**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	910	50	1000	0	91.0	80	120	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 8/24/2005

Work Order Number 0508276 | Received by AT

Checklist completed by _____ Signature _____ Date 8/24/05

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

QA/QC Package: Std ☐ Other:

Client: San Juan Refining

Address: #50 Rd 4990 Bloomfield, NM 87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Project Name: DW #2 - Baseline

Project #:

Project Manager:

Sampler: Cindy Hurtado/Angela Folk

Sample Temperature: 5

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HNO_3	Preservative:	HEAL No.
								0508276
8/23/05	3pm	H_2O	DW #2	2-VOA	X			-2
				1-liter			Amber	-2
				1-~~500~~ 250ml		X	Filtered	-2
				1-500ml		X		-2
				1-500ml			H_2SO_4	-2
				1-500ml				-2

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
8/23/05	330pm	Cindy Hurtado	
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
			8/24/05 11:25

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

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

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, January 25, 2006

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

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

RE: DW #1 Hg Resample

Order No.: 0601230

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/24/2006 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: *25-Jan-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW #1 Hg Resample
Lab Order:	0601230	**Collection Date:**	1/18/2006 4:25:00 PM
Project:	DW #1 Hg Resample	**Date Received:**	1/24/2006
Lab ID:	0601230-01	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: CMC
Mercury	0.016	0.0010		mg/L	5	1/24/2006

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

Hall Environmental Analysis Laboratory

Date: *25-Jan-06*

CLIENT: San Juan Refining
Work Order: 0601230
Project: DW #1 Hg Resample

ANALYTICAL QC SUMMARY REPORT

TestCode: Hg_CTW

Sample ID: MB-9640	SampType: MBLK	TestCode: Hg_CTW	Units: mg/L	Prep Date: 1/24/2006	RunNo: 18026
Client ID: ZZZZZ	Batch ID: 9640	TestNo: SW7470	(SW7470)	Analysis Date: 1/24/2006	SeqNo: 444078

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

Sample ID: LCS-9640	SampType: LCS	TestCode: Hg_CTW	Units: mg/L	Prep Date: 1/24/2006	RunNo: 18026
Client ID: ZZZZZ	Batch ID: 9640	TestNo: SW7470	(SW7470)	Analysis Date: 1/24/2006	SeqNo: 444079

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004155	0.00020	0.005	0	83.1	80	120				

Sample ID: LCSD-9640	SampType: LCSD	TestCode: Hg_CTW	Units: mg/L	Prep Date: 1/24/2006	RunNo: 18026
Client ID: ZZZZZ	Batch ID: 9640	TestNo: SW7470	(SW7470)	Analysis Date: 1/24/2006	SeqNo: 444089

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004467	0.00020	0.005	0	89.3	80	120	0.004155	7.23	0	

2 / 3

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: 1/24/2006

Work Order Number 0601230 | Received by LMM

Checklist completed by B/Chlappa (Signature) 1/24/06 (Date)

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☐	No ☑		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☐	No ☑		
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	
Container/Temp Blank temperature?	4°	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

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

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

Client: San Juan Refining
Address: #50 Rd 4990
Bloomfield, NM
87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: DW#1 Hg ReSample
Project #:
Project Manager:
Sampler: Cindy Hurtado/Bruce Gaither
Sample Temperature: 4°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.
1/18/06	425p	H_2O	DW#1 Hg ReSample	1-500mL		X		0601230 -1

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Hg 0Jly				Air Bubbles or Headspace (Y or N)
												X				

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	
1/23/06	10 AM	Cindy Hurtado	Kyle Hains	9:35 1/24/06
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, January 24, 2006

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

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

RE: River Terrace - 1/06

Order No.: 0601033

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/5/2006 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

AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory

Date: *24-Jan-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0601033	**Collection Date:**	1/4/2006 11:35:00 AM
Project:	River Terrace - 1/06	**Date Received:**	1/5/2006
Lab ID:	0601033-01	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	1/9/2006 6:22:42 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/9/2006 6:22:42 PM
Surr: DNOP	66.0	58-140		%REC	1	1/9/2006 6:22:42 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.37	0.050		mg/L	1	1/10/2006 12:26:04 AM
Surr: BFB	98.1	79.7-118		%REC	1	1/10/2006 12:26:04 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	1/10/2006 12:26:04 AM
Benzene	21	1.0		µg/L	1	1/10/2006 12:26:04 AM
Toluene	ND	1.0		µg/L	1	1/10/2006 12:26:04 AM
Ethylbenzene	10	1.0		µg/L	1	1/10/2006 12:26:04 AM
Xylenes, Total	5.4	3.0		µg/L	1	1/10/2006 12:26:04 AM
Surr: 4-Bromofluorobenzene	102	82.2-119		%REC	1	1/10/2006 12:26:04 AM
EPA METHOD 8310: PAHS						Analyst: **JMP**
Naphthalene	12	2.5		µg/L	1	1/16/2006 7:58:35 PM
1-Methylnaphthalene	4.2	2.5		µg/L	1	1/16/2006 7:58:35 PM
2-Methylnaphthalene	3.1	2.5		µg/L	1	1/16/2006 7:58:35 PM
Acenaphthylene	ND	2.5		µg/L	1	1/16/2006 7:58:35 PM
Acenaphthene	3.1	2.5		µg/L	1	1/16/2006 7:58:35 PM
Fluorene	ND	0.80		µg/L	1	1/16/2006 7:58:35 PM
Phenanthrene	ND	0.60		µg/L	1	1/16/2006 7:58:35 PM
Anthracene	ND	0.60		µg/L	1	1/16/2006 7:58:35 PM
Fluoranthene	ND	0.30		µg/L	1	1/16/2006 7:58:35 PM
Pyrene	ND	0.30		µg/L	1	1/16/2006 7:58:35 PM
Benz(a)anthracene	ND	0.020		µg/L	1	1/16/2006 7:58:35 PM
Chrysene	ND	0.20		µg/L	1	1/16/2006 7:58:35 PM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	1/16/2006 7:58:35 PM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	1/16/2006 7:58:35 PM
Benzo(a)pyrene	ND	0.020		µg/L	1	1/16/2006 7:58:35 PM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	1/16/2006 7:58:35 PM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	1/16/2006 7:58:35 PM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	1/16/2006 7:58:35 PM
Surr: Benzo(e)pyrene	95.0	54-102		%REC	1	1/16/2006 7:58:35 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		

Hall Environmental Analysis Laboratory

Date: *24-Jan-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	River Near MW #49
Lab Order:	0601033	**Collection Date:**	1/4/2006 11:50:00 AM
Project:	River Terrace - 1/06	**Date Received:**	1/5/2006
Lab ID:	0601033-02	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	1/10/2006 12:56:01 AM
Benzene	ND	1.0		µg/L	1	1/10/2006 12:56:01 AM
Toluene	ND	1.0		µg/L	1	1/10/2006 12:56:01 AM
Ethylbenzene	ND	1.0		µg/L	1	1/10/2006 12:56:01 AM
Xylenes, Total	ND	3.0		µg/L	1	1/10/2006 12:56:01 AM
Surr: 4-Bromofluorobenzene	104	82.2-119		%REC	1	1/10/2006 12:56:01 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	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory

Date: 24-Jan-06

CLIENT: San Juan Refining
Work Order: 0601033
Project: River Terrace - 1/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DRO_W

Sample ID: MB-9535	SampType: MBLK	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 1/9/2006	RunNo: 17852
Client ID: ZZZZZ	Batch ID: 9535	TestNo: SW8015		Analysis Date: 1/9/2006	SeqNo: 438884

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

Sample ID: LCS-9535	SampType: LCS	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 1/9/2006	RunNo: 17852
Client ID: ZZZZZ	Batch ID: 9535	TestNo: SW8015		Analysis Date: 1/9/2006	SeqNo: 438885

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.740	1.0	5	0	115	81.2	149				

Sample ID: LCSD-9535	SampType: LCSD	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 1/9/2006	RunNo: 17852
Client ID: ZZZZZ	Batch ID: 9535	TestNo: SW8015		Analysis Date: 1/9/2006	SeqNo: 438886

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.962	1.0	5	0	119	81.2	149	5.74	3.80	23	

3 / 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: 0601033
Project: River Terrace - 1/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: Reagent Blank 5ml	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 17853
Client ID: ZZZZZ	Batch ID: R17853	TestNo: SW8015		Analysis Date: 1/9/2006	SeqNo: 438908

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

Sample ID: GRO lcs 2.5ug	SampType: LCS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 17853
Client ID: ZZZZZ	Batch ID: R17853	TestNo: SW8015		Analysis Date: 1/10/2006	SeqNo: 438917

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.4756	0.050	0.5	0	95.1	82.6	114				

4/10

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: 0601033
Project: River Terrace - 1/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: Reagent Blank 5ml	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 17853
Client ID: ZZZZZ	Batch ID: R17853	TestNo: SW8021		Analysis Date: 1/9/2006	SeqNo: 438897

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	2.5									
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Xylenes, Total	ND	3.0									

Sample ID: BTEX lcs 100ng	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 17853
Client ID: ZZZZZ	Batch ID: R17853	TestNo: SW8021		Analysis Date: 1/10/2006	SeqNo: 438898

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	20.40	2.5	20	0	102	64.5	133				
Benzene	19.25	1.0	20	0	96.2	88.5	114				
Toluene	19.69	1.0	20	0	98.4	87.2	114				
Ethylbenzene	19.85	1.0	20	0	99.2	88.6	113				
Xylenes, Total	40.50	3.0	40	0	101	83.3	114				

Sample ID: 0601033-02a ms	SampType: MS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 17853
Client ID: River Near MW #49	Batch ID: R17853	TestNo: SW8021		Analysis Date: 1/10/2006	SeqNo: 438904

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	20.37	2.5	20	0	102	64.5	133				
Benzene	18.67	1.0	20	0	93.3	88.5	114				
Toluene	19.35	1.0	20	0	96.7	87.2	114				
Ethylbenzene	19.94	1.0	20	0	99.7	88.6	113				
Xylenes, Total	40.16	3.0	40	0	100	83.3	114				

Sample ID: 0601033-02a msd	SampType: MSD	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 17853
Client ID: River Near MW #49	Batch ID: R17853	TestNo: SW8021		Analysis Date: 1/10/2006	SeqNo: 438906

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

5 / 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: 0601033
Project: River Terrace - 1/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: **0601033-02a msd** SampType: **MSD** TestCode: **8021BTEX_W** Units: **µg/L** Prep Date: RunNo: **17853**
Client ID: **River Near MW #49** Batch ID: **R17853** TestNo: **SW8021** Analysis Date: **1/10/2006** SeqNo: **438906**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	19.62	2.5	20	0	98.1	64.5	133	20.37	3.74	28	
Benzene	18.69	1.0	20	0	93.5	88.5	114	18.67	0.133	27	
Toluene	18.97	1.0	20	0	94.8	87.2	114	19.35	1.99	19	
Ethylbenzene	19.56	1.0	20	0	97.8	88.6	113	19.94	1.93	10	
Xylenes, Total	39.78	3.0	40	0	99.4	83.3	114	40.16	0.943	13	

6/10

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: 0601033
Project: River Terrace - 1/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8310_W

Sample ID: MB-9551	SampType: MBLK	TestCode: 8310_W	Units: µg/L	Prep Date: 1/10/2006	RunNo: 17974
Client ID: ZZZZZ	Batch ID: 9551	TestNo: SW8310	(SW3510C)	Analysis Date: 1/16/2006	SeqNo: 441634

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

7/10

Sample ID: LCS-9551	SampType: LCS	TestCode: 8310_W	Units: µg/L	Prep Date: 1/10/2006	RunNo: 17974
Client ID: ZZZZZ	Batch ID: 9551	TestNo: SW8310	(SW3510C)	Analysis Date: 1/16/2006	SeqNo: 441637

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	14.94	2.5	20	0	74.7	34.8	97.4				
1-Methylnaphthalene	14.85	2.5	20.05	0	74.1	34.7	100				
2-Methylnaphthalene	14.55	2.5	20	0	72.8	35	98.1				
Acenaphthylene	14.63	2.5	20.05	0	73.0	48.3	95.1				
Acenaphthene	15.05	2.5	20	0	75.2	45	95				
Fluorene	1.480	0.80	2.005	0	73.8	46.8	93.4				
Phenanthrene	0.8300	0.60	1.005	0	82.6	48.7	104				

Qualifiers:
E Value above quantitation range
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: 0601033
Project: River Terrace - 1/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8310_W

Sample ID: LCS-9551	SampType: LCS	TestCode: 8310_W	Units: µg/L	Prep Date: 1/10/2006	RunNo: 17974
Client ID: ZZZZZ	Batch ID: 9551	TestNo: SW8310	(SW3510C)	Analysis Date: 1/16/2006	SeqNo: 441637

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Anthracene	0.7900	0.60	1.005	0	78.6	47.5	102				
Fluoranthene	1.720	0.30	2.005	0	85.8	46.3	108				
Pyrene	1.820	0.30	2.005	0	90.8	43.8	109				
Benz(a)anthracene	0.1800	0.020	0.2005	0	89.8	40.3	115				
Chrysene	0.9600	0.20	1.005	0	95.5	42.6	107				
Benzo(b)fluoranthene	0.2200	0.050	0.2505	0	87.8	48.6	107				
Benzo(k)fluoranthene	0.1100	0.020	0.125	0	88.0	23.3	136				
Benzo(a)pyrene	0.1100	0.020	0.125	0	88.0	33.4	117				
Dibenz(a,h)anthracene	0.2200	0.040	0.25	0	88.0	27.3	139				
Benzo(g,h,i)perylene	0.2500	0.030	0.25	0	100	38.2	117				
Indeno(1,2,3-cd)pyrene	0.4770	0.080	0.501	0	95.2	39.9	125				

Sample ID: LCSD-9551	SampType: LCSD	TestCode: 8310_W	Units: µg/L	Prep Date: 1/10/2006	RunNo: 17974
Client ID: ZZZZZ	Batch ID: 9551	TestNo: SW8310	(SW3510C)	Analysis Date: 1/16/2006	SeqNo: 441638

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	14.42	2.5	20	0	72.1	34.8	97.4	14.94	3.54	32.1	
1-Methylnaphthalene	14.35	2.5	20.05	0	71.6	34.7	100	14.85	3.42	32.7	
2-Methylnaphthalene	14.20	2.5	20	0	71.0	35	98.1	14.55	2.43	34	
Acenaphthylene	14.36	2.5	20.05	0	71.6	48.3	95.1	14.63	1.83	38.8	
Acenaphthene	14.61	2.5	20	0	73.0	45	95	15.05	2.97	38.6	
Fluorene	1.440	0.80	2.005	0	71.8	46.8	93.4	1.48	2.74	39.3	
Phenanthrene	0.7600	0.60	1.005	0	75.6	48.7	104	0.83	8.81	25	
Anthracene	0.7700	0.60	1.005	0	76.6	47.5	102	0.79	2.56	23.9	
Fluoranthene	1.610	0.30	2.005	0	80.3	46.3	108	1.72	6.61	15.7	
Pyrene	1.730	0.30	2.005	0	86.3	43.8	109	1.82	5.07	15.3	
Benz(a)anthracene	0.1600	0.020	0.2005	0	79.8	40.3	115	0.18	11.8	119	
Chrysene	0.8700	0.20	1.005	0	86.6	42.6	107	0.96	9.84	16.6	
Benzo(b)fluoranthene	0.2100	0.050	0.2505	0	83.8	48.6	107	0.22	4.65	21.7	
Benzo(k)fluoranthene	0.1000	0.020	0.125	0	80.0	23.3	136	0.11	9.52	19.4	

Qualifiers:
E Value above quantitation range
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: 0601033
Project: River Terrace - 1/06

ANALYTICAL QC SUMMARY REPORT

TestCode: 8310_W

Sample ID: LCSD-9551	SampType: LCSD	TestCode: 8310_W	Units: µg/L	Prep Date: 1/10/2006	RunNo: 17974
Client ID: ZZZZZ	Batch ID: 9551	TestNo: SW8310	(SW3510C)	Analysis Date: 1/16/2006	SeqNo: 441638

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.1300	0.020	0.125	0	104	33.4	117	0.11	16.7	16.7	
Dibenz(a,h)anthracene	0.2100	0.040	0.25	0	84.0	27.3	139	0.22	4.65	17.3	
Benzo(g,h,i)perylene	0.2300	0.030	0.25	0	92.0	38.2	117	0.25	8.33	118	
Indeno(1,2,3-cd)pyrene	0.4540	0.080	0.501	0	90.6	39.9	125	0.477	4.94	17.7	

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

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 1/5/2006

Work Order Number 0601033 | Received by LMM

Checklist completed by Lisa Hederick (Signature) 1/5/06 (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

CHAIN-OF-CUSTODY RECORD

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

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

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace 1/06
Project #:
Project Manager:
Sampler: Cindy Hurtado
Sample Temperature: 10

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.
01/04/06	1135A	H20	MW #49	2-VOA	X			0601033-1
"	"	"	"	2-VOA	X			-1
"	"	"	"	1-liter			Amber	-1
1/4/06	11:50		River Near MW #49	2-VOA	X			-2

ANALYSIS REQUEST

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

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
01/04/06	2:30pm	Cindy Hurtado	12:05 1/5/06
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, January 18, 2006

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

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

RE: River Terrace Baseline Pre Dewater

Order No.: 0601065

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 4 sample(s) on 1/6/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

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

Hall Environmental Analysis Laboratory

Date: *18-Jan-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP #4
Lab Order:	0601065	**Collection Date:**	1/5/2006 12:20:00 PM
Project:	River Terrace Baseline Pre Dewater	**Date Received:**	1/6/2006
Lab ID:	0601065-01A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	1/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **CMC**
Arsenic	ND	0.020		mg/L	1	1/16/2006 2:52:49 PM
Barium	0.23	0.020		mg/L	1	1/16/2006 2:52:49 PM
Cadmium	ND	0.0020		mg/L	1	1/16/2006 2:52:49 PM
Chromium	ND	0.0060		mg/L	1	1/16/2006 2:52:49 PM
Lead	0.068	0.0050		mg/L	1	1/16/2006 2:52:49 PM
Selenium	ND	0.050		mg/L	1	1/16/2006 2:52:49 PM
Silver	ND	0.0050		mg/L	1	1/16/2006 2:52:49 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	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory

Date: *18-Jan-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP #11
Lab Order:	0601065	**Collection Date:**	1/5/2006 12:00:00 PM
Project:	River Terrace Baseline Pre Dewater	**Date Received:**	1/6/2006
Lab ID:	0601065-02A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	1/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **CMC**
Arsenic	ND	0.020		mg/L	1	1/16/2006 2:55:51 PM
Barium	0.12	0.020		mg/L	1	1/16/2006 2:55:51 PM
Cadmium	ND	0.0020		mg/L	1	1/16/2006 2:55:51 PM
Chromium	ND	0.0060		mg/L	1	1/16/2006 2:55:51 PM
Lead	0.0093	0.0050		mg/L	1	1/16/2006 2:55:51 PM
Selenium	ND	0.050		mg/L	1	1/16/2006 2:55:51 PM
Silver	ND	0.0050		mg/L	1	1/16/2006 2:55:51 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: *18-Jan-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP #12
Lab Order:	0601065	**Collection Date:**	1/5/2006 11:40:00 AM
Project:	River Terrace Baseline Pre Dewater	**Date Received:**	1/6/2006
Lab ID:	0601065-03A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	1/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **CMC**
Arsenic	ND	0.020		mg/L	1	1/16/2006 2:58:49 PM
Barium	0.20	0.020		mg/L	1	1/16/2006 2:58:49 PM
Cadmium	ND	0.0020		mg/L	1	1/16/2006 2:58:49 PM
Chromium	ND	0.0060		mg/L	1	1/16/2006 2:58:49 PM
Lead	0.016	0.0050		mg/L	1	1/16/2006 2:58:49 PM
Selenium	ND	0.050		mg/L	1	1/16/2006 2:58:49 PM
Silver	ND	0.0050		mg/L	1	1/16/2006 2:58:49 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	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory

Date: *18-Jan-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP #13
Lab Order:	0601065	**Collection Date:**	1/5/2006 11:20:00 AM
Project:	River Terrace Baseline Pre Dewater	**Date Received:**	1/6/2006
Lab ID:	0601065-04A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	1/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **CMC**
Arsenic	ND	0.020		mg/L	1	1/16/2006 3:01:45 PM
Barium	0.57	0.020		mg/L	1	1/16/2006 3:01:45 PM
Cadmium	ND	0.0020		mg/L	1	1/16/2006 3:01:45 PM
Chromium	ND	0.0060		mg/L	1	1/16/2006 3:01:45 PM
Lead	ND	0.0050		mg/L	1	1/16/2006 3:01:45 PM
Selenium	ND	0.050		mg/L	1	1/16/2006 3:01:45 PM
Silver	ND	0.0050		mg/L	1	1/16/2006 3:01:45 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

Date: 18-Jan-0

CLIENT: San Juan Refining
Work Order: 0601065
Project: River Terrace Baseline Pre Dewater

ANALYTICAL QC SUMMARY REPORT

TestCode: HG_CTW

Sample ID: MB-9544	SampType: MBLK	TestCode: HG_CTW	Units: mg/L	Prep Date: 1/9/2006	RunNo: 17848
Client ID: ZZZZZ	Batch ID: 9544	TestNo: SW7470	(SW7470)	Analysis Date: 1/9/2006	SeqNo: 438823

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

5/11

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: 0601065
Project: River Terrace Baseline Pre Dewater

ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: MB-9536	SampType: MBLK	TestCode: METALS_TO	Units: mg/L	Prep Date: 1/9/2006	RunNo: 17885
Client ID: ZZZZZ	Batch ID: 9536	TestNo: SW6010A		Analysis Date: 1/12/2006	SeqNo: 439739

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

Sample ID: MB-9536	SampType: MBLK	TestCode: METALS_TO	Units: mg/L	Prep Date: 1/9/2006	RunNo: 17932
Client ID: ZZZZZ	Batch ID: 9536	TestNo: SW6010A		Analysis Date: 1/16/2006	SeqNo: 440773

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

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Qualifiers:
E Value above quantitation range
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

Date: 18-Jan-0

CLIENT: San Juan Refining
Work Order: 0601065
Project: River Terrace Baseline Pre Dewater

ANALYTICAL QC SUMMARY REPORT

TestCode: HG_CTW

Sample ID: 0601064-04D DUP	SampType: DUP	TestCode: HG_CTW	Units: mg/L	Prep Date: 1/9/2006				RunNo: 17848			
Client ID: ZZZZZ	Batch ID: 9544	TestNo: SW7470	(SW7470)	Analysis Date: 1/9/2006				SeqNo: 438841			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.00020						0	0	20	

7/11

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

Hall Environmental Analysis Laboratory

Date: 18-Jan-0

CLIENT: San Juan Refining
Work Order: 0601065
Project: River Terrace Baseline Pre Dewater

ANALYTICAL QC SUMMARY REPORT

TestCode: HG_CTW

Sample ID: LCS-9544	SampType: LCS	TestCode: HG_CTW	Units: mg/L	Prep Date: 1/9/2006	RunNo: 17848
Client ID: ZZZZZ	Batch ID: 9544	TestNo: SW7470	(SW7470)	Analysis Date: 1/9/2006	SeqNo: 438824

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004253	0.00020	0.005	0	85.1	80	120				

Sample ID: LCSD-9544	SampType: LCSD	TestCode: HG_CTW	Units: mg/L	Prep Date: 1/9/2006	RunNo: 17848
Client ID: ZZZZZ	Batch ID: 9544	TestNo: SW7470	(SW7470)	Analysis Date: 1/9/2006	SeqNo: 438848

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004311	0.00020	0.005	0	86.2	80	120	0.004253	1.35	0	

8/11

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: 0601065
Project: River Terrace Baseline Pre Dewater

ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: LCS-9536	SampType: LCS	TestCode: METALS_TO	Units: mg/L	Prep Date: 1/9/2006	RunNo: 17885
Client ID: ZZZZZ	Batch ID: 9536	TestNo: SW6010A		Analysis Date: 1/12/2006	SeqNo: 439740

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.4894	0.0050	0.5	0	97.9	80	120				

Sample ID: LCS-9536	SampType: LCS	TestCode: METALS_TO	Units: mg/L	Prep Date: 1/9/2006	RunNo: 17932
Client ID: ZZZZZ	Batch ID: 9536	TestNo: SW6010A		Analysis Date: 1/16/2006	SeqNo: 440774

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.4853	0.020	0.5	0	97.1	80	120				
Barium	0.4613	0.020	0.5	0	92.3	80	120				
Cadmium	0.4680	0.0020	0.5	0	93.6	80	120				
Chromium	0.4714	0.0060	0.5	0	94.3	80	120				
Lead	0.4601	0.0050	0.5	0	92.0	80	120				
Selenium	0.4684	0.050	0.5	0	93.7	80	120				
Silver	0.4791	0.0050	0.5	0.001109	95.6	80	120				

Sample ID: LCSD-9536	SampType: LCSD	TestCode: METALS_TO	Units: mg/L	Prep Date: 1/9/2006	RunNo: 17885
Client ID: ZZZZZ	Batch ID: 9536	TestNo: SW6010A		Analysis Date: 1/12/2006	SeqNo: 439741

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.4769	0.0050	0.5	0	95.4	80	120	0.4894	2.60	20	

