

Gecca 92



PAK  
copy

Route 3, Box 7  
Gallup, New Mexico  
87301

505  
722-3833

March 4, 1992

Steve Alexander  
Hazardous and Radioactive Materials Bureau  
New Mexico Environment Department  
P.O. Box 26110  
Santa Fe, New Mexico 87502-6110

Re: Request for Land Treatment Area Data

Dear Mr. Alexander:

In response to your request for additional data for the land treatment area (LTA), Giant submits the following data for its Ciniza Refinery:

*required data submitted*

- Section I - Soils Analytical - 1990 & 1991
- Section II - Lysimeter Analytical - 1990
- Section III- Tensiometer Readings - 1990 & 1991
- Section IV - Explanation of Material

In accordance with the Part B Permit, Module II, Sections K.1.a and K.1.e, all material concerning the LTA are kept on file at the Ciniza Refinery.

If you require additional information, please contact me at (505) 722-0227.

Sincerely,

Lynn Shelton  
Environmental Assistant  
Ciniza Refinery

TLS:sp

cc w/attachments: Zeke Sherman  
Environmental Manager  
Ciniza Refinery

**EXPLANATION OF MATERIAL**

All soil analytical data is from the semi-annual and bi-monthly sampling events of 1990 and 1991.

The lysimeter analytical is from the only time we have gotten liquid from a lysimeter. On October 3, 1990, liquid was recovered from the glass bricks at lysimeter points 1 & 2. No other liquid has been recovered since that date. The liquid was analyzed for the parameters listed in our Part B permit.

SECTION I - SOIL ANALYTICAL 1990-1991

GIANT REFINING CO. GALLUP, NM

SEMI-ANNUAL LAND TREATMENT SAMPLING EVENT

GENERAL INORGANICS

*soils BTZ*

DATE: 24 APR 90

PARAMETER	LTA-13-ZOI RESULT	LTA-14-ZOI RESULT	LTA-15-ZOI RESULT	LTA-16-ZOI RESULT	UNITS	REPORTING LIMITS
Nitrate plus Nitrite	ND	ND	ND	nd	mg/kg	0.50
Oil and Grease	29500	30000	16100	21400	mg/kg	400
pH	7.2	7.3	7.2	7.2	units	-----
Total Kjeldahl						
Nitrogen as N	1030	583	763	1020	mg/kg	500
Total Organic Carbon	6.04	6.03	7.26	4.90	%	0.05
Phosphorous, Total as P	385	401	315	390	mg/kg	50.0

DATE: 10 OCT 90

PARAMETER	LTA-25-ZOI RESULT	LTA-26-ZOI RESULT	LTA-27-ZOI RESULT	LTA-28-ZOI RESULT	UNITS	REPORTING LIMITS
Oil and Grease	21500	6720	14100	20600	mg/kg	200
pH	7.2	7.7	9.1	7.1	units	-----
Total Kjeldahl						
Nitrogen as N	1180	617	430	850	mg/kg	250
Total Organic Carbon	6.85	3.16	2.42	3.53	%	0.05
Phosphorous, Total as P	361	298	216	368	mg/kg	50.0

GIANT REFINING CO.                      GALLUP, NM

SEMI-ANNUAL LAND TREATMENT SAMPLING EVENT

GENERAL INORGANICS                      *soils BTZ*

DATE: 24 APR 90

PARAMETER	LTA-13-BTZ RESULT	LTA-14-BTZ RESULT	LTA-15-BTZ RESULT	LTA-16-BTZ RESULT	UNITS	REPORTING LIMIT
pH	8.8	8.3	8.9	8.0	units	-----
Total Organic Carbon	0.29	0.21	0.39	0.24	%	0.05
Total Solids	86.8	87.9	88.4	86.2	%	0.1

DATE: 10 OCT 90

PARAMETER	LTA-25-BTZ RESULT	LTA-26-BTZ RESULT	LTA-27-BTZ RESULT	LTA-28-BTZ RESULT	UNITS	REPORTING LIMIT
pH	8.0	8.5	8.0	8.3	units	-----
Total Solids	86.5	88.6	88.1	87.0	%	0.1

