GW - 32

MONITORING REPORTS

DATE:

MW's 2004

GIANT
REFINING COMPANY

ROUTE 3 BOX 7
GALLUP
NEW MEXICO 87301

PHONE
505-722-3833
INTERNET
WWW.GIANT.COM

September 15, 2004

Mr. Roger Anderson
Environmental Bureau Chief
New Mexico Oil Conservation Division
1220 South Street Francis Drive
Santa Fe, NM 87505

Re: New Monitor Well Analysis

Attached please find the lab analysis for the newly installed monitor wells at the Giant Ciniza refinery. Also enclosed is a summary table entitled Boundry Well Sample results. The following chemicals were found in Well BW-3-C (ug/L):

- benzene- 5.2
- toluene- 1.0
- xylene- 1.5

Acetone was found in Well BW-2-C at 1500 ug/L. Giant plans to purge these two wells and resample for the parameters listed above by the end of September. This should help to determine whether these parameters are actually present or whether there was drilling, sampling or lab contamination.

If you have any questions regarding this report please contact me at (505) 722-0217.

Sincerely,

Ed Riege
Environmental Superintendent

C: Matt Davis w/o report
Denny Foust, OCD, Aztec Office w/report
Hope Monzeglio, NMED

Boundary Well Sample Results

All analysis are in ug/L unless noted.

Well #	Date	Fluoride mg/L	Chloride mg/L	Nitrite mg/L	Bromide mg/L	Nitrate mg/L	Phosphorus mg/L	Sulfate mg/L	Alkalinity mg/L	Carbonate mg/L	Bicarbonate mg/L	1,2-Dibromoethane	DRO mg/L	MRO mg/L	GRO mg/L	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Benzene	Toluene	Ethylbenzene	MTBE	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	1,2-Dichloroethane
BW-3-C	8/4/2004	0.95	25	ND	1.2	ND	ND	440	220	ND	220	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.2	1	ND	ND	ND	ND	ND
BW-3-B	8/4/2004	1.4	35	ND	0.49	ND	1.2	63	820	24	790	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-2-C	8/4/2004	2.2	46	ND	0.78	ND	ND	230	540	ND	540	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-2-A	8/4/2004	1.2	40	ND	0.4	ND	0.57	9.6	790	40	750	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-2-B	8/4/2004	1.7	32	ND	1.3	ND	ND	140	1200	ND	1200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-1-C	8/4/2004	2	38	ND	0.32	ND	ND	210	400	44	350	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Well #	Date	1,2-Dibromoethane	Naphthalene	1-Mehtylnapthalene	2-Mehtylnapthalene	Acetone	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	2-Butanone	Carbon disulfide	Carbon Tetrachloride	Chloro Benzene	Chloroethane	Chloroform	Chloromethane	2-Chlorotoluene	4-Chlorotoluene	cis-1,3-Dichloropropene	1,2-Dibromo-3 chloropropane	Dibromochloromethane	Dibromomethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane
BW-3-C	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-3-B	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-2-C	8/4/2004	ND	ND	ND	ND	1500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-2-A	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-2-B	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-1-C	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Well #	Date	1,1-Dichloroethene	1,2-Dichloropropane	1,3-Dichloropropane	2,2-Dichloropropane	1,1-Dichloropropene	Hexachlorobutadiene	2-Hexanone	Isopropylbenzene	4-Isopropyltoluene	4-Methyl-2-pentanone	Methylene Cholride	n-Butylbenzene	n-Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethane	trans-1,2-DCE	trans-1,3-Dichloropropene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	1,2,3-Trichloropropane
BW-3-C	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-3-B	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-2-C	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-2-A	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-2-B	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-1-C	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Well #	Date	Vinyl chloride	Xylenes, Total	Acenapthene	Acenaphtylene	Aniline	Anthracene	Azobenzene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,I)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl)ether	Bis(2-ethylexyl)phthalate	4-Bromophenyl phenyl ether	Butyl Benzyl phthalate	Carbazole	4-Chloro-3-methylphenol	4-Chronoanilene	2-Chloronaphthalene	2-Chlorophenol	4-Chlorophenyl phenyl ether	Chrysene	Di-n-butylphthalate
BW-3-C	8/4/2004	ND	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-3-B	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-2-C	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-2-A	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-2-B	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BW-1-C	8/4/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Well #	Date		
BW-3-C	8/4/2004		
BW-3-B	8/4/2004	ND	Di-n-octyl phthalate
BW-2-C	8/4/2004	ND	Dibenz(a,h)anthracene
BW-2-A	8/4/2004	ND	Dibenzofuran
BW-2-B	8/4/2004	ND	1,2-Dichlorobenzene
BW-1-C	8/4/2004	ND	1,3-Dichlorobenzene
		ND	1,4-Dichlorobenzene
		ND	3,3'-Dichlorobenzidine
		ND	Diethyl phthalate
		ND	Dimethyl phthalate
		ND	2,4-Dichlorophenyl
		ND	2,4-Dimethylphenol
		ND	4,6-Dinitro-2-methylphenol
		ND	2,4-Dinitrophenol
		ND	2,4-Dinitrotoluene
		ND	2,6-Dinitrotoluene
		ND	Fluoranthene
		ND	Fluorene
		ND	Hexachlorobenzene
		ND	Hexachlorobutadiene
		ND	Hexachlorocuclopenadiene
		ND	Hexachloroethane
		ND	Indeno(1,2,3-cd)pyrene
		ND	Isophorone
		ND	2-Mehtylnaphthalene
		ND	2-Methylphenol
		ND	3+4-Methylphenol
		ND	N-Nitrosodi-n-propylamine
		ND	N-Nitrosodimethylamine

Well #	Date		
BW-3-C	8/4/2004		
BW-3-B	8/4/2004	ND	N-Nitrosodiphenylamine
BW-2-C	8/4/2004	ND	Naphthalene
BW-2-A	8/4/2004	ND	2-Nitroaniline
BW-2-B	8/4/2004	ND	3-Nitroaniline
BW-1-C	8/4/2004	ND	4-Nitroaniline
		ND	Nitrobenzene
		ND	2-Nitrophenol
		ND	4-Nitrophenol
		ND	Pentachlorophenol
		ND	Phenanthrene
		ND	Phenol
		ND	Pyrene
		ND	Pyridine
		ND	1,2,4-Trichlorobenzene
		ND	2,4,5-Trichlorophenol
		ND	2,4,6-Trichlorophenol
		ND	Naphthalene
		ND	1-Methylnaphthalene
		ND	2-Methylnaphthalene
		ND	Acenaphthalene
		ND	Acenaphthene
		ND	Fluorene
		ND	Phenanthrene
		ND	Anthracene
		ND	Fluoranthrene
		ND	Pyrene
		ND	Benz(a)anthracene
		ND	Chrysene

Well #	Date	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)anthracene	Dibenz(a,h)anthracene	Benzo(g,h,I)perylene	Indeno(1,2,3-cd)pyrene	Specific Conductance	Mercury mg/L	Arsenic mg/L	Barium mg/L	Cadmium mg/L	Calcium mg/L	Chromium mg/L	Lead mg/L	Magnesium mg/L	Potassium mg/L	Selenium mg/L	Silver mg/L	Sodium mg/L	Uranium mg/L	Total Dissloved Solids mg/L
BW-3-C	8/4/2004	ND	ND	ND	ND	ND	ND	1300	ND	ND	0.05	ND	45	ND	ND	9.8	5.3	ND	ND	230	ND	940
BW-3-B	8/4/2004	ND	ND	ND	ND	ND	ND	1400	ND	ND	0.13	ND	11	ND	0.01	3.1	1.3	ND	ND	340	ND	1000
BW-2-C	8/4/2004	ND	ND	ND	ND	ND	ND	1300	ND	ND	0.05	ND	5.6	ND	ND	1.5	2	ND	ND	300	ND	970
BW-2-A	8/4/2004	ND	ND	ND	ND	ND	ND	1300	ND	ND	0.12	ND	6.7	ND	0.01	2.5	ND	ND	ND	220	ND	1100
BW-2-B	8/4/2004	ND	ND	ND	ND	ND	ND	2200	ND	ND	0.07	ND	14	ND	0.01	3.2	4.7	0.07	ND	540	ND	1500
BW-1-C	8/4/2004	ND	ND	ND	ND	ND	ND	1200	ND	ND	0.04	ND	3.8	ND	ND	ND	2	ND	ND	200	ND	970

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

August 30, 2004

Steve Morris
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: Boundry Well Initial Sampling

Order No.: 0408039

Dear Steve Morris:

Hall Environmental Analysis Laboratory received 7 samples on 8/5/2004 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

ACCREDITED IN ACCORDANCE WITH nelac

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

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Project: Boundry Well Initial Sampling
Lab Order: 0408039

CASE NARRATIVE

Analytical Comments for METHOD 8015GRO_W, SAMPLE 0408039-03a: Necessary dilution due to foamy nature of sample.

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-3-C
Lab Order: 0408039
Collection Date: 8/4/2004 9:00:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **MAP**
Fluoride	0.95	0.10		mg/L	1	8/5/2004 2:13:33 PM
Chloride	25	0.10		mg/L	1	8/5/2004 2:13:33 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/5/2004 2:13:33 PM
Bromide	1.2	0.10		mg/L	1	8/5/2004 2:13:33 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/5/2004 2:13:33 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/5/2004 2:13:33 PM
Sulfate	440	25		mg/L	50	8/6/2004 5:27:47 PM
EPA METHOD 310.1: ALKALINITY						Analyst: **MAP**
Alkalinity, Total (As CaCO3)	220	4.0		mg/L CaCO3	2	8/16/2004
Carbonate	ND	4.0		mg/L CaCO3	2	8/16/2004
Bicarbonate	220	4.0		mg/L CaCO3	2	8/16/2004
EPA METHOD 504.1: EDB						Analyst: **SCC**
1,2-Dibromoethane	ND	0.010		µg/L	1	8/6/2004 12:55:54 PM
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	8/14/2004 10:20:38 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/14/2004 10:20:38 PM
Surr: DNOP	112	58-140		%REC	1	8/14/2004 10:20:38 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **BDH**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/12/2004 11:34:32 AM
Surr: BFB	92.7	74-118		%REC	1	8/12/2004 11:34:32 AM
EPA METHOD 8082: PCB'S						Analyst: **JMP**
Aroclor 1016	ND	1.0		µg/L	1	8/24/2004 6:08:36 AM
Aroclor 1221	ND	5.0		µg/L	1	8/24/2004 6:08:36 AM
Aroclor 1232	ND	1.0		µg/L	1	8/24/2004 6:08:36 AM
Aroclor 1242	ND	1.0		µg/L	1	8/24/2004 6:08:36 AM
Aroclor 1248	ND	1.0		µg/L	1	8/24/2004 6:08:36 AM
Aroclor 1254	ND	1.0		µg/L	1	8/24/2004 6:08:36 AM
Aroclor 1260	ND	1.0		µg/L	1	8/24/2004 6:08:36 AM
Surr: Decachlorobiphenyl	102	45.3-140		%REC	1	8/24/2004 6:08:36 AM
Surr: Tetrachloro-m-xylene	80.0	28.1-139		%REC	1	8/24/2004 6:08:36 AM
EPA METHOD 8260B: VOLATILES						Analyst: **KTM**
Benzene	5.2	1.0		µg/L	1	8/10/2004
Toluene	1.0	1.0		µg/L	1	8/10/2004
Ethylbenzene	ND	1.0		µg/L	1	8/10/2004
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/10/2004

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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-3-C
Lab Order: 0408039
Collection Date: 8/4/2004 9:00:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/10/2004
Naphthalene	ND	2.0		µg/L	1	8/10/2004
1-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
2-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
Acetone	ND	10		µg/L	1	8/10/2004
Bromobenzene	ND	1.0		µg/L	1	8/10/2004
Bromochloromethane	ND	1.0		µg/L	1	8/10/2004
Bromodichloromethane	ND	1.0		µg/L	1	8/10/2004
Bromoform	ND	1.0		µg/L	1	8/10/2004
Bromomethane	ND	2.0		µg/L	1	8/10/2004
2-Butanone	ND	10		µg/L	1	8/10/2004
Carbon disulfide	ND	10		µg/L	1	8/10/2004
Carbon Tetrachloride	ND	1.0		µg/L	1	8/10/2004
Chlorobenzene	ND	1.0		µg/L	1	8/10/2004
Chloroethane	ND	2.0		µg/L	1	8/10/2004
Chloroform	ND	1.0		µg/L	1	8/10/2004
Chloromethane	ND	1.0		µg/L	1	8/10/2004
2-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
4-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
cis-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/10/2004
Dibromochloromethane	ND	1.0		µg/L	1	8/10/2004
Dibromomethane	ND	2.0		µg/L	1	8/10/2004
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,3-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
2,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
Hexachlorobutadiene	ND	1.0		µg/L	1	8/10/2004
2-Hexanone	ND	10		µg/L	1	8/10/2004
Isopropylbenzene	ND	1.0		µg/L	1	8/10/2004
4-Isopropyltoluene	ND	1.0		µg/L	1	8/10/2004
4-Methyl-2-pentanone	ND	10		µg/L	1	8/10/2004
Methylene Chloride	ND	3.0		µg/L	1	8/10/2004
n-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
n-Propylbenzene	ND	1.0		µg/L	1	8/10/2004

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Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-3-C
Lab Order: 0408039
Collection Date: 8/4/2004 9:00:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
sec-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
Styrene	ND	1.0		µg/L	1	8/10/2004
tert-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/10/2004
trans-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/10/2004
Trichlorofluoromethane	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/10/2004
Vinyl chloride	ND	1.0		µg/L	1	8/10/2004
Xylenes, Total	1.5	1.0		µg/L	1	8/10/2004
Surr: 1,2-Dichloroethane-d4	97.1	70.6-124		%REC	1	8/10/2004
Surr: 4-Bromofluorobenzene	101	76.4-130		%REC	1	8/10/2004
Surr: Dibromofluoromethane	106	67.2-131		%REC	1	8/10/2004
Surr: Toluene-d8	101	82.1-123		%REC	1	8/10/2004
EPA METHOD 8270D: SEMIVOLATILES						Analyst: **GAB**
Acenaphthene	ND	50		µg/L	1	8/23/2004
Acenaphthylene	ND	50		µg/L	1	8/23/2004
Aniline	ND	50		µg/L	1	8/23/2004
Anthracene	ND	50		µg/L	1	8/23/2004
Azobenzene	ND	50		µg/L	1	8/23/2004
Benz(a)anthracene	ND	75		µg/L	1	8/23/2004
Benzo(a)pyrene	ND	50		µg/L	1	8/23/2004
Benzo(b)fluoranthene	ND	50		µg/L	1	8/23/2004
Benzo(g,h,i)perylene	ND	50		µg/L	1	8/23/2004
Benzo(k)fluoranthene	ND	50		µg/L	1	8/23/2004
Benzoic acid	ND	250		µg/L	1	8/23/2004
Benzyl alcohol	ND	100		µg/L	1	8/23/2004
Bis(2-chloroethoxy)methane	ND	50		µg/L	1	8/23/2004
Bis(2-chloroethyl)ether	ND	75		µg/L	1	8/23/2004
Bis(2-chloroisopropyl)ether	ND	75		µg/L	1	8/23/2004
Bis(2-ethylhexyl)phthalate	ND	75		µg/L	1	8/23/2004
4-Bromophenyl phenyl ether	ND	50		µg/L	1	8/23/2004
Butyl benzyl phthalate	ND	75		µg/L	1	8/23/2004
Carbazole	ND	50		µg/L	1	8/23/2004
4-Chloro-3-methylphenol	ND	100		µg/L	1	8/23/2004

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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-3-C
Lab Order: 0408039
Collection Date: 8/4/2004 9:00:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
4-Chloroaniline	ND	100		µg/L	1	8/23/2004
2-Chloronaphthalene	ND	50		µg/L	1	8/23/2004
2-Chlorophenol	ND	50		µg/L	1	8/23/2004
4-Chlorophenyl phenyl ether	ND	75		µg/L	1	8/23/2004
Chrysene	ND	75		µg/L	1	8/23/2004
Di-n-butyl phthalate	ND	50		µg/L	1	8/23/2004
Di-n-octyl phthalate	ND	75		µg/L	1	8/23/2004
Dibenz(a,h)anthracene	ND	50		µg/L	1	8/23/2004
Dibenzofuran	ND	50		µg/L	1	8/23/2004
1,2-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
1,3-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
1,4-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
3,3'-Dichlorobenzidine	ND	75		µg/L	1	8/23/2004
Diethyl phthalate	ND	50		µg/L	1	8/23/2004
Dimethyl phthalate	ND	50		µg/L	1	8/23/2004
2,4-Dichlorophenol	ND	50		µg/L	1	8/23/2004
2,4-Dimethylphenol	ND	50		µg/L	1	8/23/2004
4,6-Dinitro-2-methylphenol	ND	250		µg/L	1	8/23/2004
2,4-Dinitrophenol	ND	250		µg/L	1	8/23/2004
2,4-Dinitrotoluene	ND	50		µg/L	1	8/23/2004
2,6-Dinitrotoluene	ND	50		µg/L	1	8/23/2004
Fluoranthene	ND	50		µg/L	1	8/23/2004
Fluorene	ND	50		µg/L	1	8/23/2004
Hexachlorobenzene	ND	50		µg/L	1	8/23/2004
Hexachlorobutadiene	ND	50		µg/L	1	8/23/2004
Hexachlorocyclopentadiene	ND	50		µg/L	1	8/23/2004
Hexachloroethane	ND	50		µg/L	1	8/23/2004
Indeno(1,2,3-cd)pyrene	ND	50		µg/L	1	8/23/2004
Isophorone	ND	50		µg/L	1	8/23/2004
2-Methylnaphthalene	ND	50		µg/L	1	8/23/2004
2-Methylphenol	ND	75		µg/L	1	8/23/2004
3+4-Methylphenol	ND	50		µg/L	1	8/23/2004
N-Nitrosodi-n-propylamine	ND	50		µg/L	1	8/23/2004
N-Nitrosodimethylamine	ND	50		µg/L	1	8/23/2004
N-Nitrosodiphenylamine	ND	50		µg/L	1	8/23/2004
Naphthalene	ND	50		µg/L	1	8/23/2004
2-Nitroaniline	ND	250		µg/L	1	8/23/2004
3-Nitroaniline	ND	250		µg/L	1	8/23/2004
4-Nitroaniline	ND	100		µg/L	1	8/23/2004
Nitrobenzene	ND	50		µg/L	1	8/23/2004
2-Nitrophenol	ND	75		µg/L	1	8/23/2004
4-Nitrophenol	ND	250		µg/L	1	8/23/2004

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

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-3-C
Lab Order: 0408039
Collection Date: 8/4/2004 9:00:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Pentachlorophenol	ND	250		µg/L	1	8/23/2004
Phenanthrene	ND	50		µg/L	1	8/23/2004
Phenol	ND	50		µg/L	1	8/23/2004
Pyrene	ND	75		µg/L	1	8/23/2004
Pyridine	ND	150		µg/L	1	8/23/2004
1,2,4-Trichlorobenzene	ND	50		µg/L	1	8/23/2004
2,4,5-Trichlorophenol	ND	50		µg/L	1	8/23/2004
2,4,6-Trichlorophenol	ND	75		µg/L	1	8/23/2004
Surr: 2,4,6-Tribromophenol	55.6	16.6-115		%REC	1	8/23/2004
Surr: 2-Fluorobiphenyl	48.9	37-95.7		%REC	1	8/23/2004
Surr: 2-Fluorophenol	45.1	9.54-89.8		%REC	1	8/23/2004
Surr: 4-Terphenyl-d14	81.0	47.9-115		%REC	1	8/23/2004
Surr: Nitrobenzene-d5	50.9	38-106		%REC	1	8/23/2004
Surr: Phenol-d6	34.7	10.7-63.4		%REC	1	8/23/2004
EPA METHOD 8310: PAHS						Analyst: **IC**
Naphthalene	ND	2.5		µg/L	1	8/21/2004 12:36:00 PM
1-Methylnaphthalene	ND	2.5		µg/L	1	8/21/2004 12:36:00 PM
2-Methylnaphthalene	ND	2.5		µg/L	1	8/21/2004 12:36:00 PM
Acenaphthylene	ND	2.5		µg/L	1	8/21/2004 12:36:00 PM
Acenaphthene	ND	2.5		µg/L	1	8/21/2004 12:36:00 PM
Fluorene	ND	0.80		µg/L	1	8/21/2004 12:36:00 PM
Phenanthrene	ND	0.60		µg/L	1	8/21/2004 12:36:00 PM
Anthracene	ND	0.60		µg/L	1	8/21/2004 12:36:00 PM
Fluoranthene	ND	0.30		µg/L	1	8/21/2004 12:36:00 PM
Pyrene	ND	0.30		µg/L	1	8/21/2004 12:36:00 PM
Benz(a)anthracene	ND	0.020		µg/L	1	8/21/2004 12:36:00 PM
Chrysene	ND	0.20		µg/L	1	8/21/2004 12:36:00 PM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	8/21/2004 12:36:00 PM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	8/21/2004 12:36:00 PM
Benzo(a)pyrene	ND	0.020		µg/L	1	8/21/2004 12:36:00 PM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	8/21/2004 12:36:00 PM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	8/21/2004 12:36:00 PM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	8/21/2004 12:36:00 PM
Surr: Benzo(e)pyrene	86.9	54-102		%REC	1	8/21/2004 12:36:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **CMC**
Specific Conductance	1300	0.010		µmhos/cm	1	8/11/2004
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	8/9/2004
EPA METHOD 6010C: DISSOLVED METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	8/6/2004 9:38:54 AM

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

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-3-C
Lab Order: 0408039
Collection Date: 8/4/2004 9:00:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Barium	0.051	0.0020		mg/L	1	8/6/2004 9:38:54 AM
Cadmium	ND	0.0020		mg/L	1	8/6/2004 9:38:54 AM
Calcium	45	1.0		mg/L	1	8/6/2004 9:38:54 AM
Chromium	ND	0.0060		mg/L	1	8/6/2004 9:38:54 AM
Lead	ND	0.0050		mg/L	1	8/6/2004 9:38:54 AM
Magnesium	9.8	1.0		mg/L	1	8/6/2004 9:38:54 AM
Potassium	5.3	1.0		mg/L	1	8/6/2004 9:38:54 AM
Selenium	ND	0.050		mg/L	1	8/6/2004 9:38:54 AM
Silver	ND	0.0050		mg/L	1	8/6/2004 9:38:54 AM
Sodium	230	10		mg/L	10	8/6/2004 10:32:27 AM
Uranium	ND	0.10		mg/L	1	8/6/2004 9:38:54 AM
EPA METHOD 160.1: TDS						Analyst: **JEB**
Total Dissolved Solids	940	50		mg/L	1	8/10/2004

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

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-3-B
Lab Order: 0408039
Collection Date: 8/4/2004 9:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-02
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **MAP**
Fluoride	1.4	0.10		mg/L	1	8/5/2004 2:30:17 PM
Chloride	35	0.10		mg/L	1	8/5/2004 2:30:17 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/5/2004 2:30:17 PM
Bromide	0.49	0.10		mg/L	1	8/5/2004 2:30:17 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/5/2004 2:30:17 PM
Phosphorus, Orthophosphate (As P)	1.2	0.50		mg/L	1	8/5/2004 2:30:17 PM
Sulfate	63	0.50		mg/L	1	8/5/2004 2:30:17 PM
EPA METHOD 310.1: ALKALINITY						Analyst: **MAP**
Alkalinity, Total (As CaCO3)	820	4.0		mg/L CaCO3	2	8/16/2004
Carbonate	24	4.0		mg/L CaCO3	2	8/16/2004
Bicarbonate	790	4.0		mg/L CaCO3	2	8/16/2004
EPA METHOD 504.1: EDB						Analyst: **SCC**
1,2-Dibromoethane	ND	0.010		µg/L	1	8/6/2004 1:08:49 PM
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	8/14/2004 10:51:09 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/14/2004 10:51:09 PM
Surr: DNOP	112	58-140		%REC	1	8/14/2004 10:51:09 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **BDH**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/12/2004 12:04:59 PM
Surr: BFB	91.7	74-118		%REC	1	8/12/2004 12:04:59 PM
EPA METHOD 8082: PCB'S						Analyst: **JMP**
Aroclor 1016	ND	1.0		µg/L	1	8/24/2004 6:54:20 AM
Aroclor 1221	ND	5.0		µg/L	1	8/24/2004 6:54:20 AM
Aroclor 1232	ND	1.0		µg/L	1	8/24/2004 6:54:20 AM
Aroclor 1242	ND	1.0		µg/L	1	8/24/2004 6:54:20 AM
Aroclor 1248	ND	1.0		µg/L	1	8/24/2004 6:54:20 AM
Aroclor 1254	ND	1.0		µg/L	1	8/24/2004 6:54:20 AM
Aroclor 1260	ND	1.0		µg/L	1	8/24/2004 6:54:20 AM
Surr: Decachlorobiphenyl	102	45.3-140		%REC	1	8/24/2004 6:54:20 AM
Surr: Tetrachloro-m-xylene	72.8	28.1-139		%REC	1	8/24/2004 6:54:20 AM
EPA METHOD 8260B: VOLATILES						Analyst: **KTM**
Benzene	ND	1.0		µg/L	1	8/10/2004
Toluene	ND	1.0		µg/L	1	8/10/2004
Ethylbenzene	ND	1.0		µg/L	1	8/10/2004
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/10/2004

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E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-3-B
Lab Order: 0408039
Collection Date: 8/4/2004 9:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-02
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/10/2004
Naphthalene	ND	2.0		µg/L	1	8/10/2004
1-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
2-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
Acetone	ND	10		µg/L	1	8/10/2004
Bromobenzene	ND	1.0		µg/L	1	8/10/2004
Bromochloromethane	ND	1.0		µg/L	1	8/10/2004
Bromodichloromethane	ND	1.0		µg/L	1	8/10/2004
Bromoform	ND	1.0		µg/L	1	8/10/2004
Bromomethane	ND	2.0		µg/L	1	8/10/2004
2-Butanone	ND	10		µg/L	1	8/10/2004
Carbon disulfide	ND	10		µg/L	1	8/10/2004
Carbon Tetrachloride	ND	1.0		µg/L	1	8/10/2004
Chlorobenzene	ND	1.0		µg/L	1	8/10/2004
Chloroethane	ND	2.0		µg/L	1	8/10/2004
Chloroform	ND	1.0		µg/L	1	8/10/2004
Chloromethane	ND	1.0		µg/L	1	8/10/2004
2-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
4-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
cis-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/10/2004
Dibromochloromethane	ND	1.0		µg/L	1	8/10/2004
Dibromomethane	ND	2.0		µg/L	1	8/10/2004
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,3-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
2,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
Hexachlorobutadiene	ND	1.0		µg/L	1	8/10/2004
2-Hexanone	ND	10		µg/L	1	8/10/2004
Isopropylbenzene	ND	1.0		µg/L	1	8/10/2004
4-Isopropyltoluene	ND	1.0		µg/L	1	8/10/2004
4-Methyl-2-pentanone	ND	10		µg/L	1	8/10/2004
Methylene Chloride	ND	3.0		µg/L	1	8/10/2004
n-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
n-Propylbenzene	ND	1.0		µg/L	1	8/10/2004

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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-3-B
Lab Order: 0408039
Collection Date: 8/4/2004 9:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-02
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
sec-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
Styrene	ND	1.0		µg/L	1	8/10/2004
tert-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/10/2004
trans-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/10/2004
Trichlorofluoromethane	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/10/2004
Vinyl chloride	ND	1.0		µg/L	1	8/10/2004
Xylenes, Total	ND	1.0		µg/L	1	8/10/2004
Surr: 1,2-Dichloroethane-d4	96.4	70.6-124		%REC	1	8/10/2004
Surr: 4-Bromofluorobenzene	93.8	76.4-130		%REC	1	8/10/2004
Surr: Dibromofluoromethane	106	67.2-131		%REC	1	8/10/2004
Surr: Toluene-d8	100	82.1-123		%REC	1	8/10/2004
EPA METHOD 8270D: SEMIVOLATILES						Analyst: **GAB**
Acenaphthene	ND	50		µg/L	1	8/23/2004
Acenaphthylene	ND	50		µg/L	1	8/23/2004
Aniline	ND	50		µg/L	1	8/23/2004
Anthracene	ND	50		µg/L	1	8/23/2004
Azobenzene	ND	50		µg/L	1	8/23/2004
Benz(a)anthracene	ND	75		µg/L	1	8/23/2004
Benzo(a)pyrene	ND	50		µg/L	1	8/23/2004
Benzo(b)fluoranthene	ND	50		µg/L	1	8/23/2004
Benzo(g,h,i)perylene	ND	50		µg/L	1	8/23/2004
Benzo(k)fluoranthene	ND	50		µg/L	1	8/23/2004
Benzoic acid	ND	250		µg/L	1	8/23/2004
Benzyl alcohol	ND	100		µg/L	1	8/23/2004
Bis(2-chloroethoxy)methane	ND	50		µg/L	1	8/23/2004
Bis(2-chloroethyl)ether	ND	75		µg/L	1	8/23/2004
Bis(2-chloroisopropyl)ether	ND	75		µg/L	1	8/23/2004
Bis(2-ethylhexyl)phthalate	ND	75		µg/L	1	8/23/2004
4-Bromophenyl phenyl ether	ND	50		µg/L	1	8/23/2004
Butyl benzyl phthalate	ND	75		µg/L	1	8/23/2004
Carbazole	ND	50		µg/L	1	8/23/2004
4-Chloro-3-methylphenol	ND	100		µg/L	1	8/23/2004

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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-3-B
Lab Order: 0408039
Collection Date: 8/4/2004 9:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-02
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
4-Chloroaniline	ND	100		µg/L	1	8/23/2004
2-Chloronaphthalene	ND	50		µg/L	1	8/23/2004
2-Chlorophenol	ND	50		µg/L	1	8/23/2004
4-Chlorophenyl phenyl ether	ND	75		µg/L	1	8/23/2004
Chrysene	ND	75		µg/L	1	8/23/2004
Di-n-butyl phthalate	ND	50		µg/L	1	8/23/2004
Di-n-octyl phthalate	ND	75		µg/L	1	8/23/2004
Dibenz(a,h)anthracene	ND	50		µg/L	1	8/23/2004
Dibenzofuran	ND	50		µg/L	1	8/23/2004
1,2-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
1,3-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
1,4-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
3,3'-Dichlorobenzidine	ND	75		µg/L	1	8/23/2004
Diethyl phthalate	ND	50		µg/L	1	8/23/2004
Dimethyl phthalate	ND	50		µg/L	1	8/23/2004
2,4-Dichlorophenol	ND	50		µg/L	1	8/23/2004
2,4-Dimethylphenol	ND	50		µg/L	1	8/23/2004
4,6-Dinitro-2-methylphenol	ND	250		µg/L	1	8/23/2004
2,4-Dinitrophenol	ND	250		µg/L	1	8/23/2004
2,4-Dinitrotoluene	ND	50		µg/L	1	8/23/2004
2,6-Dinitrotoluene	ND	50		µg/L	1	8/23/2004
Fluoranthene	ND	50		µg/L	1	8/23/2004
Fluorene	ND	50		µg/L	1	8/23/2004
Hexachlorobenzene	ND	50		µg/L	1	8/23/2004
Hexachlorobutadiene	ND	50		µg/L	1	8/23/2004
Hexachlorocyclopentadiene	ND	50		µg/L	1	8/23/2004
Hexachloroethane	ND	50		µg/L	1	8/23/2004
Indeno(1,2,3-cd)pyrene	ND	50		µg/L	1	8/23/2004
Isophorone	ND	50		µg/L	1	8/23/2004
2-Methylnaphthalene	ND	50		µg/L	1	8/23/2004
2-Methylphenol	ND	75		µg/L	1	8/23/2004
3+4-Methylphenol	ND	50		µg/L	1	8/23/2004
N-Nitrosodi-n-propylamine	ND	50		µg/L	1	8/23/2004
N-Nitrosodimethylamine	ND	50		µg/L	1	8/23/2004
N-Nitrosodiphenylamine	ND	50		µg/L	1	8/23/2004
Naphthalene	ND	50		µg/L	1	8/23/2004
2-Nitroaniline	ND	250		µg/L	1	8/23/2004
3-Nitroaniline	ND	250		µg/L	1	8/23/2004
4-Nitroaniline	ND	100		µg/L	1	8/23/2004
Nitrobenzene	ND	50		µg/L	1	8/23/2004
2-Nitrophenol	ND	75		µg/L	1	8/23/2004
4-Nitrophenol	ND	250		µg/L	1	8/23/2004

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

CLIENT: Giant Refining Co
Client Sample ID: BW-3-B
Lab Order: 0408039
Collection Date: 8/4/2004 9:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-02
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Pentachlorophenol	ND	250		µg/L	1	8/23/2004
Phenanthrene	ND	50		µg/L	1	8/23/2004
Phenol	ND	50		µg/L	1	8/23/2004
Pyrene	ND	75		µg/L	1	8/23/2004
Pyridine	ND	150		µg/L	1	8/23/2004
1,2,4-Trichlorobenzene	ND	50		µg/L	1	8/23/2004
2,4,5-Trichlorophenol	ND	50		µg/L	1	8/23/2004
2,4,6-Trichlorophenol	ND	75		µg/L	1	8/23/2004
Surr: 2,4,6-Tribromophenol	59.8	16.6-115		%REC	1	8/23/2004
Surr: 2-Fluorobiphenyl	59.0	37-95.7		%REC	1	8/23/2004
Surr: 2-Fluorophenol	52.4	9.54-89.8		%REC	1	8/23/2004
Surr: 4-Terphenyl-d14	84.1	47.9-115		%REC	1	8/23/2004
Surr: Nitrobenzene-d5	56.9	38-106		%REC	1	8/23/2004
Surr: Phenol-d6	40.2	10.7-63.4		%REC	1	8/23/2004
EPA METHOD 8310: PAHS						Analyst: **IC**
Naphthalene	ND	2.5		µg/L	1	8/21/2004 2:11:59 PM
1-Methylnaphthalene	ND	2.5		µg/L	1	8/21/2004 2:11:59 PM
2-Methylnaphthalene	ND	2.5		µg/L	1	8/21/2004 2:11:59 PM
Acenaphthylene	ND	2.5		µg/L	1	8/21/2004 2:11:59 PM
Acenaphthene	ND	2.5		µg/L	1	8/21/2004 2:11:59 PM
Fluorene	ND	0.80		µg/L	1	8/21/2004 2:11:59 PM
Phenanthrene	ND	0.60		µg/L	1	8/21/2004 2:11:59 PM
Anthracene	ND	0.60		µg/L	1	8/21/2004 2:11:59 PM
Fluoranthene	ND	0.30		µg/L	1	8/21/2004 2:11:59 PM
Pyrene	ND	0.30		µg/L	1	8/21/2004 2:11:59 PM
Benz(a)anthracene	ND	0.020		µg/L	1	8/21/2004 2:11:59 PM
Chrysene	ND	0.20		µg/L	1	8/21/2004 2:11:59 PM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	8/21/2004 2:11:59 PM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	8/21/2004 2:11:59 PM
Benzo(a)pyrene	ND	0.020		µg/L	1	8/21/2004 2:11:59 PM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	8/21/2004 2:11:59 PM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	8/21/2004 2:11:59 PM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	8/21/2004 2:11:59 PM
Surr: Benzo(e)pyrene	95.0	54-102		%REC	1	8/21/2004 2:11:59 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **CMC**
Specific Conductance	1400	0.010		µmhos/cm	1	8/11/2004
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	8/9/2004
EPA METHOD 6010C: DISSOLVED METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	8/6/2004 9:43:12 AM

Qualifiers:
ND - Not Detected at the Reporting Limit
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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-3-B
Lab Order: 0408039
Collection Date: 8/4/2004 9:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-02
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Barium	0.13	0.0020		mg/L	1	8/6/2004 9:43:12 AM
Cadmium	ND	0.0020		mg/L	1	8/6/2004 9:43:12 AM
Calcium	11	1.0		mg/L	1	8/6/2004 9:43:12 AM
Chromium	ND	0.0060		mg/L	1	8/6/2004 9:43:12 AM
Lead	0.0060	0.0050		mg/L	1	8/6/2004 9:43:12 AM
Magnesium	3.1	1.0		mg/L	1	8/6/2004 9:43:12 AM
Potassium	1.3	1.0		mg/L	1	8/6/2004 9:43:12 AM
Selenium	ND	0.050		mg/L	1	8/6/2004 9:43:12 AM
Silver	ND	0.0050		mg/L	1	8/6/2004 9:43:12 AM
Sodium	340	10		mg/L	10	8/6/2004 10:35:22 AM
Uranium	ND	0.10		mg/L	1	8/6/2004 9:43:12 AM
EPA METHOD 160.1: TDS						Analyst: **JEB**
Total Dissolved Solids	1000	50		mg/L	1	8/10/2004

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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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-2-C
Lab Order: 0408039
Collection Date: 8/4/2004 10:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-03
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **MAP**
Fluoride	2.2	0.10		mg/L	1	8/5/2004 2:47:05 PM
Chloride	46	2.5		mg/L	25	8/6/2004 5:44:35 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/5/2004 2:47:05 PM
Bromide	0.78	0.10		mg/L	1	8/5/2004 2:47:05 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/5/2004 2:47:05 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/5/2004 2:47:05 PM
Sulfate	230	13		mg/L	25	8/6/2004 5:44:35 PM
EPA METHOD 310.1: ALKALINITY						Analyst: **MAP**
Alkalinity, Total (As CaCO3)	540	4.0		mg/L CaCO3	2	8/16/2004
Carbonate	ND	4.0		mg/L CaCO3	2	8/16/2004
Bicarbonate	540	4.0		mg/L CaCO3	2	8/16/2004
EPA METHOD 504.1: EDB						Analyst: **SCC**
1,2-Dibromoethane	ND	0.010		µg/L	1	8/6/2004 1:48:09 PM
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	8/14/2004 11:21:38 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/14/2004 11:21:38 PM
Surr: DNOP	117	58-140		%REC	1	8/14/2004 11:21:38 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **BDH**
Gasoline Range Organics (GRO)	ND	0.50		mg/L	10	8/12/2004 12:35:25 PM
Surr: BFB	97.6	74-118		%REC	10	8/12/2004 12:35:25 PM
EPA METHOD 8082: PCB'S						Analyst: **JMP**
Aroclor 1016	ND	1.0		µg/L	1	8/24/2004 7:40:00 AM
Aroclor 1221	ND	5.0		µg/L	1	8/24/2004 7:40:00 AM
Aroclor 1232	ND	1.0		µg/L	1	8/24/2004 7:40:00 AM
Aroclor 1242	ND	1.0		µg/L	1	8/24/2004 7:40:00 AM
Aroclor 1248	ND	1.0		µg/L	1	8/24/2004 7:40:00 AM
Aroclor 1254	ND	1.0		µg/L	1	8/24/2004 7:40:00 AM
Aroclor 1260	ND	1.0		µg/L	1	8/24/2004 7:40:00 AM
Surr: Decachlorobiphenyl	79.2	45.3-140		%REC	1	8/24/2004 7:40:00 AM
Surr: Tetrachloro-m-xylene	66.0	28.1-139		%REC	1	8/24/2004 7:40:00 AM
EPA METHOD 8260B: VOLATILES						Analyst: **KTM**
Benzene	ND	10		µg/L	10	8/10/2004
Toluene	ND	10		µg/L	10	8/10/2004
Ethylbenzene	ND	10		µg/L	10	8/10/2004
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	8/10/2004
1,2,4-Trimethylbenzene	ND	10		µg/L	10	8/10/2004
1,3,5-Trimethylbenzene	ND	10		µg/L	10	8/10/2004
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	8/10/2004

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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-2-C
Lab Order: 0408039
Collection Date: 8/4/2004 10:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-03
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	8/10/2004
Naphthalene	ND	20		µg/L	10	8/10/2004
1-Methylnaphthalene	ND	40		µg/L	10	8/10/2004
2-Methylnaphthalene	ND	40		µg/L	10	8/10/2004
Acetone	1500	100		µg/L	10	8/10/2004
Bromobenzene	ND	10		µg/L	10	8/10/2004
Bromochloromethane	ND	10		µg/L	10	8/10/2004
Bromodichloromethane	ND	10		µg/L	10	8/10/2004
Bromoform	ND	10		µg/L	10	8/10/2004
Bromomethane	ND	20		µg/L	10	8/10/2004
2-Butanone	ND	100		µg/L	10	8/10/2004
Carbon disulfide	ND	100		µg/L	10	8/10/2004
Carbon Tetrachloride	ND	10		µg/L	10	8/10/2004
Chlorobenzene	ND	10		µg/L	10	8/10/2004
Chloroethane	ND	20		µg/L	10	8/10/2004
Chloroform	ND	10		µg/L	10	8/10/2004
Chloromethane	ND	10		µg/L	10	8/10/2004
2-Chlorotoluene	ND	10		µg/L	10	8/10/2004
4-Chlorotoluene	ND	10		µg/L	10	8/10/2004
cis-1,2-DCE	ND	10		µg/L	10	8/10/2004
cis-1,3-Dichloropropene	ND	10		µg/L	10	8/10/2004
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	8/10/2004
Dibromochloromethane	ND	10		µg/L	10	8/10/2004
Dibromomethane	ND	20		µg/L	10	8/10/2004
1,2-Dichlorobenzene	ND	10		µg/L	10	8/10/2004
1,3-Dichlorobenzene	ND	10		µg/L	10	8/10/2004
1,4-Dichlorobenzene	ND	10		µg/L	10	8/10/2004
Dichlorodifluoromethane	ND	10		µg/L	10	8/10/2004
1,1-Dichloroethane	ND	10		µg/L	10	8/10/2004
1,1-Dichloroethene	ND	10		µg/L	10	8/10/2004
1,2-Dichloropropane	ND	10		µg/L	10	8/10/2004
1,3-Dichloropropane	ND	10		µg/L	10	8/10/2004
2,2-Dichloropropane	ND	10		µg/L	10	8/10/2004
1,1-Dichloropropene	ND	10		µg/L	10	8/10/2004
Hexachlorobutadiene	ND	10		µg/L	10	8/10/2004
2-Hexanone	ND	100		µg/L	10	8/10/2004
Isopropylbenzene	ND	10		µg/L	10	8/10/2004
4-Isopropyltoluene	ND	10		µg/L	10	8/10/2004
4-Methyl-2-pentanone	ND	100		µg/L	10	8/10/2004
Methylene Chloride	ND	30		µg/L	10	8/10/2004
n-Butylbenzene	ND	10		µg/L	10	8/10/2004
n-Propylbenzene	ND	10		µg/L	10	8/10/2004

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

CLIENT: Giant Refining Co
Client Sample ID: BW-2-C
Lab Order: 0408039
Collection Date: 8/4/2004 10:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-03
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
sec-Butylbenzene	ND	10		µg/L	10	8/10/2004
Styrene	ND	10		µg/L	10	8/10/2004
tert-Butylbenzene	ND	10		µg/L	10	8/10/2004
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	8/10/2004
1,1,2,2-Tetrachloroethane	ND	10		µg/L	10	8/10/2004
Tetrachloroethene (PCE)	ND	10		µg/L	10	8/10/2004
trans-1,2-DCE	ND	10		µg/L	10	8/10/2004
trans-1,3-Dichloropropene	ND	10		µg/L	10	8/10/2004
1,2,3-Trichlorobenzene	ND	10		µg/L	10	8/10/2004
1,2,4-Trichlorobenzene	ND	10		µg/L	10	8/10/2004
1,1,1-Trichloroethane	ND	10		µg/L	10	8/10/2004
1,1,2-Trichloroethane	ND	10		µg/L	10	8/10/2004
Trichloroethene (TCE)	ND	10		µg/L	10	8/10/2004
Trichlorofluoromethane	ND	10		µg/L	10	8/10/2004
1,2,3-Trichloropropane	ND	20		µg/L	10	8/10/2004
Vinyl chloride	ND	10		µg/L	10	8/10/2004
Xylenes, Total	ND	10		µg/L	10	8/10/2004
Surr: 1,2-Dichloroethane-d4	97.8	70.6-124		%REC	10	8/10/2004
Surr: 4-Bromofluorobenzene	101	76.4-130		%REC	10	8/10/2004
Surr: Dibromofluoromethane	109	67.2-131		%REC	10	8/10/2004
Surr: Toluene-d8	98.4	82.1-123		%REC	10	8/10/2004
EPA METHOD 8270D: SEMIVOLATILES						Analyst: **GAB**
Acenaphthene	ND	50		µg/L	1	8/23/2004
Acenaphthylene	ND	50		µg/L	1	8/23/2004
Aniline	ND	50		µg/L	1	8/23/2004
Anthracene	ND	50		µg/L	1	8/23/2004
Azobenzene	ND	50		µg/L	1	8/23/2004
Benz(a)anthracene	ND	75		µg/L	1	8/23/2004
Benzo(a)pyrene	ND	50		µg/L	1	8/23/2004
Benzo(b)fluoranthene	ND	50		µg/L	1	8/23/2004
Benzo(g,h,i)perylene	ND	50		µg/L	1	8/23/2004
Benzo(k)fluoranthene	ND	50		µg/L	1	8/23/2004
Benzoic acid	ND	250		µg/L	1	8/23/2004
Benzyl alcohol	ND	100		µg/L	1	8/23/2004
Bis(2-chloroethoxy)methane	ND	50		µg/L	1	8/23/2004
Bis(2-chloroethyl)ether	ND	75		µg/L	1	8/23/2004
Bis(2-chloroisopropyl)ether	ND	75		µg/L	1	8/23/2004
Bis(2-ethylhexyl)phthalate	ND	75		µg/L	1	8/23/2004
4-Bromophenyl phenyl ether	ND	50		µg/L	1	8/23/2004
Butyl benzyl phthalate	ND	75		µg/L	1	8/23/2004
Carbazole	ND	50		µg/L	1	8/23/2004
4-Chloro-3-methylphenol	ND	100		µg/L	1	8/23/2004

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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-2-C
Lab Order: 0408039
Collection Date: 8/4/2004 10:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-03
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
4-Chloroaniline	ND	100		µg/L	1	8/23/2004
2-Chloronaphthalene	ND	50		µg/L	1	8/23/2004
2-Chlorophenol	ND	50		µg/L	1	8/23/2004
4-Chlorophenyl phenyl ether	ND	75		µg/L	1	8/23/2004
Chrysene	ND	75		µg/L	1	8/23/2004
Di-n-butyl phthalate	ND	50		µg/L	1	8/23/2004
Di-n-octyl phthalate	ND	75		µg/L	1	8/23/2004
Dibenz(a,h)anthracene	ND	50		µg/L	1	8/23/2004
Dibenzofuran	ND	50		µg/L	1	8/23/2004
1,2-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
1,3-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
1,4-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
3,3'-Dichlorobenzidine	ND	75		µg/L	1	8/23/2004
Diethyl phthalate	ND	50		µg/L	1	8/23/2004
Dimethyl phthalate	ND	50		µg/L	1	8/23/2004
2,4-Dichlorophenol	ND	50		µg/L	1	8/23/2004
2,4-Dimethylphenol	ND	50		µg/L	1	8/23/2004
4,6-Dinitro-2-methylphenol	ND	250		µg/L	1	8/23/2004
2,4-Dinitrophenol	ND	250		µg/L	1	8/23/2004
2,4-Dinitrotoluene	ND	50		µg/L	1	8/23/2004
2,6-Dinitrotoluene	ND	50		µg/L	1	8/23/2004
Fluoranthene	ND	50		µg/L	1	8/23/2004
Fluorene	ND	50		µg/L	1	8/23/2004
Hexachlorobenzene	ND	50		µg/L	1	8/23/2004
Hexachlorobutadiene	ND	50		µg/L	1	8/23/2004
Hexachlorocyclopentadiene	ND	50		µg/L	1	8/23/2004
Hexachloroethane	ND	50		µg/L	1	8/23/2004
Indeno(1,2,3-cd)pyrene	ND	50		µg/L	1	8/23/2004
Isophorone	ND	50		µg/L	1	8/23/2004
2-Methylnaphthalene	ND	50		µg/L	1	8/23/2004
2-Methylphenol	ND	75		µg/L	1	8/23/2004
3+4-Methylphenol	ND	50		µg/L	1	8/23/2004
N-Nitrosodi-n-propylamine	ND	50		µg/L	1	8/23/2004
N-Nitrosodimethylamine	ND	50		µg/L	1	8/23/2004
N-Nitrosodiphenylamine	ND	50		µg/L	1	8/23/2004
Naphthalene	ND	50		µg/L	1	8/23/2004
2-Nitroaniline	ND	250		µg/L	1	8/23/2004
3-Nitroaniline	ND	250		µg/L	1	8/23/2004
4-Nitroaniline	ND	100		µg/L	1	8/23/2004
Nitrobenzene	ND	50		µg/L	1	8/23/2004
2-Nitrophenol	ND	75		µg/L	1	8/23/2004
4-Nitrophenol	ND	250		µg/L	1	8/23/2004

