

GW - 32

REPORTS

YEAR(S):

1991 GW REPORT

GIANT REFINING COMPANY
CINIZA REFINERY

MAY 26, 1992

1991 OCD ANNUAL
GROUNDWATER REPORT



Route 3, Box 7
Gallup, New Mexico
87301

505
722-3833

May 29, 1992

Roger Anderson
New Mexico Oil Conservation Division
P.O. Box 2088
Land Office Building
Santa Fe, New Mexico 87504-2088

Re: Annual Groundwater and Annual Wastewater Sampling

Dear Mr. Anderson:

Pursuant to the Water Discharge Permit, GW-32, Giant Refining Company - Ciniza Submits the Annual OCD Groundwater Report.

The material is presented in the following sections:

- I. MW Wells
- II. SMW Wells
- III. OW Wells
- IV. Aerated Lagoon and API Effluent
- V. Analytical Parameters
- VI. 1991 Data

If you have any questions, please contact me at (505) 722-0227.

Sincerely,

A handwritten signature in cursive script that reads "Lynn Shelton".

Lynn Shelton
Environmental Assistant
Ciniza Refinery

TLS:sp

cc: Kim Bullerdick, Corporate Counsel
Giant Industries Arizona, Inc.

I. MW WELLS



**Westtech
Laboratories
Inc.**

3737 East Broadway Road
Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

CLIENT GIANT REFINING COMPANY
ATTN: LYNN SHELTON
ROUTE 3, BOX 7
GALLUP, NM 87301

SAMPLE NO. : 9205895
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *M. J. AGN*
PAGE 1 OF 2

CLIENT SAMPLE ID : MW1
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: MONITOR WELLS

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-23-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: --

REMARKS -

Report revised: 05/22/92.

Inorganic Chemistry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Arsenic	<0.05	mg/L	0.05	05-05-92
Total Barium	<0.05	mg/L	0.05	05-05-92
Total Cadmium	<0.05	mg/L	0.05	05-05-92
Total Calcium	2.2	mg/L	0.05	05-05-92
Total Chromium	<0.05	mg/L	0.05	05-05-92
Total Lead	<0.10	mg/L	0.10	05-05-92
Total Magnesium	0.22	mg/L	0.10	05-05-92
Total Manganese	<0.05	mg/L	0.05	05-05-92
Total Mercury	<0.001	mg/L	0.001	05-05-92
Total Potassium	<1.0	mg/L	1.0	05-06-92
Total Selenium	<0.05	mg/L	0.05	05-05-92
Total Silver	<0.05	mg/L	0.05	05-05-92
Total Sodium	77.	mg/L	0.05	05-05-92
Dissolved Arsenic	<0.010	mg/L	0.010	05-04-92
Dissolved Barium	0.09	mg/L	0.05	05-05-92
Dissolved Cadmium	0.0012	mg/L	0.0005	05-06-92
Dissolved Calcium	1.8	mg/L	0.05	05-05-92
Dissolved Chromium	<0.005	mg/L	0.005	05-06-92
Dissolved Lead	0.006	mg/L	0.005	05-21-92
Dissolved Magnesium	0.26	mg/L	0.10	05-05-92
Dissolved Manganese	0.10	mg/L	0.05	05-05-92
Dissolved Mercury	<0.001	mg/L	0.001	05-05-92
Dissolved Potassium	<1.0	mg/L	1.0	05-06-92
Dissolved Selenium	<0.005	mg/L	0.005	05-04-92
Dissolved Silver	<0.002	mg/L	0.002	05-01-92
Dissolved Sodium	72.	mg/L	0.05	05-05-92



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PAGE : 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit	Analysis Date
Bicarbonate	270.	mg/L	2.0	04-28-92
Carbonate	80.	mg/L	2.0	04-28-92
Chloride	56.	mg/L	1.0	05-06-92
Electrical Conductivity	1100.	umhos/cm	0.1	04-24-92
pH	8.9	S.U.	1.0	04-24-92
Phenol, Total	0.02	mg/L	0.005	05-03-92
Sulfate	160.	mg/L	5.0	05-06-92
Total Dissolved Solids	1400.	mg/L	2.0	04-27-92
Total Organic Carbon	15.	mg/L	1.0	05-05-92
Total Organic Halogens	<10.	mg/L	10.	05-02-92



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PAGE 1 OF 2

CLIENT SAMPLE ID : MW1
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: MONITOR WELLS
ANALYST: I. HRABOVSKY

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-23-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: 04-27-92
ANALYSIS DATE ..: 04-27-92

REMARKS -

Report revised: 05/22/92.

Volatile Organics By Capillary GC/MS

DATA TABLE			
Parameter	Result	Unit	Detection Limit
1,1,2,2-Tetrachloroethane	<5.0	ug/L	5.0
1,1,2,2-Tetrachloroethene(Perc.) ..	<5.0	ug/L	5.0
1,1,1-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethene (TCE)	<5.0	ug/L	5.0
1,1,2-Trichloro 1,2,2-Trifluoro ...	<5.0	ug/L	5.0
ethane (freon 113)			
1,1-Dichloroethane	<5.0	ug/L	5.0
1,1-Dichloroethene	<5.0	ug/L	5.0
1,2-Dichloroethane	<5.0	ug/L	5.0
trans-1,2-Dichloroethene	<5.0	ug/L	5.0
1,3-Dichlorobenzene	<5.0	ug/L	5.0
1,4-Dichlorobenzene	<5.0	ug/L	5.0
1,2-Dichlorobenzene	<5.0	ug/L	5.0
cis-1,3-Dichloropropene	<5.0	ug/L	5.0
trans-1,3-Dichloropropene	<5.0	ug/L	5.0
2-Chloroethylvinyl ether	<15.	ug/L	15.
Vinyl chloride	<10.	ug/L	10.
Trichlorofluoromethane	<10.	ug/L	10.
Chloromethane	<10.	ug/L	10.
Chloroethane	<10.	ug/L	10.
Methylene Chloride	<5.0	ug/L	5.0
Chloroform	<5.0	ug/L	5.0
Bromodichloromethane	<5.0	ug/L	5.0
Dibromochloromethane	<5.0	ug/L	5.0
Bromoform	<5.0	ug/L	5.0



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SAMPLE NO. : 9205895
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *M. C. AEN*
PAGE : 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
Dibromomethane	<10.	ug/L	10.
Bromomethane	<10.	ug/L	10.
Carbon tetrachloride	<5.0	ug/L	5.0
Benzene	<5.0	ug/L	5.0
Toluene	<5.0	ug/L	5.0
Ethyl Benzene	<5.0	ug/L	5.0
Chlorobenzene	<5.0	ug/L	5.0
Total Xylenes	<5.0	ug/L	5.0
1,2-Dichloropropane	<5.0	ug/L	5.0
Dichlorodifluoromethane	<10.	ug/L	10.
Acetone	<100.	ug/L	100.
Methyl tert-butyl ether	<100.	ug/L	100.
Methyl ethyl ketone	<100.	ug/L	100.
Methyl isobutyl ketone	<100.	ug/L	100.
2-Hexanone	<100.	ug/L	100.



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SAMPLE NO. : 9205896
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *ML* *ASW*
PAGE 1 OF 2

CLIENT SAMPLE ID : MW2
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE ...: MONITOR WELLS
ANALYST: I. HRABOVSKY

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-23-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: 04-27-92
ANALYSIS DATE ..: 04-27-92

Volatile Organics By Capillary GC/MS

D A T A T A B L E			
Parameter	Result	Unit	Detection Limit
1,1,2,2-Tetrachloroethane	<5.0	ug/L	5.0
1,1,2,2-Tetrachloroethene (Perc.) ..	<5.0	ug/L	5.0
1,1,1-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethene (TCE)	<5.0	ug/L	5.0
1,1,2-Trichloro 1,2,2-Trifluoro ...	<5.0	ug/L	5.0
ethane (freon 113)			
1,1-Dichloroethane	<5.0	ug/L	5.0
1,1-Dichloroethene	<5.0	ug/L	5.0
1,2-Dichloroethane	<5.0	ug/L	5.0
trans-1,2-Dichloroethene	<5.0	ug/L	5.0
1,3-Dichlorobenzene	<5.0	ug/L	5.0
1,4-Dichlorobenzene	<5.0	ug/L	5.0
1,2-Dichlorobenzene	<5.0	ug/L	5.0
cis-1,3-Dichloropropene	<5.0	ug/L	5.0
trans-1,3-Dichloropropene	<5.0	ug/L	5.0
2-Chloroethylvinyl ether	<15.	ug/L	15.
Vinyl chloride	<10.	ug/L	10.
Trichlorofluoromethane	<10.	ug/L	10.
Chloromethane	<10.	ug/L	10.
Chloroethane	<10.	ug/L	10.
Methylene Chloride	<5.0	ug/L	5.0
Chloroform	<5.0	ug/L	5.0
Bromodichloromethane	<5.0	ug/L	5.0
Dibromochloromethane	<5.0	ug/L	5.0
Bromoform	<5.0	ug/L	5.0
Dibromomethane	<10.	ug/L	10.
Bromomethane	<10.	ug/L	10.
Carbon tetrachloride	<5.0	ug/L	5.0
Benzene	<5.0	ug/L	5.0



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SAMPLE NO. : 9205896
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REVIEWED BY: *g. ABN*
PAGE 2 OF 2

D A T A T A B L E (Cont.)			
Parameter	Result	Unit	Detection Limit
Toluene	<5.0	ug/L	5.0
Ethyl Benzene	<5.0	ug/L	5.0
Chlorobenzene	<5.0	ug/L	5.0
Total Xylenes	<5.0	ug/L	5.0
1,2-Dichloropropane	<5.0	ug/L	5.0
Dichlorodifluoromethane	<10.	ug/L	10.
Acetone	<100.	ug/L	100.
Methyl tert-butyl ether	<100.	ug/L	100.
Methyl ethyl ketone	<100.	ug/L	100.
Methyl isobutyl ketone	<100.	ug/L	100.
2-Hexanone	<100.	ug/L	100.



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SAMPLE NO. : 9205896
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *M. HEN*
PAGE 1 OF 2

CLIENT SAMPLE ID : MW2
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: MONITOR WELLS

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-23-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: --

Inorganic Chemistry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Arsenic	<0.05	mg/L	0.05	05-05-92
Total Barium	<0.05	mg/L	0.05	05-05-92
Total Cadmium	<0.05	mg/L	0.05	05-05-92
Total Calcium	2.0	mg/L	0.05	05-05-92
Total Chromium	<0.05	mg/L	0.05	05-05-92
Total Lead	<0.10	mg/L	0.10	05-05-92
Total Magnesium	0.17	mg/L	0.10	05-05-92
Total Manganese	<0.05	mg/L	0.05	05-05-92
Total Mercury	<0.001	mg/L	0.001	05-05-92
Total Potassium	<1.0	mg/L	1.0	05-06-92
Total Selenium	<0.05	mg/L	0.05	05-05-92
Total Silver	<0.05	mg/L	0.05	05-05-92
Total Sodium	79.	mg/L	0.05	05-05-92
Dissolved Arsenic	<0.010	mg/L	0.010	05-04-92
Dissolved Barium	<0.05	mg/L	0.05	05-05-92
Dissolved Cadmium	<0.0005	mg/L	0.0005	05-06-92
Dissolved Calcium	1.6	mg/L	0.05	05-05-92
Dissolved Chromium	<0.005	mg/L	0.005	05-06-92
Dissolved Lead	<0.005	mg/L	0.005	05-05-92
Dissolved Magnesium	0.18	mg/L	0.10	05-05-92
Dissolved Manganese	<0.05	mg/L	0.05	05-05-92
Dissolved Mercury	<0.001	mg/L	0.001	05-05-92
Dissolved Potassium	<1.0	mg/L	1.0	05-06-92
Dissolved Selenium	<0.005	mg/L	0.005	05-04-92
Dissolved Silver	<0.002	mg/L	0.002	05-01-92
Dissolved Sodium	78.	mg/L	0.05	05-05-92
Bicarbonate	250.	mg/L	2.0	04-28-92
Carbonate	100.	mg/L	2.0	04-28-92
Chloride	64.	mg/L	1.0	05-06-92
Electrical Conductivity	1200.	umhos/cm	0.1	04-24-92



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SAMPLE NO. : 9205896
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REVIEWED BY: *Mh. AGN*
PAGE 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit	Analysis Date
pH	9.0	S.U.	1.0	04-24-92
Phenol, Total	<0.005	mg/L	0.005	05-03-92
Sulfate	170.	mg/L	5.0	05-06-92
Total Dissolved Solids	1200.	mg/L	2.0	04-27-92
Total Organic Carbon	<1.0	mg/L	1.0	05-05-92
Total Organic Halogens	<10.	mg/L	10.	05-02-92



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SAMPLE NO. : 9205897
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REVIEWED BY: *AGN*
PAGE 1 OF 2

CLIENT SAMPLE ID : MW4
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: MONITOR WELLS
ANALYST: I. HRABOVSKY

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-22-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: 04-27-92
ANALYSIS DATE ..: 04-27-92

Volatile Organics By Capillary GC/MS

DATA TABLE			
Parameter	Result	Unit	Detection Limit
1,1,2,2-Tetrachloroethane	<5.0	ug/L	5.0
1,1,2,2-Tetrachloroethene(Perc.) ..	<5.0	ug/L	5.0
1,1,1-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethene (TCE)	<5.0	ug/L	5.0
1,1,2-Trichloro 1,2,2-Trifluoro ...	<5.0	ug/L	5.0
ethane (freon 113)			
1,1-Dichloroethane	<5.0	ug/L	5.0
1,1-Dichloroethene	<5.0	ug/L	5.0
1,2-Dichloroethane	<5.0	ug/L	5.0
trans-1,2-Dichloroethene	<5.0	ug/L	5.0
1,3-Dichlorobenzene	<5.0	ug/L	5.0
1,4-Dichlorobenzene	<5.0	ug/L	5.0
1,2-Dichlorobenzene	<5.0	ug/L	5.0
cis-1,3-Dichloropropene	<5.0	ug/L	5.0
trans-1,3-Dichloropropene	<5.0	ug/L	5.0
2-Chloroethylvinyl ether	<15.	ug/L	15.
Vinyl chloride	<10.	ug/L	10.
Trichlorofluoromethane	<10.	ug/L	10.
Chloromethane	<10.	ug/L	10.
Chloroethane	<10.	ug/L	10.
Methylene Chloride	<5.0	ug/L	5.0
Chloroform	<5.0	ug/L	5.0
Bromodichloromethane	<5.0	ug/L	5.0
Dibromochloromethane	<5.0	ug/L	5.0
Bromoform	<5.0	ug/L	5.0
Dibromomethane	<10.	ug/L	10.
Bromomethane	<10.	ug/L	10.
Carbon tetrachloride	<5.0	ug/L	5.0
Benzene	<5.0	ug/L	5.0



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PAGE 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
Toluene	<5.0	ug/L	5.0
Ethyl Benzene	<5.0	ug/L	5.0
Chlorobenzene	<5.0	ug/L	5.0
Total Xylenes	<5.0	ug/L	5.0
1,2-Dichloropropane	<5.0	ug/L	5.0
Dichlorodifluoromethane	<10.	ug/L	10.
Acetone	<100.	ug/L	100.
Methyl tert-butyl ether	<100.	ug/L	100.
Methyl ethyl ketone	<100.	ug/L	100.
Methyl isobutyl ketone	<100.	ug/L	100.
2-Hexanone	<100.	ug/L	100.