Sample ID: LCSD-9536	SampType: LCSD	TestCode: METALS_TO	Units: mg/L	Prep Date: 1/9/2006	RunNo: 17932
Client ID: ZZZZZ	Batch ID: 9536	TestNo: SW6010A		Analysis Date: 1/16/2006	SeqNo: 440775

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.4891	0.020	0.5	0	97.8	80	120	0.4853	0.775	20	
Barium	0.4627	0.020	0.5	0	92.5	80	120	0.4613	0.308	20	
Cadmium	0.4676	0.0020	0.5	0	93.5	80	120	0.468	0.0760	20	
Chromium	0.4741	0.0060	0.5	0	94.8	80	120	0.4714	0.582	20	
Lead	0.4560	0.0050	0.5	0	91.2	80	120	0.4601	0.907	20	
Selenium	0.4633	0.050	0.5	0	92.7	80	120	0.4684	1.11	20	

Qualifiers:
E Value above quantitation range
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

9/11

CLIENT: San Juan Refining
Work Order: 0601065
Project: River Terrace Baseline Pre Dewater

ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: LCSD-9536	SampType: LCSD	TestCode: METALS_TO	Units: mg/L	Prep Date: 1/9/2006	RunNo: 17932
Client ID: ZZZZZ	Batch ID: 9536	TestNo: SW6010A		Analysis Date: 1/16/2006	SeqNo: 440775

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	0.4795	0.0050	0.5	0.001109	95.7	80	120	0.4791	0.0776	20	

10/11

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

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 1/6/2006

Work Order Number 0601065 | Received by LMM

Checklist completed by Lisa Hamilton 1/6/06
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

CHAIN-OF-CUSTODY RECORD

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

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

Client: San Juan Refining

Project Name: River Terrace Basline Pre-Dewater

Address: #50 Rd 4990 Bloomfield, NM 87413

Project #:

Project Manager:

Phone #: 505-632-4161

Sampler: Cindy Hurtado

Fax #: 505-632-3911

Sample Temperature: 10

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No.
1/05/06	1220	H_2O	TP #4	1-500ml		X	0601065-1
	1ZN		TP #11			X	-2
	1140A		TP #12			X	-3
	1120A		TP #13			X	-4

ANALYSIS REQUEST

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

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
01/06/06	830Am	Cindy Hurtado	Lisa Hellwig	16:40 1/6/06
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

January 17, 2006

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

RE: River Terrace Baseline Pre Dewater Order No.: 0601032

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 10 samples on 1/5/2006 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

AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP #1
Lab Order: 0601032
Collection Date: 1/4/2006 8:35:00 AM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601032-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	1/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	1/10/2006 10:23:37 AM
Barium	0.62	0.020		mg/L	1	1/9/2006 6:58:42 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2006 6:58:42 PM
Chromium	ND	0.0060		mg/L	1	1/9/2006 6:58:42 PM
Lead	0.038	0.0050		mg/L	1	1/9/2006 6:58:42 PM
Selenium	ND	0.050		mg/L	1	1/9/2006 6:58:42 PM
Silver	ND	0.0050		mg/L	1	1/9/2006 6:58:42 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP #2
Lab Order: 0601032
Collection Date: 1/4/2006 8:48:00 AM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601032-02
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	1/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	1/10/2006 10:26:13 AM
Barium	0.85	0.020		mg/L	1	1/9/2006 7:02:36 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2006 7:02:36 PM
Chromium	ND	0.0060		mg/L	1	1/9/2006 7:02:36 PM
Lead	0.016	0.0050		mg/L	1	1/9/2006 7:02:36 PM
Selenium	ND	0.050		mg/L	1	1/9/2006 7:02:36 PM
Silver	ND	0.0050		mg/L	1	1/9/2006 7:02:36 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP #5
Lab Order: 0601032
Collection Date: 1/4/2006 10:00:00 AM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601032-03
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	1/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	1/10/2006 10:28:50 AM
Barium	0.45	0.020		mg/L	1	1/9/2006 7:06:30 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2006 7:06:30 PM
Chromium	ND	0.0060		mg/L	1	1/9/2006 7:06:30 PM
Lead	0.038	0.0050		mg/L	1	1/9/2006 7:06:30 PM
Selenium	ND	0.050		mg/L	1	1/9/2006 7:06:30 PM
Silver	ND	0.0050		mg/L	1	1/9/2006 7:06:30 PM

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP #3
Lab Order: 0601032
Collection Date: 1/4/2006 9:10:00 AM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601032-04
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	1/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	1/10/2006 10:40:56 AM
Barium	0.11	0.020		mg/L	1	1/9/2006 7:22:40 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2006 7:22:40 PM
Chromium	ND	0.0060		mg/L	1	1/9/2006 7:22:40 PM
Lead	0.014	0.0050		mg/L	1	1/9/2006 7:22:40 PM
Selenium	ND	0.050		mg/L	1	1/9/2006 7:22:40 PM
Silver	ND	0.0050		mg/L	1	1/9/2006 7:22:40 PM

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: San Juan Refining
Lab Order: 0601032
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601032-05

Client Sample ID: TP #6
Collection Date: 1/4/2006 10:40:00 AM
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	1/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	1/10/2006 10:43:32 AM
Barium	0.46	0.020		mg/L	1	1/9/2006 7:25:36 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2006 7:25:36 PM
Chromium	ND	0.0060		mg/L	1	1/9/2006 7:25:36 PM
Lead	0.014	0.0050		mg/L	1	1/9/2006 7:25:36 PM
Selenium	ND	0.050		mg/L	1	1/9/2006 7:25:36 PM
Silver	ND	0.0050		mg/L	1	1/9/2006 7:25:36 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP #8
Lab Order: 0601032
Collection Date: 1/4/2006 12:10:00 PM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601032-06
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	1/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	1/10/2006 10:46:08 AM
Barium	2.2	0.10		mg/L	5	1/9/2006 8:20:53 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2006 7:28:28 PM
Chromium	ND	0.0060		mg/L	1	1/9/2006 7:28:28 PM
Lead	0.020	0.0050		mg/L	1	1/9/2006 7:28:28 PM
Selenium	ND	0.050		mg/L	1	1/9/2006 7:28:28 PM
Silver	ND	0.0050		mg/L	1	1/9/2006 7:28:28 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP #9
Lab Order: 0601032
Collection Date: 1/4/2006 10:20:00 AM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601032-07
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	1/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	1/10/2006 10:48:45 AM
Barium	0.38	0.020		mg/L	1	1/9/2006 7:32:30 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2006 7:32:30 PM
Chromium	ND	0.0060		mg/L	1	1/9/2006 7:32:30 PM
Lead	ND	0.0050		mg/L	1	1/9/2006 7:32:30 PM
Selenium	ND	0.050		mg/L	1	1/9/2006 7:32:30 PM
Silver	ND	0.0050		mg/L	1	1/9/2006 7:32:30 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP #10
Lab Order: 0601032
Collection Date: 1/4/2006 12:30:00 PM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601032-08
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	1/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	1/10/2006 10:50:41 AM
Barium	0.46	0.020		mg/L	1	1/9/2006 7:36:37 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2006 7:36:37 PM
Chromium	0.0072	0.0060		mg/L	1	1/9/2006 7:36:37 PM
Lead	0.015	0.0050		mg/L	1	1/9/2006 7:36:37 PM
Selenium	ND	0.050		mg/L	1	1/9/2006 7:36:37 PM
Silver	ND	0.0050		mg/L	1	1/9/2006 7:36:37 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: MW #49
Lab Order: 0601032
Collection Date: 1/4/2006 11:35:00 AM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601032-09
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	1/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	1/10/2006 10:53:18 AM
Barium	0.15	0.020		mg/L	1	1/9/2006 7:39:40 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2006 7:39:40 PM
Chromium	ND	0.0060		mg/L	1	1/9/2006 7:39:40 PM
Lead	ND	0.0050		mg/L	1	1/9/2006 7:39:40 PM
Selenium	ND	0.050		mg/L	1	1/9/2006 7:39:40 PM
Silver	ND	0.0050		mg/L	1	1/9/2006 7:39:40 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: DW #1
Lab Order: 0601032
Collection Date: 1/4/2006 10:50:00 AM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601032-10
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	0.011	0.00040		mg/L	2	1/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	1/10/2006 12:20:26 PM
Barium	0.45	0.020		mg/L	1	1/9/2006 7:43:53 PM
Cadmium	ND	0.0020		mg/L	1	1/9/2006 7:43:53 PM
Chromium	ND	0.0060		mg/L	1	1/9/2006 7:43:53 PM
Lead	ND	0.0050		mg/L	1	1/9/2006 7:43:53 PM
Selenium	ND	0.050		mg/L	1	1/9/2006 7:43:53 PM
Silver	ND	0.0050		mg/L	1	1/9/2006 7:43:53 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: San Juan Refining
Work Order: 0601032
Project: River Terrace Baseline Pre Dewater

QC SUMMARY REPORT

Method Blank

Sample ID: MB-9544	Batch ID: 9544	Test Code: SW7470	Units: mg/L	Analysis Date: 1/9/2006	Prep Date: 1/9/2006
Client ID:		Run ID: MI-LA254_060109A		SeqNo: 438823	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.0002									

Sample ID: MB-9527	Batch ID: 9527	Test Code: SW6010A	Units: mg/L	Analysis Date: 1/9/2006 6:32:35 PM	Prep Date: 1/6/2006
Client ID:		Run ID: ICP_060109B		SeqNo: 438957	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.02									
Barium	ND	0.02									
Cadmium	ND	0.002									
Chromium	ND	0.006									
Lead	ND	0.005									
Selenium	ND	0.05									
Silver	ND	0.005									

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Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: San Juan Refining
Work Order: 0601032
Project: River Terrace Baseline Pre Dewater

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **0601032-10A DUP** Batch ID: **9527** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **1/9/2006 7:47:56 PM** Prep Date: **1/6/2006**
Client ID: **DW #1** Run ID: **ICP_060109B** SeqNo: **438975**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.4504	0.02	0	0	0	0	0	0.4485	0.443	30	
Cadmium	ND	0.002	0	0	0	0	0	0	0	30	
Chromium	ND	0.006	0	0	0	0	0	0	0	30	
Lead	ND	0.005	0	0	0	0	0	0	0	30	
Selenium	ND	0.05	0	0	0	0	0	0	0	30	
Silver	ND	0.005	0	0	0	0	0	0	0	30	

Sample ID: **0601032-10A DUP** Batch ID: **9527** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **1/10/2006 12:22:16 PM** Prep Date: **1/6/2006**
Client ID: **DW #1** Run ID: **ICP_060109B** SeqNo: **439061**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.01915	0.02	0	0	0	0	0	0.01355	0	30	J

12/17

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: San Juan Refining
Work Order: 0601032
Project: River Terrace Baseline Pre Dewater

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **0601032-10A MS** Batch ID: **9527** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **1/9/2006 7:51:59 PM** Prep Date: **1/6/2006**
Client ID: **DW #1** Run ID: **ICP_060109B** SeqNo: **438976**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.893	0.02	0.5	0.4485	88.9	75	125	0			
Cadmium	0.4733	0.002	0.5	0	94.7	75	125	0			
Chromium	0.4585	0.006	0.5	0	91.7	75	125	0			
Lead	0.438	0.005	0.5	0	87.6	75	125	0			
Selenium	0.4152	0.05	0.5	0	83.0	75	125	0			
Silver	0.4881	0.005	0.5	0	97.6	75	125	0			

Sample ID: **0601032-10A MSD** Batch ID: **9527** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **1/9/2006 7:57:47 PM** Prep Date: **1/6/2006**
Client ID: **DW #1** Run ID: **ICP_060109B** SeqNo: **438977**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.8914	0.02	0.5	0.4485	88.6	75	125	0.893	0.174	20	
Cadmium	0.4806	0.002	0.5	0	96.1	75	125	0.4733	1.53	20	
Chromium	0.4599	0.006	0.5	0	92.0	75	125	0.4585	0.313	20	
Lead	0.4459	0.005	0.5	0	89.2	75	125	0.438	1.79	20	
Selenium	0.4438	0.05	0.5	0	88.8	75	125	0.4152	6.68	20	
Silver	0.4908	0.005	0.5	0	98.2	75	125	0.4881	0.539	20	

Sample ID: **0601032-10A MS** Batch ID: **9527** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **1/10/2006 11:01:31 AM** Prep Date: **1/6/2006**
Client ID: **DW #1** Run ID: **ICP_060109B** SeqNo: **439057**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.566	0.02	0.5	0.01355	110	75	125	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0601032
Project: River Terrace Baseline Pre Dewater

QC SUMMARY REPORT
Sample Matrix Spike Duplicate

Sample ID: **0601032-10A MSD** Batch ID: **9527** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **1/10/2006 11:04:09 AM** Prep Date: **1/6/2006**
Client ID: **DW #1** Run ID: **ICP_060109B** SeqNo: **439058**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.5678	0.02	0.5	0.01355	111	75	125	0.566	0.312	20	

14/17

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *17-Jan-06*

CLIENT: San Juan Refining
Work Order: 0601032
Project: River Terrace Baseline Pre Dewater

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS-9544**	Batch ID: **9544**	Test Code: **SW7470**	Units: **mg/L**	Analysis Date: **1/9/2006**	Prep Date: **1/9/2006**
Client ID:		Run ID: **MI-LA254_060109A**		SeqNo: **438824**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004253	0.0002	0.005	0	85.1	80	120	0			

Sample ID: **LCSD-9544**	Batch ID: **9544**	Test Code: **SW7470**	Units: **mg/L**	Analysis Date: **1/9/2006**	Prep Date: **1/9/2006**
Client ID:		Run ID: **MI-LA254_060109A**		SeqNo: **438848**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004311	0.0002	0.005	0	86.2	80	120	0.004253	1.35	0	

Sample ID: **LCS-9527**	Batch ID: **9527**	Test Code: **SW6010A**	Units: **mg/L**	Analysis Date: **1/9/2006 6:35:38 PM**	Prep Date: **1/6/2006**
Client ID:		Run ID: **ICP_060109B**		SeqNo: **438958**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.4814	0.02	0.5	0	96.3	80	120	0			
Barium	0.4668	0.02	0.5	0	93.4	80	120	0			
Cadmium	0.4721	0.002	0.5	0	94.4	80	120	0			
Chromium	0.4736	0.006	0.5	0	94.7	80	120	0			
Lead	0.4583	0.005	0.5	0	91.7	80	120	0			
Selenium	0.4663	0.05	0.5	0	93.3	80	120	0			
Silver	0.4876	0.005	0.5	0	97.5	80	120	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

/

CLIENT: San Juan Refining
Work Order: 0601032
Project: River Terrace Baseline Pre Dewater

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID: **LCSD-9527** Batch ID: **9527** Test Code: **SW6010A** Units: **mg/L** Analysis Date: **1/9/2006 6:38:53 PM** Prep Date: **1/6/2006**

Client ID: Run ID: **ICP_060109B** SeqNo: **438959**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.4796	0.02	0.5	0	95.9	80	120	0.4814	0.388	20	
Barium	0.4621	0.02	0.5	0	92.4	80	120	0.4668	1.02	20	
Cadmium	0.4764	0.002	0.5	0	95.3	80	120	0.4721	0.907	20	
Chromium	0.4689	0.006	0.5	0	93.8	80	120	0.4736	1.01	20	
Lead	0.4626	0.005	0.5	0	92.5	80	120	0.4583	0.924	20	
Selenium	0.4664	0.05	0.5	0	93.3	80	120	0.4663	0.0293	20	
Silver	0.4845	0.005	0.5	0	96.9	80	120	0.4876	0.629	20	

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Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 1/5/2006

Work Order Number 0601032 | Received by LMM

Checklist completed by Lee Hedlund (Signature) 1/5/06 (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: per CH collection time for TPH2 is 0545 /AT

1/10/06 CH spoke w Andy; requested samples 1/5/06 TPH 3 & TPH 5 to be switched

Corrective Action /AT

CHAIN-OF-CUSTODY RECORD

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

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

Client: San Juan Refining
Project Name: River Terrace Baseline Pre Dewater
Address: #50 Rd 4990 Bloomfield, NM 87413
Project #:
Project Manager:
Phone #: 505-632-4161
Sampler: Cindy Hurtado / Angela Folk
Fax #: 505-632-3911
Sample Temperature: pd

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No.
01/04/06	835A	H_2O	TP # 1	1-500ml		X	0601032-1
	~~838A~~ 848A		TP # 2			X	-2
	10A		TP # 3 5A			X	-3
	910A		TP # 5 3 AT			X	-4
	1040A		TP # 6			X	-5
	1210		TP # 8			X	-6
	1020A		TP # 9			X	-7
	1230A VLB		TP #10			X	-8
	1135A		MW #49			X	-9
	1050A		DW #1			X	-10

ANALYSIS REQUEST

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

Date: 01/04/06 Time: 220pm Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature) 1/5/06 1205

Date: Time: Relinquished By: (Signature)
Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, March 14, 2006

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

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

RE: River Terrace 1st Quarter 2006

Order No.: 0603089

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 8 sample(s) on 3/8/2006 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-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-9
Lab Order:	0603089	**Collection Date:**	3/7/2006 9:00:00 AM
Project:	River Terrace 1st Quarter 2006	**Date Received:**	3/8/2006
Lab ID:	0603089-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	8.0	5.0		µg/L	1	3/9/2006 10:53:03 AM
Surr: BFB	98.7	82.3-129		%REC	1	3/9/2006 10:53:03 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		µg/L	1	3/9/2006 10:53:03 AM
Toluene	0.063	0.050		µg/L	1	3/9/2006 10:53:03 AM
Ethylbenzene	0.085	0.050		µg/L	1	3/9/2006 10:53:03 AM
Xylenes, Total	0.53	0.050		µg/L	1	3/9/2006 10:53:03 AM
Surr: 4-Bromofluorobenzene	98.0	74-118		%REC	1	3/9/2006 10:53:03 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: *15-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-8
Lab Order:	0603089	**Collection Date:**	3/7/2006 10:05:00 AM
Project:	River Terrace 1st Quarter 2006	**Date Received:**	3/8/2006
Lab ID:	0603089-02	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7700	500		µg/L	100	3/9/2006 12:58:53 PM
Surr: BFB	104	82.3-129		%REC	100	3/9/2006 12:58:53 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	8.8	5.0		µg/L	100	3/9/2006 12:58:53 PM
Toluene	13	5.0		µg/L	100	3/9/2006 12:58:53 PM
Ethylbenzene	220	5.0		µg/L	100	3/9/2006 12:58:53 PM
Xylenes, Total	1900	5.0		µg/L	100	3/9/2006 12:58:53 PM
Surr: 4-Bromofluorobenzene	107	74-118		%REC	100	3/9/2006 12:58:53 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: 15-Mar-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-6
Lab Order:	0603089	Collection Date:	3/7/2006 10:35:00 AM
Project:	River Terrace 1st Quarter 2006	Date Received:	3/8/2006
Lab ID:	0603089-03	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	4500	500		µg/L	100	3/9/2006 2:02:33 PM
Surr: BFB	99.8	82.3-129		%REC	100	3/9/2006 2:02:33 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	7.9	5.0		µg/L	100	3/9/2006 2:02:33 PM
Toluene	6.5	5.0		µg/L	100	3/9/2006 2:02:33 PM
Ethylbenzene	47	5.0		µg/L	100	3/9/2006 2:02:33 PM
Xylenes, Total	950	5.0		µg/L	100	3/9/2006 2:02:33 PM
Surr: 4-Bromofluorobenzene	104	74-118		%REC	100	3/9/2006 2:02:33 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: 15-Mar-06

CLIENT:	San Juan Refining	Client Sample ID:	TP-5
Lab Order:	0603089	Collection Date:	3/7/2006 10:55:00 AM
Project:	River Terrace 1st Quarter 2006	Date Received:	3/8/2006
Lab ID:	0603089-04	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	34000	500		µg/L	100	3/9/2006 2:34:42 PM
Surr: BFB	99.3	82.3-129		%REC	100	3/9/2006 2:34:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	69	5.0		µg/L	100	3/9/2006 2:34:42 PM
Toluene	55	5.0		µg/L	100	3/9/2006 2:34:42 PM
Ethylbenzene	310	5.0		µg/L	100	3/9/2006 2:34:42 PM
Xylenes, Total	2000	5.0		µg/L	100	3/9/2006 2:34:42 PM
Surr: 4-Bromofluorobenzene	108	74-118		%REC	100	3/9/2006 2:34:42 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: *15-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-1
Lab Order:	0603089	**Collection Date:**	3/7/2006 1:15:00 PM
Project:	River Terrace 1st Quarter 2006	**Date Received:**	3/8/2006
Lab ID:	0603089-05	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	8500	500		µg/L	100	3/9/2006 3:07:20 PM
Surr: BFB	98.0	82.3-129		%REC	100	3/9/2006 3:07:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	22	5.0		µg/L	100	3/9/2006 3:07:20 PM
Toluene	12	5.0		µg/L	100	3/9/2006 3:07:20 PM
Ethylbenzene	310	5.0		µg/L	100	3/9/2006 3:07:20 PM
Xylenes, Total	2100	5.0		µg/L	100	3/9/2006 3:07:20 PM
Surr: 4-Bromofluorobenzene	107	74-118		%REC	100	3/9/2006 3:07:20 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

Date: *15-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0603089	**Collection Date:**	3/7/2006 1:35:00 PM
Project:	River Terrace 1st Quarter 2006	**Date Received:**	3/8/2006
Lab ID:	0603089-06	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	28	5.0		µg/L	1	3/9/2006 11:55:47 AM
Surr: BFB	96.8	82.3-129		%REC	1	3/9/2006 11:55:47 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		µg/L	1	3/9/2006 11:55:47 AM
Toluene	0.056	0.050		µg/L	1	3/9/2006 11:55:47 AM
Ethylbenzene	1.0	0.050		µg/L	1	3/9/2006 11:55:47 AM
Xylenes, Total	8.9	0.050		µg/L	1	3/9/2006 11:55:47 AM
Surr: 4-Bromofluorobenzene	101	74-118		%REC	1	3/9/2006 11:55:47 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

Date: *15-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW #1
Lab Order:	0603089	**Collection Date:**	3/7/2006 2:05:00 PM
Project:	River Terrace 1st Quarter 2006	**Date Received:**	3/8/2006
Lab ID:	0603089-07	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	61	5.0		µg/L	1	3/9/2006 12:27:15 PM
Surr: BFB	120	82.3-129		%REC	1	3/9/2006 12:27:15 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		µg/L	1	3/9/2006 12:27:15 PM
Toluene	0.17	0.050		µg/L	1	3/9/2006 12:27:15 PM
Ethylbenzene	0.61	0.050		µg/L	1	3/9/2006 12:27:15 PM
Xylenes, Total	5.2	0.050		µg/L	1	3/9/2006 12:27:15 PM
Surr: 4-Bromofluorobenzene	105	74-118		%REC	1	3/9/2006 12:27:15 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: *15-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-2
Lab Order:	0603089	**Collection Date:**	3/7/2006 2:35:00 PM
Project:	River Terrace 1st Quarter 2006	**Date Received:**	3/8/2006
Lab ID:	0603089-08	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	150	25		µg/L	5	3/10/2006 11:35:17 AM
Surr: BFB	109	82.3-129		%REC	5	3/10/2006 11:35:17 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.36	0.25		µg/L	5	3/10/2006 11:35:17 AM
Toluene	1.4	0.25		µg/L	5	3/10/2006 11:35:17 AM
Ethylbenzene	1.8	0.25		µg/L	5	3/10/2006 11:35:17 AM
Xylenes, Total	17	0.25		µg/L	5	3/10/2006 11:35:17 AM
Surr: 4-Bromofluorobenzene	105	74-118		%REC	5	3/10/2006 11:35:17 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	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory

Date: 15-Mar-06

CLIENT: San Juan Refining
Work Order: 0603089
Project: River Terrace 1st Quarter 2006

ANALYTICAL QC SUMMARY REPORT

BatchID: R18537

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18537
Client ID: ZZZZZ	Batch ID: R18537	TestNo: SW8015		Analysis Date: 3/9/2006	SeqNo: 459563

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: 18537
Client ID: ZZZZZ	Batch ID: R18537	TestNo: SW8015		Analysis Date: 3/9/2006	SeqNo: 459564

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.4580	0.050	0.5	0	91.6	82.6	114				

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18537
Client ID: ZZZZZ	Batch ID: R18537	TestNo: SW8021		Analysis Date: 3/9/2006	SeqNo: 459545

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									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18537
Client ID: ZZZZZ	Batch ID: R18537	TestNo: SW8021		Analysis Date: 3/9/2006	SeqNo: 459546

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.13	1.0	20	0	90.6	88.5	114				
Toluene	18.10	1.0	20	0	90.5	87.2	114				
Ethylbenzene	18.52	1.0	20	0	92.6	88.6	113				
Xylenes, Total	37.70	3.0	40	0	94.3	83.3	114				
1,2,4-Trimethylbenzene	17.56	1.0	20	0	87.8	83.8	114				
1,3,5-Trimethylbenzene	18.23	1.0	20	0	91.2	82.8	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

9/10

CLIENT: San Juan Refining
Work Order: 0603089
Project: River Terrace 1st Quarter 2006

ANALYTICAL QC SUMMARY REPORT

BatchID: R18559

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18559
Client ID: ZZZZZ	Batch ID: R18559	TestNo: SW8015		Analysis Date: 3/10/2006	SeqNo: 460117