GIANT REFINING CO. GALLUP, NM

SEMI-ANNUAL LAND TREATMENT SAMPLING EVENT

REFINERY HAZARDOUS CONSTITUENT SEMI-VOLATILES

DATE: 24 APR 90

*Soils - BTZ*

PARAMETER	LTA-13-BTZ RESULT	LTA-14-BTZ RESULT	LTA-15-BTZ RESULT	LTA-16-BTZ RESULT	UNITS	REPORTING LIMIT
Benzo(a)pyrene	ND	ND	ND	ND	ug/kg	330
Chrysene	ND	ND	ND	ND	ug/kg	330
1-Methylnaphthalene	ND	ND	ND	ND	ug/kg	330
Phenanthrene	ND	ND	ND	ND	ug/kg	330
Pyrene	ND	ND	ND	ND	ug/kg	330
o-Creosol	ND	ND	ND	ND	ug/kg	330
m & p-Cresol(s)	ND	ND	ND	ND	ug/kg	330

DATE: 10 OCT 90

PARAMETER	LTA-25-BTZ RESULT	LTA-26-BTZ RESULT	LTA-27-BTZ RESULT	LTA-28-BTZ RESULT	UNITS	REPORTING LIMIT
Benzo(a)pyrene	ND	ND	ND	ND	ug/kg	330
Chrysene	ND	ND	ND	ND	ug/kg	330
1-Methylnaphthalene	ND	ND	ND	ND	ug/kg	330
Phenanthrene	ND	ND	ND	ND	ug/kg	330
Pyrene	ND	ND	ND	ND	ug/kg	330
o-Cresol	ND	ND	ND	ND	ug/kg	330
m & p-Cresol (s)	ND	ND	570	ND	ug/kg	330

GIANT REFINING CO. GALLUP, NM

SEMI-ANNUAL LAND TREATMENT SAMPLING EVENT

BENZENE, TOLUENE, ETHYL BENZENE AND XYLENES (BTX)

*Soils  
BTX*

DATE: 24 APR 90

PARAMETER	LTA-13-BTZ RESULT	LTA-14-BTZ RESULT	LTA-15-BTZ RESULT	LTA-16-BTZ RESULT	UNITS	REPORTING LIMIT
Ethylbenzene	ND	ND	ND	ND	ug/kg	50
Xylenes (total)	ND	ND	ND	ND	ug/kg	100

DATE: 10 OCT 90

PARAMETER	LTA-25-BTZ RESULT	LTA-26-BTZ RESULT	LTA-27-BTZ RESULT	LTA-28-BTZ RESULT	UNITS	REPORTING LIMIT
Ethylbenzene	ND	ND	ND	ND	ug/kg	50
Xylenes (total)	ND	ND	ND	ND	ug/kg	100

GIANT REFINING CO. GALLUP, NM

BI-MONTHLY LAND TREATMENT SAMPLING EVENTS- 1990

DATE: 13 JUN 90

*SOILS  
382  
ZOI*

PARAMETER	LTA-17-ZOI RESULT	LTA-18-ZOI RESULT	LTA-19-ZOI RESULT	LTA-20-ZOI RESULT	UNITS	REPORTING LIMIT
Oil and Grease	21300	3980	14900	8140	mg/kg	100

DATE: 13 AUG 90

PARAMETER	LTA-21-ZOI RESULT	LTA-22-ZOI RESULT	LTA-23-ZOI RESULT	LTA-24-ZOI RESULT	UNITS	REPORTING LIMIT
Oil and Grease	235	7960	230	6140	mg/kg	100



SEMI-ANNUAL LAND TREATMENT SAMPLING EVENT

GENERAL INORGANICS

*soils  
etc*

DATE: 4 APR 91

PARAMETER	LTA-29-ZOI RESULT	LTA-30-ZOI RESULT	LTA-31-ZOI RESULT	LTA-32-ZOI RESULT	UNITS
Nitrate plus Nitrite	0.08	0.39	0.79	0.23	mg/l
Oil and Grease	3000	1100	3600	6000	mg/kg
pH	8.9	7.4	8.2	7.1	units
Total Kjeldahl Nitrogen as N	---	---	---	---	mg/kg
Total Organic Carbon	4940	17800	8970	32900	mg/kg
Phosphorous, Total as P	120	170	130	260	mg/kg

DATE: 17 OCT 91

PARAMETER	LTA-41-ZOI RESULT	LTA-42-ZOI RESULT	LTA-43-ZOI RESULT	LTA-44-ZOI RESULT	UNITS
Oil and Grease	6300	3300	2200	1700	mg/kg
pH	9.22	7.46	8.1	8.1	units
Total Kjeldahl Nitrogen as N	0.32	<0.06	<0.06	1.8	mg/l
Total Organic Carbon	2.2	5.4	0.3	1.6	mg/kg
Phosphorous, Total as P	160	240	120	230	mg/kg