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SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: MONITOR WELLS

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-22-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: --

Inorganic Chemistry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Arsenic	<0.05	mg/L	0.05	05-05-92
Total Barium	<0.05	mg/L	0.05	05-05-92
Total Cadmium	<0.05	mg/L	0.05	05-05-92
Total Calcium	2.6	mg/L	0.05	05-05-92
Total Chromium	<0.05	mg/L	0.05	05-05-92
Total Lead	<0.10	mg/L	0.10	05-05-92
Total Magnesium	0.30	mg/L	0.10	05-05-92
Total Manganese	<0.05	mg/L	0.05	05-05-92
Total Mercury	<0.001	mg/L	0.001	05-05-92
Total Potassium	<1.0	mg/L	1.0	05-06-92
Total Selenium	<0.05	mg/L	0.05	05-05-92
Total Silver	<0.05	mg/L	0.05	05-05-92
Total Sodium	86.	mg/L	0.05	05-05-92
Dissolved Arsenic	<0.010	mg/L	0.010	05-04-92
Dissolved Barium	0.06	mg/L	0.05	05-05-92
Dissolved Cadmium	<0.0005	mg/L	0.0005	05-06-92
Dissolved Calcium	1.5	mg/L	0.05	05-05-92
Dissolved Chromium	<0.005	mg/L	0.005	05-06-92
Dissolved Lead	0.007	mg/L	0.005	05-05-92
Dissolved Magnesium	0.24	mg/L	0.10	05-05-92
Dissolved Manganese	0.08	mg/L	0.05	05-05-92
Dissolved Mercury	<0.001	mg/L	0.001	05-05-92
Dissolved Potassium	<1.0	mg/L	1.0	05-06-92
Dissolved Selenium	<0.005	mg/L	0.005	05-04-92
Dissolved Silver	<0.002	mg/L	0.002	05-01-92
Dissolved Sodium	78.	mg/L	0.05	05-05-92
Bicarbonate	390.	mg/L	2.0	04-28-92
Carbonate	60.	mg/L	2.0	04-28-92
Chloride	19.	mg/L	1.0	05-01-92
Electrical Conductivity	1300.	umhos/cm	0.1	04-24-92



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REVIEWED BY: *G. HEN*
PAGE 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit	Analysis Date
pH	8.7	S.U.	1.0	04-24-92
Phenol, Total	<0.005	mg/L	0.005	05-03-92
Sulfate	150.	mg/L	5.0	05-06-92
Total Dissolved Solids	1700.	mg/L	2.0	04-27-92
Total Organic Carbon	12.	mg/L	1.0	05-05-92
Total Organic Halogens	230.	mg/L	10.	05-02-92



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CLIENT GIANT REFINING COMPANY
ATTN: LYNN SHELTON
ROUTE 3, BOX 7
GALLUP, NM 87301

SAMPLE NO. : 9205898
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *4. AGN*
PAGE : 1 OF 2

CLIENT SAMPLE ID : MW5
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: MONITOR WELLS

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-23-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: --

Inorganic Chemistry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Arsenic	<0.05	mg/L	0.05	05-05-92
Total Barium	0.29	mg/L	0.05	05-05-92
Total Cadmium	<0.05	mg/L	0.05	05-05-92
Total Calcium	4.2	mg/L	0.05	05-05-92
Total Chromium	<0.05	mg/L	0.05	05-05-92
Total Lead	<0.10	mg/L	0.10	05-05-92
Total Magnesium	0.38	mg/L	0.10	05-05-92
Total Manganese	<0.05	mg/L	0.05	05-05-92
Total Mercury	<0.001	mg/L	0.001	05-05-92
Total Potassium	<1.0	mg/L	1.0	05-06-92
Total Selenium	<0.05	mg/L	0.05	05-05-92
Total Silver	<0.05	mg/L	0.05	05-05-92
Total Sodium	150.	mg/L	0.05	05-05-92
Dissolved Arsenic	<0.010	mg/L	0.010	05-04-92
Dissolved Barium	<0.05	mg/L	0.05	05-05-92
Dissolved Cadmium	<0.0005	mg/L	0.0005	05-06-92
Dissolved Calcium	1.1	mg/L	0.05	05-05-92
Dissolved Chromium	<0.005	mg/L	0.005	05-06-92
Dissolved Lead	<0.005	mg/L	0.005	05-05-92
Dissolved Magnesium	0.15	mg/L	0.10	05-05-92
Dissolved Manganese	<0.05	mg/L	0.05	05-05-92
Dissolved Mercury	<0.001	mg/L	0.001	05-05-92
Dissolved Potassium	<1.0	mg/L	1.0	05-06-92
Dissolved Selenium	<0.005	mg/L	0.005	05-04-92
Dissolved Silver	<0.002	mg/L	0.002	05-01-92
Dissolved Sodium	64.	mg/L	0.05	05-05-92
Bicarbonate	310.	mg/L	2.0	04-28-92
Carbonate	100.	mg/L	2.0	04-28-92
Chloride	74.	mg/L	1.0	05-06-92
Electrical Conductivity	1200.	umhos/cm	0.1	04-24-92



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SAMPLE NO. : 9205898
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *Q. AGN*
PAGE : 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit	Analysis Date
pH	9.0	S.U.	1.0	04-24-92
Phenol, Total	<0.005	mg/L	0.005	05-13-92
Sulfate	170.	mg/L	5.0	05-06-92
Total Dissolved Solids	1300.	mg/L	2.0	04-27-92
Total Organic Carbon	21.	mg/L	1.0	05-05-92
Total Organic Halogens	64.	mg/L	10.	05-02-92



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SAMPLE NO. : 9205898
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY *M. G. AEN*
PAGE 1 OF 2

CLIENT SAMPLE ID : MW5
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: MONITOR WELLS
ANALYST: I. HRABOVSKY

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-23-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: 04-27-92
ANALYSIS DATE ..: 04-27-92

Volatile Organics By Capillary GC/MS

D A T A T A B L E			
Parameter	Result	Unit	Detection Limit
1,1,2,2-Tetrachloroethane	<5.0	ug/L	5.0
1,1,2,2-Tetrachloroethene(Perc.) ..	<5.0	ug/L	5.0
1,1,1-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethene (TCE)	<5.0	ug/L	5.0
1,1,2-Trichloro 1,2,2-Trifluoro ...	<5.0	ug/L	5.0
ethane (freon 113)			
1,1-Dichloroethane	<5.0	ug/L	5.0
1,1-Dichloroethene	<5.0	ug/L	5.0
1,2-Dichloroethane	<5.0	ug/L	5.0
trans-1,2-Dichloroethene	<5.0	ug/L	5.0
1,3-Dichlorobenzene	<5.0	ug/L	5.0
1,4-Dichlorobenzene	<5.0	ug/L	5.0
1,2-Dichlorobenzene	<5.0	ug/L	5.0
cis-1,3-Dichloropropene	<5.0	ug/L	5.0
trans-1,3-Dichloropropene	<5.0	ug/L	5.0
2-Chloroethylvinyl ether	<15.	ug/L	15.
Vinyl chloride	<10.	ug/L	10.
Trichlorofluoromethane	<10.	ug/L	10.
Chloromethane	<10.	ug/L	10.
Chloroethane	<10.	ug/L	10.
Methylene Chloride	<5.0	ug/L	5.0
Chloroform	<5.0	ug/L	5.0
Bromodichloromethane	<5.0	ug/L	5.0
Dibromochloromethane	<5.0	ug/L	5.0
Bromoform	<5.0	ug/L	5.0
Dibromomethane	<10.	ug/L	10.
Bromomethane	<10.	ug/L	10.
Carbon tetrachloride	<5.0	ug/L	5.0
Benzene	<5.0	ug/L	5.0



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SAMPLE NO. : 9205898
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *Q-AGN*
PAGE 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
Toluene	<5.0	ug/L	5.0
Ethyl Benzene	<5.0	ug/L	5.0
Chlorobenzene	<5.0	ug/L	5.0
Total Xylenes	<5.0	ug/L	5.0
1,2-Dichloropropane	<5.0	ug/L	5.0
Dichlorodifluoromethane	<10.	ug/L	10.
Acetone	<100.	ug/L	100.
Methyl tert-butyl ether	<100.	ug/L	100.
Methyl ethyl ketone	<100.	ug/L	100.
Methyl isobutyl ketone	<100.	ug/L	100.
2-Hexanone	<100.	ug/L	100.

II. SMW WELLS



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SAMPLE NO. : 9205906
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *4 AGN*
PAGE 1 OF 2

CLIENT SAMPLE ID : SMW1
SAMPLE TYPE: GROUNDWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: SHALLOW MONITOR WELLS
ANALYST: I. HRABOVSKY

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-24-92
SUBMITTAL DATE : 04-25-92
EXTRACTION DATE: 04-27-92
ANALYSIS DATE ..: 04-27-92

Volatile Organics By Capillary GC/MS

D A T A T A B L E			
Parameter	Result	Unit	Detection Limit
1,1,2,2-Tetrachloroethane	<5.0	ug/L	5.0
1,1,2,2-Tetrachloroethene (Perc.) ..	<5.0	ug/L	5.0
1,1,1-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethene (TCE)	<5.0	ug/L	5.0
1,1,2-Trichloro 1,2,2-Trifluoro ..	<5.0	ug/L	5.0
ethane (freon 113)			
1,1-Dichloroethane	<5.0	ug/L	5.0
1,1-Dichloroethene	<5.0	ug/L	5.0
1,2-Dichloroethane	<5.0	ug/L	5.0
trans-1,2-Dichloroethene	<5.0	ug/L	5.0
1,3-Dichlorobenzene	<5.0	ug/L	5.0
1,4-Dichlorobenzene	<5.0	ug/L	5.0
1,2-Dichlorobenzene	<5.0	ug/L	5.0
cis-1,3-Dichloropropene	<5.0	ug/L	5.0
trans-1,3-Dichloropropene	<5.0	ug/L	5.0
2-Chloroethylvinyl ether	<15.	ug/L	15.
Vinyl chloride	<10.	ug/L	10.
Trichlorofluoromethane	<10.	ug/L	10.
Chloromethane	<10.	ug/L	10.
Chloroethane	<10.	ug/L	10.
Methylene Chloride	<5.0	ug/L	5.0
Chloroform	<5.0	ug/L	5.0
Bromodichloromethane	<5.0	ug/L	5.0
Dibromochloromethane	<5.0	ug/L	5.0
Bromoform	<5.0	ug/L	5.0
Dibromomethane	<10.	ug/L	10.
Bromomethane	<10.	ug/L	10.
Carbon tetrachloride	<5.0	ug/L	5.0
Benzene	<5.0	ug/L	5.0



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SAMPLE NO. : 9205906
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *AGN*
PAGE : 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
Toluene	<5.0	ug/L	5.0
Ethyl Benzene	<5.0	ug/L	5.0
Chlorobenzene	<5.0	ug/L	5.0
Total Xylenes	<5.0	ug/L	5.0
1,2-Dichloropropane	<5.0	ug/L	5.0
Dichlorodifluoromethane	<10.	ug/L	10.
Acetone	<100.	ug/L	100.
Methyl tert-butyl ether	<100.	ug/L	100.
Methyl ethyl ketone	<100.	ug/L	100.
Methyl isobutyl ketone	<100.	ug/L	100.
2-Hexanone	<100.	ug/L	100.