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: 18559
Client ID: ZZZZZ	Batch ID: R18559	TestNo: SW8015		Analysis Date: 3/10/2006	SeqNo: 460118

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.4480	0.050	0.5	0	89.6	82.6	114				

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18559
Client ID: ZZZZZ	Batch ID: R18559	TestNo: SW8021		Analysis Date: 3/10/2006	SeqNo: 460071

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									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18559
Client ID: ZZZZZ	Batch ID: R18559	TestNo: SW8021		Analysis Date: 3/10/2006	SeqNo: 460072

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.57	1.0	20	0	92.8	88.5	114				
Toluene	18.63	1.0	20	0	93.2	87.2	114				
Ethylbenzene	19.15	1.0	20	0	95.7	88.6	113				
Xylenes, Total	38.69	3.0	40	0	96.7	83.3	114				
1,2,4-Trimethylbenzene	18.67	1.0	20	0	93.4	83.8	114				
1,3,5-Trimethylbenzene	18.71	1.0	20	0	93.6	82.8	114				

10/10

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

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 3/8/2006

Work Order Number 0603089 | Received by AT

Checklist completed by _____ Signature | 3/8/06 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	☐			
ter - 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

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

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

Client: San Juan Refining

Project Name: River Terrace - 1st QTR - 2006 GAS Vapor

Address: #50 Rd4990
Bloomfield, NM 87413

Project #:

Project Manager:

Phone #: 505-632-4161

Sampler: Cindy Hurtado / Shelly Cowden

Fax #: 505-632-3911

Sample Temperature:

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0603088	BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/~~Diesel~~)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
3/07/06	9AM	Vapor	TP-9	1-liter			Tedlar bag	-1	X		X														
	1005		TP-8					-2	X		X														
	1035		TP-6					-3	X		X														
	1055A		TP-5					-4	X		X														
	115P		TP-1					-5	X		X														
	135P		MW#49					-6	X		X														
	2PM		DW#1					-7	X		X														
	235PM		TP-2					-8	X		X														

Date: 3/07/06 Time: 330PM Relinquished By: (Signature) Cindy Hurtado

Received By: (Signature) 3/8/0

Date: Time: Relinquished By: (Signature)

Received By: (Signature)

Remarks:

ANALYSIS REQUEST

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, March 15, 2006

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

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

RE: River Terrace - 1st Qtr - 2006 Water

Order No.: 0603085

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 8 sample(s) on 3/8/2006 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-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-9
Lab Order:	0603085	**Collection Date:**	3/7/2006 9:30:00 AM
Project:	River Terrace - 1st Qtr - 2006 Water	**Date Received:**	3/8/2006
Lab ID:	0603085-01	**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	3/8/2006 3:45:04 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/8/2006 3:45:04 PM
Surr: DNOP	114	58-140		%REC	1	3/8/2006 3:45:04 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.094	0.050		mg/L	1	3/13/2006 1:25:26 PM
Surr: BFB	101	79.7-118		%REC	1	3/13/2006 1:25:26 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/13/2006 1:25:26 PM
Benzene	ND	1.0		µg/L	1	3/13/2006 1:25:26 PM
Toluene	ND	1.0		µg/L	1	3/13/2006 1:25:26 PM
Ethylbenzene	ND	1.0		µg/L	1	3/13/2006 1:25:26 PM
Xylenes, Total	ND	3.0		µg/L	1	3/13/2006 1:25:26 PM
Surr: 4-Bromofluorobenzene	106	82.2-119		%REC	1	3/13/2006 1:25:26 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: *15-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-8
Lab Order:	0603085	**Collection Date:**	3/7/2006 10:15:00 AM
Project:	River Terrace - 1st Qtr - 2006 Water	**Date Received:**	3/8/2006
Lab ID:	0603085-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	18	1.0		mg/L	1	3/8/2006 4:18:07 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/8/2006 4:18:07 PM
Surr: DNOP	121	58-140		%REC	1	3/8/2006 4:18:07 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	37	5.0		mg/L	100	3/13/2006 2:26:52 PM
Surr: BFB	102	79.7-118		%REC	100	3/13/2006 2:26:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	3/13/2006 2:26:52 PM
Benzene	350	100		µg/L	100	3/13/2006 2:26:52 PM
Toluene	ND	100		µg/L	100	3/13/2006 2:26:52 PM
Ethylbenzene	1100	100		µg/L	100	3/13/2006 2:26:52 PM
Xylenes, Total	10000	300		µg/L	100	3/13/2006 2:26:52 PM
Surr: 4-Bromofluorobenzene	104	82.2-119		%REC	100	3/13/2006 2:26:52 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: *15-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-6
Lab Order:	0603085	**Collection Date:**	3/7/2006 10:40:00 AM
Project:	River Terrace - 1st Qtr - 2006 Water	**Date Received:**	3/8/2006
Lab ID:	0603085-03	**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	3/8/2006 4:51:10 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/8/2006 4:51:10 PM
Surr: DNOP	139	58-140		%REC	1	3/8/2006 4:51:10 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	2.7	0.50		mg/L	10	3/13/2006 2:57:38 PM
Surr: BFB	102	79.7-118		%REC	10	3/13/2006 2:57:38 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	3/13/2006 2:57:38 PM
Benzene	ND	10		µg/L	10	3/13/2006 2:57:38 PM
Toluene	ND	10		µg/L	10	3/13/2006 2:57:38 PM
Ethylbenzene	180	10		µg/L	10	3/13/2006 2:57:38 PM
Xylenes, Total	750	30		µg/L	10	3/13/2006 2:57:38 PM
Surr: 4-Bromofluorobenzene	103	82.2-119		%REC	10	3/13/2006 2:57:38 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: *15-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-5
Lab Order:	0603085	**Collection Date:**	3/7/2006 11:00:00 AM
Project:	River Terrace - 1st Qtr - 2006 Water	**Date Received:**	3/8/2006
Lab ID:	0603085-04	**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	3/8/2006 5:24:11 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/8/2006 5:24:11 PM
Surr: DNOP	104	58-140		%REC	1	3/8/2006 5:24:11 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	59	5.0		mg/L	100	3/13/2006 11:56:06 AM
Surr: BFB	100	79.7-118		%REC	100	3/13/2006 11:56:06 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	20	3/13/2006 11:25:23 AM
Benzene	200	100		µg/L	100	3/13/2006 11:56:06 AM
Toluene	ND	20		µg/L	20	3/13/2006 11:25:23 AM
Ethylbenzene	2800	100		µg/L	100	3/13/2006 11:56:06 AM
Xylenes, Total	20000	300		µg/L	100	3/13/2006 11:56:06 AM
Surr: 4-Bromofluorobenzene	92.8	82.2-119		%REC	100	3/13/2006 11:56:06 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: *15-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-1
Lab Order:	0603085	**Collection Date:**	3/7/2006 1:20:00 PM
Project:	River Terrace - 1st Qtr - 2006 Water	**Date Received:**	3/8/2006
Lab ID:	0603085-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	3.8	1.0		mg/L	1	3/8/2006 5:57:33 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/8/2006 5:57:33 PM
Surr: DNOP	118	58-140		%REC	1	3/8/2006 5:57:33 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	72	12		mg/L	250	3/13/2006 3:59:16 PM
Surr: BFB	95.2	79.7-118		%REC	250	3/13/2006 3:59:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	120		µg/L	50	3/13/2006 3:28:25 PM
Benzene	1500	250		µg/L	250	3/13/2006 3:59:16 PM
Toluene	ND	50		µg/L	50	3/13/2006 3:28:25 PM
Ethylbenzene	4100	250		µg/L	250	3/13/2006 3:59:16 PM
Xylenes, Total	30000	750		µg/L	250	3/13/2006 3:59:16 PM
Surr: 4-Bromofluorobenzene	95.3	82.2-119		%REC	250	3/13/2006 3:59:16 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory

Date: *15-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0603085	**Collection Date:**	3/7/2006 2:00:00 PM
Project:	River Terrace - 1st Qtr - 2006 Water	**Date Received:**	3/8/2006
Lab ID:	0603085-06	**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	3/8/2006 7:04:22 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/8/2006 7:04:22 PM
Surr: DNOP	130	58-140		%REC	1	3/8/2006 7:04:22 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.074	0.050		mg/L	1	3/13/2006 1:56:09 PM
Surr: BFB	99.0	79.7-118		%REC	1	3/13/2006 1:56:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/13/2006 1:56:09 PM
Benzene	ND	1.0		µg/L	1	3/13/2006 1:56:09 PM
Toluene	ND	1.0		µg/L	1	3/13/2006 1:56:09 PM
Ethylbenzene	ND	1.0		µg/L	1	3/13/2006 1:56:09 PM
Xylenes, Total	6.1	3.0		µg/L	1	3/13/2006 1:56:09 PM
Surr: 4-Bromofluorobenzene	106	82.2-119		%REC	1	3/13/2006 1:56:09 PM
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Chromium	ND	0.0060		mg/L	1	3/15/2006 12:00:46 PM
Lead	ND	0.0050		mg/L	1	3/15/2006 12:00:46 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: *15-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-2
Lab Order:	0603085	**Collection Date:**	3/7/2006 2:40:00 PM
Project:	River Terrace - 1st Qtr - 2006 Water	**Date Received:**	3/8/2006
Lab ID:	0603085-07	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	9.9	1.0		mg/L	1	3/8/2006 7:37:45 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/8/2006 7:37:45 PM
Surr: DNOP	108	58-140		%REC	1	3/8/2006 7:37:45 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	27	2.5		mg/L	50	3/14/2006 1:51:25 AM
Surr: BFB	105	79.7-118		%REC	50	3/14/2006 1:51:25 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	120		µg/L	50	3/14/2006 1:51:25 AM
Benzene	620	50		µg/L	50	3/14/2006 1:51:25 AM
Toluene	1700	50		µg/L	50	3/14/2006 1:51:25 AM
Ethylbenzene	510	50		µg/L	50	3/14/2006 1:51:25 AM
Xylenes, Total	5000	150		µg/L	50	3/14/2006 1:51:25 AM
Surr: 4-Bromofluorobenzene	104	82.2-119		%REC	50	3/14/2006 1:51:25 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: *15-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	Trip Blank
Lab Order:	0603085	**Collection Date:**	
Project:	River Terrace - 1st Qtr - 2006 Water	**Date Received:**	3/8/2006
Lab ID:	0603085-08	**Matrix:**	TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/13/2006 5:26:41 PM
Surr: BFB	92.6	79.7-118		%REC	1	3/13/2006 5:26:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/13/2006 5:26:41 PM
Benzene	ND	1.0		µg/L	1	3/13/2006 5:26:41 PM
Toluene	ND	1.0		µg/L	1	3/13/2006 5:26:41 PM
Ethylbenzene	ND	1.0		µg/L	1	3/13/2006 5:26:41 PM
Xylenes, Total	ND	3.0		µg/L	1	3/13/2006 5:26:41 PM
Surr: 4-Bromofluorobenzene	104	82.2-119		%REC	1	3/13/2006 5:26:41 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: 15-Mar-0

CLIENT: San Juan Refining
Work Order: 0603085
Project: River Terrace - 1st Qtr - 2006 Water

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DRO_W

Sample ID: MB-9941	SampType: MBLK	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 3/8/2006	RunNo: 18511
Client ID: ZZZZZ	Batch ID: 9941	TestNo: SW8015		Analysis Date: 3/8/2006	SeqNo: 457635

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-9941	SampType: LCS	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 3/8/2006	RunNo: 18511
Client ID: ZZZZZ	Batch ID: 9941	TestNo: SW8015		Analysis Date: 3/8/2006	SeqNo: 457710

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.033	1.0	5	0	101	81.2	149				

Sample ID: LCSD-9941	SampType: LCSD	TestCode: 8015DRO_W	Units: mg/L	Prep Date: 3/8/2006	RunNo: 18511
Client ID: ZZZZZ	Batch ID: 9941	TestNo: SW8015		Analysis Date: 3/8/2006	SeqNo: 457711

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.554	1.0	5	0	111	81.2	149	5.033	9.84	23	

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Qualifiers:

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

CLIENT: San Juan Refining
Work Order: 0603085
Project: River Terrace - 1st Qtr - 2006 Water

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 5ML RB	SampType: 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: 2.5UG GRO LCS	SampType: 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 LCSD	SampType: 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	

10/13

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

CLIENT: San Juan Refining
Work Order: 0603085
Project: River Terrace - 1st Qtr - 2006 Water

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18565
Client ID: ZZZZZ	Batch ID: R18565	TestNo: SW8021		Analysis Date: 3/13/2006	SeqNo: 460299

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	2.5									
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Xylenes, Total	ND	3.0									

Sample ID: 100NG BTEX LCSD	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18565
Client ID: ZZZZZ	Batch ID: R18565	TestNo: SW8021		Analysis Date: 3/13/2006	SeqNo: 460301

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	21.61	2.5	20	0	108	64.5	133				
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				

11/13

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: 0603085
Project: River Terrace - 1st Qtr - 2006 Water

ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: MB-9981	SampType: MBLK	TestCode: METALS_TO	Units: mg/L	Prep Date: 3/14/2006	RunNo: 18593
Client ID: ZZZZZ	Batch ID: 9981	TestNo: SW6010A		Analysis Date: 3/15/2006	SeqNo: 460967

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.0060									
Lead	ND	0.0050									

Sample ID: LCS-9981	SampType: LCS	TestCode: METALS_TO	Units: mg/L	Prep Date: 3/14/2006	RunNo: 18593
Client ID: ZZZZZ	Batch ID: 9981	TestNo: SW6010A		Analysis Date: 3/15/2006	SeqNo: 460968

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.5162	0.0060	0.5	0.0006694	103	80	120				
Lead	0.5222	0.0050	0.5	0	104	80	120				

Sample ID: LCSD-9981	SampType: LCSD	TestCode: METALS_TO	Units: mg/L	Prep Date: 3/14/2006	RunNo: 18593
Client ID: ZZZZZ	Batch ID: 9981	TestNo: SW6010A		Analysis Date: 3/15/2006	SeqNo: 460969

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.5112	0.0060	0.5	0.0006694	102	80	120	0.5162	0.979	20	
Lead	0.5219	0.0050	0.5	0	104	80	120	0.5222	0.0546	20	

12/13

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: 3/8/2006

Work Order Number 0603085 | Received by AT

Checklist completed by Susie Hedrick (Signature) 3/8/06 (Date)

Matrix | Carrier name UPS

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

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

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: HEAL's - 4 & - 6 each had one VOA frozen upon receipt /km

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

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

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

Client: San Juan Refining

Project Name: River Terrace - 1st QTR - 2006 - Water

Address: #50 Rd 4990 ~~Aztec~~ Bloomfield, NM 87413

Project #:

Project Manager:

Phone #: 505-632-4161

Fax #: 505-632-3911

Sampler: Cindy Hurtado / Shelly Cowden

Sample Temperature: 3

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0603385	BTEX + MTBE + TMBs (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb & Cr				Air Bubbles or Headspace (Y or N)
3/07/06	930A	H2O	TP-9	4-VOA			HCL	-1	X		X														
	1015A		TP-8	4-VOA			HCL	-2	X		X														
	1040A		TP#6	4-VOA			HCL	-3	X		X														
	11AM		TP-5	4-VOA			HCL	-4	X		X														
	120P		TP-1	4-VOA			HCL	-5	X		X														
	2pm		MW#4	4-VOA			HCL	-6	X		X														
	2pm			1-500mL		X		-6													X				
	240P		TP-2	4-VOA			HCL	-7	X		X														
		Aq	Trip Blank	2-VOA			HCL	-8																	

Remarks:

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	Date	Time
3/07/06	335P	Cindy Hurtado			
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	3/8/06	0915

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Friday, March 17, 2006

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

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

RE: River Terrace - 1st Qtr 2006 - Water

Order No.: 0603133

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 5 sample(s) on 3/10/2006 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

AZ license # AZ0682
ORELAP Lab # NM100001

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

Hall Environmental Analysis Laboratory

Date: *17-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-3
Lab Order:	0603133	**Collection Date:**	3/9/2006 8:45:00 AM
Project:	River Terrace - 1st Qtr 2006 - Water	**Date Received:**	3/10/2006
Lab ID:	0603133-02	**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	3/16/2006 6:38:48 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/16/2006 6:38:48 AM
Surr: DNOP	124	58-140		%REC	1	3/16/2006 6:38:48 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/15/2006 12:51:52 AM
Surr: BFB	91.4	79.7-118		%REC	1	3/15/2006 12:51:52 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/15/2006 12:51:52 AM
Benzene	ND	1.0		µg/L	1	3/15/2006 12:51:52 AM
Toluene	ND	1.0		µg/L	1	3/15/2006 12:51:52 AM
Ethylbenzene	ND	1.0		µg/L	1	3/15/2006 12:51:52 AM
Xylenes, Total	ND	3.0		µg/L	1	3/15/2006 12:51:52 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/15/2006 12:51:52 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/15/2006 12:51:52 AM
Surr: 4-Bromofluorobenzene	99.4	82.2-119		%REC	1	3/15/2006 12:51:52 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: *17-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-11
Lab Order:	0603133	**Collection Date:**	3/9/2006 9:00:00 AM
Project:	River Terrace - 1st Qtr 2006 - Water	**Date Received:**	3/10/2006
Lab ID:	0603133-03	**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	3/16/2006 6:53:47 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/16/2006 6:53:47 PM
Surr: DNOP	92.0	58-140		%REC	1	3/16/2006 6:53:47 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/15/2006 1:19:41 AM
Surr: BFB	95.4	79.7-118		%REC	1	3/15/2006 1:19:41 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/15/2006 1:19:41 AM
Benzene	ND	1.0		µg/L	1	3/15/2006 1:19:41 AM
Toluene	ND	1.0		µg/L	1	3/15/2006 1:19:41 AM
Ethylbenzene	ND	1.0		µg/L	1	3/15/2006 1:19:41 AM
Xylenes, Total	ND	3.0		µg/L	1	3/15/2006 1:19:41 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/15/2006 1:19:41 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/15/2006 1:19:41 AM
Surr: 4-Bromofluorobenzene	99.7	82.2-119		%REC	1	3/15/2006 1:19:41 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	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory

Date: 17-Mar-06

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-13
Lab Order:	0603133	**Collection Date:**	3/9/2006 9:15:00 AM
Project:	River Terrace - 1st Qtr 2006 - Water	**Date Received:**	3/10/2006
Lab ID:	0603133-04	**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	3/16/2006 7:27:09 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/16/2006 7:27:09 PM
Surr: DNOP	137	58-140		%REC	1	3/16/2006 7:27:09 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/15/2006 1:47:30 AM
Surr: BFB	92.1	79.7-118		%REC	1	3/15/2006 1:47:30 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/15/2006 1:47:30 AM
Benzene	ND	1.0		µg/L	1	3/15/2006 1:47:30 AM
Toluene	ND	1.0		µg/L	1	3/15/2006 1:47:30 AM
Ethylbenzene	ND	1.0		µg/L	1	3/15/2006 1:47:30 AM
Xylenes, Total	ND	3.0		µg/L	1	3/15/2006 1:47:30 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/15/2006 1:47:30 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/15/2006 1:47:30 AM
Surr: 4-Bromofluorobenzene	102	82.2-119		%REC	1	3/15/2006 1:47:30 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: *17-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-12
Lab Order:	0603133	**Collection Date:**	3/9/2006 9:30:00 AM
Project:	River Terrace - 1st Qtr 2006 - Water	**Date Received:**	3/10/2006
Lab ID:	0603133-05	**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	3/16/2006 8:00:31 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/16/2006 8:00:31 PM
Surr: DNOP	123	58-140		%REC	1	3/16/2006 8:00:31 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/15/2006 3:10:58 AM
Surr: BFB	92.2	79.7-118		%REC	1	3/15/2006 3:10:58 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/15/2006 3:10:58 AM
Benzene	ND	1.0		µg/L	1	3/15/2006 3:10:58 AM
Toluene	ND	1.0		µg/L	1	3/15/2006 3:10:58 AM
Ethylbenzene	ND	1.0		µg/L	1	3/15/2006 3:10:58 AM
Xylenes, Total	ND	3.0		µg/L	1	3/15/2006 3:10:58 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/15/2006 3:10:58 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/15/2006 3:10:58 AM
Surr: 4-Bromofluorobenzene	103	82.2-119		%REC	1	3/15/2006 3:10:58 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 E[illegible]ironmental Analysis Laboratory

Date: 17-Mar-0[illegible]

CLIENT: San Juan Refining
Work Order: 0603133
Project: River Terrace - 1st Qtr 2006 - Water

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DRO_W

Sample ID: MB-9976	SampType: MBLK	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: 461813

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-9976	SampType: LCS	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: 461814

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.300	1.0	5	0	106	81.2	149				

Sample ID: LCSD-9976	SampType: 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	0	0	23	

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Qualifiers:

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

CLIENT: San Juan Refining
Work Order: 0603133
Project: River Terrace - 1st Qtr 2006 - Water

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18582
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	SampType: LCS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18582
Client ID: ZZZZZ	Batch ID: R18582	TestNo: SW8015		Analysis Date: 3/15/2006	SeqNo: 460724

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.4820	0.050	0.5	0	96.4	82.6	114				

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Qualifiers:

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

CLIENT: San Juan Refining
Work Order: 0603133
Project: River Terrace - 1st Qtr 2006 - Water

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: 5ML RB	SampType: 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	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	2.5									
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Xylenes, Total	ND	3.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									

Sample ID: 75NG BTEX CCV-B	SampType: 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	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	30.25	2.5	30	0	101	64.5	133				
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				
Xylenes, Total	43.93	3.0	45	0	97.6	83.3	114				
1,2,4-Trimethylbenzene	14.10	1.0	15	0	94.0	83.8	114				
1,3,5-Trimethylbenzene	14.09	1.0	15	0	93.9	82.8	114				

6 / 8

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: 3/10/2006

Work Order Number 0603133 | Received by LMM

Checklist completed by Lisa Hechard (Signature) 3/10/06 (Date)

Matrix | Carrier name UPS

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

Container/Temp Blank temperature? 4° *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

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

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

Client: San Juan Refining

Address: #50 Rd 4990
Bloomfield, NM
87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Project Name: River Terrace - 1st QTR 2006 - water

Project #:

Project Manager: Cindy Hurtado

Sampler: Cindy Hurtado / Shelly Cowden

Sample Temperature: 4

HEAL No. 0603133

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HNO_3	Preservative: HCL	HEAL No.	BTEX + MTBE + ~~TMB~~'s (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	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)
3/09/06	8:30A	H_2O	TP-10	4-VOA			HCL	-1	X		X														
	8:45A		TP-3	"			"	-2	X		X														
	9AM		TP-11	"			"	-3	X		X														
	9:15A		TP-13	"			"	-4	X		X														
	9:30A		TP-12	"			"	-5	X		X														

Remarks:

Date: 3/09/06 Time: 2pm Relinquished By: (Signature) Cindy Hurtado

Received By: (Signature) Shelly Cowden 3/10/06 0912

Date: Time: Relinquished By: (Signature)

Received By: (Signature)

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, March 22, 2006

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

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

RE: River Terrace- 1st Quarter 2006 - Water

Order No.: 0603115

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 1 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: *22-Mar-06*

CLIENT:	San Juan Refining	Client Sample ID:	DW #1
Lab Order:	0603115	Collection Date:	3/8/2006 8:55:00 AM
Project:	River Terrace- 1st Quarter 2006 - Water	Date Received:	3/9/2006
Lab ID:	0603115-01	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	2.2	1.0		mg/L	1	3/16/2006 5:32:05 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/16/2006 5:32:05 AM
Surr: DNOP	118	58-140		%REC	1	3/16/2006 5:32:05 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	2.8	0.25		mg/L	5	3/16/2006 11:22:35 AM
Surr: BFB	108	79.7-118		%REC	5	3/16/2006 11:22:35 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	12		µg/L	5	3/20/2006 4:43:11 PM
Benzene	ND	5.0		µg/L	5	3/20/2006 4:43:11 PM
Toluene	ND	5.0		µg/L	5	3/20/2006 4:43:11 PM
Ethylbenzene	41	5.0		µg/L	5	3/20/2006 4:43:11 PM
Xylenes, Total	230	15		µg/L	5	3/20/2006 4:43:11 PM
Surr: 4-Bromofluorobenzene	95.8	82.2-119		%REC	5	3/20/2006 4:43:11 PM
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	0.021	0.0010		mg/L	5	3/9/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Chromium	0.0095	0.0060		mg/L	1	3/15/2006 12:03:43 PM
Lead	ND	0.0050		mg/L	1	3/15/2006 12:03:43 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		

CLIENT: San Juan Refining
Work Order: 0603115
Project: River Terrace- 1st Quarter 2006 - Water

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015DRO_W

Sample ID: MB-9976	SampType: MBLK	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: 461813

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-9976	SampType: LCS	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: 461814

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.300	1.0	5	0	106	81.2	149				

Sample ID: LCSD-9976	SampType: 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	0	0	23	

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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: 0603115
Project: River Terrace- 1st Quarter 2006 - Water

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18582
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: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18620
Client ID: ZZZZZ	Batch ID: R18620	TestNo: SW8015		Analysis Date: 3/16/2006	SeqNo: 462331

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

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18652
Client ID: ZZZZZ	Batch ID: R18652	TestNo: SW8015		Analysis Date: 3/20/2006	SeqNo: 463005

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

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Sample ID: 2.5UG GRO LCS	SampType: LCS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18582
Client ID: ZZZZZ	Batch ID: R18582	TestNo: SW8015		Analysis Date: 3/15/2006	SeqNo: 460724