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

CLIENT: Giant Refining Co
Client Sample ID: BW-2-C
Lab Order: 0408039
Collection Date: 8/4/2004 10:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-03
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Pentachlorophenol	ND	250		µg/L	1	8/23/2004
Phenanthrene	ND	50		µg/L	1	8/23/2004
Phenol	ND	50		µg/L	1	8/23/2004
Pyrene	ND	75		µg/L	1	8/23/2004
Pyridine	ND	150		µg/L	1	8/23/2004
1,2,4-Trichlorobenzene	ND	50		µg/L	1	8/23/2004
2,4,5-Trichlorophenol	ND	50		µg/L	1	8/23/2004
2,4,6-Trichlorophenol	ND	75		µg/L	1	8/23/2004
Surr: 2,4,6-Tribromophenol	64.5	16.6-115		%REC	1	8/23/2004
Surr: 2-Fluorobiphenyl	59.5	37-95.7		%REC	1	8/23/2004
Surr: 2-Fluorophenol	49.3	9.54-89.8		%REC	1	8/23/2004
Surr: 4-Terphenyl-d14	79.8	47.9-115		%REC	1	8/23/2004
Surr: Nitrobenzene-d5	55.0	38-106		%REC	1	8/23/2004
Surr: Phenol-d6	39.7	10.7-63.4		%REC	1	8/23/2004
EPA METHOD 8310: PAHS						Analyst: **IC**
Naphthalene	ND	2.5		µg/L	1	8/21/2004 2:59:59 PM
1-Methylnaphthalene	ND	2.5		µg/L	1	8/21/2004 2:59:59 PM
2-Methylnaphthalene	ND	2.5		µg/L	1	8/21/2004 2:59:59 PM
Acenaphthylene	ND	2.5		µg/L	1	8/21/2004 2:59:59 PM
Acenaphthene	ND	2.5		µg/L	1	8/21/2004 2:59:59 PM
Fluorene	ND	0.80		µg/L	1	8/21/2004 2:59:59 PM
Phenanthrene	ND	0.60		µg/L	1	8/21/2004 2:59:59 PM
Anthracene	ND	0.60		µg/L	1	8/21/2004 2:59:59 PM
Fluoranthene	ND	0.30		µg/L	1	8/21/2004 2:59:59 PM
Pyrene	ND	0.30		µg/L	1	8/21/2004 2:59:59 PM
Benz(a)anthracene	ND	0.020		µg/L	1	8/21/2004 2:59:59 PM
Chrysene	ND	0.20		µg/L	1	8/21/2004 2:59:59 PM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	8/21/2004 2:59:59 PM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	8/21/2004 2:59:59 PM
Benzo(a)pyrene	ND	0.020		µg/L	1	8/21/2004 2:59:59 PM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	8/21/2004 2:59:59 PM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	8/21/2004 2:59:59 PM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	8/21/2004 2:59:59 PM
Surr: Benzo(e)pyrene	61.5	54-102		%REC	1	8/21/2004 2:59:59 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **CMC**
Specific Conductance	1300	0.010		µmhos/cm	1	8/11/2004
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	8/9/2004
EPA METHOD 6010C: DISSOLVED METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	8/6/2004 9:47:29 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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-2-C
Lab Order: 0408039
Collection Date: 8/4/2004 10:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-03
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Barium	0.047	0.0020		mg/L	1	8/6/2004 9:47:29 AM
Cadmium	ND	0.0020		mg/L	1	8/6/2004 9:47:29 AM
Calcium	5.6	1.0		mg/L	1	8/6/2004 9:47:29 AM
Chromium	ND	0.0060		mg/L	1	8/6/2004 9:47:29 AM
Lead	ND	0.0050		mg/L	1	8/6/2004 9:47:29 AM
Magnesium	1.5	1.0		mg/L	1	8/6/2004 9:47:29 AM
Potassium	2.0	1.0		mg/L	1	8/6/2004 9:47:29 AM
Selenium	ND	0.050		mg/L	1	8/6/2004 9:47:29 AM
Silver	ND	0.0050		mg/L	1	8/6/2004 9:47:29 AM
Sodium	300	10		mg/L	10	8/6/2004 10:38:16 AM
Uranium	ND	0.10		mg/L	1	8/6/2004 9:47:29 AM
EPA METHOD 160.1: TDS						Analyst: **JEB**
Total Dissolved Solids	970	50		mg/L	1	8/10/2004

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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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-2-A
Lab Order: 0408039
Collection Date: 8/4/2004 11:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-04
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **MAP**
Fluoride	1.2	0.10		mg/L	1	8/5/2004 3:03:54 PM
Chloride	40	0.50		mg/L	5	8/6/2004 6:01:24 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/5/2004 3:03:54 PM
Bromide	0.40	0.10		mg/L	1	8/5/2004 3:03:54 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/5/2004 3:03:54 PM
Phosphorus, Orthophosphate (As P)	0.57	0.50		mg/L	1	8/5/2004 3:03:54 PM
Sulfate	9.6	0.50		mg/L	1	8/5/2004 3:03:54 PM
EPA METHOD 310.1: ALKALINITY						Analyst: **MAP**
Alkalinity, Total (As CaCO3)	790	4.0		mg/L CaCO3	2	8/16/2004
Carbonate	40	4.0		mg/L CaCO3	2	8/16/2004
Bicarbonate	750	4.0		mg/L CaCO3	2	8/16/2004
EPA METHOD 504.1: EDB						Analyst: **SCC**
1,2-Dibromoethane	ND	0.010		µg/L	1	8/6/2004 2:01:46 PM
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	8/14/2004 11:52:06 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/14/2004 11:52:06 PM
Surr: DNOP	118	58-140		%REC	1	8/14/2004 11:52:06 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **BDH**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/12/2004 1:05:56 PM
Surr: BFB	95.9	74-118		%REC	1	8/12/2004 1:05:56 PM
EPA METHOD 8082: PCB'S						Analyst: **JMP**
Aroclor 1016	ND	1.0		µg/L	1	8/24/2004 8:26:16 AM
Aroclor 1221	ND	5.0		µg/L	1	8/24/2004 8:26:16 AM
Aroclor 1232	ND	1.0		µg/L	1	8/24/2004 8:26:16 AM
Aroclor 1242	ND	1.0		µg/L	1	8/24/2004 8:26:16 AM
Aroclor 1248	ND	1.0		µg/L	1	8/24/2004 8:26:16 AM
Aroclor 1254	ND	1.0		µg/L	1	8/24/2004 8:26:16 AM
Aroclor 1260	ND	1.0		µg/L	1	8/24/2004 8:26:16 AM
Surr: Decachlorobiphenyl	103	45.3-140		%REC	1	8/24/2004 8:26:16 AM
Surr: Tetrachloro-m-xylene	72.4	28.1-139		%REC	1	8/24/2004 8:26:16 AM
EPA METHOD 8260B: VOLATILES						Analyst: **KTM**
Benzene	ND	1.0		µg/L	1	8/10/2004
Toluene	ND	1.0		µg/L	1	8/10/2004
Ethylbenzene	ND	1.0		µg/L	1	8/10/2004
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/10/2004

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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-2-A
Lab Order: 0408039
Collection Date: 8/4/2004 11:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-04
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/10/2004
Naphthalene	ND	2.0		µg/L	1	8/10/2004
1-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
2-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
Acetone	ND	10		µg/L	1	8/10/2004
Bromobenzene	ND	1.0		µg/L	1	8/10/2004
Bromochloromethane	ND	1.0		µg/L	1	8/10/2004
Bromodichloromethane	ND	1.0		µg/L	1	8/10/2004
Bromoform	ND	1.0		µg/L	1	8/10/2004
Bromomethane	ND	2.0		µg/L	1	8/10/2004
2-Butanone	ND	10		µg/L	1	8/10/2004
Carbon disulfide	ND	10		µg/L	1	8/10/2004
Carbon Tetrachloride	ND	1.0		µg/L	1	8/10/2004
Chlorobenzene	ND	1.0		µg/L	1	8/10/2004
Chloroethane	ND	2.0		µg/L	1	8/10/2004
Chloroform	ND	1.0		µg/L	1	8/10/2004
Chloromethane	ND	1.0		µg/L	1	8/10/2004
2-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
4-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
cis-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/10/2004
Dibromochloromethane	ND	1.0		µg/L	1	8/10/2004
Dibromomethane	ND	2.0		µg/L	1	8/10/2004
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,3-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
2,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
Hexachlorobutadiene	ND	1.0		µg/L	1	8/10/2004
2-Hexanone	ND	10		µg/L	1	8/10/2004
Isopropylbenzene	ND	1.0		µg/L	1	8/10/2004
4-Isopropyltoluene	ND	1.0		µg/L	1	8/10/2004
4-Methyl-2-pentanone	ND	10		µg/L	1	8/10/2004
Methylene Chloride	ND	3.0		µg/L	1	8/10/2004
n-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
n-Propylbenzene	ND	1.0		µg/L	1	8/10/2004

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

CLIENT: Giant Refining Co
Client Sample ID: BW-2-A
Lab Order: 0408039
Collection Date: 8/4/2004 11:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-04
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
sec-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
Styrene	ND	1.0		µg/L	1	8/10/2004
tert-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/10/2004
trans-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/10/2004
Trichlorofluoromethane	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/10/2004
Vinyl chloride	ND	1.0		µg/L	1	8/10/2004
Xylenes, Total	ND	1.0		µg/L	1	8/10/2004
Surr: 1,2-Dichloroethane-d4	95.1	70.6-124		%REC	1	8/10/2004
Surr: 4-Bromofluorobenzene	102	76.4-130		%REC	1	8/10/2004
Surr: Dibromofluoromethane	107	67.2-131		%REC	1	8/10/2004
Surr: Toluene-d8	99.1	82.1-123		%REC	1	8/10/2004
EPA METHOD 8270D: SEMIVOLATILES						Analyst: **GAB**
Acenaphthene	ND	50		µg/L	1	8/23/2004
Acenaphthylene	ND	50		µg/L	1	8/23/2004
Aniline	ND	50		µg/L	1	8/23/2004
Anthracene	ND	50		µg/L	1	8/23/2004
Azobenzene	ND	50		µg/L	1	8/23/2004
Benz(a)anthracene	ND	75		µg/L	1	8/23/2004
Benzo(a)pyrene	ND	50		µg/L	1	8/23/2004
Benzo(b)fluoranthene	ND	50		µg/L	1	8/23/2004
Benzo(g,h,i)perylene	ND	50		µg/L	1	8/23/2004
Benzo(k)fluoranthene	ND	50		µg/L	1	8/23/2004
Benzoic acid	ND	250		µg/L	1	8/23/2004
Benzyl alcohol	ND	100		µg/L	1	8/23/2004
Bis(2-chloroethoxy)methane	ND	50		µg/L	1	8/23/2004
Bis(2-chloroethyl)ether	ND	75		µg/L	1	8/23/2004
Bis(2-chloroisopropyl)ether	ND	75		µg/L	1	8/23/2004
Bis(2-ethylhexyl)phthalate	ND	75		µg/L	1	8/23/2004
4-Bromophenyl phenyl ether	ND	50		µg/L	1	8/23/2004
Butyl benzyl phthalate	ND	75		µg/L	1	8/23/2004
Carbazole	ND	50		µg/L	1	8/23/2004
4-Chloro-3-methylphenol	ND	100		µg/L	1	8/23/2004

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

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-2-A
Lab Order: 0408039
Collection Date: 8/4/2004 11:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-04
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
4-Chloroaniline	ND	100		µg/L	1	8/23/2004
2-Chloronaphthalene	ND	50		µg/L	1	8/23/2004
2-Chlorophenol	ND	50		µg/L	1	8/23/2004
4-Chlorophenyl phenyl ether	ND	75		µg/L	1	8/23/2004
Chrysene	ND	75		µg/L	1	8/23/2004
Di-n-butyl phthalate	ND	50		µg/L	1	8/23/2004
Di-n-octyl phthalate	ND	75		µg/L	1	8/23/2004
Dibenz(a,h)anthracene	ND	50		µg/L	1	8/23/2004
Dibenzofuran	ND	50		µg/L	1	8/23/2004
1,2-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
1,3-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
1,4-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
3,3'-Dichlorobenzidine	ND	75		µg/L	1	8/23/2004
Diethyl phthalate	ND	50		µg/L	1	8/23/2004
Dimethyl phthalate	ND	50		µg/L	1	8/23/2004
2,4-Dichlorophenol	ND	50		µg/L	1	8/23/2004
2,4-Dimethylphenol	ND	50		µg/L	1	8/23/2004
4,6-Dinitro-2-methylphenol	ND	250		µg/L	1	8/23/2004
2,4-Dinitrophenol	ND	250		µg/L	1	8/23/2004
2,4-Dinitrotoluene	ND	50		µg/L	1	8/23/2004
2,6-Dinitrotoluene	ND	50		µg/L	1	8/23/2004
Fluoranthene	ND	50		µg/L	1	8/23/2004
Fluorene	ND	50		µg/L	1	8/23/2004
Hexachlorobenzene	ND	50		µg/L	1	8/23/2004
Hexachlorobutadiene	ND	50		µg/L	1	8/23/2004
Hexachlorocyclopentadiene	ND	50		µg/L	1	8/23/2004
Hexachloroethane	ND	50		µg/L	1	8/23/2004
Indeno(1,2,3-cd)pyrene	ND	50		µg/L	1	8/23/2004
Isophorone	ND	50		µg/L	1	8/23/2004
2-Methylnaphthalene	ND	50		µg/L	1	8/23/2004
2-Methylphenol	ND	75		µg/L	1	8/23/2004
3+4-Methylphenol	ND	50		µg/L	1	8/23/2004
N-Nitrosodi-n-propylamine	ND	50		µg/L	1	8/23/2004
N-Nitrosodimethylamine	ND	50		µg/L	1	8/23/2004
N-Nitrosodiphenylamine	ND	50		µg/L	1	8/23/2004
Naphthalene	ND	50		µg/L	1	8/23/2004
2-Nitroaniline	ND	250		µg/L	1	8/23/2004
3-Nitroaniline	ND	250		µg/L	1	8/23/2004
4-Nitroaniline	ND	100		µg/L	1	8/23/2004
Nitrobenzene	ND	50		µg/L	1	8/23/2004
2-Nitrophenol	ND	75		µg/L	1	8/23/2004
4-Nitrophenol	ND	250		µg/L	1	8/23/2004

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

CLIENT: Giant Refining Co
Client Sample ID: BW-2-A
Lab Order: 0408039
Collection Date: 8/4/2004 11:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-04
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Pentachlorophenol	ND	250		µg/L	1	8/23/2004
Phenanthrene	ND	50		µg/L	1	8/23/2004
Phenol	ND	50		µg/L	1	8/23/2004
Pyrene	ND	75		µg/L	1	8/23/2004
Pyridine	ND	150		µg/L	1	8/23/2004
1,2,4-Trichlorobenzene	ND	50		µg/L	1	8/23/2004
2,4,5-Trichlorophenol	ND	50		µg/L	1	8/23/2004
2,4,6-Trichlorophenol	ND	75		µg/L	1	8/23/2004
Surr: 2,4,6-Tribromophenol	60.5	16.6-115		%REC	1	8/23/2004
Surr: 2-Fluorobiphenyl	56.9	37-95.7		%REC	1	8/23/2004
Surr: 2-Fluorophenol	51.3	9.54-89.8		%REC	1	8/23/2004
Surr: 4-Terphenyl-d14	81.7	47.9-115		%REC	1	8/23/2004
Surr: Nitrobenzene-d5	53.6	38-106		%REC	1	8/23/2004
Surr: Phenol-d6	40.3	10.7-63.4		%REC	1	8/23/2004
EPA METHOD 8310: PAHS						Analyst: **IC**
Naphthalene	ND	2.5		µg/L	1	8/21/2004 3:47:58 PM
1-Methylnaphthalene	ND	2.5		µg/L	1	8/21/2004 3:47:58 PM
2-Methylnaphthalene	ND	2.5		µg/L	1	8/21/2004 3:47:58 PM
Acenaphthylene	ND	2.5		µg/L	1	8/21/2004 3:47:58 PM
Acenaphthene	ND	2.5		µg/L	1	8/21/2004 3:47:58 PM
Fluorene	ND	0.80		µg/L	1	8/21/2004 3:47:58 PM
Phenanthrene	ND	0.60		µg/L	1	8/21/2004 3:47:58 PM
Anthracene	ND	0.60		µg/L	1	8/21/2004 3:47:58 PM
Fluoranthene	ND	0.30		µg/L	1	8/21/2004 3:47:58 PM
Pyrene	ND	0.30		µg/L	1	8/21/2004 3:47:58 PM
Benz(a)anthracene	ND	0.020		µg/L	1	8/21/2004 3:47:58 PM
Chrysene	ND	0.20		µg/L	1	8/21/2004 3:47:58 PM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	8/21/2004 3:47:58 PM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	8/21/2004 3:47:58 PM
Benzo(a)pyrene	ND	0.020		µg/L	1	8/21/2004 3:47:58 PM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	8/21/2004 3:47:58 PM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	8/21/2004 3:47:58 PM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	8/21/2004 3:47:58 PM
Surr: Benzo(e)pyrene	89.0	54-102		%REC	1	8/21/2004 3:47:58 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **CMC**
Specific Conductance	1300	0.010		µmhos/cm	1	8/11/2004
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	8/9/2004
EPA METHOD 6010C: DISSOLVED METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	8/6/2004 9:51:47 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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-2-A
Lab Order: 0408039
Collection Date: 8/4/2004 11:30:00 AM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-04
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Barium	0.12	0.0020		mg/L	1	8/6/2004 9:51:47 AM
Cadmium	ND	0.0020		mg/L	1	8/6/2004 9:51:47 AM
Calcium	6.7	1.0		mg/L	1	8/6/2004 9:51:47 AM
Chromium	ND	0.0060		mg/L	1	8/6/2004 9:51:47 AM
Lead	0.0059	0.0050		mg/L	1	8/6/2004 9:51:47 AM
Magnesium	2.5	1.0		mg/L	1	8/6/2004 9:51:47 AM
Potassium	ND	1.0		mg/L	1	8/6/2004 9:51:47 AM
Selenium	ND	0.050		mg/L	1	8/6/2004 9:51:47 AM
Silver	ND	0.0050		mg/L	1	8/6/2004 9:51:47 AM
Sodium	220	10		mg/L	10	8/6/2004 10:49:52 AM
Uranium	ND	0.10		mg/L	1	8/6/2004 9:51:47 AM
EPA METHOD 160.1: TDS						Analyst: **JEB**
Total Dissolved Solids	1100	50		mg/L	1	8/10/2004

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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-2-B
Lab Order: 0408039
Collection Date: 8/4/2004 12:30:00 PM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-05
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **MAP**
Fluoride	1.7	0.10		mg/L	1	8/5/2004 3:20:40 PM
Chloride	32	0.10		mg/L	1	8/5/2004 3:20:40 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/5/2004 3:20:40 PM
Bromide	1.3	0.10		mg/L	1	8/5/2004 3:20:40 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/5/2004 3:20:40 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/5/2004 3:20:40 PM
Sulfate	140	2.5		mg/L	5	8/6/2004 6:18:13 PM
EPA METHOD 310.1: ALKALINITY						Analyst: **MAP**
Alkalinity, Total (As CaCO3)	1200	4.0		mg/L CaCO3	2	8/16/2004
Carbonate	ND	4.0		mg/L CaCO3	2	8/16/2004
Bicarbonate	1200	4.0		mg/L CaCO3	2	8/16/2004
EPA METHOD 504.1: EDB						Analyst: **SCC**
1,2-Dibromoethane	ND	0.010		µg/L	1	8/6/2004 2:15:12 PM
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	8/15/2004 12:23:14 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/15/2004 12:23:14 AM
Surr: DNOP	89.3	58-140		%REC	1	8/15/2004 12:23:14 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **BDH**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/12/2004 1:36:31 PM
Surr: BFB	95.6	74-118		%REC	1	8/12/2004 1:36:31 PM
EPA METHOD 8082: PCB'S						Analyst: **JMP**
Aroclor 1016	ND	1.0		µg/L	1	8/24/2004 9:12:52 AM
Aroclor 1221	ND	5.0		µg/L	1	8/24/2004 9:12:52 AM
Aroclor 1232	ND	1.0		µg/L	1	8/24/2004 9:12:52 AM
Aroclor 1242	ND	1.0		µg/L	1	8/24/2004 9:12:52 AM
Aroclor 1248	ND	1.0		µg/L	1	8/24/2004 9:12:52 AM
Aroclor 1254	ND	1.0		µg/L	1	8/24/2004 9:12:52 AM
Aroclor 1260	ND	1.0		µg/L	1	8/24/2004 9:12:52 AM
Surr: Decachlorobiphenyl	108	45.3-140		%REC	1	8/24/2004 9:12:52 AM
Surr: Tetrachloro-m-xylene	86.8	28.1-139		%REC	1	8/24/2004 9:12:52 AM
EPA METHOD 8260B: VOLATILES						Analyst: **KTM**
Benzene	ND	1.0		µg/L	1	8/10/2004
Toluene	ND	1.0		µg/L	1	8/10/2004
Ethylbenzene	ND	1.0		µg/L	1	8/10/2004
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/10/2004

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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-2-B
Lab Order: 0408039
Collection Date: 8/4/2004 12:30:00 PM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-05
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/10/2004
Naphthalene	ND	2.0		µg/L	1	8/10/2004
1-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
2-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
Acetone	ND	10		µg/L	1	8/10/2004
Bromobenzene	ND	1.0		µg/L	1	8/10/2004
Bromochloromethane	ND	1.0		µg/L	1	8/10/2004
Bromodichloromethane	ND	1.0		µg/L	1	8/10/2004
Bromoform	ND	1.0		µg/L	1	8/10/2004
Bromomethane	ND	2.0		µg/L	1	8/10/2004
2-Butanone	ND	10		µg/L	1	8/10/2004
Carbon disulfide	ND	10		µg/L	1	8/10/2004
Carbon Tetrachloride	ND	1.0		µg/L	1	8/10/2004
Chlorobenzene	ND	1.0		µg/L	1	8/10/2004
Chloroethane	ND	2.0		µg/L	1	8/10/2004
Chloroform	ND	1.0		µg/L	1	8/10/2004
Chloromethane	ND	1.0		µg/L	1	8/10/2004
2-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
4-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
cis-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/10/2004
Dibromochloromethane	ND	1.0		µg/L	1	8/10/2004
Dibromomethane	ND	2.0		µg/L	1	8/10/2004
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,3-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
2,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
Hexachlorobutadiene	ND	1.0		µg/L	1	8/10/2004
2-Hexanone	ND	10		µg/L	1	8/10/2004
Isopropylbenzene	ND	1.0		µg/L	1	8/10/2004
4-Isopropyltoluene	ND	1.0		µg/L	1	8/10/2004
4-Methyl-2-pentanone	ND	10		µg/L	1	8/10/2004
Methylene Chloride	ND	3.0		µg/L	1	8/10/2004
n-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
n-Propylbenzene	ND	1.0		µg/L	1	8/10/2004

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

CLIENT: Giant Refining Co
Client Sample ID: BW-2-B
Lab Order: 0408039
Collection Date: 8/4/2004 12:30:00 PM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-05
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
sec-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
Styrene	ND	1.0		µg/L	1	8/10/2004
tert-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/10/2004
trans-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/10/2004
Trichlorofluoromethane	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/10/2004
Vinyl chloride	ND	1.0		µg/L	1	8/10/2004
Xylenes, Total	ND	1.0		µg/L	1	8/10/2004
Surr: 1,2-Dichloroethane-d4	100	70.6-124		%REC	1	8/10/2004
Surr: 4-Bromofluorobenzene	94.9	76.4-130		%REC	1	8/10/2004
Surr: Dibromofluoromethane	106	67.2-131		%REC	1	8/10/2004
Surr: Toluene-d8	95.7	82.1-123		%REC	1	8/10/2004
EPA METHOD 8270D: SEMIVOLATILES						Analyst: **GAB**
Acenaphthene	ND	50		µg/L	1	8/23/2004
Acenaphthylene	ND	50		µg/L	1	8/23/2004
Aniline	ND	50		µg/L	1	8/23/2004
Anthracene	ND	50		µg/L	1	8/23/2004
Azobenzene	ND	50		µg/L	1	8/23/2004
Benz(a)anthracene	ND	75		µg/L	1	8/23/2004
Benzo(a)pyrene	ND	50		µg/L	1	8/23/2004
Benzo(b)fluoranthene	ND	50		µg/L	1	8/23/2004
Benzo(g,h,i)perylene	ND	50		µg/L	1	8/23/2004
Benzo(k)fluoranthene	ND	50		µg/L	1	8/23/2004
Benzoic acid	ND	250		µg/L	1	8/23/2004
Benzyl alcohol	ND	100		µg/L	1	8/23/2004
Bis(2-chloroethoxy)methane	ND	50		µg/L	1	8/23/2004
Bis(2-chloroethyl)ether	ND	75		µg/L	1	8/23/2004
Bis(2-chloroisopropyl)ether	ND	75		µg/L	1	8/23/2004
Bis(2-ethylhexyl)phthalate	ND	75		µg/L	1	8/23/2004
4-Bromophenyl phenyl ether	ND	50		µg/L	1	8/23/2004
Butyl benzyl phthalate	ND	75		µg/L	1	8/23/2004
Carbazole	ND	50		µg/L	1	8/23/2004
4-Chloro-3-methylphenol	ND	100		µg/L	1	8/23/2004

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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-2-B
Lab Order: 0408039
Collection Date: 8/4/2004 12:30:00 PM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-05
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
4-Chloroaniline	ND	100		µg/L	1	8/23/2004
2-Chloronaphthalene	ND	50		µg/L	1	8/23/2004
2-Chlorophenol	ND	50		µg/L	1	8/23/2004
4-Chlorophenyl phenyl ether	ND	75		µg/L	1	8/23/2004
Chrysene	ND	75		µg/L	1	8/23/2004
Di-n-butyl phthalate	ND	50		µg/L	1	8/23/2004
Di-n-octyl phthalate	ND	75		µg/L	1	8/23/2004
Dibenz(a,h)anthracene	ND	50		µg/L	1	8/23/2004
Dibenzofuran	ND	50		µg/L	1	8/23/2004
1,2-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
1,3-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
1,4-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
3,3'-Dichlorobenzidine	ND	75		µg/L	1	8/23/2004
Diethyl phthalate	ND	50		µg/L	1	8/23/2004
Dimethyl phthalate	ND	50		µg/L	1	8/23/2004
2,4-Dichlorophenol	ND	50		µg/L	1	8/23/2004
2,4-Dimethylphenol	ND	50		µg/L	1	8/23/2004
4,6-Dinitro-2-methylphenol	ND	250		µg/L	1	8/23/2004
2,4-Dinitrophenol	ND	250		µg/L	1	8/23/2004
2,4-Dinitrotoluene	ND	50		µg/L	1	8/23/2004
2,6-Dinitrotoluene	ND	50		µg/L	1	8/23/2004
Fluoranthene	ND	50		µg/L	1	8/23/2004
Fluorene	ND	50		µg/L	1	8/23/2004
Hexachlorobenzene	ND	50		µg/L	1	8/23/2004
Hexachlorobutadiene	ND	50		µg/L	1	8/23/2004
Hexachlorocyclopentadiene	ND	50		µg/L	1	8/23/2004
Hexachloroethane	ND	50		µg/L	1	8/23/2004
Indeno(1,2,3-cd)pyrene	ND	50		µg/L	1	8/23/2004
Isophorone	ND	50		µg/L	1	8/23/2004
2-Methylnaphthalene	ND	50		µg/L	1	8/23/2004
2-Methylphenol	ND	75		µg/L	1	8/23/2004
3+4-Methylphenol	ND	50		µg/L	1	8/23/2004
N-Nitrosodi-n-propylamine	ND	50		µg/L	1	8/23/2004
N-Nitrosodimethylamine	ND	50		µg/L	1	8/23/2004
N-Nitrosodiphenylamine	ND	50		µg/L	1	8/23/2004
Naphthalene	ND	50		µg/L	1	8/23/2004
2-Nitroaniline	ND	250		µg/L	1	8/23/2004
3-Nitroaniline	ND	250		µg/L	1	8/23/2004
4-Nitroaniline	ND	100		µg/L	1	8/23/2004
Nitrobenzene	ND	50		µg/L	1	8/23/2004
2-Nitrophenol	ND	75		µg/L	1	8/23/2004
4-Nitrophenol	ND	250		µg/L	1	8/23/2004

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

CLIENT: Giant Refining Co
Client Sample ID: BW-2-B
Lab Order: 0408039
Collection Date: 8/4/2004 12:30:00 PM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-05
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Pentachlorophenol	ND	250		µg/L	1	8/23/2004
Phenanthrene	ND	50		µg/L	1	8/23/2004
Phenol	ND	50		µg/L	1	8/23/2004
Pyrene	ND	75		µg/L	1	8/23/2004
Pyridine	ND	150		µg/L	1	8/23/2004
1,2,4-Trichlorobenzene	ND	50		µg/L	1	8/23/2004
2,4,5-Trichlorophenol	ND	50		µg/L	1	8/23/2004
2,4,6-Trichlorophenol	ND	75		µg/L	1	8/23/2004
Surr: 2,4,6-Tribromophenol	53.1	16.6-115		%REC	1	8/23/2004
Surr: 2-Fluorobiphenyl	52.4	37-95.7		%REC	1	8/23/2004
Surr: 2-Fluorophenol	46.8	9.54-89.8		%REC	1	8/23/2004
Surr: 4-Terphenyl-d14	85.3	47.9-115		%REC	1	8/23/2004
Surr: Nitrobenzene-d5	52.5	38-106		%REC	1	8/23/2004
Surr: Phenol-d6	36.5	10.7-63.4		%REC	1	8/23/2004
EPA METHOD 8310: PAHS						Analyst: IC
Naphthalene	ND	2.5		µg/L	1	8/21/2004 4:36:01 PM
1-Methylnaphthalene	ND	2.5		µg/L	1	8/21/2004 4:36:01 PM
2-Methylnaphthalene	ND	2.5		µg/L	1	8/21/2004 4:36:01 PM
Acenaphthylene	ND	2.5		µg/L	1	8/21/2004 4:36:01 PM
Acenaphthene	ND	2.5		µg/L	1	8/21/2004 4:36:01 PM
Fluorene	ND	0.80		µg/L	1	8/21/2004 4:36:01 PM
Phenanthrene	ND	0.60		µg/L	1	8/21/2004 4:36:01 PM
Anthracene	ND	0.60		µg/L	1	8/21/2004 4:36:01 PM
Fluoranthene	ND	0.30		µg/L	1	8/21/2004 4:36:01 PM
Pyrene	ND	0.30		µg/L	1	8/21/2004 4:36:01 PM
Benz(a)anthracene	ND	0.020		µg/L	1	8/21/2004 4:36:01 PM
Chrysene	ND	0.20		µg/L	1	8/21/2004 4:36:01 PM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	8/21/2004 4:36:01 PM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	8/21/2004 4:36:01 PM
Benzo(a)pyrene	ND	0.020		µg/L	1	8/21/2004 4:36:01 PM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	8/21/2004 4:36:01 PM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	8/21/2004 4:36:01 PM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	8/21/2004 4:36:01 PM
Surr: Benzo(e)pyrene	90.5	54-102		%REC	1	8/21/2004 4:36:01 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: CMC
Specific Conductance	2200	0.010		µmhos/cm	1	8/11/2004
EPA METHOD 7470: MERCURY						Analyst: CMC
Mercury	ND	0.00020		mg/L	1	8/9/2004
EPA METHOD 6010C: DISSOLVED METALS						Analyst: NMO
Arsenic	ND	0.020		mg/L	1	8/6/2004 10:06:59 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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-2-B
Lab Order: 0408039
Collection Date: 8/4/2004 12:30:00 PM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-05
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Barium	0.066	0.0020		mg/L	1	8/6/2004 10:06:59 AM
Cadmium	ND	0.0020		mg/L	1	8/6/2004 10:06:59 AM
Calcium	14	1.0		mg/L	1	8/6/2004 10:06:59 AM
Chromium	ND	0.0060		mg/L	1	8/6/2004 10:06:59 AM
Lead	0.0064	0.0050		mg/L	1	8/6/2004 10:06:59 AM
Magnesium	3.2	1.0		mg/L	1	8/6/2004 10:06:59 AM
Potassium	4.7	1.0		mg/L	1	8/6/2004 10:06:59 AM
Selenium	0.069	0.050		mg/L	1	8/6/2004 10:06:59 AM
Silver	ND	0.0050		mg/L	1	8/6/2004 10:06:59 AM
Sodium	540	10		mg/L	10	8/6/2004 10:52:47 AM
Uranium	ND	0.10		mg/L	1	8/6/2004 10:06:59 AM
EPA METHOD 160.1: TDS						Analyst: **JEB**
Total Dissolved Solids	1500	50		mg/L	1	8/10/2004

Qualifiers:

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

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-1-C
Lab Order: 0408039
Collection Date: 8/4/2004 1:30:00 PM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-06
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **MAP**
Fluoride	2.0	0.10		mg/L	1	8/5/2004 3:37:29 PM
Chloride	38	0.10		mg/L	1	8/5/2004 3:37:29 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/5/2004 3:37:29 PM
Bromide	0.32	0.10		mg/L	1	8/5/2004 3:37:29 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/5/2004 3:37:29 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/5/2004 3:37:29 PM
Sulfate	210	5.0		mg/L	10	8/6/2004 6:35:01 PM
EPA METHOD 310.1: ALKALINITY						Analyst: **MAP**
Alkalinity, Total (As CaCO3)	400	4.0		mg/L CaCO3	2	8/16/2004
Carbonate	44	4.0		mg/L CaCO3	2	8/16/2004
Bicarbonate	350	4.0		mg/L CaCO3	2	8/16/2004
EPA METHOD 504.1: EDB						Analyst: **SCC**
1,2-Dibromoethane	ND	0.010		µg/L	1	8/6/2004 2:28:41 PM
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	8/15/2004 12:53:42 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/15/2004 12:53:42 AM
Surr: DNOP	118	58-140		%REC	1	8/15/2004 12:53:42 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **BDH**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/12/2004 2:07:06 PM
Surr: BFB	95.4	74-118		%REC	1	8/12/2004 2:07:06 PM
EPA METHOD 8082: PCB'S						Analyst: **JMP**
Aroclor 1016	ND	1.0		µg/L	1	8/24/2004 12:45:42 AM
Aroclor 1221	ND	5.0		µg/L	1	8/24/2004 12:45:42 AM
Aroclor 1232	ND	1.0		µg/L	1	8/24/2004 12:45:42 AM
Aroclor 1242	ND	1.0		µg/L	1	8/24/2004 12:45:42 AM
Aroclor 1248	ND	1.0		µg/L	1	8/24/2004 12:45:42 AM
Aroclor 1254	ND	1.0		µg/L	1	8/24/2004 12:45:42 AM
Aroclor 1260	ND	1.0		µg/L	1	8/24/2004 12:45:42 AM
Surr: Decachlorobiphenyl	108	45.3-140		%REC	1	8/24/2004 12:45:42 AM
Surr: Tetrachloro-m-xylene	72.0	28.1-139		%REC	1	8/24/2004 12:45:42 AM
EPA METHOD 8260B: VOLATILES						Analyst: **KTM**
Benzene	ND	1.0		µg/L	1	8/10/2004
Toluene	ND	1.0		µg/L	1	8/10/2004
Ethylbenzene	ND	1.0		µg/L	1	8/10/2004
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/10/2004

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

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-1-C
Lab Order: 0408039
Collection Date: 8/4/2004 1:30:00 PM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-06
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/10/2004
Naphthalene	ND	2.0		µg/L	1	8/10/2004
1-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
2-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
Acetone	ND	10		µg/L	1	8/10/2004
Bromobenzene	ND	1.0		µg/L	1	8/10/2004
Bromochloromethane	ND	1.0		µg/L	1	8/10/2004
Bromodichloromethane	ND	1.0		µg/L	1	8/10/2004
Bromoform	ND	1.0		µg/L	1	8/10/2004
Bromomethane	ND	2.0		µg/L	1	8/10/2004
2-Butanone	ND	10		µg/L	1	8/10/2004
Carbon disulfide	ND	10		µg/L	1	8/10/2004
Carbon Tetrachloride	ND	1.0		µg/L	1	8/10/2004
Chlorobenzene	ND	1.0		µg/L	1	8/10/2004
Chloroethane	ND	2.0		µg/L	1	8/10/2004
Chloroform	ND	1.0		µg/L	1	8/10/2004
Chloromethane	ND	1.0		µg/L	1	8/10/2004
2-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
4-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
cis-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/10/2004
Dibromochloromethane	ND	1.0		µg/L	1	8/10/2004
Dibromomethane	ND	2.0		µg/L	1	8/10/2004
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,3-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
2,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
Hexachlorobutadiene	ND	1.0		µg/L	1	8/10/2004
2-Hexanone	ND	10		µg/L	1	8/10/2004
Isopropylbenzene	ND	1.0		µg/L	1	8/10/2004
4-Isopropyltoluene	ND	1.0		µg/L	1	8/10/2004
4-Methyl-2-pentanone	ND	10		µg/L	1	8/10/2004
Methylene Chloride	ND	3.0		µg/L	1	8/10/2004
n-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
n-Propylbenzene	ND	1.0		µg/L	1	8/10/2004

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

CLIENT: Giant Refining Co
Client Sample ID: BW-1-C
Lab Order: 0408039
Collection Date: 8/4/2004 1:30:00 PM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-06
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
sec-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
Styrene	ND	1.0		µg/L	1	8/10/2004
tert-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/10/2004
trans-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/10/2004
Trichlorofluoromethane	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/10/2004
Vinyl chloride	ND	1.0		µg/L	1	8/10/2004
Xylenes, Total	ND	1.0		µg/L	1	8/10/2004
Surr: 1,2-Dichloroethane-d4	96.9	70.6-124		%REC	1	8/10/2004
Surr: 4-Bromofluorobenzene	96.5	76.4-130		%REC	1	8/10/2004
Surr: Dibromofluoromethane	108	67.2-131		%REC	1	8/10/2004
Surr: Toluene-d8	100	82.1-123		%REC	1	8/10/2004
EPA METHOD 8270D: SEMIVOLATILES						Analyst: **GAB**
Acenaphthene	ND	50		µg/L	1	8/23/2004
Acenaphthylene	ND	50		µg/L	1	8/23/2004
Aniline	ND	50		µg/L	1	8/23/2004
Anthracene	ND	50		µg/L	1	8/23/2004
Azobenzene	ND	50		µg/L	1	8/23/2004
Benz(a)anthracene	ND	75		µg/L	1	8/23/2004
Benzo(a)pyrene	ND	50		µg/L	1	8/23/2004
Benzo(b)fluoranthene	ND	50		µg/L	1	8/23/2004
Benzo(g,h,i)perylene	ND	50		µg/L	1	8/23/2004
Benzo(k)fluoranthene	ND	50		µg/L	1	8/23/2004
Benzoic acid	ND	250		µg/L	1	8/23/2004
Benzyl alcohol	ND	100		µg/L	1	8/23/2004
Bis(2-chloroethoxy)methane	ND	50		µg/L	1	8/23/2004
Bis(2-chloroethyl)ether	ND	75		µg/L	1	8/23/2004
Bis(2-chloroisopropyl)ether	ND	75		µg/L	1	8/23/2004
Bis(2-ethylhexyl)phthalate	ND	75		µg/L	1	8/23/2004
4-Bromophenyl phenyl ether	ND	50		µg/L	1	8/23/2004
Butyl benzyl phthalate	ND	75		µg/L	1	8/23/2004
Carbazole	ND	50		µg/L	1	8/23/2004
4-Chloro-3-methylphenol	ND	100		µg/L	1	8/23/2004

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

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-1-C
Lab Order: 0408039
Collection Date: 8/4/2004 1:30:00 PM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-06
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
4-Chloroaniline	ND	100		µg/L	1	8/23/2004
2-Chloronaphthalene	ND	50		µg/L	1	8/23/2004
2-Chlorophenol	ND	50		µg/L	1	8/23/2004
4-Chlorophenyl phenyl ether	ND	75		µg/L	1	8/23/2004
Chrysene	ND	75		µg/L	1	8/23/2004
Di-n-butyl phthalate	ND	50		µg/L	1	8/23/2004
Di-n-octyl phthalate	ND	75		µg/L	1	8/23/2004
Dibenz(a,h)anthracene	ND	50		µg/L	1	8/23/2004
Dibenzofuran	ND	50		µg/L	1	8/23/2004
1,2-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
1,3-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
1,4-Dichlorobenzene	ND	50		µg/L	1	8/23/2004
3,3'-Dichlorobenzidine	ND	75		µg/L	1	8/23/2004
Diethyl phthalate	ND	50		µg/L	1	8/23/2004
Dimethyl phthalate	ND	50		µg/L	1	8/23/2004
2,4-Dichlorophenol	ND	50		µg/L	1	8/23/2004
2,4-Dimethylphenol	ND	50		µg/L	1	8/23/2004
4,6-Dinitro-2-methylphenol	ND	250		µg/L	1	8/23/2004
2,4-Dinitrophenol	ND	250		µg/L	1	8/23/2004
2,4-Dinitrotoluene	ND	50		µg/L	1	8/23/2004
2,6-Dinitrotoluene	ND	50		µg/L	1	8/23/2004
Fluoranthene	ND	50		µg/L	1	8/23/2004
Fluorene	ND	50		µg/L	1	8/23/2004
Hexachlorobenzene	ND	50		µg/L	1	8/23/2004
Hexachlorobutadiene	ND	50		µg/L	1	8/23/2004
Hexachlorocyclopentadiene	ND	50		µg/L	1	8/23/2004
Hexachloroethane	ND	50		µg/L	1	8/23/2004
Indeno(1,2,3-cd)pyrene	ND	50		µg/L	1	8/23/2004
Isophorone	ND	50		µg/L	1	8/23/2004
2-Methylnaphthalene	ND	50		µg/L	1	8/23/2004
2-Methylphenol	ND	75		µg/L	1	8/23/2004
3+4-Methylphenol	ND	50		µg/L	1	8/23/2004
N-Nitrosodi-n-propylamine	ND	50		µg/L	1	8/23/2004
N-Nitrosodimethylamine	ND	50		µg/L	1	8/23/2004
N-Nitrosodiphenylamine	ND	50		µg/L	1	8/23/2004
Naphthalene	ND	50		µg/L	1	8/23/2004
2-Nitroaniline	ND	250		µg/L	1	8/23/2004
3-Nitroaniline	ND	250		µg/L	1	8/23/2004
4-Nitroaniline	ND	100		µg/L	1	8/23/2004
Nitrobenzene	ND	50		µg/L	1	8/23/2004
2-Nitrophenol	ND	75		µg/L	1	8/23/2004
4-Nitrophenol	ND	250		µg/L	1	8/23/2004

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

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-1-C
Lab Order: 0408039
Collection Date: 8/4/2004 1:30:00 PM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-06
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Pentachlorophenol	ND	250		µg/L	1	8/23/2004
Phenanthrene	ND	50		µg/L	1	8/23/2004
Phenol	ND	50		µg/L	1	8/23/2004
Pyrene	ND	75		µg/L	1	8/23/2004
Pyridine	ND	150		µg/L	1	8/23/2004
1,2,4-Trichlorobenzene	ND	50		µg/L	1	8/23/2004
2,4,5-Trichlorophenol	ND	50		µg/L	1	8/23/2004
2,4,6-Trichlorophenol	ND	75		µg/L	1	8/23/2004
Surr: 2,4,6-Tribromophenol	49.7	16.6-115		%REC	1	8/23/2004
Surr: 2-Fluorobiphenyl	40.0	37-95.7		%REC	1	8/23/2004
Surr: 2-Fluorophenol	36.6	9.54-89.8		%REC	1	8/23/2004
Surr: 4-Terphenyl-d14	79.9	47.9-115		%REC	1	8/23/2004
Surr: Nitrobenzene-d5	41.0	38-106		%REC	1	8/23/2004
Surr: Phenol-d6	28.0	10.7-63.4		%REC	1	8/23/2004
EPA METHOD 8310: PAHS						Analyst: **IC**
Naphthalene	ND	2.5		µg/L	1	8/21/2004 5:24:02 PM
1-Methylnaphthalene	ND	2.5		µg/L	1	8/21/2004 5:24:02 PM
2-Methylnaphthalene	ND	2.5		µg/L	1	8/21/2004 5:24:02 PM
Acenaphthylene	ND	2.5		µg/L	1	8/21/2004 5:24:02 PM
Acenaphthene	ND	2.5		µg/L	1	8/21/2004 5:24:02 PM
Fluorene	ND	0.80		µg/L	1	8/21/2004 5:24:02 PM
Phenanthrene	ND	0.60		µg/L	1	8/21/2004 5:24:02 PM
Anthracene	ND	0.60		µg/L	1	8/21/2004 5:24:02 PM
Fluoranthene	ND	0.30		µg/L	1	8/21/2004 5:24:02 PM
Pyrene	ND	0.30		µg/L	1	8/21/2004 5:24:02 PM
Benz(a)anthracene	ND	0.020		µg/L	1	8/21/2004 5:24:02 PM
Chrysene	ND	0.20		µg/L	1	8/21/2004 5:24:02 PM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	8/21/2004 5:24:02 PM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	8/21/2004 5:24:02 PM
Benzo(a)pyrene	ND	0.020		µg/L	1	8/21/2004 5:24:02 PM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	8/21/2004 5:24:02 PM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	8/21/2004 5:24:02 PM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	8/21/2004 5:24:02 PM
Surr: Benzo(e)pyrene	91.0	54-102		%REC	1	8/21/2004 5:24:02 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **CMC**
Specific Conductance	1200	0.010		µmhos/cm	1	8/11/2004
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	8/9/2004
EPA METHOD 6010C: DISSOLVED METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	8/6/2004 10:11:15 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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: BW-1-C
Lab Order: 0408039
Collection Date: 8/4/2004 1:30:00 PM
Project: Boundry Well Initial Sampling
Lab ID: 0408039-06
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Barium	0.042	0.0020		mg/L	1	8/6/2004 10:11:15 AM
Cadmium	ND	0.0020		mg/L	1	8/6/2004 10:11:15 AM
Calcium	3.8	1.0		mg/L	1	8/6/2004 10:11:15 AM
Chromium	ND	0.0060		mg/L	1	8/6/2004 10:11:15 AM
Lead	ND	0.0050		mg/L	1	8/6/2004 10:11:15 AM
Magnesium	ND	1.0		mg/L	1	8/6/2004 10:11:15 AM
Potassium	2.0	1.0		mg/L	1	8/6/2004 10:11:15 AM
Selenium	ND	0.050		mg/L	1	8/6/2004 10:11:15 AM
Silver	ND	0.0050		mg/L	1	8/6/2004 10:11:15 AM
Sodium	200	10		mg/L	10	8/6/2004 10:55:41 AM
Uranium	ND	0.10		mg/L	1	8/6/2004 10:11:15 AM
EPA METHOD 160.1: TDS						Analyst: **JEB**
Total Dissolved Solids	970	50		mg/L	1	8/10/2004

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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: TRIP BLANK
Lab Order: 0408039
Collection Date:
Project: Boundry Well Initial Sampling
Lab ID: 0408039-07
Matrix: TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 504.1: EDB						Analyst: **SCC**
1,2-Dibromoethane	ND	0.010		µg/L	1	8/6/2004 2:42:14 PM
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	8/15/2004 1:24:12 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/15/2004 1:24:12 AM
Surr: DNOP	114	58-140		%REC	1	8/15/2004 1:24:12 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **BDH**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/12/2004 2:37:53 PM
Surr: BFB	98.5	74-118		%REC	1	8/12/2004 2:37:53 PM
EPA METHOD 8260B: VOLATILES						Analyst: **KTM**
Benzene	ND	1.0		µg/L	1	8/10/2004
Toluene	ND	1.0		µg/L	1	8/10/2004
Ethylbenzene	ND	1.0		µg/L	1	8/10/2004
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/10/2004
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/10/2004
Naphthalene	ND	2.0		µg/L	1	8/10/2004
1-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
2-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
Acetone	ND	10		µg/L	1	8/10/2004
Bromobenzene	ND	1.0		µg/L	1	8/10/2004
Bromochloromethane	ND	1.0		µg/L	1	8/10/2004
Bromodichloromethane	ND	1.0		µg/L	1	8/10/2004
Bromoform	ND	1.0		µg/L	1	8/10/2004
Bromomethane	ND	2.0		µg/L	1	8/10/2004
2-Butanone	ND	10		µg/L	1	8/10/2004
Carbon disulfide	ND	10		µg/L	1	8/10/2004
Carbon Tetrachloride	ND	1.0		µg/L	1	8/10/2004
Chlorobenzene	ND	1.0		µg/L	1	8/10/2004
Chloroethane	ND	2.0		µg/L	1	8/10/2004
Chloroform	ND	1.0		µg/L	1	8/10/2004
Chloromethane	ND	1.0		µg/L	1	8/10/2004
2-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
4-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
cis-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/10/2004
Dibromochloromethane	ND	1.0		µg/L	1	8/10/2004

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: *30-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: TRIP BLANK
Lab Order: 0408039
Collection Date:
Project: Boundry Well Initial Sampling
Lab ID: 0408039-07
Matrix: TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Dibromomethane	ND	2.0		µg/L	1	8/10/2004
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,3-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
2,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
Hexachlorobutadiene	ND	1.0		µg/L	1	8/10/2004
2-Hexanone	ND	10		µg/L	1	8/10/2004
Isopropylbenzene	ND	1.0		µg/L	1	8/10/2004
4-Isopropyltoluene	ND	1.0		µg/L	1	8/10/2004
4-Methyl-2-pentanone	ND	10		µg/L	1	8/10/2004
Methylene Chloride	ND	3.0		µg/L	1	8/10/2004
n-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
n-Propylbenzene	ND	1.0		µg/L	1	8/10/2004
sec-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
Styrene	ND	1.0		µg/L	1	8/10/2004
tert-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/10/2004
trans-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/10/2004
Trichlorofluoromethane	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/10/2004
Vinyl chloride	ND	1.0		µg/L	1	8/10/2004
Xylenes, Total	ND	1.0		µg/L	1	8/10/2004
Surr: 1,2-Dichloroethane-d4	105	70.6-124		%REC	1	8/10/2004
Surr: 4-Bromofluorobenzene	105	76.4-130		%REC	1	8/10/2004
Surr: Dibromofluoromethane	117	67.2-131		%REC	1	8/10/2004
Surr: Toluene-d8	98.2	82.1-123		%REC	1	8/10/2004

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

ENERGY LABORATORIES, INC. *2393 Salt Creek Highway (82601)* P.O. Box 3258 * Casper, WY 82602
Toll Free 888.235.0515 * 307.235.0515 * Fax 307.234.1639 * casper@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Hall Environmental
Project: Boundry Well
Lab ID: C04080302-001
Client Sample ID: BW-3-C (0408039-01)

Report Date: 08/23/04
Collection Date: 08/04/04 09:00
Date Received: 08/06/04
Matrix: Aqueous

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
NON-METALS							
Cyanide, Total Automated	ND	mg/L		0.1		E335.3	08/12/04 11:45 eli-b
RADIONUCLIDES - TOTAL							
Radium 226	ND	pCi/L		2.5		E903.0	08/09/04 14:15 trs
Radium 228	ND	pCi/L		2.5		E904.0	08/09/04 14:15 pj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected a he reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Hall Environmental
Project: Boundry Well
Lab ID: C04080302-002
Client Sample ID: BW-3-B (0408039-02)

Report Date: 08/23/04
Collection Date: 08/04/04 09:30
Date Received: 08/06/04
Matrix: Aqueous

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
NON-METALS							
Cyanide, Total Automated	ND	mg/L		0.1		E335.3	08/12/04 11:47 eli-b
RADIONUCLIDES - TOTAL							
Radium 226	ND	pCi/L		2.5		E903.0	08/09/04 14:15 trs
Radium 228	ND	pCi/L		2.5		E904.0	08/09/04 14:15 pj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected a he reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Hall Environmental
Project: Boundry Well
Lab ID: C04080302-003
Client Sample ID: BW-2-C (0408039-03)

Report Date: 08/23/04
Collection Date: 08/04/04 10:30
Date Received: 08/06/04
Matrix: Aqueous

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
NON-METALS							
Cyanide, Total Automated	ND	mg/L		0.1		E335.3	08/12/04 11:49 eli-b
RADIONUCLIDES - TOTAL							
Radium 226	ND	pCi/L		2.5		E903.0	08/09/04 14:15 trs
Radium 228	ND	pCi/L		2.5		E904.0	08/09/04 14:15 pj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected a he reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Hall Environmental
Project: Boundry Well
Lab ID: C04080302-004
Client Sample ID: BW-2-A (0408039-04)

Report Date: 08/23/04
Collection Date: 08/04/04 11:30
Date Received: 08/06/04
Matrix: Aqueous

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
NON-METALS							
Cyanide, Total Automated	ND	mg/L		0.1		E335.3	08/12/04 11:51 eli-b
RADIONUCLIDES - TOTAL							
Radium 226	ND	pCi/L		2.5		E903.0	08/09/04 14:15 trs
Radium 228	ND	pCi/L		2.5		E904.0	08/09/04 14:15 pj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected a he reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Hall Environmental
Project: Boundry Well
Lab ID: C04080302-005
Client Sample ID: BW-2-B (0408039-05)

Report Date: 08/23/04
Collection Date: 08/04/04 12:30
Date Received: 08/06/04
Matrix: Aqueous

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
NON-METALS							
Cyanide, Total Automated	ND	mg/L		0.1		E335.3	08/12/04 11:53 eli-b
RADIONUCLIDES - TOTAL							
Radium 226	ND	pCi/L		2.5		E903.0	08/09/04 14:15 trs
Radium 228	ND	pCi/L		2.5		E904.0	08/09/04 14:15 pj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected a he reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Hall Environmental
Project: Boundry Well
Lab ID: C04080302-006
Client Sample ID: BW-1-C (0408039-06)

Report Date: 08/23/04
Collection Date: 08/04/04 13:30
Date Received: 08/06/04
Matrix: Aqueous

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
NON-METALS							
Cyanide, Total Automated	ND	mg/L		0.1		E335.3	08/12/04 11:54 eli-b
RADIONUCLIDES - TOTAL							
Radium 226	ND	pCi/L		2.5		E903.0	08/09/04 14:15 trs
Radium 228	ND	pCi/L		2.5		E904.0	08/09/04 14:15 pj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected a he reporting limit.