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SAMPLE NO. : 9205906
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *AGN*
PAGE : 1 OF 1

CLIENT SAMPLE ID : SMW1
SAMPLE TYPE: GROUNDWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: SHALLOW MONITOR WELLS

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-24-92
SUBMITTAL DATE : 04-25-92
EXTRACTION DATE: 05-01-92

Inorganic Chemistry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Chromium	0.13	mg/L	0.05	05-05-92
Total Lead	<0.10	mg/L	0.10	05-05-92
Dissolved Calcium	140.	mg/L	0.05	05-05-92
Dissolved Magnesium	38.	mg/L	0.10	05-05-92
Dissolved Potassium	<1.0	mg/L	1.0	05-06-92
Dissolved Sodium	340.	mg/L	0.05	05-05-92
Bicarbonate	620.	mg/L	2.0	04-28-92
Carbonate	<2.0	mg/L	2.0	04-28-92
Chloride	1200.	mg/L	1.0	05-06-92
Electrical Conductivity	4200.	umhos/cm	0.1	04-25-92
pH	7.7	S.U.	1.0	04-25-92
Sulfate	1400.	mg/L	5.0	05-06-92
Total Dissolved Solids	4500.	mg/L	2.0	04-29-92
Total Organic Carbon	63.	mg/L	1.0	05-05-92
Total Organic Halogens	<10.	mg/L	10.	05-02-92



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SAMPLE NO. : 9205907
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *mm G. AGN*
PAGE : 1 OF 2

CLIENT SAMPLE ID : SMW2
SAMPLE TYPE: GROUNDWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: SHALLOW MONITOR WELLS
ANALYST: I. HRABOVSKY

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-24-92
SUBMITTAL DATE : 04-25-92
EXTRACTION DATE: 04-27-92
ANALYSIS DATE ..: 04-27-92

Volatile Organics By Capillary GC/MS

D A T A T A B L E			
Parameter	Result	Unit	Detection Limit
1,1,2,2-Tetrachloroethane	<5.0	ug/L	5.0
1,1,2,2-Tetrachloroethene(Perc.) ..	<5.0	ug/L	5.0
1,1,1-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethene (TCE)	<5.0	ug/L	5.0
1,1,2-Trichloro 1,2,2-Trifluoro ...	<5.0	ug/L	5.0
ethane (freon 113)			
1,1-Dichloroethane	<5.0	ug/L	5.0
1,1-Dichloroethene	<5.0	ug/L	5.0
1,2-Dichloroethane	<5.0	ug/L	5.0
trans-1,2-Dichloroethene	<5.0	ug/L	5.0
1,3-Dichlorobenzene	<5.0	ug/L	5.0
1,4-Dichlorobenzene	<5.0	ug/L	5.0
1,2-Dichlorobenzene	<5.0	ug/L	5.0
cis-1,3-Dichloropropene	<5.0	ug/L	5.0
trans-1,3-Dichloropropene	<5.0	ug/L	5.0
2-Chloroethylvinyl ether	<15.	ug/L	15.
Vinyl chloride	<10.	ug/L	10.
Trichlorofluoromethane	<10.	ug/L	10.
Chloromethane	<10.	ug/L	10.
Chloroethane	<10.	ug/L	10.
Methylene Chloride	<5.0	ug/L	5.0
Chloroform	<5.0	ug/L	5.0
Bromodichloromethane	<5.0	ug/L	5.0
Dibromochloromethane	<5.0	ug/L	5.0
Bromoform	<5.0	ug/L	5.0
Dibromomethane	<10.	ug/L	10.
Bromomethane	<10.	ug/L	10.
Carbon tetrachloride	<5.0	ug/L	5.0
Benzene	<5.0	ug/L	5.0



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SAMPLE NO. : 9205907
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *AGN*
PAGE 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
Toluene	<5.0	ug/L	5.0
Ethyl Benzene	<5.0	ug/L	5.0
Chlorobenzene	<5.0	ug/L	5.0
Total Xylenes	<5.0	ug/L	5.0
1,2-Dichloropropane	<5.0	ug/L	5.0
Dichlorodifluoromethane	<10.	ug/L	10.
Acetone	<100.	ug/L	100.
Methyl tert-butyl ether	<100.	ug/L	100.
Methyl ethyl ketone	<100.	ug/L	100.
Methyl isobutyl ketone	<100.	ug/L	100.
2-Hexanone	<100.	ug/L	100.



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SAMPLE NO. : 9205907
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *M. G. AGN*
PAGE : 1 OF 1

CLIENT SAMPLE ID : SMW2
SAMPLE TYPE: GROUNDWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: SHALLOW MONITOR WELLS

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-24-92
SUBMITTAL DATE : 04-25-92
EXTRACTION DATE: 05-01-92

Inorganic Chemistry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Chromium	0.09	mg/L	0.05	05-05-92
Total Lead	<0.10	mg/L	0.10	05-05-92
Dissolved Calcium	100.	mg/L	0.05	05-05-92
Dissolved Magnesium	29.	mg/L	0.10	05-05-92
Dissolved Potassium	<1.0	mg/L	1.0	05-06-92
Dissolved Sodium	420.	mg/L	0.05	05-05-92
Bicarbonate	620.	mg/L	2.0	04-28-92
Carbonate	<2.0	mg/L	2.0	04-28-92
Chloride	1300.	mg/L	1.0	05-06-92
Electrical Conductivity	4600.	umhos/cm	0.1	04-25-92
pH	7.2	S.U.	1.0	04-25-92
Sulfate	1600.	mg/L	5.0	05-06-92
Total Dissolved Solids	5200.	mg/L	2.0	04-29-92
Total Organic Carbon	58.	mg/L	1.0	05-05-92
Total Organic Halogens	72.	mg/L	10.	05-02-92



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SAMPLE NO. : 9205908
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *jm* *AGN*
PAGE : 1 OF 2

CLIENT SAMPLE ID : SMW3
SAMPLE TYPE: GROUNDWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: SHALLOW MONITOR WELLS
ANALYST: I. HRABOVSKY

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-24-92
SUBMITTAL DATE : 04-25-92
EXTRACTION DATE: 04-27-92
ANALYSIS DATE ..: 04-27-92

Volatile Organics By Capillary GC/MS

D A T A T A B L E			
Parameter	Result	Unit	Detection Limit
1,1,2,2-Tetrachloroethane	<5.0	ug/L	5.0
1,1,2,2-Tetrachloroethene (Perc.) ..	<5.0	ug/L	5.0
1,1,1-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethene (TCE)	<5.0	ug/L	5.0
1,1,2-Trichloro 1,2,2-Trifluoro ...	<5.0	ug/L	5.0
ethane (freon 113)			
1,1-Dichloroethane	<5.0	ug/L	5.0
1,1-Dichloroethene	<5.0	ug/L	5.0
1,2-Dichloroethane	<5.0	ug/L	5.0
trans-1,2-Dichloroethene	<5.0	ug/L	5.0
1,3-Dichlorobenzene	<5.0	ug/L	5.0
1,4-Dichlorobenzene	<5.0	ug/L	5.0
1,2-Dichlorobenzene	<5.0	ug/L	5.0
cis-1,3-Dichloropropene	<5.0	ug/L	5.0
trans-1,3-Dichloropropene	<5.0	ug/L	5.0
2-Chloroethylvinyl ether	<15.	ug/L	15.
Vinyl chloride	<10.	ug/L	10.
Trichlorofluoromethane	<10.	ug/L	10.
Chloromethane	<10.	ug/L	10.
Chloroethane	<10.	ug/L	10.
Methylene Chloride	<5.0	ug/L	5.0
Chloroform	<5.0	ug/L	5.0
Bromodichloromethane	<5.0	ug/L	5.0
Dibromochloromethane	<5.0	ug/L	5.0
Bromoform	<5.0	ug/L	5.0
Dibromomethane	<10.	ug/L	10.
Bromomethane	<10.	ug/L	10.
Carbon tetrachloride	<5.0	ug/L	5.0
Benzene	<5.0	ug/L	5.0



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CLIENT GIANT REFINING COMPANY
ATTN: LYNN SHELTON
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GALLUP, NM 87301

SAMPLE NO. : 9205908
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *mm 4 AGN*
PAGE : 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
Toluene	<5.0	ug/L	5.0
Ethyl Benzene	<5.0	ug/L	5.0
Chlorobenzene	<5.0	ug/L	5.0
Total Xylenes	<5.0	ug/L	5.0
1,2-Dichloropropane	<5.0	ug/L	5.0
Dichlorodifluoromethane	<10.	ug/L	10.
Acetone	<100.	ug/L	100.
Methyl tert-butyl ether	<100.	ug/L	100.
Methyl ethyl ketone	<100.	ug/L	100.
Methyl isobutyl ketone	<100.	ug/L	100.
2-Hexanone	<100.	ug/L	100.



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CLIENT GIANT REFINING COMPANY
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GALLUP, NM 87301

SAMPLE NO. : 9205908
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *AGN*
PAGE 1 OF 1

CLIENT SAMPLE ID : SMW3
SAMPLE TYPE: GROUNDWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: SHALLOW MONITOR WELLS

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE: 04-24-92
SUBMITTAL DATE : 04-25-92
EXTRACTION DATE: 05-01-92

Inorganic Chemistry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Chromium	<0.05	mg/L	0.05	05-05-92
Total Lead	<0.10	mg/L	0.10	05-05-92
Dissolved Calcium	42.	mg/L	0.05	05-05-92
Dissolved Magnesium	12.	mg/L	0.10	05-05-92
Dissolved Potassium	<1.0	mg/L	1.0	05-06-92
Dissolved Sodium	220.	mg/L	0.05	05-05-92
Bicarbonate	680.	mg/L	2.0	04-28-92
Carbonate	<2.0	mg/L	2.0	04-28-92
Chloride	71.	mg/L	1.0	05-06-92
Electrical Conductivity	2600.	umhos/cm	0.1	04-25-92
pH	7.6	S.U.	1.0	04-25-92
Sulfate	1100.	mg/L	5.0	05-06-92
Total Dissolved Solids	3200.	mg/L	2.0	04-29-92
Total Organic Carbon	46.	mg/L	1.0	05-05-92
Total Organic Halogens	<10.	mg/L	10.	05-02-92



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SAMPLE NO. : 9205909
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *me* *AGN*
PAGE : 1 OF 2

CLIENT SAMPLE ID : SMW4
SAMPLE TYPE: GROUNDWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: SHALLOW MONITOR WELLS
ANALYST: I. HRABOVSKY

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-24-92
SUBMITTAL DATE : 04-25-92
EXTRACTION DATE: 04-27-92
ANALYSIS DATE ..: 04-27-92

Volatile Organics By Capillary GC/MS

D A T A T A B L E			
Parameter	Result	Unit	Detection Limit
1,1,2,2-Tetrachloroethane	<5.0	ug/L	5.0
1,1,2,2-Tetrachloroethene(Perc.) ..	<5.0	ug/L	5.0
1,1,1-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethene (TCE)	<5.0	ug/L	5.0
1,1,2-Trichloro 1,2,2-Trifluoro ...	<5.0	ug/L	5.0
ethane (freon 113)			
1,1-Dichloroethane	<5.0	ug/L	5.0
1,1-Dichloroethene	<5.0	ug/L	5.0
1,2-Dichloroethane	<5.0	ug/L	5.0
trans-1,2-Dichloroethene	<5.0	ug/L	5.0
1,3-Dichlorobenzene	<5.0	ug/L	5.0
1,4-Dichlorobenzene	<5.0	ug/L	5.0
1,2-Dichlorobenzene	<5.0	ug/L	5.0
cis-1,3-Dichloropropene	<5.0	ug/L	5.0
trans-1,3-Dichloropropene	<5.0	ug/L	5.0
2-Chloroethylvinyl ether	<15.	ug/L	15.
Vinyl chloride	<10.	ug/L	10.
Trichlorofluoromethane	<10.	ug/L	10.
Chloromethane	<10.	ug/L	10.
Chloroethane	<10.	ug/L	10.
Methylene Chloride	<5.0	ug/L	5.0
Chloroform	<5.0	ug/L	5.0
Bromodichloromethane	<5.0	ug/L	5.0
Dibromochloromethane	<5.0	ug/L	5.0
Bromoform	<5.0	ug/L	5.0
Dibromomethane	<10.	ug/L	10.
Bromomethane	<10.	ug/L	10.
Carbon tetrachloride	<5.0	ug/L	5.0
Benzene	<5.0	ug/L	5.0



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SAMPLE NO. : 9205909
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *9. AGN*
PAGE 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
Toluene	<5.0	ug/L	5.0
Ethyl Benzene	<5.0	ug/L	5.0
Chlorobenzene	<5.0	ug/L	5.0
Total Xylenes	<5.0	ug/L	5.0
1,2-Dichloropropane	<5.0	ug/L	5.0
Dichlorodifluoromethane	<10.	ug/L	10.
Acetone	<100.	ug/L	100.
Methyl tert-butyl ether	<100.	ug/L	100.
Metyl ethyl ketone	<100.	ug/L	100.
Methyl isobutyl ketone	<100.	ug/L	100.
2-Hexanone	<100.	ug/L	100.



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SAMPLE NO. : 9205909
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *g. JGN*
PAGE : 1 OF 1

CLIENT SAMPLE ID : SMW4
SAMPLE TYPE: GROUNDWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: SHALLOW MONITOR WELLS

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-24-92
SUBMITTAL DATE : 04-25-92
EXTRACTION DATE: 05-01-92

Inorganic Chemistry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Chromium	<0.05	mg/L	0.05	05-05-92
Total Lead	<0.10	mg/L	0.10	05-05-92
Dissolved Calcium	2.8	mg/L	0.05	05-05-92
Dissolved Magnesium	0.78	mg/L	0.10	05-05-92
Dissolved Potassium	<1.0	mg/L	1.0	05-06-92
Dissolved Sodium	82.	mg/L	0.05	05-05-92
Bicarbonate	430.	mg/L	2.0	04-28-92
Carbonate	<2.0	mg/L	2.0	04-28-92
Chloride	63.	mg/L	1.0	05-06-92
Electrical Conductivity	1100.	umhos/cm	0.1	04-25-92
pH	8.3	S.U.	1.0	04-25-92
Sulfate	170.	mg/L	5.0	05-06-92
Total Dissolved Solids	1400.	mg/L	2.0	04-29-92
Total Organic Carbon	68.	mg/L	1.0	05-05-92
Total Organic Halogens	43.	mg/L	10.	05-02-92



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SAMPLE NO. : 9205910
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *AGN*
PAGE 1 OF 2

CLIENT SAMPLE ID : SMW5
SAMPLE TYPE: GROUNDWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: SHALLOW MONITOR WELLS
ANALYST: I. HRABOVSKY

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-24-92
SUBMITTAL DATE : 04-25-92
EXTRACTION DATE: 04-27-92
ANALYSIS DATE ..: 04-27-92

Volatile Organics By Capillary GC/MS

D A T A T A B L E			
Parameter	Result	Unit	Detection Limit
1,1,2,2-Tetrachloroethane	<5.0	ug/L	5.0
1,1,2,2-Tetrachloroethene (Perc.) ..	<5.0	ug/L	5.0
1,1,1-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethene (TCE)	<5.0	ug/L	5.0
1,1,2-Trichloro 1,2,2-Trifluoro ethane (freon 113)	<5.0	ug/L	5.0
1,1-Dichloroethane	<5.0	ug/L	5.0
1,1-Dichloroethene	<5.0	ug/L	5.0
1,2-Dichloroethane	<5.0	ug/L	5.0
trans-1,2-Dichloroethene	<5.0	ug/L	5.0
1,3-Dichlorobenzene	<5.0	ug/L	5.0
1,4-Dichlorobenzene	<5.0	ug/L	5.0
1,2-Dichlorobenzene	<5.0	ug/L	5.0
cis-1,3-Dichloropropene	<5.0	ug/L	5.0
trans-1,3-Dichloropropene	<5.0	ug/L	5.0
2-Chloroethylvinyl ether	<15.	ug/L	15.
Vinyl chloride	<10.	ug/L	10.
Trichlorofluoromethane	<10.	ug/L	10.
Chloromethane	<10.	ug/L	10.
Chloroethane	<10.	ug/L	10.
Methylene Chloride	<5.0	ug/L	5.0
Chloroform	<5.0	ug/L	5.0
Bromodichloromethane	<5.0	ug/L	5.0
Dibromochloromethane	<5.0	ug/L	5.0
Bromoform	<5.0	ug/L	5.0
Dibromomethane	<10.	ug/L	10.
Bromomethane	<10.	ug/L	10.
Carbon tetrachloride	<5.0	ug/L	5.0
Benzene	<5.0	ug/L	5.0



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SAMPLE NO. : 9205910
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *MLC* *AGN*
PAGE : 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
Toluene	<5.0	ug/L	5.0
Ethyl Benzene	<5.0	ug/L	5.0
Chlorobenzene	<5.0	ug/L	5.0
Total Xylenes	<5.0	ug/L	5.0
1,2-Dichloropropane	<5.0	ug/L	5.0
Dichlorodifluoromethane	<10.	ug/L	10.
Acetone	<100.	ug/L	100.
Methyl tert-butyl ether	<100.	ug/L	100.
Methyl ethyl ketone	<100.	ug/L	100.
Methyl isobutyl ketone	<100.	ug/L	100.
2-Hexanone	<100.	ug/L	100.