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.4820	0.050	0.5	0	96.4	82.6	114				

Sample ID: 2.5UG GRO LCS	SampType: LCS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18620
Client ID: ZZZZZ	Batch ID: R18620	TestNo: SW8015		Analysis Date: 3/16/2006	SeqNo: 462332

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.4940	0.050	0.5	0	98.8	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

CLIENT: San Juan Refining
Work Order: 0603115
Project: River Terrace- 1st Quarter 2006 - Water

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015GRO_W

Sample ID: 2.5UG GRO LCS	SampType: LCS	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18652
Client ID: ZZZZZ	Batch ID: R18652	TestNo: SW8015		Analysis Date: 3/20/2006	SeqNo: 463006

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.5220	0.050	0.5	0	104	82.6	114				

Sample ID: 2.5UG GRO LCSD	SampType: LCSD	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18652
Client ID: ZZZZZ	Batch ID: R18652	TestNo: SW8015		Analysis Date: 3/20/2006	SeqNo: 463007

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.5140	0.050	0.5	0	103	82.6	114	0.522	1.54	8.39	

4 / 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: 0603115
Project: River Terrace- 1st Quarter 2006 - Water

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: 5ML RB	SampType: 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	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	2.5									
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Xylenes, Total	ND	3.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18620
Client ID: ZZZZZ	Batch ID: R18620	TestNo: SW8021		Analysis Date: 3/16/2006	SeqNo: 462157

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	2.5									
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Xylenes, Total	ND	3.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									

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

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: 0603115
Project: River Terrace- 1st Quarter 2006 - Water

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

Sample ID: 75NG BTEX CCV-B	SampType: 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	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	30.25	2.5	30	0	101	64.5	133				
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				
Xylenes, Total	43.93	3.0	45	0	97.6	83.3	114				
1,2,4-Trimethylbenzene	14.10	1.0	15	0	94.0	83.8	114				
1,3,5-Trimethylbenzene	14.09	1.0	15	0	93.9	82.8	114				

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18620
Client ID: ZZZZZ	Batch ID: R18620	TestNo: SW8021		Analysis Date: 3/16/2006	SeqNo: 462158

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	16.48	2.5	20	0	82.4	64.5	133				
Benzene	19.52	1.0	20	0	97.6	88.5	114				
Toluene	20.29	1.0	20	0	101	87.2	114				
Ethylbenzene	19.77	1.0	20	0	98.9	88.6	113				
Xylenes, Total	41.12	3.0	40	0	103	83.3	114				
1,2,4-Trimethylbenzene	18.22	1.0	20	0	91.1	83.8	114				
1,3,5-Trimethylbenzene	18.27	1.0	20	0	91.4	82.8	114				

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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
Methyl tert-butyl ether (MTBE)	17.56	2.5	20	0	87.8	64.5	133				
Benzene	19.29	1.0	20	0	96.5	88.5	114				
Toluene	19.91	1.0	20	0	99.5	87.2	114				
Ethylbenzene	19.48	1.0	20	0	97.4	88.6	113				
Xylenes, Total	40.17	3.0	40	0	100	83.3	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

CLIENT: San Juan Refining
Work Order: 0603115
Project: River Terrace- 1st Quarter 2006 - Water

ANALYTICAL QC SUMMARY REPORT

TestCode: 8021BTEX_W

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
Methyl tert-butyl ether (MTBE)	18.04	2.5	20	0	90.2	64.5	133	17.56	2.71	28	
Benzene	18.80	1.0	20	0	94.0	88.5	114	19.29	2.59	27	
Toluene	19.36	1.0	20	0	96.8	87.2	114	19.91	2.77	19	
Ethylbenzene	18.99	1.0	20	0	95.0	88.6	113	19.48	2.55	10	
Xylenes, Total	39.15	3.0	40	0	97.9	83.3	114	40.17	2.58	13	

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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: 0603115
Project: River Terrace- 1st Quarter 2006 - Water

ANALYTICAL QC SUMMARY REPORT

TestCode: HG_CTW

Sample ID: MB-9952	SampType: MBLK	TestCode: HG_CTW	Units: mg/L	Prep Date: 3/9/2006	RunNo: 18533
Client ID: ZZZZZ	Batch ID: 9952	TestNo: SW7470	(SW7470)	Analysis Date: 3/9/2006	SeqNo: 459419

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

Sample ID: LCS-9952	SampType: LCS	TestCode: HG_CTW	Units: mg/L	Prep Date: 3/9/2006	RunNo: 18533
Client ID: ZZZZZ	Batch ID: 9952	TestNo: SW7470	(SW7470)	Analysis Date: 3/9/2006	SeqNo: 459420

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004605	0.00020	0.005	0	92.1	80	120				

8/10

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: 0603115
Project: River Terrace- 1st Quarter 2006 - Water

ANALYTICAL QC SUMMARY REPORT

TestCode: METALS_TOTAL

Sample ID: MB-9981	SampType: MBLK	TestCode: METALS_TO	Units: mg/L	Prep Date: 3/14/2006	RunNo: 18593
Client ID: ZZZZZ	Batch ID: 9981	TestNo: SW6010A		Analysis Date: 3/15/2006	SeqNo: 460967

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.0060									
Lead	ND	0.0050									

Sample ID: LCS-9981	SampType: LCS	TestCode: METALS_TO	Units: mg/L	Prep Date: 3/14/2006	RunNo: 18593
Client ID: ZZZZZ	Batch ID: 9981	TestNo: SW6010A		Analysis Date: 3/15/2006	SeqNo: 460968

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.5162	0.0060	0.5	0.0006694	103	80	120				
Lead	0.5222	0.0050	0.5	0	104	80	120				

Sample ID: LCSD-9981	SampType: LCSD	TestCode: METALS_TO	Units: mg/L	Prep Date: 3/14/2006	RunNo: 18593
Client ID: ZZZZZ	Batch ID: 9981	TestNo: SW6010A		Analysis Date: 3/15/2006	SeqNo: 460969

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.5112	0.0060	0.5	0.0006694	102	80	120	0.5162	0.979	20	
Lead	0.5219	0.0050	0.5	0	104	80	120	0.5222	0.0546	20	

9/10

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

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

t Name SJR | Date and Time Received: 3/9/2006

Work Order Number 0603115 | Received by AT

Checklist completed by [signature] Signature | 3/9/06 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 ☐	
ater - 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

CHAIN-OF-CUSTODY RECORD

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

Client: San Juan Refining

Project Name: River Terrace - 1st Qtr-2006 - Water

Address: #50 Rd 4990
Bloomfield, NM 87413

Project #:

Project Manager: Cindy Hurtado

Phone #: 505-632-4161

Sampler: Cindy Hurtado/Shelly Gomez

Fax #: 505-632-3911

Sample Temperature:

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative HCl	HEAL No.
3/8/06	855A	WATER	DW #1	4-VOA				603115-1
"	"	"	"	1-500ml		X		-1

ANALYSIS REQUEST

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

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
3/8/06	3:10pm	Cindy Hurtado	3/9/06
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature) 1000

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

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, July 05, 2006

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

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

RE: River Terrace - 2nd Quarter 2006 - Water

Order No.: 0606215

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 7 sample(s) on 6/21/2006 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: *05-Jul-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-4
Lab Order:	0606215	**Collection Date:**	6/20/2006 9:35:00 AM
Project:	River Terrace - 2nd Quarter 2006 - Water	**Date Received:**	6/21/2006
Lab ID:	0606215-01	**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	6/27/2006 12:52:50 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2006 12:52:50 AM
Surr: DNOP	123	58-140		%REC	1	6/27/2006 12:52:50 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	9.2	5.0		mg/L	100	6/21/2006 10:38:42 PM
Surr: BFB	99.4	80-123		%REC	100	6/21/2006 10:38:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	6/22/2006 1:16:46 PM
Benzene	ND	10		µg/L	10	6/22/2006 1:16:46 PM
Toluene	ND	10		µg/L	10	6/22/2006 1:16:46 PM
Ethylbenzene	ND	10		µg/L	10	6/22/2006 1:16:46 PM
Xylenes, Total	5700	300		µg/L	100	6/21/2006 10:38:42 PM
Surr: 4-Bromofluorobenzene	96.3	72.2-125		%REC	100	6/21/2006 10:38:42 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: *05-Jul-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-5
Lab Order:	0606215	**Collection Date:**	6/20/2006 10:20:00 AM
Project:	River Terrace - 2nd Quarter 2006 - Water	**Date Received:**	6/21/2006
Lab ID:	0606215-02	**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	6/27/2006 1:18:02 PM
Motor Oil Range Organics (MRO)	ND	15		mg/L	1	6/27/2006 1:18:02 PM
Surr: DNOP	118	58-140		%REC	1	6/27/2006 1:18:02 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	34	5.0		mg/L	100	6/21/2006 11:10:13 PM
Surr: BFB	115	80-123		%REC	100	6/21/2006 11:10:13 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	6/22/2006 3:15:43 PM
Benzene	54	10		µg/L	10	6/22/2006 3:15:43 PM
Toluene	ND	10		µg/L	10	6/22/2006 3:15:43 PM
Ethylbenzene	1600	100		µg/L	100	6/21/2006 11:10:13 PM
Xylenes, Total	16000	300		µg/L	100	6/21/2006 11:10:13 PM
Surr: 4-Bromofluorobenzene	112	72.2-125		%REC	100	6/21/2006 11:10:13 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: *05-Jul-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-2
Lab Order:	0606215	**Collection Date:**	6/20/2006 10:35:00 AM
Project:	River Terrace - 2nd Quarter 2006 - Water	**Date Received:**	6/21/2006
Lab ID:	0606215-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	4.9	3.0		mg/L	1	6/27/2006 1:57:33 AM
Motor Oil Range Organics (MRO)	ND	15		mg/L	1	6/27/2006 1:57:33 AM
Surr: DNOP	118	58-140		%REC	1	6/27/2006 1:57:33 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	42	2.5		mg/L	50	6/21/2006 11:41:58 PM
Surr: BFB	129	80-123	S	%REC	50	6/21/2006 11:41:58 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Methyl tert-butyl ether (MTBE)	ND	120		µg/L	50	6/21/2006 11:41:58 PM
Benzene	3600	50		µg/L	50	6/21/2006 11:41:58 PM
Toluene	2400	50		µg/L	50	6/21/2006 11:41:58 PM
Ethylbenzene	2800	50		µg/L	50	6/21/2006 11:41:58 PM
Xylenes, Total	14000	300		µg/L	100	6/22/2006 12:16:03 PM
Surr: 4-Bromofluorobenzene	123	72.2-125		%REC	50	6/21/2006 11:41:58 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: *05-Jul-06*

CLIENT:	San Juan Refining	Client Sample ID:	TP-1
Lab Order:	0606215	Collection Date:	6/20/2006 10:55:00 AM
Project:	River Terrace - 2nd Quarter 2006 - Water	Date Received:	6/21/2006
Lab ID:	0606215-04	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	4.3	1.0		mg/L	1	6/27/2006 2:30:02 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2006 2:30:02 AM
Surr: DNOP	130	58-140		%REC	1	6/27/2006 2:30:02 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	40	12		mg/L	250	6/22/2006 12:42:41 AM
Surr: BFB	100	80-123		%REC	250	6/22/2006 12:42:41 AM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Methyl tert-butyl ether (MTBE)	ND	620		µg/L	250	6/22/2006 12:42:41 AM
Benzene	2600	250		µg/L	250	6/22/2006 12:42:41 AM
Toluene	ND	250		µg/L	250	6/22/2006 12:42:41 AM
Ethylbenzene	3300	250		µg/L	250	6/22/2006 12:42:41 AM
Xylenes, Total	18000	750		µg/L	250	6/22/2006 12:42:41 AM
Surr: 4-Bromofluorobenzene	96.4	72.2-125		%REC	250	6/22/2006 12:42:41 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	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0606215	**Collection Date:**	6/20/2006 1:55:00 PM
Project:	River Terrace - 2nd Quarter 2006 - Water	**Date Received:**	6/21/2006
Lab ID:	0606215-05	**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	6/27/2006 3:02:31 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2006 3:02:31 AM
Surr: DNOP	126	58-140		%REC	1	6/27/2006 3:02:31 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/22/2006 1:40:55 AM
Surr: BFB	94.4	80-123		%REC	1	6/22/2006 1:40:55 AM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/22/2006 1:40:55 AM
Benzene	ND	1.0		µg/L	1	6/22/2006 1:40:55 AM
Toluene	ND	1.0		µg/L	1	6/22/2006 1:40:55 AM
Ethylbenzene	ND	1.0		µg/L	1	6/22/2006 1:40:55 AM
Xylenes, Total	ND	3.0		µg/L	1	6/22/2006 1:40:55 AM
Surr: 4-Bromofluorobenzene	88.8	72.2-125		%REC	1	6/22/2006 1:40:55 AM
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Chromium	ND	0.0060		mg/L	1	6/29/2006 11:22:41 AM
Lead	ND	0.0050		mg/L	1	6/29/2006 11:22:41 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	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-06*

CLIENT:	San Juan Refining	Client Sample ID:	TP-8
Lab Order:	0606215	Collection Date:	6/20/2006 2:25:00 PM
Project:	River Terrace - 2nd Quarter 2006 - Water	Date Received:	6/21/2006
Lab ID:	0606215-07	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	6.8	1.0		mg/L	1	6/27/2006 5:12:30 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2006 5:12:30 AM
Surr: DNOP	125	58-140		%REC	1	6/27/2006 5:12:30 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	19	5.0		mg/L	100	6/22/2006 2:12:34 AM
Surr: BFB	110	80-123		%REC	100	6/22/2006 2:12:34 AM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	6/22/2006 2:12:34 AM
Benzene	260	100		µg/L	100	6/22/2006 2:12:34 AM
Toluene	ND	100		µg/L	100	6/22/2006 2:12:34 AM
Ethylbenzene	640	100		µg/L	100	6/22/2006 2:12:34 AM
Xylenes, Total	6300	300		µg/L	100	6/22/2006 2:12:34 AM
Surr: 4-Bromofluorobenzene	106	72.2-125		%REC	100	6/22/2006 2:12:34 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: *05-Jul-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-6
Lab Order:	0606215	**Collection Date:**	6/20/2006 2:50:00 PM
Project:	River Terrace - 2nd Quarter 2006 - Water	**Date Received:**	6/21/2006
Lab ID:	0606215-08	**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 5:44:54 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2006 5:44:54 AM
Surr: DNOP	123	58-140		%REC	1	6/27/2006 5:44:54 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	1.9	0.50		mg/L	10	6/22/2006 2:44:17 AM
Surr: BFB	125	80-123	S	%REC	10	6/22/2006 2:44:17 AM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	6/22/2006 2:44:17 AM
Benzene	ND	10		µg/L	10	6/22/2006 2:44:17 AM
Toluene	ND	10		µg/L	10	6/22/2006 2:44:17 AM
Ethylbenzene	440	10		µg/L	10	6/22/2006 2:44:17 AM
Xylenes, Total	350	30		µg/L	10	6/22/2006 2:44:17 AM
Surr: 4-Bromofluorobenzene	104	72.2-125		%REC	10	6/22/2006 2:44:17 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	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 - 2nd Quarter 2006 - Water **Work Order:** 0606215

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									**Batch ID:** 10666
Sample ID: MB-10666		*MBLK*							**Analysis Date:** 6/26/2006
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
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-10666		*LCS*							**Analysis Date:** 6/26/2006
Diesel Range Organics (DRO)	5.643	mg/L	1.0	113	74	157			
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-10666		*LCSD*							**Analysis Date:** 6/26/2006
Diesel Range Organics (DRO)	7.088	mg/L	1.0	142	74	157	22.7	23	
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:** R19654
Sample ID: 5ML RB		*MBLK*							**Analysis Date:** 6/21/2006
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB		*MBLK*							**Analysis Date:** 6/22/2006
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*							**Analysis Date:** 6/21/2006
Gasoline Range Organics (GRO)	0.4920	mg/L	0.050	98.4	73.3	119			
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			

Qualifiers:

*	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

QA/QC SUMMARY REPORT

ent: San Juan Refining
oject: River Terrace - 2nd Quarter 2006 - Water Work Order: 0606215

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									Batch ID: R19654
Sample ID: 5ML RB		*MBLK*							Analysis Date: 6/21/2006
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 RB		*MBLK*							Analysis Date: 6/22/2006
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*							Analysis Date: 6/21/2006
Methyl tert-butyl ether (MTBE)	38.59	µg/L	2.5	96.5	51.2	138			
Benzene	19.26	µg/L	1.0	96.3	85	115			
Toluene	20.35	µg/L	1.0	98.6	85	118			
Ethylbenzene	19.74	µg/L	1.0	98.7	85	116			
Xylenes, Total	60.99	µg/L	3.0	102	85	119			
Sample ID: 100NG BTEX LCS		*LCS*							Analysis Date: 6/22/2006
ıyl tert-butyl ether (MTBE)	35.25	µg/L	2.5	88.1	51.2	138			
nzene	18.63	µg/L	1.0	93.2	85	115			
oluene	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			
Method: SW6010A									Batch ID: 10682
Sample ID: MB-10682		*MBLK*							Analysis Date: 6/29/2006
Chromium	ND	mg/L	0.0060						
Lead	ND	mg/L	0.0050						
Sample ID: LCS-10682		*LCS*							Analysis Date: 6/29/2006
Chromium	0.5086	mg/L	0.0060	102	80	120			
Lead	0.5078	mg/L	0.0050	102	80	120			

ıalifiers:

–	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: 6/21/2006

Work Order Number 0606215 | Received by GLS

Checklist completed by D Schleppe (Signature) 6-21-06 (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? 6° *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

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

Client: SAN Juan Refining

Address: #50 Road 4990
Bloomfield, NM 87413

Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 2nd QTR 2006 - Water

Project #:

Project Manager: Cindy Hurtado

Sampler: Cindy Hurtado / Shelley Cowden

Sample Temperature: 6°

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

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HNO_3	Preservative: HCl	HEAL No. 606215	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb				Air Bubbles or Headspace (Y or N)
6/20/06	935A	H2O	TP-4	4-VOA			X	1	X		X														
	1020		TP-5	"			"	2	X		X														
	1035		TP-2	"			"	3	X		X														
	1055		TP-1	"			X	4	X		X														
	155		MW #49	4-VOA				5	X		X														
	155		" MW #49	1-500ml		X		-5													X				
	225		TP-8	4-VOA			X	7	X		X														
	250p		TP-6	4-VOA			X	8	X		X														

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
6/20/06	332pm	Cindy Hurtado	[illegible]	Cold-ice 915
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, July 05, 2006

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

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

RE: River Terrace - 2nd Qtr. - 2006 - Water

Order No.: 0606235

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 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

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW#1
Lab Order:	0606235	**Collection Date:**	6/21/2006 11:00:00 AM
Project:	River Terrace - 2nd Qtr. - 2006 - Water	**Date Received:**	6/22/2006
Lab ID:	0606235-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	1.6	1.0		mg/L	1	6/27/2006 6:17:23 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2006 6:17:23 AM
Surr: DNOP	119	58-140		%REC	1	6/27/2006 6:17:23 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	0.90	0.50		mg/L	10	6/22/2006 5:43:58 PM
Surr: BFB	110	80-123		%REC	10	6/22/2006 5:43:58 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	6/22/2006 5:43:58 PM
Benzene	ND	10		µg/L	10	6/22/2006 5:43:58 PM
Toluene	ND	10		µg/L	10	6/22/2006 5:43:58 PM
Ethylbenzene	16	10		µg/L	10	6/22/2006 5:43:58 PM
Xylenes, Total	120	30		µg/L	10	6/22/2006 5:43:58 PM
Surr: 4-Bromofluorobenzene	96.6	72.2-125		%REC	10	6/22/2006 5:43:58 PM
EPA METHOD 7470: MERCURY						Analyst: CMC
Mercury	0.052	0.0040		mg/L	20	6/28/2006
EPA 6010: TOTAL RECOVERABLE METALS						Analyst: NMO
Chromium	ND	0.0060		mg/L	1	6/29/2006 11:39:08 AM
Lead	ND	0.0050		mg/L	1	6/29/2006 11:39:08 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: *05-Jul-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-9
Lab Order:	0606235	**Collection Date:**	6/21/2006 11:20:00 AM
Project:	River Terrace - 2nd Qtr. - 2006 - Water	**Date Received:**	6/22/2006
Lab ID:	0606235-02	**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	6/27/2006 6:55:02 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2006 6:55:02 AM
Surr: DNOP	115	58-140		%REC	1	6/27/2006 6:55:02 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: HLM
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/22/2006 6:42:02 PM
Surr: BFB	98.9	80-123		%REC	1	6/22/2006 6:42:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: HLM
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/22/2006 6:42:02 PM
Benzene	ND	1.0		µg/L	1	6/22/2006 6:42:02 PM
Toluene	ND	1.0		µg/L	1	6/22/2006 6:42:02 PM
Ethylbenzene	1.0	1.0		µg/L	1	6/22/2006 6:42:02 PM
Xylenes, Total	ND	3.0		µg/L	1	6/22/2006 6:42:02 PM
Surr: 4-Bromofluorobenzene	92.1	72.2-125		%REC	1	6/22/2006 6:42:02 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		

QA/QC SUMMARY REPORT

:nt: San Juan Refining
oject: River Terrace - 2nd Qtr. - 2006 - Water **Work Order:** 0606235

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: 2.5UG GRO LCS		*LCS*							Analysis Date: 6/22/2006
Gasoline Range Organics (GRO)	0.5040	mg/L	0.050	101	73.3	119			
Method: SW8021									Batch ID: R19665
Sample ID: 5ML RB		*MBLK*							Analysis Date: 6/22/2006
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
[illegible]lbenzene	ND	µg/L	1.0						
[illegible]nes, Total	ND	µg/L	3.0						
[illegible]mple ID: 100NG BTEX LCS		*LCS*							Analysis Date: 6/22/2006
Methyl tert-butyl ether (MTBE)	35.25	µg/L	2.5	88.1	51.2	138			
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			
Method: SW7470									Batch ID: 10708
Sample ID: MB-10708		*MBLK*							Analysis Date: 6/28/2006
Mercury	ND	mg/L	0.00020						
Sample ID: LCS-10708		*LCS*							Analysis Date: 6/28/2006
Mercury	0.004980	mg/L	0.00020	99.6	80	120			
Method: SW6010A									Batch ID: 10682
Sample ID: MB-10682		*MBLK*							Analysis Date: 6/29/2006
Chromium	ND	mg/L	0.0060						
Lead	ND	mg/L	0.0050						
Sample ID: LCS-10682		*LCS*							Analysis Date: 6/29/2006
Chromium	0.5086	mg/L	0.0060	102	80	120			
Lead	0.5078	mg/L	0.0050	102	80	120			

[illegible]alifiers:

[illegible]	Value above quantitation range	H	Holding times for preparation or analysis exceeded
[illegible]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 0606235 | Received by GLS

Checklist completed by D Schleppe 6-22-06
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? 8° *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: GS
Ph adjusted on Sample 0606235-1 "DW#1" from 6.0 to 1.0 w/ 1mL HNO_3. GS 6-22-06

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

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

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

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 2nd QTR 2006 - water
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado / Shelly Cowden
Sample Temperature:

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.	BTEX + MTBE + ~~TMB~~'s (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb, Cr	Total Hg			Air Bubbles or Headspace (Y or N)
6/21/06	1140	H_2O	DW#1	4-VOA			HCL	0606235-1	X		X														
/	/	/	/	1-500ml		X		-1													X				
/	/	/	/	1-500ml		X		-1														X			
6/21/06	1120	H_2O	TP-9	4-VOA			HCL	-2	X		X														

Remarks:

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
6/21/06	1210			6-22-06 @ 1035
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

