GW - 1

WORK PLANS

2003

GIANT
REFINING COMPANY

May 29, 2003

Mr. Dave Cobrain
New Mexico Environment Dept.
Hazardous Waste Bureau
2905 Rodeo Park Drive East
Bldg. 1
Santa Fe, NM 87505

Mr. William Olson
New Mexico Environment Dept.
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Mr. Robert Wilkinson
EPA Region VI
1445 Ross Ave.
Dallas, TX 75202

Re: Long-Term Ground Water Monitoring Work Plan
Giant Refining Company – Bloomfield Refinery

Gentelman:

I have enclosed Giant Refining Company's Long-Term Ground Water Monitoring Work Plan for NMED, OCD and EPA approval as requested to fulfill the requirements specified in Attachment A of the conditional approval letters for the Corrective Measure Study and Corrective Measure Implementation (Site Investigation and Abatement Plan).

If you have any questions please feel free to contact me at (505) 632-4171.

Sincerely,

James R. Schmaltz
Environmental Supervisor

Enc.
cc. Chad King
Ed Riege

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

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

Long–Term Ground Water Monitoring Work Plan

BACKGROUND INFORMATION

Site Location and Access

The Bloomfield Refinery (the Refinery) is located south of Bloomfield, New Mexico, in San Juan County, latitude N36° 41' 87", longitude W107° 58' 70". The Refinery is owned by the San Juan Refining Company(SJRC). The Refinery Site (the site) consists of the Refinery processing areas, storage tanks, and waste management areas, as well as adjacent areas that exhibit subsurface petroleum hydrocarbons. Previously installed monitor wells define an area south of the Refinery where petroleum hydrocarbons are present in the subsurface, and the San Juan River defines the northern boundary of the site.

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 geologic 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, a newly concrete-lined irrigation ditch underlain by French Drain with a liquid recovery system, lies on the bluff between the limit of the Jackson Lake Terrace (also called the Nacimiento Cliff in this document) and the Refinery.

Site Description and History

Refinery offices are on the western end of the facility, along with warehouse space, maintenance areas, raw water ponds for temporary storage of fresh water from the San Juan River, and one storage yard containing used material (e.g., pipe, valves). Petroleum processing units, located in the northwest portion of the Refinery, include the crude unit, fluidized catalytic cracking unit, catalytic polymerization unit, and hydrodesulfurization unit. Several product storage tanks are present east of the petroleum processing area. The API separator is located in the northwestern portion of the site. The aeration lagoons, formerly known as the north oily water pond (NOWP), the south oily water pond (SOWP), and a part of the API system, were identified by the U.S. Environmental Protection Agency (EPA) as potential Resource Conservation and Recovery Act (RCRA) hazardous waste management units.

In the central portion of the site, aboveground storage tanks (ASTs) 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 eastern portion of the site contains closed and operational wastewater treatment facilities. Until the end of 1994, two clay-lined evaporation ponds and a spray irrigation area were used to treat and dispose of process wastewater. Since that time, two double-lined 5-acre evaporation ponds and a Class I underground injection well have been used to manage all Refinery process wastewater. In late 1998, the former evaporation ponds were converted into new raw water ponds. The spray irrigation area was decommissioned in 1994 with the start up of the Class 1 injection well. It has been overlaid by a parking lot and office complex. The fire training area and the landfill are also located at the eastern end of the facility.

Wells south of the Refinery fence line and west of the crude unloading and product loading area define an area where petroleum hydrocarbons are present in the groundwater. The U.S. Bureau of Land Management (BLM) controls this part of the area. Subsurface hydrocarbons, including both dissolved-phase and separate-phase hydrocarbons, also are present north and west of the processing area, between the San Juan River and the cliff that defines the limit of the Jackson Lake Terrace deposits. This area is owned by SJRC.

The historical and current activities conducted at the Refinery include:

- Petroleum processing
- Crude and product storage
- Crude unloading and product loading
- Waste management (closed units and existing facilities)
- Offices and non-petroleum material storage

Local entrepreneur Kimball Campbell originally constructed the facility as a crude topping unit in the late 1950s. O.L. Garretson bought the facility in the early 1960s, renamed it Plateau, Inc., and sold it in 1964 to Suburban Propane of New Jersey. As a protective filing, Plateau applied for a RCRA Part A Permit as a generator of hazardous waste and as a treatment, storage, and disposal (TSD) facility in November 1980. In 1982, Plateau petitioned for reclassification under a generator-only status. Bloomfield Refining Company (BRC) acquired the facility from Suburban Propane (Plateau) on October 31, 1984. Facility ownership was transferred to SJRC on October 4, 1995.

SAMPLING PLAN

The objective of the Work Plan is to determine the status of the hydrocarbon plume, contain the plume, and ultimately reduce the plume.

Containment has been implemented by installing a hydraulic barrier at the San Juan River. Hydrocarbon recovery will be accomplished by utilizing numerous recovery wells, and the Hammond Ditch French Drain Recovery System. Reduction of the plume can be attained through proper operation of Giant's recovery well system as well as applying source control measures such as below grade line testing, practicing good housekeeping and updating plant employees' environmental awareness training.

RECOVERY AND MONITORING WELLS

Several changes will occur in the recovery well system in 2003. Fluid recovery will be concentrated in the central portion of the site, which could potentially adjust the ground water flow and pull the plume back into the center of the site. This will be accomplished with the following changes:

- Recovery Wells #23 and #22 will utilize total fluids pumps.
- Recovery Wells #19 and #17 will utilize total fluids pumps.
- Monitoring Wells #28 and #9 will be converted into recovery wells.
- MW #28 will become RW #28 (name change) and will be equipped with a skimmer pump.

- MW #9 will become RW #9 (name change) and will be equipped with a total fluids pump.
- RW #2 will use a skimmer pump.

New Monitoring Wells and Modifications

Giant installed three new monitoring wells in January 2003, MW #45, and MW #46 (see attached map). Both wells are located down gradient of the Hammond Ditch.

Seep #5 was drilled west of Hammond Ditch but east of its original location. The gravel company will be mining the original location of Seep #5, so we moved it out of the arroyo and next to the dirt road along Hammond Ditch. Seep #5 was completed as a monitoring well, and will become MW#47 (name change). Giant has enclosed Installation diagrams for MW #45, MW #46, and MW #47.

An attempt was made to drill a background well east of the Refinery property but was a dry hole. Giant proposes to use MW #32 as a background well. MW#32 was sampled extensively and should prove to be a representative background well. Giant has enclosed laboratory analysis for MW#32. It is up gradient from all wells on the south side of Sullivan Road except for MW#5(dry) and MW#6(dry) and MW#13(drilled and screened through the Naciemento). It is cross gradient from the Terminals, but not in the flow path of any possible contaminants from that location.

Monitoring and Analysis

Giant's philosophy for monitoring and analysis is to focus on the hydrocarbon nature of the contamination. The long term sampling program will consist of sampling and analyzing wells located beyond the boundary of the containment zone and focusing on key points of compliance and assessment.

- Giant will measure the water table and product elevations in all facility monitoring wells on a semi-annual basis. The water/product levels will be measured to an accuracy of 0.01 foot. Adding 0.8 times the measured product thickness to the calculated water table elevation will provide a corrected water table elevation in wells containing separate phase hydrocarbons. All recovery wells will have pumps shut off and removed 24 hours prior to elevation measurements.

- Giant will collect groundwater samples on a semi-annual basis from wells MW #1, MW #6, MW #12, MW #13, MW #20, MW #24, MW #32, MW #33, MW #35, MW #37, MW #38, MW #45, MW #46, Seep #5(reconstructed and renamed

MW #47), P-#4, P-#5, and East Outfalls #1, #2, and #3 for 2003. The samples will be analyzed for BTEX and MTBE.

- In September 2003 Giant will collect groundwater samples from the wells listed above as well as MW #3, MW #4, MW #5, MW #8 MW #26, MW #27, MW #34, MW #36 for a period of two years. For 2003,Giant will submit the ground water samples collected to an analytical laboratory for chemical analysis of VOC's by Method 8260, BTEX, MTBE, TDS and major cations and anions, dissolved WQCC metals, total and dissolved chromium and lead, nitrate/ nitrite, sulfate, dissolved oxygen, carbon dioxide and oxidation-reduction potential, pH, electrical conductivity, and temperature.

- Method 8260 should prove that the contaminants are fuel-related constituents only. If that is the case, then Giant will collect and sample from wells MW #1, MW #3, MW #8, MW #4, MW #32, MW #35, MW #36, MW #12, MW #27, MW #47(Seep #5), MW #39, P-4, P-5. These samples will be analyzed for BTEX, MTBE, dissolved oxygen, oxidation-reduction potential, dissolved metals (Pb, Mn, Cr, and Fe only), sulfate, nitrate/nitrite, TDS, pH, electrical conductance, and temperature on a semi-annual basis starting in 2004.

- Hammond Ditch East Outfalls #1, #2, and #3 will be sampled and analyzed for BTEX and MTBE on a semi-annual basis.

- The wells will be purged prior to sample collection. Electrical conductance, pH, and temperature will be monitored during purging. The wells will be considered satisfactorily purged when the pH, E.C., and temperature values do not vary by more than 10 percent for at least three measurements, and at least three well casing volumes of water have been removed from the well. Purge water will be collected and disposed of through the refinery wastewater treatment system.