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SAMPLE NO. : 9205910
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *mg AEN*
PAGE : 1 OF 1

CLIENT SAMPLE ID : SMW5
SAMPLE TYPE: GROUNDWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: SHALLOW MONITOR WELLS

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-24-92
SUBMITTAL DATE : 04-25-92
EXTRACTION DATE: 05-01-92

Inorganic Chemistry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Chromium	<0.05	mg/L	0.05	05-05-92
Total Lead	<0.10	mg/L	0.10	05-05-92
Dissolved Calcium	2.7	mg/L	0.05	05-05-92
Dissolved Magnesium	0.64	mg/L	0.10	05-05-92
Dissolved Potassium	<1.0	mg/L	1.0	05-06-92
Dissolved Sodium	77.	mg/L	0.05	05-05-92
Bicarbonate	310.	mg/L	2.0	04-28-92
Carbonate	<2.0	mg/L	2.0	04-28-92
Chloride	77.	mg/L	1.0	05-06-92
Electrical Conductivity	1000.	umhos/cm	0.1	04-25-92
pH	7.6	S.U.	1.0	04-25-92
Sulfate	160.	mg/L	5.0	05-06-92
Total Dissolved Solids	1700.	mg/L	2.0	04-29-92
Total Organic Carbon	39.	mg/L	1.0	05-05-92
Total Organic Halogens	24.	mg/L	10.	05-02-92



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SAMPLE NO. : 9205911
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY *AGN*
PAGE : 1 OF 2

CLIENT SAMPLE ID : SMW6
SAMPLE TYPE: GROUNDWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: SHALLOW MONITOR WELLS
ANALYST: I. HRABOVSKY

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-24-92
SUBMITTAL DATE : 04-25-92
EXTRACTION DATE: 04-27-92
ANALYSIS DATE ..: 04-27-92

Volatile Organics By Capillary GC/MS

D A T A T A B L E			
Parameter	Result	Unit	Detection Limit
1,1,2,2-Tetrachloroethane	<5.0	ug/L	5.0
1,1,2,2-Tetrachloroethene(Perc.) ..	<5.0	ug/L	5.0
1,1,1-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethene (TCE)	<5.0	ug/L	5.0
1,1,2-Trichloro 1,2,2-Trifluoro ...	<5.0	ug/L	5.0
ethane (freon 113)			
1,1-Dichloroethane	<5.0	ug/L	5.0
1,1-Dichloroethene	<5.0	ug/L	5.0
1,2-Dichloroethane	<5.0	ug/L	5.0
trans-1,2-Dichloroethene	<5.0	ug/L	5.0
1,3-Dichlorobenzene	<5.0	ug/L	5.0
1,4-Dichlorobenzene	<5.0	ug/L	5.0
1,2-Dichlorobenzene	<5.0	ug/L	5.0
cis-1,3-Dichloropropene	<5.0	ug/L	5.0
trans-1,3-Dichloropropene	<5.0	ug/L	5.0
2-Chloroethylvinyl ether	<15.	ug/L	15.
Vinyl chloride	<10.	ug/L	10.
Trichlorofluoromethane	<10.	ug/L	10.
Chloromethane	<10.	ug/L	10.
Chloroethane	<10.	ug/L	10.
Methylene Chloride	<5.0	ug/L	5.0
Chloroform	<5.0	ug/L	5.0
Bromodichloromethane	<5.0	ug/L	5.0
Dibromochloromethane	<5.0	ug/L	5.0
Bromoform	<5.0	ug/L	5.0
Dibromomethane	<10.	ug/L	10.
Bromomethane	<10.	ug/L	10.
Carbon tetrachloride	<5.0	ug/L	5.0
Benzene	<5.0	ug/L	5.0



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SAMPLE NO. : 9205911
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY *mg. GEN*
PAGE 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
Toluene	<5.0	ug/L	5.0
Ethyl Benzene	<5.0	ug/L	5.0
Chlorobenzene	<5.0	ug/L	5.0
Total Xylenes	<5.0	ug/L	5.0
1,2-Dichloropropane	<5.0	ug/L	5.0
Dichlorodifluoromethane	<10.	ug/L	10.
Acetone	<100.	ug/L	100.
Methyl tert-butyl ether	<100.	ug/L	100.
Methyl ethyl ketone	<100.	ug/L	100.
Methyl isobutyl ketone	<100.	ug/L	100.
2-Hexanone	<100.	ug/L	100.



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SAMPLE NO. : 9205911
INVOICE NO.: 22120905
REPORT DATE: 05-08-92
REVIEWED BY: *4. AGN*
PAGE : 1 OF 1

CLIENT SAMPLE ID : SMW6
SAMPLE TYPE: GROUNDWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: SHALLOW MONITOR WELLS

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-24-92
SUBMITTAL DATE : 04-25-92
EXTRACTION DATE: 05-01-92

Inorganic Chemistry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Chromium	<0.05	mg/L	0.05	05-05-92
Total Lead	<0.10	mg/L	0.10	05-05-92
Dissolved Calcium	4.6	mg/L	0.05	05-05-92
Dissolved Magnesium	1.4	mg/L	0.10	05-05-92
Dissolved Potassium	1.0	mg/L	1.0	05-06-92
Dissolved Sodium	86.	mg/L	0.05	05-05-92
Bicarbonate	550.	mg/L	2.0	04-28-92
Carbonate	<2.0	mg/L	2.0	04-28-92
Chloride	89.	mg/L	1.0	05-06-92
Electrical Conductivity	1300.	umhos/cm	0.1	04-25-92
pH	8.4	S.U.	1.0	04-25-92
Sulfate	190.	mg/L	5.0	05-06-92
Total Dissolved Solids	1700.	mg/L	2.0	04-29-92
Total Organic Carbon	72.	mg/L	1.0	05-05-92
Total Organic Halogens	120.	mg/L	10.	05-02-92

III. OW WELLS



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SAMPLE NO. : 9205899
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *RG* *REN*
PAGE : 1 OF 2

CLIENT SAMPLE ID : OW11
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: OBSERVATION WELLS
ANALYST: I. HRABOVSKY

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-22-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: 04-27-92
ANALYSIS DATE .: 04-27-92

Volatile Organics By Capillary GC/MS

D A T A T A B L E			
Parameter	Result	Unit	Detection Limit
1,1,2,2-Tetrachloroethane	<5.0	ug/L	5.0
1,1,2,2-Tetrachloroethene(Perc.) ..	<5.0	ug/L	5.0
1,1,1-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethene (TCE)	<5.0	ug/L	5.0
1,1,2-Trichloro 1,2,2-Trifluoro ...	<5.0	ug/L	5.0
ethane (freon 113)			
1,1-Dichloroethane	<5.0	ug/L	5.0
1,1-Dichloroethene	<5.0	ug/L	5.0
1,2-Dichloroethane	<5.0	ug/L	5.0
trans-1,2-Dichloroethene	<5.0	ug/L	5.0
1,3-Dichlorobenzene	<5.0	ug/L	5.0
1,4-Dichlorobenzene	<5.0	ug/L	5.0
1,2-Dichlorobenzene	<5.0	ug/L	5.0
cis-1,3-Dichloropropene	<5.0	ug/L	5.0
trans-1,3-Dichloropropene	<5.0	ug/L	5.0
2-Chloroethylvinyl ether	<15.	ug/L	15.
Vinyl chloride	<10.	ug/L	10.
Trichlorofluoromethane	<10.	ug/L	10.
Chloromethane	<10.	ug/L	10.
Chloroethane	<10.	ug/L	10.
Methylene Chloride	<5.0	ug/L	5.0
Chloroform	<5.0	ug/L	5.0
Bromodichloromethane	<5.0	ug/L	5.0
Dibromochloromethane	<5.0	ug/L	5.0
Bromoform	<5.0	ug/L	5.0
Dibromomethane	<10.	ug/L	10.
Bromomethane	<10.	ug/L	10.
Carbon tetrachloride	<5.0	ug/L	5.0
Benzene	<5.0	ug/L	5.0



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SAMPLE NO. : 9205899
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *g. HEN*
PAGE 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
Toluene	<5.0	ug/L	5.0
Ethyl Benzene	<5.0	ug/L	5.0
Chlorobenzene	<5.0	ug/L	5.0
Total Xylenes	<5.0	ug/L	5.0
1,2-Dichloropropane	<5.0	ug/L	5.0
Dichlorodifluoromethane	<10.	ug/L	10.
Acetone	<100.	ug/L	100.
Methyl tert-butyl ether	<100.	ug/L	100.
Methyl ethyl ketone	<100.	ug/L	100.
Methyl isobutyl ketone	<100.	ug/L	100.
2-Hexanone	<100.	ug/L	100.



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GALLUP, NM 87301

SAMPLE NO. : 9205899
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *Q. AGN*
PAGE 1 OF 2

CLIENT SAMPLE ID : OW11
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: OBSERVATION WELLS

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-22-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: --

Inorganic Chemistry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Arsenic	<0.05	mg/L	0.05	05-05-92
Total Barium	<0.05	mg/L	0.05	05-05-92
Total Cadmium	<0.05	mg/L	0.05	05-05-92
Total Calcium	7.1	mg/L	0.05	05-05-92
Total Chromium	<0.05	mg/L	0.05	05-05-92
Total Lead	<0.10	mg/L	0.10	05-05-92
Total Magnesium	0.70	mg/L	0.10	05-05-92
Total Manganese	<0.05	mg/L	0.05	05-05-92
Total Mercury	<0.001	mg/L	0.001	05-05-92
Total Potassium	1.2	mg/L	1.0	05-06-92
Total Selenium	<0.05	mg/L	0.05	05-05-92
Total Silver	<0.05	mg/L	0.05	05-05-92
Total Sodium	140.	mg/L	0.05	05-05-92
Dissolved Arsenic	<0.010	mg/L	0.010	05-04-92
Dissolved Barium	<0.05	mg/L	0.05	05-05-92
Dissolved Cadmium	<0.0005	mg/L	0.0005	05-06-92
Dissolved Calcium	4.9	mg/L	0.05	05-05-92
Dissolved Chromium	0.006	mg/L	0.005	05-06-92
Dissolved Lead	<0.005	mg/L	0.005	05-05-92
Dissolved Magnesium	0.52	mg/L	0.10	05-05-92
Dissolved Manganese	0.08	mg/L	0.05	05-05-92
Dissolved Mercury	<0.001	mg/L	0.001	05-05-92
Dissolved Potassium	1.2	mg/L	1.0	05-06-92
Dissolved Selenium	0.010	mg/L	0.005	05-04-92
Dissolved Silver	0.004	mg/L	0.002	05-01-92
Dissolved Sodium	130.	mg/L	0.05	05-05-92
Bicarbonate	450.	mg/L	2.0	04-28-92
Carbonate	<2.0	mg/L	2.0	04-28-92
Chloride	160.	mg/L	1.0	05-06-92
Electrical Conductivity	2000.	umhos/cm	0.1	04-24-92



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CLIENT GIANT REFINING COMPANY
ATTN: LYNN SHELTON
ROUTE 3, BOX 7
GALLUP, NM 87301

SAMPLE NO. : 9205899
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *g. AGN*
PAGE 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit	Analysis Date
pH	8.5	S.U.	1.0	04-24-92
Phenol, Total	<0.005	mg/L	0.005	05-13-92
Sulfate	410.	mg/L	5.0	05-06-92
Total Dissolved Solids	2300.	mg/L	2.0	04-27-92
Total Organic Carbon	10.	mg/L	1.0	05-05-92
Total Organic Halogens	170.	mg/L	10.	05-02-92



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SAMPLE NO. : 9205900
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY *gm G. AGN*
PAGE : 1 OF 1

CLIENT SAMPLE ID : OW1
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: OBSERVATION WELLS
ANALYST: M. HILL

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-23-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: 04-29-92
ANALYSIS DATE ..: 04-29-92

REMARKS -

Report revised: 05/22/92.

Method 8020 - Aromatic Volatiles

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Benzene	<1.0	ug/L	1.0
Toluene	<1.0	ug/L	1.0
Ethylbenzene	<1.0	ug/L	1.0
Total Xylenes	<0.3	ug/L	0.3

<u>Surrogate Information -</u>		Percent <u>Recovery</u>	<u>Range</u>
a,a,a -Trifluorotoluene (8020)	:	90.0	80-120



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SAMPLE NO. : 9205900
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *mm 5-16N*
PAGE : 1 OF 1

CLIENT SAMPLE ID : OW1
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: OBSERVATION WELLS

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-23-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: --

REMARKS -

Report revised: 05/22/92.