January 12, 2006

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

RE: River Terrace Baseline Pre Dewater

Order No.: 0601090

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 8 samples on 1/11/2006 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: *12-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP-13 VS
Lab Order: 0601090
Collection Date: 1/9/2006 11:35:00 AM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601090-01
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	1/11/2006 12:10:11 PM
Surr: BFB	97.9	82.3-129		%REC	1	1/11/2006 12:10:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		µg/L	1	1/11/2006 12:10:11 PM
Toluene	ND	0.050		µg/L	1	1/11/2006 12:10:11 PM
Ethylbenzene	ND	0.050		µg/L	1	1/11/2006 12:10:11 PM
Xylenes, Total	ND	0.050		µg/L	1	1/11/2006 12:10:11 PM
Surr: 4-Bromofluorobenzene	97.6	74-118		%REC	1	1/11/2006 12:10:11 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *12-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP-9 VS
Lab Order: 0601090
Collection Date: 1/9/2006 1:00:00 PM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601090-02
Matrix: AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	31	5.0		µg/L	1	1/11/2006 1:51:44 PM
Surr: BFB	109	82.3-129		%REC	1	1/11/2006 1:51:44 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		µg/L	1	1/11/2006 1:51:44 PM
Toluene	0.18	0.050		µg/L	1	1/11/2006 1:51:44 PM
Ethylbenzene	0.054	0.050		µg/L	1	1/11/2006 1:51:44 PM
Xylenes, Total	0.35	0.050		µg/L	1	1/11/2006 1:51:44 PM
Surr: 4-Bromofluorobenzene	107	74-118		%REC	1	1/11/2006 1:51:44 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *12-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP-6 VS
Lab Order: 0601090
Collection Date: 1/9/2006 1:45:00 PM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601090-03
Matrix: AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	570	50		µg/L	10	1/11/2006 5:32:22 PM
Surr: BFB	115	82.3-129		%REC	10	1/11/2006 5:32:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	2.7	0.050		µg/L	1	1/11/2006 2:22:12 PM
Toluene	0.36	0.050		µg/L	1	1/11/2006 2:22:12 PM
Ethylbenzene	41	0.50		µg/L	10	1/11/2006 5:32:22 PM
Xylenes, Total	210	0.50		µg/L	10	1/11/2006 5:32:22 PM
Surr: 4-Bromofluorobenzene	116	74-118		%REC	10	1/11/2006 5:32:22 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *12-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP-1 VS
Lab Order: 0601090
Collection Date: 1/9/2006 2:35:00 PM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601090-04
Matrix: AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	2800	250		µg/L	50	1/11/2006 3:24:29 PM
Surr: BFB	107	82.3-129		%REC	50	1/11/2006 3:24:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	5.8	2.5		µg/L	50	1/11/2006 3:24:29 PM
Toluene	3.5	2.5		µg/L	50	1/11/2006 3:24:29 PM
Ethylbenzene	47	2.5		µg/L	50	1/11/2006 3:24:29 PM
Xylenes, Total	320	2.5		µg/L	50	1/11/2006 3:24:29 PM
Surr: 4-Bromofluorobenzene	110	74-118		%REC	50	1/11/2006 3:24:29 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *12-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP-2 VS
Lab Order: 0601090
Collection Date: 1/9/2006 3:15:00 PM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601090-05
Matrix: AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	11000	250		µg/L	50	1/11/2006 1:10:29 PM
Surr: BFB	108	82.3-129		%REC	50	1/11/2006 1:10:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	7.8	2.5		µg/L	50	1/11/2006 1:10:29 PM
Toluene	8.0	2.5		µg/L	50	1/11/2006 1:10:29 PM
Ethylbenzene	11	2.5		µg/L	50	1/11/2006 1:10:29 PM
Xylenes, Total	88	2.5		µg/L	50	1/11/2006 1:10:29 PM
Surr: 4-Bromofluorobenzene	113	74-118		%REC	50	1/11/2006 1:10:29 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *12-Jan-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-5 VS
Lab Order:	0601090	**Collection Date:**	1/9/2006 4:00:00 PM
Project:	River Terrace Baseline Pre Dewater		
Lab ID:	0601090-06	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	150	10		µg/L	2	1/11/2006 8:05:29 PM
Surr: BFB	117	82.3-129		%REC	2	1/11/2006 8:05:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.13	0.10		µg/L	2	1/11/2006 8:05:29 PM
Toluene	0.25	0.10		µg/L	2	1/11/2006 8:05:29 PM
Ethylbenzene	5.4	0.10		µg/L	2	1/11/2006 8:05:29 PM
Xylenes, Total	38	0.10		µg/L	2	1/11/2006 8:05:29 PM
Surr: 4-Bromofluorobenzene	117	74-118		%REC	2	1/11/2006 8:05:29 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *12-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP-12 VS
Lab Order: 0601090
Collection Date: 1/10/2006 8:34:00 AM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601090-07
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	1/11/2006 4:31:16 PM
Surr: BFB	102	82.3-129		%REC	1	1/11/2006 4:31:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		µg/L	1	1/11/2006 4:31:16 PM
Toluene	ND	0.050		µg/L	1	1/11/2006 4:31:16 PM
Ethylbenzene	ND	0.050		µg/L	1	1/11/2006 4:31:16 PM
Xylenes, Total	0.32	0.050		µg/L	1	1/11/2006 4:31:16 PM
Surr: 4-Bromofluorobenzene	104	74-118		%REC	1	1/11/2006 4:31:16 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *12-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP-11 VS
Lab Order: 0601090
Collection Date: 1/10/2006 9:05:00 AM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601090-08
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	1/11/2006 5:01:45 PM
Surr: BFB	104	82.3-129		%REC	1	1/11/2006 5:01:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		µg/L	1	1/11/2006 5:01:45 PM
Toluene	ND	0.050		µg/L	1	1/11/2006 5:01:45 PM
Ethylbenzene	ND	0.050		µg/L	1	1/11/2006 5:01:45 PM
Xylenes, Total	0.14	0.050		µg/L	1	1/11/2006 5:01:45 PM
Surr: 4-Bromofluorobenzene	108	74-118		%REC	1	1/11/2006 5:01:45 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *12-Jan-06*

CLIENT: San Juan Refining
Work Order: 0601090
Project: River Terrace Baseline Pre Dewater

QC SUMMARY REPORT
Method Blank

Sample ID: **Reagent Blank 5m** Batch ID: **R17877** Test Code: **SW8015** Units: **mg/Kg** Analysis Date: **1/11/2006 10:39:32 AM** Prep Date:
Client ID: Run ID: **PIDFID_060111A** SeqNo: **439596**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5									
Surr: BFB	1027	0	1000	0	103	83.1	124	0			

Sample ID: **Reagent Blank 5m** Batch ID: **R17877** Test Code: **SW8015** Units: **mg/L** Analysis Date: **1/11/2006 10:39:32 AM** Prep Date:
Client ID: Run ID: **PIDFID_060111A** SeqNo: **439579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.05									
Surr: BFB	20.53	0	20	0	103	79.7	118	0			

Sample ID: **Reagent Blank 5m** Batch ID: **R17877** Test Code: **SW8021** Units: **mg/Kg** Analysis Date: **1/11/2006 10:39:32 AM** Prep Date:
Client ID: Run ID: **PIDFID_060111A** SeqNo: **439574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.1									
Benzene	ND	0.025									
Toluene	ND	0.025									
Ethylbenzene	ND	0.025									
Xylenes, Total	ND	0.025									
Surr: 4-Bromofluorobenzene	1.003	0	1	0	100	87.5	115	0			

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Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

J

CLIENT: San Juan Refining
Work Order: 0601090
Project: River Terrace Baseline Pre Dewater

QC SUMMARY REPORT
Method Blank

Sample ID: **Reagent Blank 5m** Batch ID: **R17877** Test Code: **SW8021** Units: **µg/L** Analysis Date: **1/11/2006 10:39:32 AM** Prep Date:
Client ID: Run ID: **PIDFID_060111A** SeqNo: **439511**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	2.5									
Benzene	ND	1									
Toluene	ND	1									
Ethylbenzene	ND	1									
1,2,4-Trimethylbenzene	ND	1									
1,3,5-Trimethylbenzene	ND	1									
Xylenes, Total	ND	3									
Surr: 4-Bromofluorobenzene	20.06	0	20	0	100	82.2	119	0			

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Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *12-Jan-06*

CLIENT: San Juan Refining
Work Order: 0601090
Project: River Terrace Baseline Pre Dewater

QC SUMMARY REPORT
Sample Duplicate

Sample ID: **0601090-04a dup** Batch ID: **R17877** Test Code: **SW8015** Units: **µg/L** Analysis Date: **1/11/2006 6:03:01 PM** Prep Date:
Client ID: **TP-1 VS** Run ID: **PIDFID_060111A** SeqNo: **439595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	2737	250	0	0	0	0	0	2765	1.02	27.8	
Surr: BFB	111700	0	100000	0	112	82.3	129	107500	3.83	0	

Sample ID: **0601090-04a dup** Batch ID: **R17877** Test Code: **SW8021** Units: **µg/L** Analysis Date: **1/11/2006 6:03:01 PM** Prep Date:
Client ID: **TP-1 VS** Run ID: **PIDFID_060111A** SeqNo: **439573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	6.416	2.5	0	0	0	0	0	5.834	9.50	25	
Toluene	3.398	2.5	0	0	0	0	0	3.522	3.58	25	
Ethylbenzene	47.38	2.5	0	0	0	0	0	47.39	0.0253	25	
Xylenes, Total	313.8	2.5	0	0	0	0	0	322.9	2.86	25	
Surr: 4-Bromofluorobenzene	113.9	0	100	0	114	74	118	110.1	3.36	0	

11/14

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *12-Jan-06*

CLIENT: San Juan Refining
Work Order: 0601090
Project: River Terrace Baseline Pre Dewater

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **GRO lcs 2.5ug** Batch ID: **R17877** Test Code: **SW8015** Units: **mg/Kg** Analysis Date: **1/11/2006 7:04:21 PM** Prep Date:
Client ID: Run ID: **PIDFID_060111A** SeqNo: **439622**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24.02	5	25	0	96.1	84	120	0			

Sample ID: **GRO lcs 2.5ug** Batch ID: **R17877** Test Code: **SW8015** Units: **mg/L** Analysis Date: **1/11/2006 7:04:21 PM** Prep Date:
Client ID: Run ID: **PIDFID_060111A** SeqNo: **439580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.4804	0.05	0.5	0	96.1	82.6	114	0			

Sample ID: **BTEX lcs 100ng** Batch ID: **R17877** Test Code: **SW8021** Units: **mg/Kg** Analysis Date: **1/11/2006 6:33:45 PM** Prep Date:
Client ID: Run ID: **PIDFID_060111A** SeqNo: **439575**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1.061	0.1	1	0	106	65	132	0			
Benzene	0.9419	0.025	1	0	94.2	85.6	116	0			
Toluene	0.9814	0.025	1	0	98.1	82.4	120	0			
Ethylbenzene	1.015	0.025	1	0	101	86.4	111	0			
Xylenes, Total	2.072	0.025	2	0	104	78.4	125	0			

12/14

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

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CLIENT: San Juan Refining
Work Order: 0601090
Project: River Terrace Baseline Pre Dewater

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: **BTEX lcs 100ng** Batch ID: **R17877** Test Code: **SW8021** Units: **µg/L** Analysis Date: **1/11/2006 6:33:45 PM** Prep Date:

Client ID: Run ID: **PIDFID_060111A** SeqNo: **439512**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	21.22	2.5	20	0	106	64.5	133	0			
Benzene	18.84	1	20	0	94.2	88.5	114	0			
Toluene	19.63	1	20	0	98.1	87.2	114	0			
Ethylbenzene	20.3	1	20	0	101	88.6	113	0			
1,2,4-Trimethylbenzene	20.7	1	20	0	104	83.8	114	0			
1,3,5-Trimethylbenzene	20.19	1	20	0	101	82.8	114	0			
Xylenes, Total	41.45	3	40	0	104	83.3	114	0			

13/14

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 1/11/2006

Work Order Number 0601090 | Received by GLS

Checklist completed by Lisa Healy 1/11/06
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? *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

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

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

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace Baseline Pre Dewater
Project #:
Project Manager:
Sampler: Cindy Hurtado / Kelly Robinson
Sample Temperature:

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
01/09/06	1135 AM	VAPOR	TP-13 VS	1-1 liter Tedlar			0601009-1	X		X														
	1pm		TP-9 VS				-2	X		X														
	145 pm		TP-6 VS				-3	X		X														
	235 PM		TP-1 VS				-4	X		X														
	315 PM		TP-2 VS				-5	X		X														
	4pm		TP-35 VS				-6	X		X														
1/10/06	834A	VAPOR	TP-12 VS	1-liter Tedlar			-7	X		X														
1/10/06	905A	VAPOR	TP-11 VS	1			-8	X		X														

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
01/10/06	920A	Cindy Hurtado	B Schlappe 1/11/06 0930
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

January 16, 2006

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

RE: River Terrace Baseline Pre Dewater

Order No.: 0601096

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 6 samples on 1/11/2006 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-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP-10 VS
Lab Order: 0601096
Collection Date: 1/10/2006 9:40:00 AM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601096-01
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	1/12/2006 12:41:50 PM
Surr: BFB	106	82.3-129		%REC	1	1/12/2006 12:41:50 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		µg/L	1	1/12/2006 12:41:50 PM
Toluene	ND	0.050		µg/L	1	1/12/2006 12:41:50 PM
Ethylbenzene	ND	0.050		µg/L	1	1/12/2006 12:41:50 PM
Xylenes, Total	0.28	0.050		µg/L	1	1/12/2006 12:41:50 PM
Surr: 4-Bromofluorobenzene	109	74-118		%REC	1	1/12/2006 12:41:50 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP-4 VS
Lab Order: 0601096
Collection Date: 1/10/2006 10:30:00 AM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601096-02
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	1/12/2006 4:45:25 PM
Surr: BFB	106	82.3-129		%REC	1	1/12/2006 4:45:25 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		µg/L	1	1/12/2006 4:45:25 PM
Toluene	0.073	0.050		µg/L	1	1/12/2006 4:45:25 PM
Ethylbenzene	0.071	0.050		µg/L	1	1/12/2006 4:45:25 PM
Xylenes, Total	0.29	0.050		µg/L	1	1/12/2006 4:45:25 PM
Surr: 4-Bromofluorobenzene	110	74-118		%REC	1	1/12/2006 4:45:25 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP-8 VS
Lab Order: 0601096
Collection Date: 1/10/2006 11:10:00 AM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601096-03
Matrix: AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	1800	250		µg/L	50	1/12/2006 1:42:24 PM
Surr: BFB	108	82.3-129		%REC	50	1/12/2006 1:42:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	6.9	2.5		µg/L	50	1/12/2006 1:42:24 PM
Toluene	2.9	2.5		µg/L	50	1/12/2006 1:42:24 PM
Ethylbenzene	31	2.5		µg/L	50	1/12/2006 1:42:24 PM
Xylenes, Total	300	2.5		µg/L	50	1/12/2006 1:42:24 PM
Surr: 4-Bromofluorobenzene	113	74-118		%REC	50	1/12/2006 1:42:24 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: DW-1 VS
Lab Order: 0601096
Collection Date: 1/10/2006 1:55:00 PM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601096-04
Matrix: AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	35	5.0		µg/L	1	1/12/2006 3:13:51 PM
Surr: BFB	105	82.3-129		%REC	1	1/12/2006 3:13:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.090	0.050		µg/L	1	1/12/2006 3:13:51 PM
Toluene	0.59	0.050		µg/L	1	1/12/2006 3:13:51 PM
Ethylbenzene	0.14	0.050		µg/L	1	1/12/2006 3:13:51 PM
Xylenes, Total	1.2	0.050		µg/L	1	1/12/2006 3:13:51 PM
Surr: 4-Bromofluorobenzene	110	74-118		%REC	1	1/12/2006 3:13:51 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: MW-49 VS
Lab Order: 0601096
Collection Date: 1/10/2006 3:20:00 PM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601096-05
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	1/12/2006 3:44:21 PM
Surr: BFB	105	82.3-129		%REC	1	1/12/2006 3:44:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		µg/L	1	1/12/2006 3:44:21 PM
Toluene	0.082	0.050		µg/L	1	1/12/2006 3:44:21 PM
Ethylbenzene	ND	0.050		µg/L	1	1/12/2006 3:44:21 PM
Xylenes, Total	0.34	0.050		µg/L	1	1/12/2006 3:44:21 PM
Surr: 4-Bromofluorobenzene	106	74-118		%REC	1	1/12/2006 3:44:21 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Jan-06*

CLIENT: San Juan Refining
Client Sample ID: TP-3 VS
Lab Order: 0601096
Collection Date: 1/11/2006 9:05:00 AM
Project: River Terrace Baseline Pre Dewater
Lab ID: 0601096-06
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	1/12/2006 4:14:51 PM
Surr: BFB	98.6	82.3-129		%REC	1	1/12/2006 4:14:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		µg/L	1	1/12/2006 4:14:51 PM
Toluene	ND	0.050		µg/L	1	1/12/2006 4:14:51 PM
Ethylbenzene	ND	0.050		µg/L	1	1/12/2006 4:14:51 PM
Xylenes, Total	0.093	0.050		µg/L	1	1/12/2006 4:14:51 PM
Surr: 4-Bromofluorobenzene	102	74-118		%REC	1	1/12/2006 4:14:51 PM

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Jan-06*

CLIENT: San Juan Refining
Work Order: 0601096
Project: River Terrace Baseline Pre Dewater

QC SUMMARY REPORT

Method Blank

Sample ID: **Reagent Blank 5m** Batch ID: **R17890** Test Code: **SW8015** Units: **mg/L** Analysis Date: **1/12/2006 8:38:24 AM** Prep Date:

Client ID: Run ID: **PIDFID_060112A** SeqNo: **439931**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.05									
Surr: BFB	20.34	0	20	0	102	79.7	118	0			

Sample ID: **Reagent Blank 5m** Batch ID: **R17890** Test Code: **SW8021** Units: **µg/L** Analysis Date: **1/12/2006 8:38:24 AM** Prep Date:

Client ID: Run ID: **PIDFID_060112A** SeqNo: **439913**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	2.5									
Benzene	ND	1									
Toluene	ND	1									
Ethylbenzene	ND	1									
1,2,4-Trimethylbenzene	ND	1									
1,3,5-Trimethylbenzene	ND	1									
Xylenes, Total	ND	3									
Surr: 4-Bromofluorobenzene	20.16	0	20	0	101	82.2	119	0			

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Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *16-Jan-06*

CLIENT: San Juan Refining
Work Order: 0601096
Project: River Terrace Baseline Pre Dewater

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **0601096-03a dup** Batch ID: **R17890** Test Code: **SW8015** Units: **µg/L** Analysis Date: **1/12/2006 2:12:45 PM** Prep Date:
Client ID: **TP-8 VS** Run ID: **PIDFID_060112A** SeqNo: **439940**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	1660	250	0	0	0	0	0	1755	5.56	27.8	
Surr: BFB	108000	0	100000	0	108	82.3	129	108300	0.319	0	

Sample ID: **0601096-03a dup** Batch ID: **R17890** Test Code: **SW8021** Units: **µg/L** Analysis Date: **1/12/2006 2:12:45 PM** Prep Date:
Client ID: **TP-8 VS** Run ID: **PIDFID_060112A** SeqNo: **439922**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	6.765	2.5	0	0	0	0	0	6.881	1.70	25	
Toluene	2.872	2.5	0	0	0	0	0	2.93	2.00	25	
Ethylbenzene	28.07	2.5	0	0	0	0	0	31.41	11.2	25	
Xylenes, Total	272.1	2.5	0	0	0	0	0	302.7	10.6	25	
Surr: 4-Bromofluorobenzene	111.7	0	100	0	112	74	118	112.8	0.981	0	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

I

Hall Environmental Analysis Laboratory

Date: *16-Jan-06*

CLIENT: San Juan Refining
Work Order: *0601096*
Project: River Terrace Baseline Pre Dewater

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **GRO lcs 2.5ug** Batch ID: **R17890** Test Code: **SW8015** Units: **mg/L** Analysis Date: **1/13/2006 3:43:55 AM** Prep Date:

Client ID: Run ID: **PIDFID_060112A** SeqNo: **439932**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.4586	0.05	0.5	0	91.7	82.6	114	0			

Sample ID: **BTEX lcs 100ng** Batch ID: **R17890** Test Code: **SW8021** Units: **µg/L** Analysis Date: **1/12/2006 11:41:10 AM** Prep Date:

Client ID: Run ID: **PIDFID_060112A** SeqNo: **440002**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	20	2.5	20	0	100	64.5	133	0			
Benzene	18.85	1	20	0	94.2	88.5	114	0			
Toluene	19.13	1	20	0	95.6	87.2	114	0			
Ethylbenzene	19.76	1	20	0	98.8	88.6	113	0			
1,2,4-Trimethylbenzene	19.33	1	20	0	96.7	83.8	114	0			
1,3,5-Trimethylbenzene	19.64	1	20	0	98.2	82.8	114	0			
Xylenes, Total	39.56	3	40	0	98.9	83.3	114	0			

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Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 1/11/2006

Work Order Number 0601096 | Received by LMM

Checklist completed by Lisa Hedekus 1/11/06
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? *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

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

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

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace Baseline Pre Dewater
Project #:
Project Manager:
Sampler: Kelly Robinson / Cindy Hurtado
Sample Temperature:

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No.	BTEX + ~~MTBE + TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/~~Diesel~~)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)				Air Bubbles or Headspace (Y or N)
1/10/06	940A	VAPOR	TP-10VS	1-liter Tedlar			0601516-1	X		X													
	1030A		TP-4VS				-2	X		X													
	1110		TP-8VS				-3	X		X													
	1355		DW-1VS				-4	X		X													
	320P		MW-49VS				-5	X		X													
1/11/06	905A	VAPOR	TP-3VS	1-liter Tedlar			-6	X		X													

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
1/11/06	930A	Cindy Hurtado	[signature]	1530 1/11/06
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, March 14, 2006

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

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

RE: River Terrace - 1st Qtr 2006 Gas Vapor

Order No.: 0603112

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 6 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

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

Hall Environmental Analysis Laboratory

Date: *14-Mar-06*

CLIENT:	San Juan Refining	Client Sample ID:	TP-4
Lab Order:	0603112	Collection Date:	3/8/2006 1:40:00 PM
Project:	River Terrace - 1st Qtr 2006 Gas Vapor	Date Received:	3/9/2006
Lab ID:	0603112-01	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	19000	500		µg/L	100	3/9/2006 9:04:30 PM
Surr: BFB	98.7	82.3-129		%REC	100	3/9/2006 9:04:30 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	100	3/9/2006 9:04:30 PM
Benzene	54	5.0		µg/L	100	3/9/2006 9:04:30 PM
Toluene	23	5.0		µg/L	100	3/9/2006 9:04:30 PM
Ethylbenzene	76	5.0		µg/L	100	3/9/2006 9:04:30 PM
Xylenes, Total	630	5.0		µg/L	100	3/9/2006 9:04:30 PM
Surr: 4-Bromofluorobenzene	104	74-118		%REC	100	3/9/2006 9:04:30 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: *14-Mar-06*

CLIENT:	San Juan Refining	Client Sample ID:	TP-3
Lab Order:	0603112	Collection Date:	3/8/2006 1:55:00 PM
Project:	River Terrace - 1st Qtr 2006 Gas Vapor	Date Received:	3/9/2006
Lab ID:	0603112-02	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	1300	50		µg/L	10	3/9/2006 8:32:22 PM
Surr: BFB	93.4	82.3-129		%REC	10	3/9/2006 8:32:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	10	3/9/2006 8:32:22 PM
Benzene	0.55	0.50		µg/L	10	3/9/2006 8:32:22 PM
Toluene	0.53	0.50		µg/L	10	3/9/2006 8:32:22 PM
Ethylbenzene	2.2	0.50		µg/L	10	3/9/2006 8:32:22 PM
Xylenes, Total	23	0.50		µg/L	10	3/9/2006 8:32:22 PM
Surr: 4-Bromofluorobenzene	100	74-118		%REC	10	3/9/2006 8:32:22 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: *14-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-10
Lab Order:	0603112	**Collection Date:**	3/8/2006 2:05:00 PM
Project:	River Terrace - 1st Qtr 2006 Gas Vapor	**Date Received:**	3/9/2006
Lab ID:	0603112-03	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	25	5.0		µg/L	1	3/9/2006 8:00:19 PM
Surr: BFB	103	82.3-129		%REC	1	3/9/2006 8:00:19 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	0.25		µg/L	1	3/9/2006 8:00:19 PM
Benzene	0.069	0.050		µg/L	1	3/9/2006 8:00:19 PM
Toluene	0.053	0.050		µg/L	1	3/9/2006 8:00:19 PM
Ethylbenzene	0.62	0.050		µg/L	1	3/9/2006 8:00:19 PM
Xylenes, Total	6.1	0.050		µg/L	1	3/9/2006 8:00:19 PM
Surr: 4-Bromofluorobenzene	106	74-118		%REC	1	3/9/2006 8:00:19 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: *14-Mar-06*

CLIENT:	San Juan Refining	Client Sample ID:	TP-11
Lab Order:	0603112	Collection Date:	3/8/2006 2:15:00 PM
Project:	River Terrace - 1st Qtr 2006 Gas Vapor	Date Received:	3/9/2006
Lab ID:	0603112-04	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	13	5.0		µg/L	1	3/9/2006 7:27:51 PM
Surr: BFB	98.6	82.3-129		%REC	1	3/9/2006 7:27:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	0.25		µg/L	1	3/9/2006 7:27:51 PM
Benzene	0.055	0.050		µg/L	1	3/9/2006 7:27:51 PM
Toluene	0.053	0.050		µg/L	1	3/9/2006 7:27:51 PM
Ethylbenzene	0.32	0.050		µg/L	1	3/9/2006 7:27:51 PM
Xylenes, Total	3.3	0.050		µg/L	1	3/9/2006 7:27:51 PM
Surr: 4-Bromofluorobenzene	104	74-118		%REC	1	3/9/2006 7:27:51 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: *14-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-12
Lab Order:	0603112	**Collection Date:**	3/8/2006 2:20:00 PM
Project:	River Terrace - 1st Qtr 2006 Gas Vapor	**Date Received:**	3/9/2006
Lab ID:	0603112-05	**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	3/9/2006 6:55:23 PM
Surr: BFB	88.0	82.3-129		%REC	1	3/9/2006 6:55:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	0.25		µg/L	1	3/9/2006 6:55:23 PM
Benzene	0.052	0.050		µg/L	1	3/9/2006 6:55:23 PM
Toluene	0.055	0.050		µg/L	1	3/9/2006 6:55:23 PM
Ethylbenzene	0.21	0.050		µg/L	1	3/9/2006 6:55:23 PM
Xylenes, Total	2.3	0.050		µg/L	1	3/9/2006 6:55:23 PM
Surr: 4-Bromofluorobenzene	92.4	74-118		%REC	1	3/9/2006 6:55:23 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: *14-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-13
Lab Order:	0603112	**Collection Date:**	3/8/2006 2:30:00 PM
Project:	River Terrace - 1st Qtr 2006 Gas Vapor	**Date Received:**	3/9/2006
Lab ID:	0603112-06	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	8.6	5.0		µg/L	1	3/10/2006 10:49:34 AM
Surr: BFB	103	82.3-129		%REC	1	3/10/2006 10:49:34 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	0.25		µg/L	1	3/10/2006 10:49:34 AM
Benzene	0.050	0.050		µg/L	1	3/10/2006 10:49:34 AM
Toluene	0.085	0.050		µg/L	1	3/10/2006 10:49:34 AM
Ethylbenzene	0.17	0.050		µg/L	1	3/10/2006 10:49:34 AM
Xylenes, Total	1.6	0.050		µg/L	1	3/10/2006 10:49:34 AM
Surr: 4-Bromofluorobenzene	102	74-118		%REC	1	3/10/2006 10:49:34 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: *14-Mar-06*