QA/QC Summary Report

Client: Hall Environmental
Project: Boundry Well

Report Date: 08/23/04
Work Order: C04080302

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E335.3								Analytical Run: SUB-B46032	
Sample ID: ICV-1	Initial Calibration Verification Standard							08/12/04 10:58	
Cyanide, Total Automated	0.149	mg/L	0.0050	99.7	90	110			
Method: E335.3								Batch: B_A2004-08-12_4_CN__01	
Sample ID: MBLK-5	Method Blank							08/12/04 11:05	
Cyanide, Total Automated	ND	mg/L	0.002						
Sample ID: B04080553-001FMS	Matrix Spike							08/12/04 11:40	
Cyanide, Total Automated	0.104	mg/L	0.0050	104	80	120			
Sample ID: B04080553-001FMSD	Matrix Spike Duplicate							08/12/04 11:42	
Cyanide, Total Automated	0.108	mg/L	0.0050	108	80	120	3.1	10	
Sample ID: B04080573-001DMS	Matrix Spike							08/12/04 12:22	
Cyanide, Total Automated	0.105	mg/L	0.0050	105	80	120			
Sample ID: B04080573-001DMSD	Matrix Spike Duplicate							08/12/04 12:24	
Cyanide, Total Automated	0.103	mg/L	0.0050	103	80	120	2.4	10	
Sample ID: B04080748-001FMS	Matrix Spike							08/12/04 12:48	
Cyanide, Total Automated	0.111	mg/L	0.0050	111	80	120			
Sample ID: B04080748-001FMSD	Matrix Spike Duplicate							08/12/04 12:50	
Cyanide, Total Automated	0.117	mg/L	0.0050	117	80	120	5.1	10	
Method: E903.0								Batch: RA226-0669	
Sample ID: C04080257-001AMS	Matrix Spike							08/09/04 14:15	
Radium 226	25	pCi/L	0.20	80.4	70	130			
Sample ID: C04080257-001AMSD	Matrix Spike Duplicate							08/09/04 14:15	
Radium 226	27	pCi/L	0.20	87.7	70	130	7.0	30	
Sample ID: MB-RA226-0669	Method Blank							08/09/04 14:15	
Radium 226	ND	pCi/L	0.2						
Sample ID: LCS-RA226-0669	Laboratory Control Spike							08/09/04 14:15	
Radium 226	13	pCi/L	0.20	83.5	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected a he reporting limit.

QA/QC Summary Report

Client: Hall Environmental
Project: Boundry Well

Report Date: 08/23/04
Work Order: C04080302

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E904.0									Batch: R38618
Sample ID: C04080325-001A	Matrix Spike								08/09/04 14:15
Radium 228	26	pCi/L	1.0	117	70	130			
Sample ID: C04080325-001A	Matrix Spike Duplicate								08/09/04 14:15
Radium 228	24	pCi/L	1.0	105	70	130	11	30	
Sample ID: MB-R38618	Method Blank								08/09/04 14:15
Radium 228	ND	pCi/L	1						
Sample ID: LCS-R38618	Laboratory Control Spike								08/09/04 14:15
Radium 228	12	pCi/L	1.0	85.9	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected a he reporting limit.

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Method Blank

Sample ID **MBLK** Batch ID: **R12686** Test Code: **E300** Units: **mg/L** Analysis Date **8/5/2004 10:18:34 AM** Prep Date
Client ID: Run ID: **LC_040805A** SeqNo: **294143**

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	0.1									
Nitrogen, Nitrate (As N)	ND	0.1									
Phosphorus, Orthophosphate (As P)	ND	0.5									
Sulfate	ND	0.5									

Sample ID **MBLK** Batch ID: **R12686** Test Code: **E300** Units: **mg/L** Analysis Date **8/5/2004 10:20:37 PM** Prep Date
Client ID: Run ID: **LC_040805A** SeqNo: **294187**

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	0.1									
Nitrogen, Nitrate (As N)	ND	0.1									
Phosphorus, Orthophosphate (As P)	ND	0.5									
Sulfate	ND	0.5									

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

CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Method Blank

Sample ID **MBLK**	Batch ID: **R12709**	Test Code: **E300**	Units: **mg/L**	Analysis Date **8/6/2004 12:32:35 PM**	Prep Date
Client ID:		Run ID: **LC_040806A**		SeqNo: **295102**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.1									
Chloride	0.01483	0.1									J
Nitrogen, Nitrite (As N)	ND	0.1									
Bromide	ND	0.1									
Nitrogen, Nitrate (As N)	ND	0.1									
Phosphorus, Orthophosphate (As P)	ND	0.5									
Sulfate	ND	0.5									

Sample ID **MBLK**	Batch ID: **R12709**	Test Code: **E300**	Units: **mg/L**	Analysis Date **8/6/2004 8:49:31 PM**	Prep Date
Client ID:		Run ID: **LC_040806A**		SeqNo: **295128**	

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	0.1									
Nitrogen, Nitrate (As N)	ND	0.1									
Phosphorus, Orthophosphate (As P)	ND	0.5									
Sulfate	ND	0.5									

Sample ID **MBLK**	Batch ID: **R12781**	Test Code: **E310.1**	Units: **mg/L CaCO3**	Analysis Date **8/16/2004**	Prep Date
Client ID:		Run ID: **WC_040816D**		SeqNo: **296879**	

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									

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

CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Method Blank

Sample ID **MB-6258** Batch ID: **6258** Test Code: **E504.1** Units: **µg/L** Analysis Date **8/6/2004 9:56:00 AM** Prep Date **8/6/2004**
Client ID: Run ID: **ECD(14A)_040806A** SeqNo: **294277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.01									

Sample ID **MB-6289** Batch ID: **6289** Test Code: **SW8015** Units: **mg/L** Analysis Date **8/14/2004 8:48:28 PM** Prep Date **8/11/2004**
Client ID: Run ID: **FID(17A) 2_040813A** SeqNo: **296866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1									
Motor Oil Range Organics (MRO)	ND	5									
Surr: DNOP	1.212	0	1	0	121	58	140	0			

Sample ID **Reagent Blank 5m** Batch ID: **R12756** Test Code: **SW8015** Units: **mg/L** Analysis Date **8/12/2004 8:24:07 AM** Prep Date
Client ID: Run ID: **PIDFID_040812A** SeqNo: **296307**

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	18.64	0	20	0	93.2	74	118	0			

50 / 70

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

CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Method Blank

Sample ID **MB-6260** Batch ID: **6260** Test Code: **SW8080A** Units: **µg/L** Analysis Date **8/24/2004 2:18:30 AM** Prep Date **8/6/2004**
Client ID: Run ID: **ECD(17A)_040822A** SeqNo: **298794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1									
Aroclor 1221	ND	5									
Aroclor 1232	ND	1									
Aroclor 1242	ND	1									
Aroclor 1248	ND	1									
Aroclor 1254	ND	1									
Aroclor 1260	ND	1									
Surr: Decachlorobiphenyl	2.52	0	2.5	0	101	45.3	140	0			
Surr: Tetrachloro-m-xylene	1.72	0	2.5	0	68.8	28.1	139	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: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Method Blank

Sample ID **MB-6271** Batch ID: **6271** Test Code: **SW8270A** Units: **µg/L** Analysis Date **8/23/2004** Prep Date **8/9/2004**
Client ID: Run ID: **ELMO_040823A** SeqNo: **298840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	ND	10									
Acenaphthylene	ND	10									
Aniline	ND	10									
Anthracene	ND	10									
Azobenzene	ND	10									
Benz(a)anthracene	ND	15									
Benzo(a)pyrene	ND	10									
Benzo(b)fluoranthene	ND	10									
Benzo(g,h,i)perylene	ND	10									
Benzo(k)fluoranthene	ND	10									
Benzoic acid	23.84	50									J
Benzyl alcohol	ND	20									
Bis(2-chloroethoxy)methane	ND	10									
Bis(2-chloroethyl)ether	ND	15									
Bis(2-chloroisopropyl)ether	ND	15									
Bis(2-ethylhexyl)phthalate	ND	15									
4-Bromophenyl phenyl ether	ND	10									
Butyl benzyl phthalate	ND	15									
Carbazole	ND	10									
4-Chloro-3-methylphenol	ND	20									
4-Chloroaniline	ND	20									
2-Chloronaphthalene	ND	10									
2-Chlorophenol	ND	10									
4-Chlorophenyl phenyl ether	ND	15									
Chrysene	ND	15									
Di-n-butyl phthalate	ND	10									
Di-n-octyl phthalate	ND	15									
Dibenz(a,h)anthracene	ND	10									

Qualifiers:
ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
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CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Method Blank

Dibenzofuran	ND	10
1,2-Dichlorobenzene	ND	10
1,3-Dichlorobenzene	ND	10
1,4-Dichlorobenzene	ND	10
3,3'-Dichlorobenzidine	ND	15
Diethyl phthalate	ND	10
Dimethyl phthalate	ND	10
2,4-Dichlorophenol	ND	10
2,4-Dimethylphenol	ND	10
4,6-Dinitro-2-methylphenol	ND	50
2,4-Dinitrophenol	ND	50
2,4-Dinitrotoluene	ND	10
2,6-Dinitrotoluene	ND	10
Fluoranthene	ND	10
Fluorene	ND	10
Hexachlorobenzene	ND	10
Hexachlorobutadiene	ND	10
Hexachlorocyclopentadiene	ND	10
Hexachloroethane	ND	10
Indeno(1,2,3-cd)pyrene	ND	10
Isophorone	ND	10
2-Methylnaphthalene	ND	10
2-Methylphenol	ND	15
3+4-Methylphenol	ND	10
N-Nitrosodi-n-propylamine	ND	10
N-Nitrosodimethylamine	ND	10
N-Nitrosodiphenylamine	ND	10
Naphthalene	ND	10
2-Nitroaniline	ND	50
3-Nitroaniline	ND	50
4-Nitroaniline	ND	20
Nitrobenzene	ND	10
2-Nitrophenol	ND	15

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

CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Method Blank

4-Nitrophenol	ND	50						
Pentachlorophenol	ND	50						
Phenanthrene	ND	10						
Phenol	ND	10						
Pyrene	ND	15						
Pyridine	ND	30						
1,2,4-Trichlorobenzene	ND	10						
2,4,5-Trichlorophenol	ND	10						
2,4,6-Trichlorophenol	ND	15						
Surr: 2,4,6-Tribromophenol	129.9	0	200	0	65.0	16.6	115	0
Surr: 2-Fluorobiphenyl	59.18	0	100	0	59.2	37	95.7	0
Surr: 2-Fluorophenol	113	0	200	0	56.5	9.54	89.8	0
Surr: 4-Terphenyl-d14	91.96	0	100	0	92.0	51.2	125	0
Surr: Nitrobenzene-d5	61.1	0	100	0	61.1	38	106	0
Surr: Phenol-d6	85.84	0	200	0	42.9	10.7	63.4	0

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

CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Method Blank

Sample ID **MB-6265** Batch ID: **6265** Test Code: **SW8310** Units: **µg/L** Analysis Date **8/21/2004 10:12:01 AM** Prep Date **8/9/2004**
Client ID: Run ID: **HUGO_040820A** SeqNo: **298503**

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	9.01	0	10	0	90.1	54	102	0			

Sample ID **MB-6267** Batch ID: **6267** Test Code: **SW7470** Units: **mg/L** Analysis Date **8/9/2004** Prep Date **8/9/2004**
Client ID: Run ID: **MI-LA254_040809A** SeqNo: **295021**

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

Qualifiers:
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J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Method Blank

Sample ID **MB** Batch ID: **R12692** Test Code: **SW6010A** Units: **mg/L** Analysis Date **8/6/2004 8:35:37 AM** Prep Date
Client ID: Run ID: **ICP_040806A** SeqNo: **294294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.02									
Barium	ND	0.002									
Cadmium	ND	0.002									
Calcium	0.03671	1									J
Chromium	ND	0.006									
Lead	ND	0.005									
Magnesium	0.03883	1									J
Potassium	ND	1									
Selenium	ND	0.05									
Silver	ND	0.005									
Sodium	0.04847	1									J
Uranium	ND	0.1									

Sample ID **MB-6279** Batch ID: **6279** Test Code: **E160.1** Units: **mg/L** Analysis Date **8/10/2004** Prep Date **8/10/2004**
Client ID: Run ID: **WC_040810C** SeqNo: **296935**

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
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R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Method Blank

Sample ID **5ml rb** Batch ID: **R12713** Test Code: **SW8260B** Units: **µg/L** Analysis Date **8/9/2004** Prep Date

Client ID: Run ID: **VAL_040809A** SeqNo: **295199**

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									

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

CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Method Blank

cis-1,3-Dichloropropene	ND	1
1,2-Dibromo-3-chloropropane	ND	2
Dibromochloromethane	ND	1
Dibromomethane	ND	2
1,2-Dichlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
Dichlorodifluoromethane	ND	1
1,1-Dichloroethane	ND	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

Qualifiers:
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CLIENT: Giant Refining Co
Work Order: *0408039*
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT

Method Blank

1,1,2-Trichloroethane	ND	1						
Trichloroethene (TCE)	ND	1						
Trichlorofluoromethane	ND	1						
1,2,3-Trichloropropane	ND	2						
Vinyl chloride	ND	1						
Xylenes, Total	ND	1						
Surr: 1,2-Dichloroethane-d4	10.27	0	10	0	103	68.4	127	0
Surr: 4-Bromofluorobenzene	10.23	0	10	0	102	70.4	126	0
Surr: Dibromofluoromethane	10.91	0	10	0	109	70.2	126	0
Surr: Toluene-d8	10.3	0	10	0	103	73.5	129	0

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

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID **0408039-01a ms** Batch ID: **R12756** Test Code: **SW8015** Units: **mg/L** Analysis Date **8/12/2004 6:13:03 PM** Prep Date
Client ID: **BW-3-C** Run ID: **PIDFID_040812A** SeqNo: **296309**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.526	0.05	0.5	0	105	80.3	116	0			
Surr: BFB	25.81	0	25	0	103	74	118	0			

Sample ID **0408039-01a msd** Batch ID: **R12756** Test Code: **SW8015** Units: **mg/L** Analysis Date **8/12/2004 6:43:36 PM** Prep Date
Client ID: **BW-3-C** Run ID: **PIDFID_040812A** SeqNo: **296310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.5254	0.05	0.5	0	105	80.3	116	0.526	0.114	8.39	
Surr: BFB	26.44	0	25	0	106	74	118	25.81	2.43	0	

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

Hall Environmental Analysis Laboratory

Date: *30-Aug-04*

CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **LCS** Batch ID: **R12686** Test Code: **E300** Units: **mg/L** Analysis Date **8/5/2004 10:35:20 AM** Prep Date
Client ID: Run ID: **LC_040805A** SeqNo: **294144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.4755	0.1	0.5	0	95.1	90	110	0			
Chloride	4.917	0.1	5	0	98.3	90	110	0			
Nitrogen, Nitrite (As N)	0.958	0.1	1	0	95.8	90	110	0			
Bromide	2.426	0.1	2.5	0	97.1	90	110	0			
Nitrogen, Nitrate (As N)	2.436	0.1	2.5	0	97.4	90	110	0			
Phosphorus, Orthophosphate (As P)	4.614	0.5	5	0	92.3	90	110	0			
Sulfate	9.912	0.5	10	0	99.1	90	110	0			

Sample ID **LCS** Batch ID: **R12686** Test Code: **E300** Units: **mg/L** Analysis Date **8/5/2004 10:54:14 PM** Prep Date
Client ID: Run ID: **LC_040805A** SeqNo: **294189**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.4508	0.1	0.5	0	90.2	90	110	0			
Chloride	4.853	0.1	5	0	97.1	90	110	0			
Nitrogen, Nitrite (As N)	0.9332	0.1	1	0	93.3	90	110	0			
Bromide	2.328	0.1	2.5	0	93.1	90	110	0			
Nitrogen, Nitrate (As N)	2.372	0.1	2.5	0	94.9	90	110	0			
Phosphorus, Orthophosphate (As P)	4.59	0.5	5	0	91.8	90	110	0			
Sulfate	9.725	0.5	10	0	97.2	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

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CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **LCS** Batch ID: **R12709** Test Code: **E300** Units: **mg/L** Analysis Date **8/6/2004 12:49:23 PM** Prep Date
Client ID: Run ID: **LC_040806A** SeqNo: **295103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.4512	0.1	0.5	0	90.2	90	110	0			
Chloride	4.778	0.1	5	0	95.6	90	110	0			
Nitrogen, Nitrite (As N)	0.921	0.1	1	0	92.1	90	110	0			
Bromide	2.367	0.1	2.5	0	94.7	90	110	0			
Nitrogen, Nitrate (As N)	2.365	0.1	2.5	0	94.6	90	110	0			
Phosphorus, Orthophosphate (As P)	4.526	0.5	5	0	90.5	90	110	0			
Sulfate	9.66	0.5	10	0	96.6	90	110	0			

Sample ID **LCS** Batch ID: **R12709** Test Code: **E300** Units: **mg/L** Analysis Date **8/6/2004 9:06:19 PM** Prep Date
Client ID: Run ID: **LC_040806A** SeqNo: **295129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.4494	0.1	0.5	0	89.9	90	110	0			S
Chloride	4.701	0.1	5	0	94.0	90	110	0			
Nitrogen, Nitrite (As N)	0.9531	0.1	1	0	95.3	90	110	0			
Bromide	2.317	0.1	2.5	0	92.7	90	110	0			
Nitrogen, Nitrate (As N)	2.344	0.1	2.5	0	93.8	90	110	0			
Phosphorus, Orthophosphate (As P)	4.56	0.5	5	0	91.2	90	110	0			
Sulfate	9.639	0.5	10	0	96.4	90	110	0			

Sample ID **LCS-6258** Batch ID: **6258** Test Code: **E504.1** Units: **µg/L** Analysis Date **8/6/2004 10:08:52 AM** Prep Date **8/6/2004**
Client ID: Run ID: **ECD(14A)_040806A** SeqNo: **294278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.077	0.01	0.1	0	77.0	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

CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID **LCSD-6258**	Batch ID: **6258**	Test Code: **E504.1**	Units: **µg/L**	Analysis Date **8/6/2004 10:21:49 AM**	Prep Date **8/6/2004**
Client ID:		Run ID: **ECD(14A)_040806A**		SeqNo: **294279**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.072	0.01	0.1	0	72.0	70	130	0.077	6.71	13.5	

Sample ID **LCS-6289**	Batch ID: **6289**	Test Code: **SW8015**	Units: **mg/L**	Analysis Date **8/14/2004 9:18:56 PM**	Prep Date **8/11/2004**
Client ID:		Run ID: **FID(17A) 2_040813A**		SeqNo: **296867**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.735	1	5	0	135	81.2	149	0			

Sample ID **LCSD-6289**	Batch ID: **6289**	Test Code: **SW8015**	Units: **mg/L**	Analysis Date **8/14/2004 9:49:25 PM**	Prep Date **8/11/2004**
Client ID:		Run ID: **FID(17A) 2_040813A**		SeqNo: **296868**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.697	1	5	0	134	81.2	149	6.735	0.560	23	

Sample ID **GRO std 2.5ug**	Batch ID: **R12756**	Test Code: **SW8015**	Units: **mg/L**	Analysis Date **8/12/2004 7:14:06 PM**	Prep Date
Client ID:		Run ID: **PIDFID_040812A**		SeqNo: **296308**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.4878	0.05	0.5	0	97.6	80.3	116	0			

Sample ID **LCS-6260**	Batch ID: **6260**	Test Code: **SW8080A**	Units: **µg/L**	Analysis Date **8/24/2004 3:05:02 AM**	Prep Date **8/6/2004**
Client ID:		Run ID: **ECD(17A)_040822A**		SeqNo: **298796**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	7.096	1	10	0	71.0	27.4	132	0			
Aroclor 1260	10.68	1	10	0	107	52.1	148	0			

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

CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID **LCSD-6260** Batch ID: **6260** Test Code: **SW8080A** Units: **µg/L** Analysis Date **8/24/2004 4:37:48 AM** Prep Date **8/6/2004**
Client ID: Run ID: **ECD(17A)_040822A** SeqNo: **298801**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	7.658	1	10	0	76.6	27.4	132	7.096	7.62	45.7	
Aroclor 1260	11.08	1	10	0	111	52.1	148	10.68	3.64	30	

Sample ID **100ng lcs** Batch ID: **R12713** Test Code: **SW8260B** Units: **µg/L** Analysis Date **8/9/2004** Prep Date
Client ID: Run ID: **VAL_040809A** SeqNo: **295201**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	23.45	1	20	0	117	75.3	128	0			
Toluene	21.53	1	20	0	108	87.7	122	0			
Chlorobenzene	19.71	1	20	0	98.6	76.2	130	0			
1,1-Dichloroethene	19.25	1	20	0	96.3	70.7	122	0			
Trichloroethene (TCE)	20.92	1	20	0	105	76.9	130	0			

Sample ID **LCS-6271** Batch ID: **6271** Test Code: **SW8270A** Units: **µg/L** Analysis Date **8/23/2004** Prep Date **8/9/2004**
Client ID: Run ID: **ELMO_040823A** SeqNo: **298841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	55.98	10	100	0	56.0	44.8	96.8	0			
4-Chloro-3-methylphenol	118.3	20	200	0	59.1	51.5	98.7	0			
2-Chlorophenol	117.1	10	200	0	58.6	45.9	99.6	0			
1,4-Dichlorobenzene	48.88	10	100	0	48.9	33	95.9	0			
2,4-Dinitrotoluene	69.78	10	100	0	69.8	47.8	103	0			
N-Nitrosodi-n-propylamine	58.3	10	100	0	58.3	45.9	93.6	0			
4-Nitrophenol	66.26	50	200	0	33.1	22.1	58.3	0			
Pentachlorophenol	99.54	50	200	0	49.8	26.4	118	0			
Phenol	75.04	10	200	0	37.5	6.99	71.3	0			
Pyrene	63.98	15	100	0	64.0	58.3	103	0			
1,2,4-Trichlorobenzene	46.32	10	100	0	46.3	38.7	92.3	0			

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

CLIENT: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID **LCSD-6271** Batch ID: **6271** Test Code: **SW8270A** Units: **µg/L** Analysis Date **8/23/2004** Prep Date **8/9/2004**
Client ID: Run ID: **ELMO_040823A** SeqNo: **298842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	56.48	10	100	0	56.5	44.8	96.8	55.98	0.889	30.5	
4-Chloro-3-methylphenol	122.7	20	200	0	61.3	51.5	98.7	118.3	3.64	28.6	
2-Chlorophenol	113.3	10	200	0	56.6	45.9	99.6	117.1	3.33	107	
1,4-Dichlorobenzene	54.74	10	100	0	54.7	33	95.9	48.88	11.3	62.1	
2,4-Dinitrotoluene	66.26	10	100	0	66.3	47.8	103	69.78	5.17	14.7	
N-Nitrosodi-n-propylamine	55.84	10	100	0	55.8	45.9	93.6	58.3	4.31	30.3	
4-Nitrophenol	73.66	50	200	0	36.8	22.1	58.3	66.26	10.6	36.3	
Pentachlorophenol	117	50	200	0	58.5	26.4	118	99.54	16.2	49	
Phenol	69.96	10	200	0	35.0	6.99	71.3	75.04	7.01	52.4	
Pyrene	64.58	15	100	0	64.6	58.3	103	63.98	0.933	16.3	
1,2,4-Trichlorobenzene	51.06	10	100	0	51.1	38.7	92.3	46.32	9.74	36.4	

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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: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **LCS-6265** Batch ID: **6265** Test Code: **SW8310** Units: **µg/L** Analysis Date **8/21/2004 11:00:01 AM** Prep Date **8/9/2004**
Client ID: Run ID: **HUGO_040820A** SeqNo: **298504**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	27.64	2.5	40	0	69.1	20.939	111.211	0			
1-Methylnaphthalene	28.12	2.5	40.1	0	70.1	22.016	110.385	0			
2-Methylnaphthalene	27.2	2.5	40	0	68.0	21.098	111.261	0			
Acenaphthylene	28.18	2.5	40.1	0	70.3	23.852	116.857	0			
Acenaphthene	28.22	2.5	40	0	70.6	27.524	111.73	0			
Fluorene	2.71	0.8	4.01	0	67.6	31.046	113.32	0			
Phenanthrene	1.51	0.6	2.01	0	75.1	42.279	115.749	0			
Anthracene	1.51	0.6	2.01	0	75.1	43.767	118.693	0			
Fluoranthene	3.25	0.3	4.01	0	81.0	55.334	117.461	0			
Pyrene	3.18	0.3	4.01	0	79.3	57.722	120.832	0			
Benz(a)anthracene	0.32	0.02	0.401	0	79.8	70.18	113.452	0			
Chrysene	1.57	0.2	2.01	0	78.1	43.942	141.404	0			
Benzo(b)fluoranthene	0.3	0.05	0.38	0	78.9	71.192	103.368	0			
Benzo(k)fluoranthene	0.21	0.02	0.25	0	84.0	75.336	107.209	0			
Benzo(a)pyrene	0.2	0.02	0.251	0	79.7	74.556	100.742	0			
Dibenz(a,h)anthracene	0.41	0.04	0.501	0	81.8	80.693	106.931	0			
Benzo(g,h,i)perylene	0.44	0.03	0.5	0	88.0	55.168	135.014	0			
Indeno(1,2,3-cd)pyrene	0.848	0.08	1.002	0	84.6	79.328	104.794	0			

Sample ID **LCS-6267** Batch ID: **6267** Test Code: **SW7470** Units: **mg/L** Analysis Date **8/9/2004** Prep Date **8/9/2004**
Client ID: Run ID: **MI-LA254_040809A** SeqNo: **295022**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004961	0.0002	0.005	0	99.2	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: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID **LCSD-6267** Batch ID: **6267** Test Code: **SW7470** Units: **mg/L** Analysis Date **8/9/2004** Prep Date **8/9/2004**
Client ID: Run ID: **MI-LA254_040809A** SeqNo: **295037**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00507	0.0002	0.005	0	101	75.2	134	0.004961	2.19	0	

Sample ID **LCS** Batch ID: **R12692** Test Code: **SW6010A** Units: **mg/L** Analysis Date **8/6/2004 8:38:30 AM** Prep Date
Client ID: Run ID: **ICP_040806A** SeqNo: **294295**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.5066	0.02	0.5	0	101	80	120	0			
Barium	0.4724	0.002	0.5	0	94.5	80	120	0			
Cadmium	0.4991	0.002	0.5	0	99.8	80	120	0			
Calcium	49.52	1	50.5	0.03671	98.0	80	120	0			
Chromium	0.4786	0.006	0.5	0	95.7	80	120	0			
Lead	0.4877	0.005	0.5	0	97.5	80	120	0			
Magnesium	51.42	1	50.5	0.03883	102	80	120	0			
Potassium	52.69	1	55	0	95.8	80	120	0			
Selenium	0.5447	0.05	0.5	0	109	80	120	0			
Silver	0.4788	0.005	0.5	0	95.8	80	120	0			
Sodium	48.73	1	50.5	0.04847	96.4	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: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID **LCSD** Batch ID: **R12692** Test Code: **SW6010A** Units: **mg/L** Analysis Date **8/6/2004 8:41:30 AM** Prep Date
Client ID: Run ID: **ICP_040806A** SeqNo: **294296**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.5037	0.02	0.5	0	101	80	120	0.5066	0.564	20	
Barium	0.4822	0.002	0.5	0	96.4	80	120	0.4724	2.06	20	
Cadmium	0.5077	0.002	0.5	0	102	80	120	0.4991	1.70	20	
Calcium	49.92	1	50.5	0.03671	98.8	80	120	49.52	0.800	20	
Chromium	0.4859	0.006	0.5	0	97.2	80	120	0.4786	1.51	20	
Lead	0.4945	0.005	0.5	0	98.9	80	120	0.4877	1.39	20	
Magnesium	51.84	1	50.5	0.03883	103	80	120	51.42	0.811	20	
Potassium	53.08	1	55	0	96.5	80	120	52.69	0.734	20	
Selenium	0.5452	0.05	0.5	0	109	80	120	0.5447	0.0927	20	
Silver	0.4917	0.005	0.5	0	98.3	80	120	0.4788	2.67	20	
Sodium	49.13	1	50.5	0.04847	97.2	80	120	48.73	0.825	20	

Sample ID **LCS U** Batch ID: **R12692** Test Code: **SW6010A** Units: **mg/L** Analysis Date **8/6/2004 10:58:34 AM** Prep Date
Client ID: Run ID: **ICP_040806A** SeqNo: **294330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Uranium	5.11	0.1	5	0	102	80	120	0			

Sample ID **LCSD U** Batch ID: **R12692** Test Code: **SW6010A** Units: **mg/L** Analysis Date **8/6/2004 11:01:27 AM** Prep Date
Client ID: Run ID: **ICP_040806A** SeqNo: **294331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Uranium	5.131	0.1	5	0	103	80	120	5.11	0.414	20	

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: Giant Refining Co
Work Order: 0408039
Project: Boundry Well Initial Sampling

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **LCS-6279** Batch ID: **6279** Test Code: **E160.1** Units: **mg/L** Analysis Date **8/10/2004** Prep Date **8/10/2004**
Client ID: Run ID: **WC_040810C** SeqNo: **296936**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids	1009	50	1000	0	101	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

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name GIANTREFIN | Date and Time Received:

Work Order Number 0408039 | Received by AMG

Checklist completed by A Gonzales 08/05/04
Signature | Date

Matrix | Carrier name Client drop-off

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 _____

ANDY or Nancy

CHAIN-OF-CUSTODY RECORD

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

Client: Giant - Ciniza Refinery

Project Name: Boundry well Inital Sampling

Address: Route 3 Box 7 Gallup, NM 87301

Project #:

Project Manager: Steve Morris

Phone #: 505 722 3833

Sampler: Steve Morris

Fax #: 505 722 0210

Samples Cold?: ☐ Yes ☐ No 4.0

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HCl	Preservative	HEAL No.
4/04	0900	H_2O	BW-3-C	14				408039 1
"	0930	"	BW-3-B	"				2
"	1030	"	BW-2-C	"				3
"	1130	"	BW-2-A	"				4
"	1230	"	BW-2-B	"				5
"	1330	"	BW-1-C	"				6
			TB					7

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel) (+ OIL)	TPH (Method 418.1)	Volatiles Full List (8021)	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)	/ general H_2O chemistry	WQCC metals standards	Air Bubbles or Headspace (Y or N)
		X						X	X	X		X	X	X	X	
		X						X	X	X		X	X	X	X	
		X						X	X	X		X	X	X	X	
		X						X	X	X		X	X	X	X	
		X						X	X	V		X	X	X	X	
		X						X	X	X		X	X	X	X	

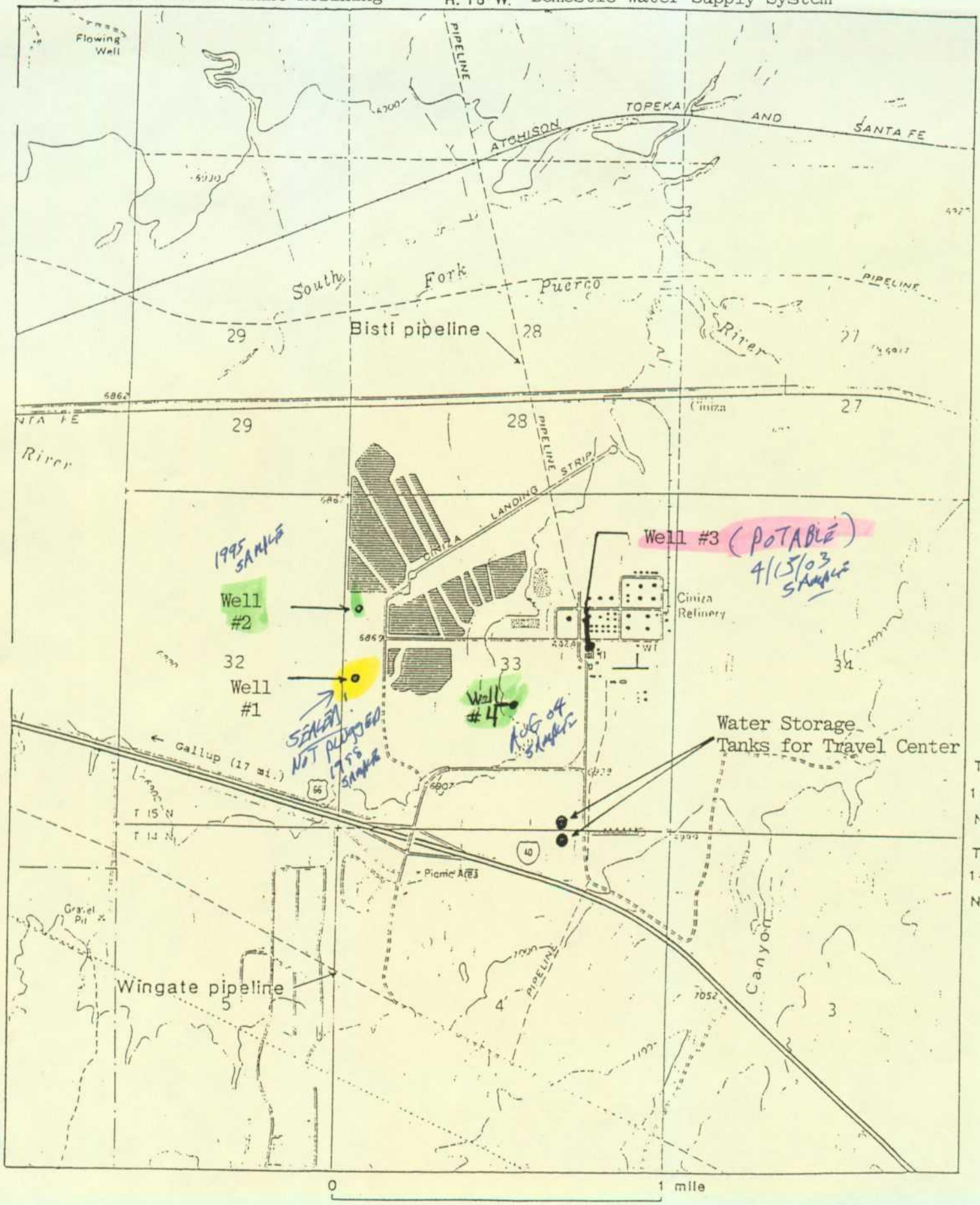
see attached

Anion / cation ballance

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
5/04	1015		
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
			08/05/04 1015

Remarks: groundwater should be clean
No organics NOTIFY IMMEDIATELY IF ANY detected

Map #1 Overview of Giant Refining R. 15 W. Domestic Water Supply System



Source: Giant Refining

Topographic map showing Giant Refining Ciniza Plant. Date: 1/16/97

Price, Wayne

From: Ed Riege [eriege@giant.com]
Sent: Thursday, July 01, 2004 4:12 PM
To: 'Price, Wayne'
Subject: RE: Giant Ciniza water wells

Wayne,
I gave you a bum steer! According to Kinglsey, well #1 is out of service not #2. Well #1 is sealed and capped. Well #3 is the potable well but can also be used as industrial.
Thanks Ed

-----Original Message-----
From: Price, Wayne [mailto:WPrice@state.nm.us]
Sent: Thursday, July 01, 2004 3:40 PM
To: 'Eriege@giant.com'
Cc: Dorinda Manncina (E-mail)
Subject: Giant Ciniza water wells

Dear ED,

I received the information on the plant water wells. Per our telephone conversation well #2 is out of service, while well #1 and 4 are your industrial wells and well #3 id the potable well. Do you know if well #2 has been plugged?

Sincerely:

Wayne Price
New Mexico Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, NM 87505
505-476-3487
fax: 505-476-3462
E-mail: WPRICE@state.nm.us

#1

APPENDIX E

History of Drilling Water Well No. 1

South Well

Well No. 1 was spudded in on August 27, 1956, by a Franks No. 5000, Rotary Rig owned by the Barron Drilling Company of Farmington, New Mexico. No trouble was encountered at start and a 20" Hughs rock bit was used to the depth of the surface hole. A stratum of sand was struck at 100 feet which was 50 feet in thickness. This stratum contained some surface water but no quantitative test was made. An analysis was run and the water was found to be brackish and contained a total solids equivalent of over 3,000 ppm. The large hole was continued to a depth of 220 feet until it was felt that the alluvium fill was well spent and the hole was well into the Chinle formations. The 16" surface casing was set at that depth and cemented by the Halliburton Company from bottom to top.

The hole was then reduced to a 15" hole, using a Hughs rock bit, and extremely hard drilling was immediately experienced through the mudstone in the stratum and all strata to a depth of 520 feet. At 520 feet, the sandstone encountered resembled the Glorietta and was the first producing aquifer. It became necessary at this point to increase the weight of the mud to 12.0 pounds and the viscosity to 80. This 80 foot aquifer was the most dense and hardest drilling in the various strata in the well. At a depth of 640 feet, another aquifer was struck which gave dilution trouble and the weight of the mud was increased to 13.0 pounds in order to hold the hole. Severe caving was experienced at this depth from the mudstone stratum directly above. From 700 feet to 800 feet, the strates encountered were varied and contained a large amount of sliding shale which made progress difficult. From 800 feet to 1,030 feet the true Glorietta sandstone was encountered which is believed to be the largest and strongest aquifer in the well. At 820 feet, rig trouble was experienced and 13.0 pound mud did not hold the artesian flow. The well flowed 60 gpm until 15.0 pound mud was mixed in order to hold the pressure. At a depth of 1,020 feet, the Glorietta ran out and extremely hard siltstone was struck.

The U.S.G.S. had reported that in the approximate depth of 1,100 feet in the Yeso formation, a shelf of limestone would be struck. It was decided to continue through the limestone for exploratory purposes. The hole was reduced to a 9" hole at 1,020 feet and the rat-hole was then drilled to a depth of 1,235 feet. A 50 foot stratum of limestone was encountered between 1,095 feet and 1,150 feet which was very dense and hard. It had been anticipated that another aquifer would be struck under the limestone formation, but there was no indication to the depth of 1,235 feet. Drilling was stopped at this depth as it was felt that an adequate quantity of water had been struck.

After Schlumberger ran an electric log on the hole, it was decided to set 12" ID casing to 1,020 feet and plug the hole back to that depth. A Halliburton float shoe was used and the hole was cemented from 1,235 feet to 1,010 feet, or 10 feet from the bottom of the 12" casing. The casing was shot-perforated as shown on the log, 6 shots to the foot, using jet-shots every other foot and bullet-shot every alternate foot. Upon completion of the perforating, the well flowed 110 gpm, and developed 140 pounds shut-in pressure. Smith Machinery Company, Roswell, New Mexico, tested the well with a 6" turbine pump, set at a depth of 600 feet. The results of this test are shown on the test result sheet. The maximum pumping rate at this depth was found to be 240 gpm with a recovery rate of 29 minutes. The pump setting was restricted and due to the fact that the main producing aquifer is found at 800 feet and lower, that this well will produce at least 350 gpm at 900 feet pump setting. This will be accomplished with a submersible pump.

J. E. Pruley

LITHOLOGIC LOG

CINIZA REFINERY

Water Well No. 1

Material	Thickness (feet)	Depth (feet)
QUATERNARY:		
ALLUVIUM:		
Not available	100	100
Sand, pale-red (10R 4/2), very fine to medium grains; subangular to rounded; clear and frosted quartz, minor dark minerals and gypsum; weak calcareous cement	50	150
TRIASSIC:		
CHINLE FORMATION:		
Petrified Forest member:		
Mudstone, grayish-red (5R 4/2) mottled with white; minor dark minerals	10	160
Siltstone, pale-red-purple (5RP 6/2); good sorting; dark minerals and mica rare; gypsum abundant	10	170
Sandstone, grayish-red-purple (5RP 4/2) and white, very-fine to medium-grained; poorly sorted; subangular to rounded grains; frosted to clear quartz, minor to abundant dark minerals; calcareous; some mudstone, possibly caved from higher zone	20	190
Siltstone, grayish-red-purple (5RP 4/2) and white; some clay and medium to coarse sand; minor dark minerals	30	220
Mudstone, grayish-purple (5P 4/2) and white; some shaly partings; minor gypsum; noncalcareous	50	270
Mudstone, white to light-gray (N7); some gypsum; non-calcareous	10	280
Mudstone, grayish-red-purple (5RP 4/2) and light-gray (N7); minor gypsum; sandy in lower part, quartz and dark minerals; noncalcareous	20	300

	Thickness (feet)	Depth (feet)
Sandstone. grayish-red (5R4/2), very-fine- to very-coarse-grained; gravel up to 6 mm across; angular to subangular; pebbles are sandy siltstone; some clay; noncalcareous	20	320
Mudstone, grayish-red (5R 4/2); some silt and sand; minor black minerals and mica; some small gravel, probably from above; calcareous	10	330
Siltstone, grayish-red (5R 4/2); fine to coarse sand and pebbles of sandstone and siltstone common; limonite and dark minerals rare; calcareous	30	360
Siltstone, grayish-red (5R 4/2) and white; very fine to fine frosted grains of quartz sand; dark minerals common, mica rare, secondary calcite abundant	10	370
Siltstone, grayish-red (5R 4/2); limonite and dark minerals rare; gypsum abundant; calcareous	10	380
Conglomerate, grayish-red (5R 4/2) and white, very-fine to fine pebbles of siltstone and sandstone, angular to subrounded; some calcareous material	10	390
Mudstone, grayish-red (5R 4/2); slightly shaly parting; minor limonite; noncalcareous; some gravel	40	430
Mudstone, grayish-red (10R 4/2) to grayish-red-purple mottled with white; minor limonite; calcareous	10	440
Mudstone, grayish-red (10R 4/2) to grayish-red-purple; minor limonite; calcareous; very-fine to fine gravel composed of grayish-red siltstone and sandstone common, more dark minerals in gravel than in 390-400 foot interval	10	450
Mudstone, grayish-red (10R 4/2); gypsum common; calcareous	30	480
Mudstone, grayish-red (10R 4/2) to dark-reddish-brown (10R 3/4); partly sandy; quartz and dark minerals rare, gypsum abundant; calcareous	40	520
Lower Red member:		
Sandstone, light-gray (N7) to grayish-red-purple (5RP 4/2), very-fine-grained to silty; poorly sorted; abundant quartz and dark minerals, minor limonite; calcareous	50	570
Sandstone, light-gray (N7) to grayish-purple (5P 4/2), very-fine- to coarse-grained; poorly sorted; some very-fine gravel; grains are stained and frosted quartz, minor dark minerals, and siltstone; calcareous; gravel increases in lower part	30	600
Mudstone, grayish-red-purple (5RP 4/2) and white; minor gypsum; some clear to frosted quartz sands and minor dark minerals; calcareous	10	610
Not available	10	620
Mudstone, pale-reddish-brown (10R 5/4) and white; gypsum common; some sand and gravel; calcareous	20	640

(2)

	Thickness (feet)	Depth (feet)
Sandstone, light-brownish-gray (5YR 6/1) to pale-reddish-brown (10R 5/4), very-fine- to medium-grained; poorly sorted; stained and frosted quartz abundant. dark minerals common, limonite rare; non calcareous	60	700
Siltstone, pale-red (10R 6/2), well sorted; minor sand; calcareous	10	710
Shinarump member:		
Mudstone, grayish-red (10R 4/2) and mottled white; angular to subangular sand and gravel common; grains are chiefly light-gray sandstone, greenish-gray siltstone, and grayish-red-purple mudstone, minor limestone	10	720
Siltstone, pale-red (10R 6/2), poorly sorted; stained quartz sand common, minor dark minerals and limonite; calcareous	10	730
Moenkopi formation:		
Sandstone, pale-red (10R 6/2) to yellowish-gray (5Y 8/1), medium-to very-fine-grained and silty; poorly sorted; chiefly clear quartz, minor stained quartz and dark minerals, mica rare; calcareous; some limestone and mudstone pebbles.	10	740
Sandstone, silty, grayish-orange-pink (5YR 7/2), fine-grained; well sorted; clear quartz, minor dark minerals and limonite; weak calcareous cement	10	750
Siltstone, grayish-red-purple (5RP 6/2); well sorted; minor dark minerals; strongly calcareous	5	755
Mudstone, grayish-red-purple (5RP 6/2), grayish-red (10R 4/2), and light-gray (N7); minor dark minerals and limonite; noncalcareous	25	780
Mudstone, light-gray (N7) to grayish-red-purple (5RP 4/2) light color caused by leaching; some sand and very-fine to fine gravel; curved partings prominent; dark minerals common; noncalcareous	15	795
Conglomerate, various colors, fine-to medium-grained; angular to subrounded; pebbles are chiefly medium-dark-gray (N4) cherty limestone	5	800
PERMIAN:		
Glorieta sandstone:		
Sandstone. grayish-orange-pink (5YR 7/2), very-fine- to fine-grained; medium sorting; subrounded to rounded; clear quartz, minor dark minerals and limonite; strong calcareous cement	105	905
Sandstone, grayish-orange-pink (10R 8/2) and yellowish-gray (5Y 8/1), very-fine- to fine-grained; some silt; minor dark minerals, limonite common, highly calcareous	5	910

	Thickness (feet)	Depth (feet)
YESO FORMATION:		
Upper member:		
Mudstone, grayish-red (10R 4/2), grayish-red-purple (5RP 4/2), and light-gray (N7); dark minerals rare, minor limonite; partly calcareous	10	920
Sandstone, grayish-orange-pink (5YR 7/2) to pale-red (10R 6/2), very-fine- to fine-grained; subrounded to rounded; minor dark minerals and limonite; calcareous	45	965
Sandstone, very-pale-orange (10YR 8/2), very-fine-grained and silty; sorting poor to medium; clear quartz; silica cement; dark minerals and limonite rare; noncalcareous	10	975
Sandstone, moderate-orange-pink (5 YR 8/4), very fine- to fine-grained and silty; poorly sorted; clear to frosted quartz, silica cement; dark minerals and limonite rare; calcareous	10	985
Sandstone, pale-red (10R 6/2) to pale-brown (5YR 5/2), very-fine- to fine-grained and silty; clear and stained quartz, dark minerals and limonite common; calcareous	10	995
Sandstone, white to pinkish-gray (5YR 8/1), very-fine-grained; subrounded; sorting good; clear quartz, silica cement, dark minerals and limonite rare; noncalcareous	20	1015
Siltstone, light-brown (5YR 6/4) to moderate-brown (5YR 4/4); has appearance of soil; some quartz sand and bands of white calcareous material; highly calcareous	10	1025
Siltstone, grayish-red (5R 4/2) and white; grains of frosted quartz and dark minerals rare; medium calcareous; some light-olive-gray (5Y 6/1), finely crystalline limestone and some dark minerals and mica in lower part; noncalcareous	15	1040
Sandstone, light-olive-gray (5Y 6/1) and yellowish-gray, very-fine-grained and silty; some medium quartz grains; poorly sorted; noncalcareous; some greenish-gray (5GY 6/1) calcareous mudstone	5	1045
Mudstone, grayish-red (5R 4/2); fine-grained quartz and dark minerals common; calcareous	5	1050
Siltstone, pale-brown (5YR 5/2); very-fine-grained, stained quartz, silica cement, minor dark minerals and limonite; calcareous	5	1055
Sandstone, very-pale-orange (10YR 8/2), very-fine- to medium-grained; poorly sorted; clear to frosted quartz; noncalcareous; some pale-brown (5YR 5/2) to dusky-yellowish-brown (10YR 2/2) limestone	5	1060
Sandstone, light-brown (5YR 6/4), very-fine- to fine-grained and silty; clear to stained quartz, minor bright- red hematite; calcareous	5	1065
Sandstone, very-pale-orange (10YR 8/2) and grayish-orange-pink (5YR 7/2), very-fine- to medium-grained; poorly sorted; subangular to subrounded; clear quartz, minor limonite; calcareous; coarser-grained and some hematite, calcite, and white limestone in lower part	30	1095

	Thickness (feet)	Depth (feet)
Cherty limestone, light- to dark-gray, dense	5	1100
Siltstone, pale-reddish brown (10R 6/2), muddy; muscovite common; pale-red in lower part	10	1110
Cherty limestone, medium- to dark-gray, dense, conchoidal fracture	5	1115
Siltstone, grayish-red (10R 4/2), well sorted; muscovite common; calcareous	10	1125
Sandstone, pale-red (10R 6/2) to pale-reddish-brown (10R 5/4), very-fine- to fine-grained; poorly sorted; angular to subangular; clear and stained quartz, minor dark minerals and limonite; noncalcareous; some light-olive-gray (5Y 6/1) to medium-dark-gray (N4), fine-grained, dense limestone in lower part	25	1150
Siltstone, pale-red (10R 6/2) to pale-brown (5YR 5/2); clear and stained quartz, dark minerals and limonite common, mica rare; calcareous	40	1190
Mudstone, greenish-gray (5GY 6/1) and pale-red (5R 6/2); quartz and dark minerals rare, muscovite common, some carbonaceous material; calcareous	10	1200
Siltstone, pale-red (10R 6/2) to grayish-red (10R 4/2); dark minerals, limonite, and muscovite common; calcareous	25	1225
Mudstone, light-greenish-gray (5G 8/1) and grayish-red (10R 4/2); dark minerals rare, muscovite common; light color caused by leaching, commonly around carbonaceous material; calcareous	10	1235

(6)

TEST DATA

Water Well No. 1

Test Pump: 10" Peerless, 12 Stages, Set at 600 Feet

Pumping Level	GPM	Remarks
465	135	Muddy - 30 Minutes
490	175	Pumped 1 Hour
550	200	Pumped 1 Hour
582	220	Pumped 2 Hours
600	240	Pumped 4 Days

Note: At a pumping rate of 240 GPM at 600 feet, the pumping level raised to 590 feet. The well recovered its artesian flow of 110 GPM in 29 minutes after pump was shut off.