GIANT REFINING CO. GALLUP, NM  
SEMI-ANNUAL LAND TREATMENT SAMPLING EVENT  
GENERAL INORGANICS

Soils  
BTZ

DATE: 4 APR 91

PARAMETER	LTA-29-BTZ RESULT	LTA-30-BTZ RESULT	LTA-31-BTZ RESULT	LTA-32-BTZ RESULT	UNITS
pH	8.5	8.2	7.9	7.9	units
Total Organic Carbon	5180	3380	4140	28500	mg/kg
% Moisture	13.4	11.5	12.8	14.1	%

DATE: 17 OCT 91

PARAMETER	LTA-41-BTZ RESULT	LTA-42-BTZ RESULT	LTA-43-BTZ RESULT	LTA-44-BTZ RESULT	UNITS
pH	8.44	8.28	8.62	9.01	units
% Moisture	14.8	14.3	13.7	5.2	%

GIANT REFINING CO.      GALLUP, NM

SEMI-ANNUAL LAND TREATMENT SAMPLING EVENT

REFINERY HAZARDOUS CONSTITUENT SEMI-VOLATILES

5/15  
BTZ

DATE: 4 APR 91

PARAMETER	LTA-29-BTZ	LTA-30-BTZ	LTA-31-BTZ	LTA-32-BTZ	UNITS
	RESULT	RESULT	RESULT	RESULT	
Benzo(a)pyrene	<.17	<.17	<.17	<.17	mg/kg
Chrysene	<.17	<.17	<.17	<.17	mg/kg
1-Methylnaphthalene	<.17	<.17	<.17	<.17	mg/kg
Phenanthrene	<.17	<.17	<.17	<.17	mg/kg
Pyrene	<.17	<.17	<.17	<.17	mg/kg
o-Cresol	<.17	<.17	<.17	<.17	mg/kg
m & p-Cresol(s)	<.17	<.17	<.17	<.17	mg/kg

DATE: 17 OCT 91

PARAMETER	LTA-41-BTZ	LTA-42-BTZ	LTA-43-BTZ	LTA-44-BTZ	UNITS
	RESULT	RESULT	RESULT	RESULT	
Benzo(a)pyrene	<0.17	<0.17	<0.17	<0.17	mg/kg
Chrysene	<0.17	TR	<0.17	<0.17	mg/kg
1-Methylnaphthalene	<0.17	<0.17	<0.17	<0.17	mg/kg
Phenanthrene	<0.17	<0.17	<0.17	<0.17	mg/kg
Pyrene	<0.17	TR	<0.17	<0.17	mg/kg
o-Cresol	<0.17	TR	<0.17	<0.17	mg/kg
m & p-Cresol (s)	<0.17	1.4	<0.17	<0.17	mg/kg

GIANT REFINING CO. GALLUP, NM  
SEMI-ANNUAL LAND TREATMENT SAMPLING EVENT  
BENZENE, TOLUENE, ETHYL BENZENE AND XYLENES (BTX)

DATE: 4 APR 91

PARAMETER	LTA-29-BTZ RESULT	LTA-30-BTZ RESULT	LTA-31-BTZ RESULT	LTA-32-BTZ RESULT	UNITS
Ethylbenzene	<0.025	<0.025	<0.025	<0.025	mg/kg
Xylenes (total)	<0.025	<0.025	<0.025	<0.025	mg/kg

DATE: 17 OCT 91

PARAMETER	LTA-41-BTZ RESULT	LTA-42-BTZ RESULT	LTA-43-BTZ RESULT	LTA-44-BTZ RESULT	UNITS
Ethylbenzene	<0.025	<0.025	<0.025	<0.025	mg/kg
Xylenes (total)	<0.025	<0.025	<0.025	<0.025	mg/kg

GIANT REFINING CO. GALLUP, NM

BI-MONTHLY LAND TREATMENT SAMPLING EVENTS- 1991

DATE: 20 JUN 91

PARAMETER	LTA-33-ZOI RESULT	LTA-34-ZOI RESULT	LTA-35-ZOI RESULT	LTA-36-ZOI RESULT	UNITS
Oil and Grease	10000	37000	9500	23000	mg/kg

DATE: 16 AUG 91

PARAMETER	LTA-37-ZOI RESULT	LTA-38-ZOI RESULT	LTA-39-ZOI RESULT	LTA-40-ZOI RESULT	UNITS
Oil and Grease	12000	31000	23000	26000	mg/kg

*Soils 203*

SECTION II - LYSIMETER ANALYTICAL 1990

## Analytical Results

The analytical results for this project are presented in the following data tables. Each data table includes sample identification information, and when available and appropriate, dates sampled, received, authorized, prepared and analyzed. The authorization data is the date when the project was defined by the client such that laboratory work could begin.