CLIENT: San Juan Refining
Work Order: 0603112
Project: River Terrace - 1st Qtr 2006 Gas Vapor

ANALYTICAL QC SUMMARY REPORT

BatchID: R18537

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18537
Client ID: ZZZZZ	Batch ID: R18537	TestNo: SW8015		Analysis Date: 3/9/2006	SeqNo: 459563

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: 18537
Client ID: ZZZZZ	Batch ID: R18537	TestNo: SW8015		Analysis Date: 3/9/2006	SeqNo: 459564

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.4580	0.050	0.5	0	91.6	82.6	114				

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18537
Client ID: ZZZZZ	Batch ID: R18537	TestNo: SW8021		Analysis Date: 3/9/2006	SeqNo: 459545

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	2.5									
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Xylenes, Total	ND	3.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18537
Client ID: ZZZZZ	Batch ID: R18537	TestNo: SW8021		Analysis Date: 3/9/2006	SeqNo: 459546

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	19.99	2.5	20	0	100	64.5	133				
Benzene	18.13	1.0	20	0	90.6	88.5	114				
Toluene	18.10	1.0	20	0	90.5	87.2	114				
Ethylbenzene	18.52	1.0	20	0	92.6	88.6	113				
Xylenes, Total	37.70	3.0	40	0	94.3	83.3	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

CLIENT: San Juan Refining
Work Order: 0603112
Project: River Terrace - 1st Qtr 2006 Gas Vapor

ANALYTICAL QC SUMMARY REPORT

BatchID: R18537

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18537
Client ID: ZZZZZ	Batch ID: R18537	TestNo: SW8021		Analysis Date: 3/9/2006	SeqNo: 459546

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	17.56	1.0	20	0	87.8	83.8	114				
1,3,5-Trimethylbenzene	18.23	1.0	20	0	91.2	82.8	114				

8/11

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: 0603112
Project: River Terrace - 1st Qtr 2006 Gas Vapor

ANALYTICAL QC SUMMARY REPORT

BatchID: R18559

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18559
Client ID: ZZZZZ	Batch ID: R18559	TestNo: SW8015		Analysis Date: 3/10/2006	SeqNo: 460117

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: 18559
Client ID: ZZZZZ	Batch ID: R18559	TestNo: SW8015		Analysis Date: 3/10/2006	SeqNo: 460118

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.4480	0.050	0.5	0	89.6	82.6	114				

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18559
Client ID: ZZZZZ	Batch ID: R18559	TestNo: SW8021		Analysis Date: 3/10/2006	SeqNo: 460071

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
ethyl tert-butyl ether (MTBE)	ND	2.5									
enzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Xylenes, Total	ND	3.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18559
Client ID: ZZZZZ	Batch ID: R18559	TestNo: SW8021		Analysis Date: 3/10/2006	SeqNo: 460072

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	20.85	2.5	20	0	104	64.5	133				
Benzene	18.57	1.0	20	0	92.8	88.5	114				
Toluene	18.63	1.0	20	0	93.2	87.2	114				
Ethylbenzene	19.15	1.0	20	0	95.7	88.6	113				
Xylenes, Total	38.69	3.0	40	0	96.7	83.3	114				
1,2,4-Trimethylbenzene	18.67	1.0	20	0	93.4	83.8	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

CLIENT: San Juan Refining

Work Order: 0603112

Project: River Terrace - 1st Qtr 2006 Gas Vapor

ANALYTICAL QC SUMMARY REPORT

BatchID: R18559

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:			RunNo: 18559			
Client ID: ZZZZZ	Batch ID: R18559	TestNo: SW8021		Analysis Date: 3/10/2006			SeqNo: 460072			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3,5-Trimethylbenzene	18.71	1.0	20	0	93.6	82.8	114				

10/11

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

' 'all Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR

Date and Time Received: 3/9/2006

Work Order Number 0603112

Received by AT

Checklist completed by _____ Signature _____ Date 3/9/06

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? *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

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

Client: San Juan Refining

Address: #50 Rd 4990
Bloomfield, NM
87413

Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 1st Qtr 2006 - GAS Vapor

Project #:

Project Manager: Cindy Hurtado

Sampler: Cindy Hurtado / Shelly Cowden

Sample Temperature:

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

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No.	BTEX + ~~MTBE + TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
3/08/06	140p	GAS Vapor	TP-4	1-tedlar bag			0603112-1	X		X														
3/08/06	155p	GAS Vapor	TP-9	1-tedlar bag			-2	X		X														
3/08/06	2:05	"	TP-10	"			-3	X		X														
"	215p	"	TP-11	"			-4	X		X														
"	220p	"	TP-12	"			-5	X		X														
"	230p	"	TP-13	"			-6	X		X														

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	Remarks:
3/08/06	3pm	Cindy Hurtado		
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
			3/9/06 0930	

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, March 14, 2006

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

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

RE: River Terrace 1st Quarter 2006

Order No.: 0603089

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 8 sample(s) on 3/8/2006 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: *15-Mar-06*

CLIENT:	San Juan Refining	Client Sample ID:	TP-9
Lab Order:	0603089	Collection Date:	3/7/2006 9:00:00 AM
Project:	River Terrace 1st Quarter 2006	Date Received:	3/8/2006
Lab ID:	0603089-01	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	8.0	5.0		µg/L	1	3/9/2006 10:53:03 AM
Surr: BFB	98.7	82.3-129		%REC	1	3/9/2006 10:53:03 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.050		µg/L	1	3/9/2006 10:53:03 AM
Toluene	0.063	0.050		µg/L	1	3/9/2006 10:53:03 AM
Ethylbenzene	0.085	0.050		µg/L	1	3/9/2006 10:53:03 AM
Xylenes, Total	0.53	0.050		µg/L	1	3/9/2006 10:53:03 AM
Surr: 4-Bromofluorobenzene	98.0	74-118		%REC	1	3/9/2006 10:53:03 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: *15-Mar-06*

CLIENT:	San Juan Refining	Client Sample ID:	TP-8
Lab Order:	0603089	Collection Date:	3/7/2006 10:05:00 AM
Project:	River Terrace 1st Quarter 2006	Date Received:	3/8/2006
Lab ID:	0603089-02	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	7700	500		µg/L	100	3/9/2006 12:58:53 PM
Surr: BFB	104	82.3-129		%REC	100	3/9/2006 12:58:53 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	8.8	5.0		µg/L	100	3/9/2006 12:58:53 PM
Toluene	13	5.0		µg/L	100	3/9/2006 12:58:53 PM
Ethylbenzene	220	5.0		µg/L	100	3/9/2006 12:58:53 PM
Xylenes, Total	1900	5.0		µg/L	100	3/9/2006 12:58:53 PM
Surr: 4-Bromofluorobenzene	107	74-118		%REC	100	3/9/2006 12:58:53 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: *15-Mar-06*

CLIENT:	San Juan Refining	Client Sample ID:	TP-6
Lab Order:	0603089	Collection Date:	3/7/2006 10:35:00 AM
Project:	River Terrace 1st Quarter 2006	Date Received:	3/8/2006
Lab ID:	0603089-03	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	4500	500		µg/L	100	3/9/2006 2:02:33 PM
Surr: BFB	99.8	82.3-129		%REC	100	3/9/2006 2:02:33 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	7.9	5.0		µg/L	100	3/9/2006 2:02:33 PM
Toluene	6.5	5.0		µg/L	100	3/9/2006 2:02:33 PM
Ethylbenzene	47	5.0		µg/L	100	3/9/2006 2:02:33 PM
Xylenes, Total	950	5.0		µg/L	100	3/9/2006 2:02:33 PM
Surr: 4-Bromofluorobenzene	104	74-118		%REC	100	3/9/2006 2:02:33 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: *15-Mar-06*

CLIENT:	San Juan Refining	Client Sample ID:	TP-5
Lab Order:	0603089	Collection Date:	3/7/2006 10:55:00 AM
Project:	River Terrace 1st Quarter 2006	Date Received:	3/8/2006
Lab ID:	0603089-04	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	34000	500		µg/L	100	3/9/2006 2:34:42 PM
Surr: BFB	99.3	82.3-129		%REC	100	3/9/2006 2:34:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	69	5.0		µg/L	100	3/9/2006 2:34:42 PM
Toluene	55	5.0		µg/L	100	3/9/2006 2:34:42 PM
Ethylbenzene	310	5.0		µg/L	100	3/9/2006 2:34:42 PM
Xylenes, Total	2000	5.0		µg/L	100	3/9/2006 2:34:42 PM
Surr: 4-Bromofluorobenzene	108	74-118		%REC	100	3/9/2006 2:34:42 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: *15-Mar-06*

CLIENT:	San Juan Refining	Client Sample ID:	TP-1
Lab Order:	0603089	Collection Date:	3/7/2006 1:15:00 PM
Project:	River Terrace 1st Quarter 2006	Date Received:	3/8/2006
Lab ID:	0603089-05	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	8500	500		µg/L	100	3/9/2006 3:07:20 PM
Surr: BFB	98.0	82.3-129		%REC	100	3/9/2006 3:07:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	22	5.0		µg/L	100	3/9/2006 3:07:20 PM
Toluene	12	5.0		µg/L	100	3/9/2006 3:07:20 PM
Ethylbenzene	310	5.0		µg/L	100	3/9/2006 3:07:20 PM
Xylenes, Total	2100	5.0		µg/L	100	3/9/2006 3:07:20 PM
Surr: 4-Bromofluorobenzene	107	74-118		%REC	100	3/9/2006 3:07:20 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

Date: *15-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0603089	**Collection Date:**	3/7/2006 1:35:00 PM
Project:	River Terrace 1st Quarter 2006	**Date Received:**	3/8/2006
Lab ID:	0603089-06	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	28	5.0		µg/L	1	3/9/2006 11:55:47 AM
Surr: BFB	96.8	82.3-129		%REC	1	3/9/2006 11:55:47 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.050		µg/L	1	3/9/2006 11:55:47 AM
Toluene	0.056	0.050		µg/L	1	3/9/2006 11:55:47 AM
Ethylbenzene	1.0	0.050		µg/L	1	3/9/2006 11:55:47 AM
Xylenes, Total	8.9	0.050		µg/L	1	3/9/2006 11:55:47 AM
Surr: 4-Bromofluorobenzene	101	74-118		%REC	1	3/9/2006 11:55:47 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

Date: *15-Mar-06*

CLIENT:	San Juan Refining	Client Sample ID:	DW #1
Lab Order:	0603089	Collection Date:	3/7/2006 2:05:00 PM
Project:	River Terrace 1st Quarter 2006	Date Received:	3/8/2006
Lab ID:	0603089-07	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	61	5.0		µg/L	1	3/9/2006 12:27:15 PM
Surr: BFB	120	82.3-129		%REC	1	3/9/2006 12:27:15 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.050		µg/L	1	3/9/2006 12:27:15 PM
Toluene	0.17	0.050		µg/L	1	3/9/2006 12:27:15 PM
Ethylbenzene	0.61	0.050		µg/L	1	3/9/2006 12:27:15 PM
Xylenes, Total	5.2	0.050		µg/L	1	3/9/2006 12:27:15 PM
Surr: 4-Bromofluorobenzene	105	74-118		%REC	1	3/9/2006 12:27:15 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: *15-Mar-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-2
Lab Order:	0603089	**Collection Date:**	3/7/2006 2:35:00 PM
Project:	River Terrace 1st Quarter 2006	**Date Received:**	3/8/2006
Lab ID:	0603089-08	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	150	25		µg/L	5	3/10/2006 11:35:17 AM
Surr: BFB	109	82.3-129		%REC	5	3/10/2006 11:35:17 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.36	0.25		µg/L	5	3/10/2006 11:35:17 AM
Toluene	1.4	0.25		µg/L	5	3/10/2006 11:35:17 AM
Ethylbenzene	1.8	0.25		µg/L	5	3/10/2006 11:35:17 AM
Xylenes, Total	17	0.25		µg/L	5	3/10/2006 11:35:17 AM
Surr: 4-Bromofluorobenzene	105	74-118		%REC	5	3/10/2006 11:35:17 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	ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory

Date: 15-Mar-06

CLIENT: San Juan Refining
Work Order: 0603089
Project: River Terrace 1st Quarter 2006

ANALYTICAL QC SUMMARY REPORT

BatchID: R18537

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18537
Client ID: ZZZZZ	Batch ID: R18537	TestNo: SW8015		Analysis Date: 3/9/2006	SeqNo: 459563

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: 18537
Client ID: ZZZZZ	Batch ID: R18537	TestNo: SW8015		Analysis Date: 3/9/2006	SeqNo: 459564

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.4580	0.050	0.5	0	91.6	82.6	114				

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18537
Client ID: ZZZZZ	Batch ID: R18537	TestNo: SW8021		Analysis Date: 3/9/2006	SeqNo: 459545

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									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18537
Client ID: ZZZZZ	Batch ID: R18537	TestNo: SW8021		Analysis Date: 3/9/2006	SeqNo: 459546

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.13	1.0	20	0	90.6	88.5	114				
Toluene	18.10	1.0	20	0	90.5	87.2	114				
Ethylbenzene	18.52	1.0	20	0	92.6	88.6	113				
Xylenes, Total	37.70	3.0	40	0	94.3	83.3	114				
1,2,4-Trimethylbenzene	17.56	1.0	20	0	87.8	83.8	114				
1,3,5-Trimethylbenzene	18.23	1.0	20	0	91.2	82.8	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

9/10

CLIENT: San Juan Refining
Work Order: 0603089
Project: River Terrace 1st Quarter 2006

ANALYTICAL QC SUMMARY REPORT

BatchID: R18559

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8015GRO_W	Units: mg/L	Prep Date:	RunNo: 18559
Client ID: ZZZZZ	Batch ID: R18559	TestNo: SW8015		Analysis Date: 3/10/2006	SeqNo: 460117

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: 18559
Client ID: ZZZZZ	Batch ID: R18559	TestNo: SW8015		Analysis Date: 3/10/2006	SeqNo: 460118

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.4480	0.050	0.5	0	89.6	82.6	114				

Sample ID: 5ML RB	SampType: MBLK	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18559
Client ID: ZZZZZ	Batch ID: R18559	TestNo: SW8021		Analysis Date: 3/10/2006	SeqNo: 460071

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									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									

Sample ID: 100NG BTEX LCS	SampType: LCS	TestCode: 8021BTEX_W	Units: µg/L	Prep Date:	RunNo: 18559
Client ID: ZZZZZ	Batch ID: R18559	TestNo: SW8021		Analysis Date: 3/10/2006	SeqNo: 460072

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	18.57	1.0	20	0	92.8	88.5	114				
Toluene	18.63	1.0	20	0	93.2	87.2	114				
Ethylbenzene	19.15	1.0	20	0	95.7	88.6	113				
Xylenes, Total	38.69	3.0	40	0	96.7	83.3	114				
1,2,4-Trimethylbenzene	18.67	1.0	20	0	93.4	83.8	114				
1,3,5-Trimethylbenzene	18.71	1.0	20	0	93.6	82.8	114				

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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

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 3/8/2006

Work Order Number 0603089 | Received by AT

Checklist completed by _____ Signature | 3/8/06 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 ☐		
ater - 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

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

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

Client: San Juan Refining

Project Name: River Terrace - 1st QTR - 2006 GAS Vapor

Address: #50 Rd 4990
Bloomfield, NM 87413

Project #:

Project Manager:

Phone #: 505-632-4161

Fax #: 505-632-3911

Sampler: Cindy Hurtado / Shelly Cowden

Sample Temperature:

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.	BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	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)
3/07/06	9AM	Vapor	TP-9	1-liter			Tedlar bag	0603088 -1	X		X														
	1005		TP-8					-2	X		X														
	1035		TP-6					-3	X		X														
	1055A		TP-5					-4	X		X														
	115P		TP-1					-5	X		X														
	135P		MW#4 9					-6	X		X														
	295PM		DW#1					-7	X		X														
	235PM		TP-2					-8	X		X														

Date: 3/07/06 Time: 330pm Relinquished By: (Signature) Cindy Hurtado

Received By: (Signature) 3/8/06

Date: Time: Relinquished By: (Signature)

Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, June 22, 2006

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

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

RE: River Terrace-2nd Quarter 2006-VS

Order No.: 0606202

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 5 sample(s) on 6/20/2006 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: *22-Jun-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-12
Lab Order:	0606202	**Collection Date:**	6/19/2006 9:30:00 AM
Project:	River Terrace-2nd Quarter 2006-VS	**Date Received:**	6/20/2006
Lab ID:	0606202-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	17	5.0		µg/L	1	6/20/2006 4:18:16 PM
Surr: BFB	106	79.2-152		%REC	1	6/20/2006 4:18:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Methyl tert-butyl ether (MTBE)	ND	0.25		µg/L	1	6/20/2006 4:18:16 PM
Benzene	0.12	0.10		µg/L	1	6/20/2006 4:18:16 PM
Toluene	ND	0.10		µg/L	1	6/20/2006 4:18:16 PM
Ethylbenzene	0.19	0.10		µg/L	1	6/20/2006 4:18:16 PM
Xylenes, Total	0.52	0.30		µg/L	1	6/20/2006 4:18:16 PM
Surr: 4-Bromofluorobenzene	94.4	80-116		%REC	1	6/20/2006 4:18:16 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *22-Jun-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-13
Lab Order:	0606202	**Collection Date:**	6/19/2006 10:10:00 AM
Project:	River Terrace-2nd Quarter 2006-VS	**Date Received:**	6/20/2006
Lab ID:	0606202-02	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	27	5.0		µg/L	1	6/20/2006 4:48:50 PM
Surr: BFB	107	79.2-152		%REC	1	6/20/2006 4:48:50 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Methyl tert-butyl ether (MTBE)	ND	0.25		µg/L	1	6/20/2006 4:48:50 PM
Benzene	0.11	0.10		µg/L	1	6/20/2006 4:48:50 PM
Toluene	0.11	0.10		µg/L	1	6/20/2006 4:48:50 PM
Ethylbenzene	0.48	0.10		µg/L	1	6/20/2006 4:48:50 PM
Xylenes, Total	2.4	0.30		µg/L	1	6/20/2006 4:48:50 PM
Surr: 4-Bromofluorobenzene	92.7	80-116		%REC	1	6/20/2006 4:48:50 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-Jun-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-10
Lab Order:	0606202	**Collection Date:**	6/19/2006 2:10:00 PM
Project:	River Terrace-2nd Quarter 2006-VS	**Date Received:**	6/20/2006
Lab ID:	0606202-03	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	14	5.0		µg/L	1	6/20/2006 5:19:20 PM
Surr: BFB	106	79.2-152		%REC	1	6/20/2006 5:19:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Methyl tert-butyl ether (MTBE)	ND	0.25		µg/L	1	6/20/2006 5:19:20 PM
Benzene	0.11	0.10		µg/L	1	6/20/2006 5:19:20 PM
Toluene	ND	0.10		µg/L	1	6/20/2006 5:19:20 PM
Ethylbenzene	0.16	0.10		µg/L	1	6/20/2006 5:19:20 PM
Xylenes, Total	0.57	0.30		µg/L	1	6/20/2006 5:19:20 PM
Surr: 4-Bromofluorobenzene	95.3	80-116		%REC	1	6/20/2006 5:19:20 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: *22-Jun-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-3
Lab Order:	0606202	**Collection Date:**	6/19/2006 2:35:00 PM
Project:	River Terrace-2nd Quarter 2006-VS	**Date Received:**	6/20/2006
Lab ID:	0606202-04	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	6/21/2006 12:38:05 PM
Surr: BFB	98.3	79.2-152		%REC	1	6/21/2006 12:38:05 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Methyl tert-butyl ether (MTBE)	ND	0.25		µg/L	1	6/21/2006 12:38:05 PM
Benzene	ND	0.10		µg/L	1	6/21/2006 12:38:05 PM
Toluene	ND	0.10		µg/L	1	6/21/2006 12:38:05 PM
Ethylbenzene	ND	0.10		µg/L	1	6/21/2006 12:38:05 PM
Xylenes, Total	ND	0.30		µg/L	1	6/21/2006 12:38:05 PM
Surr: 4-Bromofluorobenzene	92.3	80-116		%REC	1	6/21/2006 12:38:05 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-Jun-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-11
Lab Order:	0606202	**Collection Date:**	6/19/2006 3:15:00 PM
Project:	River Terrace-2nd Quarter 2006-VS	**Date Received:**	6/20/2006
Lab ID:	0606202-05	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	6/21/2006 1:08:23 PM
Surr: BFB	97.6	79.2-152		%REC	1	6/21/2006 1:08:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Methyl tert-butyl ether (MTBE)	ND	0.25		µg/L	1	6/21/2006 1:08:23 PM
Benzene	ND	0.10		µg/L	1	6/21/2006 1:08:23 PM
Toluene	ND	0.10		µg/L	1	6/21/2006 1:08:23 PM
Ethylbenzene	ND	0.10		µg/L	1	6/21/2006 1:08:23 PM
Xylenes, Total	ND	0.30		µg/L	1	6/21/2006 1:08:23 PM
Surr: 4-Bromofluorobenzene	90.2	80-116		%REC	1	6/21/2006 1:08:23 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-2nd Quarter 2006-VS **Work Order:** 0606202

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015								Batch ID:	**R19657**
Sample ID: 5ML RB		*MBLK*						Analysis Date:	6/20/2006
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*						Analysis Date:	6/20/2006
Gasoline Range Organics (GRO)	0.4700	mg/L	0.050	94.0	73.3	119			
Method: SW8021								Batch ID:	**R19657**
Sample ID: 5ML RB		*MBLK*						Analysis Date:	6/20/2006
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: 100NG BTEX LCS		*LCS*						Analysis Date:	6/20/2006
Methyl tert-butyl ether (MTBE)	44.78	µg/L	2.5	112	51.2	138			
Benzene	23.40	µg/L	1.0	117	85	115			S
Toluene	20.37	µg/L	1.0	102	85	118			
Ethylbenzene	22.56	µg/L	1.0	113	85	116			
Xylenes, Total	63.81	µg/L	3.0	106	85	119			
1,2,4-Trimethylbenzene	21.47	µg/L	1.0	107	81.7	121			
1,3,5-Trimethylbenzene	20.54	µg/L	1.0	103	85	123			

Qualifiers:

*	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

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace-2nd Quarter 2006-VS **Work Order:** 0606202

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									Batch ID: **R19672**
Sample ID: 5ML RB		*MBLK*							Analysis Date: 6/21/2006
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*							Analysis Date: 6/21/2006
Gasoline Range Organics (GRO)	0.4660	mg/L	0.050	93.2	73.3	119			
Method: SW8021									Batch ID: **R19672**
Sample ID: 5ML RB		*MBLK*							Analysis Date: 6/21/2006
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: 100NG BTEX LCS		*LCS*							Analysis Date: 6/21/2006
Methyl tert-butyl ether (MTBE)	49.03	µg/L	2.5	123	51.2	138			
Benzene	20.03	µg/L	1.0	100	85	115			
Toluene	19.27	µg/L	1.0	96.4	85	118			
Ethylbenzene	19.19	µg/L	1.0	96.0	85	116			
Xylenes, Total	58.30	µg/L	3.0	96.0	85	119			
1,2,4-Trimethylbenzene	19.08	µg/L	1.0	95.4	81.7	121			
1,3,5-Trimethylbenzene	19.44	µg/L	1.0	97.2	85	123			

Qualifiers:

*	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: 6/20/2006

Work Order Number 0606202 | Received by GLS

Checklist completed by _____ Signature _____ Date 6/20/06

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? *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

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

Client: San Juan Refining

Address: #50 Rd 4990
Bloomfield, NM 87413

Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 2nd QTR 2006 - VS

Project #:

Project Manager:

Sampler: Cindy Hurtado / Shelly Gowder

Sample Temperature:

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

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No. 0606202	BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas) (Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
6/19/06	930A	Gas Vapor	TP-12	1-Tedlar			1	X		X														
	1020A	Gas Vapor	TP-13	1-Tedlar			2	X		X														
	210p	" "	TP-10	" "			3	X		X														
	235	"	TP-3	"			4	X		X														
	315p	"	TP-11	"			5	X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	
6/19/06	340p	Cindy Hurtado		
				6-20-06 @ 1105
Date	Time	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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: River Terrace - 2nd Quarter 2006 - VS

Order No.: 0606236

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 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

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

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Jun-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW#1
Lab Order:	0606236	**Collection Date:**	6/21/2006 10:45:00 AM
Project:	River Terrace - 2nd Quarter 2006 - VS	**Date Received:**	6/22/2006
Lab ID:	0606236-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	8.6	5.0		µg/L	1	6/22/2006 5:03:27 PM
Surr: BFB	99.8	79.2-152		%REC	1	6/22/2006 5:03:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Benzene	ND	0.10		µg/L	1	6/22/2006 5:03:27 PM
Toluene	ND	0.10		µg/L	1	6/22/2006 5:03:27 PM
Ethylbenzene	ND	0.10		µg/L	1	6/22/2006 5:03:27 PM
Xylenes, Total	0.33	0.30		µg/L	1	6/22/2006 5:03:27 PM
Surr: 4-Bromofluorobenzene	93.0	80-116		%REC	1	6/22/2006 5:03:27 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: *28-Jun-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-9
Lab Order:	0606236	**Collection Date:**	6/21/2006 11:15:00 AM
Project:	River Terrace - 2nd Quarter 2006 - VS	**Date Received:**	6/22/2006
Lab ID:	0606236-02	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	31	5.0		µg/L	1	6/22/2006 3:32:04 PM
Surr: BFB	103	79.2-152		%REC	1	6/22/2006 3:32:04 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Benzene	ND	0.10		µg/L	1	6/22/2006 3:32:04 PM
Toluene	0.10	0.10		µg/L	1	6/22/2006 3:32:04 PM
Ethylbenzene	ND	0.10		µg/L	1	6/22/2006 3:32:04 PM
Xylenes, Total	0.62	0.30		µg/L	1	6/22/2006 3:32:04 PM
Surr: 4-Bromofluorobenzene	92.8	80-116		%REC	1	6/22/2006 3:32:04 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 - 2nd Quarter 2006 - VS **Work Order:** 0606236

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015								Batch ID:	**R19691**
Sample ID: 5ML RB		*MBLK*						Analysis Date:	6/22/2006
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)	0.4740	mg/L	0.050	94.8	73.3	119			
Method: SW8021								Batch ID:	**R19691**
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						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 100NG BTEX LCS		*LCS*						Analysis Date:	6/22/2006
Benzene	20.37	µg/L	1.0	102	85	115			
Toluene	19.22	µg/L	1.0	96.1	85	118			
Ethylbenzene	19.45	µg/L	1.0	97.2	85	116			
Xylenes, Total	58.72	µg/L	3.0	96.6	85	119			
1,2,4-Trimethylbenzene	19.32	µg/L	1.0	96.6	81.7	121			
1,3,5-Trimethylbenzene	19.54	µg/L	1.0	97.7	85	123			

Qualifiers:

*	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 0606236 | Received by GLS

Checklist completed by G Schlippe 6-22-06
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?