Form 23-11 (5-52)

EL PASO NATURAL GAS COMPANY
SAN JUAN DIVISION LABORATORY
10-9-56
WATER ANALYSIS

Ciniza Refinery Water Well #1

Sample secured on dates indicated by Jim Druley

ANALYSIS NUMBER: 3-890	20 hr pumping	28 hr pumping	Oct. 4 11 A.M.	Oct. 4 3 P.M.	Oct. 5 2 P.M.	After 7 Days
pH	7.25	7.25	7.25	7.25	7.25	7.25
Total hardness as $CaCO_3$	604	600	630	649	636	612
Calcium as $CaCO_3$	449	433	463	482	470	445
Magnesium as $CaCO_3$	155	167	167	167	166	167
P Alkalinity as $CaCO_3$	0	0	0	0	0	0
Total Alkalinity as $CaCO_3$	208	198	199	200	198	199
Claride as Cl	18	16	20	19	15	17
Sulfate as SO_4 1	470	456	455	445	430	436
Silica as SiO_2 2	6.0	6.0	6.0			
Iron as Fe.						
Total Solids	992	923	1009	947	946	949
Sodium as Na 2	51	25	38	28	28	28

--all results expressed as parts per million --- trace is less than 0.1 ppm --

REMARKS: Water flowing out of surface pipe = 6.0 ppm SiO_2

3.Special sample = 0.9 ppm Fe.

cc: A. D. Grant
T. F. Sullivan (2)
Jim Druley (10)
file (2)

1. Hellige Turbidimeter
2. Beckman Model "B" Flame Spectrophotometer
3. Taylor Comparator

Sullivan, Sattler, Wright
Chemist

STATE OF NEW MEXICO — DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700

700 Camino de Salud, NE
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

REPORT TO CLIENT:

Giant Refining Company
Route 3 Box 7
Gallup, NM 87305

SLD No.: OR- 9802984
REQUEST ID No.: 2282489
RECEIVED AT SLD: 11/19/98
☐SLD COPY USER 55000

ED FIELD OFFICE: ☐

ED Dist #1 Office, Albuquerque
Drinking Water Bureau
4131 Montgomery Blvd., NE
Albuquerque, NM 87109

☐ N.M.E.D. DRINKING WATER BUREAU

Gilbert Salas
Drinking Water Bureau
NMED
525 Camino de los Marquez, Suite 4
Santa Fe NM 87502

SAMPLE COLLECTION: DATE: 11/17/98 TIME: 1020 BY: Clo
SAMPLING LOCATION: Well #1 (North) Source ID:1
WSS #: 60217 REPORTING UNITS: ug/L

Remarks: Sample marked as: being preserved with Hydrochloric Acid;
No targeted compounds were detected in this sample.

EPA METHOD 502.2 SDWA VOLATILES BY GAS CHROMATOGRAHY (PID/ELCD)

DATE EXTRACTED: N/A
DATE ANALYZED: 11/23/98 6 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 5
0

ANALYSIS No.: OR- 9802984
SLD BATCH No.: 446
DILUTION FACTOR: 1.00
REQUEST ID No.: 2282489

SAMPLE PRESERVATION: Sample Temperature when received: 14 Degrees C.; pH = 2

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL	MCL
71-43-2	Benzene		U	0.50	5
108-86-1	Bromobenzene		U	0.50	
74-97-5	Bromochloromethane		U	0.50	
75-27-4	Bromodichloromethane*		U	0.50	80
75-25-2	Bromoform*		U	0.50	80
24-83-9	Bromomethane		U	0.50	
78-93-3	2-Butanone (MEK)		U	5.00	
104-51-8	n-Butylbenzene		U	0.50	
135-98-8	sec-Butylbenzene		U	0.50	
98-06-6	tert-Butylbenzene		U	0.50	
1634-04-4	tert-Butyl methyl ether (MTBE)		U	5.00	
56-23-5	Carbon tetrachloride		U	0.50	5
108-90-7	Chlorobenzene (monochlorobenzene)		U	0.50	100
75-00-3	Chloroethane		U	0.50	
67-66-3	Chloroform*		U	0.50	80
74-87-3	Chloromethane		U	0.50	
95-49-8	2-Chlorotoluene		U	0.50	
106-43-4	4-Chlorotoluene		U	0.50	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	0.50	0.2
124-48-1	Dibromochloromethane*		U	0.50	80
106-93-4	1,2-Dibromoethane (Ethylene dibromide (EDB))		U	0.50	0.05
74-95-3	Dibromomethane		U	0.50	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)		U	0.50	600
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)		U	0.50	600
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)		U	0.50	75
75-71-8	Dichlorodifluoromethane		U	0.50	
75-34-3	1,1-Dichloroethane		U	0.50	
107-06-2	1,2-Dichloroethane		U	0.50	5

STATE OF NEW MEXICO

DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O Box 4700
Albuquerque, NM 87196-4700
AIR & HEAVY METALS SECTION

700 Camino de Salud, NE
(505)-841-2500
(505)-841-2553

SAMPLE COLLECTION: DATE: 11/17/98 TIME: 1022
MATRIX: wat BY: Clo
SAMPLING LOCATION: Well #1 (North) Source ID:1

SLD No.: HM-9802293
REQUEST ID No.: 2282418
RECEIVED AT SLD: 11/19/98
USER: 55000
SUBMITTER: 60
WSS #: 60217
Giant Refining Company

To: Client

Giant Refining Company
Attn: Bob Simpson
Route 3 Box 7
Gallup, NM 87305

DISTRIBUTION TO:
User
Submitter
Client
SLD Files

Practical Quantitation Limit (PQL) is defined as 10 times the Method Detection Limit (MDL)

ANALYTICAL RESULTS

Element	Result	Units	Analysis Date	Method	PQL	Dilution Factor	Sample Det. Limit.	Analyst	Data Qualifier
Antimony	<0.001	mg/L	12/3/98	200.8	0.001	1	0.001	SP	
Arsenic	0.004	mg/L	12/3/98	200.8	0.001	1	0.001	SP	
Barium	<0.1	mg/L	12/3/98	200.8	0.1	1	0.1	SP	
Beryllium	<0.001	mg/L	12/3/98	200.8	0.001	1	0.001	SP	
Cadmium	<0.001	mg/L	12/3/98	200.8	0.001	1	0.001	SP	
Chromium	<0.001	mg/L	12/3/98	200.8	0.001	1	0.001	SP	
Mercury	<0.0002	mg/L	11/24/98	245.1	0.0002	1	0.0002	JM	
Nickel	<0.01	mg/L	12/3/98	200.8	0.01	1	0.01	SP	
Selenium	<0.005	mg/L	12/7/98	200.9	0.005	1	0.005	SJO	
Thallium	<0.001	mg/L	12/3/98	200.8	0.001	1	0.001	SP	

Laboratory Comments:
Sample digested using SLD Method 41414.

Reviewed by: **Ron Amato**
Supervisor, Air & Heavy Metals Section
Printed: 12/15/98

NCB

Data Qualifier Codes and Definitions

A = Insufficient sample for analysis
B = Laboratory Reagent Blank (RB)
C = Spike recovery between 80-120%
D = Spike recovery <80% or >120%
E = Over Calibration Range
F = Matrix interference suspected
G = Inconsistent results; suggest re-sampling
H = Analyzed in duplicate
I = Analyzed in Triplicate
J = Estimated Quantity, only.
K = Holding time exceeded
L = Equals or exceeds USEPA MCL
M = Equals or exceeds USEPA Action Level
N = Insufficient sample to verify results
O = Internal Standards(ICP/MS) <60% or >125% when sample analyzed straight
R = The data are unusable
T = Total Metals
TR = Total Recoverable Metals
U = Not detected above the PQL or SDL.
UJ = Not detected. Estimated value, only.

STATE OF NEW MEXICO

DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O Box 4700
Albuquerque, NM 87196-4700

700 Camino de Salud, NE
(505) 841-2500

WATER CHEMISTRY SECTION (505)-841-2555

SAMPLE COLLECTION DATE: 11/17/98 TIME: 1021 BY: Clo

SAMPLING LOCATION: Well #1 (North) Source ID:1

SAMPLE MATRIX: wat

SLD No.:	WC- 9805350
REQUEST ID No.:	2282420
RECEIVED AT SLD:	11/19/98
USER:	55000
SUBMITTER:	60
WSS #:	60217

This Copy of Report for::

Giant Refining Company
Route 3 Box 7
Gallup, NM 87305

DISTRIBUTION TO:

Drinking Water Bureau {U}
ED Dist #1 Office, Albuquerque {S}
Giant Refining Company {C}
Water Chemistry Section - File Copy

ANALYTICAL RESULTS

Analyte	Result	Units	Analysis Date	Method	Minimum Level	Dilution Factor	Sample Det. Limit	Analyst	Data Qualifier
Free Cyanide	< 0.1	mG/L	11/20/98	SM4500-CN(F)	.1	1.	.1	Jay Finney	

Laboratory Comments:

Reviewed by Paul Ortega
Supervisor, Water Chemistry Section

Date Printed: 11-Dec-98

Data Qualifier Codes and Definitions

U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample detection limit.
J - The associated value is an estimated quantity.
R - The data are unusable. (Note: Analyte may or may not be present.
UJ - The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

STATE OF NEW MEXICO

DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O Box 4700
Albuquerque, NM 87196-4700

700 Camino de Salud, NE
(505) 841-2500

WATER CHEMISTRY SECTION (505)-841-2555

SAMPLE COLLECTION DATE: 11/17/98 TIME: 1023 BY: Clo

SAMPLING LOCATION: Well #1 (North) Source ID:1

SAMPLE MATRIX: wat

SLD No.:	WC- 9805309
REQUEST ID No.:	2282419
RECEIVED AT SLD:	11/19/98
USER:	55000
SUBMITTER:	60
WSS #:	60217

This Copy of Report for::

Giant Refining Company
Route 3 Box 7
Gallup, NM 87305

DISTRIBUTION TO:

Drinking Water Bureau {U}
ED Dist #1 Office, Albuquerque {S}
Giant Refining Company {C}
Water Chemistry Section - File Copy

ANALYTICAL RESULTS

Analyte	Result	Units	Analysis Date	Method	Minimum Level	Dilution Factor	Sample Det. Limit	Analyst	Data Qualifier
Nitrate + Nitrite	0.104	mG/L	12/7/98	353.2	.1	1.	.1	Staci Morris	

Laboratory Comments:

Reviewed by Paul Ortega
Supervisor, Water Chemistry Section

Date Printed: 16-Dec-98

Data Qualifier Codes and Definitions

U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is the sample detection limit.
J - The associated value is an estimated quantity.
R - The data are unusable. (Note: Analyte may or may not be present.
UJ - The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

RECEIVED
DEC 23 1998
GIANT REFINING CO.
CINIZA REFINERY

STATE OF NEW MEXICO — DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700

700 Camino de Salud, NE
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

WATER SUPPLY SYSTEM (wss): ☑

Giant Refining Company
Route 3 Box 7
Gallup, NM 87301

REQUEST ID No.: 130384
SLD No.: 9502024

RECEIVED AT SLD: 4/24/95
☐ SLD COPY

N.M.E.D. DRINKING WATER BUREAU: ☐

Richard Asbury
Drinking Water Bureau
NM-ED Dist. #3 Office
1001 N. Solano Drive
Las Cruces, NM 88001

ED FIELD OFFICE: ☐

ED Field Office, Gallup
306 S. 5th Street
Gallup, NM 87301

SAMPLE COLLECTION DATE: 4/24/95 TIME: 820 BY: Pre
SAMPLE LOCATION: #1 North
WSS #: 60217 REPORTING UNITS: ug/L

EPA METHOD 504 SDWA EDB and DBCP BY ECD

DATE EXTRACTED: 4/29/95 5 Days: Within EPA Holding Time
DATE ANALYZED: 4/29/95 5 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 17.5

ANALYSIS No.: OR- 9502024
SLD BATCH No.: 207A95
DILUTION FACTOR: 2.00
REQUEST ID No.: 130384

SAMPLE PRESERVATION: Sample Temperature when received: 7 Degrees C.; pH = <2
COMPOSITED WITH SLD No.(s): 9502057

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL	MCL
106-93-4	1,2-Dibromoethane (EDB)		U	0.04	0.05
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	0.04	0.2

			% RECOVERY
SURROGATE:	1,1,2,2-Tetrachloroethane spiked at 0.57 ug/L	0.58	101.8 %

Surrogate Recovery: Within Normal Range of 80 - 120%

ANALYST: Nancy DeWitt QC APPROVED BY: Roberta Hine

EPA METHOD 515.1 SDWA ACID HERBICIDES BY ECD

DATE EXTRACTED: 5/2/95 8 Days: Within EPA Holding Time
DATE ANALYZED: 5/3/95 9 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 125

ANALYSIS No.: OR- 9502024
SLD BATCH No.: 219A95
DILUTION FACTOR: 8.00
REQUEST ID No.: 130384

SAMPLE PRESERVATION: Sample Temperature when received: 7 Degrees C.; pH = <2
COMPOSITED WITH SLD No.(s): 9502057

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL	MCL
75-99-0	Dalapon		U	0.32	200
1918-00-9	Dicamba		U	0.72	Unreg.
94-75-7	2,4-D		U	2.40	70
87-86-5	Pentachlorophenol (PCP)		U	0.32	1
93-72-1	2,4,5-TP (Silvex)		U	3.20	50
88-85-7	Dinoseb		U	6.	7
1918-02-1	Picloram		U	16.	500

ANALYST: MaryLou LaCasse QC APPROVED BY: Roberta Hine

EPA METHOD 531.1 SDWA CARBAMATE PESTICIDES BY HPLC

DATE EXTRACTED: 5/10/95
DATE ANALYZED: 5/10/95 16 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 0.2

ANALYSIS No.: OR- 9502024
SLD BATCH No.: 223A95
DILUTION FACTOR: 2.00
REQUEST ID No.: 130384

SAMPLE PRESERVATION: Sample Temperature when received: 7 Degrees C.; pH = 3
COMPOSITED WITH SLD No.(s): 9502057

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL	MCL
116-06-3	Aldicarb		U	1.2	Unreg.
1646-88-4	Aldicarb Sulfone		U	0.8	Unreg.
1646-87-3	Aldicarb Sulfoxide		U	0.6	Unreg.
114-26-1	Baygon		U	1.4	Unreg.
63-25-2	Carbaryl (Sevin)		U	1.4	Unreg.
1563-66-2	Carbofuran		U	0.8	40
16655-82-6	3-Hydroxycarbofuran		U	1.4	Unreg.
2032-65-7	Methiocarb		U	1.2	Unreg.
16752-77-5	Methomyl		U	1.4	Unreg.
23135-22-0	Oxamyl		U	1.4	200

ANALYST: Arnold Bentz QC APPROVED BY: Roberta Hine

EPA METHOD 547 SDWA GLYPHOSATE BY HPLC

DATE EXTRACTED: 5/2/95
DATE ANALYZED: 5/2/95 8 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 0.025

ANALYSIS No.: OR- 9502024
SLD BATCH No.: 223A95
DILUTION FACTOR: 2.00
REQUEST ID No.: 130384

SAMPLE PRESERVATION: Sample Temperature when received: 7 Degrees C.
COMPOSITED WITH SLD No.(s): 9502057

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL	MCL
1071-83-6	Glyphosate		U	10.	700

ANALYST: Arnold Bentz QC APPROVED BY: Roberta Hine

EPA METHOD 548.1 SDWA ENDOTHALL BY GC/FID/MS

DATE EXTRACTED: 4/27/95 3 Days: Within EPA Holding Time
DATE ANALYZED: 4/29/95 5 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 40

ANALYSIS No.: OR- 9502024
SLD BATCH No.: 204A95
DILUTION FACTOR: 2.50
REQUEST ID No.: 130384

SAMPLE PRESERVATION: Sample Temperature when received: 7 Degrees C.
COMPOSITED WITH SLD No.(s): 9502057

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL	MCL
145-73-3	Endothall		U	25.	100

ANALYST: MaryLou LaCasse QC APPROVED BY: Roberta Hine

EPA METHOD 549.1 SDWA DIQUAT BY HPLC/UV

DATE EXTRACTED: 4/28/95 4 Days: Within EPA Holding Time
DATE ANALYZED: 5/4/95 10 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 125

ANALYSIS No.: OR- 9502024
SLD BATCH No.: 208A95
DILUTION FACTOR: 2.00
REQUEST ID No.: 130384

SAMPLE PRESERVATION: Sample Temperature when received: 7 Degrees C.; pH = <2
COMPOSITED WITH SLD No.(s): 9502057

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL	MCL

1071-83-6	Diquat		U	0.80	20

ANALYST: Tim Chapman QC APPROVED BY: Roberta Hine

EPA METHOD 525.1 SDWA SOC's BY GC/MS

DATE EXTRACTED: 4/27/95 3 Days: Within EPA Holding Time
DATE ANALYZED: 5/1/95 7 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 500

ANALYSIS No.: OR- 9502024
SLD BATCH No.: 209
DILUTION FACTOR: 2.00
REQUEST ID No.: 130384

SAMPLE PRESERVATION: Sample Temperature when received: 7 Degrees C.; pH = <2
COMPOSITED WITH SLD No.(s): 9502057

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL	MCL
15972-60-8	Alachlor		U	1.00	2
309-00-2	Aldrin		U	1.00	Unreg.
11104-28-2	Aroclor 1221		U	1.00	Unreg.
11141-16-5	Aroclor 1232		U	1.00	Unreg.
53469-21-9	Aroclor 1242/1016		U	1.00	Unreg.
12672-29-6	Aroclor 1248		U	1.00	Unreg.
11097-69-1	Aroclor 1254		U	0.04	Unreg.
11096-82-5	Aroclor 1260		U	0.06	Unreg.
1912-24-9	Atrazine		U	0.02	3
50-32-8	Benzo[a]pyrene		U	0.02	0.2
28184-66-9	Butachlor		U	0.40	Unreg.
57-74-9	Chlordane (Total)		U	0.04	2
60-57-1	Dieldren		U	0.20	Unreg.
4337-65-9	Di(2-ethylhexyl)adipate		U	0.26	400
117-81-7	Di(2-ethylhexyl)phthalate		U	0.04	6
72-20-8	Endrin		U	0.02	2
76-44-8	Heptachlor		U	0.08	0.4
1024-57-3	Heptachlor epoxide		U	0.26	0.2
118-74-1	Hexachlorobenzene		U	0.02	1
77-47-4	Hexachlorocyclopentadiene		U	0.08	50
58-89-9	Lindane		U	0.04	0.2
72-43-5	Methoxychlor		U	0.02	40
21087-64-9	Metribuzin		U	0.60	Unreg.
51218-45-2	Metolachlor		U	0.20	Unreg.
1918-16-7	Propachlor		U	0.60	Unreg.
122-34-9	Simazine		U	0.20	4
8001-35-2	Toxaphene		U	2.00	3

ANALYST: Tim Chapman QC APPROVED BY: Roberta Hine

DEFINITIONS

**	**Concentration Exceeds EPA's allowable Maximum Contamination Level**
CAS#	Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
CONC.	Concentration (ug/L) of analyte actually detected in the sample
QUAL	*Qualifier of analytical results as follows:* B Analyte was detected in laboratory blank J Analyte was detected at a level below which an accurate quanitation can be given (~5 * SDL) U No analyte was detected above the Sample Detection Limit.
MCL	Maximum Contamination Level Allowed by EPA for regulated analytes
SDL	Sample Detection Limit - The lowest concentration which can be differentiated from Zero with 99% confidence taking sample size (compositing) into account.
ug/L	Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

789

SDWA SYNTHETIC ORGANIC CONTAMINANT (SOC) ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

1 SLD No. OR9502074

Date Received: 4/25/95

2 User Code #: 550000

3 Request ID No.:

Request SDWA-Org. ID No. 130384-J

4 Priority Code #: 3 ["1" or "2" call ED-SLD Coordinator]

5 Facility Name: Giant Refinery

6 County: McKinley

7 City: Gallup

8 State: NM

9 Sample Location: #1 North

10 Collected By: Dave Pacell On: 95/04/24 At: 0810 hrs.
First Last Phone# 325-9851 Date: (YY/MM/DD) Time: 24 hr. clock: 3:00 pm = 1500 hrs.

11 Codes: 01 Submitter; 602-17 WSS #; WS0313 Organization

12 Latitude (DDMMSS) 352925

Longitude (DDDMMSS) 1082615

2 Digit ID (if needed)

13 Report To: Name Lynn Shelton

Address Giant Refinery
Rte 3 Box 7

City, State Zip Gallup NM 87305

14 Phone #: 722-3833

15 Sampling Information:
Sample Purpose:
- [X] Compliance
- [ ] NMED Monitoring
- [ ] Confirmation
- [ ] Special

- [X] Grab
- [ ] Composite _____ [Composite Time Period]
- [ ] Chain of Custody

16 Field Data: pH: _____, Conductivity: _____ umhos/cm @ Temperature: _____ °C, Chlorine Residual: _____ mg/l, Flow: _____

17 Sample Source:
- [ ] Entry Point to Distribution
- [X] Well; Depth: _____
- [ ] Spring
- [ ] Distribution
- [ ] Other: _____

18 Field Remarks: Tap at well

19 Sample Type: [X] Water
- [X] Unchlorinated
- [ ] Chlorinated

Approximate Sulfate Concentration - _____ mg/l

20 Preservation:
- [X] Preserved as indicated on back of form.
- [ ] Other: _____

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required and type of Compositing Requested.

- [ ] Composite Within this System Only
- [ ] Do Not Composite
- [X] Composite With Other Systems

SAFE DRINKING WATER ACT SYNTHETIC ORGANIC CONTAMINANT (SOC) ANALYSES

- [ ] All of the Safe Drinking Water Act Synthetic Organic Contaminant (SOC) Screens Listed Below

	SLD No.	EPA No.	Analysis	SLD Lab Number		SLD No.	EPA No.	Analysis	SLD Lab Number
[ ]	775	504	EDB & DBCP	130384 A & B	[ ]	781	547	Glyphosate	130384 E
[ ]	760	505	PCBs & Endrin	N/A	[ ]	702	548.1	Endothall	F
[ ]	758	515.1	Acid Herbicides	130384 C	[ ]	783	549.1	Diquat	G
[ ]	772	531.1	Carbamate Pesticides	↓ D	[ ]	700	525.1	Semivolatile Pesticides GC/MS	↓ H & I

Remarks:

74C 0845

STATE OF NEW MEXICO DEPARTMENT OF HEALTH
SCIENTIFIC LABORATORY DIVISION
P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

June 17, 1994

Request ID No. 055380

ANALYTICAL REPORT
SLD Accession No. OR-94-1538

Distribution
(x) User 55000
(x) Submitter 69
(X) Client
(x) SLD Files

To: Len Shelton
Giant Refining Company
Route 3 Box 7
Gallup, NM 87301

From: Organic Chemistry Section
Scientific Laboratory Division
700 Camino de Salud, NE
P.O. Box 4700
Albuquerque, NM 87196-4700

Re: **A water,Purgeable sample submitted to this laboratory on May 18, 1994**

User:
Richard Asbury
Drinking Water Bureau
NM-ED Dist. #3 Office
1001 N. Solano Drive
Las Cruces, NM 88001

Submitter:
Joe Winkler
ED Field Office, Gallup
306 S. 5th Street
Gallup, NM 87301-6424

DEMOGRAPHIC DATA

COLLECTION
On: 17-May-94 *By:* Win . . .
At: 10:55 hrs. *In/Near:* Gallup

LOCATION
WSS #: 602-17; Well No1
Giant Refining Company

ANALYTICAL RESULTS: SDWA VOC-I [EPA-502.2] Screen {774}

Parameter	Value	Note	PQL	Units
SDWA VOC's-I (63)	0.00	N	0.50	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:
PQL = Practical Quantitation Level.
A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.
Evidentiary Seals: Not Sealed [X]; Intact: No [ ], Yes [ ] & Broken By: _____ Date: _____

Laboratory Remarks:

SAFE DRINKING WATER ACT
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A
Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Water Lab Sample ID: OR-94-1638
Sample wt/vol: 5.0 (g/mL) mL SLD Batch No: 236
Level: (low/med) Low Date Received: 05/18/94

(Continued on page 2.)

% Moisture: not dec. N/A dec. N/A
Extraction: (SepF/Cont/Sonc) N/A
GPC Cleanup: (Y/N) No pH: N/D

Date Extracted: N/A
Date Analyzed: 05/28/94
Dilution Factor: 1
CONCENTRATION UNITS:
(ug/L or ug/Kg): ug/L

This sample was analyzed for the following compounds using EPA Method 502.2

CAS NO.	COMPOUND	CONC.	Q	POL
71-43-2	Benzene		U	0.5
108-86-1	Bromobenzene		U	0.5
74-97-5	Bromochloromethane		U	0.5
75-27-4	Bromodichloromethane		U	0.5
75-25-2	Bromoform		U	0.5
24-83-9	Bromomethane		U	0.5
78-93-3	2-Butanone (MEK)		U	5.0
104-51-8	n-Butylbenzene		U	0.5
135-98-8	sec-Butylbenzene		U	0.5
98-06-6	tert-Butylbenzene		U	0.5
1634-04-4	tert-Butyl methyl ether (MTBE)		U	5.0
56-23-5	Carbon tetrachloride		U	0.5
108-90-7	Chlorobenzene		U	0.5
75-00-3	Chloroethane		U	2.5
67-66-3	Chloroform		U	0.5
74-87-3	Chloromethane		U	0.5
95-49-8	2-Chlorotoluene		U	0.5
106-43-4	4-Chlorotoluene		U	0.5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.5
124-48-1	Dibromochloromethane		U	0.5
106-93-4	1,2-Dibromoethane		U	0.5
74-95-3	Dibromomethane		U	0.5
95-50-1	1,2-Dichlorobenzene		U	0.5
541-73-1	1,3-Dichlorobenzene		U	0.5
106-46-7	1,4-Dichlorobenzene		U	0.5
75-71-8	Dichlorodifluoromethane		U	0.5
75-34-3	1,1-Dichloroethane		U	0.5
107-06-2	1,2-Dichloroethane		U	0.5
75-35-4	1,1-Dichloroethene		U	0.5
156-59-4	cis-1,2-Dichloroethene		U	0.5
156-60-5	trans-1,2-Dichloroethene		U	0.5
78-87-5	1,2-Dichloropropane		U	0.5
142-28-9	1,3-Dichloropropane		U	0.5

(Continued on page 3.)

590-20-7	2,2-Dichloropropane		U	0.5
563-58-6	1,1-Dichloropropene		U	0.5
1006-01-5	cis-1,3-Dichloropropene		U	0.5
1006-02-6	trans-1,3-Dichloropropene		U	0.5
100-41-4	Ethylbenzene		U	0.5
87-68-3	Hexachlorobutadiene		U	0.5
98-82-8	Isopropylbenzene		U	0.5
99-87-6	4-Isopropyltoluene		U	0.5
75-09-2	Methylene chloride		U	2.5
91-20-3	Naphthalene		U	0.5
103-65-1	Propylbenzene		U	0.5
100-42-5	Styrene		U	0.5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.5
127-18-4	Tetrachloroethene		U	0.5
109-99-9	Tetrahydrofuran (THF)		U	5.0
108-88-3	Toluene		U	0.5
87-61-5	1,2,3-Trichlorobenzene		U	0.5
120-82-1	1,2,4-Trichlorobenzene		U	0.5
71-55-6	1,1,1-Trichloroethane		U	0.5
79-00-5	1,1,2-Trichloroethane		U	0.5
79-01-6	Trichloroethene		U	0.5
75-69-4	Trichlorofluoromethane		U	0.5
96-18-4	1,2,3-Trichloropropane		U	0.5
95-63-6	1,2,4-Trimethylbenzene		U	0.5
108-67-8	1,3,5-Trimethylbenzene		U	0.5
75-01-4	Vinyl chloride		U	2.0
95-47-6	o-Xylene		U	0.5
N/A	p- & m-Xylene		U	0.5
N/A	Total Xylenes		U	1.0

* Q = Qualifier Definitions:
CONC = CONCENTRATION DETERMINED
PQL = Practical Quantitation Limit (Approximately 5 times MDL)
B - Indicates compound was detected in the Lab Blank as well as in the sample.
D - Indicates value taken from a secondary (diluted) sample analysis.
E - Indicates compound concentration exceeded the range of the standard curve.
J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the PQL listed.

(Continued on page 4.)

N - Indicates that more than one peak was used for quantitation.
U - Indicates compound was analyzed for, but not detected at a concentration greater than the concentration listed.

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
No Compounds Detected	

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION	% RECOVERY
Bromofluorobenzene (PID Surr)	10.0 ppb	101.0
Bromofluorobenzene (HALL Surr)	10.0 ppb	113.0

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
Acetone	10.0 ppb	123.0

Analyst: Nancy DeWitt
Analyst, Organic Chemistry

Reviewed By: Richard F. Meyerhein 06/02/94
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. OR94 1538 C

Date Received: 5-18-94

Request ID No. 055380-C

1 User Code #: 55000

3 Request ID No.:

4 Priority Code #: 3 [If "1" or "2", call ED-SLD Coordinator]

5 Facility Name: GIANT REFINING

6 County: MCKINLEY

7 City: GALLUP

8 State: N.M.

9 Sample Location: WELL NO.1 WELL NO.1

10 Collected By: JOE WINKLER (First / Last) 722-4160 On: 94/05/17 (Date: YY/MM/DD) At: 1015 hrs. (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: 065 (Submitter) 602-17 (WSS #) WS0100 (Organization)

12 Latitude (DDMMSS) ° ' "
Longitude (DDDMMSS) ° ' "
2 Digit ID (if needed)

13 Report To: Name: LEN SHELTON

14 Phone #: 722-3833

Address: GIANT REFINING
ROUTE 3, BOX 7

City, State Zip: GALLUP, NM 87305

15 Sampling Information:
Sample Purpose: [X] Compliance [ ] NMED Monitoring [ ] Confirmation [ ] Special
[X] Grab [ ] Composite _____ (Composite Time Period) [ ] Flow Proportioned [ ] Equal Aliquot [ ] Sample Split w/Permittee [ ] Chain of Custody

16 Field Data: pH: _____ , Conductivity: _____ umhos/cm @ Temperature: _____ °C, Chlorine Residual: _____ mg/l, Flow: _____

17 Sample Source:
[ ] Stream [X] Entry Point to Distribution
[ ] Lake [ ] Well; Depth: 1000 ft.
[ ] Drain [ ] Spring
[ ] Pool [ ] Distribution
[ ] WWTP [ ] Other: _____

18 Field Remarks: SAMPLE TAKEN AT WELL NO.2

19 Sample Type: [X] Water [ ] Wastewater { [ ] Unchlorinated [X] Chlorinated
[ ] Soil, [ ] Food, [ ] Other _____
This form accompanies a single sample consisting of:
2 - septum vial(s) (volume = 40 ml ea.)
_____ - glass jug(s) (volume = _____ ml ea.)
_____ - _____ (volume = _____)

20 Preservation:
[ ] NP No Preservation; Sample stored at room temperature
[ ] P-Ice Sample stored in an ice bath (Not Frozen)
[ ] P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual
[X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
[ ] P-$HgCl_2$ Sample Preserved with 20 mg/l Mercuric Chloride
[ ] Other _____

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required, and note below whenever highly contaminated samples are suspected.

Volatile Screens:

- [ ] (753) Aliphatic Headspace (Qualitative Screen)
- [ ] (754) Aromatic & Halogenated Purgeables (EPA 601/2)
- [ ] (765) Mass Spectrometer Purgeables (EPA 624)
- [ ] (766) SDWA Total Trihalomethanes (EPA 501.1)
- [X] (774) SDWA VOC's I [21 REGULATED +] (EPA 502.2)
- [ ] (775) SDWA VOC's II [EDB & DBCP] (EPA 504)
- [ ] (790) Composite Sample for Analysis No. _____

Other Specific Compounds or Classes:

- [ ] ( ) _____
- [ ] ( ) _____

Semivolatile Screens:

- [ ] (755) Base/Neutral Extractables (EPA 625)
- [ ] (756) Base/Neutral/Acid Extractables (EPA 8270)
- [ ] (772) Carbamate Pesticides (EPA 531.1)
- [ ] (758) Herbicides, Chlorophenoxy Acid (EPA 515.1)
- [ ] (759) Herbicides, Triazine (EPA 507)
- [ ] (751) Hydrocarbon Fuel Screen (EPA M-8015)
- [ ] (760) Organochlorine Pesticides (EPA 505)
- [ ] (761) Organophosphate Pesticides (EPA 507)
- [ ] (767) Polychlorinated Biphenyls (PCB's) in Oil
- [ ] (762) SDWA Synthetic Org. Cmpds. (SLD 758/760)
- [ ] (782) Total Petroleum Hydrocarbons (EPA 418.1)

Remarks:

Please RETAIN A COPY of your completed form

History of Drilling Water Well No. 2

North Well

Well No. 2 was spudded in on September 24, 1956, by a Franks 5,000 Rotary Rig owned by The Barron Drilling Company of Farmington, New Mexico. A 12-3/4" bit was used to a depth of 227 feet, the depth at which the alluvial fill was depleted and no further surface water was encountered. The hole was then reamed with a 20" reamer back to the 227 foot level and 16" O.D. casing was set and cemented by The Halliburton Company. It should be noted that the sand stratum in this well carried much deeper than in Well No. 1. A total of 200 sacks of cement was used to cement the 227 feet of surface casing.

The hole was reduced to a 15" hole, using a 12-3/4" bit after the cement had set for 24 hours. The drilling was moderately easy until a hard formation was hit at 312 feet and continued through the stratum at 390 feet. The conglomerate at 390 feet did not contain water although it had all the necessary characteristics. From 400 feet to 580 feet, the stratum was very hard and slow drilling - Mudstone, which contained considerable gypsum and gravel mineral particles. In this formation, there was some mud dilution as it was necessary to bring the mud weight up to 11.0 pounds. The second water pay was hit in the aquifer of sandstone from 580 feet to 620 feet. This was not, however, the Glorietta formation, but does produce some water pay. Drilling became very slow and one more aquifer was hit in the lower red member at 630 feet which produced a small quantity of water. The first indication of the Glorietta was struck at 725 feet but this aquifer is only 15 feet in thickness. However, it seemed to yield considerable water as mud dilution became a problem. It was now necessary to go to 12 pound mud to hold the drive from this level. The main Glorietta formation was struck at 792 feet and carried through to 885 feet.

At 950 feet, a crevice was struck and circulation was lost completely. It was necessary to add over 600 sacks of lost-circulation material before the crevice could be plugged. After circulation was restored, the crevice was cemented by The Halliburton Company from 945 feet to 965 feet and allowed to set for 24 hours. Drilling was then resumed and the hole drilled through the cement with no further trouble. The Yeso formation played out at 1,070 feet and the drilling stopped.

The 12" casing was run and, due to caving, was stuck at 965 feet, the point at which the crevice cementing was terminated. It was then necessary to clear the hole with a 9-3/4" bit and run a second string of pipe. The 8-7/8" O.D. casing was set at 950 feet to 1,075 feet and a cement plug at the bottom.

The well was shot perforated by Schlumberger, six (6) shots to the foot, alternating six shots of jets and six shots of bullets as indicated on the well graph. After perforating, the well flowed 270 gpm artesian and developed 140 pounds shut-in pressure.

Smith Machinery Company ran the pumping test with a 10" turbine set at 600 feet. The results of which indicated that the well will produce 370 gpm steady at 600 feet which is 100 to 150 feet above the main producing aquifer in this well. With submersible pump set at 900 feet, this well should produce at least 500 gpm with no detrimental effects on the well.

J. E. Druley
January 14, 1957

LITHOLOGIC LOG

CINIZA REFINERY

Water Well No. 2

Material	Thickness (feet)	Depth (feet)
QUATERNARY:		
ALLUVIUM:		
Clay and Sand	74	74
Sand, pale-red (10R 4/2), very fine to medium grains; subangular to rounded; clear and frosted quartz, minor dark minerals and gypsum; weak calcareous cement	116	190
TRIASSIC:		
CHINLE FORMATION:		
Petrified Forest member:		
Mudstone, grayish-red (5R 4/2) mottled with white; minor dark minerals	10	200
Sandstone, grayish-red-purple (5RP 4/2) and white, very-fine to medium-grained; poorly sorted; subangular to rounded grains; frosted to clear quartz, minor to abundant dark minerals; calcareous; some mudstone, possibly caved from higher zone.	30	230
Siltstone, grayish-red-purple (5RP 4/2) and white; some clay and medium to coarse sand; minor dark minerals	30	260
Mudstone, grayish-purple (5RP 4/2) and white; some shaly partings; minor gypsum; noncalcareous Mudstone, white to light-gray (N7); some gypsum; non-calcareous Mudstone, grayish-red-purple (5RP 4/2) and light-gray (N7); minor gypsum; sandy in lower part, quartz and dark minerals; noncalcareous	50	310

	Thickness (feet)	Depth (feet)
Sandstone, grayish-red (5R 4/2), very-fine to very-coarse grained; gravel up to 6mm across; angular to subangular; pebbles are sandy siltstone; some clay; noncalcareous - small gravel scattered.	30	340
Siltstone, grayish-red (5R 4/2); fine to coarse sand and pebbles of sandstone and siltstone common; limonite and dark minerals rare; calcareous. Siltstone, grayish-red (5R 4/2) and white; very fine to fine frosted grains of quartz sand; dark minerals common, mica rare, secondary calcite abundant. Siltstone, grayish-red (5R 4/2); limonite and dark minerals rare; gypsum abundant; calcareous	50	390
Conglomerate, grayish-red (5R 4/2) and white, very-fine to fine pebbles of siltstone and sandstone, angular to subrounded; some calcareous material	10	400
Mudstone, grayish-red (5R 4/2); slightly shaly parting; minor limonite; noncalcareous; some gravel Mudstone, grayish-red (10R 4/2) to grayish-red-purple mottled with white; minor limonite; calcareous Mudstone, grayish-red (10R 4/2) to grayish-red-purple; minor limonite; calcareous; very-fine to fine gravel composed of grayish-red siltstone and sandstone common, more dark minerals in gravel than in 390-400 foot interval Mudstone, grayish-red (10R 4/2); gypsum common; calcareous Mudstone, grayish-red (10R 4/2) to dark-reddish-brown (10R 3/4); partly sandy; quartz and dark minerals rare, gypsum abundant; calcareous	178	578
Lower Red member:		
Sandstone, light-gray (N7) to grayish-red-purple (5RP 4/2), very-fine grained to silty; poorly sorted; abundant quartz and dark minerals, minor limonite; calcareous		
Sandstone, light-gray (N7) to grayish-purple (5RP 4/2), very-fine grained to coarse grained; poorly sorted; some very-fine gravel; grains are stained and frosted quartz, minor dark minerals, and siltstone; calcareous; gravel increases in lower part	43	621
Mudstone, grayish-red-purple (5RP 4/2) and white; minor gypsum; some clear to frosted quartz sands and minor dark minerals; calcareous Mudstone, pale-reddish-brown (10R 5/4) and white; gypsum common; some sand and gravel; calcareous	24	645
Sandstone, light-brownish-gray (5YR 6/1) to pale-reddish-brown (10R 5/4), very-fine to medium-grained; poorly sorted; stained and frosted quartz abundant, dark minerals common, limonite rare; noncalcareous	26	671

	Thickness (feet)	Depth (feet)
Siltstone, pale-red (10R 6/2), well sorted; minor sand; calcareous	43	714
Shinarump member:		
Mudstone, grayish-red (10R 4/2) and mottled white; angular to subangular sand and gravel common; grains are chiefly light-gray sandstone, greenish-gray siltstone, and grayish-red-purple mudstone, minor limestone	5	719
Siltstone, pale-red (10R 6/2), poorly sorted; stained quartz sand common, minor dark minerals and limonite; calcareous	5	724
Moenkopi formation:		
Sandstone, pale-red (10R 6/2) to yellowish-gray (5Y 8/1), medium to very-fine grained and silty; poorly sorted; chiefly clear quartz, minor stained quartz and dark minerals, mica rare; calcareous; some limestone and mudstone pebbles.		
Sandstone, silty, grayish-orange-pink (5YR 7/2), fine grained; well sorted; clear quartz, minor dark minerals and limonite; weak calcareous cement	15	739
Siltstone, grayish-red-purple (5RP 6/2); well sorted; minor dark minerals; strongly calcareous	11	750
Mudstone, grayish-red-purple (5RP 6/2), grayish-red (10R 4/2), and light-gray (N7); minor dark minerals and limonite; noncalcareous		
Mudstone, light-gray (N7) to grayish-red-purple (5RP 4/2), light color caused by leaching; some sand and very-fine to fine gravel; curved partings prominent; dark minerals common; noncalcareous	32	782
Conglomerate, various colors, fine to medium grained; angular to subrounded; pebbles are chiefly medium-dark-gray (N4) cherty limestone	10	792
PERMIAN:		
GLORIETTA FORMATION:		
Sandstone, grayish-orange-pink (5YR 7/2), very-fine to fine grained; medium sorting; subrounded to rounded; clear quartz, minor dark minerals and limonite; strong calcareous cement		
Sandstone, grayish-orange-pink (10R 8/2_ and yellowish-gray (5Y 8/1), very-fine to fine grained; some silt; minor dark minerals, limonite common, highly calcareous	93	885

	Thickness (feet)	Depth (feet)
YESO FORMATION:		
Upper member:		
Mudstone, grayish-red (10R 4/2); grayish-red-purple (5RP 4/2), and light-gray (N7); dark minerals rare, minor limonite; partly calcareous	10	895
Sandstone, grayish-orange-pink (5YR 7/2) to pale-red (10R 6/2), very-fine to fine grained; subrounded to rounded; minor dark minerals and limonite; calcareous Sandstone, very-pale-orange (10YR 8/2), very-fine grained and silty; sorting poor to medium; clear quartz; silica cement; dark minerals and limonite rare; noncalcareous	55	950
Crevice	10	960
Sandstone, moderate-orange-pink (5YR 8/4), very-fine to fine grained and silty; poorly sorted; clear to frosted quartz, silica cement; dark minerals and limonite rare; calcareous Sandstone, pale-red (10R 6/2) to pale-brown (5YR 5/2), very-fine to fine grained and silty; clear and stained quartz, dark minerals and limonite common; calcareous Sandstone, white to pinkish-gray (5YR 8/1), very-fine grained; subrounded; sorting good; clear quartz, silica cement, dark minerals and limonite rare; noncalcareous	80	1,040
Siltstone, light-brown (5YR 6/4) to moderate-brown (5YR 4/4); has appearance of soil; some quartz sand and bands of white calcareous material; highly calcareous Siltstone, grayish-red (5R 4/2) and white; grains of frosted quartz and dark minerals rare; medium calcareous; some light-olive-gray (5Y 6/1), finely crystalline limestone and some dark minerals and mica in lower part; noncalcareous	10	1,050
Sandstone, light-olive-gray (5Y 6/1) and yellowish-gray very-fine grained and silty; some medium quartz grains; poorly sorted; noncalcareous; some greenish-gray (5GY 6/1) calcareous mudstone	20	1,070
Mudstone, grayish-red (5R 4/2); fine grained quartz and dark minerals common; calcareous	5	1,075

EL PASO NATURAL GAS PRODUCTS COMPANY

Water Analysis

Water Well No. 2 — Ciniza Refinery

Sampled: November 15, 1956 by Jim Druley

Total Hardness as $CaCO_3$	625
Calcium as $CaCO_3$	460
Magnesium as $CaCO_3$	155
P - Alkalinity	0
Total Alkalinity as $CaCO_3$	168
Chlorides as Cl	16
Sulfate as SO_4	440
Silica as SiO_2	6
Total Iron as Fe	0.9
Color No.	N.L.
pH	7.2

All results expressed as parts per million.

J.E.D.
1/14/57

TEST DATA

Water Well No. 2

Test Pump: 10" Peerless, 12 Stages, Set at 600 Feet

Pumping Level - Feet	GPM	Remarks
285	220	Muddy - 1 Hour
365	260	Pumped - 1 Hour
465	290	Pumped - 1 Hour
510	330	Pumped - 1 Hour
600	370	Pumped - 4 Days

Note: At a pumping rate of 370 GPM at 600 feet, the pumping level raised to 550 feet after four days pumping. The well recovered it's artesian flow of 270 GPM in 14 minutes after pump was shut off. Shut-in pressure on this well is 140 psig, the same as Well No. 1.