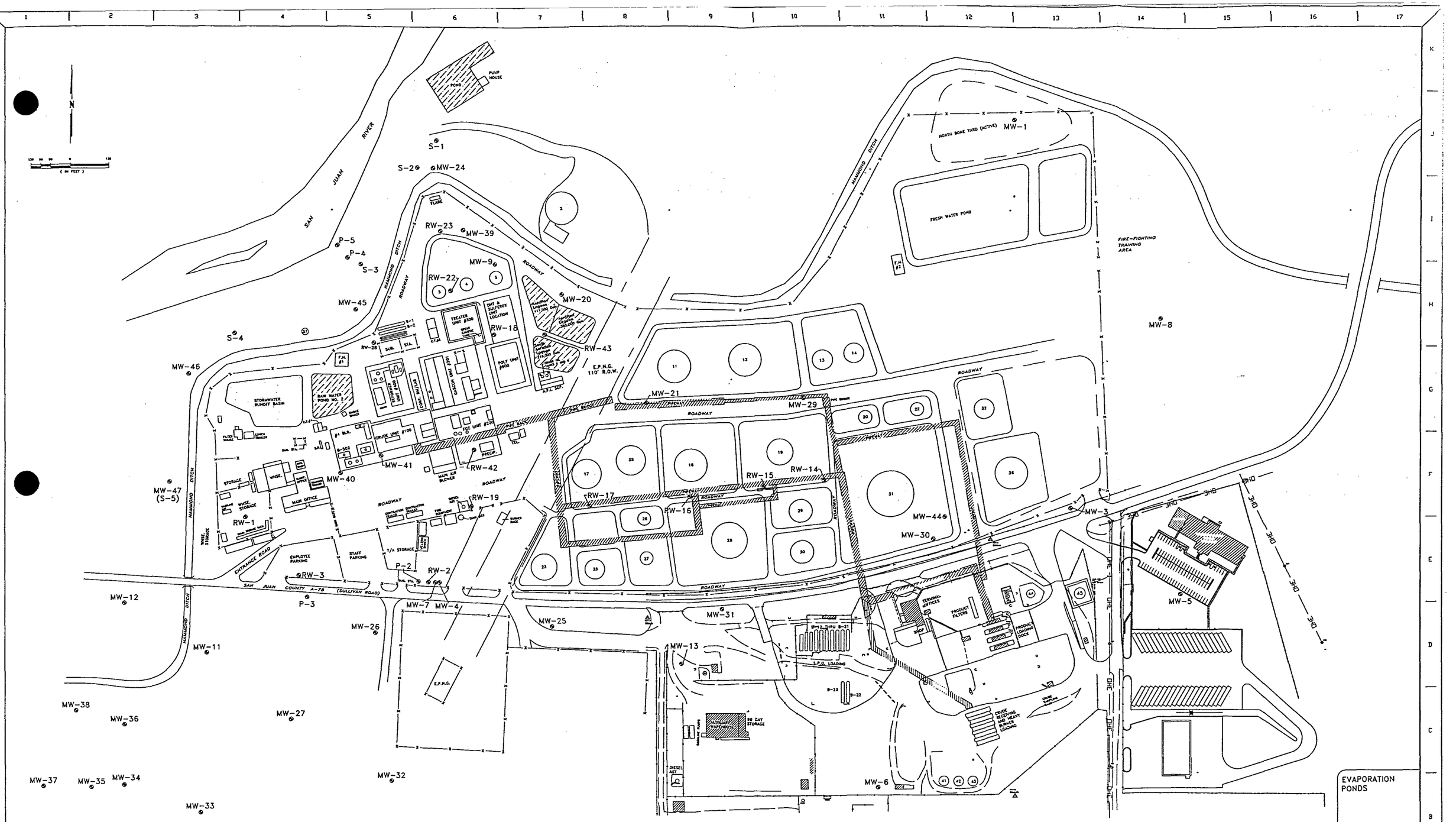
- Recovery wells will not be sampled since they will give a distorted result. The purpose of the recovery well is negated if the well is shut down for the appropriate length of time needed to get a representative sample. Therefore, RW#15, RW#18, RW#23, RW#28, RW#42, RW #9, RW #1 and RW#43 will be not be sampled.

- Wells that contain free product will not be sampled.

Annual Report

Giant will compile an annual comprehensive ground water monitoring report on all investigation, remediation, and monitoring activities. The report will be submitted to the NMOCD Santa Fe Office, NMOCD Aztec District Office, NMED Hazardous Waste Bureau, and the EPA by April 15 of each respective year. The annual report will include:

- A description of all soil and ground water remediation and monitoring activities that occurred during the previous calendar year.
- Annual water table potentiometric surface maps showing well locations, corrected water table elevations, pertinent site features, the direction of ground water flow and the hydraulic gradient.
- Semi-annual product thickness maps showing well locations, measured product thickness in each well and pertinent site features.
- Summary tables of all soil and ground water quality sampling results during the past calendar year and copies of the laboratory analytical reports and associated QA/QC data for the reporting period.
- Annual BTEX concentration maps indicating the concentrations detected at the sampled monitoring wells.
- Estimated volume of fluids recovered from each recovery well and the Hammond Ditch French Drain Recovery System.
- Concentration versus time plots of BTEX and MTBE.
- The disposition of all wastes generated.
- The results of any below grade line testing.



NOTE:
"MW-XX" – Monitoring Wells Locations
"RW-XX" – Recovery Well Locations
"S-XX" – Seep Locations
"P" – Piezometer

REFERENCE DWGS.

NO.	REVISION	JOB No.	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
2	Updated As Per Enviromental Dept. Mark-Up. (C. Hurtado)		NHB	5/03				
1	Updated As Per Enviromental Dept. Mark Up							

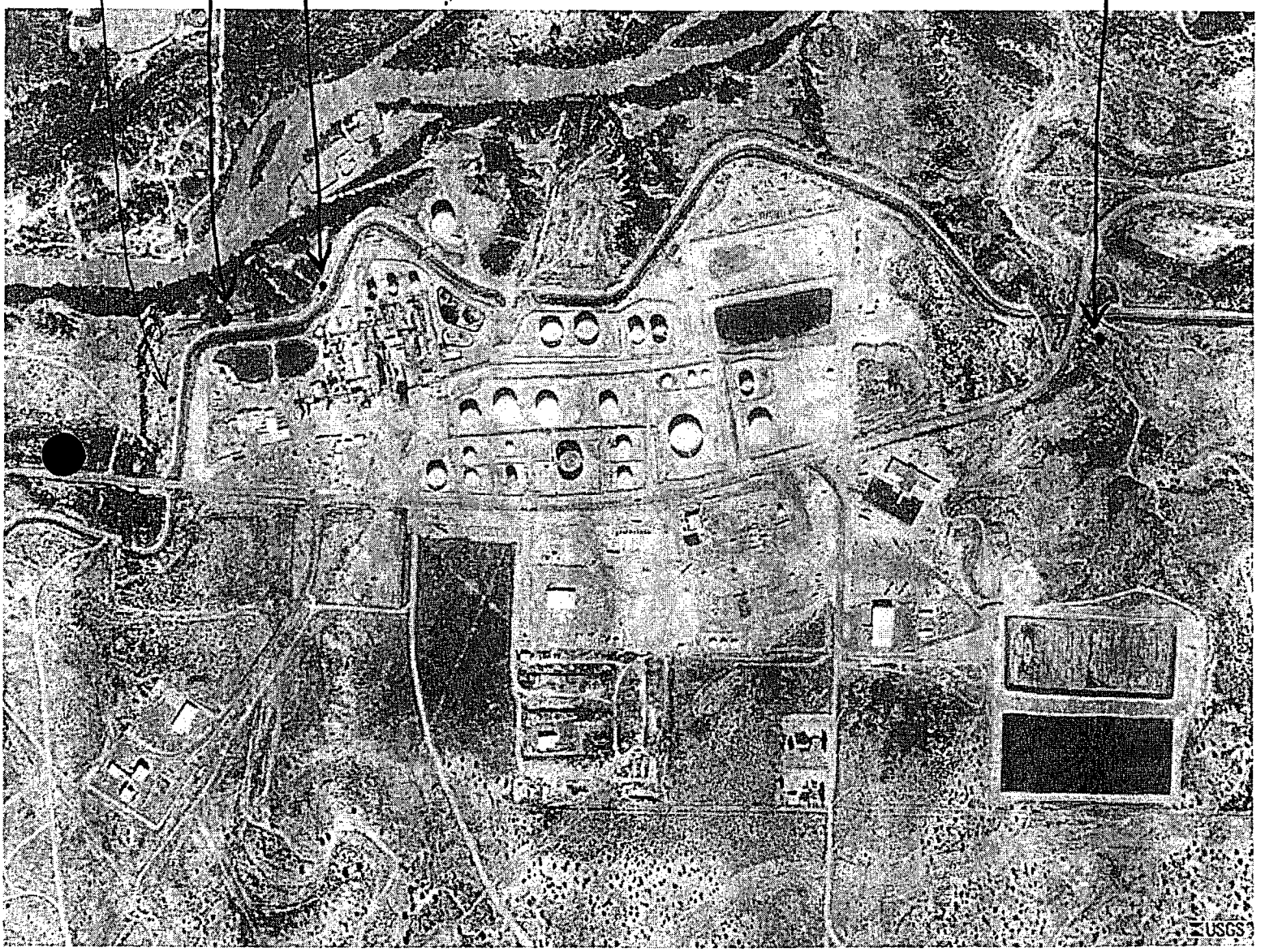
SCALE	As Noted
DRAWN BY	NHB
DATE	8/29/02
INITIAL CHK.	
FINAL CHK.	
ENGR.	
APPR. BY	
AFE/WO No.	

