Post Closure Permit

Groundwater Report

2001

Giant Refining Co – Ciniza

Permit #NMD000333211-1
Submitted to NMED – HW B and EMNRD - OCD

GIANT
REFINING COMPANY

June 3, 2002

Mr. David Cobrain, Project Leader
NMED, Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505

RE: 2001 Annual Groundwater Report
Post Closure Care of the Land Treatment Unit
EPA ID # NMD 000333211-1

Dear Mr. Cobrain:
Pursuant to the requirements of the above captioned permit, the Annual Groundwater Report for groundwater sampling performed in 2001 is enclosed. No unusual results were observed as a result of the 2001 sampling events.

If you require additional information or have any questions regarding this report, please contact me at (505) 722-0227.

Sincerely,

Dorinda Mancini
Environmental Manager, Ciniza Refinery

cc: Dave Pavlich, Environmental Supt., Refining Operations, Giant Industries, Inc.
Matthew R. Davis, General Manager, Giant Refining Company
Wayne Price, OCD, NMEMNRD, Santa Fe
Denny Foust, OCD, District 3

PHONE
505-722-3833
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ROUTE 3
BOX 7
GALLUP
NEW MEXICO
87301

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington , NM 87401

Total Phenolics by Method 420.1

A colorimetric method that determines phenol, ortho and meta – substituted phenols, and under proper conditions, para substituted phenols in which the substitution is a carboxyl, halogen, or sulfonic acid group. This method does not differentiate between phenol compounds.

Most interferences are eliminated by acidification and distillation, however, other organic compounds present may interfere.

Phenols by 8270

A gas chromatography method that separates all compounds based on elution order (boiling point and chemical reactivity) and identifies them based on time and mass spectral patterns. This method is specific to each phenolic compound. Because identification is by mass spectra, there are few interferences. Typically interferences in this method are caused by the reactivity of phenolic compounds to glassware causing low recoveries in the extraction process.

Method 8270

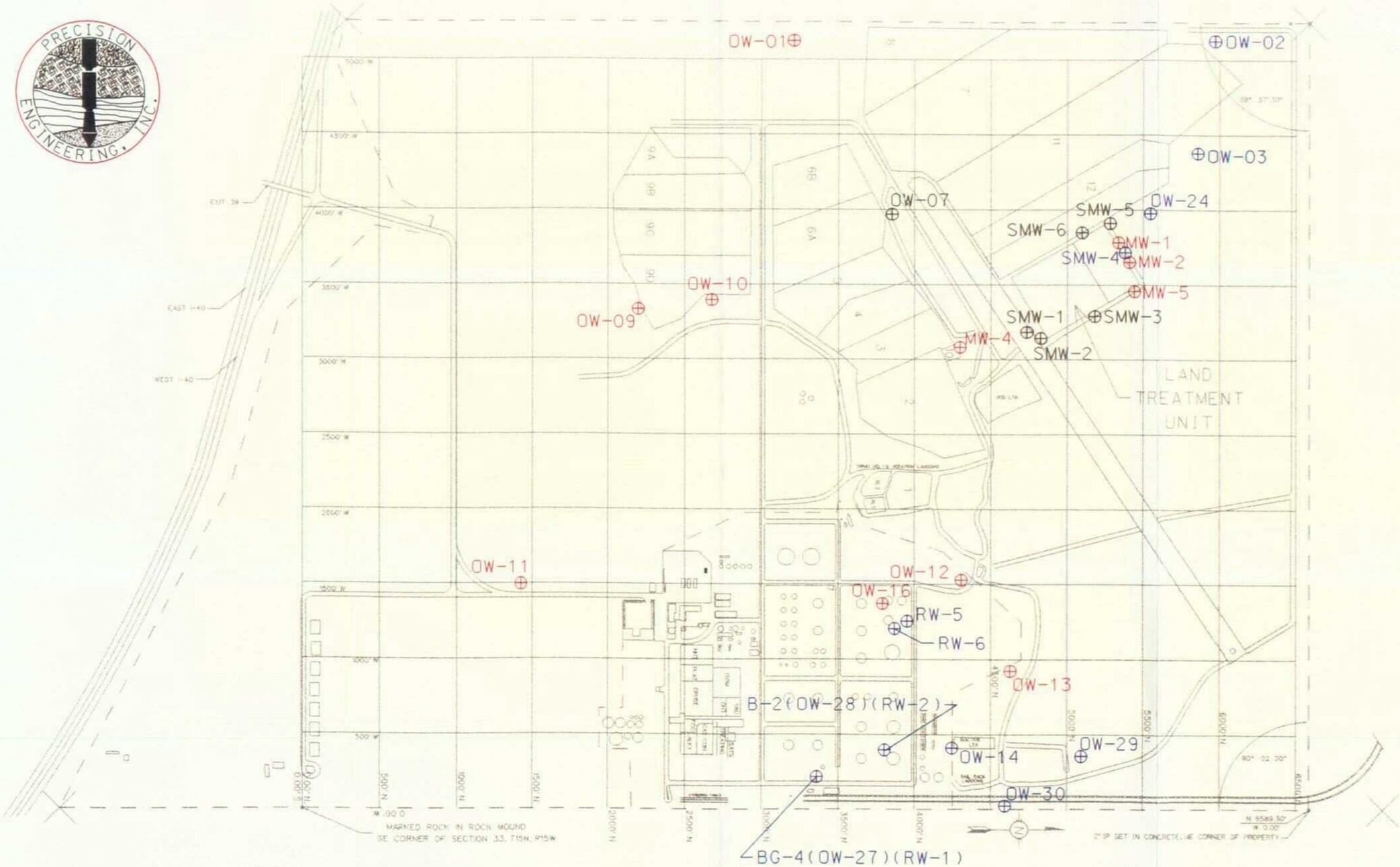
Contamination of method blanks by bis(2-ethylhexyl)phthalate. This compound is a common laboratory contaminant found in rubber stoppers and other rubber and plastic compounds.

Low Recoveries for Acid Extractables (Method 8270)

Typically interferences in this method are caused by the reactivity of phenolic (acid) compounds to glassware causing low recoveries in the extraction process. Surrogate compounds are added to each sample, blank, and quality control sample to monitor the extraction process. A low surrogate recovery in the blank but not the sample may indicate a potential problem with the particular flask used to extract the blank. Because the sample surrogate recoveries were acceptable the sample data is acceptable.

William Lipps
Laboratory Director - Inter-Mountain Labs

CINIZA REFINERY
WELL LOCATIONS

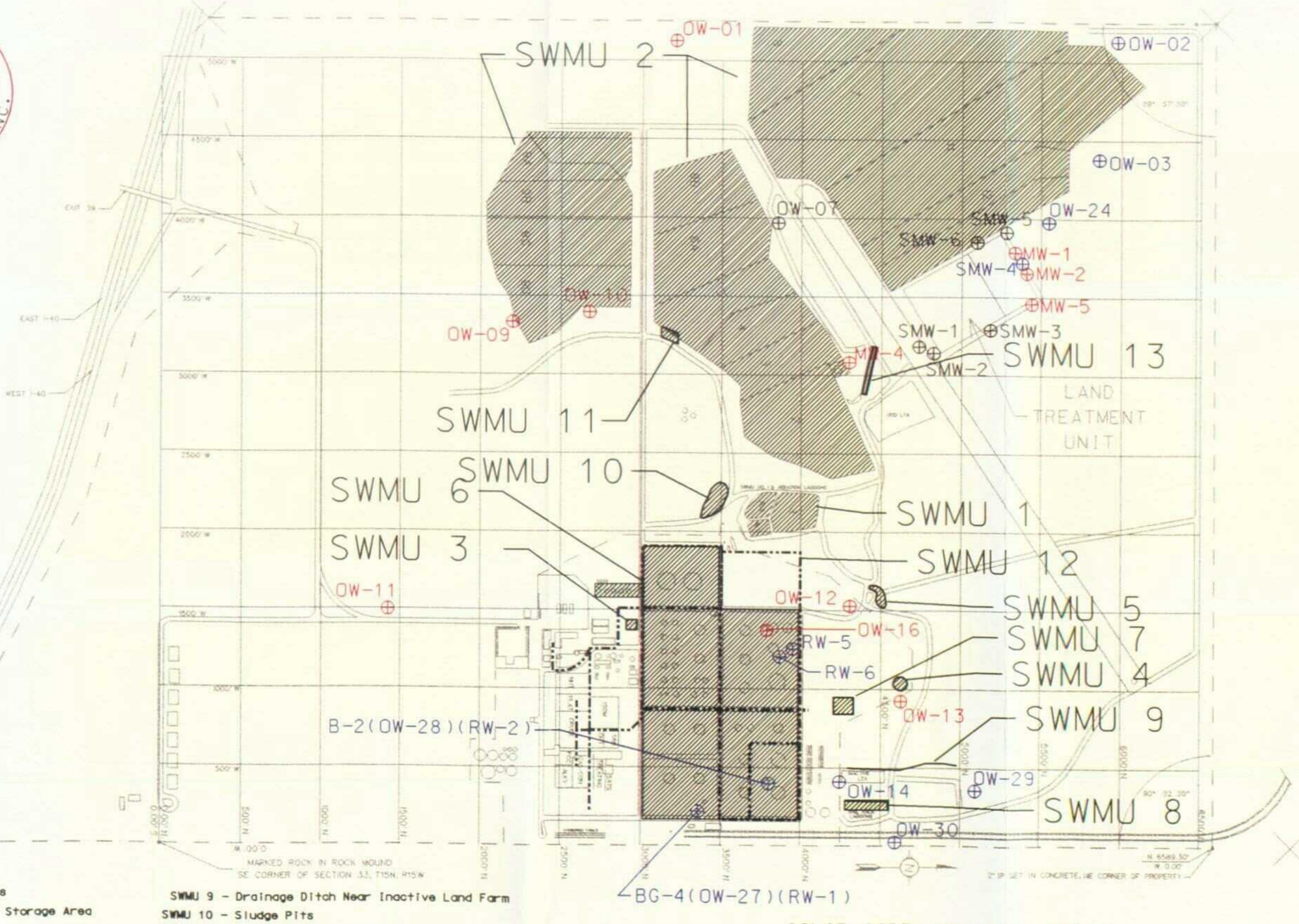


COLOR CODE: SONSELA WELLS
CHINLE/ALLUVIUM INTERFACE WELLS
UPPER SAND WELLS

CINIZA REFINERY

SWMU & WELL LOCATIONS

PRECISION ENGINEERING, INC.



SWMU 1 - Aeration basin
SWMU 2 - Evaporation Ponds
SWMU 3 - Empty Cobntainer Storage Area
SWMU 4 - Old Burn Pit
SWMU 5 - Land Fill Area
SWMU 6 - Tank Farm
SWMU 7 - Fire Training Area
SWMU 8 - Railroad Rock Lagoon

SWMU 9 - Drainage Ditch Near Inactive Land Farm
SWMU 10 - Sludge Pits
SWMU 11 - Secondary Oil Skimmer
SWMU 12 - Contact Waste Water Collection System
SWMU 13 - Drainage Ditch Between API Evaporation Ponds and Neutralization Tank Evaporation Ponds

COLOR CODE: SONSELA WELLS
CHINLE/ALLUVIUM INTERFACE WELLS
UPPER SAND WELLS

HAZARDOUS WASTE FACILITY PERMIT

Name of Permittee: Giant Refining Company

EPA Identification Number: NMD000333211
Permit Number: NMD000333211-1

Pursuant to the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6901, et seq.), and the New Mexico Hazardous Waste Act, NMSA 1978, Sections 74-4-1 et seq. (Repl. Pamph. 1993), and regulations promulgated thereunder by the New Mexico Environmental Improvement Board (codified and to be codified in the Hazardous Waste Management Regulations [20 NMAC 4.1]), a Permit is issued to Giant Refining Company (the Permittee), for post-closure care of a Land Treatment Unit Facility (the Facility), comprising three cells. The Facility is located in Jamestown, McKinley County, New Mexico on Latitude 35.29.020 North, and Longitude 108.25.042 West.

The New Mexico Environment Department (NMED) is authorized by the Environmental Protection Agency (EPA) for all hazardous waste management regulations applicable to the Facility. The Permittee shall comply with all terms and conditions of this Permit. This Permit consists of the conditions herein including those in the Attachments.

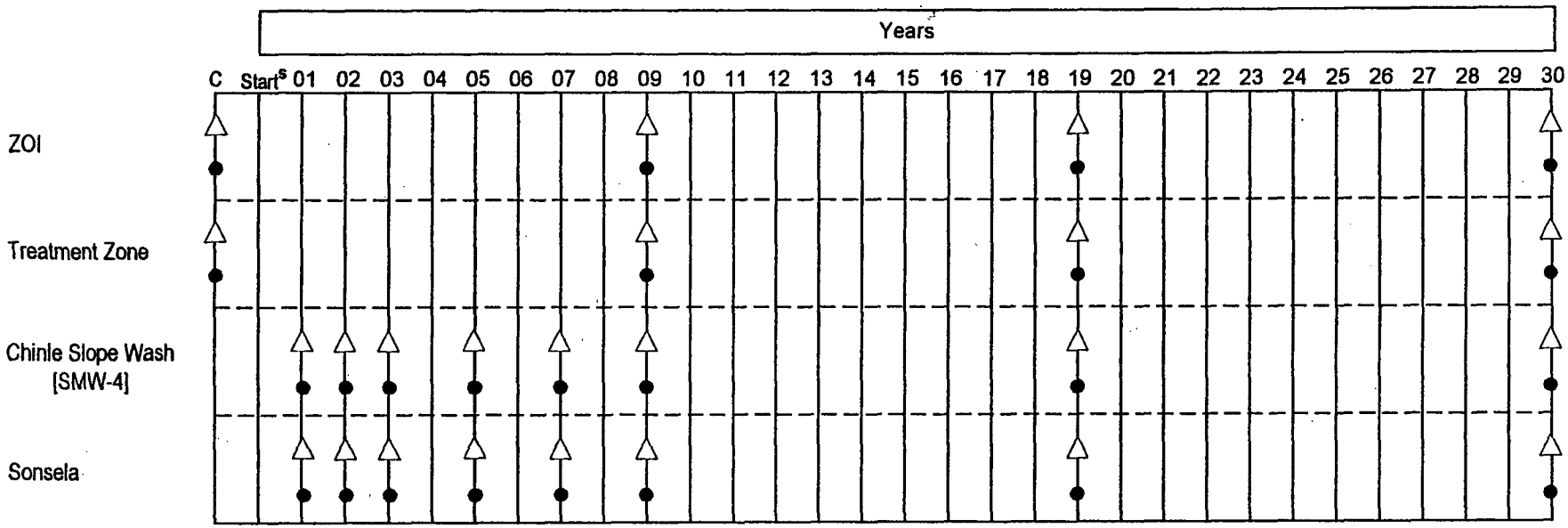
This Permit is based on the assumption that all information contained in the Permit Application and the administrative record is accurate and that the facility will be constructed and operated as specified in the application. The permit application consists of information submitted in April 1998 and supplementary technical documents.

Any inaccuracies found in the submitted information may be grounds for the termination or modification of this Permit in accordance with 20 NMAC 4.1.900 incorporating 40 CFR §270.41, §270.42, and §270.43 and for potential enforcement action.

This Permit shall become effective thirty days (30) after notice of the decision has been served on the applicant, and shall remain in effect for ten (10) years in accordance with the New Mexico Hazardous Waste Act, Section 74-4-4 unless modified, suspended or revoked under Section 74-4-4.2 or 20 NMAC 4.1.900 incorporating 40 CFR §270.41, §270.42, §270.43, or continued in accordance with 20 NMAC 4.1.900 incorporating 40 CFR §270.51, or issued for a duration that is less than the full allowable term in accordance with 20 NMAC 4.1.900 incorporated at 40 CFR §270.50(c).

Signed this 17th day of August, 2000.

by Peter Maggiore
Peter Maggiore
Secretary
New Mexico Environment Department



△ = Modified Skinner List - Metals

● = Modified Skinner List - Organics

s = Begin sample activities within 90 days of post-closure permit issuance

c = May 1999 special sample event

Figure E-1. LTU Post-Closure Sampling Schedule

Table E-1A. Modified Skinner List 8260 Volatile Organics and PHCs[a]

Parameter	EPA Method SW-846	Description	Containers	Preservative	Holding Time/Days	Liquid Reporting[c] Limit (µg/L)	Soil Reporting[c] Limit (mg/kg)
Benzene	8260	GC/MS	G	4°C	14	5	0.67
2-Butanone (MEK)	8260	GC/MS	G	4°C	14	1900	7000
Carbon Disulfide	8260	GC/MS	G	4°C	14	1000	350
Chlorobenzene	8260	GC/MS	G	4°C	14	39	54
Chloroform	8260	GC/MS	G	4°C	14	0.16	0.24
Chloromethane	8260	GC/MS	G	4°C	14	1.5	1.2
1,1 Dichloroethane	8260	GC/MS	G	4°C	14	25	580
1,2 Dichloroethane	8260	GC/MS	G	4°C	14	5	0.34
1,1 Dichloroethene	8260	GC/MS	G	4°C	14	5.0	0.053
trans-1,2-Dichloroethene	8260	GC/MS	G	4°C	14	100	63
1,4-Dioxane	8260	GC/MS	G	4°C	14	6.1	44
Ethylbenzene[a]	8260	GC/MS	G	4°C	14	700	230
Methylene Chloride	8260	GC/MS	G	4°C	14	4.3	8.6
Styrene	8260	GC/MS	G	4°C	14	100	1700
1,1,2,2-Tetrachloroethane[b]	8260	GC/MS	G	4°C	14	0.055	0.37
Tetrachloroethene[b]	8260	GC/MS	G	4°C	14	5	4.9
Toluene	8260	GC/MS	G	4°C	14	750	1000
1,1,1-Trichloroethane	8260	GC/MS	G	4°C	14	60	200
Trichloroethene	8260	GC/MS	G	4°C	14	5	2.7
Total Xylene[a, d]	8260	GC/MS	G	4°C	14	620	860
Ethylene Dibromide[b]	8260	GC/MS	G	4°C	14	0.1	0.005
Acetone	8260	GC/MS	G	4°C	14	610	1500

[a]Principal hazardous constituent identified in Ciniza Hazardous Waste Facility Permit.
[b]Additional constituents.
[c]Based on EPA Region 6, Human Health Medium-Specific Screening Levels (1999) and NM WQCC Regulations (1996). Analytical detection limits are required to be lower than reporting limits.
[d]Regulatory limits for individual isomers combined into a 'total' limit for these compounds.

mg/kg = milligrams per kilogram
µg/L = microgram per liter
G = glass with Teflon-lined lid
GC/MS = gas chromatography/mass spectrometry

Table E-1B. Modified Skinner List 8270 Semivolatile Organics Including TPH and PHCs[a]

Parameter	EPA Method SW-846	Description	Container	Preservative	Holding Time/Days	Liquid Reporting Limit (µg/L)[c]	Soil Reporting Limit (mg/kg)[c]
Anthracene	8270	GC/MS	G	4°C	14	1800	16000
Acenaphthene	8270	GC/MS	G	4°C	14	370	2800
Benzo(a)Anthracene	8270	GC/MS	G	4°C	14	0.09	0.62
Benzo(b)Fluoranthene	8270	GC/MS	G	4°C	14	0.09	0.62
Benzo(k)Fluoranthene	8270	GC/MS	G	4°C	14	0.9	6.2
Benzo(a)Pyrene[a]	8270	GC/MS	G	4°C	14	0.0007	0.062
Butyl Benzyl Phthalate	8270	GC/MS	G	4°C	14	7300	240
Chrysene[a]	8270	GC/MS	G	4°C	14	9.2	62
Diethyl Phthalate	8270	GC/MS	G	4°C	14	29000	49000
7,12-Dimethylbenz(a)-Anthracene	8270	GC/MS	G	4°C	14	[e]	[e]
Dimethyl Phthalate	8270	GC/MS	G	4°C	14	370000	100000
Di-n-Octyl Phthalate	8270	GC/MS	G	4°C	14	730	1200
Fluoranthene	8270	GC/MS	G	4°C	14	1500	2300
Fluorene	8270	GC/MS	G	4°C	14	240	2000
Indeno(1,2,3-cd)Pyrene	8270	GC/MS	G	4°C	14	0.09	0.62
2-Methylnaphthalene[a]	8270	GC/MS	G	4°C	14	30	660
2-Methylphenol (Cresol)	8270	GC/MS	G	4°C	14	1800	3000
3/4-Methylphenol (Cresol)	8270	GC/MS	G	4°C	14	1980	3300
Naphthalene[g]	8270	GC/MS	G	4°C	14	30	55
Nitrobenzene	8270	GC/MS	G	4°C	14	3.4	17
4-Nitrophenol	8270	GC/MS	G	4°C	14	2300	3800
Phenanthrene[a]	8270	GC/MS	G	4°C	14	[e]	[e]
Pyrene[a]	8270	GC/MS	G	4°C	14	180	1700
Pyridine	8270	GC/MS	G	4°C	14	37	61
Quinoline	8270	GC/MS	G	4°C	14	0.0056	0.04
Benzenethiole	8270	GC/MS	G	4°C	14	[e]	[e]
Phenol	8270	GC/MS	G	4°C	14	5	36000
Bis(2-Ethylhexyl)phthalate[b]	8270	GC/MS	G	4°C	14	6.0	35
Dibenz(a,j)acridine[b]	8270	GC/MS	G	4°C	14	[e]	[e]
Dibenz(a,h)-anthracene	8270	GC/MS	G	4°C	14	0.0092	0.062
Dichlorobenzene[b, f]	8270	GC/MS	G	4°C	14	675	410
Methyl Naphthalene	8270	GC/MS	G	4°C	14	30	[e]
2,4-Dimethylphenol	8270	GC/MS	G	4°C	14	730	1200
2,4-Dinitrotoluene	8270	GC/MS	G	4°C	14	73	120

Table E-1B. Modified Skinner List 8270 Semivolatile Organics Including TPH and PHCs[a] (Continued)

Parameter	EPA Method SW-846	Description	Container	Preservative	Holding Time/Days	Liquid Reporting Limit (µg/L)[c]	Soil Reporting Limit (mg/kg)[c]
2,4-Dinitrophenol[b]	8270	GC/MS	G	4°C	14	73	120
Benzo(j)Fluoranthene	8270	GC/MS	G	4°C	14	[e]	[e]
2-Chlorophenol	8270	GC/MS	G	4°C	14	30	61
2,4,6-Trichlorophenol	8270	GC/MS	G	4°C	14	6.1	44
Di-n-Butyl Phthalate	8270	GC/MS	G	4°C	14	3700	6100
Benzyl Alcohol[b]	8270	GC/MS	G	4°C	14	11000	18000
Methyl Chrysene	8270	GC/MS	G	4°C	14	[e]	[e]
Total Cresol[a, f]	8270	GC/MS	G	4°C	14	3780	6300
TPH[h]	8015m	GS	G	4°C	7	—	1000

[a]Principal hazardous constituent identified in Ciniza Hazardous Waste Facility Permit.
[b]Additional constituents.
[c]Based on EPA Region 6, Human Health Medium-Specific Screening Levels (1999) and NM WQCC Regulations (1996). Analytical detection limits are required to be lower than reporting limits.
[e]No regulatory limit provided. Laboratory detection limit will be used.
[f]Regulatory limits for individual isomers combined into a 'total' limit for these compounds.
[g]Total naphthalene plus monomethylnaphthalenes regulatory limit is < 30µg/L for aqueous samples.
[h]Total Petroleum Hydrocarbon as Gasoline Range Organics and Diesel Range Organics

µg/L = microgram per liter
mg/kg = milligram per kilogram
G = glass with Teflon-lined lid
GC/MS = gas chromatography/mass spectrometry
GC = gas chromatography

Table E-1C. Modified Skinner List Metals and PHCs[a]

Parameter	EPA Method SW-846	Description	Container	Preservative [b]	Holding Time/Days	Aqueous Reporting Limit (µg/L)[c]	Soil Reporting Limit (mg/kg)[c]
Antimony	7060(aq), 6010	GFAA/ICP	P or G	4°C	180	6.0	31
Arsenic	6010	ICP-AES	P or G	4°C	180	50	22
Barium	6010	ICP-AES	P or G	4°C	180	2000	5400
Beryllium	6010	ICP-AES	P or G	4°C	180	4.0	150
Cadmium	6010	ICP-AES	P or G	4°C	180	5.0	39
Chromium[a]	6010	ICP-AES	P or G	4°C	180	50	210
Cobalt	6010	ICP-AES	P or G	4°C	180	50	3400
Lead[a]	6010	ICP-AES	P or G	4°C	180	15	400
Nickel	6010	ICP-AES	P or G	4°C	180	100	1600
Selenium	6010	ICP-AES	P or G	4°C	180	50	390
Silver	6010	ICP-AES	P or G	4°C	180	50	390
Vanadium	6010	ICP-AES	P or G	4°C	180	260	550
Zinc	6010	ICP-AES	P or G	4°C	180	10000	23000

[a]Principal hazardous constituent identified in Ciniza Hazardous Waste Facility Permit.
[b]Aqueous samples are field acidified to pH < 2 with HNO_3 and must not be refrigerated. Non-aqueous samples are cooled to 4°C.
[c]Based on EPA Region 6, Human Health Medium-Specific Screening Levels (1999) and NM WQCC Regulations (1996). Analytical detection limits are required to be lower than reporting limits.

µg/l = microgram per liter
mg/kg = milligram per kilogram
ICP-AES = Inductively Coupled Plasma - Atomic Emission Spectroscopy
G = glass
P = linear polyethylene, polypropylene, or Teflon

Table E-1D. Mercury[a] and Cyanide

Parameter	EPA Method SW-846	Description	Container	Preservative	Holding Time/Days	Aqueous Reporting Limit (µg/L)[c]	Soil Reporting Limit (mg/kg)[c]
Mercury[a]	7470/7471	CVAA	P or G	4°C[b]	28	2.0	23.
Cyanide	335.3/ 9010, 9014	Colorimetry	P or G	4°C[d]	14	200	1200

[a]Principal hazardous constituent identified in Ciniza Hazardous Waste Facility Permit.

[b]Aqueous samples are field acidified to pH < 2 with HNO_3 and must not be refrigerated. Non-aqueous samples are cooled to 4°C.

[c]Based on EPA Region 6, Human Health Medium-Specific Screening Levels and NM WQCC Regulations (1996). Analytical detection limits are required to be lower than reporting limits.

[d]Aqueous samples are field adjusted to pH >12 with NaOH and refrigerated. Non-aqueous samples are cooled to 4°C.

µg/l	=	microgram per liter
mg/kg	=	milligram per kilogram
CVAA	=	cold vapor atomic absorption
G	=	glass
P	=	linear polyethylene, polypropylene, or Teflon

GIANT/CINIZA - WELL SAMPLE PARAMETERS 3/27/01

Parameters		Preservative		# of cont.
Full 8260 + MTBE		Hcl		2
Full 8270		None		2
TOC (4 replicates)		H2SO4		8
TOX (4 replicates)		H2SO4		1
CN		NaOH/Zn Acetate		1
(Unfiltered) Metals (Per WQCC)		HNO3		1
PCB		None		1
Phenols		H2SO4		2
Ra 226/228		None		1
8015 (DRO)		HCl		2
NO3/NO2		H2SO4		1
PAH (8310)		None		1
pH, cond. (4 replicates each)		None	*	1
Cat/Anion parameters		None	*	
TDS/TSS		None	*	
Alkalinity		None	*	
Chloride		None	*	
Fluoride		None	*	
Sulfate		None	*	
Phosphorous as P		None	*	
Bromide		None	*	
Calcium		None	*	
Potassium		None	*	
Magnesium		None	*	

* = All from unpreserved bottles
note: all sample water is nonchlorinated

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

GIANT REFINING – CINIZA
SPRING 2001 GROUNDWATER
SMW - 4 - 51501

Case Narrative

On May 17, 2001, one water sample was submitted to Inter-Mountain Laboratories - Farmington for analysis. The parameters performed on the sample are indicated on the accompanying Chain of Custody.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The methods used in the analysis of the sample reported herein are found in: EPA – "Methods for Chemical Analysis of water and Wastes (MCAWW)", EPA 600/4-79-020 – March. 1983, "Methods for the Determination of Metals in Environmental Samples", Supplement I – 600/R-94-111 – May, 1994, SM – "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF, 19th Edition, 1995.

Quality control data appear at the end of the analytical report and may be identified by title. If there are any questions regarding the information presented in this report package, please feel free to contact us at your convenience.

Sincerely,

Sharon Williams
Organic Analyst/IML-Farmington

imi
Inter- Mountain
Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
Spring 2001 Groundwater Event	Giant - Ciniza	
Sampler: (Signature) SC Morris	**Chain of Custody Tape No.**	**Remarks** See attached sheet for parameters

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers
SMW-4-51501	5/15/01	1000	2347	Water	25

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
SC Morris	5/16/01	1030			
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**
			Alan Williams	5/17/01	0910

Inter-Mountain Laboratories, Inc.

555 Absaraka
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11183 State Hwy. 30
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Telephone (979) 776-8945

59011

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

CASE NARRATIVE

Client:	Giant Refining Company
Project:	Ciniza Groundwater
Set number:	0301W02347
Date received:	05-17-01
Date reported:	06-07-01
Chain of Custody:	89811

Inter-Mountain Laboratories, Inc., Farmington, NM received the samples listed above for analysis in a cool, 4° C, and intact condition. Enclosed are the results of the sample analyses.

Comment:

The sample, SMW-4-51501, was tested for Ethylene Dibromide initially by Method 8260B within the recommended holding time. The result of the Method 8260B analysis was None Detected to a MDL of 5 ug/L. A subsequent analysis of the sample was performed by Method 504 beyond the recommended holding time. The result of the Method 504 analysis was also None Detected to a MDL of 0.1 ug/L.

I apologize for the hold time exceedances and for any inconvenience this may have caused.

If you have any question concerning the data, please feel free to call the laboratory, (505) 326-4737.

Thank you.