J.E.D.
1/14/57

History of Drilling Water Well No. 2

North Well

Well No. 2 was spudded in on September 24, 1956, by a Franks 5,000 Rotary Rig owned by The Barron Drilling Company of Farmington, New Mexico. A 12-3/4" bit was used to a depth of 227 feet, the depth at which the alluvial fill was depleted and no further surface water was encountered. The hole was then reamed with a 20" reamer back to the 227 foot level and 16" O.D. casing was set and cemented by The Halliburton Company. It should be noted that the sand stratum in this well carried much deeper than in Well No. 1. A total of 200 sacks of cement was used to cement the 227 feet of surface casing.

The hole was reduced to a 15" hole, using a 12-3/4" bit after the cement had set for 24 hours. The drilling was moderately easy until a hard formation was hit at 312 feet and continued through the stratum at 390 feet. The conglomerate at 390 feet did not contain water although it had all the necessary characteristics. From 400 feet to 580 feet, the stratum was very hard and slow drilling - Mudstone, which contained considerable gypsum and gravel mineral particles. In this formation, there was some mud dilution as it was necessary to bring the mud weight up to 11.0 pounds. The second water pay was hit in the aquifer of sandstone from 580 feet to 620 feet. This was not, however, the Glorietta formation, but does produce some water pay. Drilling became very slow and one more aquifer was hit in the lower red member at 630 feet which produced a small quantity of water. The first indication of the Glorietta was struck at 725 feet but this aquifer was only 15 feet in thickness. However, it seemed to yield considerable water as mud dilution became a problem. It was now necessary to go to 12 pound mud to hold the drive from this level. The main Glorietta formation was struck at 792 feet and carried through to 885 feet.

At 950 feet, a crevice was struck and circulation was lost completely. It was necessary to add over 600 sacks of lost-circulation material before the crevice could be plugged. After circulation was restored, the crevice was cemented by The Halliburton Company from 945 feet to 965 feet and allowed to set for 24 hours. Drilling was then resumed and the hole drilled through the cement with no further trouble. The Yeso formation played out at 1,070 feet and the drilling stopped.

The 12" casing was run and, due to caving, was stuck at 965 feet, the point at which the crevice cementing was terminated. It was then necessary to clear the hole with a 9-3/4" bit and run a second string of pipe. The 8-7/8" O.D. casing was set at 950 feet to 1,075 feet and a cement plug at the bottom.

The well was shot perforated by Schlumberger, six (6) shots to the foot, alternating six shots of jets and six shots of bullets as indicated on the well graph. After perforating, the well flowed 270 gpm artesian and developed 140 pounds shut-in pressure.

Smith Machinery Company ran the pumping test with a 10" turbine set at 600 feet. The results of which indicated that the well will produce 370 gpm steady at 600 feet which is 100 to 150 feet above the main producing aquifer in this well. With a submersible pump set at 900 feet, this well should produce at least 500 gpm with no detrimental effects on the well.

J. E. Druley
January 14, 1957

LITHOLOGIC LOG

CINIZA REFINERY

Water Well No. 2

Material	Thickness (feet)	Depth (feet)
QUATERNARY:		
ALLUVIUM:		
Clay and Sand	74	74
Sand, pale-red (10R 4/2), very fine to medium grains; subangular to rounded; clear and frosted quartz, minor dark minerals and gypsum; weak calcareous cement	116	190
TRIASSIC:		
CHINLE FORMATION:		
Petrified Forest member:		
Mudstone, grayish-red (5R 4/2) mottled with white; minor dark minerals	10	200
Sandstone, grayish-red-purple (5RP 4/2) and white, very-fine to medium-grained; poorly sorted; subangular to rounded grains; frosted to clear quartz, minor to abundant dark minerals; calcareous; some mudstone, possibly caved from higher zone.	30	230
Siltstone, grayish-red-purple (5RP 4/2) and white; some clay and medium to coarse sand; minor dark minerals	30	260
Mudstone, grayish-purple (5RP 4/2) and white; some shaly partings; minor gypsum; noncalcareous Mudstone, white to light-gray (N7); some gypsum; non-calcareous Mudstone, grayish-red-purple (5RP 4/2) and light-gray (N7); minor gypsum; sandy in lower part, quartz and dark minerals; noncalcareous	50	310

	Thickness (feet)	Depth (feet)
Sandstone, grayish-red (5R 4/2), very-fine to very-coarse grained; gravel up to 6mm across; angular to subangular; pebbles are sandy siltstone; some clay; noncalcareous - small gravel scattered.	30	340
Siltstone, grayish-red (5R 4/2); fine to coarse sand and pebbles of sandstone and siltstone common; limonite and dark minerals rare; calcareous.		
Siltstone, grayish-red (5R 4/2) and white; very fine to fine frosted grains of quartz sand; dark minerals common, mica rare, secondary calcite abundant.		
Siltstone, grayish-red (5R 4/2); limonite and dark minerals rare; gypsum abundant; calcareous	50	390
Conglomerate, grayish-red (5R 4/2) and white, very-fine to fine pebbles of siltstone and sandstone, angular to subrounded; some calcareous material	10	400
Mudstone, grayish-red (5R 4/2); slightly shaly parting; minor limonite; noncalcareous; some gravel		
Mudstone, grayish-red (10R 4/2) to grayish-red-purple mottled with white; minor limonite; calcareous		
Mudstone, grayish-red (10R 4/2) to grayish-red-purple; minor limonite; calcareous; very-fine to fine gravel composed of grayish-red siltstone and sandstone common, more dark minerals in gravel than in 390-400 foot interval		
Mudstone, grayish-red (10R 4/2); gypsum common; calcareous		
Mudstone, grayish-red (10R 4/2) to dark-reddish-brown (10R 3/4); partly sandy; quartz and dark minerals rare, gypsum abundant; calcareous	178	578
Lower Red member:		
Sandstone, light-gray (N7) to grayish-red-purple (5RP 4/2), very-fine grained to silty; poorly sorted; abundant quartz and dark minerals, minor limonite; calcareous		
Sandstone, light-gray (N7) to grayish-purple (5RP 4/2), very-fine grained to coarse grained; poorly sorted; some very-fine gravel; grains are stained and frosted quartz, minor dark minerals, and siltstone; calcareous; gravel increases in lower part	43	621
Mudstone, grayish-red-purple (5RP 4/2) and white; minor gypsum; some clear to frosted quartz sands and minor dark minerals; calcareous		
Mudstone, pale-reddish-brown (10R 5/4) and white; gypsum common; some sand and gravel; calcareous	24	645
Sandstone, light-brownish-gray (5YR 6/1) to pale-reddish-brown (10R 5/4), very-fine to medium-grained; poorly sorted; stained and frosted quartz abundant, dark minerals common, limonite rare; noncalcareous	26	671

	Thickness (feet)	Depth (feet)
Siltstone, pale-red (10R 6/2), well sorted; minor sand; calcareous	43	714
Shinarump member:		
Mudstone, grayish-red (10R 4/2) and mottled white; angular to subangular sand and gravel common; grains are chiefly light-gray sandstone, greenish-gray siltstone, and grayish-red-purple mudstone, minor limestone	5	719
Siltstone, pale-red (10R 6/2), poorly sorted; stained quartz sand common, minor dark minerals and limonite; calcareous	5	724
Moenkopi formation:		
Sandstone, pale-red (10R 6/2) to yellowish-gray (5Y 8/1), medium to very-fine grained and silty; poorly sorted; chiefly clear quartz, minor stained quartz and dark minerals, mica rare; calcareous; some limestone and mudstone pebbles. Sandstone, silty, grayish-orange-pink (5YR 7/2), fine grained; well sorted; clear quartz, minor dark minerals and limonite; weak calcareous cement	15	739
Siltstone, grayish-red-purple (5RP 6/2); well sorted; minor dark minerals; strongly calcareous	11	750
Mudstone, grayish-red-purple (5RP 6/2), grayish-red (10R 4/2), and light-gray (N7); minor dark minerals and limonite; noncalcareous Mudstone, light-gray (N7) to grayish-red-purple (5RP 4/2), light color caused by leaching; some sand and very-fine to fine gravel; curved partings prominent; dark minerals common; noncalcareous	32	782
Conglomerate, various colors, fine to medium grained; angular to subrounded; pebbles are chiefly medium-dark-gray (N4) cherty limestone	10	792
PERMIAN:		
GLORIETTA FORMATION:		
Sandstone, grayish-orange-pink (5YR 7/2), very-fine to fine grained; medium sorting; subrounded to rounded; clear quartz, minor dark minerals and limonite; strong calcareous cement Sandstone, grayish-orange-pink (10R 8/2_ and yellowish-gray (5Y 8/1), very-fine to fine grained; some silt; minor dark minerals, limonite common, highly calcareous	93	885

	Thickness (feet)	Depth (feet)
YESO FORMATION:		
Upper member:		
Mudstone, grayish-red (10R 4/2); grayish-red-purple (5RP 4/2), and light-gray (N7); dark minerals rare, minor limonite; partly calcareous	10	895
Sandstone, grayish-orange-pink (5YR 7/2) to pale-red (10R 6/2), very-fine to fine grained; subrounded to rounded; minor dark minerals and limonite; calcareous Sandstone, very-pale-orange (10YR 8/2), very-fine grained and silty; sorting poor to medium; clear quartz; silica cement; dark minerals and limonite rare; noncalcareous	55	950
Crevice	10	960
Sandstone, moderate-orange-pink (5YR 8/4), very-fine to fine grained and silty; poorly sorted; clear to frosted quartz, silica cement; dark minerals and limonite rare; calcareous Sandstone, pale-red (10R 6/2) to pale-brown (5YR 5/2), very-fine to fine grained and silty; clear and stained quartz, dark minerals and limonite common; calcareous Sandstone, white to pinkish-gray (5YR 8/1), very-fine grained; subrounded; sorting good; clear quartz, silica cement, dark minerals and limonite rare; noncalcareous	80	1,040
Siltstone, light-brown (5YR 6/4) to moderate-brown (5YR 4/4); has appearance of soil; some quartz sand and bands of white calcareous material; highly calcareous Siltstone, grayish-red (5R 4/2) and white; grains of frosted quartz and dark minerals rare; medium calcareous; some light-olive-gray (5Y 6/1), finely crystalline limestone and some dark minerals and mica in lower part; noncalcareous	10	1,050
Sandstone, light-olive-gray (5Y 6/1) and yellowish-gray very-fine grained and silty; some medium quartz grains; poorly sorted; noncalcareous; some greenish-gray (5GY 6/1) calcareous mudstone	20	1,070
Mudstone, grayish-red (5R 4/2); fine grained quartz and dark minerals common; calcareous	5	1,075

J.E.D.
1/14/57

EL PASO NATURAL GAS PRODUCTS COMPANY

Water Analysis

Water Well No. 2 — Ciniza Refinery

Sampled: November 15, 1956 by Jim Druley

Total Hardness as $CaCO_3$	625
Calcium as $CaCO_3$	460
Magnesium as $CaCO_3$	155
P - Alkalinity	0
Total Alkalinity as $CaCO_3$	168
Chlorides as Cl	16
Sulfate as SO_4	440
Silica as SiO_2	6
Total Iron as Fe	0.9
Color No.	N.L.
pH	7.2

All results expressed as parts per million.

J.E.D.
1/14/57

TEST DATA

Water Well No. 2

Test Pump: 10" Peerless, 12 Stages, Set at 600 Feet

Pumping Level - Feet	GPM	Remarks
285	220	Muddy - 1 Hour
365	260	Pumped - 1 Hour
465	290	Pumped - 1 Hour
510	330	Pumped - 1 Hour
600	370	Pumped - 4 Days

Note: At a pumping rate of 370 GPM at 600 feet, the pumping level raised to 550 feet after four days pumping. The well recovered it's artesian flow of 270 GPM in 14 minutes after pump was shut off. Shut-in pressure on this well is 140 psig, the same as Well No. 1.

J.E.D.
1/14/57

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
AIR & HEAVY METALS SECTION [505]-841-2553

June 14, 1995

Request
ID No. 121090

ANALYTICAL REPORT
SLD Accession No. HM-95-2364

Distribution
(x) User 55000
(x) Submitter 69
(X) Client
(x) SLD Files

To: Lynn Shelton
Giant Refining Company
Route 3 Box 7
Gallup, NM 87305

From: Air & Heavy Metals Section
Scientific Laboratory Division
700 Camino de Salud, NE
P.O. Box 4700
Albuquerque, NM 87196-4700

Re: **A water,Pres/Nonfiltered sample submitted to this laboratory on April 25, 1995**

User:
Richard Asbury
Drinking Water Bureau
NM-ED Dist. #3 Office
1001 N. Solano Drive
Las Cruces, NM 88001

Submitter:
Joe Winkler
ED Field Office, Gallup
306 S. 5th Street
Gallup, NM 87301-6424

DEMOGRAPHIC DATA

COLLECTION
On: 24-Apr-95 *By:* Pre . . .
At: 8:00 hrs. *In/Near:* Gallup

LOCATION
WSS #: 602-17; #2 South
Giant Refining Company

ANALYTICAL RESULTS

Analysis		Value	Units	Analyst
Arsenic		0.0030	mG/L	
Barium	<	0.1000	mG/L	
Cadmium	<	0.0010	mG/L	
Chromium	<	0.0010	mG/L	
Mercury	<	0.0005	mG/L	
Selenium	<	0.0050	mG/L	
Nickel		0.0100	mG/L	
Beryllium	<	0.0010	mG/L	

Laboratory Remarks:

Antimony= <0.001 mg/l.
Thallium= <0.001 mg/l.
Mercury by method 245.1 on 5/12/95 by RAH.
Selenium by method 270.2 on 5/26/95 by MF.
ICP-MS by method 200.8 on 6/5/95 by SP for As, Ba, Cd, Cr, Ni, Be, Sb, Tl.

Reviewed By: _____
Ron Amato 06/14/95
Supervisor, Air & Heavy Metals Section

STATE OF NEW MEXICO — DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700

700 Camino de Salud, NE
[505] 841-2500

ORGANIC CHEMISTRY SECTION [505] 841-2570

WATER SUPPLY SYSTEM (wss): ☑

Giant Refining Company
Route 3 Box 7
Gallup, NM 87301

REQUEST ID No.: 130404
SLD No.: 9502025

RECEIVED AT SLD: 4/24/95
☐ SLD COPY

N.M.E.D. DRINKING WATER BUREAU: ☐

Richard Asbury
Drinking Water Bureau
NM-ED Dist. #3 Office
1001 N. Solano Drive
Las Cruces, NM 88001

ED FIELD OFFICE: ☐

ED Field Office, Gallup
306 S. 5th Street
Gallup, NM 87301

SAMPLE COLLECTION DATE: 4/24/95 TIME: 805 BY: Pre
SAMPLE LOCATION: #2 South
WSS #: 60217 REPORTING UNITS: ug/L

EPA METHOD 504 SDWA EDB and DBCP BY ECD

DATE EXTRACTED: 4/29/95 — 5 Days: Within EPA Holding Time
DATE ANALYZED: 4/29/95 — 5 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 17.5

ANALYSIS No.: OR- 9502025
SLD BATCH No.: 207A95
DILUTION FACTOR: 2.00
REQUEST ID No.: 130404

SAMPLE PRESERVATION: Sample Temperature when received: 8 Degrees C.; pH = <2
COMPOSITED WITH SLD No.(s): 9502030

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL	MCL
106-93-4	1,2-Dibromoethane (EDB)		U	0.04	0.05
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	0.04	0.2

			% RECOVERY
SURROGATE:	1,1,2,2-Tetrachloroethane spiked at 0.57 ug/L	0.58	101.8 %

Surrogate Recovery: Within Normal Range of 80 - 120%

ANALYST: Nancy DeWitt QC APPROVED BY: Roberta Hine

EPA METHOD 515.1 SDWA ACID HERBICIDES BY ECD

DATE EXTRACTED: 5/2/95 — 8 Days: Within EPA Holding Time
DATE ANALYZED: 5/3/95 — 9 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 125

ANALYSIS No.: OR- 9502025
SLD BATCH No.: 219A95
DILUTION FACTOR: 8.00
REQUEST ID No.: 130404

SAMPLE PRESERVATION: Sample Temperature when received: 8 Degrees C.; pH = <2
COMPOSITED WITH SLD No.(s): 9502030

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL	MCL
75-99-0	Dalapon		U	0.32	200
1918-00-9	Dicamba		U	0.72	Unreg.
94-75-7	2,4-D		U	2.40	70
87-86-5	Pentachlorophenol (PCP)		U	0.32	1
93-72-1	2,4,5-TP (Silvex)		U	3.20	50
88-85-7	Dinoseb		U	6.	7
1918-02-1	Picloram		U	16.	500

ANALYST: MaryLou LaCasse QC APPROVED BY: Roberta Hine

EPA METHOD 531.1 SDWA CARBAMATE PESTICIDES BY HPLC

DATE EXTRACTED: 5/10/95
DATE ANALYZED: 5/10/95 16 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 0.2

ANALYSIS No.: OR- 9502025
SLD BATCH No.: 223A95
DILUTION FACTOR: 2.00
REQUEST ID No.: 130404

SAMPLE PRESERVATION: Sample Temperature when received: 8 Degrees C.; pH = 3
COMPOSITED WITH SLD No.(s): 9502030

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL	MCL
116-06-3	Aldicarb		U	1.2	Unreg.
1646-88-4	Aldicarb Sulfone		U	0.8	Unreg.
1646-87-3	Aldicarb Sulfoxide		U	0.6	Unreg.
114-26-1	Baygon		U	1.4	Unreg.
63-25-2	Carbaryl (Sevin)		U	1.4	Unreg.
1563-66-2	Carbofuran		U	0.8	40
16655-82-6	3-Hydroxycarbofuran		U	1.4	Unreg.
2032-65-7	Methiocarb		U	1.2	Unreg.
16752-77-5	Methomyl		U	1.4	Unreg.
23135-22-0	Oxamyl		U	1.4	200

ANALYST: Arnold Bentz QC APPROVED BY: Roberta Hine

EPA METHOD 547 SDWA GLYPHOSATE BY HPLC

DATE EXTRACTED: 5/2/95
DATE ANALYZED: 5/2/95 8 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 0.025

ANALYSIS No.: OR- 9502025
SLD BATCH No.: 223A95
DILUTION FACTOR: 2.00
REQUEST ID No.: 130404

SAMPLE PRESERVATION: Sample Temperature when received: 8 Degrees C.
COMPOSITED WITH SLD No.(s): 9502030

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL	MCL
1071-83-6	Glyphosate		U	10.	700

ANALYST: Arnold Bentz QC APPROVED BY: Roberta Hine

EPA METHOD 548.1 SDWA ENDOTHALL BY GC/FID/MS

DATE EXTRACTED: 4/27/95 3 Days: Within EPA Holding Time
DATE ANALYZED: 4/29/95 5 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 40

ANALYSIS No.: OR- 9502025
SLD BATCH No.: 204A95
DILUTION FACTOR: 2.50
REQUEST ID No.: 130404

SAMPLE PRESERVATION: Sample Temperature when received: 8 Degrees C.
COMPOSITED WITH SLD No.(s): 9502030

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL	MCL
145-73-3	Endothall		U	25.	100

ANALYST: MaryLou LaCasse QC APPROVED BY: Roberta Hine

EPA METHOD 549.1 SDWA DIQUAT BY HPLC/UV

DATE EXTRACTED: 4/28/95 4 Days: Within EPA Holding Time
DATE ANALYZED: 5/4/95 10 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 125

ANALYSIS No.: OR- 9502025
SLD BATCH No.: 208A95
DILUTION FACTOR: 2.00
REQUEST ID No.: 130404

SAMPLE PRESERVATION: Sample Temperature when received: 8 Degrees C.; pH = <2
COMPOSITED WITH SLD No.(s): 9502030

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL.	SDL	MCL

1071-83-6	Diquat		U	0.80	20

ANALYST: Tim Chapman QC APPROVED BY: Roberta Hine

EPA METHOD 525.1 SDWA SOC's BY GC/MS

DATE EXTRACTED: 4/27/95 3 Days: Within EPA Holding Time
DATE ANALYZED: 5/1/95 7 Days: Within EPA Analysis Time
SAMPLE VOL (ml): 500

ANALYSIS No.: OR- 9502025
SLD BATCH No.: 209
DILUTION FACTOR: 2.00
REQUEST ID No.: 130404

SAMPLE PRESERVATION: Sample Temperature when received: 8 Degrees C.; pH = <2
COMPOSITED WITH SLD No.(s): 9502030

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL	MCL
15972-60-8	Alachlor		U	1.00	2
309-00-2	Aldrin		U	1.00	Unreg.
11104-28-2	Arocior 1221		U	1.00	Unreg.
11141-16-5	Arocior 1232		U	1.00	Unreg.
53469-21-9	Arocior 1242/1016		U	1.00	Unreg.
12672-29-6	Arocior 1248		U	1.00	Unreg.
11097-69-1	Arocior 1254		U	0.04	Unreg.
11096-82-5	Arocior 1260		U	0.06	Unreg.
1912-24-9	Atrazine		U	0.02	3
50-32-8	Benzo[a]pyrene		U	0.02	0.2
28184-66-9	Butachlor		U	0.40	Unreg.
57-74-9	Chlordane (Total)		U	0.04	2
60-57-1	Dieldren		U	0.20	Unreg.
4337-65-9	Di(2-ethylhexyl)adipate	0.02		0.26	400
117-81-7	Di(2-ethylhexyl)phthalate	0.34		0.04	6
72-20-8	Endrin		U	0.02	2
76-44-8	Heptachlor		U	0.08	0.4
1024-57-3	Heptachlor epoxide		U	0.26	0.2
118-74-1	Hexachlorobenzene		U	0.02	1
77-47-4	Hexachlorocyclopentadiene		U	0.08	50
58-89-9	Lindane		U	0.04	0.2
72-43-5	Methoxychlor		U	0.02	40
21087-64-9	Metribuzin		U	0.60	Unreg.
51218-45-2	Metolachlor		U	0.20	Unreg.
1918-16-7	Propachlor		U	0.60	Unreg.
122-34-9	Simazine		U	0.20	4
8001-35-2	Toxaphene		U	2.00	3

ANALYST: Tim Chapman QC APPROVED BY: Roberta Hine

DEFINITIONS

**	**Concentration Exceeds EPA's allowable Maximum Contamination Level**
CAS#	Chemical Abstract Services Number - Unique number to help identify analytes listed by different names
CONC.	Concentration (ug/L) of analyte actually detected in the sample
QUAL	*Qualifier of analytical results as follows:* B Analyte was detected in laboratory blank J Analyte was detected at a level below which an accurate quanitation can be given (~5 * SDL) U No analyte was detected above the Sample Detection Limit.
MCL	Maximum Contamination Level Allowed by EPA for regulated analytes
SDL	*Sample Detection Limit - The lowest concentration which can be differentiated from Zero with* 99% confidence taking sample size (compositing) into account.
ug/L	Concentration Units - micrograms per liter which is approximately equivalent to Parts Per Billion (ppb)

789

SDWA SYNTHETIC ORGANIC CONTAMINANT (SOC) ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

1 SLD No. OR9502025

Date Received: 4/25/95

Request SDWA-Org. ID No. 130404-J

2 User Code #: 5,5,0,0,0

3 Request ID No.:

4 Priority Code #: 3 (If "1" or "2", call ED-SLD Coordinator)

5 Facility Name: Giant Refinery

6 County: McKinley

7 City: Gallup

8 State: NM

9 Sample Location: #2 South

10 Collected By: Brad Pfeil (First / Last) Phone: 320-9851 On: 95/04/24 (Date: YY/MM/DD) At: 0805 hrs. (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: 05.7 Submitter; 602-17 WSS #; WS0313 Organization

12 Latitude (DDMMSS) 35°29'12"
Longitude (DDDMMSS) 108°12'15"
2 Digit ID (if needed)

13 Report To: Name: Lynn Shelton

14 Phone #: 722-3833

Address: Giant Refinery
Rte 3 Box 7

City, State Zip: Gallup, NM 87305

15 Sampling Information:
Sample Purpose:
- [X] Compliance
- [ ] NMED Monitoring
- [ ] Confirmation
- [ ] Special
- [X] Grab
- [ ] Composite _____ (Composite Time Period)
- [ ] Chain of Custody

16 Field Data: pH: _____, Conductivity: _____ umhos/cm @ Temperature: _____ °C, Chlorine Residual: _____ mg/l, Flow: _____

17 Sample Source:
- [ ] Entry Point to Distribution
- [ ] Well; Depth: _____
- [ ] Spring
- [ ] Distribution
- [ ] Other: _____

18 Field Remarks: Tap at well

19 Sample Type:
- [X] Water
- [X] Unchlorinated
- [ ] Chlorinated

Approximate Sulfate Concentration - _____ mg/l

20 Preservation:
- [X] Preserved as indicated on back of form.
- [ ] Other: _____

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required and type of Compositing Requested.

- [ ] Composite Within this System Only
- [ ] Do Not Composite
- [X] Composite With Other Systems

SAFE DRINKING WATER ACT SYNTHETIC ORGANIC CONTAMINANT (SOC) ANALYSES

- [ ] All of the Safe Drinking Water Act Synthetic Organic Contaminant (SOC) Screens Listed Below

	SLD No.	EPA No.	Analysis	SLD Lab Number		SLD No.	EPA No.	Analysis	SLD Lab Number
[ ]	775	504	EDB & DBCP	130404 A:B	[ ]	781	547	Glyphosate	130404 E
[ ]	760	505	PCBs & Endrin	N/A	[ ]	702	548.1	Endothall	F
[ ]	758	515.1	Acid Herbicides	130404 C	[ ]	783	549.1	Diquat	G
[ ]	772	531.1	Carbamate Pesticides	↓ D	[ ]	700	525.1	Semivolatile Pesticides GC/MS	↓ H

Remarks:

8°C 0845

STATE OF NEW MEXICO DEPARTMENT OF HEALTH
SCIENTIFIC LABORATORY DIVISION
P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

June 30, 1994

Request ID No. 055381

ANALYTICAL REPORT
SLD Accession No. OR-94-1537

Distribution
(x) User 55000
(x) Submitter 69
(X) Client
(x) SLD Files

To: Len Shelton
Giant Refining Company
Route 3 Box 7
Gallup, NM 87301

From: Organic Chemistry Section
Scientific Laboratory Division
700 Camino de Salud, NE
P.O. Box 4700
Albuquerque, NM 87196-4700

Re: **A water,Purgeable sample submitted to this laboratory on May 18, 1994**

User:
Richard Asbury
Drinking Water Bureau
NM-ED Dist. #3 Office
1001 N. Solano Drive
Las Cruces, NM 88001

Submitter:
Joe Winkler
ED Field Office, Gallup
306 S. 5th Street
Gallup, NM 87301-6424

DEMOGRAPHIC DATA

COLLECTION
On: 17-May-94 *By:* Win . . .
At: 11:05 hrs. *In/Near:* Gallup

LOCATION
WSS #: 602-17; Well No2
Giant Refining Company

ANALYTICAL RESULTS: SDWA VOC-I [EPA-502.2] Screen {774}

Parameter	Value	Note	PQL	Units
Halogenated Volatiles (42)	0.00	N	0.50	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

PQL = Practical Quantitation Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified; T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed [X]; Intact: No [ ], Yes [ ] & Broken By: _____ Date: _____

Laboratory Remarks:

A possible trace amount of toluene was detected at .2 ppb by the photoionization detector.

SAFE DRINKING WATER ACT
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A
Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A

(Continued on page 2.)

Matrix: (soil/water) Water
Sample wt/vol: 5.0 (g/mL) mL
Level: (low/med) Low
% Moisture: not dec. N/A dec. N/A
Extraction: (SepF/Cont/Sonc) N/A
GPC Cleanup: (Y/N) No pH: N/D

Lab Sample ID: OR-94-1637
SLD Batch No: 236
Date Received: 05/18/94
Date Extracted: N/A
Date Analyzed: 05/28/94
Dilution Factor: 1
CONCENTRATION UNITS:
(ug/L or ug/Kg): ug/L

This sample was analyzed for the following compounds using EPA Method 502.2

CAS NO.	COMPOUND	CONC.	Q	POL
71-43-2	Benzene		U	0.5
108-86-1	Bromobenzene		U	0.5
74-97-5	Bromochloromethane		U	0.5
75-27-4	Bromodichloromethane		U	0.5
75-25-2	Bromoform		U	0.5
24-83-9	Bromomethane		U	0.5
78-93-3	2-Butanone (MEK)		U	5.0
104-51-8	n-Butylbenzene		U	0.5
135-98-8	sec-Butylbenzene		U	0.5
98-06-6	tert-Butylbenzene		U	0.5
1634-04-4	tert-Butyl methyl ether (MTBE)		U	5.0
56-23-5	Carbon tetrachloride		U	0.5
108-90-7	Chlorobenzene		U	0.5
75-00-3	Chloroethane		U	2.5
67-66-3	Chloroform		U	0.5
74-87-3	Chloromethane		U	0.5
95-49-8	2-Chlorotoluene		U	0.5
106-43-4	4-Chlorotoluene		U	0.5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.5
124-48-1	Dibromochloromethane		U	0.5
106-93-4	1,2-Dibromoethane		U	0.5
74-95-3	Dibromomethane		U	0.5
95-50-1	1,2-Dichlorobenzene		U	0.5
541-73-1	1,3-Dichlorobenzene		U	0.5
106-46-7	1,4-Dichlorobenzene		U	0.5
75-71-8	Dichlorodifluoromethane		U	0.5
75-34-3	1,1-Dichloroethane		U	0.5
107-06-2	1,2-Dichloroethane		U	0.5
75-35-4	1,1-Dichloroethene		U	0.5
156-59-4	cis-1,2-Dichloroethene		U	0.5

(Continued on page 3.)

156-60-5	trans-1,2-Dichloroethene		U	0.5
78-87-5	1,2-Dichloropropane		U	0.5
142-28-9	1,3-Dichloropropane		U	0.5
590-20-7	2,2-Dichloropropane		U	0.5
563-58-6	1,1-Dichloropropene		U	0.5
1006-01-5	cis-1,3-Dichloropropene		U	0.5
1006-02-6	trans-1,3-Dichloropropene		U	0.5
100-41-4	Ethylbenzene		U	0.5
87-68-3	Hexachlorobutadiene		U	0.5
98-82-8	Isopropylbenzene		U	0.5
99-87-6	4-Isopropyltoluene		U	0.5
75-09-2	Methylene chloride		U	2.5
91-20-3	Naphthalene		U	0.5
103-65-1	Propylbenzene		U	0.5
100-42-5	Styrene		U	0.5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.5
127-18-4	Tetrachloroethene		U	0.5
109-99-9	Tetrahydrofuran (THF)		U	5.0
108-88-3	Toluene		U	0.5
87-61-5	1,2,3-Trichlorobenzene		U	0.5
120-82-1	1,2,4-Trichlorobenzene		U	0.5
71-55-6	1,1,1-Trichloroethane		U	0.5
79-00-5	1,1,2-Trichloroethane		U	0.5
79-01-6	Trichloroethene		U	0.5
75-69-4	Trichlorofluoromethane		U	0.5
96-18-4	1,2,3-Trichloropropane		U	0.5
95-63-6	1,2,4-Trimethylbenzene		U	0.5
108-67-8	1,3,5-Trimethylbenzene		U	0.5
75-01-4	Vinyl chloride		U	2.0
95-47-6	o-Xylene		U	0.5
N/A	p- & m-Xylene		U	0.5
N/A	Total Xylenes		U	1.0

* Q = Qualifier Definitions:
CONC = CONCENTRATION DETERMINED
PQL = Practical Quantitation Limit (Approximately 5 times MDL)
B - Indicates compound was detected in the Lab Blank as well as in the sample.
D - Indicates value taken from a secondary (diluted) sample analysis.
E - Indicates compound concentration exceeded the range of the standard curve.

(Continued on page 4.)

J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the PQL listed.
N - Indicates that more than one peak was used for quantitation.
U - Indicates compound was analyzed for, but not detected at a concentration greater than the concentration listed.

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
No Compounds Detected	

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION	% RECOVERY
Bromofluorobenzene (PID Surr)	10.0 ppb	98.7
Bromofluorobenzene (HALL Surr)	10.0 ppb	110.0

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
Acetone	10.0 ppb	123.0

Analyst: Nancy DeWitt
Analyst, Organic Chemistry

Reviewed By: Richard F. Meyerhein 06/02/94
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. OR94 1537 C

Request ID No. 055381-C

Date Received: 5-18-94

2 User Code #: 55000

3 Request ID No.:

4 Priority Code #: 2 (1 = 1 day ED-SLD Coordination)

5 Facility Name: GIANT REFINING

6 County: MCKINLEY

7 City: GALLUP

8 State: N.M.

9 Sample Location: WELL NO 2

10 Collected By: JOE WINKLER (First / Last) 722-4160 On: 94/05/17 (Date: YY/MM/DD) At: 1105 (Time: 24 hr. clock 9:00 pm = 1900 hrs.) hrs.

11 Codes: 0651 (Submitter) 6023-17 (WSS #) W50100 (Organization)

12 Latitude (DDMMSS) ° ' "
Longitude (DDDMMSS) ° ' "
2 Digit ID (if needed)

13 Report To: (Name) LEN SHELTON

14 Phone #: 722-3833

Address: GIANT REFINING
ROUTE 3, BOX 7

City, State Zip: GALLUP, NM 87305

15 Sampling Information:
Sample Purpose:
- [X] Compliance
- [ ] NMED Monitoring
- [ ] Confirmation
- [ ] Special

- [X] Grab
- [ ] Composite ____ (Composite Time Period)
- [ ] Flow Proportioned
- [ ] Equal Aliquot
- [ ] Sample Split w/Permittee
- [ ] Chain of Custody

16 Field Data: pH: ____, Conductivity: ____ umhos/cm @ Temperature: ____ °C, Chlorine Residual: ____ mg/l, Flow: ____

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WWTP
- [X] Entry Point to Distribution
- [ ] Well; Depth: 1000 ft
- [ ] Spring
- [ ] Distribution
- [ ] Other: ____

18 Field Remarks: SAMPLE TAKEN AT WELL NO. - 1

19 Sample Type:
- [X] Water
- [ ] Wastewater
- [ ] Unchlorinated
- [X] Chlorinated
- [ ] Soil, [ ] Food, [ ] Other ____

This form accompanies a single sample consisting of:
2 - septum vial(s) (volume = 40 ml ea.)
____ - glass jug(s) (volume = ____ ml ea.)
____ - ____ (volume = ____)

20 Preservation:
- [ ] NP — No Preservation; Sample stored at room temperature
- [ ] P-Ice — Sample stored in an ice bath (Not Frozen)
- [ ] P-TS — Sample Preserved with Sodium Thiosulfate to remove chlorine residual
- [X] P-HCl — Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- [ ] P-$HgCl_2$ — Sample Preserved with 20 mg/l Mercuric Chloride
- [ ] Other ____

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required, and note below whenever highly contaminated samples are suspected.

Volatile Screens:

- [ ] (753) Aliphatic Headspace (Qualitative Screen)
- [ ] (754) Aromatic & Halogenated Purgeables (EPA 601/2)
- [ ] (765) Mass Spectrometer Purgeables (EPA 624)
- [ ] (766) SDWA Total Trihalomethanes (EPA 501.1)
- [X] (774) SDWA VOC's I [21 REGULATED +] (EPA 502.2)
- [ ] (775) SDWA VOC's II [EDB & DBCP] (EPA 504)
- [ ] (790) Composite Sample for Analysis No. ____

Other Specific Compounds or Classes:

- [ ] ( ) ____
- [ ] ( ) ____

Semivolatile Screens:

- [ ] (755) Base/Neutral Extractables (EPA 625)
- [ ] (756) Base/Neutral/Acid Extractables (EPA 8270)
- [ ] (772) Carbamate Pesticides (EPA 531.1)
- [ ] (758) Herbicides, Chlorophenoxy Acid (EPA 515.1)
- [ ] (759) Herbicides, Triazine (EPA 507)
- [ ] (751) Hydrocarbon Fuel Screen (EPA M-8015)
- [ ] (760) Organochlorine Pesticides (EPA 505)
- [ ] (761) Organophosphate Pesticides (EPA 507)
- [ ] (767) Polychlorinated Biphenyls (PCB's) in Oil
- [ ] (762) SDWA Synthetic Org. Cmpds. (SLD 758/760)
- [ ] (782) Total Petroleum Hydrocarbons (EPA 418.1)

Remarks:

STATE OF NEW MEXICO

DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O Box 4700
Albuquerque, NM 87196-4700
AIR & HEAVY METALS SECTION

700 Camino de Salud, NE
(505)-841-2500
(505)-841-2553

SAMPLE COLLECTION: DATE: 4/14/2003 TIME: 10:23
MATRIX: wpn BY: HERRERA
FACILITY: Giant Refining Company
SAMPLING LOCATION: EP#1 ID#4

SLD No.: HM-200300439
REQUEST ID No.: 2344097
RECEIVED AT SLD: 4/15/2003
USER: 55000
SUBMITTER: 60
WSS #: NM3560217
Giant Refining Company

To: Client

Giant Refining Company
Route 3 Box 7
Gallup, NM 87305

DISTRIBUTION TO:
User
Submitter
Client
SLD

Practical Quantitation Limit (PQL) is defined as 10 times the Method Detection Limit (MDL)

ANALYTICAL RESULTS

Element	Result	Units	Analysis Date	Method	PQL	Dilution Factor	Sample Det. Limit.	Analyst	Data Qualifier
Antimony	<0.001	mg/L	5/27/2003	200.8	0.001	1	0.001	SMP	C H
Arsenic	0.003	mg/L	5/27/2003	200.8	0.001	1	0.001	SMP	C H
Barium	<0.1	mg/L	5/27/2003	200.8	0.1	1	0.1	SMP	H
Beryllium	<0.001	mg/L	5/27/2003	200.8	0.001	1	0.001	SMP	C H
Cadmium	<0.001	mg/L	5/27/2003	200.8	0.001	1	0.001	SMP	C H
Chromium	<0.001	mg/L	5/27/2003	200.8	0.001	1	0.001	SMP	C H
Mercury	<0.0002	mg/L	4/23/2003	245.1	0.0002	1	0.0002	HKM	
Nickel	<0.01	mg/L	5/27/2003	200.8	0.01	1	0.01	SMP	C H
Selenium	<0.005	mg/L	5/19/2003	200.9	0.005	1	0.005	NCB	
Thallium	<0.001	mg/L	5/27/2003	200.8	0.001	1	0.001	SMP	C H

Laboratory Comments:

Reviewed by: **Ron Amato**
Supervisor, Air & Heavy Metals Section
Printed: 5/30/2003 uc

Data Qualifier Codes and Definitions

A = See comments section below.
B = Laboratory Reagent Blank (RB)
C = Spike recovery between 80-120%
D = Spike recovery <80% or >120%
E = Over Calibration Range
F = Matrix interference suspected
G = Inconsistent results
H = Analyzed in duplicate
I = Analyzed in Triplicate
J = Estimated Quantity only.
K = Holding time exceeded
L = Equals or exceeds USEPA MCL
M = Equals or exceeds USEPA action level
N = Insufficient sample to verify results
O = Internal Standards(ICP-MS) <60% or >125% when analyzed straight
R = Results based on 4 or more duplicates.
S = Relative Percent Difference between duplicates > 10%(waters)
T = Relative Percent Difference between duplicates > 30%(soils).

STATE OF NEW MEXICO — DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 — 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 — (505) 841-2500
ORGANIC CHEMISTRY SECTION (505) 841-2571

☐ REPORT TO CLIENT

Giant Refining Company
Route 3 Box 7
Gallup, NM 87305

SLD No.: OR- 200301104

REQUEST ID No.: 2328044
RECEIVED AT SLD: 4/15/03
☐ SLD COPY — USER: 55000

☐ ED FIELD OFFICE

NMED District #1 Office, Albuquerque
Drinking Water Bureau
4131 Montgomery Blvd, NE
Albuquerque, NM 87109

☐ N.M.E.D. DRINKING WATER BUREAU

Gilbert Salas
Drinking Water Bureau (Central Files)
NMED
525 Camino de Los Marquez, Suite 4
Santa Fe NM 87502

SAMPLE COLLECTION: DATE: 4/14/03 TIME: 1025 BY: HERRERA
FACILITY NAME: GIANT REFINING COMPANY
SAMPLING LOCATION: EP#1 ID#4
WSS #: NM3560217 REPORTING UNITS: ug/L

EPA METHOD 504.1 SDWA EDB, TCP, and DBCP by GC/ECD

DATE EXTRACTED: 4/22/03 (8 Days: Within EPA Holding Time)
DATE ANALYZED: 4/25/03 (11 Days: Within EPA Analysis Time)
SAMPLE VOL (ml): 34.0

ANALYSIS No.: OR- 200301104
SLD BATCH No.: 104
DILUTION FACTOR: 1.03
REQUEST ID No.: 2328044

SAMPLE PRESERVATION: Sample Temperature when received: 4 Degrees C.
COMPOSITED WITH SLD No.(s): NOT COMPOSITED

No 504 Compounds Detected.

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL	MCL
106-93-4	1,2-Dibromoethane (EDB)		U	0.005	0.05
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	0.007	0.2
96-18-4	1,2,3-Trichloropropane (123TCP)		U	0.010	Unreg.

			% RECOVERY
SURROGATE:	1,1,1,2-Tetrachloroethane (spiked at 0.05 ug/L)	0.046	89 %

Surrogate Recovery: Within Normal Range of 70 - 130%

ANALYST: ADAM S. PIMENTEL QC APPROVED BY: MICHAEL TRUJILLO

EPA METHOD 508.1 SDWA POLYCHLOROBIPHENYLS and TOXAPHENE by GC/ECD

DATE EXTRACTED: 4/23/03 (9 Days: Within EPA Holding Time)
DATE ANALYZED: 5/21/03 (28 Days: Within EPA Analysis Time)
SAMPLE VOL (ml): 960

ANALYSIS No.: OR- 200301104
SLD BATCH No.: 104
DILUTION FACTOR: 1.04
REQUEST ID No.: 2328044

SAMPLE PRESERVATION: Sample Temperature when received: 4 Degrees C.; pH = 2
COMPOSITED WITH SLD No.(s): NOT COMPOSITED

No PCBs or Toxaphene Detected.

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL	MCL
11104-28-2	Aroclor 1221		U	0.09	0.5
11141-16-5	Aroclor 1232		U	0.06	0.5
53469-21-9	Aroclor 1242/1016		U	0.07	0.5
12672-29-6	Aroclor 1248		U	0.05	0.5
11097-69-1	Aroclor 1254		U	0.05	0.5
11096-82-5	Aroclor 1260		U	0.03	0.5
57-74-9	Chlordane (Total)		U	0.05	2
8001-35-2	Toxaphene		U	0.51	3

			% RECOVERY
SURROGATE:	Decachlorobiphenyl	0.484	96.8 %

Surrogate Recovery: Within Normal Range of 70 - 130%

ANALYST: Cliff Kear QC APPROVED BY: Sandra Oliver

EPA METHOD 515.2 SDWA ACID HERBICIDES by GC/ECD

ANALYST: Sandra Oliver QC APPROVED BY: Greg Bybee

EPA METHOD 548.1 SDWA ENDOTHALL by GC/MS

DATE EXTRACTED:	4/21/03	7 Days: Within EPA Holding Time	
DATE ANALYZED:	4/22/03	1 Days: Within EPA Analysis Time	
SAMPLE VOL (ml):	12.5		

ANALYSIS No.: OR-	200301104
SLD BATCH No.:	104
DILUTION FACTOR:	2.00
REQUEST ID No.:	2328044

SAMPLE PRESERVATION: Sample Temperature when received: 4 Degrees C.

COMPOSITED WITH SLD No.(s): NOT COMPOSITED No Endothall Detected.

CAS #	ANALYTE NAME	CONC (ug/L)	QUAL	SDL	MCL
145-73-3	Endothall		U	4	100
				% RECOVERY	
SURROGATE:	5-Norborene-2,3-dicarboxylic acid	80.5		80.5	

Surrogate Recovery: Within Normal Range of 65 - 130%

ANALYST: G.Bybee QC APPROVED BY: Sandra Oliver

EPA METHOD 549.1 SDWA DIQUAT by HPLC/UV-PDA

DATE EXTRACTED:	4/18/03	4 Days: Within EPA Holding Time	
DATE ANALYZED:	4/24/03	10 Days: Within EPA Analysis Time	
SAMPLE VOL (ml):	250		

ANALYSIS No.: OR-	200301104
SLD BATCH No.:	104
DILUTION FACTOR:	1.00
REQUEST ID No.:	2328044

SAMPLE PRESERVATION: Sample Temperature when received: 4 Degrees C.; pH = 7

COMPOSITED WITH SLD No.(s): NOT COMPOSITED No Diquat Detected.

CAS #	ANALYTE NAME	CONC (ug/L)	QUAL	SDL	MCL
85-00-7	Diquat		U	1.01	20
				% RECOVERY	
SURROGATE:	Paraquat	57.1		114.2	

Surrogate Recovery: Within Normal Range of 70 - 130%

ANALYST: Ron Druva QC APPROVED BY: Sandra Oliver

EPA METHOD 525.2 SDWA SOCs by GC/MS

DATE EXTRACTED:	4/23/03	9 Days: Within EPA Holding Time	
DATE ANALYZED:	5/13/03	20 Days: Within EPA Analysis Time	
SAMPLE VOL (ml):	960		

ANALYSIS No.: OR-	200301104
SLD BATCH No.:	104
DILUTION FACTOR:	1.04
REQUEST ID No.:	2328044

SAMPLE PRESERVATION: Sample Temperature when received: 4 Degrees C.; pH = 2

COMPOSITED WITH SLD No.(s): NOT COMPOSITED

CAS #	ANALYTE NAME	CONC (ug/L)	QUAL	SDL	MCL
83-32-9	Acenaphthene		U	0.04	Unreg.
208-96-8	Acenaphthylene		U	0.40	Unreg.
34256-82-1	Acetochlor		U	0.09	Unreg.
15972-60-8	Alachlor		U	0.06	2
309-00-2	Aldrin		U	0.16	Unreg.
120-12-7	Anthracene		U	0.12	Unreg.
1912-24-9	Atrazine		U	0.21	3
56-55-3	Benzo(a)anthracene		U	0.06	Unreg.
50-32-8	Benzo(a)pyrene		U	0.12	0.2
205-99-2	Benzo(b)fluoranthene		U	0.05	Unreg.
191-24-2	Benzo(ghi)perylene		U	0.04	Unreg.
207-08-9	Benzo(k)fluoranthene		U	0.08	Unreg.
319-84-6	α-BHC		U	0.08	Unreg.
319-85-7	β-BHC		U	0.09	Unreg.
319-86-8	δ-BHC		U	0.07	Unreg.
103-23-1	Bis(2-Ethylhexyl)adipate	0.1	B	0.13	400
117-81-7	Bis(2-Ethylhexyl)phthalate		U	1.01	6
23184-66-9	Butachlor		U	0.07	Unreg.
85-68-7	Butylbenzylphthalate		U	0.17	Unreg.
5103-71-9	cis-Chlordane		U	0.14	{2}
5103-74-2	trans-Chlordane		U	0.14	{2}
1897-45-6	Chlorothalonil		U	0.13	Unreg.
2921-88-2	Chlorpyrifos		U	0.05	Unreg.
218-01-9	Chrysene		U	0.06	Unreg.
72-54-8	4,4'-DDD		U	0.18	Unreg.