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. 2

New Wells



Scale 1/8" = 115'

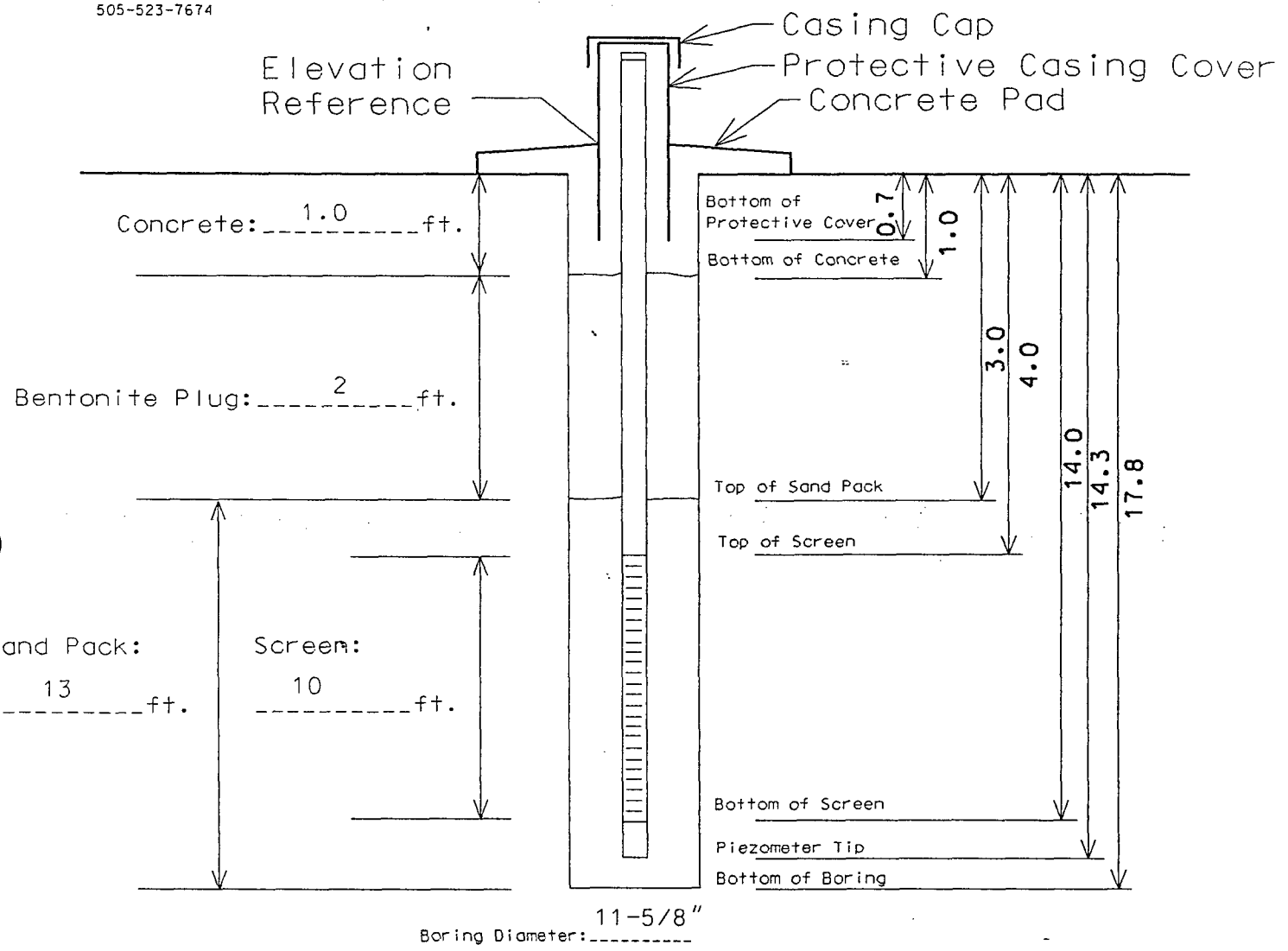
Giant Refining Company
"Bloomfield"

PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. MW - 45



Sand Type: 10-20 Silica

Bollards, Type/Size: Steel, 3" min.

Bentonite: 3/8" Chip

Screen Type/Size: 4" PVC Sch. 40, 0.010" Slotted

Cement/Grout: ---

Riser Type/Size: 4" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? Yes

Site Northing: 5790.85

Other: N/A

Bottom Cap Used? Yes

Site Easting: 2837.78

Project #: 03-015

Project Name: Bloomfield Wells

Elevation: 5496.33

Sheet: 1 of 1

PRECISION ENGINEERING, INC.

File #:03-015

Bore Point:N5790.85'
E2837.78

LOG OF TEST BORINGS

Site:Giant Refinery
Bloomfield, NM

Water Elev: 9.54'

Elevation: 5496.33

Boring No.: MW 45

Date:1-15-03

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	SAMPLE	MATERIAL CHARACTERISTICS (MOISTURE,CONDITION,COLOR,GRAINSIZE,ETC.)	%M	L	PI	CLASS.
	0-1.0	Grab	00'00'		G	**GRAVEL**, TO 12", SANDY, DENSE, DAMP				
	1.0-5.0		00'00'		G					
			00'00'		G					
			00'00'		G					
			00'00'	2.5	G					
			00'00'		G					
			00'00'		G					
			00'00'		G					
			00'00'		G					
			00'00'	5.0	G					
	5.0-6.5	6-14-32	00'00'		S					
			00'00'		S					
	6.5-7.0	7-60	00'00'		S					
			00'00'		S	NACIMIENTO FORMATION				
	7.0-8.5	37-27-31	--'--'	7.5	S	**MUDSTONE**, SANDY, DENSE, WET, DARK GREEN				
			--'--'		S					
			--'--'		S					
	9.0-10.0	14-65	--'--'		S	SAME, HYDROCARBON ODOR (GASOLINE)				
			--'--'		S					
			--'--'	10.0	S					
	10.0-11.0	16-60-60(4)	--'--'		S					
			--'--'		S					
			--'--'							
			--'--'							
			--'--'							
			--'--'							
			--'--'							
			--'--'							
	14.0-14.7	54-50(1")	--'--'		S	SOME LAMINATION, LIGHTER IN COLOR				
			--'--'	15.0	S					
			--'--'							
			--'--'							
			--'--'							
			--'--'							
	17.0-17.8	36-50(3")	--'--'		S	**SANDSTONE**, WEAK, SILTY, MUDDY, WHITE/LIGHT				
	17.8		--'--'		S	BROWN, VERY DENSE, WET-MOIST				
	TOTAL DEPTH									
				20.0						

Size & Type of Boring:4 1/4" ID HOLLOW STEMMED AUGER

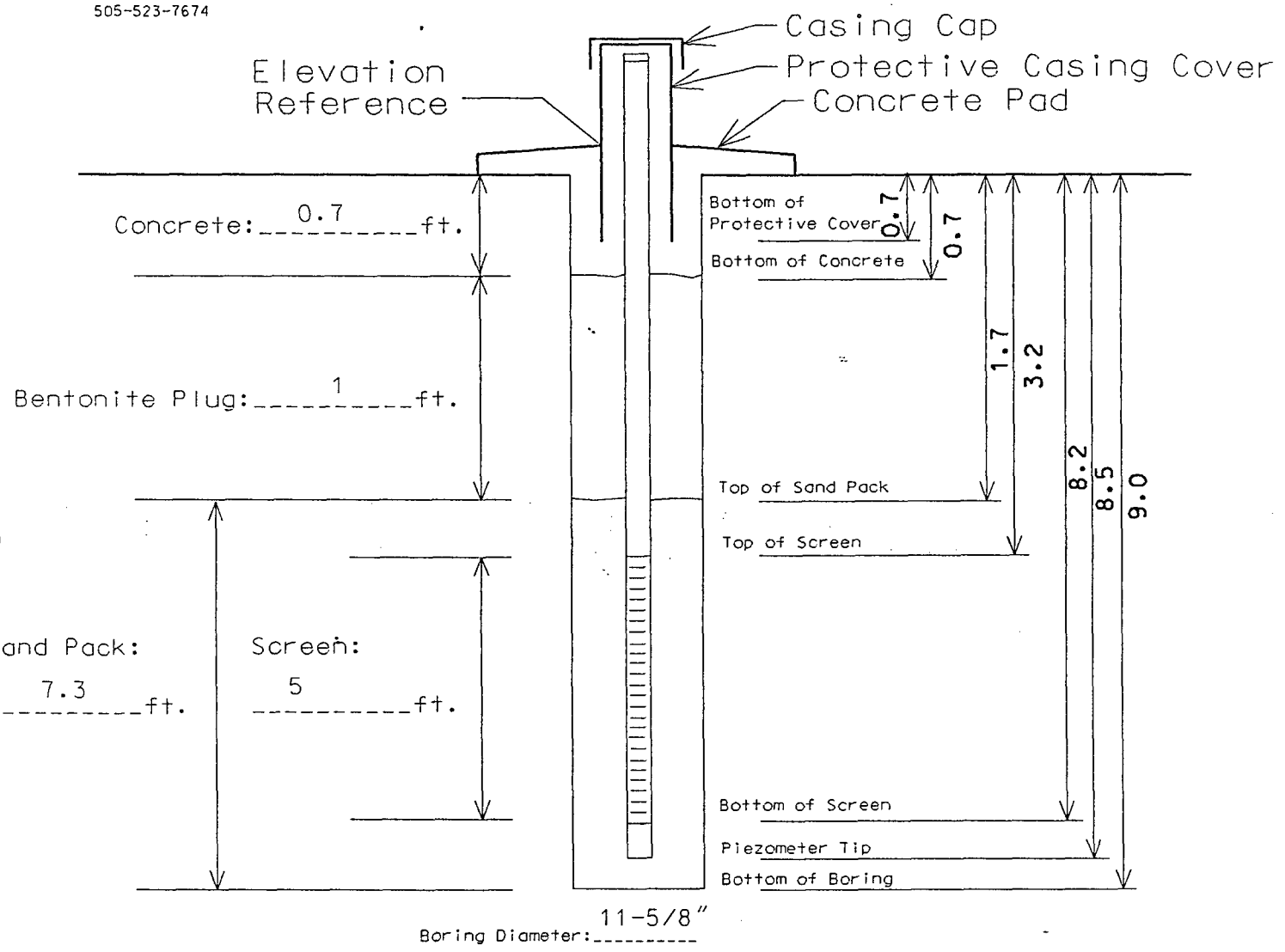
Logged By: WHK

PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. MW - 46



Boring Diameter: 11-5/8"

Sand Type: 10-20 Silica

Bollards, Type/Size: Steel, 3" min.