Inorganic Chemistry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Dissolved Calcium	2.6	mg/L	0.05	05-05-92
Dissolved Magnesium	1.5	mg/L	0.10	05-05-92
Dissolved Potassium	1.2	mg/L	1.0	05-06-92
Dissolved Sodium	83.	mg/L	0.05	05-05-92
Bicarbonate	410.	mg/L	2.0	04-28-92
Carbonate	60.	mg/L	2.0	04-28-92
Chloride	58.	mg/L	1.0	05-06-92
Electrical Conductivity	1300.	umhos/cm	0.1	04-24-92
pH	8.8	S.U.	1.0	04-24-92
Sulfate	210.	mg/L	5.0	05-06-92
Total Dissolved Solids	2800.	mg/L	2.0	04-29-92



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SAMPLE NO. : 9205901
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *mg* *AGN*
PAGE : 1 OF 1

CLIENT SAMPLE ID : OW2
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: OBSERVATION WELLS
ANALYST: M. HILL

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-23-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: 04-29-92
ANALYSIS DATE ..: 04-29-92

Method 8020 - Aromatic Volatiles

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Benzene	<1.0	ug/L	1.0
Toluene	<1.0	ug/L	1.0
Ethylbenzene	<1.0	ug/L	1.0
Total Xylenes	<0.3	ug/L	0.3

Surrogate Information -

	Percent Recovery	Range
a,a,a -Trifluorotoluene (8020) ...:	90.0	80-120



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SAMPLE NO. : 9205901
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *ML*
PAGE : 1 OF 1

CLIENT SAMPLE ID : OW2
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: OBSERVATION WELLS

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE: 04-23-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: --

Inorganic Chemistry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Dissolved Calcium	6.8	mg/L	0.05	05-05-92
Dissolved Magnesium	2.5	mg/L	0.10	05-05-92
Dissolved Potassium	<1.0	mg/L	1.0	05-06-92
Dissolved Sodium	88.	mg/L	0.05	05-05-92
Bicarbonate	670.	mg/L	2.0	04-28-92
Carbonate	<2.0	mg/L	2.0	04-28-92
Chloride	72.	mg/L	1.0	05-06-92
Electrical Conductivity	1300.	umhos/cm	0.1	04-24-92
pH	8.0	S.U.	1.0	04-24-92
Sulfate	15.	mg/L	5.0	05-01-92
Total Dissolved Solids	1800.	mg/L	2.0	04-29-92



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SAMPLE NO. : 9205902
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *g. HEN*
PAGE : 1 OF 1

CLIENT SAMPLE ID : OW3
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE ...: OBSERVATION WELLS
ANALYST: M. HILL

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-23-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: 04-29-92
ANALYSIS DATE ..: 04-29-92

Method 8020 - Aromatic Volatiles

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Benzene	<1.0	ug/L	1.0
Toluene	<1.0	ug/L	1.0
Ethylbenzene	<1.0	ug/L	1.0
Total Xylenes	<0.3	ug/L	0.3

Surrogate Information -

	Percent Recovery	Range
a,a,a -Trifluorotoluene (8020):	91.0	80-120



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SAMPLE NO. : 9205902
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *mg LSN*
PAGE : 1 OF 1

CLIENT SAMPLE ID : OW3
SAMPLE TYPE: WATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: OBSERVATION WELLS

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE ...: 04-23-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: --

Inorganic Chemistry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Dissolved Calcium	9.5	mg/L	0.05	05-05-92
Dissolved Magnesium	3.0	mg/L	0.10	05-05-92
Dissolved Potassium	<1.0	mg/L	1.0	05-06-92
Dissolved Sodium	82.	mg/L	0.05	05-05-92
Bicarbonate	580.	mg/L	2.0	04-28-92
Carbonate	<2.0	mg/L	2.0	04-28-92
Chloride	39.	mg/L	1.0	05-06-92
Electrical Conductivity	1200.	umhos/cm	0.1	04-24-92
pH	7.9	S.U.	1.0	04-24-92
Sulfate	34.	mg/L	5.0	05-01-92
Total Dissolved Solids	1100.	mg/L	2.0	04-29-92



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CLIENT GIANT REFINING COMPANY
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SAMPLE NO. : 9205903
INVOICE NO.: 22120904
REPORT DATE: 05-08-92
REVIEWED BY: *LLN*
PAGE : 1 OF 1

CLIENT SAMPLE ID : TRIP BLANK
SAMPLE TYPE: D. I. WATER
SAMPLED BY: WL/PERSONNEL
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: WESTECH LABS.
ANALYST: M. HILL

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : --
SAMPLE DATE: 04-01-92
SUBMITTAL DATE : 04-24-92
EXTRACTION DATE: 04-29-92
ANALYSIS DATE ..: 04-29-92

Method 8020 - Aromatic Volatiles

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Benzene	<1.0	ug/L	1.0
Toluene	<1.0	ug/L	1.0
Ethylbenzene	<1.0	ug/L	1.0
Total Xylenes	<0.3	ug/L	0.3

Surrogate Information -

	Percent Recovery	Range
a,a,a -Trifluorotoluene (8020)	90.0	80-120



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QUALITY CONTROL REPORT

QC IDENTIFIER: 106-042992-1
REFERENCE NOTEBOOK : CH-070
REFERENCE PAGE: 63

INSTRUMENT : Hewlett Packard GC w/ PID & FID
ANALYZED BY : M. HILL
ANALYZED ON : 04-29-92

TEST DESCRIPTION ...: Method 8020 - Aromatic Volatiles
TEST METHOD: Method 8020

SAMPLES IN THIS RUN: 9205885 9205900 9205901 9205902 9205903 9205921

CALIBRATION CHECK -

PARAMETER	UNIT	TRUE VALUE	FOUND VALUE	%RECOVERY
Ethylbenzene	ug/L	10.	7.9	79.0
Toluene	ug/L	10.	9.4	94.0
Total Xylenes	ug/L	30.	28.	93.3
Benzene	ug/L	10.	8.4	84.0
Ethylbenzene	ug/L	10.	8.3	83.0
Toluene	ug/L	10.	11.	110.0
Total Xylenes	ug/L	30.	33.	110.0
Benzene	ug/L	10.	8.8	88.0

REPLICATES -

SAMPLE NUMBER	PARAMETER	UNIT	RESULT	REPLICATE	RPD%
9205921	Ethylbenzene	ug/L	66.	62.	6.3
9205921	Toluene	ug/L	580.	550.	5.3
9205921	Total Xylenes	ug/L	1200.	1100.	8.7
9205921	Benzene	ug/L	300.	280.	6.9

SPIKES -

SAMPLE NUMBER	PARAMETER	UNIT	SAMPLE RESULT	SPIKE AMOUNT	SAMPLE+SPIKE RESULT	%RECOVERY
9205902	Ethylbenzene	ug/L	<1.0	1.0	1.1	110.0
9205902	Toluene	ug/L	<1.0	1.0	1.1	110.0
9205902	Total Xylenes	ug/L	<0.3	3.0	3.5	116.7
9205902	Benzene	ug/L	<1.0	1.0	1.1	110.0

WESTECH
LABORATORIES
INC.
QUALITY ASSURANCE OFFICER

Diane Nichols
DATE: 5/14/92

QUALITY CONTROL REPORT

QC IDENTIFIER: 106-042992-1
REFERENCE NOTEBOOK : CH-070
REFERENCE PAGE: 63

INSTRUMENT : Hewlett Packard GC w/ PID & FID
ANALYZED BY : M. HILL
ANALYZED ON : 04-29-92

METHOD BLANKS -

<u>PARAMETER</u>	<u>UNIT</u>	<u>RESULT</u>
Benzene	ug/L	<1.0
Toluene	ug/L	<1.0
Ethylbenzene	ug/L	<1.0
Total Xylenes	ug/L	<0.3

NOTE -

- 1) NC: Not Calculable because result is < 5 times the MDL
- 2) NP: Not Practical because sample result is 4 times or more greater than spike added.
- 3) Percent Recovery is:

$$\frac{\text{Sample+Spike Result} - \text{Sample Result}}{\text{Spike Amount}} \times 100$$

- 4) Relative Percent Difference (RPD) is:

$$\frac{\text{Sample Result} - \text{Replicate Result}}{(\text{Sample Result} + \text{Replicate Result})/2} \times 100$$



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		JOB/P.O. NO.	

• REFER TO FEE SCHEDULE FOR ANALYSES SELECTION •

SAM111FR (SIGNATURE)	SAM111FR (PREFACE PRINT)
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ANALYST (SIGNATURE)		DATE		TIME		LOCATION		HOLD		COMPOSITE		GRAB		SAMPLE TYPE		NUMBER OF CONTAINERS		REQUESTED ANALYSES		SAMPLE TYPE CODES	
IDENTIFICATION NUMBER		DATE		TIME		LOCATION		HOLD		COMPOSITE		GRAB		SAMPLE TYPE		NUMBER OF CONTAINERS		REQUESTED ANALYSES		SAMPLE TYPE CODES	
Dym Shetter		LYNN SHELTON																pH - CONDUCTIVITY TD5 - BICARB. CARB CHLORIDE - CARB PHENOL 8240 TOTAL METALS DISSOLVED METALS TOC - TOX 8020 BTEX		S - SOIL W - WATER O - OIL G - SLUDGE T - TRAVEL BLANK F - FIELD BLANK X - OTHER	
mw1	4-23	9:45	MONITOR WELLS																		
mw2	4-23	10:30																			
mw4	4-22	3:00																			
mw5	4-23	4:30																			
ow11	4-22	2:25	OBSERVATION WELLS																		
ow1	4-23	9:45																			
ow2	4-23	10:15																			
ow3	4-23	10:45																			
TRIP BLANK	4/1	CHEST 1																			
TRIP BLANK	4/1	CHEST 2																			
Dym Shetter		Lynn Shelton																			
4/23		4/23																			
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IV. AERATED LAGOON AND API EFFLUENT



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CLIENT GIANT REFINING COMPANY
ATTN: LYNN SHELTON
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GALLUP, NM 87301

SAMPLE NO. : 9205597
INVOICE NO.: 22120861
REPORT DATE: 05-01-92
REVIEWED BY *mg AEN*
PAGE 1 OF 1

CLIENT SAMPLE ID : API EFFLUENT
SAMPLE TYPE: WASTEWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: API SEPARATOR

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-20-92
SUBMITTAL DATE : 04-21-92
EXTRACTION DATE: --

Inorganic Non-Metals

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Biochemical Oxygen Demand	380.	mg/L	5.	04-21-92
Chemical Oxygen Demand	1100.	mg/L	10.	04-22-92
Total Dissolved Solids	3000.	mg/L	2.0	04-27-92
Total Organic Carbon	150.	mg/L	1.0	04-30-92



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SAMPLE NO. : 9205598
INVOICE NO.: 22120861
REPORT DATE: 05-01-92
REVIEWED BY: *AGK*
PAGE : 1 OF 1

CLIENT SAMPLE ID : AER LAG EFF
SAMPLE TYPE: WASTEWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: LAGOON EFFLUENT

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-20-92
SUBMITTAL DATE : 04-21-92
EXTRACTION DATE: --

Inorganic Non-Metals

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Biochemical Oxygen Demand	260.	mg/L	5.	04-21-92
Chemical Oxygen Demand	830.	mg/L	10.	04-22-92
Oil and Grease	20.	mg/L	5.	04-24-92
pH	7.0	S.U.	1.0	04-21-92
Sulfide, Total	4.2	mg/L	0.10	05-06-92
Total Dissolved Solids	4200.	mg/L	2.0	04-27-92
Total Organic Carbon	120.	mg/L	1.0	04-30-92



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SAMPLE NO. : 9205598
INVOICE NO.: 22120861
REPORT DATE: 05-01-92
REVIEWED BY: *ML* *9* *AGN*
PAGE : 1 OF 1

CLIENT SAMPLE ID : AER LAG EFF
SAMPLE TYPE: WASTEWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: LAGOON EFFLUENT

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-20-92
SUBMITTAL DATE : 04-21-92
EXTRACTION DATE: --

Inorganic Chemistry - Total Metals

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Arsenic	0.06	mg/L	0.05	04-29-92
Total Cadmium	<0.05	mg/L	0.05	04-29-92
Total Chromium	<0.05	mg/L	0.05	04-29-92
Total Lead	<0.10	mg/L	0.10	04-29-92
Total Mercury	0.002	mg/L	0.001	04-30-92
Total Nickel	<0.05	mg/L	0.05	04-29-92
Total Selenium	<0.05	mg/L	0.05	04-29-92



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SAMPLE NO. : 9205598
INVOICE NO.: 22120861
REPORT DATE: 05-01-92
REVIEWED BY: *AGN*
PAGE 1 OF 1

CLIENT SAMPLE ID : AER LAG EFF
SAMPLE TYPE: WASTEWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: LAGOON EFFLUENT
ANALYST: I. HRABOVSKY

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-20-92
SUBMITTAL DATE : 04-21-92
EXTRACTION DATE: 04-23-92
ANALYSIS DATE ..: 04-23-92

Volatile Organics By Capillary GC/MS

D A T A T A B L E			
Parameter	Result	Unit	Detection Limit
1,2-Dichloroethane	<5.0	ug/L	5.0
Chloroform	<5.0	ug/L	5.0
Benzene	<5.0	ug/L	5.0
Toluene	<5.0	ug/L	5.0
Ethyl Benzene	<5.0	ug/L	5.0
Chlorobenzene	<5.0	ug/L	5.0
Total Xylenes	<5.0	ug/L	5.0
Metyl ethyl ketone	<100.	ug/L	100.
Carbon Disulfide	<20.	ug/L	20.
1,4-Dioxane	<20.	ug/L	20.
Styrene	<5.0	ug/L	5.0
1,2-Dibromoethane (EDB)	<5.0	ug/L	5.0



**Westtech
Laboratories
Inc.**

3737 East Broadway Road
Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

CLIENT GIANT REFINING COMPANY
ATTN: LYNN SHELTON
ROUTE 3, BOX 7
GALLUP, NM 87301

SAMPLE NO. : 9205598
INVOICE NO.: 22120861
REPORT DATE: 05-01-92
REVIEWED BY: *MG AGN*
PAGE 1 OF 2

CLIENT SAMPLE ID : AER LAG EFF
SAMPLE TYPE: WASTEWATER
SAMPLED BY: L. SHELTON
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE: LAGOON EFFLUENT
ANALYST: I. HRABOVSKY

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-20-92
SUBMITTAL DATE : 04-21-92
EXTRACTION DATE: 04-24-92
ANALYSIS DATE ..: 04-27-92

Semi-Volatiles by Gas Chromatography/ Mass Spectrometry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Phenol	<10.	ug/L	10.
1,3-Dichlorobenzene	<10.	ug/L	10.
1,4-Dichlorobenzene	<10.	ug/L	10.
1,2-Dichlorobenzene	<10.	ug/L	10.
2-Methylphenol	<10.	ug/L	10.
4-Methylphenol	<10.	ug/L	10.
2,4-Dimethylphenol	<10.	ug/L	10.
Napthalene	15.	ug/L	10.
Dimethyl phthalate	<10.	ug/L	10.
2,4-Dinitrophenol	<50.	ug/L	50.
4-Nitrophenol	<50.	ug/L	50.
Diethyl phthalate	11.	ug/L	10.
3-Methylphenol	<10.	ug/L	10.
Phenanthrene	80.	ug/L	10.
Anthracene	<10.	ug/L	10.
Di-n-butyl phthalate	<10.	ug/L	10.
Fluoranthene	<10.	ug/L	10.
Pyrene	17.	ug/L	10.
Butyl benzyl phthalate	<10.	ug/L	10.
Benzo(a)anthracene	<10.	ug/L	10.
Bis(2-ethylhexyl) phthalate	<10.	ug/L	10.
Chrysene	23.	ug/L	10.
Di-n-octyl phthalate	<10.	ug/L	10.
Benzo(b)fluoranthene	<10.	ug/L	10.
Benzo(k)fluoranthene	<10.	ug/L	10.
Benzo(a)pyrene	<10.	ug/L	10.
Dibenzo(a,h)anthracene	<10.	ug/L	10.
7,12-Dimethylbenz(a)-anthracene ...	<10.	ug/L	10.
Indene	<20.	ug/L	20.
1-Methylnaphthalene	<10.	ug/L	10.