[1] Request ID No. Pla 2328044

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

[2] SLD's Accession N OR0301104

OR

Scientific Laboratory Division
700 Camino de Salud, NE (P.O. Box 4700)
Albuquerque, NM 87106 (87196-4700)
Phone: 505-841-2500/ -2570/ -2566

OR

[3] User Code: 5 5 0 0 0

Date & Time of Receipt at SLD: 03 APR 15 AM 9:27

[4] Sample Priority: 3 *If 1 or 2 call SLD*

[5] Submitter Code: 0 1 6 0 WSS Code: NM35 - 6 0 2 1 1 7 User's Site ID:

[6] *Sample Temp. Receipt @ SLD:* 4 °C

[7] Facility or WSS Name: Giant Refining Company

Facility/WSS Location: *If No WSS Code Complete 8, 9 & 10*

[8] County:

[9] City:

[10] State: *or CHANGE TO* NM

[11] Sampling Location: EP #1 I3 #4

[12] Sample Collection: On: 04 / 14 / 03 (Date: MM / DD / YY) By: Herrera (Last Name) Joe (First Name)

At: 10 : 25 (Time: 24:00 Hour Clock)

[13] Sample Info. Contact: Ph: [505] - 841 - 9467

If not collector, per box 12, Please print name here:

[14] *Reports are mailed to the address specified by the Submitter Code and WSS Code (when present). However, if one of the following applies, please check ☒ appropriate boxes below and complete address form.*

☐ Send additional Report to:

☐ New Address for:
☐ Submitter
☐ WSS / Client

Name:

Address:

City: *State:* *Zip:*

[15] Sampling Documentation: *(Check)*
☐ Confirmation ☐ NMED Monitoring
☐ Resample ☐ Raw Water
☐ Split w/ Facility ☐ Finished Water
■ Grab Sample
☐ Other:

[16a] Field Data: *(When appropriate)*
☐ Sample is Chlorinated
Chlorine Residual: mG/L
Conductivity: uMhos/cm
Sulfate: mG/L
Temperature on Collection: °C

[16b] Field Remarks: *(Optional)*

SDWA Comments:
■ Compliance
SDWA Compositing:
☐ No Compositing
☐ Within This System Only
☐ Within All Systems

[17] Sample Type: *(Check ☒ only one)*
■ Water ☐ Soil ☐ Vapor ☐ Plant ☐ Tissue ☐ Blood ☐ Other: ☐ Liquid: ☐ Solid:

[18] Preservation: *(Check ☒ all that apply)*
☐ Preserved with HCl to pH < 2 ■ Stored at 4°C ☐ No Preservation ☐ Other:

Number of Containers Submitted: 1 Set
Bottles: Vials: Jars:

[19] Analyses Requested: *Please Check ☒ the appropriate box(es) below to indicate your analytical request(s);*

Volatile Analyses:
☐-(754) Aromatic & Halogenated Volatiles (EPA 8021)
☐-(765) Mass Spectrometer Volatiles (EPA 8260 or 524.2)
☐-(764) Appendix IX Mass Spectrometer VOCs (EPA 8260)
☐-(774) Volatile Organic Compounds [VOC's] (EPA 502.2)
☐-(766) SDWA Trihalomethanes (EPA 502.2)

Remarks or Other Specific Compounds or Classes:
☐-(___)
☐-(___)

Special Extractions:
☐-(784) TCLP Extraction, Volatiles (Method 1311)
☐-(785) TCLP Extraction, Semivolatiles (Method 1311)

Semivolatile Analyses:
■-(789) Drinking Water Semivolatile Analyses (Indented list
☐-(775) EDB, DBCP & TCP (EPA 504.1)
☐-(758) Acid Herbicides (EPA 515.2)
☐-(772) Carbamates (EPA 531.1)
☐-(781) Glyphosate (EPA 547)
☐-(782) Endothall (EPA 548.1)
☐-(783) Diquat (EPA 549.1)
☐-(788) Synthetic Organic Compounds (SOCs) (EPA 525/508)
☐-(771) Haloacetic Acids in Drinking Water (EPA 552.2)
☐-(750) Hydrocarbon Fuel Screen, GRO (Modified EPA 8015)
☐-(751) Hydrocarbon Fuel Screen, GRO/DRO (Mod. EPA 8015
☐-(752) Hydrocarbon Fuel Screen, DRO (Mod. EPA 8015)
☐-(755) Base/Neutral Semivolatiles (No Phenols) (EPA 8270)
☐-(756) Base/Neutral/Acids Semivolatiles (EPA 625/8270)
☐-(759) Polychlorinated Biphenyls (PCBs) (EPA 8082)
☐-(760) Organochlorine Pesticides (EPA 608/8081)
☐-(786) Explosives Screen (Aberdeen Method)

STATE OF NEW MEXICO

DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O Box 4700 — 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 — (505)-841-2500
AIR & HEAVY METALS SECTION — (505)-841-2553

SAMPLE COLLECTION: DATE: 4/14/2003 TIME: 10:23
MATRIX: wpn BY: HERRERA
FACILITY: Giant Refining Company
SAMPLING LOCATION: EP#1 ID#4

SLD No.: HM-200300439
REQUEST ID No.: 2344097
RECEIVED AT SLD: 4/15/2003
USER: 55000
SUBMITTER: 60
WSS #: NM3560217
Giant Refining Company

To: Client

Giant Refining Company
Route 3 Box 7
Gallup, NM 87305

DISTRIBUTION TO:
User
Submitter
Client
SLD

Practical Quantitation Limit (PQL) is defined as 10 times the Method Detection Limit (MDL)

ANALYTICAL RESULTS

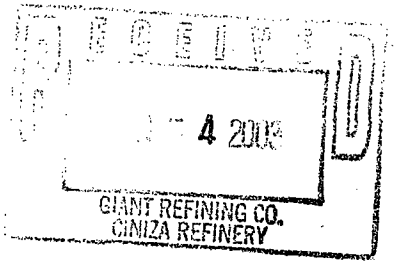
Element	Result	Units	Analysis Date	Method	PQL	Dilution Factor	Sample Det. Limit.	Analyst	Data Qualifier
Antimony	<0.001	mg/L	5/27/2003	200.8	0.001	1	0.001	SMP	C H
Arsenic	0.003	mg/L	5/27/2003	200.8	0.001	1	0.001	SMP	C H
Barium	<0.1	mg/L	5/27/2003	200.8	0.1	1	0.1	SMP	H
Beryllium	<0.001	mg/L	5/27/2003	200.8	0.001	1	0.001	SMP	C H
Cadmium	<0.001	mg/L	5/27/2003	200.8	0.001	1	0.001	SMP	C H
Chromium	<0.001	mg/L	5/27/2003	200.8	0.001	1	0.001	SMP	C H
Mercury	<0.0002	mg/L	4/23/2003	245.1	0.0002	1	0.0002	HKM	
Nickel	<0.01	mg/L	5/27/2003	200.8	0.01	1	0.01	SMP	C H
Selenium	<0.005	mg/L	5/19/2003	200.9	0.005	1	0.005	NCB	
Thallium	<0.001	mg/L	5/27/2003	200.8	0.001	1	0.001	SMP	C H

Laboratory Comments:

Reviewed by: **Ron Amato**
Supervisor, Air & Heavy Metals Section
Printed: 5/30/2003 LRC

Data Qualifier Codes and Definitions

A = See comments section below.
B = Laboratory Reagent Blank (RB)
C = Spike recovery between 80-120%
D = Spike recovery <80% or >120%
E = Over Calibration Range
F = Matrix interference suspected
G = Inconsistent results
H = Analyzed in duplicate
I = Analyzed in Triplicate
J = Estimated Quantity only.
K = Holding time exceeded
L = Equals or exceeds USEPA MCL
M = Equals or exceeds USEPA action level
N = Insufficient sample to verify results
O = Internal Standards(ICP-MS) <60% or >125% when analyzed straight
R = Results based on 4 or more duplicates.
S = Relative Percent Difference between duplicates > 10%(waters)
T = Relative Percent Difference between duplicates > 30%(soils).



STATE OF NEW MEXICO — DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700, Albuquerque, NM 87196-4700
700 Camino de Salud, NE, [505] 841-2500
ORGANIC CHEMISTRY SECTION [505] 841-2571

REPORT TO CLIENT: ☑

Giant Refining Company
Route 3 P. O. Box 7
Gallup, NM 87301

SLD No.: OR- 200301102

REQUEST ID No.: 2343431
RECEIVED AT SLD: 4/15/03
☐ SLD COPY — USER 55000

ED FIELD OFFICE: ☐

NMED Dist #1 Office, Albuquerque
Drinking Water Bureau
4131 Montgomery Blvd, NE
Albuquerque, NM 87109

☐ N.M.E.D. DRINKING WATER BUREAU

Gilbert Salas
NMED Drinking Water Bureau
525 Camino de Los Marquez
Suite 4
Santa Fe NM 87502

SAMPLE COLLECTION: DATE: 4/14/03 TIME: 1021 BY: HERRERA
FACILITY NAME: GIANT REFINING COMPANY
SAMPLING LOCATION: EP#1 ID#4
WSS #: NM3560217 REPORTING UNITS: ug/L

Remarks:

EPA METHOD 524.2 SDWA VOLATILES BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY

DATE EXTRACTED: N/A
DATE ANALYZED: 4/25/03 (11 Days: Within EPA Analysis Time)
SAMPLE VOL (ml): 5.0

ANALYSIS No.: OR- 200301102
SLD BATCH No.: 110
DILUTION FACTOR: 1.00
REQUEST ID No.: 2343431

SAMPLE PRESERVATION: **Sample temperature when received: 5 Degrees C.; sample preserved with Hydrochloric Acid: pH = 2**

CAS #	ANALYTE NAME	CONC. (ug/L)	QUAL	SDL	MCL
71-43-2	Benzene		U	0.13	5
108-86-1	Bromobenzene		U	0.06	
74-97-5	Bromochloromethane		U	0.11	
75-27-4	Bromodichloromethane*		U	0.13	80
75-25-2	Bromoform*		U	0.07	80
74-83-9	Bromomethane		U	0.46	
78-93-3	2-Butanone (MEK)		U	0.27	
104-51-8	n-Butylbenzene		U	0.17	
135-98-8	sec-Butylbenzene		U	0.10	
98-06-6	tert-Butylbenzene		U	0.09	
1634-04-4	tert-Butyl methyl ether (MTBE)		U	0.04	
56-23-5	Carbon tetrachloride		U	0.14	5
108-90-7	Chlorobenzene (monochlorobenzene)		U	0.05	100
75-00-3	Chloroethane		U	0.26	
67-66-3	Chloroform*		U	0.60	80
74-87-3	Chloromethane		U	0.56	
95-49-8	2-Chlorotoluene		U	0.09	
106-43-4	4-Chlorotoluene		U	0.12	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)		U	0.13	0.2
124-48-1	Dibromochloromethane*		U	0.08	80
106-93-4	1,2-Dibromoethane (Ethylene dibromide (EDB))		U	0.06	0.05
74-95-3	Dibromomethane		U	0.09	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)		U	0.08	600
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)		U	0.07	600
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)		U	0.07	75
75-71-8	Dichlorodifluoromethane		U	0.38	
75-34-3	1,1-Dichloroethane		U	0.07	
107-06-2	1,2-Dichloroethane		U	0.08	5
75-35-4	1,1-Dichloroethene		U	0.12	7

RECEIVED 23 GIANT REFINING CO. CINIZA REFINERY

[1] Request ID No. 2343431

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

[2] SLD's Accession No. OR0301102

OR

Scientific Laboratory Division
700 Camino de Salud, NE (P.O. Box 4700)
Albuquerque, NM 87106 (87196-4700)
Phone: 505-841-2500/ -2570/ -2566

OR

[3] User Code: 5 5 0 0 0

Date & Time of Receipt at SLD: 03 APR 15 AM 9:27

[4] Sample Priority: 3 *If 1 or 2 call SLD*

[5] Submitter Code: 0 6 0 WSS Code: NM35 - 6 0 2 1 7 User's Site ID:

[6] *Sample Temp. Receipt @ SLD:* 5 °C

[7] Facility or WSS Name: Giant Refining Company

Facility/WSS Location: *If No WSS Code Complete 8, 9 & 10*

[8] County:

[9] City:

[10] State: *or CHANGE TO* NM

[11] Sampling Location: EP #1 EO #4

[12] Sample Collection: On: 04 / 14 / 03 (Date: MM / DD / YY) By: Herrera (Last Name) Joe (First Name)

At: 10 : 21 (Time: 24:00 Hour Clock)

[13] Sample Info. Contact: Ph: [505] - 841 - 9467

If not collector, per box 12, Please print name here:

[14] *Reports are mailed to the address specified by the Submitter Code and WSS Code (when present). However, if one of the following applies, please check ☒ appropriate boxes below and complete address form.*

☐ Send additional Report to: ⟩

☐ New Address for:
☐ Submitter
☐ WSS / Client ⟩

Name:

Address:

City: *State:* *Zip:*

[15] **Sampling Documentation:** *(Check)*
☐ Confirmation ☐ NMED Monitoring
☐ Resample ☐ Raw Water
☐ Split w/ Facility ☐ Finished Water
■ Grab Sample
☐ Other:

[16a] **Field Data:** *(When appropriate)*
☐ Sample is Chlorinated
Chlorine Residual: mG/L
Conductivity: uMhos/cm
Sulfate: mG/L
Temperature on Collection: °C

[16b] **Field Remarks:** *(Optional)*

SDWA Comments:
■ Compliance
SDWA Compositing:
☐ No Compositing
☐ Within This System Only
☐ Within All Systems

[17] **Sample Type:** *(Check ☒ only one)*
■ Water ☐ Vapor ☐ Tissue ☐ Other: ☐ Liquid:
☐ Soil ☐ Plant ☐ Blood ☐ Solid:

[18] **Preservation:** *(Check ☒ all that apply)*
☐ Preserved with HCl to pH < 2 ☐ No Preservation
■ Stored at 4°C ☐ Other:

Number of Containers Submitted:
Bottles: Vials: 2 Jars:

[19] **Analyses Requested:** *Please Check ☒ the appropriate box(es) below to indicate your analytical request(s);*

Volatile Analyses:
☐-(754) Aromatic & Halogenated Volatiles (EPA 8021)
☐-(765) Mass Spectrometer Volatiles (EPA 8260 or 524.2)
☐-(764) Appendix IX Mass Spectrometer VOCs (EPA 8260)
■-(774) Volatile Organic Compounds [VOC's] (EPA 502.2)
☐-(766) SDWA Trihalomethanes (EPA 502.2)

Remarks or Other Specific Compounds or Classes:
☐-(__)
☐-(__)

Special Extractions:
☐-(784) TCLP Extraction, Volatiles (Method 1311)
☐-(785) TCLP Extraction, Semivolatiles (Method 1311)

Semivolatile Analyses:
☐-(789) Drinking Water Semivolatile Analyses (Indented lis
☐-(775) EDB, DBCP & TCP (EPA 504.1)
☐-(758) Acid Herbicides (EPA 515.2)
☐-(772) Carbamates (EPA 531.1)
☐-(781) Glyphosate (EPA 547)
☐-(782) Endothall (EPA 548.1)
☐-(783) Diquat (EPA 549.1)
☐-(788) Synthetic Organic Compounds (SOCs) (EPA 525/508)
☐-(771) Haloacetic Acids in Drinking Water (EPA 552.2)
☐-(750) Hydrocarbon Fuel Screen, GRO (Modified EPA 8015)
☐-(751) Hydrocarbon Fuel Screen, GRO/DRO (Mod. EPA 801
☐-(752) Hydrocarbon Fuel Screen, DRO (Mod. EPA 8015)
☐-(755) Base/Neutral Semivolatiles (No Phenols) (EPA 8270)
☐-(756) Base/Neutral/Acids Semivolatiles (EPA 625/8270)
☐-(759) Polychlorinated Biphenyls (PCBs) (EPA 8082)
☐-(760) Organochlorine Pesticides (EPA 608/8081)
☐-(786) Explosives Screen (Aberdeen Method)

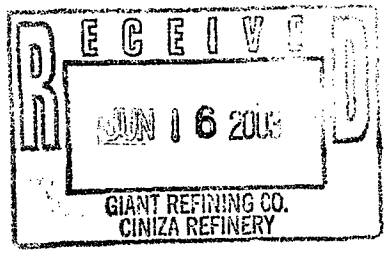
PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

System Copy

Rec'd
6/9/03 OMBaines

PL I.D. **304085**
WSS#: **NM3560217**



April 30, 2003

NMED – Drinking Water Bureau
525 Camino De Los Marquez
Suite 4
Santa Fe, NM 87501

Project Name/Contract Number: GIANT REFINING COMPANY EP #1 ID #4 20-667-55-02459

Attention: Joe Chavez

On **04/15/03**, Pinnacle Laboratories Inc., (ADHS License No. AZ0643 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

All samples were analyzed by Environmental Health Laboratories (EHL), South Bend, IN.

EHL is certified in NM for all analytes reported.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

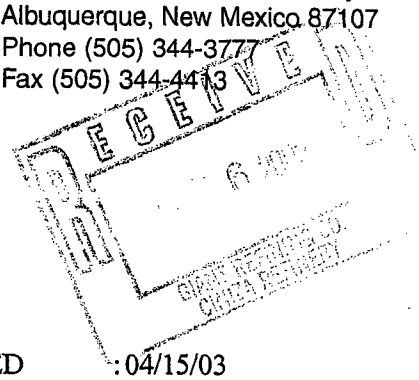
H. Mitchell Rubenstein, Ph.D.
General Manager

MR:jt

Enclosure

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413



CLIENT	:NMED DRINKING WATER BUREAU	DATE RECEIVED	:04/15/03
CONTRACT #	:20-667-55-02459		
PROJECT NAME	:GIANT REFINING COMPANY EP #1 ID #4	REPORT DATE	:04/30/03

PL ID: 304085

	PINNACLE ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	304085-01	GIANT REFINING COMPANY EP #1 ID #4	AQUEOUS	04/14/03
02	304085-02	GIANT REFINING COMPANY EP #1 ID #4 TB	AQUEOUS	03/18/03

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	2

Environmental Health Laboratories
The Nation's Drinking Water Laboratory

1105 S. Hill Street
South Bend, IN 46617
574.233.4777
800.332.4345
Fax: 574.233.8207
www.ehl.com

LABORATORY REPORT

Client: Pinnacle Laboratories
Attn: Mitch Rubenstein, Ph.D.
2709 D Pan American Freeway NE
Albuquerque, NM 87107

Report: 874967-5014(4992-4996)

Priority: Standard Written

Status: Final

Sampling Point: 304085 / Giant Retinning Company EP#1 ID #4

PWS ID#: NM3560217

Sample Point ID#: †

Facility ID#: †

Samples Submitted: Four drinking water samples and one laboratory trip blank

Sample Type: †

Copies to: None

Collected Date: 04/14/03

Received Date: 04/16/03

PARAMETER	SDWA Method	MRL * (ug/L)	Results (ug/L)	Analysis Date	Lab Number
Acetochlor	525.2	2.0	< 2.0	04/23/03	874992
2,4-Dinitrotoluene	525.2	2.0	< 2.0	04/23/03	874992
2,6-Dinitrotoluene	525.2	2.0	< 2.0	04/23/03	874992
4-4'-DDE	525.2	0.8	< 0.8	04/23/03	874992
DCPA acid metabolites	515.4	1.0	< 1.0	04/17/03	874993
EPTC	525.2	1.0	< 1.0	04/23/03	874992
Molinate	525.2	0.9	< 0.9	04/23/03	874992
MTBE	524.2	5.0	< 5.0	04/18/03	874994
Nitrobenzene	524.2	10	< 10	04/18/03	874994
Terbacil	525.2	2.0	< 2.0	04/23/03	874992
Perchlorate	314.0	4.0	< 4.0	04/17/03	874995

* EHL has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.
Any PWS information not provided is marked with a † symbol. Compliance data cannot be generated without this information.

Note: Once all PWS information is provided, these results will be uploaded into the EPA SDWARS database within thirty days of report finalization. You must then approve the data to meet the requirements of the UCMR.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call us at (574) 233-4777.

Reviewed By: _____ Date: 4/24/03

Finalized By: _____ Date: 4-25-03

STATE OF NEW MEXICO DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
RADIOCHEMISTRY SECTION [505]-841-2574

April 4, 1996

Request ID No. 105779

ANALYTICAL REPORT
SLD Accession No. RC-96-0097

Distribution
(x) User 55000
(x) Submitter 69
(X) Client
(x) SLD Files

To: Ed Horst
Giant Refining Company
Route 3 Box 7
Gallup, NM 87305

From: Radiochemistry Section
Scientific Laboratory Division
700 Camino de Salud, NE
P.O. Box 4700
Albuquerque, NM 87196-4700

Re: **A water sample submitted to this laboratory on March 6, 1996**

User:
Richard Asbury
Drinking Water Bureau
NM-ED Dist. #3 Office
1001 N. Solano Drive
Las Cruces, NM 88001

Submitter:
Joe Winkler
ED Field Office, Gallup
306 S. 5th Street
Gallup, NM 87301-6424

DEMOGRAPHIC DATA

COLLECTION
On: 5-Mar-96 *By:* Win . . .
At: 11:32 hrs. *In/Near:* Gallup

LOCATION
WSS #: 602-17; Well 3, ID 3
Giant Refining Company

ANALYTICAL RESULTS

Analysis	Value	Sigma	D. Lmt.	Units	Analyst
G-Alpha w/ Am-241 ref.	2.40	0.90	1.40	pCi/L	Troxel
G-Alpha w/ U -nat ref.	4.00	1.50	2.40	pCi/L	Troxel
G-Beta w/ Cs-137 ref.	2.20	1.30	2.50	pCi/L	Troxel
G-Beta w/ Sr/Y90 ref.	2.00	1.10	2.20	pCi/L	Troxel
Ra-226, SDWA Method. .	0.18	0.02	0.02	pCi/L	Monroe

Notations & Comments:

Uncertainties, sigmas, are expressed as +- one standard deviation, i.e. one standard error.

Small negative or positive values which are less than two(2) standard deviations should be interpreted as: including 'zero'; as 'not detected'; as 'less than the detection limit (<D. Lmt.)' when reported; or 'less than twice the standard deviation'.

Reviewed By: Loren A. Berge
Loren A. Berge, Ph.D. 04/04/96
Supervisor, Radiochemistry Section

STATE OF NEW MEXICO

DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O Box 4700
Albuquerque, NM 87196-4700

700 Camino de Salud, NE
(505) 841-2500

WATER CHEMISTRY SECTION (505)-841-2555

SAMPLE COLLECTION DATE: 4/14/2003 TIME: 10:20 BY: HERRERA

SAMPLING LOCATION: EP#1 ID#4

SAMPLE MATRIX: wn

SLD No.: WC- 200301230

REQUEST ID No.:	2344096
RECEIVED AT SLD:	4/15/2003
USER:	55000
SUBMITTER:	60
WSS #:	NM3560217

This Copy of Report for::

Giant Refining Company
Route 3 Box 7
Gallup, NM 87305

DISTRIBUTION TO:

NMED Drinking Water Bureau {U}
ED Dist #1 Office, Albuquerque {S}
Giant Refining Company {C}
Water Chemistry Section - File Copy

ANALYTICAL RESULTS

Analyte	Result	Units	Analysis Date	Method	Minimum Level	Dilution Factor	Sample Det. Limit	Analyst	Data Qualifier
Nitrate + Nitrite	<0.1	mG/L	4/22/2003	353.2	.1	1.	.1	Vince Speshock	

Laboratory Comments:

Reviewed by Chris Dean
Supervisor, Water Chemistry Section

Date Printed: 24-Apr-03

Data Qualifier Codes and Definitions

A - Insufficient sample to analyze or verify results
B - Sample holding time exceeded at laboratory
C - Sample submitted past holding time
D - Inconsistent results, data unusable, suggest re-sampling
E - Matrix interference suspected
F - Ion balance criteria exceeded
G - Result equals 50% or more of EPA MCL
H - Result equals or exceeds EPA MCL for this analyte
I - Spike recovery <80% or >120%
J - Estimated quantity only
K - Sample rejected
L - Sample voided at laboratory
M - Daily control value <80% or >120% of theoretical value
N - External control value <80% or >120% of theoretical value

STATE OF NEW MEXICO

DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O Box 4700
Albuquerque, NM 87196-4700

700 Camino de Salud, NE
(505) 841-2500

WATER CHEMISTRY SECTION (505)-841-2555

SAMPLE COLLECTION DATE: 4/14/2003 TIME: 10:23 BY: HERRERA

SAMPLING LOCATION: EP#1 ID#4

SAMPLE MATRIX: wn

SLD No.: WC- 200301237

REQUEST ID No.:	2344098
RECEIVED AT SLD:	4/15/2003
USER:	55000
SUBMITTER:	60
WSS #:	NM3560217

This Copy of Report for::

Giant Refining Company
Route 3 Box 7
Gallup, NM 87305

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NMED Drinking Water Bureau {U}
ED Dist #1 Office, Albuquerque {S}
Giant Refining Company {C}
Water Chemistry Section - File Copy

ANALYTICAL RESULTS

Analyte	Result	Units	Analysis Date	Method	Minimum Level	Dilution Factor	Sample Det. Limit	Analyst	Data Qualifier
Free Cyanide	<0.1	mG/L	4/24/2003	SM4500-CN(F)	.1	.	.	Chet Markham	

Laboratory Comments:

Reviewed by Chris Dean
Supervisor, Water Chemistry Section

Date Printed: 29-Apr-03

Data Qualifier Codes and Definitions

A - Insufficient sample to analyze or verify results
B - Sample holding time exceeded at laboratory
C - Sample submitted past holding time
D - Inconsistent results, data unusable, suggest re-sampling
E - Matrix interference suspected
F - Ion balance criteria exceeded
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STATE OF NEW MEXICO DEPARTMENT OF HEALTH
SCIENTIFIC LABORATORY DIVISION
P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
WATER CHEMISTRY SECTION [505]-841-2555

March 22, 1996

Request ID No. 108938

ANALYTICAL REPORT
SLD Accession No. WC-96-1380

Distribution
(x) User 55000
(x) Submitter 69
(X) Client
(x) SLD Files

To: Ed Horst
Giant Refining Company
Route 3 Box 7
Gallup, NM 87305

From: Water Chemistry Section
Scientific Laboratory Division
700 Camino de Salud, NE
P.O. Box 4700
Albuquerque, NM 87196-4700

Re: **A water,Pres/Nonfiltered sample submitted to this laboratory on March 6, 1996**

User:
Richard Asbury
Drinking Water Bureau
NM-ED Dist. #3 Office
1001 N. Solano Drive
Las Cruces, NM 88001

Submitter:
Joe Winkler
ED Field Office, Gallup
306 S. 5th Street
Gallup, NM 87301-6424

DEMOGRAPHIC DATA

COLLECTION
On: 5-Mar-96 *By:* Win . . .
At: 11:35 hrs. *In/Near:* Gallup

LOCATION
WSS #: 602-17; Well 3 ID3
Giant Refining Company

ANALYTICAL RESULTS

Analysis	Value	D. Lmt.	Units
nitrate+ite as N	0.10		mG/L

Reviewed By:
Diana Suvannunt, Ph.D. 03/21/96
Supervisor, Water Chemistry Section

Post-it® Fax Note 7671	Date 10/8/03	# of pages ▶ 21
To Diane Kuenes	From D Maderni	
Co./Dept.	Co.	
Phone #	Phone #	
Fax # 505-326-3747	Fax #	

January 27, 2000

Ciniza Refinery Water Well #4

Gallup, New Mexico

File No.: 99-058

Submitted To:

Mr. Eddie Stalcup
Giant Refining Company
Route 3, Box 7
Gallup, New Mexico
87301

History of Drilling Water Well #4
Ciniza Refining Company

The well was spudded in on November 12, 1999 with a Gardner-Denver 2000, Rig #10, owned and operated by United Drilling Inc. of Roswell, NM. The pilot hole was drilled using a 7 7/8" J33 (carbide button) bit to depth of 175' to a sandstone bed competent to anchor the surface casing below the alluvium and shallow water producing zones. The Sonsela member of the Chinle Formation was encountered at a depth of 15' to 85' which produced some water (not measured) that thinned the drilling mud.

The hole was reamed to 32" with three passes. The first was a 17 1/2" mill tooth bit and the hole extended an additional five feet to allow for the length of the reamer and pilot bit. The mill tooth seemed to drilled faster than the button bit, especially in the mudstone. The 17 1/2" bit was used as the pilot for the 24" reamer and also on the 32" reamer. Both reamers had open ports, not jets, at the cones, which did not keep the mudstone from balling up on the cones and slowed drilling.

Twenty four inch surface casing was run to a depth of 175'. The casing was a welded, flush joint. Concern was expressed by the drilling contractor that the casing might collapse if cemented in one stage so it was decided to cement in two stages. Cement was tremmied from bottom to top by the drilling contractor. Two yards of concrete were required to bring the cement to surface after shrink back.

A 9 7/8" mill tooth bit was used to extend the pilot hole from below the surface casing. The mill tooth penetrated the mudstones better than the previously used button bit.

Sloughing of the mudstones in the Chinle Formation mixed with cuttings throughout the hole masking the strata being drilled. After electric/nuclear logs were run, the strata could better be determined.

Formation water began thinning the drilling mud at 570', interbedded sandstone and mudstone were encountered at this depth. An increase in pit volume was apparent at 620'. Drilling had stopped at 650' for the night and was flowing 13.5 gallons per minute the next morning. The drilling contractor had been working daylight tour only but began 24 hour operations when the well started flowing. The viscosity was increased from 45 to 55 and the weight increased from 9.9 to 11.5 lbs./gal. This viscosity and weight stabilized the water flow but not the sloughing of the Chinle formation. Drilling rates averaged 5 minutes per foot.

Hard sandstone was encountered at 655'. The bit seemed to be locked up at 735' but when pulled for inspection it was undergauge and replaced. A 9 7/8" button bit was installed and reamed 150' back to bottom. After 240' of dense sandstone drilling was stopped and the hole was logged. Using the E-logs and neutron-density logs the formations were identified and it was decided to continue drilling.

A 7 7/8" inch button bit (original pilot bit) was used and more collars were added to increase weight. Until this point the hole had remained almost vertical but started deviating dramatically with the extra weight.

Limestone was encountered at 1060' which is in the Yeso Formation and drilling was stopped at 1076'.

Reaming for the production casing began from the bottom of the surface casing to 775' with a 17 1/2" bit. A cone from the 17 1/2" bit was lost and was washed to the bottom with the 7 7/8" bit. The reaming was accomplished using 9 lbs./gal. mud to make up volume and allowed to thin as the well began to flow.

A 13 3/8" threaded casing was to be run from surface to 750' but because of deviation the casing could only be run to 733'. The casing was cemented from the bottom to top by BJ Well Services from Farmington, NM.

The hole was reamed with a 12 1/2" bit from 775 to 1075' and the well was completed open hole below 733'.

Initial flow rate after drilling was 120 gallons per minute with dissolved solids at 1300 ppm.

To increase production the Lower Chinle Formation was perforated. The casing was perforated by Schlumberger from 560'-715' at eight shots per foot using tubing guns with jet shot.

The initial flow rate after perforation was approximately 150 gallons per minute and dissolved solids at 600 ppm.

CINIZA WATER WELL #4
(Replacement of water well #1)

UNITED DRILLING CO. Roswell, NM
Rig #10, Gardner-Denver 2000
Measurements from kelly bushing 6' above ground
Bit 7 7/8" J33 button bit.

11-12-99
Alluvium

0-5 Sand, fine to medium, red-brown, sub angular, chert, quartz-frosted; some petrified wood pieces, some clay.

5-10 Gravel, sandy, coarse, sub-angular, sandstone, quartz, chert.

10-15 Clay, red-brown, slightly sandy.

Chinle Formation
Petrified Forest Member

Sonsela Sandstone Bed (12')

15-20 Sandstone, fine to medium, quartz, chert.

20-25 Sandstone, fine, mainly quartz, some frosting, sub-rounded to rounded, chert.

25-30 Sandstone, fine, well sorted, calcite cemented, sub-rounded, typically frosted ~1% dark lithics, cuttings are coarse sand size. Hard drilling.

30-35 Same as above.
33-34' mudstone stringer.

11-13-99

35-40 Sandstone, very fine, well sorted, round to sub-rounded, some frosting, dominately quartz, <10% other, <1% dark lithics. Easier drilling

40-45 Same as above, ~1% dark lithics, some shaly stringers.

45-50 Same as above, dense again at 50'.

50-55 Same as above with shaly stringers throughout, sandstone is dense, chert/quartz fine grains, quartz rounded, frosted 50%; shale is dark red to purple; chert appears to be associated with the shale, shaly @ 54'.

55-60 Shale/mudstone purple with light blue to white chert.

60-65 Shale/mudstone purple to dark red, some grey pieces, dense, shale/mudstone interbedded ~1'.
Drilling Rate: 2 min/ft.

65-70 Mudstone/shale interbedded, some chert/silicious chips, some blue-green shale, white appears to be gypsum, very soft/friable when wet, suspect high montmorillonite content.

70-75 Sandstone, fine, well sorted, 1% dark lithics, few limestone pieces, silica cemented, hard drilling.

75-80 Sandstone, quartz, well sorted, very fine, silica cemented hard (mature); some thin shale interbeds (dark purple), hard, fissile, softens in water (montmorillonite?); some black shards of silica rock with copper colored veins (phlogopite).

80-85 Sandstone, white well sorted, very fine, rounded to well rounded, weaker than above.

85 **Bottom of Sonsela Sandstone Bed**

85-90 Mudstone-shaly (fissile) soft, purple to white or light grey, fissile, feels sticky (montmorillonite), some quartz grains, relatively easy drilling.

90-95 Same as above with 10% white pieces, purple primary, very sticky and soft when wet.

95-100 Same as above.

100-105 Same as above some blue-green interbedded with purple layers.

105-110 Same as above.

110-115 Same as above.

115-120 Same as above, slightly more light green to white mudstone.

Deviation survey @ 100' = 1/2 degree.

120-125 Same as above.

125-130 Same as above.

130-135 Same as above.

135-140 Same as above.

140-145 Same as above, slightly denser drilling, slightly brighter red-purple.

145-150 Same as above, softer drilling.

150-155 Same as above, firmer drilling ~1ft/min.

155-160 Same as above.

160-165 Same as above.

165-170 Same as above.

170-175 Same as above. @172 hard drilling. Very fine sandstone, some chert interbedded with sandstone. Drilling rates as follows: 172-173: 6 min; 173-174: 3 min; 174-175: 12 min. Circulate to run casing.

Terminated pilot hole to ream for surface casing.

Went from 7 7/8" bit to 17 1/2" bit.

11-14-99
Began reaming 17 1/2" hole, slow drilling in sandstone, 80' drilled.

11-15-99
Deviation survey @ 90' = 1/4 degree. (5.25"/100')

Sonsela making some water and diluting mud, mixed mud.

175-180 Same as above, easier drilling with the mill tooth bit. Sandstone, very fine, super mature, white, well sorted silica cement, interbedded with mudstone.

Increased depth of hole to allow for the larger reamers to reach the 175' depth.

Deviation survey @ 160' = 1/8 degree. (2"/100')

11-16-99
Start drilling 24" hole.

11-17-99
Drill 24" hole to 135' progress slow. Pull bit to inspect, cones are clogged with clay.

11-18-99
Mix mud, clean off pilot bit and reaming bit, finish reaming 24" hole.

11-19-99

Begin Reaming 32". Using 32" reamer with 17 1/2" pilot. Cannot get 17 1/2" plus 24" and 32" reamer in the hole since substructure is only 6 feet high.
Thirty two inch bit may "waller" unless lightly loaded.

11-20-99
Ream 32" hole.

11-21-99
Ream 32" hole.

11-22-99
Finish reaming 32" hole, condition and circulate hole. Lay down pipe and collars and reamer, run tremmie pipe, remove rotary table. 1:30-4:00pm wait on orders. Giant agreed to allow structural welders to place surface casing-will not allow on production casing. 4:00-7:30 pm run 175' of 24" casing and cutoff.

11-23-99
Replace rotary table, adjust tremmie, place first 8 yards of cement on outside of casing.

11-24-99
Place second 8 yards of cement.

11-25-99 thru 11-28-99
Shutdown for Thanksgiving.

11-29-99
Place 2 yards concrete at top of casing (15'). Mixed mud began drilling 9 7/8" SDC mill tooth bit (Smith) 1:30 pm.

180-185 Siltstone, hard, white/light tan, slightly cemented, some carbonate pieces (appears to be cement); some mudstone.

185-190 Mudstone, (claystone) dense, grey-blue to light brown, some very thin siltstone lenses.

190-195 Same as above.

195-200 Same as above.

200-205 Mudstone, dense, blue-grey, more siltstone than above, some chert/quartz grains, amber to yellow-brown in the (claystone, siltstone) matrix.

205-210 Same as above.
Drilling Rate: 2.5 min/ft.

210-215 Same as above, better cutting returns.

215-220 Sandstone, 50%, red-purple, very fine, well sorted, stained yellow, effervesces with HCl; mudstone, 50%, red-purple and white (soft), chert.

220-225 Mudstone, red-purple, white (soft), no sandstone, clear quartz with impurities (black specs).

225-230 Same as above.
Drilling Rate: 225-235 1ft/min.

230-235 Same as above, amber quartz grains.

235-240 Same as above, 2% sandstone, clear and stained (yellow to red) effervesces.

240-245 Same as above, 1% stained sandstone, chert.

245-250 Same as above, no sandstone, plus chert.

250-255 Same as above, 1% clear sandstone, chert.

255-260 Same as above.

260-265 Mudstone, red-purple, 2% blue-grey, no sandstone or chert.

265-270 Same as above, 10% blue-grey.

270-275 Same as above, 30% blue-grey.

275-280 Same as above.

Deviation survey @ 248' = 1/4 degree.

Stuck in hole at 275' cuttings fell back in and stuck bit while running deviation survey. Circulated and freed pipe.

11-30-99
Mud flowing from casing approximately 1 gpm.
Viscosity 36 seconds.

280-285 Mudstone, Same as above.

285-290 Sandstone/siltstone interbedded. Sandstone is partially silica cemented, some carbonate cemented (50%/50%), multicolored silica particles in sandstone; siltstone is red-purple, weak (easily broken). Sandstone 60% of section.

290-295 Sandstone/siltstone, with interbedded dark lithic particles (50%), 40% sandstone, siltstone is more competent (dense). Drilling Rate: 2 ft/min.

295-300 Same as above, slightly more siltstone, 70%, red-purple.

300-305 Sandstone, (70%) white, little staining, carbonate cement; some mudstone, 80% red-purple, 20% blue-green. Drilling Rate: 2 min/ft

305-310 Mudstone, red-purple, some minor sandstone pieces (likely washed up), some limonite staining. Drilling Rate: 2 min/ft.

310-315 Same as above.

315-320 Same as above.

320-325 Same as above, 10% sandstone

Viscosity 46 seconds.

325-330 Mudstone, red-purple 90%, grey 5%, sandstone 5%.

330-335 Same as above.

335-340 Same as above, no sandstone.

340-345 Same as above.

345-350 Same as above. Drilling Rate: 1 min/ft.

350-355 Same as above.

Viscosity 45 seconds

355-360 Same as above. Drilling Rate: 3 min/ft.

360-365 Same as above.

365-370 Same as above.

370-375 Same as above, purple mudstone, firmer. Drilling Rate: 4 ft/min.

Deviation survey @ 248' = 1/4 degree.

375-380 Same as above. Viscosity 46 seconds;

380-385 Same as above.

385-390 Same as above. Drilling Rate: 2 min/ft.

390-395 Same as above.

395-400 Same as above but brighter red, some very thin gypsum plates.

400-405 Same as above, firmer, especially the blue-grey material
Drilling Rate: 4 min/ft.

405-410 Mudstone, brown-red, firmer.

Viscosity: 46 seconds; Weight: 8.9 lbs/gal.

410-415 Same as above.

415-420 Same as above.

420-425 Same as above.

425-430 Same as above. Drilling Rate: 3-4 min/ft.

430-435 Same as above.

435-440 Same as above.

440-445 Same as above. Drilling Rate: 1-2 min/ft.

Viscosity: 44 seconds; Weight: 9.9 lbs/gal.

445-450 Same as above.

450-455 Same as above.

455-460 Same as above. Dense.

12-1-99

Well flowing 1 gpm.
Viscosity: 46 seconds; Weight: 9.1 lbs/gal.

460-465 Same as above.

465-470 Same as above.

Deviation survey @ 435' = 3/8 degree.

470-475 Same as above.

475-480 Same as above (mainly claystone).

Viscosity: 43 seconds; Weight: 9.3 lbs/gal.

480-485 Same as above, slightly more red, some blue-grey mottling ~15%. Pits gaining volume.

485-490 Mudstone, red-brown, red-purple, 5-10% grey mottling; siltstone, yellow-red, brown, slightly calcareous.

490-495 Same as above.

495-500 Same as above.

500-505 Same as above.

505-510 Same as above with ~2% sandstone white and dark lithics (50%-50%).

510-515 Same as above.

515-520 Same as above.

520-525 Same as above.

Viscosity: 58 seconds; Weight: 9.9 lbs/gal. Mixed 10 sacks gel.

525-530 Same as above with some siltstone; ~10% sandstone, white, hard, calcareous cement, quartz (50%) dark lithics (50%), very fine grained.

530-535 Same as above with ~1% sandstone.

535-540 Same as above.

Viscosity: 48 seconds; Weight: 9.9 lbs/gal.
Drilling Rate: 2 min/ft.

540-545 Same as above.

Blue Water Creek and Shinarump Undifferentiated

545-550 Same as above, 50% grey, 50% red, soft to firm .

Drilling Rate: 4 min/ft.

550-555 Same as above with some gypsum.

555-560 Same as above.

Drilling Rate: 5 min/ft from 558-573. (At 573' increased rotation speed to try to increase drill rate)

560-565 Same as above some firmer grey.

565-570 Same as above, 60% red, 40% grey

570-575 Same as above, 70% red, 30% grey.

575-580 Same as above, 50% grey, 50% red, a few sandstones grains.

580-585 Same as above.

585-590 Same as above, ~2% sandstone, quartz with silica cement.

590-595 Same as above some limonite.

Drilling Rate: 5 min/ft.

595-600 Same as above, a little siltier, 5% sandstone, very fine to fine, some limonite staining.

Viscosity: 43 seconds; Weight: 9.9 lbs/gal.

600-605 Same as above, silty mudstone, white and yellow stained, sandstone 10%.

605-610 Same as above with red sandstone, 15%.

610-615 Same as above, 5% sandstone.

615-620 Same as above, 5% sandstone. Less limonite.

Viscosity: 39 seconds; Weight: 9.9 lbs/gal.

620-625 Same as above, 3% sandstone.

Pit volume appears to have increased since morning.

625-630 Same as above.

630-635 Same as above.

Mixed mud. Viscosity: 57 seconds; Weight: 10.0 lbs/gal.
Larger and more cuttings. 30% sandstone (origin?)
Lowered pit approximately 1 foot at 2:30 pm. Full again at 4:30 pm.

635-640 Silty mudstone, red, firm to soft; sandstone, red, soft, very fine, slightly calcareous cement.

640-645 Sandstone, red-purple, some white, some mudstone, primarily siltstone, sandstone is typically dark colored minerals, very fine but some larger particles, rounded, some limonite.
Drilling Rate: 5 min/ft.

Viscosity: 56 seconds; Weight: 10.4 lbs/gal.

645-650 Sandstone, clean, well rounded, quartz and dark lithics, silica cement, some limonite stained.

Viscosity: 55 seconds; Weight: 10.6 lbs/gal.

12/3/99

Well flowing-estimate 10 gpm (end of pipe not reachable)

12/4/99
Flowing clear - measured 13 1/2 gpm

Deviation survey @623' = 7/16 degrees.

Drilling Rate: 2 min/ft.

650-655 Sandstone, red; mudstone, grey, most likely cave in.

Viscosity: 55 seconds; Weight: 11.5 lbs/gal.

655-660 Same as above, 5% light grey sandstone, well rounded, quartz, silica cement.

660-665 Sandstone, red, very fine, 5% light grey sandstone, red and white chert, grey mudstone, some gypsum.

665-670 Sandstone, red, 50%, some light grey sandstone, some limonite; grey, mudstone.

670-675 Same as above. Red sandstone consists of quartz, sub-rounded, red stained, very fine; grey mudstone.
Drilling Rate: 4 min/ft.

675-680 Mudstone, grey; sandstone, light red, soft; siltstone, firm. Small piece of well rounded gravel (silica), 20% purple silty mudstone.

680-685 Sandstone, light red, soft, 50%; light grey sandstone, firm, 20%; 10% of sandstone is strongly calcareous; purple silty mudstone.
Drilling Rate: 4-5 min/ft.

Viscosity: 50 seconds; Weight: 11.5 lbs/gal.

685-690 Sandstone 60% light red; 20% purple siltstone; 20% grey mudstone, some dark grains and is firmer.

690-695 Sandstone, 80%; light red, soft, very fine, well sorted, stained quartz, and light grey, finer, lithics in well sorted quartz, calcareous; 20% silty, grey mudstone; some limestone.

695-700 Light red, well sorted, soft, calcareous sandstone; medium grey mudstone, silty, some limonite.
Drilling Rate: 10 min/ft.

700-705 Sandstone, red-brown, firm, calcareous when crushed, very fine, quartz with red stain, pale red, silty to very fine sandstone, hard, quartz and dark minerals, 80%; mudstone, grey and purple mudstone (20%).

705-710 Sandstone, 60% light red; 20% red mudstone; 10% light grey sandstone with limonite; 10% sandstone with angular red mudstone clasts to very fine sand, calcareous when crushed, hard.
Drilling Rate: 10 min/ft

710-715 Same as above.

Pump not pumping well. Viscosity 78. Half of volume as before.

715-720 Same as above with more grey and red mottled mudstone, and gypsum.

Moenkopi Formation (820')

720-725 Sandstone, pale red, 60%, effervesces when broken; mudstone, grey, 20%, 5% mottled; 5% limestone.
Drilling Rate: 10 min/ft, Viscosity 90, Weight 11.5

725-730 Same as above.

Trip bit; locked up

12/5/99
Bit O.K. - 2 jets plugged - clean bit and return trip (did not change bit). Bit in excellent condition otherwise.

Viscosity: 74 seconds; Weight: 11.5 lbs/gal.

Circulate, pebbly chert and other silica rocks, sandstone - pale red, fine not calcareous, quartz grains in pale red matrix, some (approximately 10%) dark lithic rock grains also - also medium grey mudstone (15%) rounded, easily broken by hand. Very slow drilling. Still poor pumping. 730-731 Calcite infilling (1/4") 6:50am - Shut down - no progress (3/4') since 4:40am. Trip bit still locking up. Bit worn, replaced with carbide button, (Security).

12/6/99
Work on pumps. Trip back in hole. Ream 150 feet with new button fit - old button bit was undergauge.
6:15pm - Drilling Rate: 12 min/ft

730-735 Sandstone, pale red to light red, 70%, well sorted quartz, slight staining, red sandstone; 30% grey mudstone, dark purple mudstone.

735-740 Same as above. 10% white sandstone, same characteristics as the pale red - some dark chert, some white mudstone.
Drilling Rate: 20 min/ft.

Viscosity: 50 seconds; Weight: 11.5 lbs/gal.

740-745 Same as above. 10% white mudstone mottled with purple; grainy (gypsum?).
Drilling Rate: 15 min/ft,

Viscosity: 40 seconds; Weight: 11.4 lbs/gal.

745-750 Same as above. Some cherty limestone (?) fizzles some.

Deviation survey @ = 7/16 degrees.

Viscosity: 46 seconds; Weight: 11.5 lbs/gal.

12/6/99
11:50pm - Swivel leaking
Viscosity: 46 seconds; Weight: 11.4 lbs/gal.

750-755 Sandstone, 50% light red, 40% pale red, to 10% white, very fine, well sorted, clear quartz, very fine dark lithics, non-calcareous, angular to sub-angular; 1-2% overall limestone, grey-green to grey. 1% dark red mudstone.
Drilling Rate: 8 - 10 min/ft

755-760 Same as above, effervesces when particles are crushed, mudstone approximately 15%, hard drilling.
Drilling Rate: 8-10 min/ft.

760-765 Same as above, pale red sandstone, frosted, 60%, sandstone is non-calcareous; approximately 10% mudstone, some grey claystone approximately 2%.
Drilling Rate: 12-13 min/ft

Viscosity: 66 seconds; Weight: 11.6 lbs/gal.

765-770 Same as above.

770-775 Same as above, approximately 40% mudstone - dark red/purple with minor grey to light blue white, sandstone still very light red to tan, angular to sub-angular, quartz frosted, well sorted, some red staining gives overall light red color, non-calcareous, red staining very slightly calcareous.

775-780 Same as above. Minor limestone pieces are angular - sub-angular, well sorted quartz, non-calcareous/mudstone is calcareous.

Drilling Rate: 9-10 min/ft. Bit bounced significantly in this interval.

780-785 Same as above. Some clear, some frosted, mainly angular, very fine; approximately 30% purple, 15% grey - blue mudstone.
Drilling Rate: 7-10 min/ft.

Viscosity: 50 seconds; Weight: 11.6 lbs/gal.

785-790 Sandstone, 50% white, quartz, well sorted, very fine, angular to sub-angular dark lithic rock, rare mica, very weakly calcareous; approximately 5% mudstone, primarily blue grey, some brown-red/purple,
Drilling Rate:7-10 min/ft.

790-795 Same as above.
Drilling Rate:6-7 min/ft.

Viscosity: 52 seconds; Weight: 11.8 lbs/gal.

795-800 Same as above.

800-805 Same as above, Drilling Rate:8-10 min/ft.

805-810 Same as above, Drilling Rate:8 min/ft.

810-815 Same as above, Drilling Rate:6-7 min/ft.

Viscosity: 51 seconds; Weight: 11.8 lbs/gal.

815-820 Same as above, Drilling Rate:8-10 min/ft.

820-825 Same as above, Drilling Rate:12 min/ft.

825-830 Same as above.

830-835 Same as above.

835-840 Same as above, some less red,
Drilling Rate:11 min/ft.

Viscosity: 52 seconds; Weight: 11.9 lbs/gal.

840-845 Same as above, more tan, less pale red, 80% tan 20% pale red.
Drilling Rate: 20 min/ft.

Glorietta Formation (846')

845-850 Same as above.
Drilling Rate:5-8 min/ft.

Viscosity: 51 seconds; Weight: 11.9 lbs/gal.

850-855 Same as above, slightly yellow tan-yellow a little easier to break.

855-860 Same as above, only 2% lithics in sandstone.
Drilling Rate:8 min/ft.

Viscosity: 52 seconds; Weight: 11.9 lbs/gal.

860-865 Same as above, less yellow.
Drilling Rate: 10 min/ft.

865-870 Same as above, tan.

Viscosity: 51 seconds; Weight: 11.9 lbs/gal.

870-875 Same as above, some yellow mostly tan, one fracture face with red staining.

Table has been popping some, approximately 30 feet.

875-880 Same as above.
Drilling Rate:10 min/ft.

Viscosity: 55 seconds; Weight: 11.9 lbs/gal.

<u>12/7/99</u>

880-885 Same as above.

885-890 Same sandstone, shows more mudstone (red-purple) than above approximately 30%, many sandstone pieces show fracture-dendritic psilomelane, hematite coating on faces, non-calcareous.
Drilling Rate: 20 min/ft.