Bentonite: 3/8" Chip

Screen Type/Size: 4" PVC Sch. 40, 0.010" Slotted

Cement/Grout: ---

Riser Type/Size: 4" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? Yes

Site Northing: 5560.48

Other: N/A

Bottom Cap Used? Yes

Site Easting: 2576.06

Project #: 03-015

Project Name: Bloomfield Wells

Elevation: 5496.43

Sheet: 1 of 1

PRECISION ENGINEERING, INC.

File #:03-015

Bore Point:N5560.48'
E2576.06

LOG OF TEST BORINGS

Site:Giant Refinery
Bloomfield, NM

Water Elev:

Elevation: 5496.43

Boring No.: MW 46

Date:1-16-03

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	SAMPLE	MATERIAL CHARACTERISTICS (MOISTURE,CONDITION,COLOR,GRAINSIZE,ETC.)	%M	L	PI	CLASS.
	0-1.0	Grab	**0**0		G	**SAND**, VERY GRAVELLY, COBBLY, LIGHT BROWN,				
			00		G	LOOSE				
			00							
			00							
			00	2.5						
			00							
			00							
			00							
			00							
			00	5.0						
	5.0-6.5	3-4-4	**0**0		S	SAME				
			00		S					
			00		S	NACIMIENTO FORMATION				
	6.5-8.0	13-18-18	--_--_		S	**MUDSTONE**, SILTY, HARD, DRY, LIGHT GREEN				
			-- --	7.5	S					
			-- --		S					
			-- --							
	9.0		-- --							
	TOTAL DEPTH									
				10.0						
				15.0						
				20.0						

Size & Type of Boring:4 1/4" ID HOLLOW STEMMED AUGER

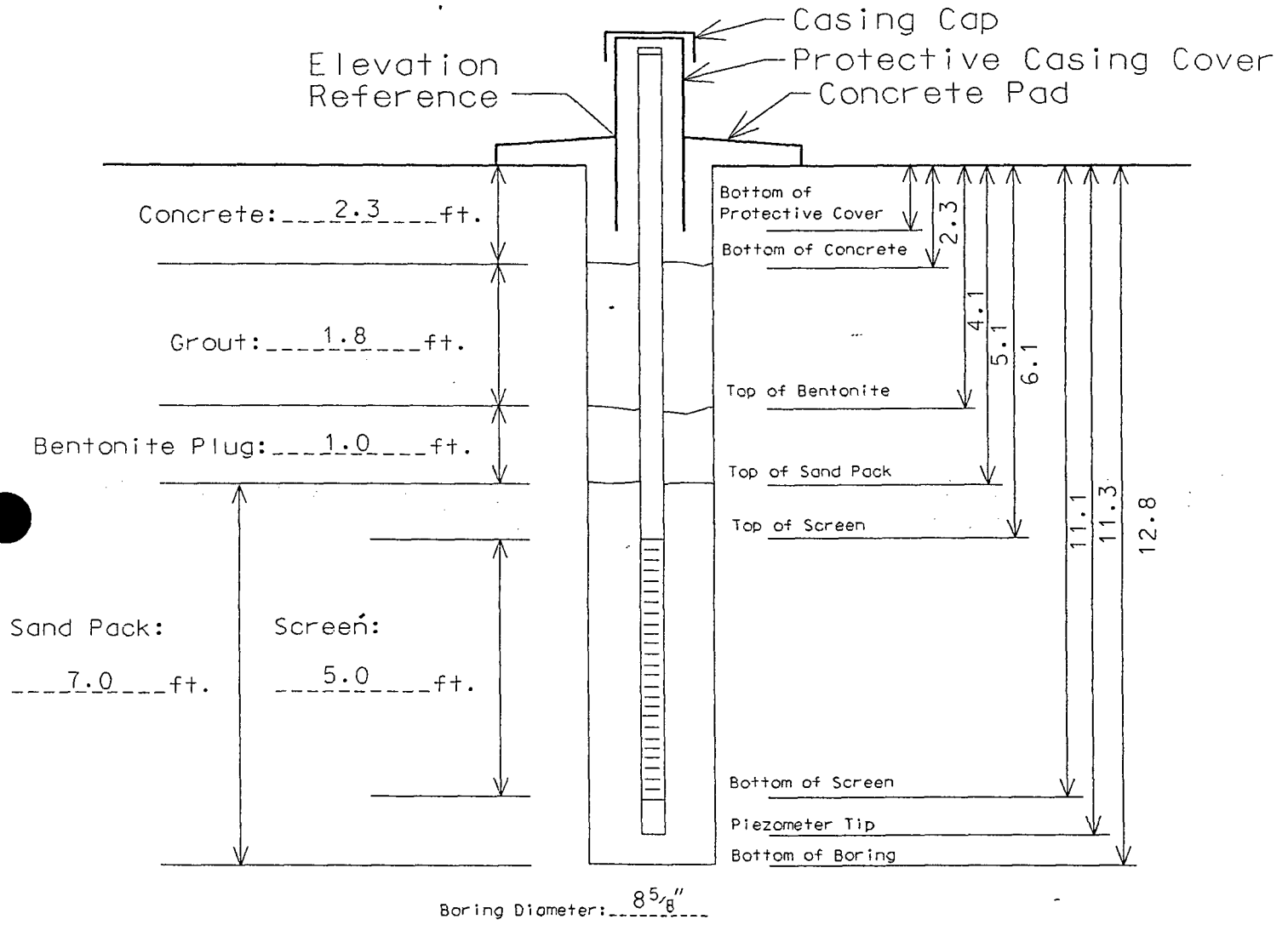
Logged By: WHK

PRECISION ENGINEERING, INC.

505-523-7674

Installation Diagram

Monitoring Well No. Seep 5
RENAMED (MW-47)



Boring Diameter: 8 5/8"

Sand Type: 10-20 Silica

Bollards, Type/Size: Steel, 3"

Bentonite: 3/8" Chips

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

Cement/Grout: 6% Bentonite

Riser Type/Size: 2" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? Yes

Site Northing: 5413.57

Other: N/A

Bottom Cap Used? Yes

Site Easting: 2220.90

Giant Refining Co.

Project #: 03-015

Project Name: Bloomfield Wells

Elevation: TBD

Sheet: 1 of 1

PRECISION ENGINEERING, INC.

File #: 03-015

Bore Point: PLANT COORDINATES
N5413.7 E2220.90
Water Elev: 7.49'

LOG OF TEST BORINGS

Site: Bloomfield Refinery
Elevation: TO BE DETERMINED

Boring No.: Seep 5

Date: 3-6-03

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	SAMPLE	MATERIAL CHARACTERISTICS (MOISTURE,CONDITION,COLOR,GRAINSIZE,ETC.)	%M	LL	PI	CLASS.
	0.0-5.0	GRAB	o0**0o		G	GRAVEL, MEDIUM SANDY, LIGHT BROWN, SOME				
			o0**0o		G	COBBLES TO BOULDER SIZE, DENSE				
			o0**0o		G					
			o0**0o		G					
			o0**0o	2.5	G					
			o0**0o		G					
			o0**0o		G					
			o0**0o		G					
			o0**0o		G					
			o0**0o	5.0	G					
	5.0-6.5	8-18-18	o0**0o		S	GRAVEL, MEDIUM SANDY, LIGHT BROWN, SOME				
			o0**0o		S	COBBLES TO BOULDER SIZE, DENSE				
			o0**0o		S					
			o0**0o							
			o0**0o	7.5						
			o0**0o							
			o0**0o							
			o0**0o							
	9.0-9.7	9-100(1)	o0**0o							
			o0**0o	10						
	10.2-11.3		------		S	**NACIMIENTO FORMATION**				
			------		S	MUDSTONE, SILTSTONE, FISSLE, BLACK, HARD, WET				
			------		S					
	11.3-12.8	13-37-60	------							