Wes Harvey
Laboratory Director
IML-Farmington

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: SMW-4-51501
Lab ID: 0301W02347
Matrix: Water
Condition: Intact

Date Received: 05/17/01
Date Reported: 06/12/01
Date Sampled: 05/15/01
Time Sampled: 1000

Parameter	Analytical Result	Units		Units	PQL	Method	Analysis Date	Time	Init.
General Parameters									
PH	8.7	s.u.			0.1	EPA 150.1	05/17/01	1600	WL
Electrical Conductivity	1,200	µmhos/cm			10	EPA 120.1	05/17/01	1600	WL
Solids - Total Dissolved	740	mg/L			10	EPA 160.1	05/21/01	0800	MC
Solids - Total Suspended	24	mg/L			2	EPA 160.2	05/22/01	1130	MC
Alkalinity (CaCO3)	390	mg/L			1	EPA 310.1	05/21/01	1410	MC
Cyanide (Total) - Colorimetric	<0.01	mg/L			0.01	EPA 335.2	05/23/01	0800	KB
Hardness (CaCO3)	10	mg/L			1	EPA 200.7	06/08/01	1528	WL
Phosphorus - Ortho-P	0.19	mg/L			0.02	SM 4500P-E	06/11/01	1608	MC
Total Phenolics	0.05	mg/L			0.01	EPA 420.1	05/23/01	0800	KB
Major Anions									
Bicarbonate (HCO3)	476	mg/L	7.80	meq/L	1	EPA 310.1	05/21/01	1410	MC
Carbonate (CO3)	<1	mg/L	<0.01	meq/L	1	EPA 310.1	05/21/01	1410	MC
Chloride	62	mg/L	1.76	meq/L	1	EPA 300.0	05/29/01	1027	WL
Bromide (Br)	<0.05	mg/L	<0.01	meq/L	0.05	EPA 300.0	05/29/01	1027	WL
Fluoride	0.7	mg/L	<0.01	meq/L	0.1	EPA 300.0	05/29/01	1027	WL
Hydroxide (OH)	<1	mg/L	<0.01	meq/L	1	EPA 310.1	05/21/01	1410	MC
Nitrogen - Nitrate/Nitrite	<0.05	mg/L	<0.01	meq/L	0.05	EPA 353.2	06/07/01	1600	WL
Sulfate	144	mg/L	3.00	meq/L	5	EPA 300.0	05/29/01	1027	WL
Major Cations									
Calcium	2.7	mg/L	0.14	meq/L	0.2	EPA 200.7	06/08/01	1528	WL
Magnesium	0.8	mg/L	0.06	meq/L	0.2	EPA 200.7	06/08/01	1528	WL
Potassium	0.7	mg/L	0.02	meq/L	0.2	EPA 200.7	06/08/01	1528	WL
Sodium	284	mg/L	12.36	meq/L	0.2	EPA 200.7	06/08/01	1528	WL
Anion/Cation Balance QC Information									
Anion Sum			12.59	meq/L	0.01	SM 1030			
Cation Sum			12.58	meq/L	0.01	SM 1030			
Cation/Anion Balance			0.04	%	0.01	SM 1030			

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes (MCAWW)" - EPA/600/4-79-020 - March, 1983.
EPA - "Methods for the Determination of Metals in Environmental Samples" - Supplement I - 600/R-94-111 - May, 1994.
SM - "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF,19th Edition, 1995.

Reviewed By: _____

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: SMW-4-51501
Lab ID: 0301W02347
Matrix: Water
Condition: Intact

Date Received: 05/17/01
Date Reported: 06/11/01
Date Sampled: 05/15/01
Time Sampled: 1000

Parameter	Analytical Result	Units	Units	PQL	Method	Analysis Date	Time	Init.
Total Metals								
Aluminum	0.86	mg/L		0.05	EPA 200.7	05/22/01	1526	WL
Arsenic	<0.005	mg/L		0.005	SM 3114B	05/31/01	1615	BB
Barium	0.03	mg/L		0.01	EPA 200.7	05/22/01	1526	WL
Boron	1.27	mg/L		0.01	EPA 200.7	05/22/01	1526	WL
Cadmium	<0.001	mg/L		0.001	EPA 200.9	06/04/01	1050	SW
Chromium	0.02	mg/L		0.01	EPA 200.7	05/22/01	1526	WL
Cobalt	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1526	WL
Copper	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1526	WL
Iron	0.37	mg/L		0.02	EPA 200.7	05/22/01	1526	WL
Lead	<0.005	mg/L		0.005	EPA 200.9	06/05/01	0840	SW
Manganese	0.04	mg/L		0.01	EPA 200.7	05/22/01	1526	WL
Mercury	<0.001	mg/L		0.001	EPA 245.1	05/31/01	1000	BB
Molybdenum	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1526	WL
Nickel	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1526	WL
Selenium	<0.005	mg/L		0.005	SM 3114B	05/22/01	1200	JG
Silver	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1526	WL
Uranium	<0.3	mg/L		0.3	EPA 200.7	05/22/01	1526	WL
Zinc	<0.025	mg/L		0.025	EPA 200.7	05/22/01	1526	WL

Reference: EPA - "Methods for the Determination of Metals in Environmental Samples" - Supplement I - 600/R-94-111 - May, 1994.
SM - "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF,19th Edition, 1995.

Reviewed By: William Lipps

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	SMW-4-51501	Date Received:	NG
Laboratory ID:	0301W02347	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
1,1,1,2-Tetrachloroethane	ND	5	µg/L
1,1,1-Trichloroethane	ND	5	µg/L
1,1,2,2-Tetrachloroethane	ND	5	µg/L
1,1,2-Trichloroethane	ND	5	µg/L
1,1-Dichloroethane	ND	5	µg/L
1,1-Dichloroethene	ND	5	µg/L
1,1-Dichloropropene	ND	5	µg/L
1,2,3-Trichlorobenzene	ND	5	µg/L
1,2,4-Trichlorobenzene	ND	5	µg/L
1,2,4-Trimethylbenzene	ND	5	µg/L
1,2-Dibromo-3-chloropropane	ND	5	µg/L
1,2-Dibromoethane	ND	5	µg/L
1,2-Dichlorobenzene	ND	5	µg/L
1,2-Dichloroethane	ND	5	µg/L
1,2-Dichloropropane	ND	5	µg/L
1,3,5-Trimethylbenzene	ND	5	µg/L
1,3-Dichlorobenzene	ND	5	µg/L
1,3-Dichloropropane	ND	5	µg/L
1,4-Dichlorobenzene	ND	5	µg/L
1,4-Dioxane	ND	1000	µg/L
2,2-Dichloropropane	ND	5	µg/L
2-Butanone (MEK)	ND	20	µg/L
2-Chloroethylvinyl ether	ND	20	µg/L
2-Chlorotoluene	ND	5	µg/L
2-Hexanone	ND	20	µg/L
4-Chlorotoluene	ND	5	µg/L
4-Isopropyltoluene	ND	5	µg/L
4-Methyl-2-pentanone (MIBK)	ND	20	µg/L
Acetone	ND	50	µg/L
Benzene	ND	5	µg/L
Bromobenzene	ND	5	µg/L
Bromochloromethane	ND	5	µg/L
Bromodichloromethane	ND	5	µg/L
Bromoform	ND	5	µg/L
Bromomethane	ND	5	µg/L
Carbon Disulfide	ND	5	µg/L
Carbon Tetrachloride	ND	5	µg/L

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	SMW-4-51501	Date Received:	NG
Laboratory ID:	0301W02347	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
Chlorobenzene	ND	5	µg/L
Chloroethane	ND	5	µg/L
Chloroform	ND	5	µg/L
Chloromethane	ND	5	µg/L
cis-1,2-Dichloroethene	ND	5	µg/L
cis-1,3-Dichloropropene	ND	5	µg/L
Dibromochloromethane	ND	5	µg/L
Dibromomethane	ND	5	µg/L
Dichlorodifluoromethane	ND	5	µg/L
Ethylbenzene	ND	5	µg/L
Ethylene Dibromide	ND	5	µg/L
Hexachlorobutadiene	ND	5	µg/L
Isopropylbenzene	ND	5	µg/L
m,p-Xylene	ND	5	µg/L
Methylene Chloride	ND	20	µg/L
MTBE	ND	5	µg/L
n-Butylbenzene	ND	5	µg/L
n-Propylbenzene	ND	5	µg/L
Naphthalene	ND	5	µg/L
o-Xylene	ND	5	µg/L
sec-Butylbenzene	ND	5	µg/L
Styrene	ND	5	µg/L
tert-Butylbenzene	ND	5	µg/L
Tetrachloroethene (PCE)	ND	5	µg/L
Toluene	ND	5	µg/L
trans-1,2-Dichloroethene	ND	5	µg/L
trans-1,3-Dichloropropene	ND	5	µg/L
trans-1,4-Dichloro-2-butene	ND	5	µg/L
Trichloroethene (TCE)	ND	5	µg/L
Trichlorofluoromethane	ND	5	µg/L
Vinyl Acetate	ND	5	µg/L
Vinyl Chloride	ND	1	µg/L

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	106	86 - 118
1,2-Dichloroethane-d4	98	80 - 120
Toluene-d8	98	88 - 110
4-Bromofluorobenzene	97	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	SMW-4-51501	Date Received:	NG
Laboratory ID:	0301W02347	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	µg/L
1,2-Dichlorobenzene	ND	10	µg/L
1,3-Dichlorobenzene	ND	10	µg/L
1,4-Dichlorobenzene	ND	30	µg/L
1-Methylnapthalene	ND	10	µg/L
2,4,5-Trichlorophenol	ND	10	µg/L
2,4,6-Trichlorophenol	ND	10	µg/L
2,4-Dichlorophenol	ND	10	µg/L
2,4-Dimethylphenol	ND	10	µg/L
2,4-Dinitrophenol	ND	50	µg/L
2,4-Dinitrotoluene	ND	10	µg/L
2,6-Dinitrotoluene	ND	10	µg/L
2-Chloronaphthalene	ND	10	µg/L
2-Chlorophenol	ND	10	µg/L
2-Methylnaphthalene	ND	10	µg/L
2-Methylphenol	ND	10	µg/L
2-Nitroaniline	ND	50	µg/L
2-Nitrophenol	ND	10	µg/L
3,3'-Dichlorobenzidine	ND	20	µg/L
4,6-Dinitro-2-methylphenol	ND	50	µg/L
4-Bromophenyl-phenylether	ND	10	µg/L
4-Chloro-3-methylphenol	ND	20	µg/L
4-Chloroaniline	ND	20	µg/L
4-Chlorophenyl-phenylether	ND	10	µg/L
4-Methylphenol/3-Methylphenol **	ND	10	µg/L
4-Nitroaniline	ND	20	µg/L
4-Nitrophenol	ND	50	µg/L
6-Methylchrysene	ND	10	µg/L
7,12-Dimethylbenz(a)anthracene	ND	10	µg/L
Acenaphthene	ND	10	µg/L
Acenaphthylene	ND	10	µg/L
Aniline	ND	10	µg/L
Anthracene	ND	10	µg/L
Benzobenzene	ND	10	µg/L
Benzidine	ND	10	µg/L
Benzo(a)anthracene	ND	10	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	SMW-4-51501	Date Received:	NG
Laboratory ID:	0301W02347	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Benzo(a)pyrene	ND	10	µg/L
Benzo(b)fluoranthene	ND	10	µg/L
Benzo(g,h,i)perylene	ND	10	µg/L
Benzo(j)fluoranthene	ND	10	µg/L
Benzo(k)fluoranthene	ND	10	µg/L
Benzoic Acid	ND	50	µg/L
Benzyl Alcohol	ND	20	µg/L
bis(2-Chloroethoxy)methane	ND	10	µg/L
bis(2-Chloroethyl)ether	ND	10	µg/L
bis(2-Chloroisopropyl)ether	ND	10	µg/L
bis(2-Ethylhexyl)phthalate	ND	10	µg/L
Butylbenzylphthalate	ND	10	µg/L
Chrysene	ND	10	µg/L
Di-n-Butylphthalate	ND	10	µg/L
Di-n-Octylphthalate	ND	10	µg/L
Dibenz(a,h)anthracene	ND	10	µg/L
Dibenz(a,j)acridine	ND	10	µg/L
Dibenzofuran	ND	10	µg/L
Diethylphthalate	ND	20	µg/L
Dimethylphthalate	ND	40	µg/L
Fluoranthene	ND	10	µg/L
Fluorene	ND	10	µg/L
Hexachlorobenzene	ND	10	µg/L
Hexachlorobutadiene	ND	10	µg/L
Hexachlorocyclopentadiene	ND	10	µg/L
Hexachloroethane	ND	10	µg/L
Indene	ND	10	µg/L
Indeno(1,2,3-cd)pyrene	ND	10	µg/L
Isophorone	ND	10	µg/L
N-Nitrosodi-n-propylamine	ND	10	µg/L
N-Nitrosodiphenylamine	ND	10	µg/L
Naphthalene	ND	10	µg/L
Nitrobenzene	ND	10	µg/L
Pentachlorophenol	ND	50	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	SMW-4-51501	Date Received:	NG
Laboratory ID:	0301W02347	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

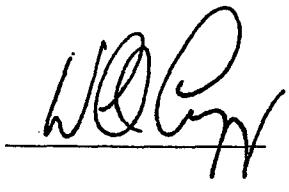
Parameter	Analytical Result	Detection Limit	Units
Phenanthrene	ND	10	µg/L
Phenol	ND	10	µg/L
Pyrene	ND	10	µg/L
Pyridine	ND	10	µg/L
Quinoline	ND	10	µg/L
Total Cresols	ND	10	µg/L

ND - Compound not detected at stated Detection Limit.
** - Compounds Coelute

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	37	21 - 100
Phenol-d6	26	10 - 94
Nitrobenzene-d5	53	35 - 114
2-Fluorobiphenyl	62	43 - 116
2,4,6-Tribromophenol	89	10 - 123
Terphenyl-d14	89	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

Inter·Mountain Laboratories, Inc.
2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: SMW-4-51501
Lab ID: 0301W02347
Matrix: Water
Condition: Intact

Date Reported: 06/08/01
Date Sampled: 05/15/01
Date Received: 05/17/01
Date Extracted: 05/22/01
Date Analyzed: 05/24/01

Parameter	Analytical Result	PQL	Units
POLYNUCLEAR AROMATIC HYDROCARBONS			
Acenaphthene	<2.5	2.5	µg/L
Acenaphthylene	<0.8	0.8	µg/L
Anthracene	<0.02	0.02	µg/L
Benzo(a)anthracene	<0.05	0.05	µg/L
Benzo(b)fluoranthene	<0.03	0.03	µg/L
Benzo(a)pyrene	<0.02	0.02	µg/L
Benzo(g,h,i)perylene	<0.02	0.02	µg/L
Benzo(k)fluoranthene	<0.2	0.2	µg/L
Chrysene	<0.04	0.04	µg/L
Dibenz(a,h)anthracene	<0.3	0.3	ug/L
Fluoranthene	<0.8	0.8	µg/L
Fluorene	<0.08	0.08	µg/L
Indeno(1,2,3-cd)pyrene	<2.5	2.5	µg/L
2-Methylnaphthalene	<2.5	2.5	ug/L
Naphthalene	<2.5	2.5	µg/L
Phenanthrene	<0.6	0.6	µg/L
Pyrene	<0.3	0.3	µg/L

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: William Lipps

Analyst:

EPA METHOD 8082
POLYCHLORINATED BIPHENYLS (PCBs) BY GC

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project:	Ciniza	Date Sampled:	05/15/01
Sample ID:	SMW-4-51501	Date Received:	NG
Laboratory ID:	0301W02347	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Analytical Result	Detection Limit	Units
Aroclor 1016	ND	1	µg/L
Aroclor 1221	ND	2	µg/L
Aroclor 1232	ND	1	µg/L
Aroclor 1242	ND	1	µg/L
Aroclor 1248	ND	1	µg/L
Aroclor 1254	ND	1	µg/L
Aroclor 1260	ND	1	µg/L
Aroclor 1262	ND	1	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
2,4,5,6-tetrachloro-m-xylene	60	50 - 150
Decachlorobiphenyl	76	50 - 150

* - Out of Limits

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 0, December 1996.

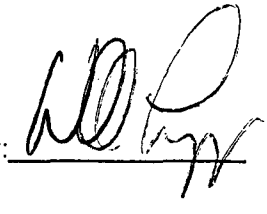
Reveiwed By: _____

ETHYLENE DIBROMIDE BY GC/ECD
Method 504

Client:	**Giant Refining Co. - Ciniza**	Date Reported:	06/07/01
Project:	Spring 2001 Groundwater	Date Sampled:	05/15/01
Sample ID:	SMW-4-51501	Date Received:	05/17/01
Lab ID:	0301W02347	Date Extracted:	06/07/01
Sample Matrix:	Water	Date Analyzed:	06/07/01

Parameter	Result	Detection Limit	Units
Ethylene Dibromide	ND	0.1	ug/L

ND - Compound Not Detected At Stated Detection Limit.

Reviewed By: 

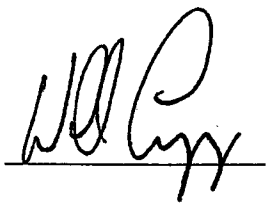
EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	SMW-4-51501	Date Received:	NG
Laboratory ID:	0301W02347	Date Extracted:	05/24/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Replicate	Analytical Result	PQL	Units
9020B				
Total Organic Halides (TOX)	1	ND	30	µg/L
Total Organic Halides (TOX)	2	ND	30	µg/L
Total Organic Halides (TOX)	3	ND	30	µg/L
Total Organic Halides (TOX)	4	ND	30	µg/L

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

TOTAL ORGANIC CARBON

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	06/11/01
Sample ID:	SMW-4-51501	Date Analyzed:	06/11/01
Laboratory ID:	0301W02347	Date Sampled:	05/15/01
Sample Matrix:	Water	Date Received:	05/17/01
Condition:	Intact		

	Result mg/L	MDL
Replicate #1	ND	1.00
Replicate #2	ND	1.00
Replicate #3	ND	1.00
Replicate #4	ND	1.00

ND - Analyte not detected

References: Method 415.1: TOTAL ORANIC CARBON (TOC). Test Methods For Evaluating Waste and Solid Wastes, SW-846, USEPA, 3rd Edition, Final Update II, September, 1994

Comments:

Reported By: _____

Reviewed By: _____

Inter-Mountain Laboratories, Inc.
2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: SMW-4-51501
Lab ID: 0301W02347
Matrix: Water
Condition: Intact

Date Reported: 06/11/01
Date Sampled: 05/15/01
Date Received: 05/17/01
Date Extracted: 05/25/01
Date Analyzed: 05/25/01

Parameter	Analytical Result	PQL	Units
DRO - Method 8015			
Diesel Range Organics (C10 - C22)	<30	30	mg/L
Oil Range Organics (C22 - C32)	<30	30	mg/L

Quality Control - Surrogate Recovery	%	QC Limits
o-Terphenyl(SUR-8015)	95	70 - 130

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: William Lipps

Analyst:

pH

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	06/07/01
Sample ID:	SMW-4-051501	Date Analyzed:	05/17/01
Laboratory ID:	0301W02347	Date Sampled:	05/15/01
Sample Matrix:	Water	Date Received:	05/17/01
Condition:	Intact		

	Result	MDL
Replicate #1	8.7	0.1
Replicate #2	8.7	0.1
Replicate #3	8.7	0.1
Replicate #4	8.7	0.1

Comments:

Reported By: _____

Reviewed By: _____

ELECTRICAL CONDUCTIVITY

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	06/07/01
Sample ID:	SMW-4-051501	Date Analyzed:	05/17/01
Laboratory ID:	0301W02347	Date Sampled:	05/15/01
Sample Matrix:	Water	Date Received:	05/17/01
Condition:	Intact		

	Result	MDL
Replicate #1	1200	10
Replicate #2	1200	10
Replicate #3	1200	10
Replicate #4	1200	10

Comments:

Reported By: _____

Reviewed By: _____

Radiation Safety Engineering, Inc.

3245 N. WASHINGTON ST. • CHANDLER, ARIZONA 85225-1121 (480) 897-9459
Website: www.radsafe.com FAX (480) 892-5446

Radiochemical Activity in Water (pCi/L)

Inter-Mountain Laboratories
2506 West Main Street
Farmington, NM 87401

Samples Received: May 21, 2001
Samples Completed: June 1, 2001

Sample ID	Radium 226 Activity method 903.1	Radium 228 Activity method 904	Total Radium Activity
SMW-4-5-15-01	< 0.2	< 0.5	< 0.5

Robert L. Metzger, Ph.D., C.H.P.

QUALITY CONTROL / QUALITY ASSURANCE

QUALITY CONTROL / QUALITY ASSURANCE

Blank Analysis

TOTAL METALS

Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	06/05/01
Sample Matrix:	Water	Date Received:	05/17/01

Method Blank Analysis

Parameter	Result	Detection Limit	Units
Aluminum	**ND**	0.05	mg/L
Arsenic	**ND**	0.005	mg/L
Barium	**ND**	0.01	mg/L
Boron	**ND**	0.01	mg/L
Cadmium	**ND**	0.001	mg/L
Chromium	**ND**	0.01	mg/L
Cobalt	**ND**	0.01	mg/L
Copper	**ND**	0.01	mg/L
Iron	**ND**	0.02	mg/L
Lead	**ND**	0.005	mg/L
Manganese	**ND**	0.01	mg/L
Mercruy	**ND**	0.001	mg/L
Molybdenum	**ND**	0.01	mg/L
Nickel	**ND**	0.01	mg/L
Selenium	**ND**	0.005	mg/L
Silver	**ND**	0.01	mg/L
Uranium	**ND**	0.1	mg/L
Zinc	**ND**	0.025	mg/L

References: Method 6010: Acid Digestion for Water and Waste Water, SW-846, Rev. 1, July 1992.

Comments:

Reported by _____

Reviewed by _____

QUALITY CONTROL / QUALITY ASSURANCE

Spike Analysis

TOTAL METALS

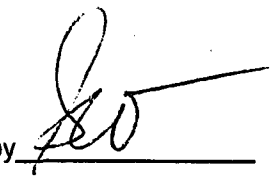
Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	06/05/01
Sample Matrix:	Water	Date Received:	05/17/01

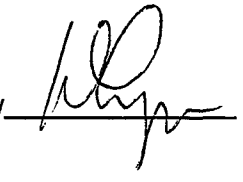
Spike Analysis

Parameter	Spike Result (mg/L)	Sample Result (mg/L)	Spike Added (mg/L)	Percent Recovery
Aluminum	1.27	0.75	0.50	**104%**
Arsenic	0.011	<0.005	0.010	**111%**
Barium	0.88	<0.01	1.00	**88%**
Boron	0.11	<0.01	0.10	**107%**
Cadmium	0.003	<0.001	0.003	**100%**
Chromium	0.10	<0.01	0.10	**103%**
Cobalt	0.09	<0.01	0.10	**94%**
Copper	0.10	<0.01	0.10	**103%**
Iron	1.19	0.66	0.50	**106%**
Lead	0.024	<0.005	0.025	**95%**
Manganese	1.68	1.10	0.50	**116%**
Mercury	0.002	<0.001	0.002	**113%**
Molybdenum	0.10	<0.01	0.10	**98%**
Nickel	0.10	<0.01	0.10	**96%**
Selenium	0.025	<0.005	0.025	**99%**
Silver	0.08	<0.01	0.10	**81%**
Uranium	0.5	<0.1	0.5	**104%**
Zinc	0.110	<0.025	0.100	**110%**

References: Method 6010: Acid Digestion for Water and Waste Water, SW-846, Rev. 1, July 1992.

Comments:

Reported by 

Reviewed by 

QUALITY CONTROL / QUALITY ASSURANCE

Known Analysis

TOTAL METALS

Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	06/05/01
Sample Matrix:	Water	Date Received:	05/17/01

Known Analysis

Parameter	Found Result	Known Result	Percent Recovery	Units
Aluminum	1.88	2.00	**94%**	mg/L
Arsenic	0.039	0.040	**98%**	mg/L
Barium	1.94	2.00	**97%**	mg/L
Boron	1.83	2.00	**92%**	mg/L
Cadmium	0.005	0.005	**102%**	mg/L
Chromium	1.97	2.00	**99%**	mg/L
Cobalt	1.91	2.00	**96%**	mg/L
Copper	1.85	2.00	**93%**	mg/L
Iron	1.88	2.00	**94%**	mg/L
Lead	0.051	0.050	**103%**	mg/L
Manganese	1.82	2.00	**91%**	mg/L
Mercury	0.003	0.003	**108%**	mg/L
Molybdenum	2.00	2.00	**100%**	mg/L
Nickel	1.95	2.00	**98%**	mg/L
Selenium	0.020	0.020	**100%**	mg/L
Silver	0.23	0.25	**92%**	mg/L
Uranium	1.90	2.00	**95%**	mg/L
Zinc	1.92	2.00	**96%**	mg/L

References: Method 6010: Acid Digestion for Water and Waste Water, SW-846, Rev. 1, July 1992.

Comments:

Reported by _____

Reviewed by _____

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	V3MB01-141	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
1,1,1,2-Tetrachloroethane	ND	5	µg/L
1,1,1-Trichloroethane	ND	5	µg/L
1,1,2,2-Tetrachloroethane	ND	5	µg/L
1,1,2-Trichloroethane	ND	5	µg/L
1,1-Dichloroethane	ND	5	µg/L
1,1-Dichloroethene	ND	5	µg/L
1,1-Dichloropropene	ND	5	µg/L
1,2,3-Trichlorobenzene	ND	5	µg/L
1,2,4-Trichlorobenzene	ND	5	µg/L
1,2,4-Trimethylbenzene	ND	5	µg/L
1,2-Dibromo-3-chloropropane	ND	5	µg/L
1,2-Dibromoethane	ND	5	µg/L
1,2-Dichlorobenzene	ND	5	µg/L
1,2-Dichloroethane	ND	5	µg/L
1,2-Dichloropropane	ND	5	µg/L
1,3,5-Trimethylbenzene	ND	5	µg/L
1,3-Dichlorobenzene	ND	5	µg/L
1,3-Dichloropropane	ND	5	µg/L
1,4-Dichlorobenzene	ND	5	µg/L
1,4-Dioxane	ND	1000	µg/L
2,2-Dichloropropane	ND	5	µg/L
2-Butanone (MEK)	ND	20	µg/L
2-Chloroethylvinyl ether	ND	20	µg/L
2-Chlorotoluene	ND	5	µg/L
2-Hexanone	ND	20	µg/L
4-Chlorotoluene	ND	5	µg/L
4-Isopropyltoluene	ND	5	µg/L
4-Methyl-2-pentanone (MIBK)	ND	20	µg/L
Acetone	ND	50	µg/L
Benzene	ND	5	µg/L
Bromobenzene	ND	5	µg/L
Bromochloromethane	ND	5	µg/L
Bromodichloromethane	ND	5	µg/L
Bromoform	ND	5	µg/L
Bromomethane	ND	5	µg/L
Carbon Disulfide	ND	5	µg/L
Carbon Tetrachloride	ND	5	µg/L

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	V3MB01-141	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
Chlorobenzene	ND	5	µg/L
Chloroethane	ND	5	µg/L
Chloroform	ND	5	µg/L
Chloromethane	ND	5	µg/L
cis-1,2-Dichloroethene	ND	5	µg/L
cis-1,3-Dichloropropene	ND	5	µg/L
Dibromochloromethane	ND	5	µg/L
Dibromomethane	ND	5	µg/L
Dichlorodiffuoromethane	ND	5	µg/L
Ethylbenzene	ND	5	µg/L
Ethylene Dibromide	ND	5	µg/L
Hexachlorobutadiene	ND	5	µg/L
Isopropylbenzene	ND	5	µg/L
m,p-Xylene	ND	5	µg/L
Methylene Chloride	ND	20	µg/L
MTBE	ND	5	µg/L
n-Butylbenzene	ND	5	µg/L
n-Propylbenzene	ND	5	µg/L
Naphthalene	ND	5	µg/L
o-Xylene	ND	5	µg/L
sec-Butylbenzene	ND	5	µg/L
Styrene	ND	5	µg/L
tert-Butylbenzene	ND	5	µg/L
Tetrachloroethene (PCE)	ND	5	µg/L
Toluene	ND	5	µg/L
trans-1,2-Dichloroethene	ND	5	µg/L
trans-1,3-Dichloropropene	ND	5	µg/L
trans-1,4-Dichloro-2-butene	ND	5	µg/L
Trichloroethene (TCE)	ND	5	µg/L
Trichlorofluoromethane	ND	5	µg/L
Vinyl Acetate	ND	5	µg/L
Vinyl Chloride	ND	1	µg/L

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	101	86 - 118
1,2-Dichloroethane-d4	94	80 - 120
Toluene-d8	98	88 - 110
4-Bromofluorobenzene	99	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Blank Spike/Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	V3BSD01-141	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
1,1-Dichloroethene	ND	50	52	105	53	106	1
Benzene	ND	50	48	96	47	94	1
Chlorobenzene	ND	50	56	112	54	108	4
Toluene	ND	50	50	101	49	97	4
Trichloroethene (TCE)	ND	50	50	101	51	102	1

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Dup %	Water QC Limits
Dibromofluoromethane	100	102	86 - 118
1,2-Dichloroethane-d4	97	99	80 - 120
Toluene-d8	99	100	88 - 110
4-Bromofluorobenzene	102	99	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Matrix Spike Analysis

Sample ID:	Matrix Spike	Date Reported:	06/07/01
Laboratory ID:	1301G01081MS	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %
1,1-Dichloroethene	ND	50	56	111
Benzene	ND	50	48	97
Chlorobenzene	ND	50	55	110
Toluene	ND	50	51	102
Trichloroethene (TCE)	ND	50	52	104

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	103	86 - 118
1,2-Dichloroethane-d4	100	80 - 120
Toluene-d8	101	88 - 110
4-Bromofluorobenzene	96	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	µg/L
1,2-Dichlorobenzene	ND	10	µg/L
1,3-Dichlorobenzene	ND	10	µg/L
1,4-Dichlorobenzene	ND	30	µg/L
1-Methylnapthalene	ND	10	µg/L
2,4,5-Trichlorophenol	ND	10	µg/L
2,4,6-Trichlorophenol	ND	10	µg/L
2,4-Dichlorophenol	ND	10	µg/L
2,4-Dimethylphenol	ND	10	µg/L
2,4-Dinitrophenol	ND	50	µg/L
2,4-Dinitrotoluene	ND	10	µg/L
2,6-Dinitrotoluene	ND	10	µg/L
2-Chloronaphthalene	ND	10	µg/L
2-Chlorophenol	ND	10	µg/L
2-Methylnaphthalene	ND	10	µg/L
2-Methylphenol	ND	10	µg/L
2-Nitroaniline	ND	50	µg/L
2-Nitrophenol	ND	10	µg/L
3,3'-Dichlorobenzidine	ND	20	µg/L
4,6-Dinitro-2-methylphenol	ND	50	µg/L
4-Bromophenyl-phenylether	ND	10	µg/L
4-Chloro-3-methylphenol	ND	20	µg/L
4-Chloroaniline	ND	20	µg/L
4-Chlorophenyl-phenylether	ND	10	µg/L
4-Methylphenol/3-Methylphenol **	ND	10	µg/L
4-Nitroaniline	ND	20	µg/L
4-Nitrophenol	ND	50	µg/L
6-Methylchrysene	ND	10	µg/L
7,12-Dimethylbenz(a)anthracene	ND	10	µg/L
Acenaphthene	ND	10	µg/L
Acenaphthylene	ND	10	µg/L
Aniline	ND	10	µg/L
Anthracene	ND	10	µg/L
Azobenzene	ND	10	µg/L
Benzidine	ND	10	µg/L
Benzo(a)anthracene	ND	10	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Benzo(a)pyrene	ND	10	µg/L
Benzo(b)fluoranthene	ND	10	µg/L
Benzo(g,h,i)perylene	ND	10	µg/L
Benzo(j)fluoranthene	ND	10	µg/L
Benzo(k)fluoranthene	ND	10	µg/L
Benzoic Acid	ND	50	µg/L
Benzyl Alcohol	ND	20	µg/L
bis(2-Chloroethoxy)methane	ND	10	µg/L
bis(2-Chloroethyl)ether	ND	10	µg/L
bis(2-Chloroisopropyl)ether	ND	10	µg/L
bis(2-Ethylhexyl)phthalate	ND	10	µg/L
Butylbenzylphthalate	ND	10	µg/L
Chrysene	ND	10	µg/L
Di-n-Butylphthalate	ND	10	µg/L
Di-n-Octylphthalate	ND	10	µg/L
Dibenz(a,h)anthracene	ND	10	µg/L
Dibenz(a,j)acridine	ND	10	µg/L
Dibenzofuran	ND	10	µg/L
Diethylphthalate	ND	20	µg/L
Dimethylphthalate	ND	40	µg/L
Fluoranthene	ND	10	µg/L
Fluorene	ND	10	µg/L
Hexachlorobenzene	ND	10	µg/L
Hexachlorobutadiene	ND	10	µg/L
Hexachlorocyclopentadiene	ND	10	µg/L
Hexachloroethane	ND	10	µg/L
Indene	ND	10	µg/L
Indeno(1,2,3-cd)pyrene	ND	10	µg/L
Isophorone	ND	10	µg/L
N-Nitrosodi-n-propylamine	ND	10	µg/L
N-Nitrosodiphenylamine	ND	10	µg/L
Naphthalene	ND	10	µg/L
Nitrobenzene	ND	10	µg/L
Pentachlorophenol	ND	50	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Phenanthrene	ND	10	µg/L
Phenol	ND	10	µg/L
Pyrene	ND	10	µg/L
Pyridine	ND	10	µg/L
Quinoline	ND	10	µg/L
Total Cresols	ND	10	µg/L

ND - Compound not detected at stated Detection Limit.
** - Compounds Coelute

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	38	21 - 100
Phenol-d6	27	10 - 94
Nitrobenzene-d5	47	35 - 114
2-Fluorobiphenyl	55	43 - 116
2,4,6-Tribromophenol	74	10 - 123
Terphenyl-d14	82	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Blank Spike/Spike Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	BSD01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
1,2,4-Trichlorobenzene	ND	100	67	67	62	62	8
1,4-Dichlorobenzene	ND	100	59	59	54	54	9
2,4-Dinitrotoluene	ND	100	70	70	66	66	5
2-Chlorophenol	ND	200	129	65	119	60	8
4-Chloro-3-methylphenol	ND	200	124	62	117	59	5
4-Nitrophenol	ND	200	52	26	50	25	3
Acenaphthene	ND	100	65	65	62	62	6
N-Nitrosodi-n-propylamine	ND	100	80	80	76	76	6
Pentachlorophenol	ND	200	130	65	120	60	8
Phenol	ND	200	56	28	55	27	2
Pyrene	ND	100	95	95	92	92	3

ND - Compound not detected at stated Detection Limit.