Data sheets contain a listing of the parameters measured in each test, the analytical results and the Enseco reporting limit. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e. no correction is made for moisture content.

Enseco-RMAL is no longer routinely blank-correcting analytical data. Uncorrected analytical results are reported, along with associated blank results, for all organic and metals analyses. Analytical results and blank results are reported for conventional inorganic parameters as specified in the method. This policy is described in detail in the Enseco Incorporated Quality Assurance Program Plan for Environmental Chemical Monitoring, Revision 3.3, May, 1989.

The results from the Standard Enseco QA/QC Program, which generates data which are independent of matrix effects, is provided subsequently.

Volatile Organics  
Target Compound List (TCL)  
Method 8240

Client Name: Giant Refining  
Client ID: LYS #1  
Lab ID: 011645-0001-SA  
Matrix: AQUEOUS  
Authorized: 04 OCT 90

Sampled: 03 OCT 90  
Prepared: 05 OCT 90

Received: 04 OCT 90  
Analyzed: 08 OCT 90

Parameter	Result	Units	Reporting Limit
Acetone	40	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
2-Butanone (MEK)	28	ug/L	10
Carbon disulfide	23	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Dibromochloromethane	ND	ug/L	5.0
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene	ND	ug/L	5.0
(total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
Ethylbenzene	ND	ug/L	5.0
2-Hexanone	ND	ug/L	10
Methylene chloride	ND	ug/L	5.0
4-Methyl-2-pentanone	ND	ug/L	10
(MIBK)	ND	ug/L	5.0
Styrene	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
1,1,1-Trichloroethane	ND	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0
1,3-Dichlorobenzene	ND	ug/L	5.0
1,1,2 Trichloro-1,2,2-	ND	ug/L	5.0
trifluoroethane	ND	ug/L	5.0
1,2-Dibromoethane (EDB)	ND	ug/L	5.0
1,2-Dichlorobenzene	ND	ug/L	5.0

(continued on following page)

ND = Not detected  
NA = Not applicable

Reported By: Terry Riddle

Approved By: Jeff Lowry



Volatile Organics  
Target Compound List (TCL)  
Method 8240

Client Name: Giant Refining  
Client ID: LYS #1  
Lab ID: 011645-0001-SA  
Matrix: AQUEOUS  
Authorized: 04 OCT 90

Sampled: 03 OCT 90  
Prepared: 05 OCT 90

Received: 04 OCT 90  
Analyzed: 08 OCT 90

Parameter	Result	Units	Reporting Limit
1,4-Dichlorobenzene	ND	ug/L	5.0
Surrogate	Recovery		
Toluene-d8	102	%	--
4-Bromofluorobenzene	100	%	--
1,2-Dichloroethane-d4	98	%	--

ND = Not detected  
NA = Not applicable

Reported By: Terry Riddle

Approved By: Jeff Lowry

Volatile Organics  
Target Compound List (TCL)  
Method 8240

Client Name: Giant Refining  
Client ID: LYS #2  
Lab ID: 011645-0002-SA  
Matrix: AQUEOUS  
Authorized: 04 OCT 90

Sampled: 03 OCT 90  
Prepared: 05 OCT 90

Received: 04 OCT 90  
Analyzed: 08 OCT 90

Parameter	Result	Units	Reporting Limit
- Acetone	24	ug/L	10
Benzene	ND	ug/L	5.0
Bromodichloromethane	ND	ug/L	5.0
Bromoform	ND	ug/L	5.0
Bromomethane	ND	ug/L	10
- 2-Butanone (MEK)	75	ug/L	10
Carbon disulfide	ND	ug/L	5.0
Carbon tetrachloride	ND	ug/L	5.0
Chlorobenzene	ND	ug/L	5.0
Chloroethane	ND	ug/L	10
Chloroform	ND	ug/L	5.0
Chloromethane	ND	ug/L	10
Dibromochloromethane	ND	ug/L	5.0
1,1-Dichloroethane	ND	ug/L	5.0
1,2-Dichloroethane	ND	ug/L	5.0
1,1-Dichloroethene	ND	ug/L	5.0
1,2-Dichloroethene (total)	ND	ug/L	5.0
1,2-Dichloropropane	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ug/L	5.0
trans-1,3-Dichloropropene	ND	ug/L	5.0
Ethylbenzene	ND	ug/L	5.0
2-Hexanone	ND	ug/L	10
Methylene chloride	ND	ug/L	5.0
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10
Styrene	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0
Tetrachloroethene	ND	ug/L	5.0
Toluene	ND	ug/L	5.0
- 1,1,1-Trichloroethane	9.8	ug/L	5.0
1,1,2-Trichloroethane	ND	ug/L	5.0
Trichloroethene	ND	ug/L	5.0
Vinyl acetate	ND	ug/L	10
Vinyl chloride	ND	ug/L	10
Xylenes (total)	ND	ug/L	5.0
1,3-Dichlorobenzene	ND	ug/L	5.0
1,1,2 Trichloro-1,2,2-trifluoroethane	ND	ug/L	5.0
1,2-Dibromoethane (EDB)	ND	ug/L	5.0
1,2-Dichlorobenzene	ND	ug/L	5.0