	12.8		------							
	TOTAL DEPTH									
				15						
				20						

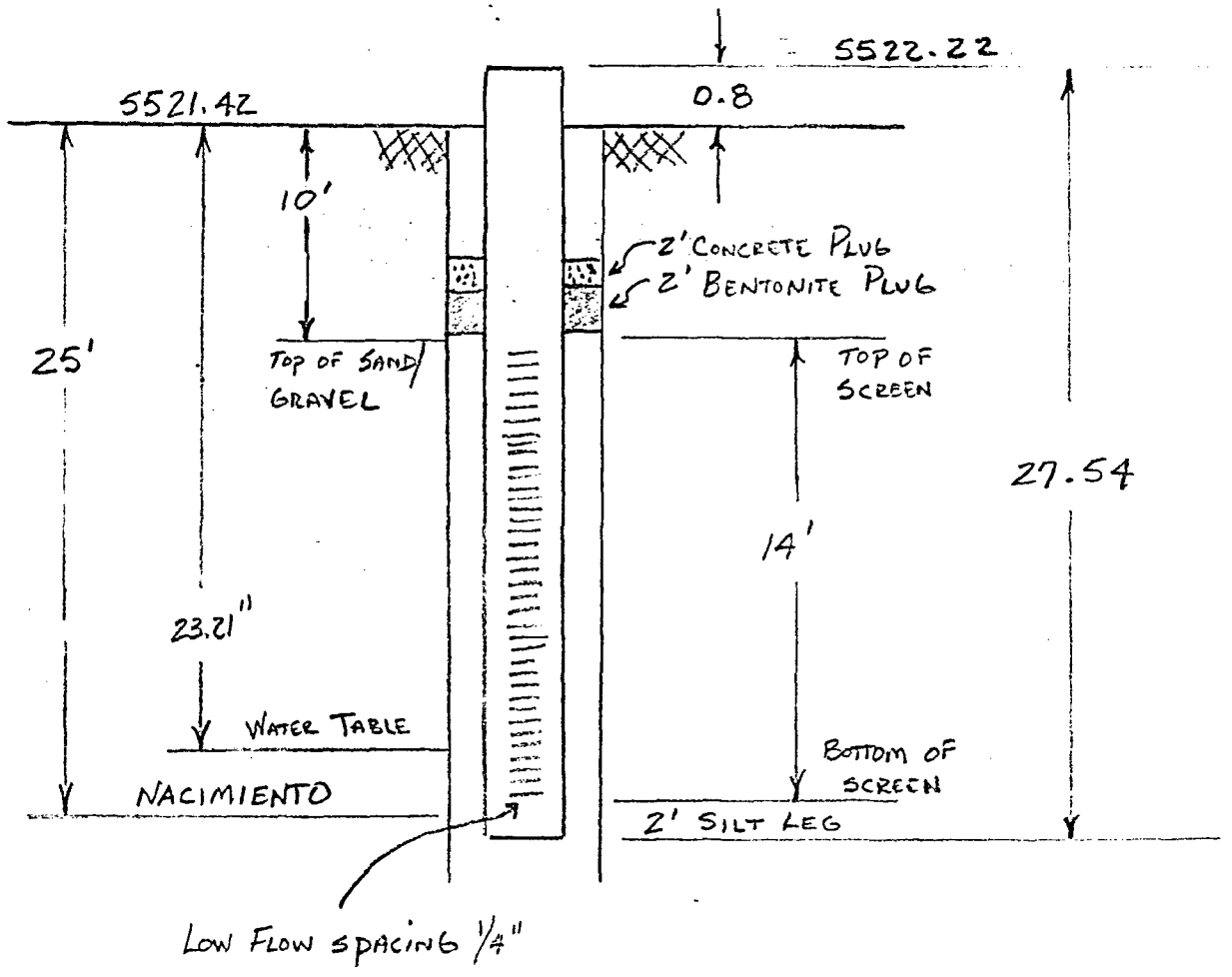
Size & Type of Boring: 4-1/4" ID Hollow Stemmed Auger

Logged By: WHK

MW-32

CONSTRUCTION COMMENTS: DRILLED BY CASING DRIVER, 8" BIT, 4.5" O.D. FIBERGLASS CASING SET TO DEPTH INSIDE DRIVEN CASING; ANNULAR SPACE FILLED WITH 30/40 SAND AS DRIVEN CASING REMOVED 50 lbs OF BENTONITE DRILLING MUD & 100 lbs OF CONCRETE PLACED ON TOP OF SAND PACK; BACKFILLED WITH DIRT TO SURFACE

CONCRETE PAD SURFACE SEAL (NOT SHOWN)



MW-32

DATE OF INSTALLATION 2-23-95

Hall Environmental Analysis Laboratory

COVER LETTER

March 20, 2003

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

RE: MW #32 Background Order No.: 0303026

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 1 sample on 3/5/2003 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: *20-Mar-03*

CLIENT: San Juan Refining
Client Sample ID: MW #32
Lab Order: 0303026
Collection Date: 3/4/2003 8:30:00 AM
Project: MW #32 Background
Lab ID: 0303026-01
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **HVA**
Fluoride	0.15	0.10		mg/L	1	3/5/2003
Chloride	870	10		mg/L	100	3/6/2003
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	3/5/2003
Bromide	ND	0.10		mg/L	1	3/5/2003
Nitrogen, Nitrate (As N)	27	0.50		mg/L	5	3/5/2003
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	3/5/2003
Sulfate	1200	50		mg/L	100	3/6/2003
EPA METHOD 8260B: VOLATILES						Analyst: **BL**
Benzene	ND	1.0		µg/L	1	3/6/2003
Toluene	ND	1.0		µg/L	1	3/6/2003
Ethylbenzene	ND	1.0		µg/L	1	3/6/2003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	3/6/2003
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/6/2003
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/6/2003
1,2-Dichloroethane (EDC)	5.1	1.0		µg/L	1	3/6/2003
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	3/6/2003
Naphthalene	ND	2.0		µg/L	1	3/6/2003
1-Methylnaphthalene	ND	4.0		µg/L	1	3/6/2003
2-Methylnaphthalene	ND	4.0		µg/L	1	3/6/2003
Bromobenzene	ND	1.0		µg/L	1	3/6/2003
Bromochloromethane	ND	1.0		µg/L	1	3/6/2003
Bromodichloromethane	ND	1.0		µg/L	1	3/6/2003
Bromoform	ND	1.0		µg/L	1	3/6/2003
Bromomethane	ND	2.0		µg/L	1	3/6/2003
Carbon Tetrachloride	ND	1.0		µg/L	1	3/6/2003
Chlorobenzene	ND	1.0		µg/L	1	3/6/2003
Chloroethane	ND	2.0		µg/L	1	3/6/2003
Chloroform	ND	1.0		µg/L	1	3/6/2003
Chloromethane	ND	1.0		µg/L	1	3/6/2003
2-Chlorotoluene	ND	1.0		µg/L	1	3/6/2003
4-Chlorotoluene	ND	1.0		µg/L	1	3/6/2003
cis-1,2-DCE	ND	1.0		µg/L	1	3/6/2003
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	3/6/2003
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	3/6/2003
Dibromochloromethane	ND	1.0		µg/L	1	3/6/2003
Dibromomethane	ND	2.0		µg/L	1	3/6/2003
1,2-Dichlorobenzene	ND	1.0		µg/L	1	3/6/2003
1,3-Dichlorobenzene	ND	1.0		µg/L	1	3/6/2003
1,4-Dichlorobenzene	ND	1.0		µg/L	1	3/6/2003
Dichlorodifluoromethane	ND	1.0		µg/L	1	3/6/2003

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: *20-Mar-03*

CLIENT: San Juan Refining
Lab Order: 0303026
Project: MW #32 Background
Lab ID: 0303026-01

Client Sample ID: MW #32
Collection Date: 3/4/2003 8:30:00 AM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1,1-Dichloroethane	1.3	1.0		µg/L	1	3/6/2003
1,1-Dichloroethene	ND	1.0		µg/L	1	3/6/2003
1,2-Dichloropropane	ND	1.0		µg/L	1	3/6/2003
1,3-Dichloropropane	ND	1.0		µg/L	1	3/6/2003
2,2-Dichloropropane	ND	1.0		µg/L	1	3/6/2003
1,1-Dichloropropene	ND	1.0		µg/L	1	3/6/2003
Hexachlorobutadiene	ND	1.0		µg/L	1	3/6/2003
Isopropylbenzene	ND	1.0		µg/L	1	3/6/2003
4-Isopropyltoluene	ND	1.0		µg/L	1	3/6/2003
Methylene Chloride	ND	3.0		µg/L	1	3/6/2003
n-Butylbenzene	ND	1.0		µg/L	1	3/6/2003
n-Propylbenzene	ND	1.0		µg/L	1	3/6/2003
sec-Butylbenzene	ND	1.0		µg/L	1	3/6/2003
Styrene	ND	1.0		µg/L	1	3/6/2003
tert-Butylbenzene	ND	1.0		µg/L	1	3/6/2003
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	3/6/2003
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	3/6/2003
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	3/6/2003
trans-1,2-DCE	ND	1.0		µg/L	1	3/6/2003
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	3/6/2003
Trichloroethene (TCE)	ND	1.0		µg/L	1	3/6/2003
Trichlorofluoromethane	ND	1.0		µg/L	1	3/6/2003
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	3/6/2003
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	3/6/2003
1,1,1-Trichloroethane	ND	1.0		µg/L	1	3/6/2003
1,1,2-Trichloroethane	ND	1.0		µg/L	1	3/6/2003
Vinyl chloride	ND	2.0		µg/L	1	3/6/2003
1,2,3-Trichloropropane	ND	2.0		µg/L	1	3/6/2003
Xylenes, Total	ND	1.0		µg/L	1	3/6/2003
Surr: 1,2-Dichloroethane-d4	91.2	74.6-123		%REC	1	3/6/2003
Surr: 4-Bromofluorobenzene	99.7	85.6-117		%REC	1	3/6/2003
Surr: Dibromofluoromethane	91.3	78.6-115		%REC	1	3/6/2003
Surr: Toluene-d8	105	84.2-115		%REC	1	3/6/2003
EPA METHOD 8310: PAHS						Analyst: **GT**
Naphthalene	ND	2.5		µg/L	1	3/14/2003 6:38:11 PM
1-Methylnaphthalene	ND	2.5		µg/L	1	3/14/2003 6:38:11 PM
2-Methylnaphthalene	ND	2.5		µg/L	1	3/14/2003 6:38:11 PM
Acenaphthylene	ND	2.5		µg/L	1	3/14/2003 6:38:11 PM
Acenaphthene	ND	2.5		µg/L	1	3/14/2003 6:38:11 PM
Fluorene	ND	0.80		µg/L	1	3/14/2003 6:38:11 PM
Phenanthrene	ND	0.60		µg/L	1	3/14/2003 6:38:11 PM
Anthracene	ND	0.60		µg/L	1	3/14/2003 6:38:11 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: *20-Mar-03*