QUALITY CONTROL:

Surrogate Recoveries	%	Dup %	Water QC Limits
2-Fluorophenol	46	41	21 - 100
Phenol-d6	30	28	10 - 94
Nitrobenzene-d5	62	57	35 - 114
2-Fluorobiphenyl	70	65	43 - 116
2,4,6-Tribromophenol	96	90	10 - 123
Terphenyl-d14	85	80	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES
Matrix Spike Analysis

Sample ID:	Matrix Spike	Date Reported:	06/07/01
Laboratory ID:	1301W01023MS	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

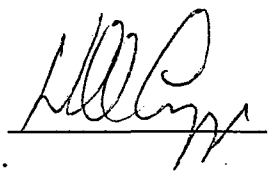
Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %
1,2,4-Trichlorobenzene	ND	100	66	66
1,4-Dichlorobenzene	ND	100	57	57
2,4-Dinitrotoluene	ND	100	70	70
2-Chlorophenol	ND	200	126	63
4-Chloro-3-methylphenol	ND	200	124	62
4-Nitrophenol	ND	200	53	26
Acenaphthene	ND	100	65	65
N-Nitrosodi-n-propylamine	ND	100	79	79
Pentachlorophenol	ND	200	136	68
Phenol	ND	200	54	27
Pyrene	ND	100	94	94

ND - Compound not detected at stated Detection Limit.

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	39	21 - 100
Phenol-d6	27	10 - 94
Nitrobenzene-d5	60	35 - 114
2-Fluorobiphenyl	66	43 - 116
2,4,6-Tribromophenol	95	10 - 123
Terphenyl-d14	81	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

Quality Control / Quality Assurance

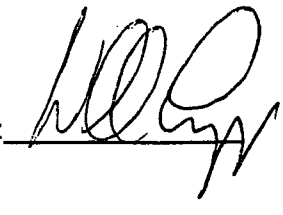
Polynuclear Aromatic Hydrocarbons

Method Blank

Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	05/24/01
Lab ID:	0301W02347	Date Received:	05/17/01
Sample Matrix:	Water		

Analyte	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	2.5
Acenapthylene	ND	ug/L	2.5
Anthracene	ND	ug/L	0.5
Benzo(a)anthracene	ND	ug/L	0.02
Benzo(b)fluoranthene	ND	ug/L	0.05
Benzo(a)pyrene	ND	ug/L	0.02
Benzo(g,h,i)perylene	ND	ug/L	0.03
Benzo(k)fluoranthene	ND	ug/L	0.02
Chrysene	ND	ug/L	0.2
Dibenz(a,h)anthracene	ND	ug/L	0.04
Fluoranthene	ND	ug/L	0.3
Fluorene	ND	ug/L	0.5
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.08
2-Methylnaphthene	ND	ug/L	2.5
Naphthalene	ND	ug/L	2.5
Phenanthrene	ND	ug/L	0.5
Pyrene	ND	ug/L	0.3

Reference: SM - "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995.

Reviewed By: 

Quality Control / Quality Assurance

Polynuclear Aromatic Hydrocarbons

Spike Analysis

Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	05/24/01
Lab ID:	0301W02347	Date Received:	05/17/01
Sample Matrix:	Water		

Analyte	Concentration Spiked	Concentration Measured	Accuracy % LCS	Accuracy % Limits
Naphthalene	40.4	29.4	73	41-82
Acenaphthylene	40.4	29.8	74	43-91
Acenaphthene	40.4	31.1	77	48-85
Fluorene	4.1	3.07	75	48-87
Phenanthrene	3.07	2.47	80	60-86
Fluoranthene	1.92	1.72	90	72-96
Pyrene	3.85	3.52	91	73-96
Benzo(a)pyrene	0.253	0.247	98	66-118
Benzo(g,h,i)perylene	0.553	0.550	99	79-112

Surrogates	Result %	Accuracy % Limits
Benzo(a)pyrene	99	54.5-116

Reference: SM - "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995.

Reviewed By: _____

EPA METHOD 8082
POLYCHLORINATED BIPHENYLS (PCBs) BY GC
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Analytical Result	Detection Limit	Units
Aroclor 1016	ND	1	µg/L
Aroclor 1221	ND	2	µg/L
Aroclor 1232	ND	1	µg/L
Aroclor 1242	ND	1	µg/L
Aroclor 1248	ND	1	µg/L
Aroclor 1254	ND	1	µg/L
Aroclor 1260	ND	1	µg/L
Aroclor 1262	ND	1	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
2,4,5,6-tetrachloro-m-xylene	50	50 - 150
Decachlorobiphenyl	78	50 - 150

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 0, December 1996.

Reveiwed By: _____

ETHYLENE DIBROMIDE BY GC/ECD

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-158	Date Extracted:	06/07/01
Sample Matrix:	Water	Date Analyzed:	06/07/01

Parameter	Analytical Result	Detection Limit	Units
Ethylene Dibromide	ND	0.1	µg/L

ND - Compound not detected at stated Detection Limit.

Reveiwed By: _____

ETHYLENE DIBROMIDE BY GC/ECD

Blank Spike Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	BSD01-137	Date Extracted:	06/07/01
Sample Matrix:	Water	Date Analyzed:	06/07/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
Ethylene Dibromide	ND	2	2.1	105	2.3	115	9

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-144	Date Extracted:	05/24/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Analytical Result	PQL	Units
9020B			
Total Organic Halides (TOX)	ND	30	µg/L

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

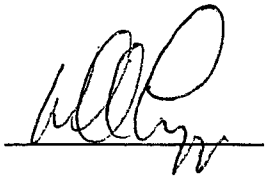
EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)
Blank Spike Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	BSD01-144	Date Extracted:	05/24/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
9020B							
Total Organic Halides (TOX)	ND	50	53	106	58	117	10

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

June 11, 2001

Dorinda Mancini
Giant Refining Company
Rt. 3, Box 7
Gallup, NM 87301

Ms. Mancini:

Enclosed please find the reports for the sample received by our laboratory for analysis on May 16, 2001.

If you have any questions about the results of these analyses, please don't hesitate to call at your convenience.

Thank you for choosing IML for your analytical needs!

Sincerely,

Sharon Williams
Organic Analyst/IML-Farmington

Enclosure

xc: File

iml Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

GIANT REFINING – CINIZA
SPRING 2001 GROUNDWATER
MW –1- 51401

Case Narrative

On May 16, 2001, one water sample was submitted to Inter-Mountain Laboratories - Farmington for analysis. The parameters performed on the sample are indicated on the accompanying Chain of Custody.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The methods used in the analysis of the sample reported herein are found in: EPA – "Methods for Chemical Analysis of water and Wastes (MCAWW)", EPA 600/4-79-020 – March. 1983, "Methods for the Determination of Metals in Environmental Samples", Supplement I – 600/R-94-111 – May, 1994, SM – "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF, 19th Edition, 1995.

Quality control data appear at the end of the analytical report and may be identified by title. If there are any questions regarding the information presented in this report package, please feel free to contact us at your convenience.

Sincerely,

Sharon Williams
Organic Analyst/IML-Farmington

imL
Inter- Mountain
Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
Spring 2001 Groundwater Event	Giant - Ciniza	
Sampler: (Signature) SC Williams	**Chain of Custody Tape No.**	**Remarks**

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers					Remarks
MW-1-51401	5/14/01	1330	22976	Water	25					See attached sheet for parameters

REC-COOL & INTACT
HAND DELIVERED:
SHIPPED: VOA's 5-16-01 / SW

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
SC Williams	5/15/01	0900			
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**
			Aaron Williams	5/16/01	

Inter-Mountain Laboratories, Inc.

☐ 555 Absaraka
Sheridan, Wyoming 82801
Telephone (307) 674-7506

☐ 1633 Terra Avenue
Sheridan, Wyoming 82801
Telephone (307) 672-8945

☐ 1701 Phillips Circle
Gillette, Wyoming 82718
Telephone (307) 682-8945

☒ 2506 West Main Street
Farmington, NM 87401
Telephone (505) 326-4737

☐ 11183 State Hwy. 30
College Station, TX 77845
Telephone (979) 776-8945

69806

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

CASE NARRATIVE

Client:	Giant Refining Company
Project:	Ciniza Groundwater
Set number:	0301W02296
Date received:	05-16-01
Date reported:	06-07-01
Chain of Custody:	89808

Inter-Mountain Laboratories, Inc., Farmington, NM received the samples listed above for analysis in a cool, 4° C, and intact condition. Enclosed are the results of the sample analyses.

Comment:

The sample, MW-1-51401, was tested for Ethylene Dibromide initially by Method 8260B within the recommended holding time. The result of the Method 8260B analysis was None Detected to a MDL of 5 ug/L. A subsequent analysis of the sample was performed by Method 504 beyond the recommended holding time. The result of the Method 504 analysis was also None Detected to a MDL of 0.1 ug/L.

I apologize for the hold time exceedances and for any inconvenience this may have caused.

If you have any question concerning the data, please feel free to call the laboratory, (505) 326-4737.

Thank you.

Wes Harvey
Laboratory Director
IML-Farmington

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW - 1 - 51401
Lab ID: 0301W02296
Matrix: Water
Condition: Intact

Date Received: 05/16/01
Date Reported: 02/28/02
Date Sampled: 05/14/01
Time Sampled: 1330

Parameter	Analytical Result	Units		Units	PQL	Method	Analysis Date	Time	Init.
General Parameters									
PH	9.0	s.u.			0.1	EPA 150.1	05/16/01	1230	ML
Electrical Conductivity	1,170	µmhos/cm			10	EPA 120.1	05/16/01	1230	ML
Solids - Total Dissolved	720	mg/L			10	EPA 160.1	05/16/01	1610	WL
Solids - Total Suspended	2	mg/L			2	EPA 160.2	05/17/01	1100	WL
Alkalinity (CaCO3)	340	mg/L			1	EPA 310.1	05/21/01	1100	MC
Cyanide (Total) - Colorimetric	<0.01	mg/L			0.01	EPA 335.2	05/22/01	1300	KB
Hardness (CaCO3)	5	mg/L			1	EPA 200.7	06/08/01	1523	WL
Phosphorus - Ortho-P	0.10	mg/L			0.02	SM 4500P-E	05/16/01	1550	WL
Total Phenolics	0.03	mg/L			0.01	EPA 420.1	05/23/01	0800	KB
Major Anions									
Bicarbonate (HCO3)	415	mg/L	6.80	meq/L	1	EPA 310.1	05/21/01	1100	MC
Carbonate (CO3)	<1	mg/L	<0.01	meq/L	1	EPA 310.1	05/21/01	1100	MC
Chloride	57	mg/L	1.61	meq/L	1	EPA 300.0	05/25/01	1231	WL
Bromide (Br)	<0.2	mg/L	<0.01	meq/L	0.2	EPA 300.0	05/25/01	1231	WL
Fluoride	0.7	mg/L	<0.01	meq/L	0.1	EPA 300.0	05/25/01	1231	WL
Hydroxide (OH)	<1	mg/L	<0.01	meq/L	1	EPA 310.1	05/21/01	1100	MC
Nitrogen - Nitrate/Nitrite	11.4	mg/L	0.81	meq/L	0.05	EPA 353.2	06/12/01	1105	WH
Sulfate	148	mg/L	3.07	meq/L	5	EPA 300.0	05/25/01	1231	WL
Major Cations									
Calcium	1.5	mg/L	0.07	meq/L	0.2	EPA 200.7	06/08/01	1523	WL
Magnesium	0.2	mg/L	0.02	meq/L	0.2	EPA 200.7	06/08/01	1523	WL
Potassium	0.6	mg/L	0.01	meq/L	0.2	EPA 200.7	06/08/01	1523	WL
Sodium	267	mg/L	11.60	meq/L	0.2	EPA 200.7	06/08/01	1523	WL
Anion/Cation Balance QC Information									
Anion Sum			11.52	meq/L	0.01	SM 1030			
Cation Sum			11.70	meq/L	0.01	SM 1030			
Cation/Anion Balance			0.78	%	0.01	SM 1030			

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes (MCAWW)" - EPA/600/4-79-020 - March, 1983.
EPA - "Methods for the Determination of Metals in Environmental Samples" - Supplement I - 600/R-94-111 - May, 1994.
SM - "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF,19th Edition, 1995.

Reviewed By: William Lipps

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW - 1 - 51401
Lab ID: 0301W02296
Matrix: Water
Condition: Intact

Date Received: 05/16/01
Date Reported: 02/28/02
Date Sampled: 05/14/01
Time Sampled: 1330

Parameter	Analytical Result	Units	Units	PQL	Method	Analysis Date	Time	Init.
Total Metals								
Aluminum	<0.05	mg/L		0.05	EPA 200.7	05/22/01	1509	WL
Arsenic	<0.005	mg/L		0.005	SM 3114B	06/01/01	1615	JG
Barium	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1509	WL
Boron	0.64	mg/L		0.01	EPA 200.7	05/22/01	1509	WL
Cadmium	<0.001	mg/L		0.001	EPA 200.9	06/04/01	1050	SW
Chromium	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1509	WL
Cobalt	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1509	WL
Copper	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1509	WL
Iron	0.02	mg/L		0.02	EPA 200.7	05/22/01	1509	WL
Lead	<0.005	mg/L		0.005	EPA 200.9	06/05/01	0840	SW
Manganese	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1509	WL
Mercury	<0.001	mg/L		0.001	EPA 245.1	05/31/01	1000	BB
Molybdenum	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1509	WL
Nickel	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1509	WL
Selenium	0.013	mg/L		0.005	SM 3114B	05/22/01	1509	WL
Silver	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1509	WL
Uranium	<0.3	mg/L		0.3	EPA 200.7	05/22/01	1509	WL
Zinc	<0.025	mg/L		0.025	EPA 200.7	05/22/01	1509	WL

Reference: EPA - "Methods for the Determination of Metals in Environmental Samples" - Supplement I - 600/R-94-111 - May, 1994.
SM - "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF,19th Edition, 1995.

Reviewed By: _____
William Lipps

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/14/01
Sample ID:	MW-1-51401	Date Received:	NG
Laboratory ID:	0301W02296	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
1,1,1,2-Tetrachloroethane	ND	5	µg/L
1,1,1-Trichloroethane	ND	5	µg/L
1,1,2,2-Tetrachloroethane	ND	5	µg/L
1,1,2-Trichloroethane	ND	5	µg/L
1,1-Dichloroethane	ND	5	µg/L
1,1-Dichloroethene	ND	5	µg/L
1,1-Dichloropropene	ND	5	µg/L
1,2,3-Trichlorobenzene	ND	5	µg/L
1,2,4-Trichlorobenzene	ND	5	µg/L
1,2,4-Trimethylbenzene	ND	5	µg/L
1,2-Dibromo-3-chloropropane	ND	5	µg/L
1,2-Dibromoethane	ND	5	µg/L
1,2-Dichlorobenzene	ND	5	µg/L
1,2-Dichloroethane	ND	5	µg/L
1,2-Dichloropropane	ND	5	µg/L
1,3,5-Trimethylbenzene	ND	5	µg/L
1,3-Dichlorobenzene	ND	5	µg/L
1,3-Dichloropropane	ND	5	µg/L
1,4-Dichlorobenzene	ND	5	µg/L
1,4-Dioxane	ND	1000	µg/L
2,2-Dichloropropane	ND	5	µg/L
2-Butanone (MEK)	ND	20	µg/L
2-Chloroethylvinyl ether	ND	20	µg/L
2-Chlorotoluene	ND	5	µg/L
2-Hexanone	ND	20	µg/L
4-Chlorotoluene	ND	5	µg/L
4-Isopropyltoluene	ND	5	µg/L
4-Methyl-2-pentanone (MIBK)	ND	20	µg/L
Acetone	ND	50	µg/L
Benzene	ND	5	µg/L
Bromobenzene	ND	5	µg/L
Bromochloromethane	ND	5	µg/L
Bromodichloromethane	ND	5	µg/L
Bromoform	ND	5	µg/L
Bromomethane	ND	5	µg/L
Carbon Disulfide	ND	5	µg/L
Carbon Tetrachloride	ND	5	µg/L

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/14/01
Sample ID:	MW-1-51401	Date Received:	NG
Laboratory ID:	0301W02296	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
Chlorobenzene	ND	5	µg/L
Chloroethane	ND	5	µg/L
Chloroform	ND	5	µg/L
Chloromethane	ND	5	µg/L
cis-1,2-Dichloroethene	ND	5	µg/L
cis-1,3-Dichloropropene	ND	5	µg/L
Dibromochloromethane	ND	5	µg/L
Dibromomethane	ND	5	µg/L
Dichlorodifluoromethane	ND	5	µg/L
Ethylbenzene	ND	5	µg/L
Ethylene Dibromide	ND	5	µg/L
Hexachlorobutadiene	ND	5	µg/L
Isopropylbenzene	ND	5	µg/L
m,p-Xylene	ND	5	µg/L
Methylene Chloride	ND	20	µg/L
MTBE	ND	5	µg/L
n-Butylbenzene	ND	5	µg/L
n-Propylbenzene	ND	5	µg/L
Naphthalene	ND	5	µg/L
o-Xylene	ND	5	µg/L
sec-Butylbenzene	ND	5	µg/L
Styrene	ND	5	µg/L
tert-Butylbenzene	ND	5	µg/L
Tetrachloroethene (PCE)	ND	5	µg/L
Toluene	ND	5	µg/L
trans-1,2-Dichloroethene	ND	5	µg/L
trans-1,3-Dichloropropene	ND	5	µg/L
trans-1,4-Dichloro-2-butene	ND	5	µg/L
Trichloroethene (TCE)	ND	5	µg/L
Trichlorofluoromethane	ND	5	µg/L
Vinyl Acetate	ND	5	µg/L
Vinyl Chloride	ND	1	µg/L

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	103	86 - 118
1,2-Dichloroethane-d4	89	80 - 120
Toluene-d8	99	88 - 110
4-Bromofluorobenzene	97	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December

Reveiwed By: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/14/01
Sample ID:	MW-1-51401	Date Received:	NG
Laboratory ID:	0301W02296	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	µg/L
1,2-Dichlorobenzene	ND	10	µg/L
1,3-Dichlorobenzene	ND	10	µg/L
1,4-Dichlorobenzene	ND	30	µg/L
1-Methylnapthalene	ND	10	µg/L
2,4,5-Trichlorophenol	ND	10	µg/L
2,4,6-Trichlorophenol	ND	10	µg/L
2,4-Dichlorophenol	ND	10	µg/L
2,4-Dimethylphenol	ND	10	µg/L
2,4-Dinitrophenol	ND	50	µg/L
2,4-Dinitrotoluene	ND	10	µg/L
2,6-Dinitrotoluene	ND	10	µg/L
2-Chloronaphthalene	ND	10	µg/L
2-Chlorophenol	ND	10	µg/L
2-Methylnaphthalene	ND	10	µg/L
2-Methylphenol	ND	10	µg/L
2-Nitroaniline	ND	50	µg/L
2-Nitrophenol	ND	10	µg/L
3,3'-Dichlorobenzidine	ND	20	µg/L
4,6-Dinitro-2-methylphenol	ND	50	µg/L
4-Bromophenyl-phenylether	ND	10	µg/L
4-Chloro-3-methylphenol	ND	20	µg/L
4-Chloroaniline	ND	20	µg/L
4-Chlorophenyl-phenylether	ND	10	µg/L
4-Methylphenol/3-Methylphenol **	ND	10	µg/L
4-Nitroaniline	ND	20	µg/L
4-Nitrophenol	ND	50	µg/L
6-Methylchrysene	ND	10	µg/L
7,12-Dimethylbenz(a)anthracene	ND	10	µg/L
Acenaphthene	ND	10	µg/L
Acenaphthylene	ND	10	µg/L
Aniline	ND	10	µg/L
Anthracene	ND	10	µg/L
Azobenzene	ND	10	µg/L
Benzidine	ND	10	µg/L
Benzo(a)anthracene	ND	10	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/14/01
Sample ID:	MW-1-51401	Date Received:	NG
Laboratory ID:	0301W02296	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Benzo(a)pyrene	ND	10	µg/L
Benzo(b)fluoranthene	ND	10	µg/L
Benzo(g,h,i)perylene	ND	10	µg/L
Benzo(j)fluoranthene	ND	10	µg/L
Benzo(k)fluoranthene	ND	10	µg/L
Benzoic Acid	ND	50	µg/L
Benzyl Alcohol	ND	20	µg/L
bis(2-Chloroethoxy)methane	ND	10	µg/L
bis(2-Chloroethyl)ether	ND	10	µg/L
bis(2-Chloroisopropyl)ether	ND	10	µg/L
bis(2-Ethylhexyl)phthalate	ND	10	µg/L
Butylbenzylphthalate	ND	10	µg/L
Chrysene	ND	10	µg/L
Di-n-Butylphthalate	ND	10	µg/L
Di-n-Octylphthalate	ND	10	µg/L
Dibenz(a,h)anthracene	ND	10	µg/L
Dibenz(a,j)acridine	ND	10	µg/L
Dibenzofuran	ND	10	µg/L
Diethylphthalate	ND	20	µg/L
Dimethylphthalate	ND	40	µg/L
Fluoranthene	ND	10	µg/L
Fluorene	ND	10	µg/L
Hexachlorobenzene	ND	10	µg/L
Hexachlorobutadiene	ND	10	µg/L
Hexachlorocyclopentadiene	ND	10	µg/L
Hexachloroethane	ND	10	µg/L
Indene	ND	10	µg/L
Indeno(1,2,3-cd)pyrene	ND	10	µg/L
Isophorone	ND	10	µg/L
N-Nitrosodi-n-propylamine	ND	10	µg/L
N-Nitrosodiphenylamine	ND	10	µg/L
Naphthalene	ND	10	µg/L
Nitrobenzene	ND	10	µg/L
Pentachlorophenol	ND	50	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/14/01
Sample ID:	MW-1-51401	Date Received:	NG
Laboratory ID:	0301W02296	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Phenanthrene	ND	10	µg/L
Phenol	ND	10	µg/L
Pyrene	ND	10	µg/L
Pyridine	ND	10	µg/L
Quinoline	ND	10	µg/L
Total Cresols	ND	10	µg/L

ND - Compound not detected at stated Detection Limit.
** - Compounds Coelute

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	39	21 - 100
Phenol-d6	27	10 - 94
Nitrobenzene-d5	54	35 - 114
2-Fluorobiphenyl	64	43 - 116
2,4,6-Tribromophenol	81	10 - 123
Terphenyl-d14	84	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1

Reveiwed By: _____

Inter·Mountain Laboratories, Inc.
2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW - 1 - 51401
Lab ID: 0301W02296
Matrix: Water
Condition: Intact

Date Reported: 02/28/02
Date Sampled: 05/14/01
Date Received: 05/16/01
Date Extracted: 05/22/01
Date Analyzed: 05/24/01

Parameter	Analytical Result	PQL	Units
POLYNUCLEAR AROMATIC HYDROCARBONS			
Acenaphthene	<2.5	2.5	µg/L
Acenaphthylene	<2.5	2.5	µg/L
Anthracene	<0.8	0.8	µg/L
Benzo(a)anthracene	<0.02	0.02	µg/L
Benzo(b)fluoranthene	<0.05	0.05	µg/L
Benzo(a)pyrene	<0.02	0.02	µg/L
Benzo(g,h,i)perylene	<0.03	0.03	µg/L
Benzo(k)fluoranthene	<0.02	0.02	µg/L
Chrysene	<0.2	0.2	µg/L
Dibenz(a,h)anthracene	<0.04	0.04	ug/L
Fluoranthene	<0.3	0.3	µg/L
Fluorene	<0.8	0.8	µg/L
Indeno(1,2,3-cd)pyrene	<0.08	0.08	µg/L
2-Methylnaphthalene	<2.5	2.5	ug/L
Naphthalene	<2.5	2.5	µg/L
Phenanthrene	<0.6	0.6	µg/L
Pyrene	<0.3	0.3	µg/L

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: William Lipps

Analyst:

EPA METHOD 8082
POLYCHLORINATED BIPHENYLS (PCBs) BY GC

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project:	Ciniza	Date Sampled:	05/14/01
Sample ID:	MW-1-51401	Date Received:	NG
Laboratory ID:	0301W02296	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Analytical Result	Detection Limit	Units
Aroclor 1016	ND	1	µg/L
Aroclor 1221	ND	2	µg/L
Aroclor 1232	ND	1	µg/L
Aroclor 1242	ND	1	µg/L
Aroclor 1248	ND	1	µg/L
Aroclor 1254	ND	1	µg/L
Aroclor 1260	ND	1	µg/L
Aroclor 1262	ND	1	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
2,4,5,6-tetrachloro-m-xylene	64	50 - 150
Decachlorobiphenyl	78	50 - 150

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 0, December 1996.

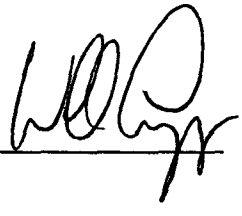
Reveiwed By: _____

ETHYLENE DIBROMIDE BY GC/ECD
Method 504

Client:	**Giant Refining Co. - Ciniza**	Date Reported:	06/07/01
Project:	Spring 2001 Groundwater	Date Sampled:	05/14/01
Sample ID:	MW-1-51401	Date Received:	05/16/01
Lab ID:	0301W02296	Date Extracted:	06/07/01
Sample Matrix:	Water	Date Analyzed:	06/07/01

Parameter	Result	Detection Limit	Units
Ethylene Dibromide	ND	0.1	ug/L

ND - Compound Not Detected At Stated Detection Limit.

Reviewed By: 

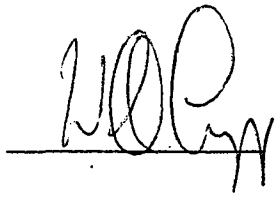
EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/14/01
Sample ID:	MW-1-51401	Date Received:	NG
Laboratory ID:	0301W02296	Date Extracted:	05/17/01
Sample Matrix:	Water	Date Analyzed:	05/17/01

Parameter	Replicate	Analytical Result	PQL	Units
9020B				
Total Organic Halides (TOX)	1	ND	30	µg/L
Total Organic Halides (TOX)	2	ND	30	µg/L
Total Organic Halides (TOX)	3	ND	30	µg/L
Total Organic Halides (TOX)	4	ND	30	µg/L

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

TOTAL ORGANIC CARBON

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	06/11/01
Sample ID:	MW-1-51401	Date Analyzed:	06/11/01
Laboratory ID:	0301W02296	Date Sampled:	05/14/01
Sample Matrix:	Water	Date Received:	05/16/01
Condition:	Intact		

	Result mg/L	MDL
Replicate #1	ND	1.00
Replicate #2	ND	1.00
Replicate #3	ND	1.00
Replicate #4	ND	1.00

ND - Analyte not detected

References: Method 415.1: TOTAL ORANIC CARBON (TOC). Test Methods For Evaluating Waste and Solid Wastes, SW-846, USEPA, 3rd Edition, Final Update II, September, 1994

Comments:

Reported By: _____ Reviewed By: _____

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW - 1 - 51401
Lab ID: 0301W02296
Matrix: Water
Condition: Intact

Date Reported: 02/28/02
Date Sampled: 05/14/01
Date Received: 05/16/01
Date Extracted: 05/21/01
Date Analyzed: 05/23/01

Parameter	Analytical Result	PQL	Units
DRO - Method 8015			
Diesel Range Organics (C10 - C22)	<30	30	mg/L
Oil Range Organics (C22 - C32)	<30	30	mg/L

Quality Control - Surrogate Recovery	%	QC Limits
o-Terphenyl(SUR-8015)	91	70 - 130

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: William Lipps

Analyst:

pH

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	06/07/01
Sample ID:	MW-1-051401	Date Analyzed:	05/16/01
Laboratory ID:	0301W02296	Date Sampled:	05/14/01
Sample Matrix:	Water	Date Received:	05/16/01
Condition:	Intact		

	Result	MDL
Replicate #1	9.0	0.1
Replicate #2	9.0	0.1
Replicate #3	9.0	0.1
Replicate #4	9.0	0.1

Comments:

Reported By: _____

Reviewed By: _____

ELECTRICAL CONDUCTIVITY

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	06/07/01
Sample ID:	MW-1-051401	Date Analyzed:	05/16/01
Laboratory ID:	0301W02296	Date Sampled:	05/14/01
Sample Matrix:	Water	Date Received:	05/16/01
Condition:	Intact		

	Result	MDL
Replicate #1	1170	10
Replicate #2	1170	10
Replicate #3	1170	10
Replicate #4	1170	10

Comments:

Reported By: _____

Reviewed By: _____

Radiation Safety Engineering, Inc.