(continued on following page)

ND = Not detected  
NA = Not applicable

Reported By: Terry Riddle

Approved By: Jeff Lowry

Volatile Organics  
Target Compound List (TCL)  
Method 8240

Client Name: Giant Refining  
Client ID: LYS #2  
Lab ID: 011645-0002-SA  
Matrix: AQUEOUS  
Authorized: 04 OCT 90

Sampled: 03 OCT 90  
Prepared: 05 OCT 90

Received: 04 OCT 90  
Analyzed: 08 OCT 90

Parameter	Result	Units	Reporting Limit
1,4-Dichlorobenzene	ND	ug/L	5.0
Surrogate	Recovery		
Toluene-d8	99	%	--
4-Bromofluorobenzene	99	%	--
1,2-Dichloroethane-d4	95	%	--

ND = Not detected  
NA = Not applicable

Reported By: Terry Riddle

Approved By: Jeff Lowry

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Metals

Total Metals

Client Name: Giant Refining  
Client ID: LYS #1  
Lab ID: 011645-0001-SA  
Matrix: AQUEOUS  
Authorized: 04 OCT 90

Sampled: 03 OCT 90  
Prepared: See Below

Received: 04 OCT 90  
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Chromium	ND	mg/L	0.020	6010	18 OCT 90	21 OCT 90
Lead	ND	mg/L	0.010	7421	18 OCT 90	29 OCT 90

ND = Not detected  
NA = Not applicable

Reported By: David Patterson

Approved By: John Laferty

## Metals

## Total Metals

Client Name: Giant Refining  
Client ID: LYS #2  
Lab ID: 011645-0002-SA  
Matrix: AQUEOUS  
Authorized: 04 OCT 90

Sampled: 03 OCT 90      Received: 04 OCT 90  
Prepared: See Below      Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Chromium	ND	mg/L	0.020	6010	18 OCT 90	21 OCT 90
Lead	ND	mg/L	0.010	7421	18 OCT 90	29 OCT 90

ND = Not detected  
NA = Not applicable

Reported By: David Patterson

Approved By: John Laferty

SECTION III - TENSIO METER READINGS 1990-1991

GIANT REFINING CO.- CINIZA

TENSIOMETER READINGS

1990

UNIT #

DATE	1	2	3	4
5-22	25	33	41	49
5-29	31	43.5	52	61
6-5	31	45	54	61
6-12	31	46.5	56	62
6-19	31	36	56	62
6-26	28	44	54	59
7-3	29	42.5	54	59.5
7-10	34	48	60	63
7-17	33	48	59	62
7-24	28	42	48	50
7-31	27	34	48	54
8-7	30	40	57	62
8-14	30	43	58	62
8-21	31	42	58	61
8-28	30	43	58	62
9-4	30	42	58	62
9-11	26	42	58	60
9-18	20	42	56	58
9-25	0	42	43	58
10-2	0	32	44	48
10-9	0	43	47	54

5-17-90 Started tensiometer readings by adding water.

10-12-90 Removed tensiometers.

GIANT REFINING CO.- CINIZA

TENSIOMETER READINGS

1991

UNIT #

DATE	1	2	3	4
6-4	0	36	29	42
6-11	0	34	28	42
6-18	0	38	26	41
6-25	0	37	31	40
7-2	0	40	29	43
7-9	0	41	22	36
7-23	0	37	28	38
7-30	0	30	18	50
8-6	0	26	31	50
8-13	0	38	40	52
8-20	0	42	40	52
8-27	0	44	38	48
9-3	0	47	40	46
9-10	0	48	40	42
9-17	0	48	34	36
9-24	0	48	37	38
10-1	0	46	38	42
10-8	0	48	41	52
10-15	0	46	40	52

- 4-15-91 Installed tensiometers, but did not add water.
- 6-2-91 Filled tensiometers with water.
- 7-1-91 Replaced gauge and pump on tensiometer #1.
- 8-14-91 Removed, inspected, and replaced tensiometer #1.



SECTION IV - EXPLANATION OF MATERIAL