CLIENT: San Juan Refining
Client Sample ID: MW #32
Lab Order: 0303026
Collection Date: 3/4/2003 8:30:00 AM
Project: MW #32 Background
Lab ID: 0303026-01
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Fluoranthene	ND	0.30		µg/L	1	3/14/2003 6:38:11 PM
Pyrene	ND	0.30		µg/L	1	3/14/2003 6:38:11 PM
Benz(a)anthracene	ND	0.020		µg/L	1	3/14/2003 6:38:11 PM
Chrysene	ND	0.20		µg/L	1	3/14/2003 6:38:11 PM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	3/14/2003 6:38:11 PM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	3/14/2003 6:38:11 PM
Benzo(a)pyrene	ND	0.020		µg/L	1	3/14/2003 6:38:11 PM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	3/14/2003 6:38:11 PM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	3/14/2003 6:38:11 PM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	3/14/2003 6:38:11 PM
Surr: Benzo(e)pyrene	95.0	54-102		%REC	1	3/14/2003 6:38:11 PM
EPA METHOD 7470: MERCURY						Analyst: **MAP**
Mercury	ND	0.00020		mg/L	1	3/7/2003
EPA METHOD 6010C: DISSOLVED METALS						Analyst: **NMO**
Arsenic	ND	0.025		mg/L	1	3/19/2003 1:28:18 PM
Barium	0.043	0.0020		mg/L	1	3/19/2003 1:28:18 PM
Cadmium	ND	0.0020		mg/L	1	3/19/2003 1:28:18 PM
Calcium	440	5.0		mg/L	10	3/19/2003 3:38:23 PM
Chromium	ND	0.0060		mg/L	1	3/19/2003 1:28:18 PM
Copper	ND	0.0060		mg/L	1	3/19/2003 1:28:18 PM
Iron	ND	0.020		mg/L	1	3/11/2003 11:57:06 AM
Lead	ND	0.0050		mg/L	1	3/11/2003 11:57:06 AM
Magnesium	60	0.50		mg/L	1	3/19/2003 3:34:15 PM
Manganese	0.0059	0.0020		mg/L	1	3/11/2003 11:57:06 AM
Potassium	5.3	1.0		mg/L	1	3/19/2003 3:34:15 PM
Selenium	ND	0.025		mg/L	1	3/19/2003 2:54:33 PM
Silver	ND	0.0050		mg/L	1	3/19/2003 2:08:51 PM
Sodium	880	5.0		mg/L	10	3/19/2003 3:38:23 PM
Uranium	ND	0.10		mg/L	1	3/19/2003 1:28:18 PM
Zinc	0.0081	0.0050		mg/L	1	3/19/2003 1:28:18 PM
EPA METHOD 6010C: TOTAL METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	3/10/2003 10:21:47 AM
Barium	0.17	0.0020		mg/L	1	3/10/2003 10:21:47 AM
Cadmium	ND	0.0020		mg/L	1	3/10/2003 10:21:47 AM
Chromium	ND	0.0060		mg/L	1	3/10/2003 1:21:43 PM
Copper	0.0094	0.0060		mg/L	1	3/10/2003 1:21:43 PM
Iron	13	0.20		mg/L	10	3/10/2003 1:34:54 PM
Lead	ND	0.0050		mg/L	1	3/10/2003 10:21:47 AM
Manganese	0.40	0.0020		mg/L	1	3/10/2003 10:21:47 AM
Selenium	ND	0.020		mg/L	1	3/10/2003 1:21:43 PM
Silver	ND	0.0050		mg/L	1	3/10/2003 2:05:23 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: *20-Mar-03*

CLIENT: San Juan Refining
Client Sample ID: MW #32
Lab Order: 0303026
Collection Date: 3/4/2003 8:30:00 AM
Project: MW #32 Background
Lab ID: 0303026-01
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Uranium	ND	0.10		mg/L	1	3/10/2003 10:21:47 AM
Zinc	0.017	0.0050		mg/L	1	3/10/2003 10:21:47 AM
EPA METHOD 160.1: TDS						Analyst: **MAP**
Total Dissolved Solids	3800	1.0		mg/L	1	3/10/2003

Qualifiers:

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J - Analyte detected below quantitation limits
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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: *21-Mar-03*

CLIENT: San Juan Refining
Work Order: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Method Blank

Sample ID **MBLK #1** Batch ID: **R7560** Test Code: **E300** Units: **mg/L** Analysis Date **3/5/2003** Prep Date
Client ID: Run ID: **LC_030305B** SeqNo: **171752**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									
Chloride	ND	0.10									
Nitrogen, Nitrite (As N)	ND	0.10									
Nitrogen, Nitrate (As N)	ND	0.10									
Phosphorus, Orthophosphate (As P)	ND	0.50									
Sulfate	ND	0.50									

Sample ID **MBLK** Batch ID: **R7560** Test Code: **E300** Units: **mg/L** Analysis Date **3/5/2003** Prep Date
Client ID: Run ID: **LC_030305B** SeqNo: **171768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									
Chloride	ND	0.10									
Nitrogen, Nitrite (As N)	ND	0.10									
Nitrogen, Nitrate (As N)	ND	0.10									
Phosphorus, Orthophosphate (As P)	ND	0.50									
Sulfate	ND	0.50									

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: *21-Mar-03*

CLIENT: San Juan Refining
Work Order: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Method Blank

Sample ID **rb** Batch ID: **R7550** Test Code: **SW8260B** Units: **µg/L** Analysis Date **3/5/2003** Prep Date

Client ID: Run ID: **VAL_030305A** SeqNo: **171559**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	1.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									
1,2-Dichloroethane (EDC)	0.516	1.0									J
1,2-Dibromoethane (EDB)	ND	1.0									
Naphthalene	ND	2.0									
1-Methylnaphthalene	ND	4.0									
2-Methylnaphthalene	ND	4.0									
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0									
Bromomethane	ND	2.0									
Carbon Tetrachloride	ND	1.0									
Chlorobenzene	ND	1.0									
Chloroethane	ND	2.0									
Chloroform	ND	1.0									
Chloromethane	ND	1.0									
2-Chlorotoluene	ND	1.0									
4-Chlorotoluene	ND	1.0									
cis-1,2-DCE	ND	1.0									
cis-1,3-Dichloropropene	ND	1.0									
1,2-Dibromo-3-chloropropane	0.23	2.0									J
Dibromochloromethane	ND	1.0									

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

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CLIENT: San Juan Refining
Work Order: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Method Blank

Dibromomethane	ND	2.0
1,2-Dichlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
Dichlorodifluoromethane	ND	1.0
1,1-Dichloroethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,2-Dichloropropane	ND	1.0
1,3-Dichloropropane	ND	1.0
2,2-Dichloropropane	ND	1.0
1,1-Dichloropropene	ND	1.0
Hexachlorobutadiene	ND	1.0
Isopropylbenzene	ND	1.0
4-Isopropyltoluene	ND	1.0
Methylene Chloride	ND	3.0
n-Butylbenzene	ND	1.0
n-Propylbenzene	ND	1.0
sec-Butylbenzene	ND	1.0
Styrene	ND	1.0
tert-Butylbenzene	ND	1.0
Tetrachloroethene (PCE)	ND	1.0
1,1,1,2-Tetrachloroethane	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
trans-1,2-DCE	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Trichloroethene (TCE)	ND	1.0
Trichlorofluoromethane	ND	1.0
1,2,3-Trichlorobenzene	ND	1.0
1,2,4-Trichlorobenzene	ND	1.0
1,1,1-Trichloroethane	ND	1.0
1,1,2-Trichloroethane	ND	1.0
Vinyl chloride	ND	2.0
1,2,3-Trichloropropane	ND	2.0

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: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Method Blank

Xylenes, Total	ND	1.0						
Surr: 1,2-Dichloroethane-d4	9.052	0	10	0	90.5	74.6	123	0
Surr: 4-Bromofluorobenzene	10.32	0	10	0	103	85.6	117	0
Surr: Dibromofluoromethane	9.252	0	10	0	92.5	78.6	115	0
Surr: Toluene-d8	10.6	0	10	0	106	84.2	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: *21-Mar-03*

CLIENT: San Juan Refining
Work Order: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Method Blank

Sample ID **BLK** Batch ID: **R7609** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/11/2003 11:24:51 AM** Prep Date

Client ID: Run ID: **ICP_030311C** SeqNo: **172601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.020									
Barium	ND	0.0020									
Cadmium	ND	0.0020									
Calcium	ND	0.50									
Chromium	ND	0.0060									
Copper	ND	0.0060									
Iron	ND	0.020									
Lead	ND	0.0050									
Magnesium	ND	0.50									
Manganese	ND	0.0020									
Potassium	ND	1.0									
Selenium	ND	0.020									
Silver	ND	0.0050									
Sodium	ND	0.50									
Uranium	ND	0.10									
Zinc	ND	0.0050									

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: *21-Mar-03*

CLIENT: San Juan Refining
Work Order: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Method Blank

Sample ID **MB-3215** Batch ID: **3215** Test Code: **SW8310** Units: **µg/L** Analysis Date **3/14/2003 5:02:13 PM** Prep Date **3/6/2003**

Client ID: Run ID: **HUGO_030314A** SeqNo: **173936**

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	0.01	0.020									J
Dibenz(a,h)anthracene	ND	0.040									
Benzo(g,h,i)perylene	0.02	0.030									J
Indeno(1,2,3-cd)pyrene	ND	0.080									
Surr: Benzo(e)pyrene	16.24	0	20	0	81.2	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: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Method Blank

Sample ID **MB-3215** Batch ID: **3215** Test Code: **SW8310** Units: **µg/L** Analysis Date **3/14/2003 5:02:13 PM** Prep Date **3/6/2003**
Client ID: Run ID: **HUGO_030314A** SeqNo: **173953**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	10									
1-Methylnaphthalene	ND	10									
2-Methylnaphthalene	ND	10									
Benzo(a)pyrene	ND	0.10									
Surr: Benzo(e)pyrene	16.24	0	20	0	81.2	54	102	0			