3245 N. WASHINGTON ST. · CHANDLER, ARIZONA 85225-1121 (480) 897-9459
Website: www.radsafe.com FAX (480) 892-5446

Radiochemical Activity in Water (pCi/L)

Inter-Mountain Laboratories
2506 West Main Street
Farmington, NM 87401

Samples Received: May 21, 2001
Samples Completed: June 1, 2001

Sample ID	Radium 226 Activity method 903.1	Radium 228 Activity method 904	Total Radium Activity
MW-1-51401	< 0.2	< 0.4	< 0.4

Robert L. Metzger, Ph.D., C.H.P.

QUALITY CONTROL / QUALITY ASSURANCE

QUALITY CONTROL / QUALITY ASSURANCE

Blank Analysis

TOTAL METALS

Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	06/05/01
Sample Matrix:	Water	Date Received:	05/16/01

Method Blank Analysis

Parameter	Result	Detection Limit	Units
Aluminum	**ND**	0.05	mg/L
Arsenic	**ND**	0.005	mg/L
Barium	**ND**	0.01	mg/L
Boron	**ND**	0.01	mg/L
Cadmium	**ND**	0.001	mg/L
Chromium	**ND**	0.01	mg/L
Cobalt	**ND**	0.01	mg/L
Copper	**ND**	0.01	mg/L
Iron	**ND**	0.02	mg/L
Lead	**ND**	0.005	mg/L
Manganese	**ND**	0.01	mg/L
Mercruy	**ND**	0.001	mg/L
Molybdenum	**ND**	0.01	mg/L
Nickel	**ND**	0.01	mg/L
Selenium	**ND**	0.005	mg/L
Silver	**ND**	0.01	mg/L
Uranium	**ND**	0.1	mg/L
Zinc	**ND**	0.025	mg/L

References: Method 6010: Acid Digestion for Water and Waste Water, SW-846, Rev. 1, July 1992.

Comments:

Reported by _____

Reviewed by _____

QUALITY CONTROL / QUALITY ASSURANCE

Spike Analysis

TOTAL METALS

Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	06/05/01
Sample Matrix:	Water	Date Received:	05/16/01

Spike Analysis

Parameter	Spike Result (mg/L)	Sample Result (mg/L)	Spike Added (mg/L)	Percent Recovery
Aluminum	1.27	0.75	0.50	**104%**
Arsenic	0.011	<0.005	0.010	**111%**
Barium	0.88	<0.01	1.00	**88%**
Boron	0.11	<0.01	0.10	**107%**
Cadmium	0.003	<0.001	0.003	**100%**
Chromium	0.10	<0.01	0.10	**103%**
Cobalt	0.09	<0.01	0.10	**94%**
Copper	0.10	<0.01	0.10	**103%**
Iron	1.19	0.66	0.50	**106%**
Lead	0.024	<0.005	0.025	**95%**
Manganese	1.68	1.10	0.50	**116%**
Mercury	0.002	<0.001	0.002	**113%**
Molybdenum	0.10	<0.01	0.10	**98%**
Nickel	0.10	<0.01	0.10	**96%**
Selenium	0.025	<0.005	0.025	**99%**
Silver	0.08	<0.01	0.10	**81%**
Uranium	0.5	<0.1	0.5	**104%**
Zinc	0.110	<0.025	0.100	**110%**

References: Method 6010: Acid Digestion for Water and Waste Water, SW-846, Rev. 1, July 1992.

Comments:

Reported by _____

Reviewed by _____

QUALITY CONTROL / QUALITY ASSURANCE

Known Analysis

TOTAL METALS

Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	06/05/01
Sample Matrix:	Water	Date Received:	05/16/01

Known Analysis

Parameter	Found Result	Known Result	Percent Recovery	Units
Aluminum	1.88	2.00	**94%**	mg/L
Arsenic	0.039	0.040	**98%**	mg/L
Barium	1.94	2.00	**97%**	mg/L
Boron	1.83	2.00	**92%**	mg/L
Cadmium	0.005	0.005	**102%**	mg/L
Chromium	1.97	2.00	**99%**	mg/L
Cobalt	1.91	2.00	**96%**	mg/L
Copper	1.85	2.00	**93%**	mg/L
Iron	1.88	2.00	**94%**	mg/L
Lead	0.051	0.050	**103%**	mg/L
Manganese	1.82	2.00	**91%**	mg/L
Mercury	0.003	0.003	**108%**	mg/L
Molybdenum	2.00	2.00	**100%**	mg/L
Nickel	1.95	2.00	**98%**	mg/L
Selenium	0.020	0.020	**100%**	mg/L
Silver	0.23	0.25	**92%**	mg/L
Uranium	1.90	2.00	**95%**	mg/L
Zinc	1.92	2.00	**96%**	mg/L

References: Method 6010: Acid Digestion for Water and Waste Water, SW-846, Rev. 1, July 1992.

Comments:

Reported by _____

Reviewed by _____

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	V3MB01-141	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
1,1,1,2-Tetrachloroethane	ND	5	µg/L
1,1,1-Trichloroethane	ND	5	µg/L
1,1,2,2-Tetrachloroethane	ND	5	µg/L
1,1,2-Trichloroethane	ND	5	µg/L
1,1-Dichloroethane	ND	5	µg/L
1,1-Dichloroethene	ND	5	µg/L
1,1-Dichloropropene	ND	5	µg/L
1,2,3-Trichlorobenzene	ND	5	µg/L
1,2,4-Trichlorobenzene	ND	5	µg/L
1,2,4-Trimethylbenzene	ND	5	µg/L
1,2-Dibromo-3-chloropropane	ND	5	µg/L
1,2-Dibromoethane	ND	5	µg/L
1,2-Dichlorobenzene	ND	5	µg/L
1,2-Dichloroethane	ND	5	µg/L
1,2-Dichloropropane	ND	5	µg/L
1,3,5-Trimethylbenzene	ND	5	µg/L
1,3-Dichlorobenzene	ND	5	µg/L
1,3-Dichloropropane	ND	5	µg/L
1,4-Dichlorobenzene	ND	5	µg/L
1,4-Dioxane	ND	1000	µg/L
2,2-Dichloropropane	ND	5	µg/L
2-Butanone (MEK)	ND	20	µg/L
2-Chloroethylvinyl ether	ND	20	µg/L
2-Chlorotoluene	ND	5	µg/L
2-Hexanone	ND	20	µg/L
4-Chlorotoluene	ND	5	µg/L
4-Isopropyltoluene	ND	5	µg/L
4-Methyl-2-pentanone (MIBK)	ND	20	µg/L
Acetone	ND	50	µg/L
Benzene	ND	5	µg/L
Bromobenzene	ND	5	µg/L
Bromochloromethane	ND	5	µg/L
Bromodichloromethane	ND	5	µg/L
Bromoform	ND	5	µg/L
Bromomethane	ND	5	µg/L
Carbon Disulfide	ND	5	µg/L
Carbon Tetrachloride	ND	5	µg/L

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	V3MB01-141	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
Chlorobenzene	ND	5	µg/L
Chloroethane	ND	5	µg/L
Chloroform	ND	5	µg/L
Chloromethane	ND	5	µg/L
cis-1,2-Dichloroethene	ND	5	µg/L
cis-1,3-Dichloropropene	ND	5	µg/L
Dibromochloromethane	ND	5	µg/L
Dibromomethane	ND	5	µg/L
Dichlorodifluoromethane	ND	5	µg/L
Ethylbenzene	ND	5	µg/L
Ethylene Dibromide	ND	5	µg/L
Hexachlorobutadiene	ND	5	µg/L
Isopropylbenzene	ND	5	µg/L
m,p-Xylene	ND	5	µg/L
Methylene Chloride	ND	20	µg/L
MTBE	ND	5	µg/L
n-Butylbenzene	ND	5	µg/L
n-Propylbenzene	ND	5	µg/L
Naphthalene	ND	5	µg/L
o-Xylene	ND	5	µg/L
sec-Butylbenzene	ND	5	µg/L
Styrene	ND	5	µg/L
tert-Butylbenzene	ND	5	µg/L
Tetrachloroethene (PCE)	ND	5	µg/L
Toluene	ND	5	µg/L
trans-1,2-Dichloroethene	ND	5	µg/L
trans-1,3-Dichloropropene	ND	5	µg/L
trans-1,4-Dichloro-2-butene	ND	5	µg/L
Trichloroethene (TCE)	ND	5	µg/L
Trichlorofluoromethane	ND	5	µg/L
Vinyl Acetate	ND	5	µg/L
Vinyl Chloride	ND	1	µg/L

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	101	86 - 118
1,2-Dichloroethane-d4	94	80 - 120
Toluene-d8	98	88 - 110
4-Bromofluorobenzene	99	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Blank Spike/Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	V3BSD01-141	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
1,1-Dichloroethene	ND	50	52	105	53	106	1
Benzene	ND	50	48	96	47	94	1
Chlorobenzene	ND	50	56	112	54	108	4
Toluene	ND	50	50	101	49	97	4
Trichloroethene (TCE)	ND	50	50	101	51	102	1

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Dup %	Water QC Limits
Dibromofluoromethane	100	102	86 - 118
1,2-Dichloroethane-d4	97	99	80 - 120
Toluene-d8	99	100	88 - 110
4-Bromofluorobenzene	102	99	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Matrix Spike Analysis

Sample ID:	Matrix Spike	Date Reported:	06/07/01
Laboratory ID:	1301G01081MS	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %
1,1-Dichloroethene	ND	50	56	111
Benzene	ND	50	48	97
Chlorobenzene	ND	50	55	110
Toluene	ND	50	51	102
Trichloroethene (TCE)	ND	50	52	104

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	103	86 - 118
1,2-Dichloroethane-d4	100	80 - 120
Toluene-d8	101	88 - 110
4-Bromofluorobenzene	96	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Blank Spike/Duplicate Analysis

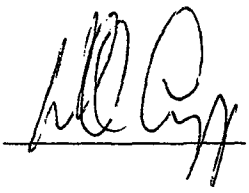
Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	V3BSD01-141	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
1,1-Dichloroethene	ND	50	52	105	53	106	1
Benzene	ND	50	48	96	47	94	1
Chlorobenzene	ND	50	56	112	54	108	4
Toluene	ND	50	50	101	49	97	4
Trichloroethene (TCE)	ND	50	50	101	51	102	1

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Dup %	Water QC Limits
Dibromofluoromethane	100	102	86 - 118
1,2-Dichloroethane-d4	97	99	80 - 120
Toluene-d8	99	100	88 - 110
4-Bromofluorobenzene	102	99	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Matrix Spike Analysis

Sample ID:	Matrix Spike	Date Reported:	06/07/01
Laboratory ID:	1301G01081MS	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %
1,1-Dichloroethene	ND	50	56	111
Benzene	ND	50	48	97
Chlorobenzene	ND	50	55	110
Toluene	ND	50	51	102
Trichloroethene (TCE)	ND	50	52	104

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	103	86 - 118
1,2-Dichloroethane-d4	100	80 - 120
Toluene-d8	101	88 - 110
4-Bromofluorobenzene	96	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	µg/L
1,2-Dichlorobenzene	ND	10	µg/L
1,3-Dichlorobenzene	ND	10	µg/L
1,4-Dichlorobenzene	ND	30	µg/L
1-Methylnapthalene	ND	10	µg/L
2,4,5-Trichlorophenol	ND	10	µg/L
2,4,6-Trichlorophenol	ND	10	µg/L
2,4-Dichlorophenol	ND	10	µg/L
2,4-Dimethylphenol	ND	10	µg/L
2,4-Dinitrophenol	ND	50	µg/L
2,4-Dinitrotoluene	ND	10	µg/L
2,6-Dinitrotoluene	ND	10	µg/L
2-Chloronaphthalene	ND	10	µg/L
2-Chlorophenol	ND	10	µg/L
2-Methylnaphthalene	ND	10	µg/L
2-Methylphenol	ND	10	µg/L
2-Nitroaniline	ND	50	µg/L
2-Nitrophenol	ND	10	µg/L
3,3'-Dichlorobenzidine	ND	20	µg/L
4,6-Dinitro-2-methylphenol	ND	50	µg/L
4-Bromophenyl-phenylether	ND	10	µg/L
4-Chloro-3-methylphenol	ND	20	µg/L
4-Chloroaniline	ND	20	µg/L
4-Chlorophenyl-phenylether	ND	10	µg/L
4-Methylphenol/3-Methylphenol **	ND	10	µg/L
4-Nitroaniline	ND	20	µg/L
4-Nitrophenol	ND	50	µg/L
6-Methylchrysene	ND	10	µg/L
7,12-Dimethylbenz(a)anthracene	ND	10	µg/L
Acenaphthene	ND	10	µg/L
Acenaphthylene	ND	10	µg/L
Aniline	ND	10	µg/L
Anthracene	ND	10	µg/L
Azobenzene	ND	10	µg/L
Benzidine	ND	10	µg/L
Benzo(a)anthracene	ND	10	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Benzo(a)pyrene	ND	10	µg/L
Benzo(b)fluoranthene	ND	10	µg/L
Benzo(g,h,i)perylene	ND	10	µg/L
Benzo(j)fluoranthene	ND	10	µg/L
Benzo(k)fluoranthene	ND	10	µg/L
Benzoic Acid	ND	50	µg/L
Benzyl Alcohol	ND	20	µg/L
bis(2-Chloroethoxy)methane	ND	10	µg/L
bis(2-Chloroethyl)ether	ND	10	µg/L
bis(2-Chloroisopropyl)ether	ND	10	µg/L
bis(2-Ethylhexyl)phthalate	ND	10	µg/L
Butylbenzylphthalate	ND	10	µg/L
Chrysene	ND	10	µg/L
Di-n-Butylphthalate	ND	10	µg/L
Di-n-Octylphthalate	ND	10	µg/L
Dibenz(a,h)anthracene	ND	10	µg/L
Dibenz(a,j)acridine	ND	10	µg/L
Dibenzofuran	ND	10	µg/L
Diethylphthalate	ND	20	µg/L
Dimethylphthalate	ND	40	µg/L
Fluoranthene	ND	10	µg/L
Fluorene	ND	10	µg/L
Hexachlorobenzene	ND	10	µg/L
Hexachlorobutadiene	ND	10	µg/L
Hexachlorocyclopentadiene	ND	10	µg/L
Hexachloroethane	ND	10	µg/L
Indene	ND	10	µg/L
Indeno(1,2,3-cd)pyrene	ND	10	µg/L
Isophorone	ND	10	µg/L
N-Nitrosodi-n-propylamine	ND	10	µg/L
N-Nitrosodiphenylamine	ND	10	µg/L
Naphthalene	ND	10	µg/L
Nitrobenzene	ND	10	µg/L
Pentachlorophenol	ND	50	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Phenanthrene	ND	10	µg/L
Phenol	ND	10	µg/L
Pyrene	ND	10	µg/L
Pyridine	ND	10	µg/L
Quinoline	ND	10	µg/L
Total Cresols	ND	10	µg/L

ND - Compound not detected at stated Detection Limit.
** - Compounds Coelute

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	38	21 - 100
Phenol-d6	27	10 - 94
Nitrobenzene-d5	47	35 - 114
2-Fluorobiphenyl	55	43 - 116
2,4,6-Tribromophenol	74	10 - 123
Terphenyl-d14	82	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 19

Reveiwed By: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Blank Spike/Spike Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	BSD01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

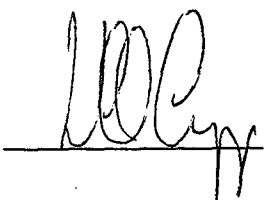
Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
1,2,4-Trichlorobenzene	ND	100	67	67	62	62	8
1,4-Dichlorobenzene	ND	100	59	59	54	54	9
2,4-Dinitrotoluene	ND	100	70	70	66	66	5
2-Chlorophenol	ND	200	129	65	119	60	8
4-Chloro-3-methylphenol	ND	200	124	62	117	59	5
4-Nitrophenol	ND	200	52	26	50	25	3
Acenaphthene	ND	100	65	65	62	62	6
N-Nitrosodi-n-propylamine	ND	100	80	80	76	76	6
Pentachlorophenol	ND	200	130	65	120	60	8
Phenol	ND	200	56	28	55	27	2
Pyrene	ND	100	95	95	92	92	3

ND - Compound not detected at stated Detection Limit.

QUALITY CONTROL:

Surrogate Recoveries	%	Dup %	Water QC Limits
2-Fluorophenol	46	41	21 - 100
Phenol-d6	30	28	10 - 94
Nitrobenzene-d5	62	57	35 - 114
2-Fluorobiphenyl	70	65	43 - 116
2,4,6-Tribromophenol	96	90	10 - 123
Terphenyl-d14	85	80	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Matrix Spike Analysis

Sample ID:	Matrix Spike	Date Reported:	06/07/01
Laboratory ID:	1301W01023MS	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %
1,2,4-Trichlorobenzene	ND	100	66	66
1,4-Dichlorobenzene	ND	100	57	57
2,4-Dinitrotoluene	ND	100	70	70
2-Chlorophenol	ND	200	126	63
4-Chloro-3-methylphenol	ND	200	124	62
4-Nitrophenol	ND	200	53	26
Acenaphthene	ND	100	65	65
N-Nitrosodi-n-propylamine	ND	100	79	79
Pentachlorophenol	ND	200	136	68
Phenol	ND	200	54	27
Pyrene	ND	100	94	94

ND - Compound not detected at stated Detection Limit.

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	39	21 - 100
Phenol-d6	27	10 - 94
Nitrobenzene-d5	60	35 - 114
2-Fluorobiphenyl	66	43 - 116
2,4,6-Tribromophenol	95	10 - 123
Terphenyl-d14	81	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 19

Reveiwed By: _____

Quality Control / Quality Assurance

Polynuclear Aromatic Hydrocarbons

Method Blank

Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	05/24/01
Lab ID:	0301W02296	Date Received:	05/16/01
Sample Matrix:	Water		

Analyte	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	2.5
Acenapthylene	ND	ug/L	2.5
Anthracene	ND	ug/L	0.5
Benzo(a)anthracene	ND	ug/L	0.02
Benzo(b)fluoranthene	ND	ug/L	0.05
Benzo(a)pyrene	ND	ug/L	0.02
Benzo(g,h,i)perylene	ND	ug/L	0.03
Benzo(k)fluoranthene	ND	ug/L	0.02
Chrysene	ND	ug/L	0.2
Dibenz(a,h)anthracene	ND	ug/L	0.04
Fluoranthene	ND	ug/L	0.3
Fluorene	ND	ug/L	0.5
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.08
2-Methylnaphthene	ND	ug/L	2.5
Naphthalene	ND	ug/L	2.5
Phenanthrene	ND	ug/L	0.5
Pyrene	ND	ug/L	0.3

Reference: SM - "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995.

Reviewed By: _____

Quality Control / Quality Assurance

Polynuclear Aromatic Hydrocarbons

Spike Analysis

Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	05/24/01
Lab ID:	0301W02296	Date Received:	05/16/01
Sample Matrix:	Water		

Analyte	Concentration Spiked	Concentration Measured	Accuracy % LCS	Accuracy % Limits
Naphthalene	40.4	29.4	73	41-82
Acenaphthylene	40.4	29.8	74	43-91
Acenaphthene	40.4	31.1	77	48-85
Fluorene	4.1	3.07	75	48-87
Phenanthrene	3.07	2.47	80	60-86
Fluoranthene	1.92	1.72	90	72-96
Pyrene	3.85	3.52	91	73-96
Benzo(a)pyrene	0.253	0.247	98	66-118
Benzo(g,h,i)perylene	0.553	0.550	99	79-112

Surrogates	Result %	Accuracy % Limits
Benzo(a)pyrene	90	54.5-116

Reference: SM - "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995.

Reviewed By: _____

EPA METHOD 8082
POLYCHLORINATED BIPHENYLS (PCBs) BY GC
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Analytical Result	Detection Limit	Units
Aroclor 1016	ND	1	µg/L
Aroclor 1221	ND	2	µg/L
Aroclor 1232	ND	1	µg/L
Aroclor 1242	ND	1	µg/L
Aroclor 1248	ND	1	µg/L
Aroclor 1254	ND	1	µg/L
Aroclor 1260	ND	1	µg/L
Aroclor 1262	ND	1	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
2,4,5,6-tetrachloro-m-xylene	50	50 - 150
Decachlorobiphenyl	78	50 - 150

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 0, December 1996.

Reveiwed By: _____

ETHYLENE DIBROMIDE BY GC/ECD

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-158	Date Extracted:	06/07/01
Sample Matrix:	Water	Date Analyzed:	06/07/01

Parameter	Analytical Result	Detection Limit	Units
Ethylene Dibromide	ND	0.1	µg/L

ND - Compound not detected at stated Detection Limit.

Reveiwed By: _____

ETHYLENE DIBROMIDE BY GC/ECD

Blank Spike Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	BSD01-137	Date Extracted:	06/07/01
Sample Matrix:	Water	Date Analyzed:	06/07/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
Ethylene Dibromide	ND	2	2.1	105	2.3	115	9

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

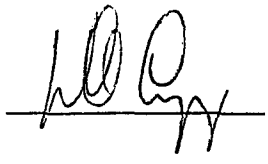
EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-137	Date Extracted:	05/17/01
Sample Matrix:	Water	Date Analyzed:	05/17/01

Parameter	Analytical Result	PQL	Units
9020B			
Total Organic Halides (TOX)	ND	30	µg/L

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)
Blank Spike Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	BSD01-137	Date Extracted:	05/17/01
Sample Matrix:	Water	Date Analyzed:	05/17/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
9020B							
Total Organic Halides (TOX	ND	50	60	121	54	108	11

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

iml Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM 87401

GIANT REFINING – CINIZA
SPRING 2001 GROUNDWATER
MW - 2 - 051501

Case Narrative

On May 17, 2001, one water sample was submitted to Inter-Mountain Laboratories - Farmington for analysis. The parameters performed on the sample are indicated on the accompanying Chain of Custody.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The methods used in the analysis of the sample reported herein are found in: EPA – "Methods for Chemical Analysis of water and Wastes (MCAWW)", EPA 600/4-79-020 – March. 1983, "Methods for the Determination of Metals in Environmental Samples", Supplement I – 600/R-94-111 – May, 1994, SM – "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF, 19th Edition, 1995.

Quality control data appear at the end of the analytical report and may be identified by title. If there are any questions regarding the information presented in this report package, please feel free to contact us at your convenience.

Sincerely,

Sharon Williams
Organic Analyst/IML-Farmington

imi
Inter- Mountain
Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
~~Giant~~ Spring 2001 Groundwater Event	Giant - Ciniza	
Sampler: (Signature) SC Hobbs	**Chain of Custody Tape No.**	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	Remarks
MW-2-51501	5/15/01	1400	2398	Water	25	See attached list for parameters

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
SC Hobbs	5/16/01	0930			
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**
			Sharon Williams	5/17/01	0910

Inter-Mountain Laboratories, Inc.

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Farmington, NM 87401
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☐ 11183 State Hwy. 30
College Station, TX 77845
Telephone (979) 776-8945

69783

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

CASE NARRATIVE

Client:	Giant Refining Company
Project:	Ciniza Groundwater
Set number:	0301W02348
Date received:	05-17-01
Date reported:	06-07-01
Chain of Custody:	69783

Inter-Mountain Laboratories, Inc., Farmington, NM received the samples listed above for analysis in a cool, 4° C, and intact condition. Enclosed are the results of the sample analyses.

Comment:

The sample, MW-2-51501, was tested for Ethylene Dibromide initially by Method 8260B within the recommended holding time. The result of the Method 8260B analysis was None Detected to a MDL of 5 ug/L. A subsequent analysis of the sample was performed by Method 504 beyond the recommended holding time. The result of the Method 504 analysis was also None Detected to a MDL of 0.1 ug/L.

I apologize for the hold time exceedances and for any inconvenience this may have caused.

If you have any question concerning the data, please feel free to call the laboratory, (505) 326-4737.

Thank you.

Wes Harvey
Laboratory Director
IML-Farmington

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW-2-051501
Lab ID: 0301W02348
Matrix: Water
Condition: Intact

Date Received: 05/17/01
Date Reported: 06/12/01
Date Sampled: 05/15/01
Time Sampled: 1400

Parameter	Analytical Result	Units		Units	PQL	Method	Analysis Date	Time	Init.
General Parameters									
PH	9.0	s.u.			0.1	EPA 150.1	05/17/01	1600	MC
Electrical Conductivity	1,160	µmhos/cm			10	EPA 120.1	05/17/01	1600	MC
Solids - Total Dissolved	704	mg/L			1	SW-846 8081	05/21/01	0800	MC
Solids - Total Suspended	5	mg/L			2	EPA 160.2	05/22/01	1130	MC
Alkalinity (CaCO3)	346	mg/L			1	EPA 310.1	05/21/01	1410	MC
Cyanide (Total) - Colorimetric	<0.01	mg/L			0.01	EPA 335.2	05/23/01	0800	KB
Hardness (CaCO3)	4	mg/L			1	EPA 200.7	06/08/01	1528	WL
Phosphorus - Ortho-P	0.10	mg/L			0.02	SM 4500P-E	06/11/01	1409	MC
Total Phenolics	0.02	mg/L			0.01	EPA 420.1	05/23/01	0800	KB
Major Anions									
Bicarbonate (HCO3)	364	mg/L	5.96	meq/L	1	EPA 310.1	05/21/01	1410	MC
Carbonate (CO3)	29	mg/L	0.96	meq/L	1	EPA 310.1	05/21/01	1410	MC
Chloride	61	mg/L	1.73	meq/L	1	EPA 300.0	06/07/01	1600	WL
Bromide (Br)	<0.05	mg/L	<0.01	meq/L	0.05	EPA 300.0	06/07/01	1600	WL
Fluoride	0.6	mg/L	<0.01	meq/L	0.1	EPA 300.0	06/07/01	1600	WL
Hydroxide (OH)	<1	mg/L	<0.01	meq/L	1	EPA 310.1	05/21/01	1410	MC
Nitrogen - Nitrate/Nitrite	<0.05	mg/L	<0.01	meq/L	0.05	EPA 353.2	06/07/01	1600	WL
Sulfate	149	mg/L	3.10	meq/L	5	EPA 300.0	06/07/01	1600	WL
Major Cations									
Calcium	1.5	mg/L	0.07	meq/L	0.2	EPA 200.7	06/08/01	1531	WL
Magnesium	<0.2	mg/L	0.01	meq/L	0.2	EPA 200.7	06/08/01	1531	WL
Potassium	0.6	mg/L	0.02	meq/L	0.2	EPA 200.7	06/08/01	1531	WL
Sodium	276	mg/L	12.00	meq/L	0.2	EPA 200.7	06/08/01	1531	WL
Anion/Cation Balance QC Information									
Anion Sum			11.78	meq/L	N/A	N/A			
Cation Sum			12.09	meq/L	N/A	N/A			
Cation/Anion Balance			1.30	%	N/A	N/A			

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes (MCAWW)" - EPA/600/4-79-020 - March, 1983.
SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.
EPA - "Methods for the Determination of Metals in Environmental Samples" - Supplement I - 600/R-94-111 - May, 1994.

Reviewed By:

William Lipps

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW-2-051501
Lab ID: 0301W02348
Matrix: Water
Condition: Intact

Date Received: 05/17/01
Date Reported: 06/11/01
Date Sampled: 05/15/01
Time Sampled: 1400

Parameter	Analytical Result	Units	Units	PQL	Method	Analysis Date	Time	Init.
Total Metals								
Aluminum	<0.05	mg/L		0.05	EPA 200.7	05/22/01	1529	WL
Arsenic	<0.005	mg/L		0.005	SM 3114B	05/31/01	1615	JG
Barium	0.02	mg/L		0.01	EPA 200.7	05/22/01	1529	WL
Boron	0.66	mg/L		0.01	EPA 200.7	05/22/01	1529	WL
Cadmium	<0.001	mg/L		0.001	EPA 200.9	06/04/01	1050	SW
Chromium	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1529	WL
Cobalt	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1529	WL
Copper	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1529	WL
Iron	0.02	mg/L		0.02	EPA 200.7	05/22/01	1529	WL
Lead	<0.005	mg/L		0.005	EPA 200.9	06/05/01	0840	SW
Manganese	0.02	mg/L		0.01	EPA 200.7	05/22/01	1529	WL
Mercury	<0.001	mg/L		0.001	EPA 245.1	05/31/01	1000	BB
Molybdenum	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1529	WL
Nickel	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1529	WL
Selenium	<0.005	mg/L		0.005	SM 3114B	05/22/01	1200	JG
Silver	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1529	WL
Uranium	<0.3	mg/L		0.3	EPA 200.7	05/22/01	1529	WL
Zinc	<0.025	mg/L		0.025	EPA 200.7	05/22/01	1529	WL

Reference: EPA - "Methods for the Determination of Metals in Environmental Samples" - Supplement I - 600/R-94-111 - May, 1994.
SM - "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF,19th Edition, 1995.