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ROUTE 3, BOX 7
GALLUP, NM 87301

SAMPLE NO. : 9205598
INVOICE NO.: 22120861
REPORT DATE: 05-01-92
REVIEWED BY: *g* *LEN*
PAGE *11* 2 OF 2

D A T A

T A B L E

(Cont.)

Parameter	Result	Unit	Detection Limit
Pyridine	<100.	ug/L	100.
Quinoline	<20.	ug/L	20.
Benzenethiol	<20.	ug/L	20.



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CLIENT GIANT REFINING COMPANY
ATTN: LYNN SHELTON
ROUTE 3, BOX 7
GALLUP, NM 87301

SAMPLE NO. : 9205599
INVOICE NO.: 22120861
REPORT DATE: 05-01-92
REVIEWED BY: *mg* *AGN*
PAGE 1 OF 2

CLIENT SAMPLE ID : TRIP BLANK
SAMPLE TYPE: D. I. WATER
SAMPLED BY: WL/PERSONNEL
SUBMITTED BY: L. SHELTON
SAMPLE SOURCE ...: WESTECH LABS.
ANALYST: I. HRABOVSKY

AUTHORIZED BY : L. SHELTON
CLIENT P.O. : 3507
SAMPLE DATE ...: 04-09-92
SUBMITTAL DATE : 04-21-92
EXTRACTION DATE: 04-23-92
ANALYSIS DATE ..: 04-23-92

Volatile Organics By Capillary GC/MS

D A T A T A B L E			
Parameter	Result	Unit	Detection Limit
1,1,2,2-Tetrachloroethane	<5.0	ug/L	5.0
1,1,2,2-Tetrachloroethene(Perc.) ..	<5.0	ug/L	5.0
1,1,1-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethane	<5.0	ug/L	5.0
1,1,2-Trichloroethene (TCE)	<5.0	ug/L	5.0
1,1,2-Trichloro 1,2,2-Trifluoro ..	<5.0	ug/L	5.0
ethane (freon 113)			
1,1-Dichloroethane	<5.0	ug/L	5.0
1,1-Dichloroethene	<5.0	ug/L	5.0
1,2-Dichloroethane	<5.0	ug/L	5.0
trans-1,2-Dichloroethene	<5.0	ug/L	5.0
1,3-Dichlorobenzene	<5.0	ug/L	5.0
1,4-Dichlorobenzene	<5.0	ug/L	5.0
1,2-Dichlorobenzene	<5.0	ug/L	5.0
cis-1,3-Dichloropropene	<5.0	ug/L	5.0
trans-1,3-Dichloropropene	<5.0	ug/L	5.0
2-Chloroethylvinyl ether	<15.	ug/L	15.
Vinyl chloride	<10.	ug/L	10.
Trichlorofluoromethane	<10.	ug/L	10.
Chloromethane	<10.	ug/L	10.
Chloroethane	<10.	ug/L	10.
Methylene Chloride	<5.0	ug/L	5.0
Chloroform	<5.0	ug/L	5.0
Bromodichloromethane	<5.0	ug/L	5.0
Dibromochloromethane	<5.0	ug/L	5.0
Bromoform	<5.0	ug/L	5.0
Dibromomethane	<10.	ug/L	10.
Bromomethane	<10.	ug/L	10.
Carbon tetrachloride	<5.0	ug/L	5.0
Benzene	<5.0	ug/L	5.0



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Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

CLIENT GIANT REFINING COMPANY
ATTN: LYNN SHELTON
ROUTE 3, BOX 7
GALLUP, NM 87301

SAMPLE NO. : 9205599
INVOICE NO.: 22120861
REPORT DATE: 05-01-92
REVIEWED BY: *mg* *AGN*
PAGE 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
Toluene	<5.0	ug/L	5.0
Ethyl Benzene	<5.0	ug/L	5.0
Chlorobenzene	<5.0	ug/L	5.0
Total Xylenes	<5.0	ug/L	5.0
1,2-Dichloropropane	<5.0	ug/L	5.0
Dichlorodifluoromethane	<10.	ug/L	10.
Acetone	<100.	ug/L	100.
Methyl tert-butyl ether	<100.	ug/L	100.
Metyl ethyl ketone	<100.	ug/L	100.
Methyl isobutyl ketone	<100.	ug/L	100.
2-Hexanone	<100.	ug/L	100.



**Westech
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El Paso • 10737 Gateway West #100 • TX 79935 • (915) 592-3591 • fax 592-3594

CHAIN OF CUSTODY RECORD



CLIENT	ADDRESS
CHARTER REF/IN/INC CC	Rt 3 Box 7
CHARTER NO. 722 02227	CHARTER NO. 81301
ANNUAL WASTE WARE	LABORATORY NO. 3507

• REFER TO FEE SCHEDULE FOR ANALYSIS SELECTION •

SAMPLE SIGNATURE	DATE	TIME	SAMPLE LOCATION	HOLD		COMPOSITE	GRAB	SAMPLE TYPE	NUMBER OF CONTAINERS	REQUESTED ANALYSES										COMMENTS	LABORATORY SAMPLE IDENTIFICATION NUMBER				
				ANALYSIS	ANALYSIS					ANALYSIS	ANALYSIS	ANALYSIS	ANALYSIS	ANALYSIS	ANALYSIS	ANALYSIS	ANALYSIS	ANALYSIS	ANALYSIS						
APR EFFLUENT	11-15-88	8:24 AM	APR SEWAGE AREA				X	W	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2205594	
APR LAKE EFF	11-15-88	8:45 AM	LAKE EFFLUENT				X	W	12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2205595	
TRIP GLAUC	11-15-88	1:30 PM					X	W	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2205599	
REMARKS: * SEE ATTACHED LIST																									
One glass container broken on board.																									

White: Testing Laboratory Yellow: Department Job File Pink: Client

V. ANALYTICAL PARAMETERS

ANALYTICAL PARAMETERS

API EFFLUENT

Biochemical Oxygen Demand
Chemical Oxygen Demand
Total Dissolved Solids

AERATED LAGOON EFFLUENT

General Inorganics:

Biochemical Oxygen Demand
Chemical Oxygen Demand
Oil and Grease
pH
Sulfide, Total
Total Dissolved Solids

Total Metals:

Arsenic
Cadmium
Chromium
Lead
Mercury
Nickel
Selenium

Refinery Hazardous Constituent

Semivolatiles

8270

Anthracene
Benzo(a)anthracene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzo(a)pyrene
bis(2-Ethylhexyl)
phthalate
Butyl benzyl phthalate
Chrysene
Dibenz(a,h)anthracene
Di-n-butyl phthalate
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Diethyl phthalate
7,12-Dimethylbenz(a)-
anthracene
Dimethyl phthalate
Di-n-octyl phthalate
Fluoranthene
Indene
1-Methylnaphthalene
Naphthalene
Phenanthrene
Pyrene
Pyridine
Quinoline
Benzenethiol
o-Cresol
m & p Cresol (s)
2,4-Dimethylphenol
2,4-Dinitrophenol
4-Nitrophenol
Phenol

Refinery Hazardous Constituents

Volatiles

8240

Benzene
Carbon disulfide
Chlorobenzene
Chloroform
EDB (1,2-Dibromoethane)
1,2-Dichloroethane
1,4-Dioxane
Ethylbenzene
2-Butanone (MEK)
Toluene
Styrene
Xylenes (total)

ANNUAL GROUNDWATER SAMPLING EVENT (MARCH OR APRIL)
PARAMETERS

WELL	ALKAL ALKAL										VOL-ORG BTEX TOTAL METALS										DISSOLVED METALS									
	PH	COND	TOC(2)	TOX(2)	TDS	BICARB	CARB	CHLORIDE	SULFATE	PHENOL	8240	8020	Cr	Pb	Hg	As	Ba	Cd	Ca	Mg	Mn	K	Se	Ag	N					
PM-1	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X					
PM-2	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X					
PM-4	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X					
PM-5	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X					
OW-11	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X	X	X	X	X	X					
SMW-1	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	-	-	-	X	X	-	X	-	-	-					
SMW-2	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	-	-	-	X	X	-	X	-	-	-					
SMW-3	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	-	-	-	X	X	-	X	-	-	-					
SMW-4	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	-	-	-	X	X	-	X	-	-	-					
SMW-5	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	-	-	-	X	X	-	X	-	-	-					
SMW-6	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	-	-	-	X	X	-	X	-	-	-					
OW-1	X	X	-	-	X	X	X	X	X	X	-	X	-	-	-	-	-	-	X	X	-	X	-	-	-					
OW-2	X	X	-	-	X	X	X	X	X	X	-	X	-	-	-	-	-	-	X	X	-	X	-	-	-					
OW-3	X	X	-	-	X	X	X	X	X	X	-	X	-	-	-	-	-	-	X	X	-	X	-	-	-					

SEMI-ANNUAL GROUNDWATER PARAMETERS

(SEPTEMBER OR OCTOBER)

Well	pH(1)	COND(1)	TOC ¹	TOX ²	Cr	Pb	Vol Org 8240
MW-1	X	X	X	X	X	X	X
MW-2	X	X	X	X	X	X	X
MW-4	X	X	X	X	X	X	X
MW-5	X	X	X	X	X	X	X
OW-11	X	X	X	X	X	X	X
SMW-1	X	X	X	X	X	X	X
SMW-2	X	X	X	X	X	X	X
SMW-3	X	X	X	X	X	X	X
SMW-4	X	X	X	X	X	X	X
SMW-5	X	X	X	X	X	X	X
SMW-6	X	X	X	X	X	X	X

1 4 Replicates

2 2 Replicates

TABLE-4

RECOMMENDED ANALYTICAL METHODS

<u>Parameter</u>	<u>Method</u>
→ pH (Liquid)	221, 9040
→ Specific Conductance	120.1
→ Total Organic Carbon (TOC) <i>4 replicates</i>	505, 9060
→ Total Organic Halogen (TOX) <i>4 replicates</i>	9020
Total Dissolved Solids (TDS)	160.1
Alkalinity as Bicarbonate	310.1
Alkalinity as Carbonate	310.1
Chloride	300.0
Sulfate	300.0
Phenol	420.1, 9065
Metals	-
Arsenic	303E, 206.2, 7060
Barium	303A, 200.7, 6010
Cadmium	200.7, 6010
Calcium	200.7, 6010
→ Chromium <i>Total</i>	303A, 200.7, 6010
→ Lead <i>Total</i>	303A, 239.2, 7421
Magnesium	200.7, 6010
Manganese	200.7, 6010
Mercury	243.1, 7470
Potassium	200.7, 6010
Selenium	270.2, 7740
Silver	200.7, 6010
Sodium	200.7, 6010
Oil & Grease	413.1, 9071
pH (Solid)	9045
Carbon	9060
Nitrogen	353.2
Phosphorus	365.3
Total Solids (Solids)	160.3
VOA (BTEX) (Liquid & Solid)	8020
Benzene	-
Toluene	-
Ethyl benzene	-
Xylene (m, o & p)	-
→ TCL Volatile Organics (Liquids)	8240
Chloromethane	-
Bromomethane	-
Vinyl chloride	-
Chloroethane	-
Methylene chloride	-
Acetone	-
Carbon disulfide	-
1,1 - Dichloroethene	-
1,1 - Dichloroethane	-
1,2 - Dichloroethene (cis/trans)	-

Chloroform	-
1,2-Dichloroethane	-
2-Butanone	-
1,1,1-Trichloroethane	-
Carbon tetrachloride	-
Vinyl acetate	-
Bromodichloromethane	-
1,2 - Dichloropropane	-
trans-1,3-Dichloropropene	-
Trichloroethene	-
Chlorodibromomethane	-
1,1,2-Trichloroethane	-
Benzene	-
cis-1,3-Dichloropropene	-
2-Chloroethyl vinyl ether	-
Bromoform	-
4-Methyl-2-pentanone	-
2-Hexanone	-
1,1,2,2,-Tetrachloroethane	-
Tetrachloroethene	-
Toluene	-
Chlorobenzene	-
Ethyl benzene	-
Styrene	-
Xylenes (total)	-
1,1,2 Trichloro-1,2,2-trifluoroethane	-
1,2-Dibromomethane	-
1,2-Dichlorobenzene	-
1,3-Dichlorobenzene	-
1,4-Dichlorobenzene	-
Refinery Hazardous Const. Semivolatiles (Solids)	8270
Benzo(a)pyrene	-
Chrysene	-
1-Methylnaphthalene	-
Phenanthrene	-
Pyrene	-
o-Cresol	-
m & p Cresol	-

VI. 1991 DATA



Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT

DATE RECEIVED : 09/26

REPORT DATE : 10/16

ATI I.D. : 109901

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-1	AQUEOUS	09/25
02	MW-1	AQUEOUS	09/25
03	MW-1	AQUEOUS	09/25
04	MW-1	AQUEOUS	09/25
05	MW-2	AQUEOUS	09/25
06	MW-2	AQUEOUS	09/25
07	MW-2	AQUEOUS	09/25
08	MW-2	AQUEOUS	09/25
09	TRIP BLANK	AQUEOUS	09/25

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	9

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 109901

CLIENT : GIANT REFINING CO.

DATE RECEIVED : 09/25/91

PROJECT # : (NONE)

PROJECT NAME : PERMIT

REPORT DATE : 10/16/91

PARAMETER	UNITS	01	02	03	04	05
CONDUCTIVITY, (UMHOS/CM)		1090	-	-	-	1120
PH	UNITS	8.95	-	-	-	8.95
TOTAL ORGANIC CARBON	MG/L	1.6	1.5	2.7	1.4	1.6
TOTAL ORGANIC HALIDE	MG/L	<0.008	<0.008	<0.008	<0.008	<0.008



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 109901

CLIENT : GIANT REFINING CO.