Sample ID **MBLK** Batch ID: **R7600** Test Code: **E160.1** Units: **mg/L** Analysis Date **3/10/2003** Prep Date **3/7/2003**
Client ID: Run ID: **WC_030310D** SeqNo: **172390**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	1.0									

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: *20-Mar-03*

CLIENT: San Juan Refining
Work Order: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Sample Duplicate

Sample ID **0303026-01C** Batch ID: **R7560** Test Code: **E300** Units: **mg/L** Analysis Date **3/5/2003** Prep Date
Client ID: **MW #32** Run ID: **LC_030305B** SeqNo: **171764**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.138	0.10	0	0	0	0	0	0.138	0	20	
Phosphorus, Orthophosphate (As P)	ND	0.50	0	0	0	0	0	0	0	20	

Sample ID **0303026-01C** Batch ID: **R7560** Test Code: **E300** Units: **mg/L** Analysis Date **3/5/2003** Prep Date
Client ID: **MW #32** Run ID: **LC_030305B** SeqNo: **171766**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.50	0	0	0	0	0	0	0	20	
Nitrogen, Nitrate (As N)	26.37	0.50	0	0	0	0	0	26.58	0.793	20	

Sample ID **0303026-01C** Batch ID: **R7569** Test Code: **E300** Units: **mg/L** Analysis Date **3/6/2003** Prep Date
Client ID: **MW #32** Run ID: **LC_030306A** SeqNo: **171943**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	886	10	0	0	0	0	0	874	1.37	20	
Sulfate	1219	50	0	0	0	0	0	1217	0.174	20	

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: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Sample Duplicate

Sample ID **0303026-01C DUP** Batch ID: **R7708** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/19/2003 1:31:35 PM** Prep Date
Client ID: **MW #32** Run ID: **ICP_030319D** SeqNo: **174917**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.020	0	0	0	0	0	0	0	20	
Barium	0.0458	0.0020	0	0	0	0	0	0.04283	6.70	20	
Cadmium	0.001732	0.0020	0	0	0	0	0	0.0007428	0	20	J
Chromium	0.003754	0.0060	0	0	0	0	0	0.00382	0	20	J
Copper	0.005972	0.0060	0	0	0	0	0	0.005198	0	20	J
Uranium	0.09505	0.10	0	0	0	0	0	0.09119	0	20	J
Zinc	0.008344	0.0050	0	0	0	0	0	0.008059	3.48	20	

Sample ID **0303026-01C DUP** Batch ID: **R7710** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/19/2003 2:55:56 PM** Prep Date
Client ID: **MW #32** Run ID: **ICP_030319E** SeqNo: **174938**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.01213	0.020	0	0	0	0	0	0.01118	0	20	J

Sample ID **0303026-01C DUP** Batch ID: **R7711** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/19/2003 2:09:59 PM** Prep Date
Client ID: **MW #32** Run ID: **ICP_030319F** SeqNo: **174945**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0050	0	0	0	0	0	0	0	20	

Sample ID **0303026-01C DUP** Batch ID: **R7712** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/19/2003 3:36:22 PM** Prep Date
Client ID: **MW #32** Run ID: **ICP_030319G** SeqNo: **174957**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	62.92	0.50	0	0	0	0	0	60.44	4.01	20	
Potassium	5.332	1.0	0	0	0	0	0	5.293	0.725	20	

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: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Sample Duplicate

Sample ID **0303026-01C** Batch ID: **R7600** Test Code: **E160.1** Units: **mg/L** Analysis Date **3/10/2003** Prep Date **3/7/2003**
Client ID: **MW #32** Run ID: **WC_030310D** SeqNo: **172393**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	3942	1.0	0	0	0	0	0	3845	2.49	20	

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: *20-Mar-03*

CLIENT: San Juan Refining
Work Order: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID **0303026-01BMS** Batch ID: **3215** Test Code: **SW8310** Units: **µg/L** Analysis Date **3/14/2003 8:14:07 PM** Prep Date **3/6/2003**
Client ID: **MW #32** Run ID: **HUGO_030314A** SeqNo: **173940**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	15.29	2.5	40	0	38.2	26.6	84.1	0			
1-Methylnaphthalene	15.41	2.5	40.1	0	38.4	24.2	87.5	0			
2-Methylnaphthalene	15.46	2.5	40	0	38.7	23.4	86.3	0			
Acenaphthylene	16.17	2.5	40.1	0	40.3	33.3	90	0			
Acenaphthene	16.39	2.5	40	0	41.0	31.9	93.1	0			
Fluorene	1.85	0.80	4.01	0	46.1	34.9	96.8	0			
Phenanthrene	1.23	0.60	2.01	0	61.2	50.5	105	0			
Anthracene	1.23	0.60	2.01	0	61.2	55.5	99.1	0			
Fluoranthene	2.99	0.30	4.01	0	74.6	67.8	104	0			
Pyrene	3.07	0.30	4.01	0	76.6	69.3	108	0			
Benz(a)anthracene	0.34	0.020	0.401	0	84.8	73.1	109	0			
Chrysene	1.7	0.20	2.01	0	84.6	72.7	110	0			
Benzo(b)fluoranthene	0.45	0.050	0.501	0	89.8	42.1	139	0			
Benzo(k)fluoranthene	0.22	0.020	0.25	0	88.0	71.2	112	0			
Benzo(a)pyrene	0.23	0.020	0.251	0.01	87.6	73	110	0			
Dibenz(a,h)anthracene	0.46	0.040	0.501	0	91.8	72	113	0			
Benzo(g,h,i)perylene	0.47	0.030	0.5	0.02	90.0	71.6	118	0			
Indeno(1,2,3-cd)pyrene	0.929	0.080	1.002	0	92.7	75	114	0			
Surr: Benzo(e)pyrene	18.27	0	20	0	91.4	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: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Sample Matrix Spike Duplicate

Sample ID **0303026-01BMSD** Batch ID: **3215** Test Code: **SW8310** Units: **µg/L** Analysis Date **3/14/2003 9:02:05 PM** Prep Date **3/6/2003**
Client ID: **MW #32** Run ID: **HUGO_030314A** SeqNo: **173941**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	18.16	2.5	40	0	45.4	26.6	84.1	15.29	17.2	27.4	
1-Methylnaphthalene	18.62	2.5	40.1	0	46.4	24.2	87.5	15.41	18.9	31.8	
2-Methylnaphthalene	18.53	2.5	40	0	46.3	23.4	86.3	15.46	18.1	33.9	
Acenaphthylene	19.65	2.5	40.1	0	49.0	33.3	90	16.17	19.4	29.6	
Acenaphthene	19.62	2.5	40	0	49.1	31.9	93.1	16.39	17.9	30.9	
Fluorene	2.05	0.80	4.01	0	51.1	34.9	96.8	1.85	10.3	32	
Phenanthrene	1.3	0.60	2.01	0	64.7	50.5	105	1.23	5.53	21.6	
Anthracene	1.31	0.60	2.01	0	65.2	55.5	99.1	1.23	6.30	18.7	
Fluoranthene	3.09	0.30	4.01	0	77.1	67.8	104	2.99	3.29	12.4	
Pyrene	3.17	0.30	4.01	0	79.1	69.3	108	3.07	3.21	12.5	
Benz(a)anthracene	0.34	0.020	0.401	0	84.8	73.1	109	0.34	0	13.6	
Chrysene	1.72	0.20	2.01	0	85.6	72.7	110	1.7	1.17	12.6	
Benzo(b)fluoranthene	0.45	0.050	0.501	0	89.8	42.1	139	0.45	0	13.3	
Benzo(k)fluoranthene	0.22	0.020	0.25	0	88.0	71.2	112	0.22	0	17	
Benzo(a)pyrene	0.23	0.020	0.251	0.01	87.6	73	110	0.23	0	12.1	
Dibenz(a,h)anthracene	0.46	0.040	0.501	0	91.8	72	113	0.46	0	13.6	
Benzo(g,h,i)perylene	0.47	0.030	0.5	0.02	90.0	71.6	118	0.47	0	15.5	
Indeno(1,2,3-cd)pyrene	0.944	0.080	1.002	0	94.2	75	114	0.929	1.60	15.4	
Surr: Benzo(e)pyrene	17.85	0	20	0	89.3	54	102	18.27	2.33	20	

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: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID **0303026-01C MS** Batch ID: **R7708** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/19/2003 1:34:52 PM** Prep Date
Client ID: **MW #32** Run ID: **ICP_030319D** SeqNo: **174918**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.9237	0.020	1	0	92.4	75	125	0			
Barium	0.9629	0.0020	1	0.04283	92.0	75	125	0			
Cadmium	0.9311	0.0020	1	0.0007428	93.0	75	125	0			
Chromium	0.8911	0.0060	1	0.00382	88.7	75	125	0			
Copper	1.039	0.0060	1	0.005198	103	75	125	0			
Uranium	0.1281	0.10	1	0.09119	3.69	75	125	0			S
Zinc	0.8378	0.0050	1	0.008059	83.0	75	125	0			

Sample ID **0303026-01C MS** Batch ID: **R7710** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/19/2003 2:59:18 PM** Prep Date
Client ID: **MW #32** Run ID: **ICP_030319E** SeqNo: **174940**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	1.003	0.020	1	0	100	75	125	0			

Sample ID **0303026-01C MS** Batch ID: **R7711** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/19/2003 2:11:03 PM** Prep Date
Client ID: **MW #32** Run ID: **ICP_030319F** SeqNo: **174946**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	0.7093	0.0050	1	0	70.9	75	125	0			S