Reviewed By: William Lipps

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	MW-2-51501	Date Received:	NG
Laboratory ID:	0301W02348	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
1,1,1,2-Tetrachloroethane	ND	5	µg/L
1,1,1-Trichloroethane	ND	5	µg/L
1,1,2,2-Tetrachloroethane	ND	5	µg/L
1,1,2-Trichloroethane	ND	5	µg/L
1,1-Dichloroethane	ND	5	µg/L
1,1-Dichloroethene	ND	5	µg/L
1,1-Dichloropropene	ND	5	µg/L
1,2,3-Trichlorobenzene	ND	5	µg/L
1,2,4-Trichlorobenzene	ND	5	µg/L
1,2,4-Trimethylbenzene	ND	5	µg/L
1,2-Dibromo-3-chloropropane	ND	5	µg/L
1,2-Dibromoethane	ND	5	µg/L
1,2-Dichlorobenzene	ND	5	µg/L
1,2-Dichloroethane	ND	5	µg/L
1,2-Dichloropropane	ND	5	µg/L
1,3,5-Trimethylbenzene	ND	5	µg/L
1,3-Dichlorobenzene	ND	5	µg/L
1,3-Dichloropropane	ND	5	µg/L
1,4-Dichlorobenzene	ND	5	µg/L
1,4-Dioxane	ND	1000	µg/L
2,2-Dichloropropane	ND	5	µg/L
2-Butanone (MEK)	ND	20	µg/L
2-Chloroethylvinyl ether	ND	20	µg/L
2-Chlorotoluene	ND	5	µg/L
2-Hexanone	ND	20	µg/L
4-Chlorotoluene	ND	5	µg/L
4-Isopropyltoluene	ND	5	µg/L
4-Methyl-2-pentanone (MIBK)	ND	20	µg/L
Acetone	ND	50	µg/L
Benzene	ND	5	µg/L
Bromobenzene	ND	5	µg/L
Bromochloromethane	ND	5	µg/L
Bromodichloromethane	ND	5	µg/L
Bromoform	ND	5	µg/L
Bromomethane	ND	5	µg/L
Carbon Disulfide	ND	5	µg/L
Carbon Tetrachloride	ND	5	µg/L

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	MW-2-51501	Date Received:	NG
Laboratory ID:	0301W02348	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
Chlorobenzene	ND	5	µg/L
Chloroethane	ND	5	µg/L
Chloroform	ND	5	µg/L
Chloromethane	ND	5	µg/L
cis-1,2-Dichloroethene	ND	5	µg/L
cis-1,3-Dichloropropene	ND	5	µg/L
Dibromochloromethane	ND	5	µg/L
Dibromomethane	ND	5	µg/L
Dichlorodifluoromethane	ND	5	µg/L
Ethylbenzene	ND	5	µg/L
Ethylene Dibromide	ND	5	µg/L
Hexachlorobutadiene	ND	5	µg/L
Isopropylbenzene	ND	5	µg/L
m,p-Xylene	ND	5	µg/L
Methylene Chloride	ND	20	µg/L
MTBE	ND	5	µg/L
n-Butylbenzene	ND	5	µg/L
n-Propylbenzene	ND	5	µg/L
Naphthalene	ND	5	µg/L
o-Xylene	ND	5	µg/L
sec-Butylbenzene	ND	5	µg/L
Styrene	ND	5	µg/L
tert-Butylbenzene	ND	5	µg/L
Tetrachloroethene (PCE)	ND	5	µg/L
Toluene	ND	5	µg/L
trans-1,2-Dichloroethene	ND	5	µg/L
trans-1,3-Dichloropropene	ND	5	µg/L
trans-1,4-Dichloro-2-butene	ND	5	µg/L
Trichloroethene (TCE)	ND	5	µg/L
Trichlorofluoromethane	ND	5	µg/L
Vinyl Acetate	ND	5	µg/L
Vinyl Chloride	ND	1	µg/L

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	104	86 - 118
1,2-Dichloroethane-d4	97	80 - 120
Toluene-d8	97	88 - 110
4-Bromofluorobenzene	96	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	MW-2-51501	Date Received:	NG
Laboratory ID:	0301W02348	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	µg/L
1,2-Dichlorobenzene	ND	10	µg/L
1,3-Dichlorobenzene	ND	10	µg/L
1,4-Dichlorobenzene	ND	30	µg/L
1-Methylnapthalene	ND	10	µg/L
2,4,5-Trichlorophenol	ND	10	µg/L
2,4,6-Trichlorophenol	ND	10	µg/L
2,4-Dichlorophenol	ND	10	µg/L
2,4-Dimethylphenol	ND	10	µg/L
2,4-Dinitrophenol	ND	50	µg/L
2,4-Dinitrotoluene	ND	10	µg/L
2,6-Dinitrotoluene	ND	10	µg/L
2-Chloronaphthalene	ND	10	µg/L
2-Chlorophenol	ND	10	µg/L
2-Methylnaphthalene	ND	10	µg/L
2-Methylphenol	ND	10	µg/L
2-Nitroaniline	ND	50	µg/L
2-Nitrophenol	ND	10	µg/L
3,3'-Dichlorobenzidine	ND	20	µg/L
4,6-Dinitro-2-methylphenol	ND	50	µg/L
4-Bromophenyl-phenylether	ND	10	µg/L
4-Chloro-3-methylphenol	ND	20	µg/L
4-Chloroaniline	ND	20	µg/L
4-Chlorophenyl-phenylether	ND	10	µg/L
4-Methylphenol/3-Methylphenol **	ND	10	µg/L
4-Nitroaniline	ND	20	µg/L
4-Nitrophenol	ND	50	µg/L
6-Methylchrysene	ND	10	µg/L
7,12-Dimethylbenz(a)anthracene	ND	10	µg/L
Acenaphthene	ND	10	µg/L
Acenaphthylene	ND	10	µg/L
Aniline	ND	10	µg/L
Anthracene	ND	10	µg/L
Benzobenzene	ND	10	µg/L
Benzidine	ND	10	µg/L
Benzo(a)anthracene	ND	10	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	MW-2-51501	Date Received:	NG
Laboratory ID:	0301W02348	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Benzo(a)pyrene	ND	10	µg/L
Benzo(b)fluoranthene	ND	10	µg/L
Benzo(g,h,i)perylene	ND	10	µg/L
Benzo(j)fluoranthene	ND	10	µg/L
Benzo(k)fluoranthene	ND	10	µg/L
Benzoic Acid	ND	50	µg/L
Benzyl Alcohol	ND	20	µg/L
bis(2-Chloroethoxy)methane	ND	10	µg/L
bis(2-Chloroethyl)ether	ND	10	µg/L
bis(2-Chloroisopropyl)ether	ND	10	µg/L
bis(2-Ethylhexyl)phthalate	ND	10	µg/L
Butylbenzylphthalate	ND	10	µg/L
Chrysene	ND	10	µg/L
Di-n-Butylphthalate	ND	10	µg/L
Di-n-Octylphthalate	ND	10	µg/L
Dibenz(a,h)anthracene	ND	10	µg/L
Dibenz(a,j)acridine	ND	10	µg/L
Dibenzofuran	ND	10	µg/L
Diethylphthalate	ND	20	µg/L
Dimethylphthalate	ND	40	µg/L
Fluoranthene	ND	10	µg/L
Fluorene	ND	10	µg/L
Hexachlorobenzene	ND	10	µg/L
Hexachlorobutadiene	ND	10	µg/L
Hexachlorocyclopentadiene	ND	10	µg/L
Hexachloroethane	ND	10	µg/L
Indene	ND	10	µg/L
Indeno(1,2,3-cd)pyrene	ND	10	µg/L
Isophorone	ND	10	µg/L
N-Nitrosodi-n-propylamine	ND	10	µg/L
N-Nitrosodiphenylamine	ND	10	µg/L
Naphthalene	ND	10	µg/L
Nitrobenzene	ND	10	µg/L
Pentachlorophenol	ND	50	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	MW-2-51501	Date Received:	NG
Laboratory ID:	0301W02348	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Phenanthrene	ND	10	µg/L
Phenol	ND	10	µg/L
Pyrene	ND	10	µg/L
Pyridine	ND	10	µg/L
Quinoline	ND	10	µg/L
Total Cresols	ND	10	µg/L

ND - Compound not detected at stated Detection Limit.
** - Compounds Coelute

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	36	21 - 100
Phenol-d6	28	10 - 94
Nitrobenzene-d5	49	35 - 114
2-Fluorobiphenyl	57	43 - 116
2,4,6-Tribromophenol	95	10 - 123
Terphenyl-d14	95	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____ Analyst: _____

Inter-Mountain Laboratories, Inc.
2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW-2-051501
Lab ID: 0301W02348
Matrix: Water
Condition: Intact

Date Reported: 06/11/01
Date Sampled: 05/15/01
Date Received: 05/17/01
Date Extracted: 05/22/01
Date Analyzed: 05/24/01

Parameter	Analytical Result	PQL	Units
POLYNUCLEAR AROMATIC HYDROCARBONS			
Acenaphthene	<2.5	2.5	µg/L
Acenaphthylene	<2.5	2.5	µg/L
Anthracene	<0.8	0.8	µg/L
Benzo(a)anthracene	<0.02	0.02	µg/L
Benzo(b)fluoranthene	<0.05	0.05	µg/L
Benzo(a)pyrene	<0.02	0.02	µg/L
Benzo(g,h,i)perylene	<0.03	0.03	µg/L
Benzo(k)fluoranthene	<0.02	0.02	µg/L
Chrysene	<0.2	0.2	µg/L
Dibenz(a,h)anthracene	<0.04	0.04	ug/L
Fluoranthene	<0.3	0.3	µg/L
Fluorene	<0.8	0.8	µg/L
Indeno(1,2,3-cd)pyrene	<0.08	0.08	µg/L
2-Methylnaphthalene	<2.5	2.5	ug/L
Naphthalene	<2.5	2.5	µg/L
Phenanthrene	<0.6	0.6	µg/L
Pyrene	<0.3	0.3	µg/L

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: William Lipps

Analyst:

EPA METHOD 8082
POLYCHLORINATED BIPHENYLS (PCBs) BY GC

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project:	Ciniza	Date Sampled:	05/15/01
Sample ID:	MW-2-51501	Date Received:	NG
Laboratory ID:	0301W02348	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Analytical Result	Detection Limit	Units
Aroclor 1016	ND	1	µg/L
Aroclor 1221	ND	2	µg/L
Aroclor 1232	ND	1	µg/L
Aroclor 1242	ND	1	µg/L
Aroclor 1248	ND	1	µg/L
Aroclor 1254	ND	1	µg/L
Aroclor 1260	ND	1	µg/L
Aroclor 1262	ND	1	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
2,4,5,6-tetrachloro-m-xylene	70	50 - 150
Decachlorobiphenyl	86	50 - 150

* - Out of Limits

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 0, December 1996.

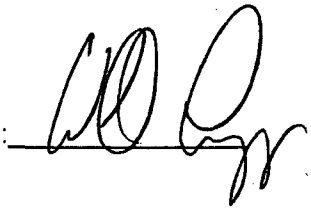
Reveiwed By: _____

ETHYLENE DIBROMIDE BY GC/ECD
Method 504

Client:	**Giant Refining Co. - Ciniza**	Date Reported:	06/07/01
Project:	Spring 2001 Groundwater	Date Sampled:	05/15/01
Sample ID:	MW-2-51501	Date Received:	05/17/01
Lab ID:	0301W02348	Date Extracted:	06/07/01
Sample Matrix:	Water	Date Analyzed:	06/07/01

Parameter	Result	Detection Limit	Units
Ethylene Dibromide	ND	0.1	ug/L

ND - Compound Not Detected At Stated Detection Limit.

Reviewed By: 

EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	MW-2-51501	Date Received:	NG
Laboratory ID:	0301W02348	Date Extracted:	05/24/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Replicate	Analytical Result	PQL	Units
9020B				
Total Organic Halides (TOX	1	ND	30	µg/L
Total Organic Halides (TOX	2	ND	30	µg/L
Total Organic Halides (TOX	3	ND	30	µg/L
Total Organic Halides (TOX	4	ND	30	µg/L

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

TOTAL ORGANIC CARBON

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	06/11/01
Sample ID:	MW - 2- 51501	Date Analyzed:	06/11/01
Laboratory ID:	0301W02348	Date Sampled:	05/15/01
Sample Matrix:	Water	Date Received:	05/17/01
Condition:	Intact		

	Result mg/L	MDL
Replicate #1	ND	2.00
Replicate #2	ND	2.00
Replicate #3	ND	2.00
Replicate #4	ND	2.00

ND - Analyte not detected

* - This sample was subcontracted to an outside Laboratory.

References: Method 415.1: TOTAL ORANIC CARBON (TOC). Test Methods For Evaluating Waste and Solid Wastes, SW-846, USEPA, 3rd Edition, Final Update II, September, 1994

Comments:

Reported By: _____ Reviewed By: _____

Inter-Mountain Laboratories, Inc.
2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW-2-051501
Lab ID: 0301W02348
Matrix: Water
Condition: Intact

Date Reported: 06/11/01
Date Sampled: 05/15/01
Date Received: 05/17/01
Date Extracted: 05/25/01
Date Analyzed: 05/25/01

Parameter	Analytical Result	PQL	Units
DRO - Method 8015			
Diesel Range Organics (C10 - C22)	<30	30	mg/L
Oil Range Organics (C22 - C32)	<30	30	mg/L

Quality Control - Surrogate Recovery	%	QC Limits
o-Terphenyl(SUR-8015)	92	70 - 130

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: William Lipps

Analyst: _____

pH

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	06/07/01
Sample ID:	MW-2-051501	Date Analyzed:	05/17/01
Laboratory ID:	0301W02348	Date Sampled:	05/15/01
Sample Matrix:	Water	Date Received:	05/17/01
Condition:	Intact		

	Result	MDL
Replicate #1	9.0	0.1
Replicate #2	9.0	0.1
Replicate #3	9.0	0.1
Replicate #4	9.0	0.1

Comments:

Reported By: _____

Reviewed By: _____

ELECTRICAL CONDUCTIVITY

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	06/07/01
Sample ID:	MW-2-051501	Date Analyzed:	05/17/01
Laboratory ID:	0301W02348	Date Sampled:	05/15/01
Sample Matrix:	Water	Date Received:	05/17/01
Condition:	Intact		

	Result	MDL
Replicate #1	1160	10
Replicate #2	1160	10
Replicate #3	1160	10
Replicate #4	1160	10

Comments:

Reported By: _____

Reviewed By: _____

Radiation Safety Engineering, Inc.

3245 N. WASHINGTON ST. · CHANDLER, ARIZONA 85225-1121 (480) 897-9459
Website: www.radsafe.com FAX (480) 892-5446

Radiochemical Activity in Water (pCi/L)

Inter-Mountain Laboratories
2506 West Main Street
Farmington, NM 87401

Samples Received: May 21, 2001
Samples Completed: June 1, 2001

Sample ID	Radium 226 Activity method 903.1	Radium 228 Activity method 904	Total Radium Activity
MW-2-51501	< 0.3	< 0.4	< 0.4

Robert L. Metzger, Ph.D., C.H.P.

QUALITY CONTROL / QUALITY ASSURANCE

QUALITY CONTROL / QUALITY ASSURANCE

Blank Analysis

TOTAL METALS

Client: **Giant Refining - Ciniza**
Project: Spring 2001 GW
Sample Matrix: Water

Date Reported: 06/08/01
Date Analyzed: 06/05/01
Date Received: 05/17/01

Method Blank Analysis

Parameter	Result	Detection Limit	Units
Aluminum	**ND**	0.05	mg/L
Arsenic	**ND**	0.005	mg/L
Barium	**ND**	0.01	mg/L
Boron	**ND**	0.01	mg/L
Cadmium	**ND**	0.001	mg/L
Chromium	**ND**	0.01	mg/L
Cobalt	**ND**	0.01	mg/L
Copper	**ND**	0.01	mg/L
Iron	**ND**	0.02	mg/L
Lead	**ND**	0.005	mg/L
Manganese	**ND**	0.01	mg/L
Mercruy	**ND**	0.001	mg/L
Molybdenum	**ND**	0.01	mg/L
Nickel	**ND**	0.01	mg/L
Selenium	**ND**	0.005	mg/L
Silver	**ND**	0.01	mg/L
Uranium	**ND**	0.1	mg/L
Zinc	**ND**	0.025	mg/L

References: Method 6010: Acid Digestion for Water and Waste Water, SW-846, Rev. 1, July 1992.

Comments:

Reported by _____

Reviewed by _____

QUALITY CONTROL / QUALITY ASSURANCE

Spike Analysis

TOTAL METALS

Client: **Giant Refining - Ciniza**
Project: Spring 2001 GW
Sample Matrix: Water

Date Reported: 06/08/01
Date Analyzed: 06/05/01
Date Received: 05/17/01

Spike Analysis

Parameter	Spike Result (mg/L)	Sample Result (mg/L)	Spike Added (mg/L)	Percent Recovery
Aluminum	1.27	0.75	0.50	**104%**
Arsenic	0.011	<0.005	0.010	**111%**
Barium	0.88	<0.01	1.00	**88%**
Boron	0.11	<0.01	0.10	**107%**
Cadmium	0.003	<0.001	0.003	**100%**
Chromium	0.10	<0.01	0.10	**103%**
Cobalt	0.09	<0.01	0.10	**94%**
Copper	0.10	<0.01	0.10	**103%**
Iron	1.19	0.66	0.50	**106%**
Lead	0.024	<0.005	0.025	**95%**
Manganese	1.68	1.10	0.50	**116%**
Mercury	0.002	<0.001	0.002	**113%**
Molybdenum	0.10	<0.01	0.10	**98%**
Nickel	0.10	<0.01	0.10	**96%**
Selenium	0.025	<0.005	0.025	**99%**
Silver	0.08	<0.01	0.10	**81%**
Uranium	0.5	<0.1	0.5	**104%**
Zinc	0.110	<0.025	0.100	**110%**

References: Method 6010: Acid Digestion for Water and Waste Water, SW-846, Rev. 1, July 1992.

Comments:

Reported by _____

Reviewed by _____

QUALITY CONTROL / QUALITY ASSURANCE

Known Analysis

TOTAL METALS

Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	06/05/01
Sample Matrix:	Water	Date Received:	05/17/01

Known Analysis

Parameter	Found Result	Known Result	Percent Recovery	Units
Aluminum	1.88	2.00	**94%**	mg/L
Arsenic	0.039	0.040	**98%**	mg/L
Barium	1.94	2.00	**97%**	mg/L
Boron	1.83	2.00	**92%**	mg/L
Cadmium	0.005	0.005	**102%**	mg/L
Chromium	1.97	2.00	**99%**	mg/L
Cobalt	1.91	2.00	**96%**	mg/L
Copper	1.85	2.00	**93%**	mg/L
Iron	1.88	2.00	**94%**	mg/L
Lead	0.051	0.050	**103%**	mg/L
Manganese	1.82	2.00	**91%**	mg/L
Mercury	0.003	0.003	**108%**	mg/L
Molybdenum	2.00	2.00	**100%**	mg/L
Nickel	1.95	2.00	**98%**	mg/L
Selenium	0.020	0.020	**100%**	mg/L
Silver	0.23	0.25	**92%**	mg/L
Uranium	1.90	2.00	**95%**	mg/L
Zinc	1.92	2.00	**96%**	mg/L

References: Method 6010: Acid Digestion for Water and Waste Water, SW-846, Rev. 1, July 1992.

Comments:

Reported by: _____

Reviewed by: _____

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	V3MB01-141	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
1,1,1,2-Tetrachloroethane	ND	5	µg/L
1,1,1-Trichloroethane	ND	5	µg/L
1,1,2,2-Tetrachloroethane	ND	5	µg/L
1,1,2-Trichloroethane	ND	5	µg/L
1,1-Dichloroethane	ND	5	µg/L
1,1-Dichloroethene	ND	5	µg/L
1,1-Dichloropropene	ND	5	µg/L
1,2,3-Trichlorobenzene	ND	5	µg/L
1,2,4-Trichlorobenzene	ND	5	µg/L
1,2,4-Trimethylbenzene	ND	5	µg/L
1,2-Dibromo-3-chloropropane	ND	5	µg/L
1,2-Dibromoethane	ND	5	µg/L
1,2-Dichlorobenzene	ND	5	µg/L
1,2-Dichloroethane	ND	5	µg/L
1,2-Dichloropropane	ND	5	µg/L
1,3,5-Trimethylbenzene	ND	5	µg/L
1,3-Dichlorobenzene	ND	5	µg/L
1,3-Dichloropropane	ND	5	µg/L
1,4-Dichlorobenzene	ND	5	µg/L
1,4-Dioxane	ND	1000	µg/L
2,2-Dichloropropane	ND	5	µg/L
2-Butanone (MEK)	ND	20	µg/L
2-Chloroethylvinyl ether	ND	20	µg/L
2-Chlorotoluene	ND	5	µg/L
2-Hexanone	ND	20	µg/L
4-Chlorotoluene	ND	5	µg/L
4-Isopropyltoluene	ND	5	µg/L
4-Methyl-2-pentanone (MIBK)	ND	20	µg/L
Acetone	ND	50	µg/L
Benzene	ND	5	µg/L
Bromobenzene	ND	5	µg/L
Bromochloromethane	ND	5	µg/L
Bromodichloromethane	ND	5	µg/L
Bromoform	ND	5	µg/L
Bromomethane	ND	5	µg/L
Carbon Disulfide	ND	5	µg/L
Carbon Tetrachloride	ND	5	µg/L

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	V3MB01-141	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
Chlorobenzene	ND	5	µg/L
Chloroethane	ND	5	µg/L
Chloroform	ND	5	µg/L
Chloromethane	ND	5	µg/L
cis-1,2-Dichloroethene	ND	5	µg/L
cis-1,3-Dichloropropene	ND	5	µg/L
Dibromochloromethane	ND	5	µg/L
Dibromomethane	ND	5	µg/L
Dichlorodifluoromethane	ND	5	µg/L
Ethylbenzene	ND	5	µg/L
Ethylene Dibromide	ND	5	µg/L
Hexachlorobutadiene	ND	5	µg/L
Isopropylbenzene	ND	5	µg/L
m,p-Xylene	ND	5	µg/L
Methylene Chloride	ND	20	µg/L
MTBE	ND	5	µg/L
n-Butylbenzene	ND	5	µg/L
n-Propylbenzene	ND	5	µg/L
Naphthalene	ND	5	µg/L
o-Xylene	ND	5	µg/L
sec-Butylbenzene	ND	5	µg/L
Styrene	ND	5	µg/L
tert-Butylbenzene	ND	5	µg/L
Tetrachloroethene (PCE)	ND	5	µg/L
Toluene	ND	5	µg/L
trans-1,2-Dichloroethene	ND	5	µg/L
trans-1,3-Dichloropropene	ND	5	µg/L
trans-1,4-Dichloro-2-butene	ND	5	µg/L
Trichloroethene (TCE)	ND	5	µg/L
Trichlorofluoromethane	ND	5	µg/L
Vinyl Acetate	ND	5	µg/L
Vinyl Chloride	ND	1	µg/L

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	101	86 - 118
1,2-Dichloroethane-d4	94	80 - 120
Toluene-d8	98	88 - 110
4-Bromofluorobenzene	99	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Blank Spike/Duplicate Analysis

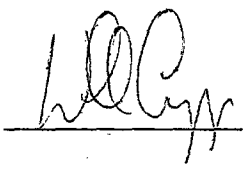
Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	V3BSD01-141	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
1,1-Dichloroethene	ND	50	52	105	53	106	1
Benzene	ND	50	48	96	47	94	1
Chlorobenzene	ND	50	56	112	54	108	4
Toluene	ND	50	50	101	49	97	4
Trichloroethene (TCE)	ND	50	50	101	51	102	1

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Dup %	Water QC Limits
Dibromofluoromethane	100	102	86 - 118
1,2-Dichloroethane-d4	97	99	80 - 120
Toluene-d8	99	100	88 - 110
4-Bromofluorobenzene	102	99	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Matrix Spike Analysis

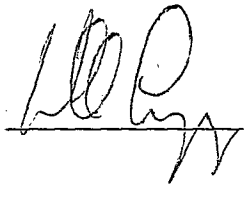
Sample ID:	Matrix Spike	Date Reported:	06/07/01
Laboratory ID:	1301G01081MS	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %
1,1-Dichloroethene	ND	50	56	111
Benzene	ND	50	48	97
Chlorobenzene	ND	50	55	110
Toluene	ND	50	51	102
Trichloroethene (TCE)	ND	50	52	104

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	103	86 - 118
1,2-Dichloroethane-d4	100	80 - 120
Toluene-d8	101	88 - 110
4-Bromofluorobenzene	96	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	µg/L
1,2-Dichlorobenzene	ND	10	µg/L
1,3-Dichlorobenzene	ND	10	µg/L
1,4-Dichlorobenzene	ND	30	µg/L
1-Methylnapthalene	ND	10	µg/L
2,4,5-Trichlorophenol	ND	10	µg/L
2,4,6-Trichlorophenol	ND	10	µg/L
2,4-Dichlorophenol	ND	10	µg/L
2,4-Dimethylphenol	ND	10	µg/L
2,4-Dinitrophenol	ND	50	µg/L
2,4-Dinitrotoluene	ND	10	µg/L
2,6-Dinitrotoluene	ND	10	µg/L
2-Chloronaphthalene	ND	10	µg/L
2-Chlorophenol	ND	10	µg/L
2-Methylnaphthalene	ND	10	µg/L
2-Methylphenol	ND	10	µg/L
2-Nitroaniline	ND	50	µg/L
2-Nitrophenol	ND	10	µg/L
3,3'-Dichlorobenzidine	ND	20	µg/L
4,6-Dinitro-2-methylphenol	ND	50	µg/L
4-Bromophenyl-phenylether	ND	10	µg/L
4-Chloro-3-methylphenol	ND	20	µg/L
4-Chloroaniline	ND	20	µg/L
4-Chlorophenyl-phenylether	ND	10	µg/L
4-Methylphenol/3-Methylphenol **	ND	10	µg/L
4-Nitroaniline	ND	20	µg/L
4-Nitrophenol	ND	50	µg/L
6-Methylchrysene	ND	10	µg/L
7,12-Dimethylbenz(a)anthracene	ND	10	µg/L
Acenaphthene	ND	10	µg/L
Acenaphthylene	ND	10	µg/L
Aniline	ND	10	µg/L
Anthracene	ND	10	µg/L
Azobenzene	ND	10	µg/L
Benzidine	ND	10	µg/L
Benzo(a)anthracene	ND	10	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Benzo(a)pyrene	ND	10	µg/L
Benzo(b)fluoranthene	ND	10	µg/L
Benzo(g,h,i)perylene	ND	10	µg/L
Benzo(j)fluoranthene	ND	10	µg/L
Benzo(k)fluoranthene	ND	10	µg/L
Benzoic Acid	ND	50	µg/L
Benzyl Alcohol	ND	20	µg/L
bis(2-Chloroethoxy)methane	ND	10	µg/L
bis(2-Chloroethyl)ether	ND	10	µg/L
bis(2-Chloroisopropyl)ether	ND	10	µg/L
bis(2-Ethylhexyl)phthalate	ND	10	µg/L
Butylbenzylphthalate	ND	10	µg/L
Chrysene	ND	10	µg/L
Di-n-Butylphthalate	ND	10	µg/L
Di-n-Octylphthalate	ND	10	µg/L
Dibenz(a,h)anthracene	ND	10	µg/L
Dibenz(a,j)acridine	ND	10	µg/L
Dibenzofuran	ND	10	µg/L
Diethylphthalate	ND	20	µg/L
Dimethylphthalate	ND	40	µg/L
Fluoranthene	ND	10	µg/L
Fluorene	ND	10	µg/L
Hexachlorobenzene	ND	10	µg/L
Hexachlorobutadiene	ND	10	µg/L
Hexachlorocyclopentadiene	ND	10	µg/L
Hexachloroethane	ND	10	µg/L
Indene	ND	10	µg/L
Indeno(1,2,3-cd)pyrene	ND	10	µg/L
Isophorone	ND	10	µg/L
N-Nitrosodi-n-propylamine	ND	10	µg/L
N-Nitrosodiphenylamine	ND	10	µg/L
Naphthalene	ND	10	µg/L
Nitrobenzene	ND	10	µg/L
Pentachlorophenol	ND	50	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Phenanthrene	ND	10	µg/L
Phenol	ND	10	µg/L
Pyrene	ND	10	µg/L
Pyridine	ND	10	µg/L
Quinoline	ND	10	µg/L
Total Cresols	ND	10	µg/L

ND - Compound not detected at stated Detection Limit.
** - Compounds Coelute

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	38	21 - 100
Phenol-d6	27	10 - 94
Nitrobenzene-d5	47	35 - 114
2-Fluorobiphenyl	55	43 - 116
2,4,6-Tribromophenol	74	10 - 123
Terphenyl-d14	82	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Blank Spike/Spike Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	BSD01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
1,2,4-Trichlorobenzene	ND	100	67	67	62	62	8
1,4-Dichlorobenzene	ND	100	59	59	54	54	9
2,4-Dinitrotoluene	ND	100	70	70	66	66	5
2-Chlorophenol	ND	200	129	65	119	60	8
4-Chloro-3-methylphenol	ND	200	124	62	117	59	5
4-Nitrophenol	ND	200	52	26	50	25	3
Acenaphthene	ND	100	65	65	62	62	6
N-Nitrosodi-n-propylamine	ND	100	80	80	76	76	6
Pentachlorophenol	ND	200	130	65	120	60	8
Phenol	ND	200	56	28	55	27	2
Pyrene	ND	100	95	95	92	92	3

ND - Compound not detected at stated Detection Limit.

QUALITY CONTROL:

Surrogate Recoveries	%	Dup %	Water QC Limits
2-Fluorophenol	46	41	21 - 100
Phenol-d6	30	28	10 - 94
Nitrobenzene-d5	62	57	35 - 114
2-Fluorobiphenyl	70	65	43 - 116
2,4,6-Tribromophenol	96	90	10 - 123
Terphenyl-d14	85	80	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Matrix Spike Analysis

Sample ID:	Matrix Spike	Date Reported:	06/07/01
Laboratory ID:	1301W01023MS	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %
1,2,4-Trichlorobenzene	ND	100	66	66
1,4-Dichlorobenzene	ND	100	57	57
2,4-Dinitrotoluene	ND	100	70	70
2-Chlorophenol	ND	200	126	63
4-Chloro-3-methylphenol	ND	200	124	62
4-Nitrophenol	ND	200	53	26
Acenaphthene	ND	100	65	65
N-Nitrosodi-n-propylamine	ND	100	79	79
Pentachlorophenol	ND	200	136	68
Phenol	ND	200	54	27
Pyrene	ND	100	94	94

ND - Compound not detected at stated Detection Limit.

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	39	21 - 100
Phenol-d6	27	10 - 94
Nitrobenzene-d5	60	35 - 114
2-Fluorobiphenyl	66	43 - 116
2,4,6-Tribromophenol	95	10 - 123
Terphenyl-d14	81	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

Quality Control / Quality Assurance

Polynuclear Aromatic Hydrocarbons

Method Blank

Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	05/24/01
Lab ID:	0301W02348	Date Received:	05/17/01
Sample Matrix:	Water		

Analyte	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	2.5
Acenapthylene	ND	ug/L	2.5
Anthracene	ND	ug/L	0.5
Benzo(a)anthracene	ND	ug/L	0.02
Benzo(b)fluoranthene	ND	ug/L	0.05
Benzo(a)pyrene	ND	ug/L	0.02
Benzo(g,h,i)perylene	ND	ug/L	0.03
Benzo(k)fluoranthene	ND	ug/L	0.02
Chrysene	ND	ug/L	0.2
Dibenz(a,h)anthracene	ND	ug/L	0.04
Fluoranthene	ND	ug/L	0.3
Fluorene	ND	ug/L	0.5
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.08
2-Methylnaphthene	ND	ug/L	2.5
Naphthalene	ND	ug/L	2.5
Phenanthrene	ND	ug/L	0.5
Pyrene	ND	ug/L	0.3

Reference: SM - "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995.