DATE RECEIVED : 09/26/9

PROJECT # : (NONE)

PROJECT NAME : PERMIT

REPORT DATE : 10/16/9

PARAMETER	UNITS	06	07	08
TOTAL ORGANIC CARBON	MG/L	1.9	3.4	2.8
TOTAL ORGANIC HALIDE	MG/L	<0.008	<0.008	<0.008



Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 109901

CLIENT : GIANT REFINING CO.

DATE RECEIVED : 09/26/9

PROJECT # : (NONE)

PROJECT NAME : PERMIT

REPORT DATE : 10/16/9

PARAMETER	UNITS	01	05
CHROMIUM	MG/L	<0.010	<0.010
LEAD	MG/L	0.003	<0.002



GCMS - RESULTS

ATI I.D. : 10990101

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT
CLIENT I.D. : MW-1
SAMPLE MATRIX : AQUEOUS

DATE SAMPLED : 09/25/
DATE RECEIVED : 09/26/
DATE EXTRACTED : N/A
DATE ANALYZED : 09/30/
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

(CONTINUED NEXT PAGE)



GCMS - RESULTS

ATI I.D. : 10990101

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYL VINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	96
BFB (%)	99
TOLUENE-D8 (%)	97



Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 10990101

COMPOUNDS

RESULTS

1,1,2-TRICHLORO-
1,2,2-TRIFLUOROETHANE
1,2-DICHLOROBENZENE
1,3-DICHLOROBENZENE
1,4-DICHLOROBENZENE

<5
<1
<1
<1
<1



GCMS - RESULTS

ATI I.D. : 10990105

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT
CLIENT I.D. : MW-2
SAMPLE MATRIX : AQUEOUS

DATE SAMPLED : 09/25/
DATE RECEIVED : 09/26/
DATE EXTRACTED : N/A
DATE ANALYZED : 09/30/
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

(CONTINUED NEXT PAGE)



TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYL VINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	97
BFB (%)	99
TOLUENE-D8 (%)	97



Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 10990105

COMPOUNDS

RESULTS

1,1,2-TRICHLORO-
1,2,2-TRIFLUOROETHANE
1,2-DICHLOROBENZENE
1,3-DICHLOROBENZENE
1,4-DICHLOROBENZENE

<5
<1
<1
<1
<1



GCMS - RESULTS

ATI I.D. : 10990109

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT
CLIENT I.D. : TRIP BLANK
SAMPLE MATRIX : AQUEOUS

DATE SAMPLED : 09/21
DATE RECEIVED : 09/25
DATE EXTRACTED : N/A
DATE ANALYZED : 09/30
UNITS : UG/L
DILUTION FACTOR :

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MEK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

(CONTINUED NEXT PAGE)



Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10990109

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS

RESULTS

ETHYL METHACRYLATE

<5

ETHANOL

<100

BROMOMETHANE

<10

2-CHLOROETHYL VINYLETHER

<5

1,4-DICHLORO-2-BUTANE

<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)

93

BFB (%)

98

TOLUENE-D8 (%)

97



Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 10990109

COMPOUNDS

RESULTS

1,1,2-TRICHLORO-
1,2,2-TRIFLUOROETHANE
1,2-DICHLOROBENZENE
1,3-DICHLOROBENZENE
1,4-DICHLOROBENZENE

<5
<1
<1
<1
<1



Phoenix, Arizona

Chain of Custody

DATE 9-25-91 PAGE 1 OF 1

PROJECT MANAGER: <u>Bland Rosenfeld</u>		ANALYSIS REQUEST																	
COMPANY: <u>Coast Refining Co</u> ADDRESS: <u>Rt 3 Box 25</u> <u>College N.M. 87301</u> BILL TO: COMPANY: <u>Same</u> ADDRESS: <u>Same</u>		SAMPLERS: (Signature) <u>[Signature]</u> <u>505 1722-0217</u> PHONE NUMBER																	
		DATE		TIME		MATRIX		LAB ID											
		9-25-91		0800		1601		1-4											
		9-25-91		0820		1601		5-9											
		9-25-91		1000		1601		10											
PROJECT NO: <u>109901</u> PROJECT NAME: <u>Coast Refining Co</u> P.O. NO: <u>109901</u> SHIPPED VIA: <u>FEDEX</u> SAMPLE DISPOSAL INSTRUCTIONS: <u>RETURN</u>		TOTAL NO. OF CONTAINERS: <u>25</u> CHAIN OF CUSTODY SEALS: <u>INTACT</u> RECEIVED GOOD: <u>COID</u> LAB NUMBER: <u>109901</u>		PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS TAT: (NORMAL) ☒ (RUSH) ☐ 24 ☐ 48 ☐ 72 ☐ 1 WEEK															
PROJECT INFORMATION PROJECT NO: <u>109901</u> PROJECT NAME: <u>Coast Refining Co</u> P.O. NO: <u>109901</u> SHIPPED VIA: <u>FEDEX</u> SAMPLE DISPOSAL INSTRUCTIONS: <u>RETURN</u>		TOTAL NO. OF CONTAINERS: <u>25</u> CHAIN OF CUSTODY SEALS: <u>INTACT</u> RECEIVED GOOD: <u>COID</u> LAB NUMBER: <u>109901</u>		PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS TAT: (NORMAL) ☒ (RUSH) ☐ 24 ☐ 48 ☐ 72 ☐ 1 WEEK															
PROJECT INFORMATION PROJECT NO: <u>109901</u> PROJECT NAME: <u>Coast Refining Co</u> P.O. NO: <u>109901</u> SHIPPED VIA: <u>FEDEX</u> SAMPLE DISPOSAL INSTRUCTIONS: <u>RETURN</u>		TOTAL NO. OF CONTAINERS: <u>25</u> CHAIN OF CUSTODY SEALS: <u>INTACT</u> RECEIVED GOOD: <u>COID</u> LAB NUMBER: <u>109901</u>		PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS TAT: (NORMAL) ☒ (RUSH) ☐ 24 ☐ 48 ☐ 72 ☐ 1 WEEK															

TABLE 1 - GROUNDWATER SAMPLING SCHEDULE
ANNUAL PARAMETERS (MARCH OR APRIL)

WATER	PH	COND.	TOC	TOI	TDS	ALKAL. BICARB.	ALKAL. CARB.	CHLORIDE	SULFATE	PERVOL	ICL-VOL ORG (8/10)	VOA-BIEN 8016	TOTAL METALS			DISSOLVED METALS									
													Cr	Pb	Hg	As	Ba	Cd	Ca	Hg	Mo	K	Se	Ag	
1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
29	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

SEMI-ANNUAL PARAMETERS (SEPT. OR OCT.)

WATER	PH	COND	TOC	TOI	TDS	TOTAL METALS			ICL-VOL ORG (8/10)
						Cr	Pb	Hg	
1	X	X	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X	X	X
4	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X
7	X	X	X	X	X	X	X	X	X
8	X	X	X	X	X	X	X	X	X
9	X	X	X	X	X	X	X	X	X
10	X	X	X	X	X	X	X	X	X
11	X	X	X	X	X	X	X	X	X
12	X	X	X	X	X	X	X	X	X
13	X	X	X	X	X	X	X	X	X
14	X	X	X	X	X	X	X	X	X
15	X	X	X	X	X	X	X	X	X
16	X	X	X	X	X	X	X	X	X
17	X	X	X	X	X	X	X	X	X
18	X	X	X	X	X	X	X	X	X
19	X	X	X	X	X	X	X	X	X
20	X	X	X	X	X	X	X	X	X
21	X	X	X	X	X	X	X	X	X
22	X	X	X	X	X	X	X	X	X
23	X	X	X	X	X	X	X	X	X
24	X	X	X	X	X	X	X	X	X
25	X	X	X	X	X	X	X	X	X
26	X	X	X	X	X	X	X	X	X
27	X	X	X	X	X	X	X	X	X
28	X	X	X	X	X	X	X	X	X
29	X	X	X	X	X	X	X	X	X
30	X	X	X	X	X	X	X	X	X

Annual /
Waste Waters

API Effluent

1. BOD
2. COD
3. TOL
4. TDS

Aerated Lagoon Effluent

1. pH
2. BOD
3. COD
4. TOL
5. TDS
6. SIC ()
7. Metals - (As, Cl, Pb, Hg, Ni, Se)
8. Oil & Grease
9. 8240 (Ammonia)
10. 8270 (Ammonia)

17 SRS - 2nd class of 8 SRS

TABLE-4

RECOMMENDED ANALYTICAL METHODS

<u>Parameter</u>	<u>Method</u>
→ pH (Liquid)	221, 9040
→ Specific Conductance	120.1
→ Total Organic Carbon (TOC) <i>4 replicates</i>	505, 9060
→ Total Organic Halogen (TOX) <i>4 replicates</i>	9020
Total Dissolved Solids (TDS)	160.1
Alkalinity as Bicarbonate	310.1
Alkalinity as Carbonate	310.1
Chloride	300.0
Sulfate	300.0
Phenol	420.1, 9065
Metals	-
Arsenic	303E, 206.2, 7060
Barium	303A, 200.7, 6010
Cadmium	200.7, 6010
Calcium	200.7, 6010
→ Chromium <i>Total</i>	303A, 200.7, 6010
→ Lead <i>Total</i>	303A, 239.2, 7421
Magnesium	200.7, 6010
Manganese	200.7, 6010
Mercury	245.1, 7470
Potassium	200.7, 6010
Selenium	270.2, 7740
Silver	200.7, 6010
Sodium	200.7, 6010
Oil & Grease	413.1, 9071
pH (Solid)	9045
Carbon	9060
Nitrogen	353.2
Phosphorus	365.3
Total Solids (Solids)	160.3
VOA (BTEX) (Liquid & Solid)	8020
Benzene	-
Toluene	-
Ethyl benzene	-
Xylene (m, o & p)	-
→ TCL Volatile Organics (Liquids)	8240
Chloromethane	-
Bromomethane	-
Vinyl chloride	-
Chloroethane	-
Methylene chloride	-
Acetone	-
Carbon disulfide	-
1,1 - Dichloroethene	-
1,1 - Dichloroethane	-
1,2 - Dichloroethene (cis/trans)	-

Chloroform	-
1,2-Dichloroethane	-
2-Butanone	-
1,1,1-Trichloroethane	-
Carbon tetrachloride	-
Vinyl acetate	-
Bromodichloromethane	-
1,2 - Dichloropropane	-
trans-1,3-Dichloropropene	-
Trichloroethene	-
Chlorodibromomethane	-
1,1,2-Trichloroethane	-
Benzene	-
cis-1,3-Dichloropropene	-
2-Chloroethyl vinyl ether	-
Bromoform	-
4-Methyl-2-pentanone	-
2-Hexanone	-
1,1,2,2-Tetrachloroethane	-
Tetrachloroethene	-
Toluene	-
Chlorobenzene	-
Ethyl benzene	-
Styrene	-
Xylenes (total)	-
1,1,2-Trichloro-1,2,2-trifluoroethane	-
1,2-Dibromomethane	-
1,2-Dichlorobenzene	-
1,3-Dichlorobenzene	-
1,4-Dichlorobenzene	-
Refinery Hazardous Const. Semivolatiles (Solids)	8270
Benzo(a)pyrene	-
Chrysene	-
1-Methylnaphthalene	-
Phenanthrene	-
Pyrene	-
o-Cresol	-
m & p Cresol	-



Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT

DATE RECEIVED : 09/26/

REPORT DATE : 10/16/

ATI I.D. : 109899

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECT
01	MW-4	AQUEOUS	09/25/
02	MW-4	AQUEOUS	09/25/
03	MW-4	AQUEOUS	09/25/
04	MW-4	AQUEOUS	09/25/
05	OW-11	AQUEOUS	09/25/
06	OW-11	AQUEOUS	09/25/
07	OW-11	AQUEOUS	09/25/
08	OW-11	AQUEOUS	09/25/

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	8

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 109899

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT

DATE RECEIVED : 09/26/9

REPORT DATE : 10/16/9

PARAMETER	UNITS	01	02	03	04	05
CONDUCTIVITY, (UMHOS/CM)		1120	-	-	-	1720
PH	UNITS	8.69	-	-	-	8.26
TOTAL ORGANIC CARBON	MG/L	1.2	3.1	1.4	1.3	6.5
TOTAL ORGANIC HALIDE	MG/L	<0.008	<0.008	<0.008	<0.008	0.021



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 109899

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT

DATE RECEIVED : 09/26/

REPORT DATE : 10/16/

PARAMETER	UNITS	06	07	08
TOTAL ORGANIC CARBON	MG/L	4.4	4.7	4.3
TOTAL ORGANIC HALIDE	MG/L	0.032	0.025	0.022



Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 109899

CLIENT : GIANT REFINING CO.

DATE RECEIVED : 09/26/

PROJECT # : (NONE)

PROJECT NAME : PERMIT

REPORT DATE : 10/16/

PARAMETER	UNITS	01	05
CHROMIUM	MG/L	<0.010	<0.010
LEAD	MG/L	<0.002	0.002



Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10989901

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT
CLIENT I.D. : MW-4
SAMPLE MATRIX : AQUEOUS

DATE SAMPLED : 09/25
DATE RECEIVED : 09/26
DATE EXTRACTED : N/A
DATE ANALYZED : 09/30
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MEK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5



Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10989901

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYL VINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	96
BFB (%)	99
TOLUENE-D8 (%)	97



Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 10989901

COMPOUNDS

RESULTS

1,1,2-TRICHLORO-
1,2,2-TRIFLUOROETHANE
1,2-DICHLOROBENZENE
1,3-DICHLOROBENZENE
1,4-DICHLOROBENZENE

<5
<1
<1
<1
<1



Analytical Technologies, Inc.

GCMS - RESULTS

ATTI I.D. : 10989905

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT
CLIENT I.D. : OW-11
SAMPLE MATRIX : AQUEOUS

DATE SAMPLED : 09/25/
DATE RECEIVED : 09/26/
DATE EXTRACTED : N/A
DATE ANALYZED : 09/30/
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
-----------	---------

CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5



Analytical Technologies, Inc.