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

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

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

Client: San Juan Refining

Project Name: River Terrace - 2nd Qtr - 2006 - VS

Address: #50 Rd 4990
Bloomfield, NM 87413

Project #:

Project Manager: Cindy Hurtado

Phone #: 505-632-4161

Sampler: Cindy Hurtado/Shelly Cowden

Fax #: 505-632-3911

Sample Temperature:

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No. 6606236
6/21/06	1045	Gas Vapor	DW #1	1-Tedlar			1
"	1115	"	TP-9	1-Tedlar			2

ANALYSIS REQUEST

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

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
6/21/06	12:10			6-22-06
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	1040

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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: River Terrace - 2nd Quarter 2006 - VS

Order No.: 0606213

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 7 sample(s) on 6/21/2006 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: *28-Jun-06*

CLIENT: San Juan Refining
Project: River Terrace - 2nd Quarter 2006 - VS
Lab Order: 0606213

CASE NARRATIVE

Analytical Comments for METHOD 8015GRO_A, SAMPLE 0606213-06A: elevated surrogate due to matrix interference

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Jun-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-4
Lab Order:	0606213	**Collection Date:**	6/20/2006 9:25:00 AM
Project:	River Terrace - 2nd Quarter 2006 - VS	**Date Received:**	6/21/2006
Lab ID:	0606213-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	80	50		µg/L	10	6/21/2006 3:42:24 PM
Surr: BFB	101	79.2-152		%REC	10	6/21/2006 3:42:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Benzene	ND	1.0		µg/L	10	6/21/2006 3:42:24 PM
Toluene	ND	1.0		µg/L	10	6/21/2006 3:42:24 PM
Ethylbenzene	ND	1.0		µg/L	10	6/21/2006 3:42:24 PM
Xylenes, Total	12	3.0		µg/L	10	6/21/2006 3:42:24 PM
Surr: 4-Bromofluorobenzene	94.1	80-116		%REC	10	6/21/2006 3:42:24 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: *28-Jun-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-5
Lab Order:	0606213	**Collection Date:**	6/20/2006 10:10:00 AM
Project:	River Terrace - 2nd Quarter 2006 - VS	**Date Received:**	6/21/2006
Lab ID:	0606213-02	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	1800	500		µg/L	100	6/21/2006 3:11:47 PM
Surr: BFB	108	79.2-152		%REC	100	6/21/2006 3:11:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Benzene	ND	10		µg/L	100	6/21/2006 3:11:47 PM
Toluene	11	10		µg/L	100	6/21/2006 3:11:47 PM
Ethylbenzene	15	10		µg/L	100	6/21/2006 3:11:47 PM
Xylenes, Total	130	30		µg/L	100	6/21/2006 3:11:47 PM
Surr: 4-Bromofluorobenzene	94.8	80-116		%REC	100	6/21/2006 3:11:47 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: *28-Jun-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-2
Lab Order:	0606213	**Collection Date:**	6/20/2006 10:30:00 AM
Project:	River Terrace - 2nd Quarter 2006 - VS	**Date Received:**	6/21/2006
Lab ID:	0606213-03	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	25	5.0		µg/L	1	6/22/2006 3:01:32 PM
Surr: BFB	110	79.2-152		%REC	1	6/22/2006 3:01:32 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Benzene	0.21	0.10		µg/L	1	6/22/2006 3:01:32 PM
Toluene	0.12	0.10		µg/L	1	6/22/2006 3:01:32 PM
Ethylbenzene	0.23	0.10		µg/L	1	6/22/2006 3:01:32 PM
Xylenes, Total	2.8	0.30		µg/L	1	6/22/2006 3:01:32 PM
Surr: 4-Bromofluorobenzene	92.9	80-116		%REC	1	6/22/2006 3:01:32 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: *28-Jun-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-1
Lab Order:	0606213	**Collection Date:**	6/20/2006 10:50:00 AM
Project:	River Terrace - 2nd Quarter 2006 - VS	**Date Received:**	6/21/2006
Lab ID:	0606213-04	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	3100	100		µg/L	20	6/21/2006 6:45:28 PM
Surr: BFB	151	79.2-152		%REC	20	6/21/2006 6:45:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Benzene	2.6	2.0		µg/L	20	6/21/2006 6:45:28 PM
Toluene	ND	2.0		µg/L	20	6/21/2006 6:45:28 PM
Ethylbenzene	5.5	2.0		µg/L	20	6/21/2006 6:45:28 PM
Xylenes, Total	210	6.0		µg/L	20	6/21/2006 6:45:28 PM
Surr: 4-Bromofluorobenzene	105	80-116		%REC	20	6/21/2006 6:45:28 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: *28-Jun-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0606213	**Collection Date:**	6/20/2006 1:45:00 PM
Project:	River Terrace - 2nd Quarter 2006 - VS	**Date Received:**	6/21/2006
Lab ID:	0606213-05	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	35	5.0		µg/L	1	6/21/2006 7:15:47 PM
Surr: BFB	125	79.2-152		%REC	1	6/21/2006 7:15:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Benzene	ND	0.10		µg/L	1	6/21/2006 7:15:47 PM
Toluene	ND	0.10		µg/L	1	6/21/2006 7:15:47 PM
Ethylbenzene	ND	0.10		µg/L	1	6/21/2006 7:15:47 PM
Xylenes, Total	1.4	0.30		µg/L	1	6/21/2006 7:15:47 PM
Surr: 4-Bromofluorobenzene	97.4	80-116		%REC	1	6/21/2006 7:15:47 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: *28-Jun-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-8
Lab Order:	0606213	**Collection Date:**	6/20/2006 2:15:00 PM
Project:	River Terrace - 2nd Quarter 2006 - VS	**Date Received:**	6/21/2006
Lab ID:	0606213-06	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	3700	100		µg/L	20	6/21/2006 7:46:04 PM
Surr: BFB	234	79.2-152	S	%REC	20	6/21/2006 7:46:04 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Benzene	ND	2.0		µg/L	20	6/21/2006 7:46:04 PM
Toluene	2.2	2.0		µg/L	20	6/21/2006 7:46:04 PM
Ethylbenzene	6.6	2.0		µg/L	20	6/21/2006 7:46:04 PM
Xylenes, Total	460	6.0		µg/L	20	6/21/2006 7:46:04 PM
Surr: 4-Bromofluorobenzene	105	80-116		%REC	20	6/21/2006 7:46:04 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: *28-Jun-06*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-6
Lab Order:	0606213	**Collection Date:**	6/20/2006 2:45:00 PM
Project:	River Terrace - 2nd Quarter 2006 - VS	**Date Received:**	6/21/2006
Lab ID:	0606213-07	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **HLM**
Gasoline Range Organics (GRO)	100	5.0		µg/L	1	6/21/2006 8:16:34 PM
Surr: BFB	150	79.2-152		%REC	1	6/21/2006 8:16:34 PM
EPA METHOD 8021B: VOLATILES						Analyst: **HLM**
Benzene	ND	0.10		µg/L	1	6/21/2006 8:16:34 PM
Toluene	ND	0.10		µg/L	1	6/21/2006 8:16:34 PM
Ethylbenzene	0.18	0.10		µg/L	1	6/21/2006 8:16:34 PM
Xylenes, Total	3.1	0.30		µg/L	1	6/21/2006 8:16:34 PM
Surr: 4-Bromofluorobenzene	98.8	80-116		%REC	1	6/21/2006 8:16:34 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 - 2nd Quarter 2006 - VS
Work Order: 0606213

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									Batch ID: **R19686**
Sample ID: 5ML RB		*MBLK*							Analysis Date: 6/21/2006
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*							Analysis Date: 6/21/2006
Gasoline Range Organics (GRO)	0.4660	mg/L	0.050	93.2	73.3	119			
Method: SW8021									Batch ID: **R19686**
Sample ID: 5ML RB		*MBLK*							Analysis Date: 6/21/2006
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						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 100NG BTEX LCS		*LCS*							Analysis Date: 6/21/2006
Benzene	20.03	µg/L	1.0	100	85	115			
Toluene	19.27	µg/L	1.0	96.4	85	118			
Ethylbenzene	19.19	µg/L	1.0	96.0	85	116			
Xylenes, Total	58.30	µg/L	3.0	96.0	85	119			
1,2,4-Trimethylbenzene	19.08	µg/L	1.0	95.4	81.7	121			
1,3,5-Trimethylbenzene	19.44	µg/L	1.0	97.2	85	123			
Method: SW8015									Batch ID: **R19691**
Sample ID: 5ML RB		*MBLK*							Analysis Date: 6/22/2006
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)	0.4740	mg/L	0.050	94.8	73.3	119			
Method: SW8021									Batch ID: **R19691**
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						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 100NG BTEX LCS		*LCS*							Analysis Date: 6/22/2006
Benzene	20.37	µg/L	1.0	102	85	115			
Toluene	19.22	µg/L	1.0	96.1	85	118			
Ethylbenzene	19.45	µg/L	1.0	97.2	85	116			
Xylenes, Total	58.72	µg/L	3.0	96.6	85	119			
1,2,4-Trimethylbenzene	19.32	µg/L	1.0	96.6	81.7	121			
1,3,5-Trimethylbenzene	19.54	µg/L	1.0	97.7	85	123			

Qualifiers:

*	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: 6/21/2006

Work Order Number 0606213 | Received by GLS

Checklist completed by _____ (Signature) 6-21-06 (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° 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

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

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

Client: San Juan Refining

Address: #50 Rd 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Project Name: River Terrace - 2nd QTR 2006 - VS

Project #:

Project Manager: Cindy Hurtado

Sampler: Cindy Hurtado / Shelly Cowden

Sample Temperature:

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No. 0606213	BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
6/20/06	925A	VAPOR GAS	TP-4	1-Tedlar			1	X		X														
	1010A		TP-5	"			2	X		X														
	1030		TP-2	"			3	X		X														
	1050		TP-1	"			4	X		X														
	145pm		MW#49	"			5	X		X														
	215pm		TP-8	"			6	X		X														
	245		TP-6	"			7	X		X														

Date: 6/20/06 Time: 335PM Relinquished By: (Signature) Cindy Hurtado

Received By: (Signature) D. Whipple 6-21-06 915

Date: Time: Relinquished By: (Signature)

Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

August 29, 2005

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

RE: River Terrace Giant Refinery Order No.: 0508216

Dear Dennis Tucker:

Hall Environmental Analysis Laboratory received 22 samples on 8/18/2005 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

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

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

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV2-3
Lab Order: 0508216
Collection Date: 8/15/2005 11:15:00 AM
Project: River Terrace Giant Refinery
Lab ID: 0508216-01
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	48	12		mg/Kg-dry	1	8/25/2005 12:22:06 AM
Motor Oil Range Organics (MRO)	ND	59		mg/Kg-dry	1	8/25/2005 12:22:06 AM
Surr: DNOP	99.9	60-124		%REC	1	8/25/2005 12:22:06 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	1400	300		mg/Kg-dry	50	8/24/2005 7:59:48 PM
Surr: BFB	104	83.1-124		%REC	50	8/24/2005 7:59:48 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.5		mg/Kg-dry	50	8/24/2005 7:59:48 PM
Toluene	4.4	1.5		mg/Kg-dry	50	8/24/2005 7:59:48 PM
Ethylbenzene	12	1.5		mg/Kg-dry	50	8/24/2005 7:59:48 PM
Xylenes, Total	360	1.5		mg/Kg-dry	50	8/24/2005 7:59:48 PM
Surr: 4-Bromofluorobenzene	109	87.5-115		%REC	50	8/24/2005 7:59:48 PM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	16	0.50		wt%	1	8/29/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV2-10
Lab Order: 0508216
Collection Date: 8/15/2005 11:30:00 AM
Project: River Terrace Giant Refinery
Lab ID: 0508216-02
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	11		mg/Kg-dry	1	8/25/2005 12:54:57 AM
Motor Oil Range Organics (MRO)	ND	55		mg/Kg-dry	1	8/25/2005 12:54:57 AM
Surr: DNOP	97.6	60-124		%REC	1	8/25/2005 12:54:57 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7.6	5.5		mg/Kg-dry	1	8/26/2005 5:53:06 PM
Surr: BFB	109	83.1-124		%REC	1	8/26/2005 5:53:06 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.027		mg/Kg-dry	1	8/26/2005 5:53:06 PM
Toluene	ND	0.027		mg/Kg-dry	1	8/26/2005 5:53:06 PM
Ethylbenzene	0.11	0.027		mg/Kg-dry	1	8/26/2005 5:53:06 PM
Xylenes, Total	0.82	0.027		mg/Kg-dry	1	8/26/2005 5:53:06 PM
Surr: 4-Bromofluorobenzene	106	87.5-115		%REC	1	8/26/2005 5:53:06 PM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	8.9	0.50		wt%	1	8/29/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV4-3
Lab Order: 0508216
Collection Date: 8/15/2005 1:10:00 PM
Project: River Terrace Giant Refinery
Lab ID: 0508216-03
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	230	11		mg/Kg-dry	1	8/25/2005 1:27:42 AM
Motor Oil Range Organics (MRO)	ND	55		mg/Kg-dry	1	8/25/2005 1:27:42 AM
Surr: DNOP	108	60-124		%REC	1	8/25/2005 1:27:42 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	3800	280		mg/Kg-dry	50	8/24/2005 9:02:27 PM
Surr: BFB	104	83.1-124		%REC	50	8/24/2005 9:02:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.4		mg/Kg-dry	50	8/24/2005 9:02:27 PM
Toluene	31	1.4		mg/Kg-dry	50	8/24/2005 9:02:27 PM
Ethylbenzene	49	1.4		mg/Kg-dry	50	8/24/2005 9:02:27 PM
Xylenes, Total	840	5.5		mg/Kg-dry	200	8/26/2005 6:25:00 PM
Surr: 4-Bromofluorobenzene	113	87.5-115		%REC	50	8/24/2005 9:02:27 PM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	9.6	0.50		wt%	1	8/29/2005

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV1-6
Lab Order: 0508216
Collection Date: 8/15/2005 1:45:00 PM
Project: River Terrace Giant Refinery
Lab ID: 0508216-04
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	12		mg/Kg-dry	1	8/25/2005 2:00:27 AM
Motor Oil Range Organics (MRO)	ND	60		mg/Kg-dry	1	8/25/2005 2:00:27 AM
Surr: DNOP	102	60-124		%REC	1	8/25/2005 2:00:27 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	6.0		mg/Kg-dry	1	8/24/2005 9:33:42 PM
Surr: BFB	94.6	83.1-124		%REC	1	8/24/2005 9:33:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.030		mg/Kg-dry	1	8/24/2005 9:33:42 PM
Toluene	ND	0.030		mg/Kg-dry	1	8/24/2005 9:33:42 PM
Ethylbenzene	ND	0.030		mg/Kg-dry	1	8/24/2005 9:33:42 PM
Xylenes, Total	0.086	0.030		mg/Kg-dry	1	8/24/2005 9:33:42 PM
Surr: 4-Bromofluorobenzene	103	87.5-115		%REC	1	8/24/2005 9:33:42 PM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	17	0.50		wt%	1	8/29/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Lab Order: 0508216
Project: River Terrace Giant Refinery
Lab ID: 0508216-05

Client Sample ID: BV3-7
Collection Date: 8/15/2005 2:40:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	12		mg/Kg-dry	1	8/25/2005 2:33:14 AM
Motor Oil Range Organics (MRO)	ND	60		mg/Kg-dry	1	8/25/2005 2:33:14 AM
Surr: DNOP	108	60-124		%REC	1	8/25/2005 2:33:14 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	6.0		mg/Kg-dry	1	8/26/2005 6:57:00 PM
Surr: BFB	106	83.1-124		%REC	1	8/26/2005 6:57:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.030		mg/Kg-dry	1	8/26/2005 6:57:00 PM
Toluene	ND	0.030		mg/Kg-dry	1	8/26/2005 6:57:00 PM
Ethylbenzene	0.11	0.030		mg/Kg-dry	1	8/26/2005 6:57:00 PM
Xylenes, Total	0.24	0.030		mg/Kg-dry	1	8/26/2005 6:57:00 PM
Surr: 4-Bromofluorobenzene	104	87.5-115		%REC	1	8/26/2005 6:57:00 PM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	17	0.50		wt%	1	8/29/2005

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV5-6
Lab Order: 0508216
Collection Date: 8/15/2005 3:40:00 PM
Project: River Terrace Giant Refinery
Lab ID: 0508216-06
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: SCC
Diesel Range Organics (DRO)	27	12		mg/Kg-dry	1	8/25/2005 3:06:00 AM
Motor Oil Range Organics (MRO)	ND	60		mg/Kg-dry	1	8/25/2005 3:06:00 AM
Surr: DNOP	108	60-124		%REC	1	8/25/2005 3:06:00 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	340	120		mg/Kg-dry	20	8/24/2005 10:35:41 PM
Surr: BFB	104	83.1-124		%REC	20	8/24/2005 10:35:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.60		mg/Kg-dry	20	8/24/2005 10:35:41 PM
Toluene	ND	0.60		mg/Kg-dry	20	8/24/2005 10:35:41 PM
Ethylbenzene	0.82	0.60		mg/Kg-dry	20	8/24/2005 10:35:41 PM
Xylenes, Total	23	0.60		mg/Kg-dry	20	8/24/2005 10:35:41 PM
Surr: 4-Bromofluorobenzene	108	87.5-115		%REC	20	8/24/2005 10:35:41 PM
ASTM 2216: PERCENT MOISTURE						Analyst: HLM
Percent Moisture	17	0.50		wt%	1	8/29/2005

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV5-10
Lab Order: 0508216
Collection Date: 8/15/2005 3:50:00 PM
Project: River Terrace Giant Refinery
Lab ID: 0508216-07
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: SCC
Diesel Range Organics (DRO)	ND	12		mg/Kg-dry	1	8/25/2005 3:38:49 AM
Motor Oil Range Organics (MRO)	ND	58		mg/Kg-dry	1	8/25/2005 3:38:49 AM
Surr: DNOP	103	60-124		%REC	1	8/25/2005 3:38:49 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.8		mg/Kg-dry	1	8/24/2005 11:06:37 PM
Surr: BFB	95.7	83.1-124		%REC	1	8/24/2005 11:06:37 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.029		mg/Kg-dry	1	8/24/2005 11:06:37 PM
Toluene	ND	0.029		mg/Kg-dry	1	8/24/2005 11:06:37 PM
Ethylbenzene	0.034	0.029		mg/Kg-dry	1	8/24/2005 11:06:37 PM
Xylenes, Total	0.18	0.029		mg/Kg-dry	1	8/24/2005 11:06:37 PM
Surr: 4-Bromofluorobenzene	103	87.5-115		%REC	1	8/24/2005 11:06:37 PM
ASTM 2216: PERCENT MOISTURE						Analyst: HLM
Percent Moisture	14	0.50		wt%	1	8/29/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV6-3
Lab Order: 0508216
Collection Date: 8/16/2005 11:15:00 AM
Project: River Terrace Giant Refinery
Lab ID: 0508216-08
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	250	12		mg/Kg-dry	1	8/25/2005 4:11:35 AM
Motor Oil Range Organics (MRO)	ND	60		mg/Kg-dry	1	8/25/2005 4:11:35 AM
Surr: DNOP	109	60-124		%REC	1	8/25/2005 4:11:35 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	3400	300		mg/Kg-dry	50	8/24/2005 11:37:32 PM
Surr: BFB	105	83.1-124		%REC	50	8/24/2005 11:37:32 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.5		mg/Kg-dry	50	8/24/2005 11:37:32 PM
Toluene	9.5	1.5		mg/Kg-dry	50	8/24/2005 11:37:32 PM
Ethylbenzene	20	1.5		mg/Kg-dry	50	8/24/2005 11:37:32 PM
Xylenes, Total	590	1.5		mg/Kg-dry	50	8/24/2005 11:37:32 PM
Surr: 4-Bromofluorobenzene	109	87.5-115		%REC	50	8/24/2005 11:37:32 PM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	16	0.50		wt%	1	8/29/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV6-9
Lab Order: 0508216
Collection Date: 8/16/2005 11:25:00 AM
Project: River Terrace Giant Refinery
Lab ID: 0508216-09
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	14	12		mg/Kg-dry	1	8/25/2005 4:44:20 AM
Motor Oil Range Organics (MRO)	ND	61		mg/Kg-dry	1	8/25/2005 4:44:20 AM
Surr: DNOP	104	60-124		%REC	1	8/25/2005 4:44:20 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	64	6.1		mg/Kg-dry	1	8/26/2005 7:28:35 PM
Surr: BFB	109	83.1-124		%REC	1	8/26/2005 7:28:35 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.054	0.030		mg/Kg-dry	1	8/26/2005 7:28:35 PM
Toluene	0.24	0.030		mg/Kg-dry	1	8/26/2005 7:28:35 PM
Ethylbenzene	1.1	0.030		mg/Kg-dry	1	8/26/2005 7:28:35 PM
Xylenes, Total	11	0.030		mg/Kg-dry	1	8/26/2005 7:28:35 PM
Surr: 4-Bromofluorobenzene	109	87.5-115		%REC	1	8/26/2005 7:28:35 PM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	18	0.50		wt%	1	8/29/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV11-3
Lab Order: 0508216
Collection Date: 8/16/2005 11:55:00 AM
Project: River Terrace Giant Refinery
Lab ID: 0508216-10
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	930	13		mg/Kg-dry	1	8/25/2005 5:17:07 AM
Motor Oil Range Organics (MRO)	82	64		mg/Kg-dry	1	8/25/2005 5:17:07 AM
Surr: DNOP	118	60-124		%REC	1	8/25/2005 5:17:07 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7400	640		mg/Kg-dry	100	8/26/2005 8:00:19 PM
Surr: BFB	110	83.1-124		%REC	100	8/26/2005 8:00:19 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	3.2		mg/Kg-dry	100	8/26/2005 8:00:19 PM
Toluene	29	3.2		mg/Kg-dry	100	8/26/2005 8:00:19 PM
Ethylbenzene	190	3.2		mg/Kg-dry	100	8/26/2005 8:00:19 PM
Xylenes, Total	2200	3.2		mg/Kg-dry	100	8/26/2005 8:00:19 PM
Surr: 4-Bromofluorobenzene	109	87.5-115		%REC	100	8/26/2005 8:00:19 PM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	22	0.50		wt%	1	8/29/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Lab Order: 0508216
Project: River Terrace Giant Refinery
Lab ID: 0508216-11