Reviewed By: _____

Quality Control / Quality Assurance

Polynuclear Aromatic Hydrocarbons

Spike Analysis

Client:	Giant Refining - Ciniza	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	05/24/01
Lab ID:	0301W02348	Date Received:	05/17/01
Sample Matrix:	Water		

Analyte	Concentration Spiked	Measured	Accuracy % LCS	Limits
Naphthalene	40.4	29.4	73	41-82
Acenaphthylene	40.4	29.8	74	43-91
Acenaphthene	40.4	31.1	77	48-85
Fluorene	4.1	3.07	75	48-87
Phenanthrene	3.07	2.47	80	60-86
Fluoranthene	1.92	1.72	90	72-96
Pyrene	3.85	3.52	91	73-96
Benzo(a)pyrene	0.253	0.247	98	66-118
Benzo(g,h,i)perylene	0.553	0.550	99	79-112

Surrogates	Result %	Accuracy % Limits
Benzo(a)pyrene	85	54.5-116

Reference: SM - "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995.

Reviewed By: _____

EPA METHOD 8082
POLYCHLORINATED BIPHENYLS (PCBs) BY GC
Method Blank Analysis

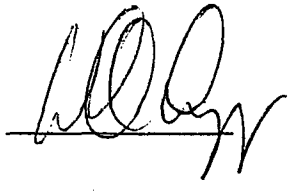
Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Analytical Result	Detection Limit	Units
Aroclor 1016	ND	1	µg/L
Aroclor 1221	ND	2	µg/L
Aroclor 1232	ND	1	µg/L
Aroclor 1242	ND	1	µg/L
Aroclor 1248	ND	1	µg/L
Aroclor 1254	ND	1	µg/L
Aroclor 1260	ND	1	µg/L
Aroclor 1262	ND	1	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
2,4,5,6-tetrachloro-m-xylene	50	50 - 150
Decachlorobiphenyl	78	50 - 150

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 0, December 1996.

Reveiwed By: 

ETHYLENE DIBROMIDE BY GC/ECD

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-158	Date Extracted:	06/07/01
Sample Matrix:	Water	Date Analyzed:	06/07/01

Parameter	Analytical Result	Detection Limit	Units
Ethylene Dibromide	ND	0.1	µg/L

ND - Compound not detected at stated Detection Limit.

Reveiwed By: _____

ETHYLENE DIBROMIDE BY GC/ECD

Blank Spike Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	BSD01-137	Date Extracted:	06/07/01
Sample Matrix:	Water	Date Analyzed:	06/07/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
Ethylene Dibromide	ND	2	2.1	105	2.3	115	9

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-144	Date Extracted:	05/24/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Analytical Result	PQL	Units
9020B			
Total Organic Halides (TOX)	ND	30	µg/L

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)
Blank Spike Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	BSD01-144	Date Extracted:	05/24/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
9020B							
Total Organic Halides (TOX)	ND	50	53	106	58	117	10

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

May 4, 2001

Dorinda Mancini
Giant Refining Company
Rt. 3, Box 7
Gallup, NM 87301

Ms. Mancini:

Enclosed please find the reports for the sample received by our laboratory for analysis on April 11, 2001.

If you have any questions about the results of these analyses, please don't hesitate to call at your convenience.

Thank you for choosing IML for your analytical needs!

Sincerely,

Sharon Williams

Sharon Williams
Organic Analyst/IML-Farmington

Enclosure

xc: File

iml Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM 87401

GIANT REFINING CO.
SPRING 2001 GROUNDWATER
MW-4-4901

Case Narrative

On April 11, 2001, one water sample was submitted to Inter-Mountain Laboratories - Farmington for analysis. The parameters performed on the sample are indicated on the accompanying Chain of Custody.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The methods used in the analysis of the sample reported herein are found in: EPA: "Methods for Chemical Analysis of Water and Wastes (MCAWW)" – EPA/600/4-79-020 – March 1983, EPA – "Methods for the Determination of Metals in Environmental Samples", Supplement I – 600/R-94-111 – May, 1994, SM – "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF, 19th Edition, 1995, SM – "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF, 18th Edition, 1992.

Quality control data appear at the end of the analytical report and may be identified by title. If there are any questions regarding the information presented in this report package, please feel free to contact us at your convenience.

Sincerely,

Sharon Williams
Organic Analyst/IML-Farmington

imL
Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
Uranium 2001 Groundwater Event	Giant-Ciniza	
Sampler: (Signature) S C Woods	**Chain of Custody Tape No.**	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers					Remarks
MW-4-4901	4/9/01	1030	W01687	Water	25					See attached sheet for parameters

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
S C Woods	4/10/01	0900			
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	***Date***	***Time***	***Received by laboratory: (Signature)***	***Date***	***Time***
			D Williams	4/11/01	0940

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Farmington, NM 87401
Telephone (505) 326-4737

☐ 11183 State Hwy. 30
College Station, TX 77845
Telephone (979) 776-8945

69702

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW-4-4901
Lab ID: 0301W01687
Matrix: Water
Condition: Intact

Date Received: 04/11/01
Date Reported: 02/28/02
Date Sampled: 04/09/01
Time Sampled: 1030

Parameter	Analytical Result	Units		Units	PQL	Method	Analysis Date	Time	Init.
General Parameters									
PH	8.3	s.u.			0.1	EPA 150.1	04/11/01	1700	AG
Electrical Conductivity	1,210	µmhos/cm			10	EPA 120.1	04/11/01	1700	AG
Solids - Total Dissolved	730	mg/L			10	EPA 160.1	04/12/01	0900	AG
Solids - Total Suspended	3	mg/L			2	EPA 160.2	04/12/01	1730	AG
Alkalinity (CaCO3)	468	mg/L			1	EPA 310.1	04/20/01	1600	ML
Cyanide (Total) - Colorimetric	<0.01	mg/L			0.01	SM 4500-CN E	05/02/01	0800	WN
Hardness (CaCO3)	5	mg/L			1	EPA 200.7	05/01/01	1148	WL
Phosphorus - Ortho-P	0.52	mg/L			0.02	EPA 365.3	04/11/01	1600	AG
Total Phenolics	<0.01	mg/L			0.01	EPA 420.1	04/12/01	0800	TH
Major Anions									
Bicarbonate (HCO3)	571	mg/L	9.36	meq/L	1	EPA 310.1	04/20/01	1600	ML
Carbonate (CO3)	<1	mg/L	<0.01	meq/L	1	EPA 310.1	04/20/01	1600	ML
Chloride	17	mg/L	0.48	meq/L	1	EPA 300.0	05/01/01	1152	WL
Bromide (Br)	<0.2	mg/L	<0.01	meq/L	0.2	EPA 300.0	05/01/01	1152	WL
Fluoride	0.45	mg/L	<0.01	meq/L	0.05	EPA 300.0	05/01/01	1152	WL
Hydroxide (OH)	<1	mg/L	<0.01	meq/L	1	EPA 310.1	04/20/01	1600	ML
Nitrogen - Nitrate/Nitrite	0.23	mg/L	0.02	meq/L	0.05	EPA 353.2	04/16/01	1357	WH
Sulfate	147	mg/L	3.05	meq/L	5	EPA 300.0	05/01/01	1152	WL
Major Cations									
Calcium	1.6	mg/L	0.08	meq/L	0.2	EPA 200.7	05/01/01	1148	WL
Magnesium	0.2	mg/L	0.02	meq/L	0.2	EPA 200.7	05/01/01	1148	WL
Potassium	0.8	mg/L	0.02	meq/L	0.2	EPA 200.7	05/01/01	1148	WL
Sodium	279	mg/L	12.13	meq/L	0.2	EPA 200.7	05/01/01	1148	WL
Anion/Cation Balance QC Information									
Anion Sum			12.89	meq/L	0.01	SM 1030			
Cation Sum			12.25	meq/L	0.01	SM 1030			
Cation/Anion Balance			2.55	%	0.01	SM 1030			

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes (MCAWW)" - EPA/600/4-79-020 - March, 1983.
SM - "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF,18th Edition, 1992.
EPA - "Methods for the Determination of Metals in Environmental Samples" - Supplement I - 600/R-94-111 - May, 1994.
SM - "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF,19th Edition, 1995.

Reviewed By:

William Lipps

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW-4-4901
Lab ID: 0301W01687
Matrix: Water
Condition: Intact

Date Received: 04/11/01
Date Reported: 02/28/02
Date Sampled: 04/09/01
Time Sampled: 1030

Parameter	Analytical Result	Units	Units	PQL	Method	Analysis Date	Time	Init.
Total Metals								
Aluminum	<0.05	mg/L		0.05	EPA 200.7	04/16/01	1315	WL
Arsenic	<0.005	mg/L		0.005	SM 3114B	04/17/01	1730	JG
Barium	0.02	mg/L		0.01	EPA 200.7	04/16/01	1315	WL
Boron	0.36	mg/L		0.01	EPA 200.7	04/16/01	1315	WL
Cadmium	<0.001	mg/L		0.001	EPA 200.9	04/17/01	1150	SW
Chromium	<0.01	mg/L		0.01	EPA 200.7	04/16/01	1315	WL
Cobalt	<0.01	mg/L		0.01	EPA 200.7	04/16/01	1315	WL
Copper	0.05	mg/L		0.01	EPA 200.7	04/16/01	1315	WL
Iron	<0.02	mg/L		0.02	EPA 200.7	04/16/01	1315	WL
Lead	<0.005	mg/L		0.005	EPA 200.9	04/23/01	1200	SW
Manganese	0.01	mg/L		0.01	EPA 200.7	04/16/01	1315	WL
Mercury	<0.001	mg/L		0.001	EPA 245.1	04/21/01	0800	JG
Molybdenum	<0.01	mg/L		0.01	EPA 200.7	04/16/01	1315	WL
Nickel	<0.01	mg/L		0.01	EPA 200.7	04/16/01	1315	WL
Selenium	<0.005	mg/L		0.005	SM 3114B	04/17/01	1730	JG
Silver	<0.01	mg/L		0.01	EPA 200.7	04/16/01	1315	WL
Uranium	<0.3	mg/L		0.3	EPA 200.7	04/16/01	1315	WL
Zinc	0.032	mg/L		0.025	EPA 200.7	04/16/01	1315	WL

Reference: EPA - "Methods for the Determination of Metals in Environmental Samples" - Supplement I - 600/R-94-111 - May, 1994.
SM - "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF,19th Edition, 1995.

Reviewed By:

William Lipps

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Client:	**Giant Refining Company**	Date Reported:	04/26/01
Project ID:	Ciniza	Date Sampled:	04/09/01
Sample ID:	MW-4-4901	Date Received:	NG
Laboratory ID:	0301W01687	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	04/19/01

Parameter	Analytical Result	MDL	Units
1,1,1,2-Tetrachloroethane	ND	5	µg/L
1,1,1-Trichloroethane	ND	5	µg/L
1,1,2,2-Tetrachloroethane	ND	5	µg/L
1,1,2-Trichloroethane	ND	5	µg/L
1,1-Dichloroethane	ND	5	µg/L
1,1-Dichloroethene	ND	5	µg/L
1,1-Dichloropropene	ND	5	µg/L
1,2,3-Trichlorobenzene	ND	5	µg/L
1,2,4-Trichlorobenzene	ND	5	µg/L
1,2,4-Trimethylbenzene	ND	5	µg/L
1,2-Dibromo-3-chloropropane	ND	5	µg/L
1,2-Dibromoethane	ND	5	µg/L
1,2-Dichlorobenzene	ND	5	µg/L
1,2-Dichloroethane	ND	5	µg/L
1,2-Dichloropropane	ND	5	µg/L
1,3,5-Trimethylbenzene	ND	5	µg/L
1,3-Dichlorobenzene	ND	5	µg/L
1,3-Dichloropropane	ND	5	µg/L
1,4-Dichlorobenzene	ND	5	µg/L
1,4-Dioxane	ND	1000	µg/L
2,2-Dichloropropane	ND	5	µg/L
2-Butanone (MEK)	ND	20	µg/L
2-Chloroethylvinyl ether	ND	20	µg/L
2-Chlorotoluene	ND	5	µg/L
2-Hexanone	ND	20	µg/L
4-Chlorotoluene	ND	5	µg/L
4-Isopropyltoluene	ND	5	µg/L
4-Methyl-2-pentanone (MIBK)	ND	20	µg/L
Acetone	ND	50	µg/L
Benzene	ND	5	µg/L
Bromobenzene	ND	5	µg/L
Bromochloromethane	ND	5	µg/L
Bromodichloromethane	ND	5	µg/L
Bromoform	ND	5	µg/L
Bromomethane	ND	5	µg/L
Carbon Disulfide	ND	5	µg/L
Carbon Tetrachloride	ND	5	µg/L

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Client:	**Giant Refining Company**	Date Reported:	04/26/01
Project ID:	Ciniza	Date Sampled:	04/09/01
Sample ID:	MW-4-4901	Date Received:	NG
Laboratory ID:	0301W01687	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	04/19/01

Parameter	Analytical Result	MDL	Units
Chlorobenzene	ND	5	µg/L
Chloroethane	ND	5	µg/L
Chloroform	ND	5	µg/L
Chloromethane	ND	5	µg/L
cis-1,2-Dichloroethene	ND	5	µg/L
cis-1,3-Dichloropropene	ND	5	µg/L
Dibromochloromethane	ND	5	µg/L
Dibromomethane	ND	5	µg/L
Dichlorodifluoromethane	ND	5	µg/L
Ethylbenzene	ND	5	µg/L
Hexachlorobutadiene	ND	5	µg/L
Isopropylbenzene	ND	5	µg/L
m,p-Xylene	ND	5	µg/L
Methylene Chloride	ND	20	µg/L
MTBE	ND	5	µg/L
n-Butylbenzene	ND	5	µg/L
n-Propylbenzene	ND	5	µg/L
Naphthalene	ND	5	µg/L
o-Xylene	ND	5	µg/L
sec-Butylbenzene	ND	5	µg/L
Styrene	ND	5	µg/L
tert-Butylbenzene	ND	5	µg/L
Tetrachloroethene (PCE)	ND	5	µg/L
Toluene	ND	5	µg/L
trans-1,2-Dichloroethene	ND	5	µg/L
trans-1,3-Dichloropropene	ND	5	µg/L
trans-1,4-Dichloro-2-butene	ND	5	µg/L
Trichloroethene (TCE)	ND	5	µg/L
Trichlorofluoromethane	ND	5	µg/L
Vinyl Acetate	ND	5	µg/L
Vinyl Chloride	ND	1	µg/L

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	110	86 - 118
1,2-Dichloroethane-d4	117	80 - 120
Toluene-d8	98	88 - 110
4-Bromofluorobenzene	83*	86 - 115

* - Out of Limits

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____ Analyst: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	04/26/01
Project ID:	Ciniza	Date Sampled:	04/09/01
Sample ID:	MW-4-4901	Date Received:	NG
Laboratory ID:	0301W01687	Date Extracted:	04/16/01
Sample Matrix:	Water	Date Analyzed:	04/18/01

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	µg/L
1,2-Dichlorobenzene	ND	10	µg/L
1,3-Dichlorobenzene	ND	10	µg/L
1,4-Dichlorobenzene	ND	30	µg/L
1-Methylnapthalene	ND	10	µg/L
2,4,5-Trichlorophenol	ND	10	µg/L
2,4,6-Trichlorophenol	ND	10	µg/L
2,4-Dichlorophenol	ND	10	µg/L
2,4-Dimethylphenol	ND	10	µg/L
2,4-Dinitrophenol	ND	50	µg/L
2,4-Dinitrotoluene	ND	10	µg/L
2,6-Dinitrotoluene	ND	10	µg/L
2-Chloronaphthalene	ND	10	µg/L
2-Chlorophenol	ND	10	µg/L
2-Methylnaphthalene	ND	10	µg/L
2-Methylphenol	ND	10	µg/L
2-Nitroaniline	ND	50	µg/L
2-Nitrophenol	ND	10	µg/L
3,3'-Dichlorobenzidine	ND	20	µg/L
4,6-Dinitro-2-methylphenol	ND	50	µg/L
4-Bromophenyl-phenylether	ND	10	µg/L
4-Chloro-3-methylphenol	ND	20	µg/L
4-Chloroaniline	ND	20	µg/L
4-Chlorophenyl-phenylether	ND	10	µg/L
4-Methylphenol/3-Methylphenol **	ND	10	µg/L
4-Nitroaniline	ND	20	µg/L
4-Nitrophenol	ND	50	µg/L
6-Methylchrysene	ND	10	µg/L
7,12-Dimethylbenz(a)anthracene	ND	10	µg/L
Acenaphthene	ND	10	µg/L
Acenaphthylene	ND	10	µg/L
Aniline	ND	10	µg/L
Anthracene	ND	10	µg/L
Azobenzene	ND	10	µg/L
Benzidine	ND	10	µg/L
Benzo(a)anthracene	ND	10	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	04/26/01
Project ID:	Ciniza	Date Sampled:	04/09/01
Sample ID:	MW-4-4901	Date Received:	NG
Laboratory ID:	0301W01687	Date Extracted:	04/16/01
Sample Matrix:	Water	Date Analyzed:	04/18/01

Parameter	Analytical Result	Detection Limit	Units
Benzo(a)pyrene	ND	10	µg/L
Benzo(b)fluoranthene	ND	10	µg/L
Benzo(g,h,i)perylene	ND	10	µg/L
Benzo(j)fluoranthene	ND	10	µg/L
Benzo(k)fluoranthene	ND	10	µg/L
Benzoic Acid	ND	50	µg/L
Benzyl Alcohol	ND	20	µg/L
bis(2-Chloroethoxy)methane	ND	10	µg/L
bis(2-Chloroethyl)ether	ND	10	µg/L
bis(2-Chloroisopropyl)ether	ND	10	µg/L
bis(2-Ethylhexyl)phthalate	ND	10	µg/L
Butylbenzylphthalate	ND	10	µg/L
Chrysene	ND	10	µg/L
Di-n-Butylphthalate	ND	10	µg/L
Di-n-Octylphthalate	ND	10	µg/L
Dibenz(a,h)anthracene	ND	10	µg/L
Dibenz(a,j)acridine	ND	10	µg/L
Dibenzofuran	ND	10	µg/L
Diethylphthalate	ND	20	µg/L
Dimethylphthalate	ND	40	µg/L
Fluoranthene	ND	10	µg/L
Fluorene	ND	10	µg/L
Hexachlorobenzene	ND	10	µg/L
Hexachlorobutadiene	ND	10	µg/L
Hexachlorocyclopentadiene	ND	10	µg/L
Hexachloroethane	ND	10	µg/L
Indene	ND	10	µg/L
Indeno(1,2,3-cd)pyrene	ND	10	µg/L
Isophorone	ND	10	µg/L
N-Nitrosodi-n-propylamine	ND	10	µg/L
N-Nitrosodiphenylamine	ND	10	µg/L
Naphthalene	ND	10	µg/L
Nitrobenzene	ND	10	µg/L
Pentachlorophenol	ND	50	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	04/26/01
Project ID:	Ciniza	Date Sampled:	04/09/01
Sample ID:	MW-4-4901	Date Received:	NG
Laboratory ID:	0301W01687	Date Extracted:	04/16/01
Sample Matrix:	Water	Date Analyzed:	04/18/01

Parameter	Analytical Result	Detection Limit	Units
Phenanthrene	ND	10	µg/L
Phenol	ND	10	µg/L
Pyrene	ND	10	µg/L
Pyridine	ND	10	µg/L
Quinoline	ND	10	µg/L
Total Cresols	ND	10	µg/L

ND - Compound not detected at stated Detection Limit.
** - Compounds Coelute

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	33	21 - 100
Phenol-d6	24	10 - 94
Nitrobenzene-d5	52	35 - 114
2-Fluorobiphenyl	60	43 - 116
2,4,6-Tribromophenol	71	10 - 123
Terphenyl-d14	89	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

Analyst: _____

Inter-Mountain Laboratories, Inc.
2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW-4-4901
Lab ID: 0301W01687
Matrix: Water
Condition: Intact

Date Reported: 05/04/01
Date Sampled: 04/09/01
Date Received: 04/11/01
Date Extracted: 04/16/01
Date Analyzed: 04/20/01

Parameter	Analytical Result	PQL	Units
POLYNUCLEAR AROMATIC HYDROCARBONS			
Acenaphthene	<2.5	2.5	µg/L
Acenaphthylene	<2.5	2.5	µg/L
Anthracene	<0.6	0.6	µg/L
Benzo(a)anthracene	<0.02	0.02	µg/L
Benzo(b)fluoranthene	<0.05	0.05	µg/L
Benzo(a)pyrene	<0.02	0.02	µg/L
Benzo(g,h,i)perylene	<0.03	0.03	µg/L
Benzo(k)fluoranthene	<0.02	0.02	µg/L
Chrysene	<0.2	0.2	µg/L
Dibenz(a,h)anthracene	<0.04	0.04	ug/L
Fluoranthene	<0.6	0.6	µg/L
Fluorene	<0.6	0.6	µg/L
Indeno(1,2,3-cd)pyrene	<0.08	0.08	µg/L
2-Methylnaphthalene	<2.5	2.5	ug/L
Naphthalene	<2.5	2.5	µg/L
Phenanthrene	<0.6	0.6	µg/L
Pyrene	<0.3	0.3	µg/L

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: William Lipps

Analyst: SC

EPA METHOD 8082
POLYCHLORINATED BIPHENYLS (PCBs) BY GC

Client:	**Giant Refining Company**	Date Reported:	04/26/01
Project:	Ciniza	Date Sampled:	04/09/01
Sample ID:	MW-4-4901	Date Received:	NG
Laboratory ID:	0301W01687	Date Extracted:	04/16/01
Sample Matrix:	Water	Date Analyzed:	04/20/01

Parameter	Analytical Result	Detection Limit	Units
Aroclor 1016	ND	1	µg/L
Aroclor 1221	ND	2	µg/L
Aroclor 1232	ND	1	µg/L
Aroclor 1242	ND	1	µg/L
Aroclor 1248	ND	1	µg/L
Aroclor 1254	ND	1	µg/L
Aroclor 1260	ND	1	µg/L
Aroclor 1262	ND	1	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
2,4,5,6-tetrachloro-m-xylene	79	50 - 150
Decachlorobiphenyl	108	50 - 150

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 0, December 1996.

Reveiwed By: _____

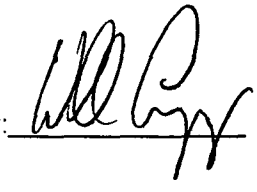
Analyst: _____

ETHYLENE DIBROMIDE BY GC/ECD
Method 504

Client:	**Giant Refining Co. - Ciniza**	Date Reported:	04/26/01
Project:	Spring 2001 Groundwater	Date Sampled:	04/09/01
Sample ID:	MW-4-4901	Date Received:	04/11/01
Lab ID:	0301W01687	Date Extracted:	04/19/01
Sample Matrix:	Water	Date Analyzed:	04/19/01

Parameter	Result	Detection Limit	Units
Ethylene Dibromide	ND	0.1	ug/L

ND - Compound Not Detected At Stated Detection Limit.

Reviewed By: 

EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)

Client:	**Giant Refining Company**	Date Reported:	04/26/01
Project ID:	Ciniza	Date Sampled:	04/05/01
Sample ID:	MW-4-4901	Date Received:	NG
Laboratory ID:	0301W01687	Date Extracted:	04/20/01
Sample Matrix:	Water	Date Analyzed:	04/20/01

Parameter	Replicate	Analytical Result	PQL	Units
9020B				
Total Organic Halides (TOX)	1	ND	40	µg/L
Total Organic Halides (TOX)	2	ND	40	µg/L
Total Organic Halides (TOX)	3	ND	40	µg/L
Total Organic Halides (TOX)	4	ND	40	µg/L

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

Analyst: _____

TOTAL ORGANIC CARBON

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	04/30/01
Sample ID:	MW-4-4901	Date Analyzed:	04/18/01
Laboratory ID:	0301W01687	Date Sampled:	04/09/01
Sample Matrix:	Water	Date Received:	04/11/01
Condition:	Intact		

	Result mg/L	MDL
Replicate #1	ND	1.00
Replicate #2	ND	1.00
Replicate #3	ND	1.00
Replicate #4	ND	1.00

ND - Analyte not detected

References: Method 415.1: TOTAL ORANIC CARBON (TOC). Test Methods For Evaluating Waste and Solid Wastes, SW-846, USEPA, 3rd Edition, Final Update II, September, 1994

Comments:

Reported By: SW

Reviewed By:

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW-4-4901
Lab ID: 0301W01687
Matrix: Water
Condition: Intact

Date Reported: 05/02/01
Date Sampled: 04/09/01
Date Received: 04/11/01
Date Extracted: 04/18/02
Date Analyzed: 04/25/01

Parameter	Analytical Result	PQL	Units
DRO - Method 8015			
Diesel Range Organics (C10 - C22)	<30	30	mg/L
Oil Range Organics (C22 - C32)	<30	30	mg/L

Quality Control - Surrogate Recovery	%	QC Limits
o-Terphenyl(SUR-8015)	88	70 - 130

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: William Lipps

Analyst:

pH

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	05/04/01
Sample ID:	MW-4-4901	Date Analyzed:	04/11/01
Laboratory ID:	0301W01687	Date Sampled:	04/09/01
Sample Matrix:	Water	Date Received:	04/11/01
Condition:	Intact		

	Result	MDL
Replicate #1	8.3	0.1
Replicate #2	8.3	0.1
Replicate #3	8.3	0.1
Replicate #4	8.3	0.1

Comments:

Reported By: _____

Reviewed By: _____

ELECTRICAL CONDUCTIVITY

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	05/04/01
Sample ID:	MW-4-4901	Date Analyzed:	04/11/01
Laboratory ID:	0301W01687	Date Sampled:	04/09/01
Sample Matrix:	Water	Date Received:	04/11/01
Condition:	Intact		

	Result	MDL
Replicate #1	1210	10
Replicate #2	1210	10
Replicate #3	1210	10
Replicate #4	1210	10

Comments:

Reported By: _____

Reviewed By: _____

Radiation Safety Engineering, Inc.