890-895 Same as above, non-calcareous, angular, clear but some frosted, very fine approximately 15-20% mudstone.

Viscosity: 54 seconds; Weight: 11.9 lbs/gal.

895-900 Mudstone plus sandstone interbeds, sandstone as above, mudstone (887-993), mudstone dark red-purple, non-calcareous, mudstone/sandstone approximately 60/40%, suspect rate in mudstone approximately 40 min/ft, sandstone 6-10 min/ft.

Viscosity: 56 seconds; Weight: 12 lbs/gal.

900-905 Sandstone, same sandstone as above, approximately 20% mudstone, slow drilling appears to be in mudstone.
Drilling Rate: 9-12 min/ft.

Viscosity: 57 seconds; Weight: 12 lbs/gal.

905-910 Same as above.

12/8/99 Drilling 1:05 pm
7 7/8 bit. 15,000 lbs on bit
Drilling Rate:5 min/ft.
Viscosity: 46 seconds; Weight: 11.8 lbs/gal.

910-915 Same sandstone plus slough from trip, mostly red purple mudstone, wall cake balls.

915-920 Sandstone, white as above plus red purple mudstone 50/50%, as above, one piece of light red very, very fine sandstone, non-calcareous, one piece of greenish-grey mudstone, 10% grey mudstone.
Drilling Rate:8-10 min/ft.

920-925 Sandstone-red purple mudstone-grey mudstone (softer than red-purple) 40/30/30%.

925-930 Same as above, sandstone plus red-purple mudstone plus grey mudstone.
Drilling Rate: 12 min/ft.

Viscosity: 48 seconds; Weight: 11.8 lbs/gal.

935-940 Sandstone, white, very few lithics, sub-angular, well sorted, 40%, slightly calcareous when crushed; red brown mudstone 40%; grey plus purple mudstone, 20% mottled together.
Drilling Rate:10 min/ft.

Viscosity: 49 seconds; Weight: 11.9 lbs/gal.

940-945 Sandstone, white to tan (as above); purple plus grey mudstone, soft red brown mudstone, blocky, firmer.

945-950 Same as above.

Yeso Formation (948')
950-955 Red brown mudstone 60% (grey mottled modules); 35% sandstone, very slightly calcareous; 5% greenish grey mudstone.

955-960 Mudstone, red brown, blocky in appearance, 30%; mudstone, red purple, 30%; sandstone, tan white, slightly calcareous, 30%; greenish grey mudstone with quartz sand, lithics were green modules 8%; red sandstone with quartz lithics, banded as to silt and sand, a few grey mud balls.
Viscosity: 48 seconds; Weight: 12 lbs/gal.

Deviation survey @ 928' = 1 1/4 degrees

960-965 Sandstone, light grey (same as above); 40%-mudstone red brown 30%; red purple 5%; light grey mudstone, medium soft 20%; grey mud balls 5%.
Drilling Rate: 10-12 min/ft.

965-970 Sandstone, light grey to tan 60%; red brown mudstone 35%; red purple 5%.

12/9/99 1:20 am

970-975 Sandstone, strongly calcareous when broken, light grey, very fine, angular to sub-angular, quartz, flakes crumble easily, some red brown mudstone washes up with sandstone-suspect washout from above.
Drilling Rate:12 min/ft.

Viscosity: 46 seconds; Weight: 12 lbs/gal.

975-980 Same as above.

980-985 Sandstone as above; red brown mudstone, some medium grey mudstone 60/40%, sandstone/mudstone approximately 50/50%, mudstone/sandstone is likely interbedded although some washing may be occuring-caliper log will tell
Drilling Rate: 9-10 min/ft.

Viscosity: 51 seconds; Weight: 12 lbs/gal.

985-990 Mudstone, red brown 90%, grey/purple 10%, minor light blue grey, some mottled red brown/blue grey, crumbly, few pieces of sandstone but rare.
Drilling Rate:7-10 min/ft.

990-995 Sandstone/mudstone 50/50%, sandstone is very fine, weakly calcareous, light blue grey-very light red, quartz, rounded to sub-rounded, slightly frosted to clear; mudstone 50/50%, red brown-light blue grey-medium grey, some mudstone washing from above.
Drilling Rate:5-6 min/ft.

Viscosity: 52 seconds; Weight: 12.1 lbs/gal.

995-1000 Same as above, some chert.
Drilling Rate: 5-6 min/ft.

Viscosity: 55 seconds; Weight: 12.2 lbs/gal.

1000-1005 Same as above, slightly more mudstone-approximately 60%, grey mudstone is slightly calcareous.

1005-1010 Same as above, some chert, sandstone is calcareous when broken.
Drilling Rate:7-10 min/ft.

Viscosity: 7-10 seconds; Weight: 12.2 lbs/gal.

1010-1015 Same as above, mudstone/sandstone approximately 70/30%; mudstone red brown/blue grey approximately 80/20%.

1015-1020 Sandstone, very slightly calcareous, sub-rounded, generally clear, very fine light grey-white, crumbles easily; approximately 25% shale that appears to have sloughed from walls above (large pieces), red brown and mottled, medium to light brown grey.

1020-1025 Same as above.

1025-1030 Same as above, some blue green mudstone pieces, some (minor) dark red sandstone, very fine non-calcareous, some clay balls with sample, added water and cleaned pit.
Drilling Rate:7-9 min/ft.

Viscosity: 43 seconds; Weight: 11.8 lbs/gal.

1030-1035 Same as above.

1035-1040 Same as above.

1040-1045 Same as above, 40% sandstone.

1045-1050 Same as above, 70% sandstone, sandstone appears a little coarser.

1050-1055 Same as above, 70% sandstone, some sandstones have slightly larger quartz grains, sub-rounded, clear.
Drilling Rate: 10 min/ft.
Viscosity: 56 seconds; Weight: 11.6 lbs/gal.

1055-1060 Same as above, 60% sandstone, dark grey, hard limestone 20%.

Rotary table very noisy at 1057'.

1060-1065 Limestone, hard, dark grey to grey 60/30%, red purple mudstone 10%, sandstone grey, limestones may be partially dolomitized.
Drilling Rate:10 min/ft.

Viscosity: 48 seconds; Weight: 11.6 lbs/gal.

1065-1070 Limestone 70%, red brown 15%, red purple, 18%, white soft to clay balls 8%, grey mudballs 8%.

Total depth 1076 feet

Deviation survey @ 1040' = 1 1/2 degrees

12/10/99 - 12/15/99

Ream 17 1/2"to 775'.
Set 13 3/8" casing to 731' and cement.
Cone lost off reaming bit. Washed hole to 1075'.
Cone at 1076'.

12/16/99

Begin reaming 12" hole. Well completed as open hole from 731' to 1020. The 7 7/8" rathole is from 1020' to 1076'.

Well shut in pressure, before perforating, on 1/10/00 was 112 psi with unrestricted flow at approximately 110 gpm.

Perforated 13 3/8" casing with 8 shots per foot from 560'-715' to increase production.

1/27/00

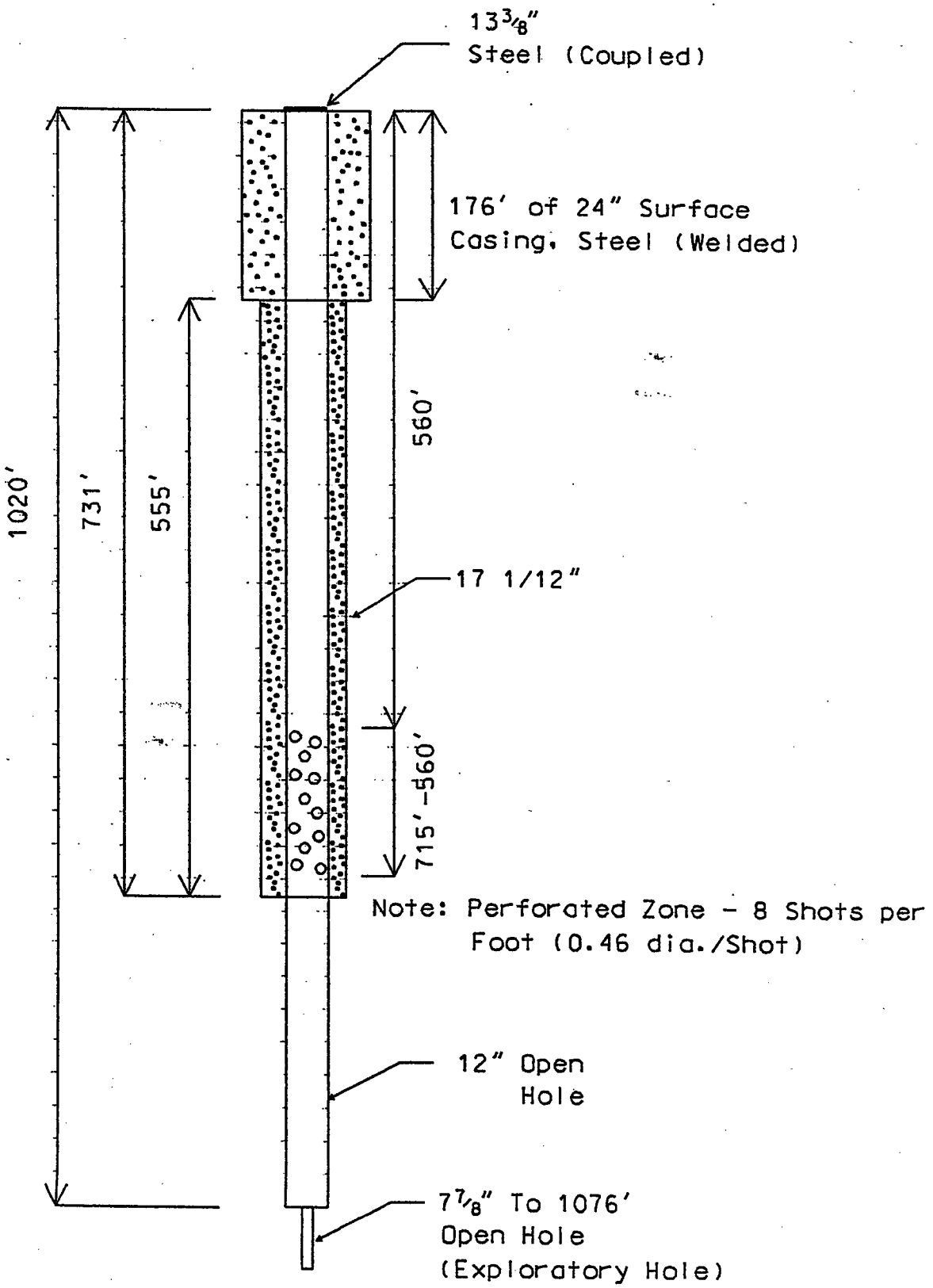
Unrestricted flow not measured at the time of this report.

CINIZA REFINERY

COMPLETION DIAGRAM

CINIZA WELL #4

Note: All Elevations From Kelly Bushing



Note: Perforated Zone - 8 Shots per Foot (0.46 dia./Shot)

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

August 25, 2004

Steve Morris
Giant Refining Co
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: Well #4 SDWA/Iyanbito

Order No.: 0408038

Dear Steve Morris:

Hall Environmental Analysis Laboratory received 2 samples on 8/5/2004 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

ACCREDITED IN ACCORDANCE WITH nelac

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

Hall Environmental Analysis Laboratory

Date: *25-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: Well #4
Lab Order: 0408038
Collection Date: 8/4/2004 3:00:00 PM
Project: Well #4 SDWA/Iyanbito
Lab ID: 0408038-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **MAP**
Fluoride	0.21	0.10		mg/L	1	8/5/2004 1:56:45 PM
Nitrogen, Nitrate (As N)	0.12	0.10		mg/L	1	8/5/2004 1:56:45 PM
EPA METHOD 504.1: EDB						Analyst: **SCC**
1,2-Dibromoethane	ND	0.010		µg/L	1	8/6/2004 12:29:58 PM
EPA METHOD 8082: PCB'S						Analyst: **JMP**
Aroclor 1016	ND	1.0		µg/L	1	8/24/2004 5:22:53 AM
Aroclor 1221	ND	5.0		µg/L	1	8/24/2004 5:22:53 AM
Aroclor 1232	ND	1.0		µg/L	1	8/24/2004 5:22:53 AM
Aroclor 1242	ND	1.0		µg/L	1	8/24/2004 5:22:53 AM
Aroclor 1248	ND	1.0		µg/L	1	8/24/2004 5:22:53 AM
Aroclor 1254	ND	1.0		µg/L	1	8/24/2004 5:22:53 AM
Aroclor 1260	ND	1.0		µg/L	1	8/24/2004 5:22:53 AM
Surr: Decachlorobiphenyl	106	45.3-140		%REC	1	8/24/2004 5:22:53 AM
Surr: Tetrachloro-m-xylene	66.0	28.1-139		%REC	1	8/24/2004 5:22:53 AM
EPA METHOD 8260B: VOLATILES						Analyst: **KTM**
Benzene	ND	1.0		µg/L	1	8/10/2004
Toluene	ND	1.0		µg/L	1	8/10/2004
Ethylbenzene	ND	1.0		µg/L	1	8/10/2004
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/10/2004
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/10/2004
Naphthalene	ND	2.0		µg/L	1	8/10/2004
1-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
2-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
Acetone	ND	10		µg/L	1	8/10/2004
Bromobenzene	ND	1.0		µg/L	1	8/10/2004
Bromochloromethane	ND	1.0		µg/L	1	8/10/2004
Bromodichloromethane	ND	1.0		µg/L	1	8/10/2004
Bromoform	ND	1.0		µg/L	1	8/10/2004
Bromomethane	ND	2.0		µg/L	1	8/10/2004
2-Butanone	ND	10		µg/L	1	8/10/2004
Carbon disulfide	ND	10		µg/L	1	8/10/2004
Carbon Tetrachloride	ND	1.0		µg/L	1	8/10/2004
Chlorobenzene	ND	1.0		µg/L	1	8/10/2004
Chloroethane	ND	2.0		µg/L	1	8/10/2004
Chloroform	ND	1.0		µg/L	1	8/10/2004
Chloromethane	ND	1.0		µg/L	1	8/10/2004

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: *25-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: Well #4
Lab Order: 0408038
Collection Date: 8/4/2004 3:00:00 PM
Project: Well #4 SDWA/Iyanbito
Lab ID: 0408038-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
2-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
4-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
cis-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/10/2004
Dibromochloromethane	ND	1.0		µg/L	1	8/10/2004
Dibromomethane	ND	2.0		µg/L	1	8/10/2004
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,3-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
2,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
Hexachlorobutadiene	ND	1.0		µg/L	1	8/10/2004
2-Hexanone	ND	10		µg/L	1	8/10/2004
Isopropylbenzene	ND	1.0		µg/L	1	8/10/2004
4-Isopropyltoluene	ND	1.0		µg/L	1	8/10/2004
4-Methyl-2-pentanone	ND	10		µg/L	1	8/10/2004
Methylene Chloride	ND	3.0		µg/L	1	8/10/2004
n-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
n-Propylbenzene	ND	1.0		µg/L	1	8/10/2004
sec-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
Styrene	ND	1.0		µg/L	1	8/10/2004
tert-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/10/2004
trans-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/10/2004
Trichlorofluoromethane	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/10/2004
Vinyl chloride	ND	1.0		µg/L	1	8/10/2004
Xylenes, Total	ND	1.0		µg/L	1	8/10/2004

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Hall Environmental Analysis Laboratory

Date: *25-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: Well #4
Lab Order: 0408038
Collection Date: 8/4/2004 3:00:00 PM
Project: Well #4 SDWA/Iyanbito
Lab ID: 0408038-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Surr: 1,2-Dichloroethane-d4	102	70.6-124		%REC	1	8/10/2004
Surr: 4-Bromofluorobenzene	101	76.4-130		%REC	1	8/10/2004
Surr: Dibromofluoromethane	111	67.2-131		%REC	1	8/10/2004
Surr: Toluene-d8	99.6	82.1-123		%REC	1	8/10/2004
EPA METHOD 8310: PAHS						Analyst: **IC**
Naphthalene	ND	2.5		µg/L	1	8/21/2004 11:48:01 AM
1-Methylnaphthalene	ND	2.5		µg/L	1	8/21/2004 11:48:01 AM
2-Methylnaphthalene	ND	2.5		µg/L	1	8/21/2004 11:48:01 AM
Acenaphthylene	ND	2.5		µg/L	1	8/21/2004 11:48:01 AM
Acenaphthene	ND	2.5		µg/L	1	8/21/2004 11:48:01 AM
Fluorene	ND	0.80		µg/L	1	8/21/2004 11:48:01 AM
Phenanthrene	ND	0.60		µg/L	1	8/21/2004 11:48:01 AM
Anthracene	ND	0.60		µg/L	1	8/21/2004 11:48:01 AM
Fluoranthene	ND	0.30		µg/L	1	8/21/2004 11:48:01 AM
Pyrene	ND	0.30		µg/L	1	8/21/2004 11:48:01 AM
Benz(a)anthracene	ND	0.020		µg/L	1	8/21/2004 11:48:01 AM
Chrysene	ND	0.20		µg/L	1	8/21/2004 11:48:01 AM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	8/21/2004 11:48:01 AM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	8/21/2004 11:48:01 AM
Benzo(a)pyrene	ND	0.020		µg/L	1	8/21/2004 11:48:01 AM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	8/21/2004 11:48:01 AM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	8/21/2004 11:48:01 AM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	8/21/2004 11:48:01 AM
Surr: Benzo(e)pyrene	88.7	54-102		%REC	1	8/21/2004 11:48:01 AM
EPA METHOD 7470: MERCURY						Analyst: **CMC**
Mercury	ND	0.00020		mg/L	1	8/9/2004
EPA METHOD 6010C: DISSOLVED METALS						Analyst: **NMO**
Arsenic	ND	0.020		mg/L	1	8/6/2004 10:18:19 AM
Barium	0.014	0.0020		mg/L	1	8/6/2004 10:18:19 AM
Cadmium	ND	0.0020		mg/L	1	8/6/2004 10:18:19 AM
Chromium	ND	0.0060		mg/L	1	8/6/2004 10:18:19 AM
Lead	ND	0.0050		mg/L	1	8/6/2004 10:18:19 AM
Selenium	ND	0.050		mg/L	1	8/6/2004 10:18:19 AM
Silver	ND	0.0050		mg/L	1	8/6/2004 10:18:19 AM
Uranium	ND	0.10		mg/L	1	8/6/2004 10:18:19 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory

Date: *25-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: TRIP BLANK
Lab Order: 0408038
Collection Date:
Project: Well #4 SDWA/Iyanbito
Lab ID: 0408038-02
Matrix: TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 504.1: EDB						Analyst: **SCC**
1,2-Dibromoethane	ND	0.010		µg/L	1	8/6/2004 12:42:50 PM
EPA METHOD 8260B: VOLATILES						Analyst: **KTM**
Benzene	ND	1.0		µg/L	1	8/10/2004
Toluene	ND	1.0		µg/L	1	8/10/2004
Ethylbenzene	ND	1.0		µg/L	1	8/10/2004
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/10/2004
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/10/2004
Naphthalene	ND	2.0		µg/L	1	8/10/2004
1-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
2-Methylnaphthalene	ND	4.0		µg/L	1	8/10/2004
Acetone	ND	10		µg/L	1	8/10/2004
Bromobenzene	ND	1.0		µg/L	1	8/10/2004
Bromochloromethane	ND	1.0		µg/L	1	8/10/2004
Bromodichloromethane	ND	1.0		µg/L	1	8/10/2004
Bromoform	ND	1.0		µg/L	1	8/10/2004
Bromomethane	ND	2.0		µg/L	1	8/10/2004
2-Butanone	ND	10		µg/L	1	8/10/2004
Carbon disulfide	ND	10		µg/L	1	8/10/2004
Carbon Tetrachloride	ND	1.0		µg/L	1	8/10/2004
Chlorobenzene	ND	1.0		µg/L	1	8/10/2004
Chloroethane	ND	2.0		µg/L	1	8/10/2004
Chloroform	ND	1.0		µg/L	1	8/10/2004
Chloromethane	ND	1.0		µg/L	1	8/10/2004
2-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
4-Chlorotoluene	ND	1.0		µg/L	1	8/10/2004
cis-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/10/2004
Dibromochloromethane	ND	1.0		µg/L	1	8/10/2004
Dibromomethane	ND	2.0		µg/L	1	8/10/2004
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/10/2004
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloroethene	ND	1.0		µg/L	1	8/10/2004
1,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004

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: *25-Aug-04*

CLIENT: Giant Refining Co
Client Sample ID: TRIP BLANK
Lab Order: 0408038
Collection Date:
Project: Well #4 SDWA/Iyanbito
Lab ID: 0408038-02
Matrix: TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
1,3-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
2,2-Dichloropropane	ND	1.0		µg/L	1	8/10/2004
1,1-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
Hexachlorobutadiene	ND	1.0		µg/L	1	8/10/2004
2-Hexanone	ND	10		µg/L	1	8/10/2004
Isopropylbenzene	ND	1.0		µg/L	1	8/10/2004
4-Isopropyltoluene	ND	1.0		µg/L	1	8/10/2004
4-Methyl-2-pentanone	ND	10		µg/L	1	8/10/2004
Methylene Chloride	ND	3.0		µg/L	1	8/10/2004
n-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
n-Propylbenzene	ND	1.0		µg/L	1	8/10/2004
sec-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
Styrene	ND	1.0		µg/L	1	8/10/2004
tert-Butylbenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	8/10/2004
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/10/2004
trans-1,2-DCE	ND	1.0		µg/L	1	8/10/2004
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/10/2004
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/10/2004
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/10/2004
Trichlorofluoromethane	ND	1.0		µg/L	1	8/10/2004
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/10/2004
Vinyl chloride	ND	1.0		µg/L	1	8/10/2004
Xylenes, Total	ND	1.0		µg/L	1	8/10/2004
Surr: 1,2-Dichloroethane-d4	104	70.6-124		%REC	1	8/10/2004
Surr: 4-Bromofluorobenzene	106	76.4-130		%REC	1	8/10/2004
Surr: Dibromofluoromethane	114	67.2-131		%REC	1	8/10/2004
Surr: Toluene-d8	99.5	82.1-123		%REC	1	8/10/2004

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

ENERGY LABORATORIES, INC. *2393 Salt Creek Highway (82601)* P.O. Box 3258 * Casper, WY 82602
Toll Free 888.235.0515 * 307.235.0515 * Fax 307.234.1639 * casper@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Hall Environmental
Project: Well 4 Iyanbito
Lab ID: C04080305-001
Client Sample ID: Well #4 (0408038-01)

Report Date: 08/23/04
Collection Date: 08/04/04 15:00
Date Received: 08/06/04
Matrix: Aqueous

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
NON-METALS							
Cyanide, Total Automated	ND	mg/L		0.1		E335.3	08/12/04 11:56 eli-b
RADIONUCLIDES - TOTAL							
Radium 226	ND	pCi/L		2.5		E903.0	08/09/04 14:50 df
Radium 228	ND	pCi/L		2.5		E904.0	08/09/04 14:50 pj

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected a he reporting limit.

ASSAIGAI ANALYTICAL LABORATORIES, INC.

4301 Masthead NE • Albuquerque, New Mexico 87109 • (505) 345-8964 • FAX (505) 345-7259
3332 Wedgewood, Ste. N • El Paso, Texas 79925 • (915) 593-6000 • FAX (915) 593-7820
127 Eastgate Drive, 212-C • Los Alamos, New Mexico 87544 • (505) 662-2558

Explanation of codes	
B	analyte detected in Method Blank
E	result is estimated
H	analyzed out of hold time
N	tentatively identified compound
S	subcontracted
1-9	see footnote

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

STANDARD

Assaigai Analytical Laboratories, Inc.

Certificate of Analysis

Client: **HALL ENVIRONMENTAL**
Project: **WELL 4 LYANBITO**
Order: **0408106 HAL03** Receipt: **08-05-04**

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

Sample: ***WELL #4*** Collected: *08-04-04 15:00:00* By:
Matrix: ***AQUEOUS***

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
0408106-01A		**SM-9223B**						By: DAW		
BT04216	BT.2004.588.13		E. coli, MMO/MUG	Absent	N/A	1	0		08-05-04	08-06-04
BT04216	BT.2004.588.13		Total Coliform, MMO/MUG	Absent	N/A	1	0		08-05-04	08-06-04

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

Hall Environmental Analysis Laboratory

Date: *25-Aug-04*

CLIENT: Giant Refining Co
Work Order: 0408038
Project: Well #4 SDWA/Iyanbito

QC SUMMARY REPORT
Method Blank

Sample ID **MBLK**	Batch ID: **R12686**	Test Code: **E300**	Units: **mg/L**	Analysis Date **8/5/2004 10:18:34 AM**	Prep Date
Client ID:		Run ID: **LC_040805A**		SeqNo: **294143**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.1									
Nitrogen, Nitrate (As N)	ND	0.1									

Sample ID **MBLK**	Batch ID: **R12686**	Test Code: **E300**	Units: **mg/L**	Analysis Date **8/5/2004 10:20:37 PM**	Prep Date
Client ID:		Run ID: **LC_040805A**		SeqNo: **294187**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.1									
Nitrogen, Nitrate (As N)	ND	0.1									

Sample ID **MB-6258**	Batch ID: **6258**	Test Code: **E504.1**	Units: **µg/L**	Analysis Date **8/6/2004 9:56:00 AM**	Prep Date **8/6/2004**
Client ID:		Run ID: **ECD(14A)_040806A**		SeqNo: **294277**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.01									

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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

1

CLIENT: Giant Refining Co
Work Order: 0408038
Project: Well #4 SDWA/Iyanbito

QC SUMMARY REPORT
Method Blank

Sample ID **MB-6260** Batch ID: **6260** Test Code: **SW8080A** Units: **µg/L** Analysis Date **8/24/2004 2:18:30 AM** Prep Date **8/6/2004**
Client ID: Run ID: **ECD(17A)_040822A** SeqNo: **298794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1									
Aroclor 1221	ND	5									
Aroclor 1232	ND	1									
Aroclor 1242	ND	1									
Aroclor 1248	ND	1									
Aroclor 1254	ND	1									
Aroclor 1260	ND	1									
Surr: Decachlorobiphenyl	2.52	0	2.5	0	101	45.3	140	0			
Surr: Tetrachloro-m-xylene	1.72	0	2.5	0	68.8	28.1	139	0			

9/21

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

CLIENT: Giant Refining Co
Work Order: 0408038
Project: Well #4 SDWA/Iyanbito

QC SUMMARY REPORT
Method Blank

Sample ID **MB-6265** Batch ID: **6265** Test Code: **SW8310** Units: **µg/L** Analysis Date **8/21/2004 10:12:01 AM** Prep Date **8/9/2004**
Client ID: Run ID: **HUGO_040820A** SeqNo: **298503**

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	9.01	0	10	0	90.1	54	102	0			

Sample ID **MB-6267** Batch ID: **6267** Test Code: **SW7470** Units: **mg/L** Analysis Date **8/9/2004** Prep Date **8/9/2004**
Client ID: Run ID: **MI-LA254_040809A** SeqNo: **295021**

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

Qualifiers:
ND - Not Detected at the Reporting Limit
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: Giant Refining Co
Work Order: 0408038
Project: Well #4 SDWA/Iyanbito

QC SUMMARY REPORT
Method Blank

Sample ID **MB** Batch ID: **R12692** Test Code: **SW6010A** Units: **mg/L** Analysis Date **8/6/2004 8:35:37 AM** Prep Date

Client ID: Run ID: **ICP_040806A** SeqNo: **294294**

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

11/21

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: *25-Aug-04*

CLIENT: Giant Refining Co
Work Order: 0408038
Project: Well #4 SDWA/Iyanbito

QC SUMMARY REPORT
Method Blank

Sample ID **5ml rb** Batch ID: **R12713** Test Code: **SW8260B** Units: **µg/L** Analysis Date **8/9/2004** Prep Date

Client ID: Run ID: **VAL_040809A** SeqNo: **295199**

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									

12/21

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

CLIENT: Giant Refining Co
Work Order: 0408038
Project: Well #4 SDWA/Iyanbito

QC SUMMARY REPORT
Method Blank

cis-1,3-Dichloropropene	ND	1
1,2-Dibromo-3-chloropropane	ND	2
Dibromochloromethane	ND	1
Dibromomethane	ND	2
1,2-Dichlorobenzene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
Dichlorodifluoromethane	ND	1
1,1-Dichloroethane	ND	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

13/21

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

CLIENT: Giant Refining Co
Work Order: 0408038
Project: Well #4 SDWA/Iyanbito

QC SUMMARY REPORT
Method Blank

1,1,2-Trichloroethane	ND	1						
Trichloroethene (TCE)	ND	1						
Trichlorofluoromethane	ND	1						
1,2,3-Trichloropropane	ND	2						
Vinyl chloride	ND	1						
Xylenes, Total	ND	1						
Surr: 1,2-Dichloroethane-d4	10.27	0	10	0	103	68.4	127	0
Surr: 4-Bromofluorobenzene	10.23	0	10	0	102	70.4	126	0
Surr: Dibromofluoromethane	10.91	0	10	0	109	70.2	126	0
Surr: Toluene-d8	10.3	0	10	0	103	73.5	129	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: *25-Aug-04*

CLIENT: Giant Refining Co
Work Order: 0408038
Project: Well #4 SDWA/Iyanbito

QC SUMMARY REPORT

Sample Duplicate

Sample ID **0408038-01D DUP** Batch ID: **6267** Test Code: **SW7470** Units: **mg/L** Analysis Date **8/9/2004** Prep Date **8/9/2004**
Client ID: **Well #4** Run ID: **MI-LA254_040809A** SeqNo: **295024**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.0002	0	0	0	0	0	0			

Sample ID **0408038-01E DUP** Batch ID: **R12692** Test Code: **SW6010A** Units: **mg/L** Analysis Date **8/6/2004 10:21:16 AM** Prep Date
Client ID: **Well #4** Run ID: **ICP_040806A** SeqNo: **294320**

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	20	
Barium	0.01348	0.002	0	0	0	0	0	0.01352	0.264	20	
Cadmium	ND	0.002	0	0	0	0	0	0	0	20	
Chromium	ND	0.006	0	0	0	0	0	0	0	20	
Lead	ND	0.005	0	0	0	0	0	0	0	20	
Selenium	ND	0.05	0	0	0	0	0	0	0	20	
Silver	ND	0.005	0	0	0	0	0	0	0	20	
Uranium	ND	0.1	0	0	0	0	0	0	0	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: *25-Aug-04*

CLIENT: Giant Refining Co
Work Order: 0408038
Project: Well #4 SDWA/Iyanbito

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **LCS**	Batch ID: **R12686**	Test Code: **E300**	Units: **mg/L**	Analysis Date **8/5/2004 10:35:20 AM**	Prep Date
Client ID:		Run ID: **LC_040805A**		SeqNo: **294144**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.4755	0.1	0.5	0	95.1	90	110	0			
Nitrogen, Nitrate (As N)	2.436	0.1	2.5	0	97.4	90	110	0			

Sample ID **LCS**	Batch ID: **R12686**	Test Code: **E300**	Units: **mg/L**	Analysis Date **8/5/2004 10:54:14 PM**	Prep Date
Client ID:		Run ID: **LC_040805A**		SeqNo: **294189**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.4508	0.1	0.5	0	90.2	90	110	0			
Nitrogen, Nitrate (As N)	2.372	0.1	2.5	0	94.9	90	110	0			

Sample ID **LCS-6258**	Batch ID: **6258**	Test Code: **E504.1**	Units: **µg/L**	Analysis Date **8/6/2004 10:08:52 AM**	Prep Date **8/6/2004**
Client ID:		Run ID: **ECD(14A)_040806A**		SeqNo: **294278**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.077	0.01	0.1	0	77.0	70	130	0			

Sample ID **LCSD-6258**	Batch ID: **6258**	Test Code: **E504.1**	Units: **µg/L**	Analysis Date **8/6/2004 10:21:49 AM**	Prep Date **8/6/2004**
Client ID:		Run ID: **ECD(14A)_040806A**		SeqNo: **294279**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.072	0.01	0.1	0	72.0	70	130	0.077	6.71	13.5	

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

CLIENT: Giant Refining Co
Work Order: 0408038
Project: Well #4 SDWA/Iyanbito

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **LCS-6260** Batch ID: **6260** Test Code: **SW8080A** Units: **µg/L** Analysis Date **8/24/2004 3:05:02 AM** Prep Date **8/6/2004**
Client ID: Run ID: **ECD(17A)_040822A** SeqNo: **298796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	7.096	1	10	0	71.0	27.4	132	0			
Aroclor 1260	10.68	1	10	0	107	52.1	148	0			

Sample ID **LCSD-6260** Batch ID: **6260** Test Code: **SW8080A** Units: **µg/L** Analysis Date **8/24/2004 4:37:48 AM** Prep Date **8/6/2004**
Client ID: Run ID: **ECD(17A)_040822A** SeqNo: **298801**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	7.658	1	10	0	76.6	27.4	132	7.096	7.62	45.7	
Aroclor 1260	11.08	1	10	0	111	52.1	148	10.68	3.64	30	

Sample ID **100ng lcs** Batch ID: **R12713** Test Code: **SW8260B** Units: **µg/L** Analysis Date **8/9/2004** Prep Date
Client ID: Run ID: **VAL_040809A** SeqNo: **295201**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	23.45	1	20	0	117	75.3	128	0			
Toluene	21.53	1	20	0	108	87.7	122	0			
Chlorobenzene	19.71	1	20	0	98.6	76.2	130	0			
1,1-Dichloroethene	19.25	1	20	0	96.3	70.7	122	0			
Trichloroethene (TCE)	20.92	1	20	0	105	76.9	130	0			

17/21

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

CLIENT: Giant Refining Co
Work Order: 0408038
Project: Well #4 SDWA/Iyanbito

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **LCS-6265** Batch ID: **6265** Test Code: **SW8310** Units: **µg/L** Analysis Date **8/21/2004 11:00:01 AM** Prep Date **8/9/2004**
Client ID: Run ID: **HUGO_040820A** SeqNo: **298504**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	27.64	2.5	40	0	69.1	20.939	111.211	0			
1-Methylnaphthalene	28.12	2.5	40.1	0	70.1	22.016	110.385	0			
2-Methylnaphthalene	27.2	2.5	40	0	68.0	21.098	111.261	0			
Acenaphthylene	28.18	2.5	40.1	0	70.3	23.852	116.857	0			
Acenaphthene	28.22	2.5	40	0	70.6	27.524	111.73	0			
Fluorene	2.71	0.8	4.01	0	67.6	31.046	113.32	0			
Phenanthrene	1.51	0.6	2.01	0	75.1	42.279	115.749	0			
Anthracene	1.51	0.6	2.01	0	75.1	43.767	118.693	0			
Fluoranthene	3.25	0.3	4.01	0	81.0	55.334	117.461	0			
Pyrene	3.18	0.3	4.01	0	79.3	57.722	120.832	0			
Benz(a)anthracene	0.32	0.02	0.401	0	79.8	70.18	113.452	0			
Chrysene	1.57	0.2	2.01	0	78.1	43.942	141.404	0			
Benzo(b)fluoranthene	0.3	0.05	0.38	0	78.9	71.192	103.368	0			
Benzo(k)fluoranthene	0.21	0.02	0.25	0	84.0	75.336	107.209	0			
Benzo(a)pyrene	0.2	0.02	0.251	0	79.7	74.556	100.742	0			
Dibenz(a,h)anthracene	0.41	0.04	0.501	0	81.8	80.693	106.931	0			
Benzo(g,h,i)perylene	0.44	0.03	0.5	0	88.0	55.168	135.014	0			
Indeno(1,2,3-cd)pyrene	0.848	0.08	1.002	0	84.6	79.328	104.794	0			

Sample ID **LCS-6267** Batch ID: **6267** Test Code: **SW7470** Units: **mg/L** Analysis Date **8/9/2004** Prep Date **8/9/2004**
Client ID: Run ID: **MI-LA254_040809A** SeqNo: **295022**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.004961	0.0002	0.005	0	99.2	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: Giant Refining Co
Work Order: 0408038
Project: Well #4 SDWA/Iyanbito

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID **LCSD-6267** Batch ID: **6267** Test Code: **SW7470** Units: **mg/L** Analysis Date **8/9/2004** Prep Date **8/9/2004**
Client ID: Run ID: **MI-LA254_040809A** SeqNo: **295037**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00507	0.0002	0.005	0	101	75.2	134	0.004961	2.19	0	

Sample ID **LCS** Batch ID: **R12692** Test Code: **SW6010A** Units: **mg/L** Analysis Date **8/6/2004 8:38:30 AM** Prep Date
Client ID: Run ID: **ICP_040806A** SeqNo: **294295**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.5066	0.02	0.5	0	101	80	120	0			
Barium	0.4724	0.002	0.5	0	94.5	80	120	0			
Cadmium	0.4991	0.002	0.5	0	99.8	80	120	0			
Chromium	0.4786	0.006	0.5	0	95.7	80	120	0			
Lead	0.4877	0.005	0.5	0	97.5	80	120	0			
Selenium	0.5447	0.05	0.5	0	109	80	120	0			
Silver	0.4788	0.005	0.5	0	95.8	80	120	0			

Sample ID **LCSD** Batch ID: **R12692** Test Code: **SW6010A** Units: **mg/L** Analysis Date **8/6/2004 8:41:30 AM** Prep Date
Client ID: Run ID: **ICP_040806A** SeqNo: **294296**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.5037	0.02	0.5	0	101	80	120	0.5066	0.564	20	
Barium	0.4822	0.002	0.5	0	96.4	80	120	0.4724	2.06	20	
Cadmium	0.5077	0.002	0.5	0	102	80	120	0.4991	1.70	20	
Chromium	0.4859	0.006	0.5	0	97.2	80	120	0.4786	1.51	20	
Lead	0.4945	0.005	0.5	0	98.9	80	120	0.4877	1.39	20	
Selenium	0.5452	0.05	0.5	0	109	80	120	0.5447	0.0927	20	
Silver	0.4917	0.005	0.5	0	98.3	80	120	0.4788	2.67	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: Giant Refining Co
Work Order: 0408038
Project: Well #4 SDWA/Iyanbito

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID **LCS U**	Batch ID: **R12692**	Test Code: **SW6010A**	Units: **mg/L**	Analysis Date **8/6/2004 10:58:34 AM**	Prep Date
Client ID:		Run ID: **ICP_040806A**		SeqNo: **294330**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Uranium	5.11	0.1	5	0	102	80	120	0			

Sample ID **LCSD U**	Batch ID: **R12692**	Test Code: **SW6010A**	Units: **mg/L**	Analysis Date **8/6/2004 11:01:27 AM**	Prep Date
Client ID:		Run ID: **ICP_040806A**		SeqNo: **294331**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Uranium	5.131	0.1	5	0	103	80	120	5.11	0.414	20	

20 / 21

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 GIANTREFIN — Date and Time Received:

Work Order Number 0408038 — Received by AMG

Checklist completed by Signature 08/05/04 Date

Matrix — Carrier name Client drop-off

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: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345-3975 Fax 505.345.4107
www.hallenvironmental.com

Client: Giant Refining Company - Ciniza
Address: Rt 3 Box 7 Gallup, NM 87301
Phone #: 505 722 3833
Fax #:

Project Name: Well #4 SDWA/Lyandito
Project #:
Project Manager:
Sampler:
Samples Cold?: ☐ Yes ☐ No 8.0

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HCl	Preservative	HEAL No.
8/4/04	1500	H_2O	Well #4					1
			TB					2

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	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)	SDWA	Total coliform	Air Bubbles or Headspace (Y or N)
														X	X	Y

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
8/5/04	1015		08/05/04
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature) 1015

Remarks: No pesticides or herbicides needed

Price, Wayne

From: Ed Riege [eriege@giant.com]
Sent: Thursday, July 01, 2004 4:12 PM
To: 'Price, Wayne'
Subject: RE: Giant Ciniza water wells

Wayne,
I gave you a bum steer! According to Kinglsey, well #1 is out of service not #2. Well #1 is sealed and capped. Well #3 is the potable well but can also be used as industrial.
Thanks Ed

-----Original Message-----
From: Price, Wayne [mailto:WPrice@state.nm.us]
Sent: Thursday, July 01, 2004 3:40 PM
To: 'Eriege@giant.com'
Cc: Dorinda Manncina (E-mail)
Subject: Giant Ciniza water wells

Dear ED,

I received the information on the plant water wells. Per our telephone conversation well #2 is out of service, while well #1 and 4 are your industrial wells and well #3 id the potable well. Do you know if well #2 has been plugged?

Sincerely:

Wayne Price
New Mexico Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, NM 87505
505-476-3487
fax: 505-476-3462
E-mail: WPRICE@state.nm.us

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

New Mexico Environment Department
Hazardous Waste Bureau

Fax

To: Wayne Price **From:** Hope Monzeglio

Fax: 476-3462 **Pages:** 5 including fax cover

Phone: 476-3487 **Date:** 6/28/2004

Re: GRCC Well Information **CC:**

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

Wayne

Here is the well information. I have included some other information from 1986, giving some background. There is more info available dating back to 1956 showing ownership transfers etc. Let me know if you have any other questions, hopefully this is helpful. 505-428-2545

Sincerely

Hope Monzeglio

New Mexico Office of the State Engineer
Transaction Summary

Back

CLW Change Location of Well (Ground)

Trn_nbr: 166853 Trn_desc: G 00003 AMENDED File Date: 06/29/1999

Primary status: APP Application
Secondary status: NFP Notice for Publication
Person assigned: *******
Applicant: GIANT INDUSTRIES, INC

Events

Date	Type	Description	Comment	P
06/29/1999	APP	Application Received	*	*
07/23/1999	EMG	Emergency Authorization Letter	DATE APPROVAL - 08/02/1999.	*
07/26/1999	NFP	Notice for Publication		*

Change From :

DB_File_Nbr	Acres	Diversion	Consumptive	Purpose of Use
G 00003	0	0	0	IND INDUSTRIAL

Point of Diversion
G 00003 15N 15W 33 SW NW NW in McKinley county

Change To:

DB_File_Nbr	Acres	Diversion	Consumptive	Purpose of Use
G 00003	0	0	0	IND INDUSTRIAL

Point of Diversion
G 00003 15N 15W 33 SW NE SE in McKinley County

Remarks
MOVE FROM WELL IS TO BE PLUGGED. INTEGRITY OF EXISTING DOWNHOLE CASING HAS DETERIORATED AND ADVERSELY AFFECTED THE WELL'S PRODUCTION. THIS REPLACEMENT FOR WELL NO. 1 IS RELIED UPON, TOGETHER WITH TWO NEARBY WELLS TO SUPPLY THE NEEDS OF THE CINIZA REFINERY (INCLUDING BUT NOT LIMITED TO EVAPORATIVE COOLING TOWERS, UTILITY WATER, STEAM AND FIRE PORTECTION) AND ASSOCIATED HOUSING AND LIVESTOCK AND TO SUPPLY OTHER INDUSTRIAL AND COMMERCIAL USES OF ALL KINDS. EMERGENCY AUTHORIZATION LETTER WAS APPROVED ON 08/02/1999.

New Mexico Office of the State Engineer
Point of Diversion Summary

Back

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y
G 00003 X	15N	15W	33	1	3	3			

Driller Licence:
Driller Name: BARRON DRLG CO.
Source: Shallow
Drill Start Date: 09/24/1956
Drill Finish Date: 09/30/1956
Log File Date: 02/06/1957
PCW Received Date:
Pump Type:
Pipe Discharge Size:
Casing Size: 9.75
Estimated Yield: 270
Depth Well: 1050.
Depth Water:

Water Bearing Stratifications:	Top	Bottom	Description
	580	620	Sandstone/Gravel/Conglomerate
	645	670	Sandstone/Gravel/Conglomerate
	725	740	Sandstone/Gravel/Conglomerate
	790	1070	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	580	625
	645	670
	725	740
	790	950
	960	070

New Mexico Office of the State Engineer

Transaction Summary

Back

ENLRG Application to Enlarge an Existing Right

Trn_nbr: 166214 Trn_desc:G 00003 File Date:03/18/1986

Primary status: APP Application
Secondary status: PRO Protest
Person assigned: *******
Applicant: UIANT INDUSTRIES, INC

Events

Date	Type	Description	Comment	P
03/18/1986	APP	Application Received	*	*
06/27/1986	NFP	Notice for Publication		*
08/07/1986	AOP	Affidavit of Publication rcv		*
08/15/1986	PRO	Protested Application		*

DB_File_Nbr	Acres	Diversion	Consumptive	Purpose of Use
G 00003	0	0	0	IND INDUSTRIAL

Place Of Use

Tws	Rng	Sec	q	q	q	q	Acres	Diversion	Consumptive	Use	Priority	Stat
14N	15W	04					0	0		IND		APP
15N	15W	28					0	0		IND		APP
15N	15W	33					0	90		IND		APP

Remarks

THE APPLICANT IS SEEKING TO ENLARGE ITS EXISTING WATER RIGHT TO PROVIDE A PERMANENT SUPPLY FOR THE NEEDS OF A TRUCK STOP COMPLEX, INCLUDING AT LEAST ONE TRUCK SERVICE STATION, ONE AUTOMOTIVE STATION, ONE LAUNDRY, TWO RESTAURANTS, ONE TRUCK WASH, ONE MOTEL, SEVERAL SHOPS, LANDSCAPPING AND NEEDS INCIDENTAL THERETO.

New Mexico Office of the State Engineer

Transaction Summary

Back

DCL Declaration of a Water Right

Trn_nbr: 166212 **Trn_desc:**G 00003 AMENDED **File Date:**01/24/1986

Primary status: DCL Declared
Secondary status: PRC Processed
Person assigned: *******
Applicant: GIANT INDUSTRIES, INC

Events

Date	Type	Description	Comment	P
01/24/1986	APP	Application Received	*	*
01/24/1986	FTN	Finalize non-published Trans.		*

DB_File_Nbr	Acres	Diversion	Consumptive	Purpose of Use
G 00003	0	1211	0	IND INDUSTRIAL

Point of Diversion
G 00003 15N 15W 33 SW NW NW in McKinley County

Remarks

WATER USE FOR THE CINIZA REFINERY AND FOR OTHER INDUSTRIAL AND COMMERCIAL USES FLUCTUATES DEPENDING UPON COMMERCIAL CONDITIONS AND OTHER FACTORS. THIS WELL NO. 1 IS RELIED UPON, TOGETHER WITH TWO NEARBY WELLS TO SUPPLY THE NEEDS OF CINIZA REFINERY (INCLUDING BUT NOT LIMITED TO EVAPORATIVE COOLING TOWERS, UTILITY WATER, STEAM, FIRE PROTECTION) AND ASSOCIATED HOUSING AND LIVESTOCK AND TO SUPPLY OTHER INDUSTRIAL AND COMMERCIAL USES OF ALL TYPES.

Price, Wayne

From: Price, Wayne
Sent: Thursday, July 01, 2004 3:40 PM
To: 'Eriege@giant.com'
Cc: Dorinda Manncina (E-mail)
Subject: Giant Ciniza water wells

Contacts: Ed Rigie

Dear ED,

I received the information on the plant water wells. Per our telephone conversation well #2 is out of service, while well #1 and 4 are your industrial wells and well #3 id the potable well. Do you know if well #2 has been plugged?