GCMS - RESULTS

ATTI I.D. : 10989905

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYL VINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	96
BFB (%)	100
TOLUENE-D8 (%)	98



Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 10989905

COMPOUNDS

RESULTS

1,1,2-TRICHLORO-

1,2,2-TRIFLUOROETHANE

<5

1,2-DICHLOROBENZENE

<1

1,3-DICHLOROBENZENE

<1

1,4-DICHLOROBENZENE

<1



DATE 9-25-91 / PAGE 1 OF 1

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Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT

DATE RECEIVED : 09/25/

REPORT DATE : 10/16/

ATI I.D. : 109905

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECT
01	MW-5	AQUEOUS	09/25/
02	MW-5	AQUEOUS	09/25/
03	MW-5	AQUEOUS	09/25/
04	MW-5	AQUEOUS	09/25/
05	MW-D	AQUEOUS	09/25/
06	MW-D	AQUEOUS	09/25/
07	MW-D	AQUEOUS	09/25/
08	MW-D	AQUEOUS	09/25/

----- TOTALS -----

MATRIX	# SAMPLES
-----	-----
AQUEOUS	8

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 109905

CLIENT : GIANT REFINING CO.

DATE RECEIVED : 09/26

PROJECT # : (NONE)

PROJECT NAME : PERMIT

REPORT DATE : 10/16

PARAMETER	UNITS	01	02	03	04	05
CONDUCTIVITY, (UMHOS/CM)		1110	-	-	-	1120
PH	UNITS	8.99	-	-	-	8.98
TOTAL ORGANIC CARBON	MG/L	1.3	1.0	1.0	2.0	0.9
TOTAL ORGANIC HALIDE	MG/L	<0.008	<0.008	<0.008	<0.008	<0.008



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 109905

CLIENT : GIANT REFINING CO.

DATE RECEIVED : 09/26/

PROJECT # : (NONE)

PROJECT NAME : PERMIT

REPORT DATE : 10/16/

PARAMETER	UNITS	06	07	08
TOTAL ORGANIC CARBON	MG/L	0.8	0.8	1.3
TOTAL ORGANIC HALIDE	MG/L	<0.008	<0.008	<0.008



Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 109905

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT

DATE RECEIVED : 09/26/

REPORT DATE : 10/16/

PARAMETER	UNITS	01	05
CHROMIUM	MG/L	<0.010	<0.010
LEAD	MG/L	<0.002	<0.002



GCMS - RESULTS

ATI I.D. : 10990501

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT
CLIENT I.D. : MW-5
SAMPLE MATRIX : AQUEOUS

DATE SAMPLED : 09/25/9
DATE RECEIVED : 09/26/9
DATE EXTRACTED : N/A
DATE ANALYZED : 09/27/9
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS

RESULTS

CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MSK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5



Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10990501

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYL VINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	99
BFB (%)	101
TOLUENE-D8 (%)	100



Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 10990501

COMPOUNDS

RESULTS

1,1,2-TRICHLORO-
1,2,2-TRIFLUOROETHANE
1,2-DICHLOROBENZENE
1,3-DICHLOROBENZENE
1,4-DICHLOROBENZENE

<5
<1
<1
<1
<1

GCMS - RESULTS

ATI I.D. : 10990505

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT
CLIENT I.D. : MW-D
SAMPLE MATRIX : AQUEOUS

DATE SAMPLED : 09/25/9
DATE RECEIVED : 09/26/9
DATE EXTRACTED : N/A
DATE ANALYZED : 09/27/9
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5



Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10990505

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYL VINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	101
BFB (%)	101
TOLUENE-D8 (%)	101



Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 10990505

COMPOUNDS

RESULTS

1,1,2-TRICHLORO-
1,2,2-TRIFLUOROETHANE
1,2-DICHLOROBENZENE
1,3-DICHLOROBENZENE
1,4-DICHLOROBENZENE

<5
<1
<1
<1
<1



Chain of Custody

DATE 2-25-91 / PAGE OF

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Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT

DATE RECEIVED : 09/25/91

REPORT DATE : 10/16/91

ATI I.D. : 109877

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	SMW-1	AQUEOUS	09/24/91
02	SMW-1	AQUEOUS	09/24/91
03	SMW-1	AQUEOUS	09/24/91
04	SMW-1	AQUEOUS	09/24/91
05	SMW-2	AQUEOUS	09/24/91
06	SMW-2	AQUEOUS	09/24/91
07	SMW-2	AQUEOUS	09/24/91
08	SMW-2	AQUEOUS	09/24/91

----- TOTALS -----

MATRIX	# SAMPLES
-----	-----
AQUEOUS	8

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 109877

CLIENT : GIANT REFINING CO.

DATE RECEIVED : 09/25/

PROJECT # : (NONE)

PROJECT NAME : PERMIT

REPORT DATE : 10/16/

PARAMETER	UNITS	06	07	08
TOTAL ORGANIC CARBON	MG/L	8.7	11.2	9.5
TOTAL ORGANIC HALIDE	MG/L	0.031	0.040	0.038



Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 109877

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT

DATE RECEIVED : 09/25/

REPORT DATE : 10/16/

PARAMETER	UNITS	01	05
CHROMIUM	MG/L	0.058	0.168
LEAD	MG/L	0.008	0.010



GCMS - RESULTS

ATI I.D. : 10987701

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT
CLIENT I.D. : SMW-1
SAMPLE MATRIX : AQUEOUS

DATE SAMPLED : 09/24/9
DATE RECEIVED : 09/25/9
DATE EXTRACTED : N/A
DATE ANALYZED : 09/27/9
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

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GCMS - RESULTS

ATI I.D. : 10987701

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYL VINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	98
BFB (%)	101
TOLUENE-D8 (%)	99



Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 10987701

COMPOUNDS

RESULTS

OXYGENATED HYDROCARBON C5

9

SULFIDE HYDROCARBONS C5-C7

600

HYDROCARBONS C9-C11

900

1,1,2-TRICHLORO-

1,2,2-TRIFLUOROETHANE

<5

1,2-DICHLOROBENZENE

<1

1,3-DICHLOROBENZENE

<1

1,4-DICHLOROBENZENE

<1



GCMS - RESULTS

ATI I.D. : 10987705

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT
CLIENT I.D. : SMW-2
SAMPLE MATRIX : AQUEOUS

DATE SAMPLED : 09/24
DATE RECEIVED : 09/25
DATE EXTRACTED : N/A
DATE ANALYZED : 09/27
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MEK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

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GCMS - RESULTS

ATI I.D. : 10987705

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYL VINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	97
BFB (%)	102
TOLUENE-D8 (%)	100



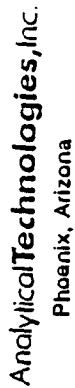
Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 10987705

COMPOUNDS	RESULTS
SULFIDE HYDROCARBONS C5-C7	100
HYDROCARBONS C9-C11	1000
1,1,2-TRICHLORO-	
1,2,2-TRIFLUOROETHANE	<5
1,2-DICHLOROBENZENE	<1
1,3-DICHLOROBENZENE	<1
1,4-DICHLOROBENZENE	<1



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CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT

DATE RECEIVED : 09/25/91

REPORT DATE : 10/16/91

ATI I.D. : 109876

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	SMW-3	AQUEOUS	09/24/91
02	SMW-3	AQUEOUS	09/24/91
03	SMW-3	AQUEOUS	09/24/91
04	SMW-3	AQUEOUS	09/24/91
05	SMW-4	AQUEOUS	09/24/91
06	SMW-4	AQUEOUS	09/24/91
07	SMW-4	AQUEOUS	09/24/91
08	SMW-4	AQUEOUS	09/24/91

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	8

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.



GENERAL CHEMISTRY RESULTS

ATI I.D. : 109876

CLIENT : GIANT REFINING CO.

DATE RECEIVED : 09/25.

PROJECT # : (NONE)

PROJECT NAME : PERMIT

REPORT DATE : 10/16.

PARAMETER	UNITS	01	02	03	04	05
CONDUCTIVITY, (UMHOS/CM)		3280	-	-	-	1190
PH	UNITS	8.10	-	-	-	8.56
TOTAL ORGANIC CARBON	MG/L	1.1	4.1	2.7	3.4	1.4
TOTAL ORGANIC HALIDE	MG/L	<0.008	<0.008	<0.008	<0.008	<0.00



GENERAL CHEMISTRY RESULTS

ATI I.D. : 109876

CLIENT : GIANT REFINING CO.

DATE RECEIVED : 09/25/

PROJECT # : (NONE)

PROJECT NAME : PERMIT

REPORT DATE : 10/16/

PARAMETER	UNITS	06	07	08
TOTAL ORGANIC CARBON	MG/L	1.3	1.1	1.2
TOTAL ORGANIC HALIDE	MG/L	<0.008	<0.008	<0.008



METALS RESULTS

ATI I.D. : 109876

CLIENT : GIANT REFINING CO.

DATE RECEIVED : 09/25

PROJECT # : (NONE)

PROJECT NAME : PERMIT

REPORT DATE : 10/16

PARAMETER	UNITS	01	05
CHROMIUM	MG/L	0.010	<0.010
LEAD	MG/L	0.011	0.005



GCMS - RESULTS

ATTI I.D. : 10987601

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT
CLIENT I.D. : SMW-3
SAMPLE MATRIX : AQUEOUS

DATE SAMPLED : 09/24/
DATE RECEIVED : 09/25/
DATE EXTRACTED : N/A
DATE ANALYZED : 09/26/
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

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GCMS - RESULTS

ATI I.D. : 10987601

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYLVINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	98
BFB (%)	100
TOLUENE-D8 (%)	100



Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 10987601

COMPOUNDS

RESULTS

1,1,2-TRICHLORO-

1,2,2-TRIFLUOROETHANE

<5

1,2-DICHLOROBENZENE

<1

1,3-DICHLOROBENZENE

<1

1,4-DICHLOROBENZENE

<1



GCMS - RESULTS

ATI I.D. : 10987605

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT
CLIENT I.D. : SMW-4
SAMPLE MATRIX : AQUEOUS

DATE SAMPLED : 09/24/
DATE RECEIVED : 09/25/
DATE EXTRACTED : N/A
DATE ANALYZED : 09/25/
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MEK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

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GCMS - RESULTS

ATI I.D. : 10987605

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYL VINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	98
BFB (%)	100
TOLUENE-D8 (%)	100



ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 10987605

COMPOUNDSRESULTS

1,1,2-TRICHLORO-
1,2,2-TRIFLUOROETHANE
1,2-DICHLOROBENZENE
1,3-DICHLOROBENZENE
1,4-DICHLOROBENZENE

<5
<1
<1
<1
<1



Chain of Custody

DATE 9-24-91 PAGE 1 OF 1

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CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT

DATE RECEIVED : 09/25

REPORT DATE : 10/16

ATI I.D. : 109879

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLEC
01	SMW-5	AQUEOUS	09/24
02	SMW-5	AQUEOUS	09/24
03	SMW-5	AQUEOUS	09/24
04	SMW-5	AQUEOUS	09/24
05	SMW-6	AQUEOUS	09/24
06	SMW-6	AQUEOUS	09/24
07	SMW-6	AQUEOUS	09/24
08	SMW-6	AQUEOUS	09/24
09	TRIP BLANK	AQUEOUS	09/24

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	9

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.



GENERAL CHEMISTRY RESULTS

ATI I.D. : 109879

CLIENT : GIANT REFINING CO.

DATE RECEIVED : 09/25

PROJECT # : (NONE)

PROJECT NAME : PERMIT

REPORT DATE : 10/16

PARAMETER	UNITS	01	02	03	04	05
CONDUCTIVITY, (UMHOS/CM)		1170	-	-	-	1610
PH	UNITS	8.75	-	-	-	8.28
TOTAL ORGANIC CARBON	MG/L	2.2	2.2	1.6	1.2	3.2
TOTAL ORGANIC HALIDE	MG/L	<0.008	<0.008	<0.008	<0.008	<0.00



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 109879

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT

DATE RECEIVED : 09/25/

REPORT DATE : 10/16/

PARAMETER	UNITS	06	07	08
TOTAL ORGANIC CARBON	MG/L	3.0	2.6	2.4
TOTAL ORGANIC HALIDE	MG/L	<0.008	<0.008	<0.008



METALS RESULTS

ATI I.D. : 109879

CLIENT : GIANT REFINING CO.

DATE RECEIVED : 09/25/

PROJECT # : (NONE)

PROJECT NAME : PERMIT

REPORT DATE : 10/16/

PARAMETER	UNITS	01	05
CHROMIUM	MG/L	0.035	0.097
LEAD	MG/L	0.003	0.009



GCMS - RESULTS

ATI I.D. : 10987901

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT
CLIENT I.D. : SMW-5
SAMPLE MATRIX : AQUEOUS

DATE SAMPLED : 09/24/
DATE RECEIVED : 09/25/
DATE EXTRACTED : N/A
DATE ANALYZED : 09/26/
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

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GCMS - RESULTS

ATT I.D. : 10987901

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYL VINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	99
BFB (%)	99
TOLUENE-D8 (%)	100



Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 10987901

COMPOUNDS

RESULTS

1,1,2-TRICHLORO-
1,2,2-TRIFLUOROETHANE
1,2-DICHLOROBENZENE
1,3-DICHLOROBENZENE
1,4-DICHLOROBENZENE

<5
<1
<1
<1



GCMS - RESULTS

ATI I.D. : 10987905

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT
CLIENT I.D. : SMW-6
SAMPLE MATRIX : AQUEOUS

DATE SAMPLED : 09/24
DATE RECEIVED : 09/25
DATE EXTRACTED : N/A
DATE ANALYZED : 09/26
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

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GCMS - RESULTS

ATI I.D. : 10987905

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYL VINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	99
BFB (%)	100
TOLUENE-D8 (%)	100





Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 10987905

COMPOUNDS

RESULTS

1,1,2-TRICHLORO-
1,2,2-TRIFLUOROETHANE
1,2-DICHLOROBENZENE
1,3-DICHLOROBENZENE
1,4-DICHLOROBENZENE

<5
<1
<1
<1
<1



GCMS - RESULTS

ATI I.D. : 10987909

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : PERMIT
CLIENT I.D. : TRIP BLANK
SAMPLE MATRIX : AQUEOUS

DATE SAMPLED : 09/24
DATE RECEIVED : 09/25
DATE EXTRACTED : N/A
DATE ANALYZED : 09/25
UNITS : UG/L
DILUTION FACTOR : 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

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GCMS - RESULTS

ATI I.D. : 10987909

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYL VINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	96
BFB (%)	99
TOLUENE-D8 (%)	101



Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 10987909

COMPOUNDS

RESULTS

1,1,2-TRICHLORO-

1,2,2-TRIFLUOROETHANE

<5

1,2-DICHLOROBENZENE

<1

1,3-DICHLOROBENZENE

<1

1,4-DICHLOROBENZENE

<1



Chain of Custody

DATE 2-21-91 PAGE 1 OF 1

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