3245 N. WASHINGTON ST. · CHANDLER, ARIZONA 85225-1121 (480) 897-9459
Website: www.radsafe.com FAX (480) 892-5446

Radiochemical Activity in Water (pCi/L)

Inter-Mountain Laboratories
2506 West Main Street
Farmington, NM 87401

Samples Received: April 12, 2001
Samples Completed: May 1, 2001

Sample ID	Radium 226 Activity method 903.1	Radium 228 Activity method 904	Total Radium Activity
MW 4 WO1687	< 0.3	< 1.0	< 1.0

Pierre Pouquette

Pierre Pouquette, Staff Chemist

Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

QUALITY CONTROL / QUALITY ASSURANCE

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	04/26/01
Laboratory ID:	V3MB01-109	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	04/19/01

Parameter	Analytical Result	MDL	Units
1,1,1,2-Tetrachloroethane	ND	5	µg/L
1,1,1-Trichloroethane	ND	5	µg/L
1,1,2,2-Tetrachloroethane	ND	5	µg/L
1,1,2-Trichloroethane	ND	5	µg/L
1,1-Dichloroethane	ND	5	µg/L
1,1-Dichloroethene	ND	5	µg/L
1,1-Dichloropropene	ND	5	µg/L
1,2,3-Trichlorobenzene	ND	5	µg/L
1,2,4-Trichlorobenzene	ND	5	µg/L
1,2,4-Trimethylbenzene	ND	5	µg/L
1,2-Dibromo-3-chloropropane	ND	5	µg/L
1,2-Dibromoethane	ND	5	µg/L
1,2-Dichlorobenzene	ND	5	µg/L
1,2-Dichloroethane	ND	5	µg/L
1,2-Dichloropropane	ND	5	µg/L
1,3,5-Trimethylbenzene	ND	5	µg/L
1,3-Dichlorobenzene	ND	5	µg/L
1,3-Dichloropropane	ND	5	µg/L
1,4-Dichlorobenzene	ND	5	µg/L
1,4-Dioxane	ND	1000	µg/L
2,2-Dichloropropane	ND	5	µg/L
2-Butanone (MEK)	ND	20	µg/L
2-Chloroethylvinyl ether	ND	20	µg/L
2-Chlorotoluene	ND	5	µg/L
2-Hexanone	ND	20	µg/L
4-Chlorotoluene	ND	5	µg/L
4-Isopropyltoluene	ND	5	µg/L
4-Methyl-2-pentanone (MIBK)	ND	20	µg/L
Acetone	ND	50	µg/L
Benzene	ND	5	µg/L
Bromobenzene	ND	5	µg/L
Bromochloromethane	ND	5	µg/L
Bromodichloromethane	ND	5	µg/L
Bromoform	ND	5	µg/L
Bromomethane	ND	5	µg/L
Carbon Disulfide	ND	5	µg/L
Carbon Tetrachloride	ND	5	µg/L

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Method Blank Analysis

Sample ID: Method Blank
Laboratory ID: V3MB01-109
Sample Matrix: Water

Date Reported: 04/26/01
Date Extracted: NA
Date Analyzed: 04/19/01

Parameter	Analytical Result	MDL	Units
Chlorobenzene	ND	5	µg/L
Chloroethane	ND	5	µg/L
Chloroform	ND	5	µg/L
Chloromethane	ND	5	µg/L
cis-1,2-Dichloroethene	ND	5	µg/L
cis-1,3-Dichloropropene	ND	5	µg/L
Dibromochloromethane	ND	5	µg/L
Dibromomethane	ND	5	µg/L
Dichlorodifluoromethane	ND	5	µg/L
Ethylbenzene	ND	5	µg/L
Hexachlorobutadiene	ND	5	µg/L
Isopropylbenzene	ND	5	µg/L
m,p-Xylene	ND	5	µg/L
Methylene Chloride	ND	20	µg/L
MTBE	ND	5	µg/L
n-Butylbenzene	ND	5	µg/L
n-Propylbenzene	ND	5	µg/L
Naphthalene	ND	5	µg/L
o-Xylene	ND	5	µg/L
sec-Butylbenzene	ND	5	µg/L
Styrene	ND	5	µg/L
tert-Butylbenzene	ND	5	µg/L
Tetrachloroethene (PCE)	ND	5	µg/L
Toluene	ND	5	µg/L
trans-1,2-Dichloroethene	ND	5	µg/L
trans-1,3-Dichloropropene	ND	5	µg/L
trans-1,4-Dichloro-2-butene	ND	5	µg/L
Trichloroethene (TCE)	ND	5	µg/L
Trichlorofluoromethane	ND	5	µg/L
Vinyl Acetate	ND	5	µg/L
Vinyl Chloride	ND	1	µg/L

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	109	86 - 118
1,2-Dichloroethane-d4	117	80 - 120
Toluene-d8	97	88 - 110
4-Bromofluorobenzene	79*	86 - 115

* - Out of Limits

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____ Analyst: _____

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Matrix Spike Analysis

Sample ID:	Matrix Spike	Date Reported:	04/26/01
Laboratory ID:	1301G00733MS	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	04/09/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %
1,1-Dichloroethene	ND	50	58	115
Benzene	ND	50	55	111
Chlorobenzene	ND	50	57	114
Toluene	ND	50	54	109
Trichloroethene (TCE)	ND	50	53	107

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	110	86 - 118
1,2-Dichloroethane-d4	110	80 - 120
Toluene-d8	95	88 - 110
4-Bromofluorobenzene	99	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

Analyst: _____

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Blank Spike/Duplicate Analysis

Sample ID: Blank Spike Duplicate
Laboratory ID: V3BSD01-099
Sample Matrix: Water

Date Reported: 04/26/01
Date Extracted: NA
Date Analyzed: 04/09/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
1,1-Dichloroethene	ND	50	50	100	55	111	10
Benzene	ND	50	50	100	54	108	7
Chlorobenzene	ND	50	51	102	55	111	8
Toluene	ND	50	51	101	53	107	5
Trichloroethene (TCE)	ND	50	51	101	55	109	7

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Dup %	Water QC Limits
Dibromofluoromethane	103	108	86 - 118
1,2-Dichloroethane-d4	103	108	80 - 120
Toluene-d8	98	96	88 - 110
4-Bromofluorobenzene	103	101	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

Analyst: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	04/26/01
Laboratory ID:	MB01-106	Date Extracted:	04/16/01
Sample Matrix:	Water	Date Analyzed:	04/18/01

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	µg/L
1,2-Dichlorobenzene	ND	10	µg/L
1,3-Dichlorobenzene	ND	10	µg/L
1,4-Dichlorobenzene	ND	30	µg/L
1-Methylnapthalene	ND	10	µg/L
2,4,5-Trichlorophenol	ND	10	µg/L
2,4,6-Trichlorophenol	ND	10	µg/L
2,4-Dichlorophenol	ND	10	µg/L
2,4-Dimethylphenol	ND	10	µg/L
2,4-Dinitrophenol	ND	50	µg/L
2,4-Dinitrotoluene	ND	10	µg/L
2,6-Dinitrotoluene	ND	10	µg/L
2-Chloronaphthalene	ND	10	µg/L
2-Chlorophenol	ND	10	µg/L
2-Methylnaphthalene	ND	10	µg/L
2-Methylphenol	ND	10	µg/L
2-Nitroaniline	ND	50	µg/L
2-Nitrophenol	ND	10	µg/L
3,3'-Dichlorobenzidine	ND	20	µg/L
4,6-Dinitro-2-methylphenol	ND	50	µg/L
4-Bromophenyl-phenylether	ND	10	µg/L
4-Chloro-3-methylphenol	ND	20	µg/L
4-Chloroaniline	ND	20	µg/L
4-Chlorophenyl-phenylether	ND	10	µg/L
4-Methylphenol/3-Methylphenol **	ND	10	µg/L
4-Nitroaniline	ND	20	µg/L
4-Nitrophenol	ND	50	µg/L
6-Methylchrysene	ND	10	µg/L
7,12-Dimethylbenz(a)anthracene	ND	10	µg/L
Acenaphthene	ND	10	µg/L
Acenaphthylene	ND	10	µg/L
Aniline	ND	10	µg/L
Anthracene	ND	10	µg/L
Azobenzene	ND	10	µg/L
Benzidine	ND	10	µg/L
Benzo(a)anthracene	ND	10	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	04/26/01
Laboratory ID:	MB01-106	Date Extracted:	04/16/01
Sample Matrix:	Water	Date Analyzed:	04/18/01

Parameter	Analytical Result	Detection Limit	Units
Benzo(a)pyrene	ND	10	µg/L
Benzo(b)fluoranthene	ND	10	µg/L
Benzo(g,h,i)perylene	ND	10	µg/L
Benzo(j)fluoranthene	ND	10	µg/L
Benzo(k)fluoranthene	ND	10	µg/L
Benzoic Acid	ND	50	µg/L
Benzyl Alcohol	ND	20	µg/L
bis(2-Chloroethoxy)methane	ND	10	µg/L
bis(2-Chloroethyl)ether	ND	10	µg/L
bis(2-Chloroisopropyl)ether	ND	10	µg/L
bis(2-Ethylhexyl)phthalate	ND	10	µg/L
Butylbenzylphthalate	ND	10	µg/L
Chrysene	ND	10	µg/L
Di-n-Butylphthalate	ND	10	µg/L
Di-n-Octylphthalate	ND	10	µg/L
Dibenz(a,h)anthracene	ND	10	µg/L
Dibenz(a,j)acridine	ND	10	µg/L
Dibenzofuran	ND	10	µg/L
Diethylphthalate	ND	20	µg/L
Dimethylphthalate	ND	40	µg/L
Fluoranthene	ND	10	µg/L
Fluorene	ND	10	µg/L
Hexachlorobenzene	ND	10	µg/L
Hexachlorobutadiene	ND	10	µg/L
Hexachlorocyclopentadiene	ND	10	µg/L
Hexachloroethane	ND	10	µg/L
Indene	ND	10	µg/L
Indeno(1,2,3-cd)pyrene	ND	10	µg/L
Isophorone	ND	10	µg/L
N-Nitrosodi-n-propylamine	ND	10	µg/L
N-Nitrosodiphenylamine	ND	10	µg/L
Naphthalene	ND	10	µg/L
Nitrobenzene	ND	10	µg/L
Pentachlorophenol	ND	50	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	04/26/01
Laboratory ID:	MB01-106	Date Extracted:	04/16/01
Sample Matrix:	Water	Date Analyzed:	04/18/01

Parameter	Analytical Result	Detection Limit	Units
Phenanthrene	ND	10	µg/L
Phenol	ND	10	µg/L
Pyrene	ND	10	µg/L
Pyridine	ND	10	µg/L
Quinoline	ND	10	µg/L
Total Cresols	ND	10	µg/L

ND - Compound not detected at stated Detection Limit.
** - Compounds Coelute

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	27	21 - 100
Phenol-d6	20	10 - 94
Nitrobenzene-d5	45	35 - 114
2-Fluorobiphenyl	52	43 - 116
2,4,6-Tribromophenol	65	10 - 123
Terphenyl-d14	89	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

Analyst: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Blank Spike/Spike Duplicate Analysis

Sample ID: Blank Spike Duplicate
Laboratory ID: BSD01-096
Sample Matrix: Water

Date Reported: 04/26/01
Date Extracted: 04/06/01
Date Analyzed: 04/10/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
1,2,4-Trichlorobenzene	ND	100	65	65	46	46	34
1,4-Dichlorobenzene	ND	100	59	59	41	41	36
2,4-Dinitrotoluene	ND	100	78	78	74	74	5
2-Chlorophenol	ND	200	115	58	89	44	26
4-Chloro-3-methylphenol	ND	200	126	63	101	50	22
4-Nitrophenol	ND	200	60	30	73	36	20
Acenaphthene	ND	100	75	75	62	62	20
N-Nitrosodi-n-propylamine	ND	100	75	75	57	57	28
Pentachlorophenol	ND	200	160	80	156	78	3
Phenol	ND	200	51	26	45	22	13
Pyrene	ND	100	73	73	71	71	3

ND - Compound not detected at stated Detection Limit.

QUALITY CONTROL:

Surrogate Recoveries	%	Dup %	Water QC Limits
2-Fluorophenol	34	28	21 - 100
Phenol-d6	25	22	10 - 94
Nitrobenzene-d5	73	55	35 - 114
2-Fluorobiphenyl	72	56	43 - 116
2,4,6-Tribromophenol	90	90	10 - 123
Terphenyl-d14	82	79	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

Analyst: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Matrix Spike Analysis

Sample ID:	Matrix Spike	Date Reported:	04/26/01
Laboratory ID:	1301W00707MS	Date Extracted:	04/06/01
Sample Matrix:	Water	Date Analyzed:	04/10/01

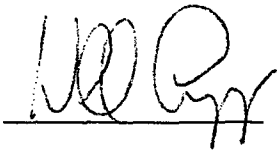
Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %
1,2,4-Trichlorobenzene	ND	100	63	63
1,4-Dichlorobenzene	ND	100	58	58
2,4-Dinitrotoluene	ND	100	82	82
2-Chlorophenol	ND	200	120	60
4-Chloro-3-methylphenol	ND	200	132	66
4-Nitrophenol	ND	200	121	60
Acenaphthene	ND	100	78	78
N-Nitrosodi-n-propylamine	ND	100	66	66
Pentachlorophenol	ND	200	192	96
Phenol	ND	200	64	32
Pyrene	ND	100	72	72

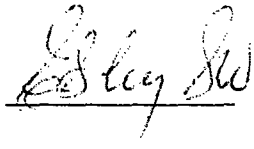
ND - Compound not detected at stated Detection Limit.

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	40	21 - 100
Phenol-d6	32	10 - 94
Nitrobenzene-d5	74	35 - 114
2-Fluorobiphenyl	71	43 - 116
2,4,6-Tribromophenol	92	10 - 123
Terphenyl-d14	81	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

Analyst: 

Quality Control / Quality Assurance

Polynuclear Aromatic Hydrocarbons

Method Blank

Client:	**Giant Refining - Ciniza**	Date Reported:	05/04/01
Project:	Spring 2001 GW	Date Analyzed:	04/20/01
Lab ID:	0301W01687	Date Received:	04/11/01
Sample Matrix:	Water		

Analyte	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	2.5
Acenapthylene	ND	ug/L	2.5
Anthracene	ND	ug/L	0.5
Benzo(a)anthracene	ND	ug/L	0.02
Benzo(b)fluoranthene	ND	ug/L	0.05
Benzo(a)pyrene	ND	ug/L	0.02
Benzo(g,h,i)perylene	ND	ug/L	0.03
Benzo(k)fluoranthene	ND	ug/L	0.02
Chrysene	ND	ug/L	0.2
Dibenz(a,h)anthracene	ND	ug/L	0.04
Fluoranthene	ND	ug/L	0.3
Fluorene	ND	ug/L	0.5
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.08
2-Methylnaphthene	ND	ug/L	2.5
Naphthalene	ND	ug/L	2.5
Phenanthrene	ND	ug/L	0.5
Pyrene	ND	ug/L	0.3

Reference: SM - "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995.

Reported By: _____

Reviewed By: _____

Quality Control / Quality Assurance

Polynuclear Aromatic Hydrocarbons

Spike Analysis

Client:	**Giant Refining - Ciniza**	Date Reported:	05/04/01
Project:	Spring 2001 GW	Date Analyzed:	04/20/01
Lab ID:	0301W01687	Date Received:	04/11/01
Sample Matrix:	Water		

Analyte	Concentration		Accuracy %	
	Spiked	Measured	LCS	Limits
Naphthalene	40.4	23.3	58	41-82
Acenaphthylene	40.4	25.2	62	43-91
Acenaphthene	40.4	26.6	66	48-85
Fluorene	4.1	2.66	65	48-87
Phenanthrene	3.07	2.29	75	60-86
Fluoranthene	1.92	1.61	84	72-96
Pyrene	3.85	3.15	82	73-96
Benzo(a)pyrene	0.253	0.226	89	66-118
Benzo(g,h,i)perylene	0.553	0.487	88	79-112

Surrogates	Result %	Accuracy % Limits
Benzo(a)pyrene	90	54.5-116

Reference: SM - "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995.

Reported By: SL

Reviewed By:

EPA METHOD 8082
POLYCHLORINATED BIPHENYLS (PCBs) BY GC
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	04/26/01
Laboratory ID:	MB01-106	Date Extracted:	04/16/01
Sample Matrix:	Water	Date Analyzed:	04/20/01

Parameter	Analytical Result	Detection Limit	Units
Aroclor 1016	ND	1	µg/L
Aroclor 1221	ND	2	µg/L
Aroclor 1232	ND	1	µg/L
Aroclor 1242	ND	1	µg/L
Aroclor 1248	ND	1	µg/L
Aroclor 1254	ND	1	µg/L
Aroclor 1260	ND	1	µg/L
Aroclor 1262	ND	1	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
2,4,5,6-tetrachloro-m-xylene	67	50 - 150
Decachlorobiphenyl	111	50 - 150

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 0, December 1996.

Reveiwed By: _____

Analyst: _____

EPA METHOD 8082
POLYCHLORINATED BIPHENYLS (PCBs) BY GC
Blank Spike Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	04/26/01
Laboratory ID:	BSD01-092	Date Extracted:	04/02/01
Sample Matrix:	Water	Date Analyzed:	04/09/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
Aroclor 1260	ND	2.0	1.6	78	1.6	81	5

Quality Control - Surrogate Recovery	%	Dup %	QC Limits
2,4,5,6-tetrachloro-m-xylene	66	67	50 - 150
Decachlorobiphenyl	97	98	50 - 150

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 0, December 1996.

Reveiwed By: _____

Analyst: _____

ETHYLENE DIBROMIDE BY GC/ECD

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	04/26/01
Laboratory ID:	MB01-109	Date Extracted:	04/19/01
Sample Matrix:	Water	Date Analyzed:	04/19/01

Parameter	Analytical Result	Detection Limit	Units
Ethylene Dibromide	ND	0.1	µg/L

ND - Compound not detected at stated Detection Limit.

Reveiwed By: _____

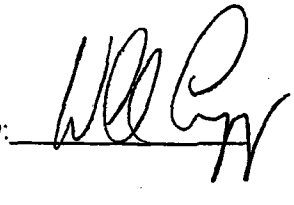
Analyst: _____

QUALITY CONTROL / QUALITY ASSURANCE
ETHYLENE DIBROMIDE BY GC/ECD

Client:	**Giant Refining Co. - Ciniza**	Date Reported:	04/26/01
Project:	Spring 2001 Groundwater	Date Sampled:	04/09/01
Sample ID:	Matrix Spike	Date Received:	04/11/01
Lab ID:	1301G00767MS	Date Extracted:	04/19/01
Sample Matrix:	Water	Date Analyzed:	04/19/01

Parameter	Result	Spike Added	Spike Result	Spike Recovery	Units
Method 504					
Ethylene Dibromide	ND	2.0	2.3	115%	ug/L

ND - Compound Not Detected At Stated Detection Limit.

Reviewed By: 

EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	04/26/01
Laboratory ID:	MB01-110A	Date Extracted:	04/20/01
Sample Matrix:	Water	Date Analyzed:	04/20/01

Parameter	Analytical Result	PQL	Units
9020B			
Total Organic Halides (TOX)	ND	40	µg/L

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

Analyst: _____

EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)
Blank Spike Duplicate Analysis

Sample ID: Blank Spike Duplicate
Laboratory ID: BSD01-110
Sample Matrix: Water

Date Reported: 04/26/01
Date Extracted: 04/20/01
Date Analyzed: 04/20/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
9020B							
Total Organic Halides (TOX)	ND	50	50	100	51	102	3

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

Analyst: _____

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

June 11, 2001

Dorinda Mancini
Giant Refining Company
Rt. 3, Box 7
Gallup, NM 87301

Ms. Mancini:

Enclosed please find the reports for the samples received by our laboratory for analysis on May 17, 2001.

If you have any questions about the results of these analyses, please don't hesitate to call at your convenience.

Thank you for choosing IML for your analytical needs!

Sincerely,

Sharon Williams
Organic Analyst/IML-Farmington

Enclosure

xc: File

inl
Inter- Mountain
Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
Spring 2001 Groundwater Event	Giant - Ciniza	
Sampler: (Signature) S C Morris	**Chain of Custody Tape No.**	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	Remarks
MW-5-5150	5/15/01	1530	2346	Water	25	See attached sheet for parameters
						25

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
S C Morris	5/16/01	0900			
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**
			Sharon Williams	5/17/01	0910

Inter-Mountain Laboratories, Inc.

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Sheridan, Wyoming 82801
Telephone (307) 674-7506

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Sheridan, Wyoming 82801
Telephone (307) 672-8945

☐ 1701 Phillips Circle
Gillette, Wyoming 82718
Telephone (307) 682-[illegible]45

☒ 2506 West Main Street
Farmington, NM 87401
Telephone (505) 326-4737

☐ 11183 State Hwy. 30
College Station, TX 77845
Telephone (979) 776-8945

69807

iml Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

GIANT REFINING – CINIZA
SPRING 2001 GROUNDWATER
MW - 5 - 51501

Case Narrative

On May 17, 2001, one water sample was submitted to Inter-Mountain Laboratories - Farmington for analysis. The parameters performed on the sample are indicated on the accompanying Chain of Custody.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The methods used in the analysis of the sample reported herein are found in: EPA – "Methods for Chemical Analysis of water and Wastes (MCAWW)", EPA 600/4-79-020 – March. 1983, "Methods for the Determination of Metals in Environmental Samples", Supplement I – 600/R-94-111 – May, 1994, SM – "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF, 19th Edition, 1995.

Quality control data appear at the end of the analytical report and may be identified by title. If there are any questions regarding the information presented in this report package, please feel free to contact us at your convenience.

Sincerely,

Sharon Williams
Organic Analyst/IML-Farmington

iml Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

CASE NARRATIVE

Client:	Giant Refining Company
Project:	Ciniza Groundwater
Set number:	0301W02346
Date received:	05-17-01
Date reported:	06-07-01
Chain of Custody:	89807

Inter-Mountain Laboratories, Inc., Farmington, NM received the samples listed above for analysis in a cool, 4° C, and intact condition. Enclosed are the results of the sample analyses.

Comment:

The sample, MW-5-51501, was tested for Ethylene Dibromide initially by Method 8260B within the recommended holding time. The result of the Method 8260B analysis was None Detected to a MDL of 5 ug/L. A subsequent analysis of the sample was performed by Method 504 beyond the recommended holding time. The result of the Method 504 analysis was also None Detected to a MDL of 0.1 ug/L.

I apologize for the hold time exceedances and for any inconvenience this may have caused.

If you have any question concerning the data, please feel free to call the laboratory, (505) 326-4737.

Thank you.

Wes Harvey
Laboratory Director
IML-Farmington

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW-5-51501
Lab ID: 0301W02346
Matrix: Water
Condition: Intact

Date Received: 05/17/01
Date Reported: 06/08/01
Date Sampled: 05/15/01
Time Sampled: 1530

Parameter	Analytical Result	Units		Units	PQL	Method	Analysis Date	Time	Init.
General Parameters									
PH	9.0	s.u.			0.1	EPA 150.1	05/17/01	1600	WL
Electrical Conductivity	1,160	µmhos/cm			10	EPA 120.1	05/17/01	1600	WL
Solids - Total Dissolved	660	mg/L			10	EPA 160.1	05/22/01	0722	ML
Solids - Total Suspended	4	mg/L			2	EPA 160.2	05/22/01	1130	MC
Alkalinity (CaCO3)	350	mg/L			1	EPA 310.1	05/21/01	1410	MC
Cyanide (Total) - Colorimetric	<0.01	mg/L			0.01	EPA 335.2	05/29/01	0800	KB
Hardness (CaCO3)	4	mg/L			1	EPA 200.7	06/08/01	1526	WL
Phosphorus - Ortho-P	0.12	mg/L			0.02	SM 4500P-E	06/11/01	1407	MC
Total Phenolics	0.04	mg/L			0.01	EPA 420.1	05/23/01	0800	KB
Major Anions									
Bicarbonate (HCO3)	383	mg/L	6.28	meq/L	1	EPA 310.1	05/21/01	1410	MC
Carbonate (CO3)	22	mg/L	0.72	meq/L	1	EPA 310.1	05/21/01	1410	MC
Chloride	65	mg/L	1.85	meq/L	1	EPA 300.0	05/29/01	1027	WL
Bromide (Br)	<0.05	mg/L	<0.01	meq/L	0.05	EPA 300.0	05/29/01	1027	WL
Fluoride	0.7	mg/L	<0.01	meq/L	0.1	EPA 300.0	05/29/01	1027	WL
Hydroxide (OH)	<1	mg/L	<0.01	meq/L	1	EPA 310.1	05/21/01	1410	MC
Nitrogen - Nitrate/Nitrite	<0.05	mg/L	<0.01	meq/L	0.05	EPA 353.2	06/07/01	1600	WL
Sulfate	154	mg/L	3.21	meq/L	5	EPA 300.0	05/29/01	1027	WL
Major Cations									
Calcium	1.4	mg/L	0.07	meq/L	0.2	EPA 200.7	06/08/01	1526	WL
Magnesium	<0.2	mg/L	0.01	meq/L	0.2	EPA 200.7	06/08/01	1526	WL
Potassium	0.8	mg/L	0.02	meq/L	0.2	EPA 200.7	06/08/01	1526	WL
Sodium	273	mg/L	11.86	meq/L	0.2	EPA 200.7	06/08/01	1526	WL
Anion/Cation Balance QC Information									
Anion Sum			12.08	meq/L	0.01	SM 1030			
Cation Sum			11.95	meq/L	0.01	SM 1030			
Cation/Anion Balance			0.54	%	0.01	SM 1030			

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes (MCAWW)" - EPA/600/4-79-020 - March, 1983.
EPA - "Methods for the Determination of Metals in Environmental Samples" - Supplement I - 600/R-94-111 - May, 1994.
SM - "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF,19th Edition, 1995.

Reviewed By: William Lipps

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW-5-51501
Lab ID: 0301W02346
Matrix: Water
Condition: Intact

Date Received: 05/17/01
Date Reported: 06/11/01
Date Sampled: 05/15/01
Time Sampled: 1530

Parameter	Analytical Result	Units	Units	PQL	Method	Analysis Date	Time	Init.
Total Metals								
Aluminum	<0.05	mg/L		0.05	EPA 200.7	05/22/01	1523	WL
Arsenic	<0.005	mg/L		0.005	SM 3114B	05/31/01	1615	BB
Barium	0.02	mg/L		0.01	EPA 200.7	05/22/01	1523	WL
Boron	0.69	mg/L		0.01	EPA 200.7	05/22/01	1523	WL
Cadmium	<0.001	mg/L		0.001	EPA 200.9	06/04/01	1050	SW
Chromium	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1523	WL
Cobalt	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1523	WL
Copper	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1523	WL
Iron	0.05	mg/L		0.02	EPA 200.7	05/22/01	1523	WL
Lead	<0.005	mg/L		0.005	EPA 200.9	06/05/01	0840	SW
Manganese	0.08	mg/L		0.01	EPA 200.7	05/22/01	1523	WL
Mercury	<0.001	mg/L		0.001	EPA 245.1	05/31/01	1000	BB
Molybdenum	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1523	WL
Nickel	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1523	WL
Selenium	<0.005	mg/L		0.005	SM 3114B	05/22/01	1430	JG
Silver	<0.01	mg/L		0.01	EPA 200.7	05/22/01	1523	WL
Uranium	<0.3	mg/L		0.3	EPA 200.7	05/22/01	1523	WL
Zinc	0.026	mg/L		0.025	EPA 200.7	05/22/01	1523	WL

Reference: EPA - "Methods for the Determination of Metals in Environmental Samples" - Supplement I - 600/R-94-111 - May, 1994.
SM - "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WEF,19th Edition, 1995.

Reviewed By:

William Lipps

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	MW-5-51501	Date Received:	NG
Laboratory ID:	0301W02346	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
1,1,1,2-Tetrachloroethane	ND	5	µg/L
1,1,1-Trichloroethane	ND	5	µg/L
1,1,2,2-Tetrachloroethane	ND	5	µg/L
1,1,2-Trichloroethane	ND	5	µg/L
1,1-Dichloroethane	ND	5	µg/L
1,1-Dichloroethene	ND	5	µg/L
1,1-Dichloropropene	ND	5	µg/L
1,2,3-Trichlorobenzene	ND	5	µg/L
1,2,4-Trichlorobenzene	ND	5	µg/L
1,2,4-Trimethylbenzene	ND	5	µg/L
1,2-Dibromo-3-chloropropane	ND	5	µg/L
1,2-Dibromoethane	ND	5	µg/L
1,2-Dichlorobenzene	ND	5	µg/L
1,2-Dichloroethane	ND	5	µg/L
1,2-Dichloropropane	ND	5	µg/L
1,3,5-Trimethylbenzene	ND	5	µg/L
1,3-Dichlorobenzene	ND	5	µg/L
1,3-Dichloropropane	ND	5	µg/L
1,4-Dichlorobenzene	ND	5	µg/L
1,4-Dioxane	ND	1000	µg/L
2,2-Dichloropropane	ND	5	µg/L
2-Butanone (MEK)	ND	20	µg/L
2-Chloroethylvinyl ether	ND	20	µg/L
2-Chlorotoluene	ND	5	µg/L
2-Hexanone	ND	20	µg/L
4-Chlorotoluene	ND	5	µg/L
4-Isopropyltoluene	ND	5	µg/L
4-Methyl-2-pentanone (MIBK)	ND	20	µg/L
Acetone	ND	50	µg/L
Benzene	ND	5	µg/L
Bromobenzene	ND	5	µg/L
Bromochloromethane	ND	5	µg/L
Bromodichloromethane	ND	5	µg/L
Bromoform	ND	5	µg/L
Bromomethane	ND	5	µg/L
Carbon Disulfide	ND	5	µg/L
Carbon Tetrachloride	ND	5	µg/L

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	MW-5-51501	Date Received:	NG
Laboratory ID:	0301W02346	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
Chlorobenzene	ND	5	µg/L
Chloroethane	ND	5	µg/L
Chloroform	ND	5	µg/L
Chloromethane	ND	5	µg/L
cis-1,2-Dichloroethene	ND	5	µg/L
cis-1,3-Dichloropropene	ND	5	µg/L
Dibromochloromethane	ND	5	µg/L
Dibromomethane	ND	5	µg/L
Dichlorodifluoromethane	ND	5	µg/L
Ethylbenzene	ND	5	µg/L
Ethylene Dibromide	ND	5	µg/L
Hexachlorobutadiene	ND	5	µg/L
Isopropylbenzene	ND	5	µg/L
m,p-Xylene	ND	5	µg/L
Methylene Chloride	ND	20	µg/L
MTBE	ND	5	µg/L
n-Butylbenzene	ND	5	µg/L
n-Propylbenzene	ND	5	µg/L
Naphthalene	ND	5	µg/L
o-Xylene	ND	5	µg/L
sec-Butylbenzene	ND	5	µg/L
Styrene	ND	5	µg/L
tert-Butylbenzene	ND	5	µg/L
Tetrachloroethene (PCE)	ND	5	µg/L
Toluene	ND	5	µg/L
trans-1,2-Dichloroethene	ND	5	µg/L
trans-1,3-Dichloropropene	ND	5	µg/L
trans-1,4-Dichloro-2-butene	ND	5	µg/L
Trichloroethene (TCE)	ND	5	µg/L
Trichlorofluoromethane	ND	5	µg/L
Vinyl Acetate	ND	5	µg/L
Vinyl Chloride	ND	1	µg/L

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	105	86 - 118
1,2-Dichloroethane-d4	100	80 - 120
Toluene-d8	100	88 - 110
4-Bromofluorobenzene	97	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	MW-5-51501	Date Received:	NG
Laboratory ID:	0301W02346	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	µg/L
1,2-Dichlorobenzene	ND	10	µg/L
1,3-Dichlorobenzene	ND	10	µg/L
1,4-Dichlorobenzene	ND	30	µg/L
1-Methylnapthalene	ND	10	µg/L
2,4,5-Trichlorophenol	ND	10	µg/L
2,4,6-Trichlorophenol	ND	10	µg/L
2,4-Dichlorophenol	ND	10	µg/L
2,4-Dimethylphenol	ND	10	µg/L
2,4-Dinitrophenol	ND	50	µg/L
2,4-Dinitrotoluene	ND	10	µg/L
2,6-Dinitrotoluene	ND	10	µg/L
2-Chloronaphthalene	ND	10	µg/L
2-Chlorophenol	ND	10	µg/L
2-Methylnaphthalene	ND	10	µg/L
2-Methylphenol	ND	10	µg/L
2-Nitroaniline	ND	50	µg/L
2-Nitrophenol	ND	10	µg/L
3,3'-Dichlorobenzidine	ND	20	µg/L
4,6-Dinitro-2-methylphenol	ND	50	µg/L
4-Bromophenyl-phenylether	ND	10	µg/L
4-Chloro-3-methylphenol	ND	20	µg/L
4-Chloroaniline	ND	20	µg/L
4-Chlorophenyl-phenylether	ND	10	µg/L
4-Methylphenol/3-Methylphenol **	ND	10	µg/L
4-Nitroaniline	ND	20	µg/L
4-Nitrophenol	ND	50	µg/L
6-Methylchrysene	ND	10	µg/L
7,12-Dimethylbenz(a)anthracene	ND	10	µg/L
Acenaphthene	ND	10	µg/L
Acenaphthylene	ND	10	µg/L
Aniline	ND	10	µg/L
Anthracene	ND	10	µg/L
Azobenzene	ND	10	µg/L
Benzidine	ND	10	µg/L
Benzo(a)anthracene	ND	10	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	MW-5-51501	Date Received:	NG
Laboratory ID:	0301W02346	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Benzo(a)pyrene	ND	10	µg/L
Benzo(b)fluoranthene	ND	10	µg/L
Benzo(g,h,i)perylene	ND	10	µg/L
Benzo(j)fluoranthene	ND	10	µg/L
Benzo(k)fluoranthene	ND	10	µg/L
Benzoic Acid	ND	50	µg/L
Benzyl Alcohol	ND	20	µg/L
bis(2-Chloroethoxy)methane	ND	10	µg/L
bis(2-Chloroethyl)ether	ND	10	µg/L
bis(2-Chloroisopropyl)ether	ND	10	µg/L
bis(2-Ethylhexyl)phthalate	ND	10	µg/L
Butylbenzylphthalate	ND	10	µg/L
Chrysene	ND	10	µg/L
Di-n-Butylphthalate	ND	10	µg/L
Di-n-Octylphthalate	ND	10	µg/L
Dibenz(a,h)anthracene	ND	10	µg/L
Dibenz(a,j)acridine	ND	10	µg/L
Dibenzofuran	ND	10	µg/L
Diethylphthalate	ND	20	µg/L
Dimethylphthalate	ND	40	µg/L
Fluoranthene	ND	10	µg/L
Fluorene	ND	10	µg/L
Hexachlorobenzene	ND	10	µg/L
Hexachlorobutadiene	ND	10	µg/L
Hexachlorocyclopentadiene	ND	10	µg/L
Hexachloroethane	ND	10	µg/L
Indene	ND	10	µg/L
Indeno(1,2,3-cd)pyrene	ND	10	µg/L
Isophorone	ND	10	µg/L
N-Nitrosodi-n-propylamine	ND	10	µg/L
N-Nitrosodiphenylamine	ND	10	µg/L
Naphthalene	ND	10	µg/L
Nitrobenzene	ND	10	µg/L
Pentachlorophenol	ND	50	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	MW-5-51501	Date Received:	NG
Laboratory ID:	0301W02346	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Phenanthrene	ND	10	µg/L
Phenol	ND	10	µg/L
Pyrene	ND	10	µg/L
Pyridine	ND	10	µg/L
Quinoline	ND	10	µg/L
Total Cresols	ND	10	µg/L

ND - Compound not detected at stated Detection Limit.
** - Compounds Coelute

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	33	21 - 100
Phenol-d6	24	10 - 94
Nitrobenzene-d5	47	35 - 114
2-Fluorobiphenyl	55	43 - 116
2,4,6-Tribromophenol	84	10 - 123
Terphenyl-d14	88	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

Inter-Mountain Laboratories, Inc.
2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW-5-51501
Lab ID: 0301W02346
Matrix: Water
Condition: Intact

Date Reported: 06/08/01
Date Sampled: 05/15/01
Date Received: 05/17/01
Date Extracted: 05/22/01
Date Analyzed: 05/24/01

Parameter	Analytical Result	PQL	Units
POLYNUCLEAR AROMATIC HYDROCARBONS			
Acenaphthene	<2.5	2.5	µg/L
Acenaphthylene	<0.8	0.8	µg/L
Anthracene	<0.02	0.02	µg/L
Benzo(a)anthracene	<0.05	0.05	µg/L
Benzo(b)fluoranthene	<0.03	0.03	µg/L
Benzo(a)pyrene	<0.02	0.02	µg/L
Benzo(g,h,i)perylene	<0.02	0.02	µg/L
Benzo(k)fluoranthene	<0.2	0.2	µg/L
Chrysene	<0.04	0.04	µg/L
Dibenz(a,h)anthracene	<0.3	0.3	ug/L
Fluoranthene	<0.8	0.8	µg/L
Fluorene	<0.08	0.08	µg/L
Indeno(1,2,3-cd)pyrene	<2.5	2.5	µg/L
2-Methylnaphthalene	<2.5	2.5	ug/L
Naphthalene	<2.5	2.5	µg/L
Phenanthrene	<0.6	0.6	µg/L
Pyrene	<0.3	0.3	µg/L

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: William Lipps

Analyst:

EPA METHOD 8082
POLYCHLORINATED BIPHENYLS (PCBs) BY GC

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project:	Ciniza	Date Sampled:	05/15/01
Sample ID:	MW-5-51501	Date Received:	NG
Laboratory ID:	0301W02346	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

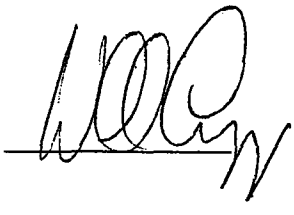
Parameter	Analytical Result	Detection Limit	Units
Aroclor 1016	ND	1	µg/L
Aroclor 1221	ND	2	µg/L
Aroclor 1232	ND	1	µg/L
Aroclor 1242	ND	1	µg/L
Aroclor 1248	ND	1	µg/L
Aroclor 1254	ND	1	µg/L
Aroclor 1260	ND	1	µg/L
Aroclor 1262	ND	1	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
2,4,5,6-tetrachloro-m-xylene	48*	50 - 150
Decachlorobiphenyl	84	50 - 150

* - Out of Limits

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 0, December 1996.