Client Sample ID: BV11-8
Collection Date: 8/16/2005 12:05:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	20	12		mg/Kg-dry	1	8/25/2005 6:22:45 AM
Motor Oil Range Organics (MRO)	ND	62		mg/Kg-dry	1	8/25/2005 6:22:45 AM
Surr: DNOP	105	60-124		%REC	1	8/25/2005 6:22:45 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	310	120		mg/Kg-dry	20	8/26/2005 8:31:45 PM
Surr: BFB	108	83.1-124		%REC	20	8/26/2005 8:31:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.62		mg/Kg-dry	20	8/26/2005 8:31:45 PM
Toluene	ND	0.62		mg/Kg-dry	20	8/26/2005 8:31:45 PM
Ethylbenzene	6.4	0.62		mg/Kg-dry	20	8/26/2005 8:31:45 PM
Xylenes, Total	18	0.62		mg/Kg-dry	20	8/26/2005 8:31:45 PM
Surr: 4-Bromofluorobenzene	107	87.5-115		%REC	20	8/26/2005 8:31:45 PM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	19	0.50		wt%	1	8/29/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT:	San Juan Refining	**Client Sample ID:**	BV13-7
Lab Order:	0508216	**Collection Date:**	8/16/2005 1:40:00 PM
Project:	River Terrace Giant Refinery		
Lab ID:	0508216-12	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	490	12		mg/Kg-dry	1	8/25/2005 6:55:30 AM
Motor Oil Range Organics (MRO)	73	59		mg/Kg-dry	1	8/25/2005 6:55:30 AM
Surr: DNOP	108	60-124		%REC	1	8/25/2005 6:55:30 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	2300	290		mg/Kg-dry	50	8/26/2005 9:03:11 PM
Surr: BFB	116	83.1-124		%REC	50	8/26/2005 9:03:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	5.1	1.5		mg/Kg-dry	50	8/26/2005 9:03:11 PM
Toluene	5.4	1.5		mg/Kg-dry	50	8/26/2005 9:03:11 PM
Ethylbenzene	87	1.5		mg/Kg-dry	50	8/26/2005 9:03:11 PM
Xylenes, Total	330	1.5		mg/Kg-dry	50	8/26/2005 9:03:11 PM
Surr: 4-Bromofluorobenzene	109	87.5-115		%REC	50	8/26/2005 9:03:11 PM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	15	0.50		wt%	1	8/29/2005

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Lab Order: 0508216
Project: River Terrace Giant Refinery
Lab ID: 0508216-13

Client Sample ID: BV12-3
Collection Date: 8/16/2005 2:15:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	110	12		mg/Kg-dry	1	8/25/2005 7:28:16 AM
Motor Oil Range Organics (MRO)	ND	61		mg/Kg-dry	1	8/25/2005 7:28:16 AM
Surr: DNOP	105	60-124		%REC	1	8/25/2005 7:28:16 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	370	120		mg/Kg-dry	20	8/26/2005 9:34:48 PM
Surr: BFB	105	83.1-124		%REC	20	8/26/2005 9:34:48 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.61		mg/Kg-dry	20	8/26/2005 9:34:48 PM
Toluene	ND	0.61		mg/Kg-dry	20	8/26/2005 9:34:48 PM
Ethylbenzene	5.7	0.61		mg/Kg-dry	20	8/26/2005 9:34:48 PM
Xylenes, Total	28	0.61		mg/Kg-dry	20	8/26/2005 9:34:48 PM
Surr: 4-Bromofluorobenzene	106	87.5-115		%REC	20	8/26/2005 9:34:48 PM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	19	0.50		wt%	1	8/29/2005

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV12-8
Lab Order: 0508216
Collection Date: 8/16/2005 2:25:00 PM
Project: River Terrace Giant Refinery
Lab ID: 0508216-14
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: SCC
Diesel Range Organics (DRO)	550	12		mg/Kg-dry	1	8/25/2005 10:45:01 AM
Motor Oil Range Organics (MRO)	ND	59		mg/Kg-dry	1	8/25/2005 10:45:01 AM
Surr: DNOP	111	60-124		%REC	1	8/25/2005 10:45:01 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	11000	590		mg/Kg-dry	100	8/26/2005 10:06:04 PM
Surr: BFB	113	83.1-124		%REC	100	8/26/2005 10:06:04 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	45	2.9		mg/Kg-dry	100	8/26/2005 10:06:04 PM
Toluene	200	2.9		mg/Kg-dry	100	8/26/2005 10:06:04 PM
Ethylbenzene	360	2.9		mg/Kg-dry	100	8/26/2005 10:06:04 PM
Xylenes, Total	2100	2.9		mg/Kg-dry	100	8/26/2005 10:06:04 PM
Surr: 4-Bromofluorobenzene	110	87.5-115		%REC	100	8/26/2005 10:06:04 PM
ASTM 2216: PERCENT MOISTURE						Analyst: HLM
Percent Moisture	15	0.50		wt%	1	8/29/2005

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV10-3
Lab Order: 0508216
Collection Date: 8/16/2005 2:55:00 PM
Project: River Terrace Giant Refinery
Lab ID: 0508216-15
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	240	11		mg/Kg-dry	1	8/25/2005 11:17:47 AM
Motor Oil Range Organics (MRO)	ND	54		mg/Kg-dry	1	8/25/2005 11:17:47 AM
Surr: DNOP	117	60-124		%REC	1	8/25/2005 11:17:47 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	5400	540		mg/Kg-dry	100	8/26/2005 11:39:24 PM
Surr: BFB	112	83.1-124		%REC	100	8/26/2005 11:39:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	2.7		mg/Kg-dry	100	8/26/2005 11:39:24 PM
Toluene	4.7	2.7		mg/Kg-dry	100	8/26/2005 11:39:24 PM
Ethylbenzene	82	2.7		mg/Kg-dry	100	8/26/2005 11:39:24 PM
Xylenes, Total	660	2.7		mg/Kg-dry	100	8/26/2005 11:39:24 PM
Surr: 4-Bromofluorobenzene	108	87.5-115		%REC	100	8/26/2005 11:39:24 PM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	8.0	0.50		wt%	1	8/29/2005

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV10-8
Lab Order: 0508216
Collection Date: 8/16/2005 3:05:00 PM
Project: River Terrace Giant Refinery
Lab ID: 0508216-16
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	71	12		mg/Kg-dry	1	8/25/2005 11:50:38 AM
Motor Oil Range Organics (MRO)	ND	62		mg/Kg-dry	1	8/25/2005 11:50:38 AM
Surr: DNOP	99.6	60-124		%REC	1	8/25/2005 11:50:38 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	1900	310		mg/Kg-dry	50	8/27/2005 12:10:27 AM
Surr: BFB	110	83.1-124		%REC	50	8/27/2005 12:10:27 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	3.0	1.6		mg/Kg-dry	50	8/27/2005 12:10:27 AM
Toluene	40	1.6		mg/Kg-dry	50	8/27/2005 12:10:27 AM
Ethylbenzene	59	1.6		mg/Kg-dry	50	8/27/2005 12:10:27 AM
Xylenes, Total	370	1.6		mg/Kg-dry	50	8/27/2005 12:10:27 AM
Surr: 4-Bromofluorobenzene	106	87.5-115		%REC	50	8/27/2005 12:10:27 AM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	20	0.50		wt%	1	8/29/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV9-3
Lab Order: 0508216
Collection Date: 8/17/2005 8:55:00 AM
Project: River Terrace Giant Refinery
Lab ID: 0508216-17
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	38	10		mg/Kg-dry	1	8/25/2005 12:23:25 PM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg-dry	1	8/25/2005 12:23:25 PM
Surr: DNOP	115	60-124		%REC	1	8/25/2005 12:23:25 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	420	130		mg/Kg-dry	25	8/27/2005 12:41:25 AM
Surr: BFB	109	83.1-124		%REC	25	8/27/2005 12:41:25 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.64		mg/Kg-dry	25	8/27/2005 12:41:25 AM
Toluene	ND	0.64		mg/Kg-dry	25	8/27/2005 12:41:25 AM
Ethylbenzene	5.8	0.64		mg/Kg-dry	25	8/27/2005 12:41:25 AM
Xylenes, Total	56	0.64		mg/Kg-dry	25	8/27/2005 12:41:25 AM
Surr: 4-Bromofluorobenzene	105	87.5-115		%REC	25	8/27/2005 12:41:25 AM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	2.3	0.50		wt%	1	8/29/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV9-8
Lab Order: 0508216
Collection Date: 8/17/2005 9:05:00 AM
Project: River Terrace Giant Refinery
Lab ID: 0508216-18
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	12		mg/Kg-dry	1	8/25/2005 12:56:13 PM
Motor Oil Range Organics (MRO)	ND	62		mg/Kg-dry	1	8/25/2005 12:56:13 PM
Surr: DNOP	98.9	60-124		%REC	1	8/25/2005 12:56:13 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	16	6.2		mg/Kg-dry	1	8/27/2005 1:12:10 AM
Surr: BFB	111	83.1-124		%REC	1	8/27/2005 1:12:10 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.13	0.031		mg/Kg-dry	1	8/27/2005 1:12:10 AM
Toluene	0.036	0.031		mg/Kg-dry	1	8/27/2005 1:12:10 AM
Ethylbenzene	0.77	0.031		mg/Kg-dry	1	8/27/2005 1:12:10 AM
Xylenes, Total	2.9	0.031		mg/Kg-dry	1	8/27/2005 1:12:10 AM
Surr: 4-Bromofluorobenzene	105	87.5-115		%REC	1	8/27/2005 1:12:10 AM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	19	0.50		wt%	1	8/29/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV7-3
Lab Order: 0508216
Collection Date: 8/17/2005 9:55:00 AM
Project: River Terrace Giant Refinery
Lab ID: 0508216-19
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	250	12		mg/Kg-dry	1	8/25/2005 1:29:17 PM
Motor Oil Range Organics (MRO)	ND	61		mg/Kg-dry	1	8/25/2005 1:29:17 PM
Surr: DNOP	106	60-124		%REC	1	8/25/2005 1:29:17 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	3400	610		mg/Kg-dry	100	8/27/2005 1:43:02 AM
Surr: BFB	110	83.1-124		%REC	100	8/27/2005 1:43:02 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	3.1		mg/Kg-dry	100	8/27/2005 1:43:02 AM
Toluene	4.8	3.1		mg/Kg-dry	100	8/27/2005 1:43:02 AM
Ethylbenzene	48	3.1		mg/Kg-dry	100	8/27/2005 1:43:02 AM
Xylenes, Total	650	3.1		mg/Kg-dry	100	8/27/2005 1:43:02 AM
Surr: 4-Bromofluorobenzene	107	87.5-115		%REC	100	8/27/2005 1:43:02 AM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	19	0.50		wt%	1	8/29/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV7-8
Lab Order: 0508216
Collection Date: 8/17/2005 10:05:00 AM
Project: River Terrace Giant Refinery
Lab ID: 0508216-20
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	27	12		mg/Kg-dry	1	8/25/2005 2:02:21 PM
Motor Oil Range Organics (MRO)	ND	59		mg/Kg-dry	1	8/25/2005 2:02:21 PM
Surr: DNOP	96.2	60-124		%REC	1	8/25/2005 2:02:21 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	650	120		mg/Kg-dry	20	8/27/2005 2:13:40 AM
Surr: BFB	115	83.1-124		%REC	20	8/27/2005 2:13:40 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.59		mg/Kg-dry	20	8/27/2005 2:13:40 AM
Toluene	0.76	0.59		mg/Kg-dry	20	8/27/2005 2:13:40 AM
Ethylbenzene	13	0.59		mg/Kg-dry	20	8/27/2005 2:13:40 AM
Xylenes, Total	110	0.59		mg/Kg-dry	20	8/27/2005 2:13:40 AM
Surr: 4-Bromofluorobenzene	108	87.5-115		%REC	20	8/27/2005 2:13:40 AM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	15	0.50		wt%	1	8/29/2005

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV8-10
Lab Order: 0508216
Collection Date: 8/17/2005 10:45:00 AM
Project: River Terrace Giant Refinery
Lab ID: 0508216-21
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	170	12		mg/Kg-dry	1	8/25/2005 2:33:58 PM
Motor Oil Range Organics (MRO)	ND	59		mg/Kg-dry	1	8/25/2005 2:33:58 PM
Surr: DNOP	107	60-124		%REC	1	8/25/2005 2:33:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	5200	290		mg/Kg-dry	50	8/24/2005 6:56:51 PM
Surr: BFB	110	83.1-124		%REC	50	8/24/2005 6:56:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	12	1.5		mg/Kg-dry	50	8/24/2005 6:56:51 PM
Toluene	180	1.5		mg/Kg-dry	50	8/24/2005 6:56:51 PM
Ethylbenzene	170	1.5		mg/Kg-dry	50	8/24/2005 6:56:51 PM
Xylenes, Total	1100	5.9		mg/Kg-dry	200	8/26/2005 5:20:47 PM
Surr: 4-Bromofluorobenzene	111	87.5-115		%REC	50	8/24/2005 6:56:51 PM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	15	0.50		wt%	1	8/29/2005

Qualifiers:

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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *08-Sep-05*

CLIENT: San Juan Refining
Client Sample ID: BV8-13
Lab Order: 0508216
Collection Date: 8/17/2005 10:55:00 AM
Project: River Terrace Giant Refinery
Lab ID: 0508216-22
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	34	12		mg/Kg-dry	1	8/25/2005 3:40:08 PM
Motor Oil Range Organics (MRO)	ND	61		mg/Kg-dry	1	8/25/2005 3:40:08 PM
Surr: DNOP	101	60-124		%REC	1	8/25/2005 3:40:08 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	940	300		mg/Kg-dry	50	8/24/2005 7:28:21 PM
Surr: BFB	98.1	83.1-124		%REC	50	8/24/2005 7:28:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	1.9	1.5		mg/Kg-dry	50	8/24/2005 7:28:21 PM
Toluene	5.6	1.5		mg/Kg-dry	50	8/24/2005 7:28:21 PM
Ethylbenzene	31	1.5		mg/Kg-dry	50	8/24/2005 7:28:21 PM
Xylenes, Total	180	1.5		mg/Kg-dry	50	8/24/2005 7:28:21 PM
Surr: 4-Bromofluorobenzene	106	87.5-115		%REC	50	8/24/2005 7:28:21 PM
ASTM 2216: PERCENT MOISTURE						Analyst: **HLM**
Percent Moisture	18	0.50		wt%	1	8/29/2005

Qualifiers:
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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: 29-Aug-05

CLIENT: San Juan Refining
Work Order: 0508216
Project: River Terrace Giant Refinery

QC SUMMARY REPORT
Method Blank

Sample ID **MB-8569** Batch ID: **8569** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **8/20/2005 12:52:22 PM** Prep Date **8/19/2005**
Client ID: Run ID: **FID(17A) 2_050820A** SeqNo: **390339**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10									
Motor Oil Range Organics (MRO)	ND	50									
Surr: DNOP	10.67	0	10	0	107	60	124	0			

Sample ID **MB-8572** Batch ID: **8572** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **8/20/2005 6:54:01 PM** Prep Date **8/19/2005**
Client ID: Run ID: **FID(17A) 2_050820A** SeqNo: **390347**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10									
Motor Oil Range Organics (MRO)	ND	50									
Surr: DNOP	10.35	0	10	0	103	60	124	0			

Sample ID **mb-8594** Batch ID: **8594** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **8/23/2005 6:41:01 PM** Prep Date **8/22/2005**
Client ID: Run ID: **PIDFID_050823A** SeqNo: **391443**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5									
Surr: BFB	943.5	0	1000	0	94.4	83.1	124	0			

Sample ID **mb-8593** Batch ID: **8593** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **8/25/2005 3:43:50 AM** Prep Date **8/22/2005**
Client ID: Run ID: **PIDFID_050824A** SeqNo: **391992**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5									
Surr: BFB	916.2	0	1000	0	91.6	83.1	124	0			

Qualifiers: ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508216
Project: River Terrace Giant Refinery

QC SUMMARY REPORT
Method Blank

Sample ID mb-8594 Batch ID: 8594 Test Code: SW8021 Units: mg/Kg Analysis Date 8/23/2005 6:41:01 PM Prep Date 8/22/2005
Client ID: Run ID: PIDFID_050823A SeqNo: 391292

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.025									
Toluene	ND	0.025									
Ethylbenzene	ND	0.025									
Xylenes, Total	ND	0.025									
Surr: 4-Bromofluorobenzene	1.004	0	1	0	100	87.5	115	0			

Sample ID mb-8593 Batch ID: 8593 Test Code: SW8021 Units: mg/Kg Analysis Date 8/25/2005 3:43:50 AM Prep Date 8/22/2005
Client ID: Run ID: PIDFID_050824A SeqNo: 391981

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.025									
Toluene	ND	0.025									
Ethylbenzene	ND	0.025									
Xylenes, Total	ND	0.025									
Surr: 4-Bromofluorobenzene	0.9902	0	1	0	99.0	87.5	115	0			

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *29-Aug-05*

CLIENT: San Juan Refining
Work Order: 0508216
Project: River Terrace Giant Refinery

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID **LCS-8569** Batch ID: **8569** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **8/20/2005 1:25:07 PM** Prep Date **8/19/2005**
Client ID: Run ID: **FID(17A) 2_050820A** SeqNo: **390340**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46.25	10	50	0	92.5	67.4	117	0			

Sample ID **LCSD-8569** Batch ID: **8569** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **8/20/2005 1:57:51 PM** Prep Date **8/19/2005**
Client ID: Run ID: **FID(17A) 2_050820A** SeqNo: **390341**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47.07	10	50	0	94.1	67.4	117	46.25	1.74	17.4	

Sample ID **LCS-8572** Batch ID: **8572** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **8/20/2005 7:26:49 PM** Prep Date **8/19/2005**
Client ID: Run ID: **FID(17A) 2_050820A** SeqNo: **390348**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46.27	10	50	0	92.5	67.4	117	0			

Sample ID **LCSD-8572** Batch ID: **8572** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **8/20/2005 7:59:32 PM** Prep Date **8/19/2005**
Client ID: Run ID: **FID(17A) 2_050820A** SeqNo: **390349**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48.26	10	50	0	96.5	67.4	117	46.27	4.21	17.4	

Sample ID **lcs-8594** Batch ID: **8594** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **8/23/2005 7:12:34 PM** Prep Date **8/22/2005**
Client ID: Run ID: **PIDFID_050823A** SeqNo: **391444**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23.22	5	25	0	92.9	84	120	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508216
Project: River Terrace Giant Refinery

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **lcs-8593** Batch ID: **8593** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **8/25/2005 4:14:29 AM** Prep Date **8/22/2005**
Client ID: Run ID: **PIDFID_050824A** SeqNo: **391993**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21.68	5	25	0	86.7	82	120	0			

Sample ID **lcsd-8593** Batch ID: **8593** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **8/25/2005 4:45:13 AM** Prep Date **8/22/2005**
Client ID: Run ID: **PIDFID_050824A** SeqNo: **391994**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20.7	5	25	0	82.8	82	120	21.68	4.62	11.6	

Sample ID **GRO lcs 2.5ug** Batch ID: **8594** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **8/24/2005 4:49:06 PM** Prep Date
Client ID: Run ID: **PIDFID_050824A** SeqNo: **392007**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22.35	5	25	0.0214	89.3	84	120	0			

Sample ID **GRO lcs 2.5ug** Batch ID: **8594** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **8/26/2005 4:48:50 PM** Prep Date
Client ID: Run ID: **PIDFID_050826A** SeqNo: **392953**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22.96	5	25	0.0126	91.8	84	120	0			

Sample ID **GRO lcs 2.5ug** Batch ID: **8593** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **8/26/2005 4:48:50 PM** Prep Date
Client ID: Run ID: **PIDFID_050826A** SeqNo: **392963**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22.96	5	25	0.0126	91.8	84	120	0			

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Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508216
Project: River Terrace Giant Refinery

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID lcs-8594 Batch ID: 8594 Test Code: SW8021 Units: mg/Kg Analysis Date 8/23/2005 7:12:34 PM Prep Date 8/22/2005
Client ID: Run ID: PIDFID_050823A SeqNo: 391296

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.4416	0.025	0.42	0	105	85.6	116	0			
Toluene	2.084	0.025	2	0	104	82.4	120	0			
Ethylbenzene	0.4274	0.025	0.41	0	104	86.4	111	0			
Xylenes, Total	2.155	0.025	2	0	108	78.4	125	0			

Sample ID BTEX lcs 100ng Batch ID: 8594 Test Code: SW8021 Units: mg/Kg Analysis Date 8/24/2005 6:24:58 PM Prep Date
Client ID: Run ID: PIDFID_050824A SeqNo: 391969

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.043	0.025	1	0	104	85.6	116	0			
Toluene	1.009	0.025	1	0	101	82.4	120	0			
Ethylbenzene	1.016	0.025	1	0	102	86.4	111	0			
Xylenes, Total	2.058	0.025	2	0	103	78.4	125	0			

Sample ID lcs-8593 Batch ID: 8593 Test Code: SW8021 Units: mg/Kg Analysis Date 8/25/2005 4:14:29 AM Prep Date 8/22/2005
Client ID: Run ID: PIDFID_050824A SeqNo: 391982

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.4535	0.025	0.42	0	108	85.6	116	0			
Toluene	2.085	0.025	2	0	104	82.4	120	0			
Ethylbenzene	0.4272	0.025	0.41	0	104	86.4	111	0			
Xylenes, Total	2.152	0.025	2	0	108	78.4	125	0			

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Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: San Juan Refining
Work Order: 0508216
Project: River Terrace Giant Refinery

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID **lcsd-8593** Batch ID: **8593** Test Code: **SW8021** Units: **mg/Kg** Analysis Date **8/25/2005 4:45:13 AM** Prep Date **8/22/2005**
Client ID: Run ID: **PIDFID_050824A** SeqNo: **391983**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.4521	0.025	0.42	0	108	85.6	116	0.4535	0.294	27	
Toluene	2.064	0.025	2	0	103	82.4	120	2.085	0.994	19	
Ethylbenzene	0.4332	0.025	0.41	0	106	86.4	111	0.4272	1.40	10	
Xylenes, Total	2.123	0.025	2	0	106	78.4	125	2.152	1.37	13	

Sample ID **BTEX lcs 100ng** Batch ID: **8594** Test Code: **SW8021** Units: **mg/Kg** Analysis Date **8/26/2005 3:44:06 PM** Prep Date
Client ID: Run ID: **PIDFID_050826A** SeqNo: **392876**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.047	0.025	1	0	105	85.6	116	0			
Toluene	1.013	0.025	1	0	101	82.4	120	0			
Ethylbenzene	1.005	0.025	1	0	100	86.4	111	0			
Xylenes, Total	2.049	0.025	2	0	102	78.4	125	0			

Sample ID **BTEX lcs 100ng** Batch ID: **8593** Test Code: **SW8021** Units: **mg/Kg** Analysis Date **8/26/2005 3:44:06 PM** Prep Date
Client ID: Run ID: **PIDFID_050826A** SeqNo: **392903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.047	0.025	1	0	105	85.6	116	0			
Toluene	1.013	0.025	1	0	101	82.4	120	0			
Ethylbenzene	1.005	0.025	1	0	100	86.4	111	0			
Xylenes, Total	2.049	0.025	2	0	102	78.4	125	0			

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Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 8/18/2005

Work Order Number 0508216 | Received by GLS

Checklist completed by Signature 8/19/05 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? 3° *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

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

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

Client: San Juan Refining
Address: #50 Rd 4990
Bloomfield, NM
87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - Giant Refinery
Project #: 5127003
Project Manager: Dennis Tucker
Sampler: Brian Speraza
Sample Temperature: 2°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HNO_3	Preservative:	HEAL No.
08/15/05	1115	Soil	BV2-3	1 Brass Sleeve				0508216-1
	1130		BV2-10	1 Brass Sleeve				-2
	1310		BV4-3					-3
	1345		BV1-6					-4
	1440		BV3-7					-5
	1540		BV5-6					-6
	1550		BV5-10					-7
08/16/05	1115	Soil	BV6-3	1 Brass Sleeve				-8
	1125		BV6-9					-9
	1155		BV11-3					-10
	1205		BV11-8					-11
	1340		BV13-7					-12

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
08/18	0830	Brian Speraza	Cindy Hurtado
8/19/05	9AM	Cindy Hurtado	

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

Remarks: Analyze BTEX (8021B) & GRO (8015B) by Dry Weights. Thank You

SAMPLE BRASS SLEEVE WHERE INDICATED. THANK YOU.

CHAIN-OF-CUSTODY RECORD

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

Client: SAN JUAN REFINING
Address: #50 Rd 4990
Bloom Field, NM
87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: RIVER TERRACE GIANT REFINERY
Project #: 512003
Project Manager: DENNIS TUCKER
Sampler: BRIAN SPEGAZZA
Sample Temperature: 3°

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

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No. 0508216
08/16/05	1415	Soil	BV12-3	1 Brass Sleeve			-13
↓	1425	↓	BV12-8	↓			-14
	1455		BV10-3				-15
↓	1505	↓	BV10-8	↓			-16
08/17/05	0855	Soil	BV9-3	1 Brass Sleeve			-17
↓	0905	↓	BV9-8	↓			-18
	0955		BV7-3				-19
	1005		BV7-8				-20
	1045		BV8-10				-21
↓	1055	↓	BV8-13	↓			-22

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

Remarks: SAMPLE BRASS SLEEVE WHERE INDICATED. THANK YOU.

Date: 08/18 Time: 0830 Relinquished By: (Signature) Brian Spegazza
Received By: (Signature) Cindy Hurtado

Date: 8/18/05 Time: 9AM Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature) @ 8/18/05

Analyze BTEX (8021B) & GRO (8015B) by DRY WEIGHT. Thank You!
Call Kelly 602-241-1770 w/ Q's.

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