Sincerely:

Wayne Price
New Mexico Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, NM 87505
505-476-3487
fax: 505-476-3462
E-mail: WPRICE@state.nm.us

Hall Environmental Analysis Laboratory

Date: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-1-12902
Lab Order: 0212056
Collection Date: 12/9/2002 9:30:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-01
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **HVA**
Fluoride	0.30	0.10		mg/L	1	12/11/2002
Chloride	48	1.0		mg/L	10	12/11/2002
Bromide	0.30	0.10		mg/L	1	12/11/2002
Nitrate (As N)+Nitrite (As N)	3.1	0.50		mg/L	5	12/11/2002
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	12/11/2002
Sulfate	180	5.0		mg/L	10	12/11/2002
EPA METHOD 310.1: ALKALINITY						Analyst: **MAP**
Alkalinity, Total (As CaCO3)	430	2.0		mg/L CaCO3	1	12/12/2002
Bicarbonate	410	2.0		mg/L CaCO3	1	12/12/2002
Carbonate	26	2.0		mg/L CaCO3	1	12/12/2002
EPA METHOD 420.3: TOTAL PHENOLICS						Analyst: **JMP**
Phenolics, Total Recoverable	ND	3.0		µg/L	1	12/13/2002
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	0.50		mg/L	1	12/12/2002 12:48:21 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2002 12:48:21 PM
Surr: DNOP	99.6	58-140		%REC	1	12/12/2002 12:48:21 PM
EPA METHOD 8260B: VOLATILES						Analyst: **JDC**
Benzene	ND	1.0		µg/L	1	12/12/2002
Toluene	ND	1.0		µg/L	1	12/12/2002
Ethylbenzene	ND	1.0		µg/L	1	12/12/2002
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/12/2002
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/12/2002
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/12/2002
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/12/2002
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/12/2002
Naphthalene	ND	2.0		µg/L	1	12/12/2002
1-Methylnaphthalene	ND	4.0		µg/L	1	12/12/2002
2-Methylnaphthalene	ND	4.0		µg/L	1	12/12/2002
Bromobenzene	ND	1.0		µg/L	1	12/12/2002
Bromochloromethane	ND	1.0		µg/L	1	12/12/2002
Bromodichloromethane	ND	1.0		µg/L	1	12/12/2002
Bromoform	ND	1.0		µg/L	1	12/12/2002
Bromomethane	ND	1.0		µg/L	1	12/12/2002
Carbon Tetrachloride	ND	1.0		µg/L	1	12/12/2002
Chlorobenzene	ND	1.0		µg/L	1	12/12/2002
Chloroethane	ND	2.0		µg/L	1	12/12/2002
Chloroform	ND	1.0		µg/L	1	12/12/2002
Chloromethane	ND	1.0		µg/L	1	12/12/2002
2-Chlorotoluene	ND	1.0		µg/L	1	12/12/2002

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation 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: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-1-12902
Lab Order: 0212056
Collection Date: 12/9/2002 9:30:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-01
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
4-Chlorotoluene	ND	1.0		µg/L	1	12/12/2002
cis-1,2-DCE	ND	1.0		µg/L	1	12/12/2002
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/12/2002
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/12/2002
Dibromochloromethane	ND	1.0		µg/L	1	12/12/2002
Dibromomethane	ND	2.0		µg/L	1	12/12/2002
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/12/2002
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/12/2002
1,1-Dichloroethane	ND	1.0		µg/L	1	12/12/2002
1,1-Dichloroethene	ND	1.0		µg/L	1	12/12/2002
1,2-Dichloropropane	ND	1.0		µg/L	1	12/12/2002
1,3-Dichloropropane	ND	1.0		µg/L	1	12/12/2002
2,2-Dichloropropane	ND	1.0		µg/L	1	12/12/2002
1,1-Dichloropropene	ND	1.0		µg/L	1	12/12/2002
Hexachlorobutadiene	ND	1.0		µg/L	1	12/12/2002
Isopropylbenzene	ND	1.0		µg/L	1	12/12/2002
4-Isopropyltoluene	ND	1.0		µg/L	1	12/12/2002
Methylene Chloride	ND	3.0		µg/L	1	12/12/2002
n-Butylbenzene	ND	1.0		µg/L	1	12/12/2002
n-Propylbenzene	ND	1.0		µg/L	1	12/12/2002
sec-Butylbenzene	ND	1.0		µg/L	1	12/12/2002
Styrene	ND	1.0		µg/L	1	12/12/2002
tert-Butylbenzene	ND	1.0		µg/L	1	12/12/2002
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/12/2002
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/12/2002
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	12/12/2002
trans-1,2-DCE	ND	1.0		µg/L	1	12/12/2002
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/12/2002
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/12/2002
Trichlorofluoromethane	ND	1.0		µg/L	1	12/12/2002
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/12/2002
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/12/2002
Vinyl chloride	ND	2.0		µg/L	1	12/12/2002
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/12/2002
Xylenes, Total	ND	1.0		µg/L	1	12/12/2002
Surr: 1,2-Dichloroethane-d4	109	74.6-123		%REC	1	12/12/2002
Surr: 4-Bromofluorobenzene	102	85.6-117		%REC	1	12/12/2002
Surr: Dibromofluoromethane	105	78.6-115		%REC	1	12/12/2002

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation 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: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-1-129O2
Lab Order: 0212056
Collection Date: 12/9/2002 9:30:00 AM
Project: *Giant/Ciniza Wells*
Lab ID: 0212056-01
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Surr: Toluene-d8	99.5	84.2-115		%REC	1	12/12/2002
EPA METHOD 8270D: SEMIVOLATILES						Analyst: **CS**
Acenaphthene	ND	10		µg/L	1	12/17/2002
Acenaphthylene	ND	10		µg/L	1	12/17/2002
Aniline	ND	10		µg/L	1	12/17/2002
Anthracene	ND	10		µg/L	1	12/17/2002
Azobenzene	ND	10		µg/L	1	12/17/2002
Benz(a)anthracene	ND	10		µg/L	1	12/17/2002
Benzidine	ND	20		µg/L	1	12/17/2002
Benzo(a)pyrene	ND	10		µg/L	1	12/17/2002
Benzo(b)fluoranthene	ND	10		µg/L	1	12/17/2002
Benzo(g,h,i)perylene	ND	10		µg/L	1	12/17/2002
Benzo(k)fluoranthene	*ND*	*10*		*µg/L*	*1*	12/17/2002
Benzoic acid	ND	50		µg/L	1	12/17/2002
Benzyl alcohol	ND	20		µg/L	1	12/17/2002
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	12/17/2002
Bis(2-chloroethyl)ether	ND	10		µg/L	1	12/17/2002
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	12/17/2002
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	12/17/2002
4-Bromophenyl phenyl ether	ND	10		µg/L	1	12/17/2002
Butyl benzyl phthalate	ND	10		µg/L	1	12/17/2002
Carbazole	ND	10		µg/L	1	12/17/2002
4-Chloro-3-methylphenol	ND	20		µg/L	1	12/17/2002
4-Chloroaniline	ND	20		µg/L	1	12/17/2002
2-Chloronaphthalene	ND	10		µg/L	1	12/17/2002
2-Chlorophenol	ND	10		µg/L	1	12/17/2002
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	12/17/2002
Chrysene	ND	10		µg/L	1	12/17/2002
Di-n-butyl phthalate	ND	10		µg/L	1	12/17/2002
Di-n-octyl phthalate	*ND*	*10*		*µg/L*	*1*	12/17/2002
Dibenz(a,h)anthracene	ND	10		µg/L	1	12/17/2002
Dibenzofuran	ND	10		µg/L	1	12/17/2002
1,2-Dichlorobenzene	ND	10		µg/L	1	12/17/2002
1,3-Dichlorobenzene	ND	10		µg/L	1	12/17/2002
1,4-Dichlorobenzene	ND	10		µg/L	1	12/17/2002
3,3'-Dichlorobenzidine	ND	10		µg/L	1	12/17/2002
Diethyl phthalate	ND	10		µg/L	1	12/17/2002
Dimethyl phthalate	ND	10		µg/L	1	12/17/2002
2,4-Dichlorophenol	ND	10		µg/L	1	12/17/2002
2,4-Dimethylphenol	ND	10		µg/L	1	12/17/2002
4,6-Dinitro-2-methylphenol	ND	50		µg/L	1	12/17/2002
2,4-Dinitrophenol	ND	50		µg/L	1	12/17/2002

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: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-1-129O2
Lab Order: 0212056
Collection Date: 12/9/2002 9:30:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-01
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
2,4-Dinitrotoluene	ND	10		µg/L	1	12/17/2002
2,6-Dinitrotoluene	ND	10		µg/L	1	12/17/2002
Fluoranthene	ND	10		µg/L	1	12/17/2002
Fluorene	ND	10		µg/L	1	12/17/2002
Hexachlorobenzene	ND	10		µg/L	1	12/17/2002
Hexachlorobutadiene	ND	10		µg/L	1	12/17/2002
Hexachlorocyclopentadiene	ND	10		µg/L	1	12/17/2002
Hexachloroethane	ND	10		µg/L	1	12/17/2002
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	12/17/2002
Isophorone	ND	10		µg/L	1	12/17/2002
2-Methylnaphthalene	ND	10		µg/L	1	12/17/2002
2-Methylphenol	ND	10		µg/L	1	12/17/2002
4-Methylphenol	ND	10		µg/L	1	12/17/2002
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	12/17/2002
N-Nitrosodiphenylamine	ND	10		µg/L	1	12/17/2002
Naphthalene	ND	10		µg/L	1	12/17/2002
2-Nitroaniline	ND	50		µg/L	1	12/17/2002
3-Nitroaniline	ND	50		µg/L	1	12/17/2002
4-Nitroaniline	ND	20		µg/L	1	12/17/2002
Nitrobenzene	ND	10		µg/L	1	12/17/2002
2-Nitrophenol	ND	10		µg/L	1	12/17/2002
4-Nitrophenol	ND	50		µg/L	1	12/17/2002
Pentachlorophenol	ND	50		µg/L	1	12/17/2002
Phenanthrene	ND	10		µg/L	1	12/17/2002
Phenol	ND	10		µg/L	1	12/17/2002
Pyrene	ND	10		µg/L	1	12/17/2002
Pyridine	ND	10		µg/L	1	12/17/2002
1,2,4-Trichlorobenzene	ND	10		µg/L	1	12/17/2002
2,4,5-Trichlorophenol	ND	10		µg/L	1	12/17/2002
2,4,6-Trichlorophenol	ND	10		µg/L	1	12/17/2002
Surr: 2,4,6-Tribromophenol	67.9	16.6-115		%REC	1	12/17/2002
Surr: 2-Fluorobiphenyl	63.9	37-95.7		%REC	1	12/17/2002
Surr: 2-Fluorophenol	58.0	9.54-89.8		%REC	1	12/17/2002
Surr: 4-Terphenyl-d14	66.2	20.8-81.7		%REC	1	12/17/2002
Surr: Nitrobenzene-d5	74.7	38-106		%REC	1	12/17/2002
Surr: Phenol-d6	39.9	10.7-63.4		%REC	1	12/17/2002
EPA METHOD 8310: PAHS						Analyst: **GT**
Naphthalene	ND	2.5		µg/L	1	12/18/2002 12:04:48 AM
1-Methylnaphthalene	ND	2.5		µg/L	1	12/18/2002 12:04:48 AM
2-Methylnaphthalene	ND	2.5		µg/L	1	12/18/2002 12:04:48 AM
Acenaphthylene	ND	2.5		µg/L	1	12/18/2002 12:04:48 AM
Acenaphthene	ND	2.5		µg/L	1	12/18/2002 12:04:48 AM

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation 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: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-1-129O2
Lab Order: 0212056
Collection Date: 12/9/2002 9:30:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-01
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Fluorene	ND	0.80		µg/L	1	12/18/2002 12:04:48 AM
Phenanthrene	ND	0.60		µg/L	1	12/18/2002 12:04:48 AM
Anthracene	ND	0.60		µg/L	1	12/18/2002 12:04:48 AM
Fluoranthene	ND	0.30		µg/L	1	12/18/2002 12:04:48 AM
Pyrene	ND	0.30		µg/L	1	12/18/2002 12:04:48 AM
Benz(a)anthracene	ND	0.020		µg/L	1	12/18/2002 12:04:48 AM
Chrysene	ND	0.20		µg/L	1	12/18/2002 12:04:48 AM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	12/18/2002 12:04:48 AM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	12/18/2002 12:04:48 AM
Benzo(a)pyrene	ND	0.020		µg/L	1	12/18/2002 12:04:48 AM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	12/18/2002 12:04:48 AM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	12/18/2002 12:04:48 AM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	12/18/2002 12:04:48 AM
Surr: Benzo(e)pyrene	83.6	54-102		%REC	1	12/18/2002 12:04:48 AM
CYANIDE, TOTAL						Analyst: **ADM**
Cyanide	ND	0.010		mg/L	1	12/20/2002
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **MAP**
Specific Conductance	1200	0.010		µmhos/cm	1	12/12/2002
EPA METHOD 245.1: MERCURY						Analyst: **ADM**
Mercury	ND	0.00020		mg/L	1	12/26/2002
EPA METHOD 200.7: TOTAL						Analyst: **ADM**
Arsenic	ND	0.010		mg/L	1	12/17/2002
Barium	0.030	0.0020		mg/L	1	12/17/2002
Cadmium	ND	0.0020		mg/L	1	12/17/2002
Chromium	ND	0.0060		mg/L	1	12/17/2002
Copper	ND	0.0030		mg/L	1	12/17/2002
Iron	0.042	0.020		mg/L	1	12/17/2002
Lead	ND	0.0050		mg/L	1	12/17/2002
Manganese	0.0048	0.0020		mg/L	1	12/17/2002
Selenium	0.016	0.010		mg/L	1	12/17/2002
Silver	ND	0.0050		mg/L	1	12/17/2002
Vanadium	0.052	0.0050		mg/L	1	12/17/2002
Zinc	ND	0.0050		mg/L	1	12/17/2002
EPA METHOD 200.7: DISSOLVED						Analyst: **ADM**
Arsenic	ND	0.010		mg/L	1	12/17/2002
Barium	0.029	0.0020		mg/L	1	12/17/2002
Cadmium	ND	0.0020		mg/L	1	12/17/2002
Calcium	2.2	0.040		mg/L	1	12/17/2002
Chromium	ND	0.0060		mg/L	1	12/17/2002
Copper	ND	0.0030		mg/L	1	12/17/2002

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: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-1-129O2
Lab Order: 0212056
Collection Date: 12/9/2002 9:30:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-01
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Iron	ND	0.020		mg/L	1	12/17/2002
Lead	ND	0.0050		mg/L	1	12/17/2002
Magnesium	0.27	0.040		mg/L	1	12/17/2002
Manganese	0.0036	0.0020		mg/L	1	12/17/2002
Potassium	ND	1.0		mg/L	1	12/17/2002
Selenium	ND	0.010		mg/L	1	12/17/2002
Silver	ND	0.0050		mg/L	1	12/17/2002
Sodium	300	0.50		mg/L	1	12/17/2002
Vanadium	0.049	0.0050		mg/L	1	12/17/2002
Zinc	ND	0.0050		mg/L	1	12/17/2002
EPA METHOD 150.1: PH						Analyst: **MAP**
pH	8.63	0.010		pH units	1	12/12/2002
EPA METHOD 160.1: TDS						Analyst: **MAP**
Total Dissolved Solids	810	1.0		mg/L	1	12/16/2002
EPA METHOD 415.1: TOC						Analyst: **ADM**
Organic Carbon, Total	ND	1.0		mg/L	1	12/24/2002
EPA METHOD 160.2: TSS						Analyst: **MAP**
Suspended Solids (Residue, Non-Filteral	2.0	1.0		mg/L	1	12/13/2002

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

Hall Environmental Analysis Laboratory

Date: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-2-121002
Lab Order: 0212056
Collection Date: 12/10/2002 9:30:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-02
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **HVA**
Fluoride	1.1	0.10		mg/L	1	12/11/2002
Chloride	34	0.10		mg/L	1	12/11/2002
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	12/11/2002
Bromide	0.35	0.10		mg/L	1	12/11/2002
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	12/11/2002
Phosphorus, Orthophosphate (As P)	0.64	0.50		mg/L	1	12/11/2002
Sulfate	10	0.50		mg/L	1	12/11/2002
EPA METHOD 310.1: ALKALINITY						Analyst: **MAP**
Alkalinity, Total (As CaCO3)	670	2.0		mg/L CaCO3	1	12/12/2002
Bicarbonate	670	2.0		mg/L CaCO3	1	12/12/2002
Carbonate	ND	2.0		mg/L CaCO3	1	12/12/2002
EPA METHOD 420.3: TOTAL PHENOLICS						Analyst: **JMP**
Phenolics, Total Recoverable	ND	3.0		µg/L	1	12/13/2002
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	0.50		mg/L	1	12/12/2002 1:17:15 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2002 1:17:15 PM
Surr: DNOP	99.5	58-140		%REC	1	12/12/2002 1:17:15 PM
EPA METHOD 8260B: VOLATILES						Analyst: **JDC**
Benzene	ND	1.0		µg/L	1	12/12/2002
Toluene	ND	1.0		µg/L	1	12/12/2002
Ethylbenzene	ND	1.0		µg/L	1	12/12/2002
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/12/2002
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/12/2002
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/12/2002
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/12/2002
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/12/2002
Naphthalene	ND	2.0		µg/L	1	12/12/2002
1-Methylnaphthalene	ND	4.0		µg/L	1	12/12/2002
2-Methylnaphthalene	ND	4.0		µg/L	1	12/12/2002
Bromobenzene	ND	1.0		µg/L	1	12/12/2002
Bromochloromethane	ND	1.0		µg/L	1	12/12/2002
Bromodichloromethane	ND	1.0		µg/L	1	12/12/2002
Bromoform	ND	1.0		µg/L	1	12/12/2002
Bromomethane	ND	1.0		µg/L	1	12/12/2002
Carbon Tetrachloride	ND	1.0		µg/L	1	12/12/2002
Chlorobenzene	ND	1.0		µg/L	1	12/12/2002
Chloroethane	ND	2.0		µg/L	1	12/12/2002
Chloroform	ND	1.0		µg/L	1	12/12/2002
Chloromethane	ND	1.0		µg/L	1	12/12/2002

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

Hall Environmental Analysis Laboratory

Date: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-2-121002
Lab Order: 0212056
Collection Date: 12/10/2002 9:30:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-02
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
2-Chlorotoluene	ND	1.0		µg/L	1	12/12/2002
4-Chlorotoluene	ND	1.0		µg/L	1	12/12/2002
cis-1,2-DCE	ND	1.0		µg/L	1	12/12/2002
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/12/2002
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/12/2002
Dibromochloromethane	ND	1.0		µg/L	1	12/12/2002
Dibromomethane	ND	2.0		µg/L	1	12/12/2002
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/12/2002
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/12/2002
1,1-Dichloroethane	ND	1.0		µg/L	1	12/12/2002
1,1-Dichloroethene	ND	1.0		µg/L	1	12/12/2002
1,2-Dichloropropane	ND	1.0		µg/L	1	12/12/2002
1,3-Dichloropropane	ND	1.0		µg/L	1	12/12/2002
2,2-Dichloropropane	ND	1.0		µg/L	1	12/12/2002
1,1-Dichloropropene	ND	1.0		µg/L	1	12/12/2002
Hexachlorobutadiene	ND	1.0		µg/L	1	12/12/2002
Isopropylbenzene	ND	1.0		µg/L	1	12/12/2002
4-Isopropyltoluene	ND	1.0		µg/L	1	12/12/2002
Methylene Chloride	ND	3.0		µg/L	1	12/12/2002
n-Butylbenzene	ND	1.0		µg/L	1	12/12/2002
n-Propylbenzene	ND	1.0		µg/L	1	12/12/2002
sec-Butylbenzene	ND	1.0		µg/L	1	12/12/2002
Styrene	ND	1.0		µg/L	1	12/12/2002
tert-Butylbenzene	ND	1.0		µg/L	1	12/12/2002
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/12/2002
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/12/2002
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	12/12/2002
trans-1,2-DCE	ND	1.0		µg/L	1	12/12/2002
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/12/2002
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/12/2002
Trichlorofluoromethane	ND	1.0		µg/L	1	12/12/2002
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/12/2002
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/12/2002
Vinyl chloride	ND	2.0		µg/L	1	12/12/2002
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/12/2002
Xylenes, Total	ND	1.0		µg/L	1	12/12/2002
Surr: 1,2-Dichloroethane-d4	106	74.6-123		%REC	1	12/12/2002
Surr: 4-Bromofluorobenzene	98.7	85.6-117		%REC	1	12/12/2002

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation 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: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-2-121002
Lab Order: 0212056
Collection Date: 12/10/2002 9:30:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-02
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Surr: Dibromofluoromethane	103	78.6-115		%REC	1	12/12/2002
Surr: Toluene-d8	101	84.2-115		%REC	1	12/12/2002
EPA METHOD 8270D: SEMIVOLATILES						Analyst: **CS**
Acenaphthene	ND	10		µg/L	1	12/17/2002
Acenaphthylene	ND	10		µg/L	1	12/17/2002
Aniline	ND	10		µg/L	1	12/17/2002
Anthracene	ND	10		µg/L	1	12/17/2002
Azobenzene	ND	10		µg/L	1	12/17/2002
Benz(a)anthracene	ND	10		µg/L	1	12/17/2002
Benzidine	ND	20		µg/L	1	12/17/2002
Benzo(a)pyrene	ND	10		µg/L	1	12/17/2002
Benzo(b)fluoranthene	ND	10		µg/L	1	12/17/2002
Benzo(g,h,i)perylene	ND	10		µg/L	1	12/17/2002
Benzo(k)fluoranthene	ND	10		µg/L	1	12/17/2002
Benzoic acid	ND	50		µg/L	1	12/17/2002
Benzyl alcohol	ND	20		µg/L	1	12/17/2002
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	12/17/2002
Bis(2-chloroethyl)ether	ND	10		µg/L	1	12/17/2002
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	12/17/2002
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	12/17/2002
4-Bromophenyl phenyl ether	ND	10		µg/L	1	12/17/2002
Butyl benzyl phthalate	ND	10		µg/L	1	12/17/2002
Carbazole	ND	10		µg/L	1	12/17/2002
4-Chloro-3-methylphenol	ND	20		µg/L	1	12/17/2002
4-Chloroaniline	ND	20		µg/L	1	12/17/2002
2-Chloronaphthalene	ND	10		µg/L	1	12/17/2002
2-Chlorophenol	ND	10		µg/L	1	12/17/2002
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	12/17/2002
Chrysene	ND	10		µg/L	1	12/17/2002
Di-n-butyl phthalate	ND	10		µg/L	1	12/17/2002
Di-n-octyl phthalate	ND	10		µg/L	1	12/17/2002
Dibenz(a,h)anthracene	ND	10		µg/L	1	12/17/2002
Dibenzofuran	ND	10		µg/L	1	12/17/2002
1,2-Dichlorobenzene	ND	10		µg/L	1	12/17/2002
1,3-Dichlorobenzene	ND	10		µg/L	1	12/17/2002
1,4-Dichlorobenzene	ND	10		µg/L	1	12/17/2002
3,3'-Dichlorobenzidine	ND	10		µg/L	1	12/17/2002
Diethyl phthalate	ND	10		µg/L	1	12/17/2002
Dimethyl phthalate	ND	10		µg/L	1	12/17/2002
2,4-Dichlorophenol	ND	10		µg/L	1	12/17/2002
2,4-Dimethylphenol	ND	10		µg/L	1	12/17/2002
4,6-Dinitro-2-methylphenol	ND	50		µg/L	1	12/17/2002

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E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-2-121002
Lab Order: 0212056
Collection Date: 12/10/2002 9:30:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-02
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
2,4-Dinitrophenol	ND	50		µg/L	1	12/17/2002
2,4-Dinitrotoluene	ND	10		µg/L	1	12/17/2002
2,6-Dinitrotoluene	ND	10		µg/L	1	12/17/2002
Fluoranthene	ND	10		µg/L	1	12/17/2002
Fluorene	ND	10		µg/L	1	12/17/2002
Hexachlorobenzene	ND	10		µg/L	1	12/17/2002
Hexachlorobutadiene	ND	10		µg/L	1	12/17/2002
Hexachlorocyclopentadiene	ND	10		µg/L	1	12/17/2002
Hexachloroethane	ND	10		µg/L	1	12/17/2002
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	12/17/2002
Isophorone	ND	10		µg/L	1	12/17/2002
2-Methylnaphthalene	ND	10		µg/L	1	12/17/2002
2-Methylphenol	ND	10		µg/L	1	12/17/2002
4-Methylphenol	ND	10		µg/L	1	12/17/2002
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	12/17/2002
N-Nitrosodiphenylamine	ND	10		µg/L	1	12/17/2002
Naphthalene	ND	10		µg/L	1	12/17/2002
2-Nitroaniline	ND	50		µg/L	1	12/17/2002
3-Nitroaniline	ND	50		µg/L	1	12/17/2002
4-Nitroaniline	ND	20		µg/L	1	12/17/2002
Nitrobenzene	ND	10		µg/L	1	12/17/2002
2-Nitrophenol	ND	10		µg/L	1	12/17/2002
4-Nitrophenol	ND	50		µg/L	1	12/17/2002
Pentachlorophenol	ND	50		µg/L	1	12/17/2002
Phenanthrene	ND	10		µg/L	1	12/17/2002
Phenol	ND	10		µg/L	1	12/17/2002
Pyrene	ND	10		µg/L	1	12/17/2002
Pyridine	ND	10		µg/L	1	12/17/2002
1,2,4-Trichlorobenzene	ND	10		µg/L	1	12/17/2002
2,4,5-Trichlorophenol	ND	10		µg/L	1	12/17/2002
2,4,6-Trichlorophenol	ND	10		µg/L	1	12/17/2002
Surr: 2,4,6-Tribromophenol	58.0	16.6-115		%REC	1	12/17/2002
Surr: 2-Fluorobiphenyl	46.9	37-95.7		%REC	1	12/17/2002
Surr: 2-Fluorophenol	39.2	9.54-89.8		%REC	1	12/17/2002
Surr: 4-Terphenyl-d14	61.7	20.8-81.7		%REC	1	12/17/2002
Surr: Nitrobenzene-d5	52.3	38-106		%REC	1	12/17/2002
Surr: Phenol-d6	27.3	10.7-63.4		%REC	1	12/17/2002
EPA METHOD 8310: PAHS						Analyst: **GT**
Naphthalene	ND	2.5		µg/L	1	12/18/2002 12:52:48 AM
1-Methylnaphthalene	ND	2.5		µg/L	1	12/18/2002 12:52:48 AM
2-Methylnaphthalene	ND	2.5		µg/L	1	12/18/2002 12:52:48 AM
Acenaphthylene	ND	2.5		µg/L	1	12/18/2002 12:52:48 AM

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Hall Environmental Analysis Laboratory

Date: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-2-121002
Lab Order: 0212056
Collection Date: 12/10/2002 9:30:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-02
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Acenaphthene	ND	2.5		µg/L	1	12/18/2002 12:52:48 AM
Fluorene	ND	0.80		µg/L	1	12/18/2002 12:52:48 AM
Phenanthrene	ND	0.60		µg/L	1	12/18/2002 12:52:48 AM
Anthracene	ND	0.60		µg/L	1	12/18/2002 12:52:48 AM
Fluoranthene	ND	0.30		µg/L	1	12/18/2002 12:52:48 AM
Pyrene	ND	0.30		µg/L	1	12/18/2002 12:52:48 AM
Benz(a)anthracene	ND	0.020		µg/L	1	12/18/2002 12:52:48 AM
Chrysene	ND	0.20		µg/L	1	12/18/2002 12:52:48 AM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	12/18/2002 12:52:48 AM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	12/18/2002 12:52:48 AM
Benzo(a)pyrene	ND	0.020		µg/L	1	12/18/2002 12:52:48 AM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	12/18/2002 12:52:48 AM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	12/18/2002 12:52:48 AM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	12/18/2002 12:52:48 AM
Surr: Benzo(e)pyrene	88.7	54-102		%REC	1	12/18/2002 12:52:48 AM
CYANIDE, TOTAL						Analyst: **ADM**
Cyanide	ND	0.010		mg/L	1	12/20/2002
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **MAP**
Specific Conductance	1200	0.010		µmhos/cm	1	12/12/2002
EPA METHOD 245.1: MERCURY						Analyst: **ADM**
Mercury	ND	0.00020		mg/L	1	12/26/2002
EPA METHOD 200.7: TOTAL						Analyst: **ADM**
Arsenic	ND	0.010		mg/L	1	12/17/2002
Barium	0.20	0.0020		mg/L	1	12/17/2002
Cadmium	ND	0.0020		mg/L	1	12/17/2002
Chromium	0.0082	0.0060		mg/L	1	12/17/2002
Copper	ND	0.0030		mg/L	1	12/17/2002
Iron	6.1	0.020		mg/L	1	12/17/2002
Lead	ND	0.0050		mg/L	1	12/17/2002
Manganese	0.27	0.0020		mg/L	1	12/17/2002
Selenium	ND	0.010		mg/L	1	12/17/2002
Silver	ND	0.0050		mg/L	1	12/17/2002
Vanadium	0.012	0.0050		mg/L	1	12/17/2002
Zinc	0.0082	0.0050		mg/L	1	12/17/2002
EPA METHOD 200.7: DISSOLVED						Analyst: **ADM**
Arsenic	ND	0.010		mg/L	1	12/17/2002
Barium	0.21	0.0020		mg/L	1	12/17/2002
Cadmium	ND	0.0020		mg/L	1	12/17/2002
Calcium	8.7	0.040		mg/L	1	12/17/2002
Chromium	ND	0.0060		mg/L	1	12/17/2002

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Hall Environmental Analysis Laboratory

Date: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-2-121002
Lab Order: 0212056
Collection Date: 12/10/2002 9:30:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-02
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Copper	ND	0.0030		mg/L	1	12/17/2002
Iron	ND	0.020		mg/L	1	12/17/2002
Lead	ND	0.0050		mg/L	1	12/17/2002
Magnesium	3.3	0.040		mg/L	1	12/17/2002
Manganese	0.15	0.0020		mg/L	1	12/17/2002
Potassium	ND	1.0		mg/L	1	12/17/2002
Selenium	ND	0.010		mg/L	1	12/17/2002
Silver	ND	0.0050		mg/L	1	12/17/2002
Sodium	320	0.50		mg/L	1	12/17/2002
Vanadium	ND	0.0050		mg/L	1	12/17/2002
Zinc	0.038	0.0050		mg/L	1	12/17/2002
EPA METHOD 150.1: PH						Analyst: **MAP**
pH	7.96	0.010		pH units	1	12/12/2002
EPA METHOD 160.1: TDS						Analyst: **MAP**
Total Dissolved Solids	820	1.0		mg/L	1	12/16/2002
EPA METHOD 415.1: TOC						Analyst: **ADM**
Organic Carbon, Total	ND	1.0		mg/L	1	12/24/2002
EPA METHOD 160.2: TSS						Analyst: **MAP**
Suspended Solids (Residue, Non-Filteral	160	1.0		mg/L	1	12/13/2002

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Hall Environmental Analysis Laboratory

Date: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-3-121002
Lab Order: 0212056
Collection Date: 12/10/2002 8:00:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-03
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **HVA**
Fluoride	1.2	0.10		mg/L	1	12/11/2002
Chloride	35	0.10		mg/L	1	12/11/2002
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	12/11/2002
Bromide	0.40	0.10		mg/L	1	12/11/2002
Nitrogen, Nitrate (As N)	0.14	0.10		mg/L	1	12/11/2002
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	12/11/2002
Sulfate	18	0.50		mg/L	1	12/11/2002
EPA METHOD 310.1: ALKALINITY						Analyst: **MAP**
Alkalinity, Total (As CaCO3)	670	2.0		mg/L CaCO3	1	12/12/2002
Bicarbonate	670	2.0		mg/L CaCO3	1	12/12/2002
Carbonate	ND	2.0		mg/L CaCO3	1	12/12/2002
EPA METHOD 420.3: TOTAL PHENOLICS						Analyst: **JMP**
Phenolics, Total Recoverable	ND	3.0		µg/L	1	12/13/2002
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	0.50		mg/L	1	12/12/2002 1:46:04 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2002 1:46:04 PM
Surr: DNOP	90.9	58-140		%REC	1	12/12/2002 1:46:04 PM
EPA METHOD 8260B: VOLATILES						Analyst: **JDC**
Benzene	ND	1.0		µg/L	1	12/12/2002
Toluene	ND	1.0		µg/L	1	12/12/2002
Ethylbenzene	ND	1.0		µg/L	1	12/12/2002
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/12/2002
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/12/2002
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/12/2002
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/12/2002
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/12/2002
Naphthalene	ND	2.0		µg/L	1	12/12/2002
1-Methylnaphthalene	ND	4.0		µg/L	1	12/12/2002
2-Methylnaphthalene	ND	4.0		µg/L	1	12/12/2002
Bromobenzene	ND	1.0		µg/L	1	12/12/2002
Bromochloromethane	ND	1.0		µg/L	1	12/12/2002
Bromodichloromethane	ND	1.0		µg/L	1	12/12/2002
Bromoform	ND	1.0		µg/L	1	12/12/2002
Bromomethane	ND	1.0		µg/L	1	12/12/2002
Carbon Tetrachloride	ND	1.0		µg/L	1	12/12/2002
Chlorobenzene	ND	1.0		µg/L	1	12/12/2002
Chloroethane	ND	2.0		µg/L	1	12/12/2002
Chloroform	ND	1.0		µg/L	1	12/12/2002
Chloromethane	ND	1.0		µg/L	1	12/12/2002

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Hall Environmental Analysis Laboratory

Date: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-3-121002
Lab Order: 0212056
Collection Date: 12/10/2002 8:00:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-03
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
2-Chlorotoluene	ND	1.0		µg/L	1	12/12/2002
4-Chlorotoluene	ND	1.0		µg/L	1	12/12/2002
cis-1,2-DCE	ND	1.0		µg/L	1	12/12/2002
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/12/2002
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/12/2002
Dibromochloromethane	ND	1.0		µg/L	1	12/12/2002
Dibromomethane	ND	2.0		µg/L	1	12/12/2002
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/12/2002
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/12/2002
1,1-Dichloroethane	ND	1.0		µg/L	1	12/12/2002
1,1-Dichloroethene	ND	1.0		µg/L	1	12/12/2002
1,2-Dichloropropane	ND	1.0		µg/L	1	12/12/2002
1,3-Dichloropropane	ND	1.0		µg/L	1	12/12/2002
2,2-Dichloropropane	ND	1.0		µg/L	1	12/12/2002
1,1-Dichloropropene	ND	1.0		µg/L	1	12/12/2002
Hexachlorobutadiene	ND	1.0		µg/L	1	12/12/2002
Isopropylbenzene	ND	1.0		µg/L	1	12/12/2002
4-Isopropyltoluene	ND	1.0		µg/L	1	12/12/2002
Methylene Chloride	ND	3.0		µg/L	1	12/12/2002
n-Butylbenzene	ND	1.0		µg/L	1	12/12/2002
n-Propylbenzene	ND	1.0		µg/L	1	12/12/2002
sec-Butylbenzene	ND	1.0		µg/L	1	12/12/2002
Styrene	ND	1.0		µg/L	1	12/12/2002
tert-Butylbenzene	ND	1.0		µg/L	1	12/12/2002
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/12/2002
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/12/2002
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	12/12/2002
trans-1,2-DCE	ND	1.0		µg/L	1	12/12/2002
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/12/2002
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/12/2002
Trichlorofluoromethane	ND	1.0		µg/L	1	12/12/2002
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/12/2002
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/12/2002
Vinyl chloride	ND	2.0		µg/L	1	12/12/2002
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/12/2002
Xylenes, Total	ND	1.0		µg/L	1	12/12/2002
Surr: 1,2-Dichloroethane-d4	104	74.6-123		%REC	1	12/12/2002
Surr: 4-Bromofluorobenzene	102	85.6-117		%REC	1	12/12/2002

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Hall Environmental Analysis Laboratory

Date: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-3-121002
Lab Order: 0212056
Collection Date: 12/10/2002 8:00:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-03
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Surr: Dibromofluoromethane	104	78.6-115		%REC	1	12/12/2002
Surr: Toluene-d8	98.5	84.2-115		%REC	1	12/12/2002
EPA METHOD 8270D: SEMIVOLATILES						Analyst: **CS**
Acenaphthene	ND	10		µg/L	1	12/17/2002
Acenaphthylene	ND	10		µg/L	1	12/17/2002
Aniline	ND	10		µg/L	1	12/17/2002
Anthracene	ND	10		µg/L	1	12/17/2002
Azobenzene	ND	10		µg/L	1	12/17/2002
Benz(a)anthracene	ND	10		µg/L	1	12/17/2002
Benzidine	ND	20		µg/L	1	12/17/2002
Benzo(a)pyrene	ND	10		µg/L	1	12/17/2002
Benzo(b)fluoranthene	ND	10		µg/L	1	12/17/2002
Benzo(g,h,i)perylene	ND	10		µg/L	1	12/17/2002
Benzo(k)fluoranthene	ND	10		µg/L	1	12/17/2002
Benzoic acid	ND	50		µg/L	1	12/17/2002
Benzyl alcohol	ND	20		µg/L	1	12/17/2002
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	12/17/2002
Bis(2-chloroethyl)ether	ND	10		µg/L	1	12/17/2002
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	12/17/2002
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	12/17/2002
4-Bromophenyl phenyl ether	ND	10		µg/L	1	12/17/2002
Butyl benzyl phthalate	ND	10		µg/L	1	12/17/2002
Carbazole	ND	10		µg/L	1	12/17/2002
4-Chloro-3-methylphenol	ND	20		µg/L	1	12/17/2002
4-Chloroaniline	ND	20		µg/L	1	12/17/2002
2-Chloronaphthalene	ND	10		µg/L	1	12/17/2002
2-Chlorophenol	ND	10		µg/L	1	12/17/2002
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	12/17/2002
Chrysene	ND	10		µg/L	1	12/17/2002
Di-n-butyl phthalate	ND	10		µg/L	1	12/17/2002
Di-n-octyl phthalate	ND	10		µg/L	1	12/17/2002
Dibenz(a,h)anthracene	ND	10		µg/L	1	12/17/2002
Dibenzofuran	ND	10		µg/L	1	12/17/2002
1,2-Dichlorobenzene	ND	10		µg/L	1	12/17/2002
1,3-Dichlorobenzene	ND	10		µg/L	1	12/17/2002
1,4-Dichlorobenzene	ND	10		µg/L	1	12/17/2002
3,3'-Dichlorobenzidine	ND	10		µg/L	1	12/17/2002
Diethyl phthalate	ND	10		µg/L	1	12/17/2002
Dimethyl phthalate	ND	10		µg/L	1	12/17/2002
2,4-Dichlorophenol	ND	10		µg/L	1	12/17/2002
2,4-Dimethylphenol	ND	10		µg/L	1	12/17/2002
4,6-Dinitro-2-methylphenol	ND	50		µg/L	1	12/17/2002

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CLIENT: Giant Refining Co
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Lab Order: 0212056
Collection Date: 12/10/2002 8:00:00 AM
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Lab ID: 0212056-03
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
2,4-Dinitrophenol	ND	50		µg/L	1	12/17/2002
2,4-Dinitrotoluene	ND	10		µg/L	1	12/17/2002
2,6-Dinitrotoluene	ND	10		µg/L	1	12/17/2002
Fluoranthene	ND	10		µg/L	1	12/17/2002
Fluorene	ND	10		µg/L	1	12/17/2002
Hexachlorobenzene	ND	10		µg/L	1	12/17/2002
Hexachlorobutadiene	ND	10		µg/L	1	12/17/2002
Hexachlorocyclopentadiene	ND	10		µg/L	1	12/17/2002
Hexachloroethane	ND	10		µg/L	1	12/17/2002
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	12/17/2002
Isophorone	ND	10		µg/L	1	12/17/2002
2-Methylnaphthalene	ND	10		µg/L	1	12/17/2002
2-Methylphenol	ND	10		µg/L	1	12/17/2002
4-Methylphenol	ND	10		µg/L	1	12/17/2002
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	12/17/2002
N-Nitrosodiphenylamine	ND	10		µg/L	1	12/17/2002
Naphthalene	ND	10		µg/L	1	12/17/2002
2-Nitroaniline	ND	50		µg/L	1	12/17/2002
3-Nitroaniline	ND	50		µg/L	1	12/17/2002
4-Nitroaniline	ND	20		µg/L	1	12/17/2002
Nitrobenzene	ND	10		µg/L	1	12/17/2002
2-Nitrophenol	ND	10		µg/L	1	12/17/2002
4-Nitrophenol	ND	50		µg/L	1	12/17/2002
Pentachlorophenol	ND	50		µg/L	1	12/17/2002
Phenanthrene	ND	10		µg/L	1	12/17/2002
Phenol	ND	10		µg/L	1	12/17/2002
Pyrene	ND	10		µg/L	1	12/17/2002
Pyridine	ND	10		µg/L	1	12/17/2002
1,2,4-Trichlorobenzene	ND	10		µg/L	1	12/17/2002
2,4,5-Trichlorophenol	ND	10		µg/L	1	12/17/2002
2,4,6-Trichlorophenol	ND	10		µg/L	1	12/17/2002
Surr: 2,4,6-Tribromophenol	57.8	16.6-115		%REC	1	12/17/2002
Surr: 2-Fluorobiphenyl	51.5	37-95.7		%REC	1	12/17/2002
Surr: 2-Fluorophenol	44.6	9.54-89.8		%REC	1	12/17/2002
Surr: 4-Terphenyl-d14	60.0	20.8-81.7		%REC	1	12/17/2002
Surr: Nitrobenzene-d5	62.1	38-106		%REC	1	12/17/2002
Surr: Phenol-d6	32.2	10.7-63.4		%REC	1	12/17/2002
EPA METHOD 8310: PAHS						Analyst: **GT**
Naphthalene	ND	2.5		µg/L	1	12/18/2002 1:40:49 AM
1-Methylnaphthalene	ND	2.5		µg/L	1	12/18/2002 1:40:49 AM
2-Methylnaphthalene	ND	2.5		µg/L	1	12/18/2002 1:40:49 AM
Acenaphthylene	ND	2.5		µg/L	1	12/18/2002 1:40:49 AM

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Hall Environmental Analysis Laboratory

Date: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: OW-3-121002
Lab Order: 0212056
Collection Date: 12/10/2002 8:00:00 AM
Project: Giant/Ciniza Wells
Lab ID: 0212056-03
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Acenaphthene	ND	2.5		µg/L	1	12/18/2002 1:40:49 AM
Fluorene	ND	0.80		µg/L	1	12/18/2002 1:40:49 AM
Phenanthrene	ND	0.60		µg/L	1	12/18/2002 1:40:49 AM
Anthracene	ND	0.60		µg/L	1	12/18/2002 1:40:49 AM
Fluoranthene	ND	0.30		µg/L	1	12/18/2002 1:40:49 AM
Pyrene	ND	0.30		µg/L	1	12/18/2002 1:40:49 AM
Benz(a)anthracene	ND	0.020		µg/L	1	12/18/2002 1:40:49 AM
Chrysene	ND	0.20		µg/L	1	12/18/2002 1:40:49 AM
Benzo(b)fluoranthene	ND	0.050		µg/L	1	12/18/2002 1:40:49 AM
Benzo(k)fluoranthene	ND	0.020		µg/L	1	12/18/2002 1:40:49 AM
Benzo(a)pyrene	ND	0.020		µg/L	1	12/18/2002 1:40:49 AM
Dibenz(a,h)anthracene	ND	0.040		µg/L	1	12/18/2002 1:40:49 AM
Benzo(g,h,i)perylene	ND	0.030		µg/L	1	12/18/2002 1:40:49 AM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	12/18/2002 1:40:49 AM
Surr: Benzo(e)pyrene	88.6	54-102		%REC	1	12/18/2002 1:40:49 AM
CYANIDE, TOTAL						Analyst: **ADM**
Cyanide	ND	0.010		mg/L	1	12/20/2002
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **MAP**
Specific Conductance	1200	0.010		µmhos/cm	1	12/12/2002
EPA METHOD 245.1: MERCURY						Analyst: **ADM**
Mercury	ND	0.00020		mg/L	1	12/26/2002
EPA METHOD 200.7: TOTAL						Analyst: **ADM**
Arsenic	0.013	0.010		mg/L	1	12/17/2002
Barium	0.62	0.0020		mg/L	1	12/17/2002
Cadmium	ND	0.0020		mg/L	1	12/17/2002
Chromium	0.070	0.0060		mg/L	1	12/17/2002
Copper	0.017	0.0030		mg/L	1	12/17/2002
Iron	43	0.020		mg/L	1	12/17/2002
Lead	0.019	0.0050		mg/L	1	12/17/2002
Manganese	1.3	0.0020		mg/L	1	12/17/2002
Selenium	ND	0.010		mg/L	1	12/17/2002
Silver	ND	0.0050		mg/L	1	12/17/2002
Vanadium	0.082	0.0050		mg/L	1	12/17/2002
Zinc	0.059	0.0050		mg/L	1	12/17/2002
EPA METHOD 200.7: DISSOLVED						Analyst: **ADM**
Arsenic	ND	0.010		mg/L	1	12/17/2002
Barium	0.29	0.0020		mg/L	1	12/17/2002
Cadmium	ND	0.0020		mg/L	1	12/17/2002
Calcium	9.4	0.040		mg/L	1	12/17/2002
Chromium	ND	0.0060		mg/L	1	12/17/2002

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E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *31-Dec-02*

CLIENT: Giant Refining Co
Lab Order: 0212056
Project: Giant/Ciniza Wells
Lab ID: 0212056-03

Client Sample ID: OW-3-121002
Collection Date: 12/10/2002 8:00:00 AM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Copper	ND	0.0030		mg/L	1	12/17/2002
Iron	ND	0.020		mg/L	1	12/17/2002
Lead	ND	0.0050		mg/L	1	12/17/2002
Magnesium	3.4	0.040		mg/L	1	12/17/2002
Manganese	0.059	0.0020		mg/L	1	12/17/2002
Potassium	ND	1.0		mg/L	1	12/17/2002
Selenium	ND	0.010		mg/L	1	12/17/2002
Silver	ND	0.0050		mg/L	1	12/17/2002
Sodium	320	0.50		mg/L	1	12/17/2002
Vanadium	ND	0.0050		mg/L	1	12/17/2002
Zinc	0.071	0.0050		mg/L	1	12/17/2002
EPA METHOD 150.1: PH						Analyst: **MAP**
pH	8.14	0.010		pH units	1	12/12/2002
EPA METHOD 160.1: TDS						Analyst: **MAP**
Total Dissolved Solids	870	2.0		mg/L	2	12/16/2002
EPA METHOD 415.1: TOC						Analyst: **ADM**
Organic Carbon, Total	3.2	1.0		mg/L	1	12/24/2002
EPA METHOD 160.2: TSS						Analyst: **MAP**
Suspended Solids (Residue, Non-Filteral	3100	2.0		mg/L	2	12/13/2002

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Hall Environmental Analysis Laboratory

Date: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: Trip Blank
Lab Order: 0212056
Collection Date:
Project: Giant/Ciniza Wells
Lab ID: 0212056-05
Matrix: TRIP BLANK

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	0.50		mg/L	1	12/12/2002 3:12:48 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/12/2002 3:12:48 PM
Surr: DNOP	94.2	58-140		%REC	1	12/12/2002 3:12:48 PM
EPA METHOD 8260B: VOLATILES						Analyst: **JDC**
Benzene	ND	1.0		µg/L	1	12/12/2002
Toluene	ND	1.0		µg/L	1	12/12/2002
Ethylbenzene	ND	1.0		µg/L	1	12/12/2002
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/12/2002
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/12/2002
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/12/2002
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/12/2002
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/12/2002
Naphthalene	ND	2.0		µg/L	1	12/12/2002
1-Methylnaphthalene	ND	4.0		µg/L	1	12/12/2002
2-Methylnaphthalene	ND	4.0		µg/L	1	12/12/2002
Bromobenzene	ND	1.0		µg/L	1	12/12/2002
Bromochloromethane	ND	1.0		µg/L	1	12/12/2002
Bromodichloromethane	ND	1.0		µg/L	1	12/12/2002
Bromoform	ND	1.0		µg/L	1	12/12/2002
Bromomethane	ND	1.0		µg/L	1	12/12/2002
Carbon Tetrachloride	ND	1.0		µg/L	1	12/12/2002
Chlorobenzene	ND	1.0		µg/L	1	12/12/2002
Chloroethane	ND	2.0		µg/L	1	12/12/2002
Chloroform	ND	1.0		µg/L	1	12/12/2002
Chloromethane	ND	1.0		µg/L	1	12/12/2002
2-Chlorotoluene	ND	1.0		µg/L	1	12/12/2002
4-Chlorotoluene	ND	1.0		µg/L	1	12/12/2002
cis-1,2-DCE	ND	1.0		µg/L	1	12/12/2002
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/12/2002
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/12/2002
Dibromochloromethane	ND	1.0		µg/L	1	12/12/2002
Dibromomethane	ND	2.0		µg/L	1	12/12/2002
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/12/2002
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/12/2002
1,1-Dichloroethane	ND	1.0		µg/L	1	12/12/2002
1,1-Dichloroethene	ND	1.0		µg/L	1	12/12/2002
1,2-Dichloropropane	ND	1.0		µg/L	1	12/12/2002
1,3-Dichloropropane	ND	1.0		µg/L	1	12/12/2002

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R - RPD outside accepted recovery limits
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Hall Environmental Analysis Laboratory

Date: *31-Dec-02*

CLIENT: Giant Refining Co
Client Sample ID: Trip Blank
Lab Order: 0212056
Collection Date:
Project: Giant/Ciniza Wells
Lab ID: 0212056-05
Matrix: TRIP BLANK

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
2,2-Dichloropropane	ND	1.0		µg/L	1	12/12/2002
1,1-Dichloropropene	ND	1.0		µg/L	1	12/12/2002
Hexachlorobutadiene	ND	1.0		µg/L	1	12/12/2002
Isopropylbenzene	ND	1.0		µg/L	1	12/12/2002
4-Isopropyltoluene	ND	1.0		µg/L	1	12/12/2002
Methylene Chloride	ND	3.0		µg/L	1	12/12/2002
n-Butylbenzene	ND	1.0		µg/L	1	12/12/2002
n-Propylbenzene	ND	1.0		µg/L	1	12/12/2002
sec-Butylbenzene	ND	1.0		µg/L	1	12/12/2002
Styrene	ND	1.0		µg/L	1	12/12/2002
tert-Butylbenzene	ND	1.0		µg/L	1	12/12/2002
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/12/2002
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/12/2002
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	12/12/2002
trans-1,2-DCE	ND	1.0		µg/L	1	12/12/2002
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/12/2002
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/12/2002
Trichlorofluoromethane	ND	1.0		µg/L	1	12/12/2002
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/12/2002
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/12/2002
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/12/2002
Vinyl chloride	ND	2.0		µg/L	1	12/12/2002
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/12/2002
Xylenes, Total	ND	1.0		µg/L	1	12/12/2002
Surr: 1,2-Dichloroethane-d4	104	74.6-123		%REC	1	12/12/2002
Surr: 4-Bromofluorobenzene	98.6	85.6-117		%REC	1	12/12/2002
Surr: Dibromofluoromethane	106	78.6-115		%REC	1	12/12/2002
Surr: Toluene-d8	99.2	84.2-115		%REC	1	12/12/2002

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