Sample ID **0303026-01C MS** Batch ID: **R7712** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/19/2003 3:40:27 PM** Prep Date
Client ID: **MW #32** Run ID: **ICP_030319G** SeqNo: **174959**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	73.25	0.50	10	60.44	128	75	129	0			S
Potassium	14.3	1.0	10	5.293	90.1	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: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID **0303026-01C** Batch ID: **R7600** Test Code: **E160.1** Units: **mg/L** Analysis Date **3/10/2003** Prep Date **3/7/2003**
Client ID: **MW #32** Run ID: **WC_030310D** SeqNo: **172392**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	4945	1.0	1000	3845	110	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

Date: *20-Mar-03*

CLIENT: San Juan Refining
Work Order: 0303026
Project: MW #32 Background

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID **LCS #1** Batch ID: **R7560** Test Code: **E300** Units: **mg/L** Analysis Date **3/5/2003** Prep Date

Client ID: Run ID: **LC_030305B** SeqNo: **171753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.78	0.10	1.923	0	92.6	90	110	0			
Chloride	5.4	0.10	5.769	0	93.6	90	110	0			
Nitrogen, Nitrite (As N)	1.847	0.10	1.923	0	96.0	90	110	0			
Nitrogen, Nitrate (As N)	5.636	0.10	5.769	0	97.7	90	110	0			
Phosphorus, Orthophosphate (As P)	5.659	0.50	5.769	0	98.1	90	110	0			
Sulfate	11.4	0.50	11.54	0	98.8	90	110	0			

Sample ID **LCS #1** Batch ID: **R7569** Test Code: **E300** Units: **mg/L** Analysis Date **3/6/2003** Prep Date

Client ID: Run ID: **LC_030306A** SeqNo: **171942**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.828	0.10	1.923	0	95.1	90	110	0			
Chloride	5.269	0.10	5.769	0	91.3	90	110	0			
Nitrogen, Nitrite (As N)	1.886	0.10	1.923	0	98.1	90	110	0			
Nitrogen, Nitrate (As N)	5.632	0.10	5.769	0	97.6	90	110	0			
Phosphorus, Orthophosphate (As P)	5.695	0.50	5.769	0	98.7	90	110	0			
Sulfate	11.6	0.50	11.54	0	101	90	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

Hall Environmental Analysis Laboratory

Date: *21-Mar-03*

CLIENT: San Juan Refining
Work Order: 0303026
Project: MW #32 Background

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID **50ccv** Batch ID: **R7550** Test Code: **SW8260B** Units: **µg/L** Analysis Date **3/6/2003** Prep Date

Client ID: Run ID: **VAL_030305A** SeqNo: **171560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	10.69	1.0	10	0	107	78.7	122	0			
Toluene	10.79	1.0	10	0	108	87.7	122	0			
Chlorobenzene	9.946	1.0	10	0	99.5	85.6	136	0			
1,1-Dichloroethene	10.14	1.0	10	0	101	70.7	117	0			
Trichloroethene (TCE)	10.74	1.0	10	0	107	76.9	130	0			

Sample ID **50ccvb** Batch ID: **R7550** Test Code: **SW8260B** Units: **µg/L** Analysis Date **3/6/2003** Prep Date

Client ID: Run ID: **VAL_030305A** SeqNo: **171561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	10.75	1.0	10	0	108	78.7	122	10.69	0.559	11	
Toluene	10.75	1.0	10	0	108	76	128	10.79	0.316	12.2	
Chlorobenzene	10.08	1.0	10	0	101	85.6	136	9.946	1.32	12	
1,1-Dichloroethene	10.27	1.0	10	0	103	70.7	117	10.14	1.23	19.3	
Trichloroethene (TCE)	10.94	1.0	10	0	109	76.9	130	10.74	1.84	15.5	

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: *21-Mar-03*

CLIENT: San Juan Refining
Work Order: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID **LCS-3219** Batch ID: **3219** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/7/2003 2:11:04 PM** Prep Date **3/6/2003**
Client ID: Run ID: **ICP_030307H** SeqNo: **172277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.047	0.020	1	0	105	70	130	0			
Chromium	1.024	0.0060	1	0	102	70	130	0			

Sample ID **LCS-3219** Batch ID: **3219** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/10/2003 9:10:43 AM** Prep Date **3/6/2003**
Client ID: Run ID: **ICP_030310A** SeqNo: **172330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.029	0.020	1	0	103	70	130	0			
Barium	1.059	0.0020	1	0	106	70	130	0			
Cadmium	0.9749	0.0020	1	0	97.5	70	130	0			
Copper	1.026	0.0060	1	0	103	70	130	0			
Iron	1.002	0.020	1	0	100	70	130	0			
Lead	1.038	0.0050	1	0	104	70	130	0			
Manganese	0.9764	0.0020	1	0	97.6	70	130	0			
Uranium	1.008	0.10	1	0	101	70	130	0			
Zinc	1.06	0.0050	1	0	106	70	130	0			

Sample ID **LCS-3219** Batch ID: **3219** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/10/2003 1:54:20 PM** Prep Date **3/6/2003**
Client ID: Run ID: **ICP_030310C** SeqNo: **172380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	1.009	0.0050	1	0	101	70	130	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

1

CLIENT: San Juan Refining
Work Order: 0303026
Project: MW #32 Background

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **LCS-3219** Batch ID: **3219** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/10/2003 12:50:55 PM** Prep Date **3/6/2003**
Client ID: Run ID: **ICP_030310B** SeqNo: **174636**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.8885	0.0060	1	0	88.9	70	130	0			
Copper	1.045	0.0060	1	0	104	70	130	0			
Iron	1.003	0.020	1	0	100	70	130	0			
Selenium	1.004	0.020	1	0	100	70	130	0			

Sample ID **LCSD-3219** Batch ID: **3219** Test Code: **SW6010A** Units: **mg/L** Analysis Date **3/10/2003 12:53:07 PM** Prep Date **3/6/2003**
Client ID: Run ID: **ICP_030310B** SeqNo: **174637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.9123	0.0060	1	0	91.2	70	130	0.8885	2.64	30	
Copper	1.09	0.0060	1	0	109	70	130	1.045	4.25	30	
Iron	1.039	0.020	1	0	104	70	130	1.003	3.56	30	
Selenium	1.058	0.020	1	0	106	70	130	1.004	5.30	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

Sample Receipt Checklist

Client Name **SJR** Date and Time Receive **3/5/03**

Work Order Number **0303026** Received by **AT**

Checklist completed by _____ 3/5/03
Signature Date

Matrix: Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
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*

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

Client: San Juan Refining

Address: #50 CR 4990
Bloomfield, NM
87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Accreditation Applied: NELAC ☐ USACE ☐

Other: ______

Project Name: MW #32 - Background

Project #:

Project Manager:

Sampler: Cindy Hurtado / David Folk

Sample Temperature: 3°C

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

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative H_gCl_2	Preservative HNO_3	Preservative	HEAL No.
3-04-03	830Am	H2O	MW #32	2-VOA			HCL	0303021-1
				3-VOA	X			
				2-1 liter			Amber	
				2-500ml			H2SO4	
				2-250ml		X		
				1-500ml		X		
				1-500ml				

ANALYSIS REQUEST

Number/Volume	BTEX + MTBE + TMB's (8021) (MTBE circled)	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	Diss Cations (Na, K, Ca, Mg) TDS	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)	Dissolved Metals (WQCC)	Total Metals (WQCC)		Air Bubbles or Headspace (Y or N)
2-VOA																	
3-VOA												X					
2-1 liter							X										
2-500ml									X	X							
2-250ml														X			
1-500ml															X		
1-500ml									X	X							

Date: 3-04-03 Time: 915A Relinquished By: (Signature) Cindy Hurtado

Remarks: [signature] 3/5/03 1225

Date: Time: Relinquished By: (Signature)

Remarks:

Remarks:

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-32	Date Reported:	03/15/95
Project ID:	Bloomfield, New Mexico	Date Sampled:	03/02/95
Laboratory ID:	B952080	Date Received:	03/03/95
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	03/06/95

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	5	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	20	ug/L
2-Hexanone	ND	5	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5	ug/L
Acetone	ND	20	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	5	ug/L
Carbon Disulfide	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	5	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	5	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	20	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-32	Date Reported:	03/15/95
Laboratory ID:	B952080	Date Sampled:	03/02/95
Sample Matrix:	Water	Date Analyzed:	03/06/95

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	5	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	95	76 - 114
Toluene-d8	102	88 - 110
Bromofluorobenzene	108	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

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Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-32	Date Reported:	03/24/95
Project ID:	Bloomfield, New Mexico	Date Sampled:	03/02/95
Laboratory ID:	B952080	Date Received:	03/03/95
Sample Matrix:	Water	Date Extracted:	03/09/95
		Date Analyzed:	03/20/95

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Methylphenol/4-Methylphenol *	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzoic Acid	ND	50	ug/L

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Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-32	Date Reported:	03/24/95
Laboratory ID:	B952080	Date Sampled:	03/02/95
Sample Matrix:	Water	Date Analyzed:	03/20/95

Parameter	Analytical Result	Detection Limit	Units
Benzyl Alcohol	ND	20	ug/L
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	50	ug/L
Butylbenzylphthalate	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	50	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	20	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	20	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

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EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-32	Date Reported:	03/24/95
Laboratory ID:	B952080	Date Sampled:	03/02/95
Sample Matrix:	Water	Date Analyzed:	03/20/95

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	60	21 - 100
Phenol-d6	54	10 - 94
Nitrobenzene-d5	70	35 - 114
2-Fluorobiphenyl	64	43 - 116
2,4,6-Tribromophenol	86	10 - 123
Terphenyl-d14	44	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

Analyst

Reviewed