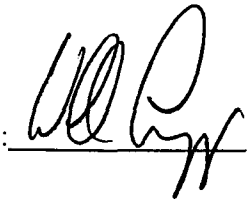
Reveiwed By: 

ETHYLENE DIBROMIDE BY GC/ECD
Method 504

Client:	**Giant Refining Co. - Ciniza**	Date Reported:	06/07/01
Project:	Spring 2001 Groundwater	Date Sampled:	05/15/01
Sample ID:	MW-5-51501	Date Received:	05/17/01
Lab ID:	0301W02346	Date Extracted:	06/07/01
Sample Matrix:	Water	Date Analyzed:	06/07/01

Parameter	Result	Detection Limit	Units
Ethylene Dibromide	ND	0.1	ug/L

ND - Compound Not Detected At Stated Detection Limit.

Reviewed By: 

EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)

Client:	**Giant Refining Company**	Date Reported:	06/07/01
Project ID:	Ciniza	Date Sampled:	05/15/01
Sample ID:	MW-5-51501	Date Received:	NG
Laboratory ID:	0301W02346	Date Extracted:	05/24/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Replicate	Analytical Result	PQL	Units
9020B				
Total Organic Halides (TOX)	1	ND	30	µg/L
Total Organic Halides (TOX)	2	ND	30	µg/L
Total Organic Halides (TOX)	3	ND	30	µg/L
Total Organic Halides (TOX)	4	ND	30	µg/L

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

TOTAL ORGANIC CARBON

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	06/11/01
Sample ID:	MW-5-51501	Date Analyzed:	06/11/01
Laboratory ID:	0301W02346	Date Sampled:	05/15/01
Sample Matrix:	Water	Date Received:	05/17/01
Condition:	Intact		

	Result mg/L	MDL
Replicate #1	ND	1.00
Replicate #2	ND	1.00
Replicate #3	ND	1.00
Replicate #4	ND	1.00

ND - Analyte not detected

References: Method 415.1: TOTAL ORANIC CARBON (TOC). Test Methods For Evaluating Waste and Solid Wastes, SW-846, USEPA, 3rd Edition, Final Update II, September, 1994

Comments:

Reported By: _____

Reviewed By: _____

Inter·Mountain Laboratories, Inc.
2506 West Main Street
Farmington, NM 87401

Client: Giant Refining Co. (Gallup)
Project: Spring 2001 Groundwater
Sample ID: MW-5-51501
Lab ID: 0301W02346
Matrix: Water
Condition: Intact

Date Reported: 06/11/01
Date Sampled: 05/15/01
Date Received: 05/17/01
Date Extracted: 05/25/01
Date Analyzed: 05/25/01

Parameter	Analytical Result	PQL	Units
DRO - Method 8015			
Diesel Range Organics (C10 - C22)	<30	30	mg/L
Oil Range Organics (C22 - C32)	<30	30	mg/L

Quality Control - Surrogate Recovery	%	QC Limits
o-Terphenyl(SUR-8015)	99	70 - 130

Reference: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", United States Environmental Protection Agency, November, 1986.

Reviewed By: William Lipps

Analyst:

pH

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	06/07/01
Sample ID:	MW-5-051501	Date Analyzed:	05/17/01
Laboratory ID:	0301W02346	Date Sampled:	05/15/01
Sample Matrix:	Water	Date Received:	05/17/01
Condition:	Intact		

	Result	MDL
Replicate #1	9.0	0.1
Replicate #2	9.0	0.1
Replicate #3	9.0	0.1
Replicate #4	9.0	0.1

Comments:

Reported By: _____

Reviewed By: _____

ELECTRICAL CONDUCTIVITY

Client:	**Giant Refining - Ciniza**		
Project:	Spring 2001 Groundwater	Date Reported:	06/07/01
Sample ID:	MW-5-051501	Date Analyzed:	05/17/01
Laboratory ID:	0301W02346	Date Sampled:	05/15/01
Sample Matrix:	Water	Date Received:	05/17/01
Condition:	Intact		

	Result	MDL
Replicate #1	1160	10
Replicate #2	1160	10
Replicate #3	1160	10
Replicate #4	1160	10

Comments:

Reported By: _____

Reviewed By: _____

Radiation Safety Engineering, Inc.

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Radiochemical Activity in Water (pCi/L)

Inter-Mountain Laboratories
2506 West Main Street
Farmington, NM 87401

Samples Received: May 21, 2001
Samples Completed: June 1, 2001

Sample ID	Radium 226 Activity method 903.1	Radium 228 Activity method 904	Total Radium Activity
MW-5-51501	< 0.1	< 0.4	< 0.4

Robert L. Metzger, Ph.D., C.H.P.

QUALITY CONTROL / QUALITY ASSURANCE

QUALITY CONTROL / QUALITY ASSURANCE

Blank Analysis

TOTAL METALS

Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	06/05/01
Sample Matrix:	Water	Date Received:	05/17/01

Method Blank Analysis

Parameter	Result	Detection Limit	Units
Aluminum	ND	0.05	mg/L
Arsenic	ND	0.005	mg/L
Barium	ND	0.01	mg/L
Boron	ND	0.01	mg/L
Cadmium	ND	0.001	mg/L
Chromium	ND	0.01	mg/L
Cobalt	ND	0.01	mg/L
Copper	ND	0.01	mg/L
Iron	ND	0.02	mg/L
Lead	ND	0.005	mg/L
Manganese	ND	0.01	mg/L
Mercruy	ND	0.001	mg/L
Molybdenum	ND	0.01	mg/L
Nickel	ND	0.01	mg/L
Selenium	ND	0.005	mg/L
Silver	ND	0.01	mg/L
Uranium	ND	0.1	mg/L
Zinc	ND	0.025	mg/L

References: Method 6010: Acid Digestion for Water and Waste Water, SW-846, Rev. 1, July 1992.

Comments:

Reported by _____

Reviewed by _____

QUALITY CONTROL / QUALITY ASSURANCE

Spike Analysis

TOTAL METALS

Client: **Giant Refining - Ciniza**
Project: Spring 2001 GW
Sample Matrix: Water

Date Reported: 06/08/01
Date Analyzed: 06/05/01
Date Received: 05/17/01

Spike Analysis

Parameter	Spike Result (mg/L)	Sample Result (mg/L)	Spike Added (mg/L)	Percent Recovery
Aluminum	1.27	0.75	0.50	**104%**
Arsenic	0.011	<0.005	0.010	**111%**
Barium	0.88	<0.01	1.00	**88%**
Boron	0.11	<0.01	0.10	**107%**
Cadmium	0.003	<0.001	0.003	**100%**
Chromium	0.10	<0.01	0.10	**103%**
Cobalt	0.09	<0.01	0.10	**94%**
Copper	0.10	<0.01	0.10	**103%**
Iron	1.19	0.66	0.50	**106%**
Lead	0.024	<0.005	0.025	**95%**
Manganese	1.68	1.10	0.50	**116%**
Mercury	0.002	<0.001	0.002	**113%**
Molybdenum	0.10	<0.01	0.10	**98%**
Nickel	0.10	<0.01	0.10	**96%**
Selenium	0.025	<0.005	0.025	**99%**
Silver	0.08	<0.01	0.10	**81%**
Uranium	0.5	<0.1	0.5	**104%**
Zinc	0.110	<0.025	0.100	**110%**

References: Method 6010: Acid Digestion for Water and Waste Water, SW-846, Rev. 1, July 1992.

Comments:

Reported by _____

Reviewed by _____

QUALITY CONTROL / QUALITY ASSURANCE

Known Analysis

TOTAL METALS

Client: **Giant Refining - Ciniza**
Project: Spring 2001 GW
Sample Matrix: Water

Date Reported: 06/08/01
Date Analyzed: 06/05/01
Date Received: 05/17/01

Known Analysis

Parameter	Found Result	Known Result	Percent Recovery	Units
Aluminum	1.88	2.00	**94%**	mg/L
Arsenic	0.039	0.040	**98%**	mg/L
Barium	1.94	2.00	**97%**	mg/L
Boron	1.83	2.00	**92%**	mg/L
Cadmium	0.005	0.005	**102%**	mg/L
Chromium	1.97	2.00	**99%**	mg/L
Cobalt	1.91	2.00	**96%**	mg/L
Copper	1.85	2.00	**93%**	mg/L
Iron	1.88	2.00	**94%**	mg/L
Lead	0.051	0.050	**103%**	mg/L
Manganese	1.82	2.00	**91%**	mg/L
Mercury	0.003	0.003	**108%**	mg/L
Molybdenum	2.00	2.00	**100%**	mg/L
Nickel	1.95	2.00	**98%**	mg/L
Selenium	0.020	0.020	**100%**	mg/L
Silver	0.23	0.25	**92%**	mg/L
Uranium	1.90	2.00	**95%**	mg/L
Zinc	1.92	2.00	**96%**	mg/L

References: Method 6010: Acid Digestion for Water and Waste Water, SW-846, Rev. 1, July 1992.

Comments:

Reported by _____

Reviewed by _____

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	V3MB01-141	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
1,1,1,2-Tetrachloroethane	ND	5	µg/L
1,1,1-Trichloroethane	ND	5	µg/L
1,1,2,2-Tetrachloroethane	ND	5	µg/L
1,1,2-Trichloroethane	ND	5	µg/L
1,1-Dichloroethane	ND	5	µg/L
1,1-Dichloroethene	ND	5	µg/L
1,1-Dichloropropene	ND	5	µg/L
1,2,3-Trichlorobenzene	ND	5	µg/L
1,2,4-Trichlorobenzene	ND	5	µg/L
1,2,4-Trimethylbenzene	ND	5	µg/L
1,2-Dibromo-3-chloropropane	ND	5	µg/L
1,2-Dibromoethane	ND	5	µg/L
1,2-Dichlorobenzene	ND	5	µg/L
1,2-Dichloroethane	ND	5	µg/L
1,2-Dichloropropane	ND	5	µg/L
1,3,5-Trimethylbenzene	ND	5	µg/L
1,3-Dichlorobenzene	ND	5	µg/L
1,3-Dichloropropane	ND	5	µg/L
1,4-Dichlorobenzene	ND	5	µg/L
1,4-Dioxane	ND	1000	µg/L
2,2-Dichloropropane	ND	5	µg/L
2-Butanone (MEK)	ND	20	µg/L
2-Chloroethylvinyl ether	ND	20	µg/L
2-Chlorotoluene	ND	5	µg/L
2-Hexanone	ND	20	µg/L
4-Chlorotoluene	ND	5	µg/L
4-Isopropyltoluene	ND	5	µg/L
4-Methyl-2-pentanone (MIBK)	ND	20	µg/L
Acetone	ND	50	µg/L
Benzene	ND	5	µg/L
Bromobenzene	ND	5	µg/L
Bromochloromethane	ND	5	µg/L
Bromodichloromethane	ND	5	µg/L
Bromoform	ND	5	µg/L
Bromomethane	ND	5	µg/L
Carbon Disulfide	ND	5	µg/L
Carbon Tetrachloride	ND	5	µg/L

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	V3MB01-141	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result	MDL	Units
Chlorobenzene	ND	5	µg/L
Chloroethane	ND	5	µg/L
Chloroform	ND	5	µg/L
Chloromethane	ND	5	µg/L
cis-1,2-Dichloroethene	ND	5	µg/L
cis-1,3-Dichloropropene	ND	5	µg/L
Dibromochloromethane	ND	5	µg/L
Dibromomethane	ND	5	µg/L
Dichlorodifluoromethane	ND	5	µg/L
Ethylbenzene	ND	5	µg/L
Ethylene Dibromide	ND	5	µg/L
Hexachlorobutadiene	ND	5	µg/L
Isopropylbenzene	ND	5	µg/L
m,p-Xylene	ND	5	µg/L
Methylene Chloride	ND	20	µg/L
MTBE	ND	5	µg/L
n-Butylbenzene	ND	5	µg/L
n-Propylbenzene	ND	5	µg/L
Naphthalene	ND	5	µg/L
o-Xylene	ND	5	µg/L
sec-Butylbenzene	ND	5	µg/L
Styrene	ND	5	µg/L
tert-Butylbenzene	ND	5	µg/L
Tetrachloroethene (PCE)	ND	5	µg/L
Toluene	ND	5	µg/L
trans-1,2-Dichloroethene	ND	5	µg/L
trans-1,3-Dichloropropene	ND	5	µg/L
trans-1,4-Dichloro-2-butene	ND	5	µg/L
Trichloroethene (TCE)	ND	5	µg/L
Trichlorofluoromethane	ND	5	µg/L
Vinyl Acetate	ND	5	µg/L
Vinyl Chloride	ND	1	µg/L

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	101	86 - 118
1,2-Dichloroethane-d4	94	80 - 120
Toluene-d8	98	88 - 110
4-Bromofluorobenzene	99	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

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EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Blank Spike/Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	V3BSD01-141	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
1,1-Dichloroethene	ND	50	52	105	53	106	1
Benzene	ND	50	48	96	47	94	1
Chlorobenzene	ND	50	56	112	54	108	4
Toluene	ND	50	50	101	49	97	4
Trichloroethene (TCE)	ND	50	50	101	51	102	1

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Dup %	Water QC Limits
Dibromofluoromethane	100	102	86 - 118
1,2-Dichloroethane-d4	97	99	80 - 120
Toluene-d8	99	100	88 - 110
4-Bromofluorobenzene	102	99	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

EPA METHOD 8260B
VOLATILE ORGANIC COMPOUNDS BY GC/MS
Matrix Spike Analysis

Sample ID:	Matrix Spike	Date Reported:	06/07/01
Laboratory ID:	1301G01081MS	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/21/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %
1,1-Dichloroethene	ND	50	56	111
Benzene	ND	50	48	97
Chlorobenzene	ND	50	55	110
Toluene	ND	50	51	102
Trichloroethene (TCE)	ND	50	52	104

ND - Compound not detected at stated Detection Limit.

Surrogate Recovery	%	Water QC Limits
Dibromofluoromethane	103	86 - 118
1,2-Dichloroethane-d4	100	80 - 120
Toluene-d8	101	88 - 110
4-Bromofluorobenzene	96	86 - 115

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	µg/L
1,2-Dichlorobenzene	ND	10	µg/L
1,3-Dichlorobenzene	ND	10	µg/L
1,4-Dichlorobenzene	ND	30	µg/L
1-Methylnapthalene	ND	10	µg/L
2,4,5-Trichlorophenol	ND	10	µg/L
2,4,6-Trichlorophenol	ND	10	µg/L
2,4-Dichlorophenol	ND	10	µg/L
2,4-Dimethylphenol	ND	10	µg/L
2,4-Dinitrophenol	ND	50	µg/L
2,4-Dinitrotoluene	ND	10	µg/L
2,6-Dinitrotoluene	ND	10	µg/L
2-Chloronaphthalene	ND	10	µg/L
2-Chlorophenol	ND	10	µg/L
2-Methylnaphthalene	ND	10	µg/L
2-Methylphenol	ND	10	µg/L
2-Nitroaniline	ND	50	µg/L
2-Nitrophenol	ND	10	µg/L
3,3'-Dichlorobenzidine	ND	20	µg/L
4,6-Dinitro-2-methylphenol	ND	50	µg/L
4-Bromophenyl-phenylether	ND	10	µg/L
4-Chloro-3-methylphenol	ND	20	µg/L
4-Chloroaniline	ND	20	µg/L
4-Chlorophenyl-phenylether	ND	10	µg/L
4-Methylphenol/3-Methylphenol **	ND	10	µg/L
4-Nitroaniline	ND	20	µg/L
4-Nitrophenol	ND	50	µg/L
6-Methylchrysene	ND	10	µg/L
7,12-Dimethylbenz(a)anthracene	ND	10	µg/L
Acenaphthene	ND	10	µg/L
Acenaphthylene	ND	10	µg/L
Aniline	ND	10	µg/L
Anthracene	ND	10	µg/L
Azobenzene	ND	10	µg/L
Benzidine	ND	10	µg/L
Benzo(a)anthracene	ND	10	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Benzo(a)pyrene	ND	10	µg/L
Benzo(b)fluoranthene	ND	10	µg/L
Benzo(g,h,i)perylene	ND	10	µg/L
Benzo(j)fluoranthene	ND	10	µg/L
Benzo(k)fluoranthene	ND	10	µg/L
Benzoic Acid	ND	50	µg/L
Benzyl Alcohol	ND	20	µg/L
bis(2-Chloroethoxy)methane	ND	10	µg/L
bis(2-Chloroethyl)ether	ND	10	µg/L
bis(2-Chloroisopropyl)ether	ND	10	µg/L
bis(2-Ethylhexyl)phthalate	ND	10	µg/L
Butylbenzylphthalate	ND	10	µg/L
Chrysene	ND	10	µg/L
Di-n-Butylphthalate	ND	10	µg/L
Di-n-Octylphthalate	ND	10	µg/L
Dibenz(a,h)anthracene	ND	10	µg/L
Dibenz(a,j)acridine	ND	10	µg/L
Dibenzofuran	ND	10	µg/L
Diethylphthalate	ND	20	µg/L
Dimethylphthalate	ND	40	µg/L
Fluoranthene	ND	10	µg/L
Fluorene	ND	10	µg/L
Hexachlorobenzene	ND	10	µg/L
Hexachlorobutadiene	ND	10	µg/L
Hexachlorocyclopentadiene	ND	10	µg/L
Hexachloroethane	ND	10	µg/L
Indene	ND	10	µg/L
Indeno(1,2,3-cd)pyrene	ND	10	µg/L
Isophorone	ND	10	µg/L
N-Nitrosodi-n-propylamine	ND	10	µg/L
N-Nitrosodiphenylamine	ND	10	µg/L
Naphthalene	ND	10	µg/L
Nitrobenzene	ND	10	µg/L
Pentachlorophenol	ND	50	µg/L

EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result	Detection Limit	Units
Phenanthrene	ND	10	µg/L
Phenol	ND	10	µg/L
Pyrene	ND	10	µg/L
Pyridine	ND	10	µg/L
Quinoline	ND	10	µg/L
Total Cresols	ND	10	µg/L

ND - Compound not detected at stated Detection Limit.
** - Compounds Coelute

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	38	21 - 100
Phenol-d6	27	10 - 94
Nitrobenzene-d5	47	35 - 114
2-Fluorobiphenyl	55	43 - 116
2,4,6-Tribromophenol	74	10 - 123
Terphenyl-d14	82	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

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EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Blank Spike/Spike Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	BSD01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
1,2,4-Trichlorobenzene	ND	100	67	67	62	62	8
1,4-Dichlorobenzene	ND	100	59	59	54	54	9
2,4-Dinitrotoluene	ND	100	70	70	66	66	5
2-Chlorophenol	ND	200	129	65	119	60	8
4-Chloro-3-methylphenol	ND	200	124	62	117	59	5
4-Nitrophenol	ND	200	52	26	50	25	3
Acenaphthene	ND	100	65	65	62	62	6
N-Nitrosodi-n-propylamine	ND	100	80	80	76	76	6
Pentachlorophenol	ND	200	130	65	120	60	8
Phenol	ND	200	56	28	55	27	2
[illegible]yrene	ND	100	95	95	92	92	3

ND - Compound not detected at stated Detection Limit.

QUALITY CONTROL:

Surrogate Recoveries	%	Dup %	Water QC Limits
2-Fluorophenol	46	41	21 - 100
Phenol-d6	30	28	10 - 94
Nitrobenzene-d5	62	57	35 - 114
2-Fluorobiphenyl	70	65	43 - 116
2,4,6-Tribromophenol	96	90	10 - 123
Terphenyl-d14	85	80	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

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EPA METHOD 8270B
GC/MS SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Matrix Spike Analysis

Sample ID:	Matrix Spike	Date Reported:	06/07/01
Laboratory ID:	1301W01023MS	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/30/01

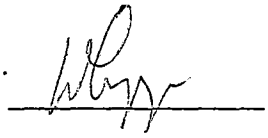
Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %
1,2,4-Trichlorobenzene	ND	100	66	66
1,4-Dichlorobenzene	ND	100	57	57
2,4-Dinitrotoluene	ND	100	70	70
2-Chlorophenol	ND	200	126	63
4-Chloro-3-methylphenol	ND	200	124	62
4-Nitrophenol	ND	200	53	26
Acenaphthene	ND	100	65	65
N-Nitrosodi-n-propylamine	ND	100	79	79
Pentachlorophenol	ND	200	136	68
Phenol	ND	200	54	27
Pyrene	ND	100	94	94

ND - Compound not detected at stated Detection Limit.

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	39	21 - 100
Phenol-d6	27	10 - 94
Nitrobenzene-d5	60	35 - 114
2-Fluorobiphenyl	66	43 - 116
2,4,6-Tribromophenol	95	10 - 123
Terphenyl-d14	81	33 - 141

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

Quality Control / Quality Assurance

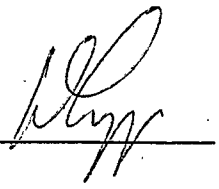
Polynuclear Aromatic Hydrocarbons

Method Blank

Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	05/24/01
Lab ID:	0301W02346	Date Received:	05/17/01
Sample Matrix:	Water		

Analyte	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	2.5
Acenapthylene	ND	ug/L	2.5
Anthracene	ND	ug/L	0.5
Benzo(a)anthracene	ND	ug/L	0.02
Benzo(b)fluoranthene	ND	ug/L	0.05
Benzo(a)pyrene	ND	ug/L	0.02
Benzo(g,h,i)perylene	ND	ug/L	0.03
Benzo(k)fluoranthene	ND	ug/L	0.02
Chrysene	ND	ug/L	0.2
Dibenz(a,h)anthracene	ND	ug/L	0.04
Fluoranthene	ND	ug/L	0.3
Fluorene	ND	ug/L	0.5
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.08
2-Methylnaphthene	ND	ug/L	2.5
Naphthalene	ND	ug/L	2.5
Phenanthrene	ND	ug/L	0.5
Pyrene	ND	ug/L	0.3

Reference: SM - "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995.

Reviewed By: 

Quality Control / Quality Assurance

Polynuclear Aromatic Hydrocarbons

Spike Analysis

Client:	**Giant Refining - Ciniza**	Date Reported:	06/08/01
Project:	Spring 2001 GW	Date Analyzed:	05/24/01
Lab ID:	0301W02346	Date Received:	05/17/01
Sample Matrix:	Water		

Analyte	Concentration Spiked	Concentration Measured	Accuracy % LCS	Accuracy % Limits
Naphthalene	40.4	29.4	73	41-82
Acenaphthylene	40.4	29.8	74	43-91
Acenaphthene	40.4	31.1	77	48-85
Fluorene	4.1	3.07	75	48-87
Phenanthrene	3.07	2.47	80	60-86
Fluoranthene	1.92	1.72	90	72-96
Pyrene	3.85	3.52	91	73-96
Benzo(a)pyrene	0.253	0.247	98	66-118
Benzo(g,h,i)perylene	0.553	0.550	99	79-112

Surrogates	Result %	Accuracy % Limits
Benzo(a)pyrene	93	54.5-116

Reference: SM - "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995.

Reviewed By: _____

EPA METHOD 8082
POLYCHLORINATED BIPHENYLS (PCBs) BY GC
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-138	Date Extracted:	05/18/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Analytical Result	Detection Limit	Units
Aroclor 1016	ND	1	µg/L
Aroclor 1221	ND	2	µg/L
Aroclor 1232	ND	1	µg/L
Aroclor 1242	ND	1	µg/L
Aroclor 1248	ND	1	µg/L
Aroclor 1254	ND	1	µg/L
Aroclor 1260	ND	1	µg/L
Aroclor 1262	ND	1	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
2,4,5,6-tetrachloro-m-xylene	50	50 - 150
Decachlorobiphenyl	78	50 - 150

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 0, December 1996.

Reveiwed By: 

ETHYLENE DIBROMIDE BY GC/ECD

Blank Spike Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	BSD01-137	Date Extracted:	06/07/01
Sample Matrix:	Water	Date Analyzed:	06/07/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
Ethylene Dibromide	ND	2	2.1	105	2.3	115	9

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____

CINIZA REFINERY

Monitoring and Reporting Schedule

The schedule below summarizes the routine monitoring and reporting agreed to be performed by Giant as part of the discharge plan for the Ciniza Refinery (GW-32). While this summary is meant to be inclusive, if any differences occur between the schedule presented here and presented in the discharge plan, the discharge plan (including subsequent correspondence) is the controlling document.

Monitoring	Sampling Parameters	Reporting Frequency	Discharge Plan Reference
API separator effluent quarterly at the entrance to Pond #1 and outlet from Pond #2 for four consecutive quarters, thence bi-annually coincidentally with high-flow periods. Neutralization stream measured on same schedule.	Flow rate of discharge	Quarterly reports during first year on same schedule as RCRA results to NMEID; annual thereafter with submittal to OCD within 30 days of receipt and verification.	Giant's response to OCD comments, p. 11, dated 2/3/86; p. 2, Giant's letter dated 4/30/86; p. 4, Giant's letter dated 6/26/86; Giant's letter dated 10/13/86.
Aerated lagoon input for four quarters, thence annually.	BOD	Same as above	p. 2, Giant's letter dated 4/30/86; and p. 4, Giant's letter dated 6/26/86
Evaporation ponds inspected monthly for freeboard, fluid levels, and seepage. Inspection also after 10-year precipitation event (1.8"/24 hrs.) as measured at refinery.	None	None. Refinery records kept on monthly inspections, and on precipitation events exceeding 1.8" per 24 hrs.	p. 3, Giant's letter dated 4/30/86; and p. 4, Giant's letter dated 6/26/86
MW-Series monitor wells sampled April and October, as per RCRA. SMW-Series sampled for four consecutive quarters, thence January and July, as per RCRA.	RCRA constituents as approved by EID (including conductivity, TOC, TOX,and pH)	Copies of RCRA MW and SMW results sent to OCD on same as to NMEID.	Giant's response to OCD comments, p. 11, dated 2/3/86; p. 3, Giant's letter dated 4/3/86; Giant's letter dated 10/13/86.
MW-Series monitor wells sampled October, 1986, and April, 1987, thence annually beginning October, 1987, at time of RCRA sampling.	sodium, potassium, calcium, magnesium, chloride, sulfate, carbonate-bicarbonate, TDS, pH, and conductance	Submit 1986 results with January 1987 results by March 1, 1987. Thereafter annual results submitted within 30 days of analysis receipt verification.	Giant's response to OCD comments, p. 11, dated 2/3/86; p. 3, Giant's letter dated 4/3/86; p. 4, Giant's letter dated 6/26/86; Giant's letter dated 10/13/86.
SMW-Series monitor wells sampled April and July 1986, January, 1987, thence annually in January at time of RCRA sampling.	sodium, potassium, calcium, magnesium, chloride, sulfate, carbonate-bicarbonate, TDS, pH, conductance, and volatile aromatic hydrocarbons (BTX)	Same as immediately above	Same as immediately above
Monitor Wells OW1, OW2 and OW3, sampled annually in January.	Same as immediately above	Submitted within 30 days of analysis receipt and verification	p. 3, Giant's letter dated 4/3/86; p. 4, Giant's letter dated 6/26/86; Giant's letter dated 10/13/86

Revised 11/4/86
OCD/DGB

CINIZA REFINERY

Monitoring and Reporting Schedule

The schedule below summarizes the routine monitoring and reporting agreed to be performed by Giant as part of the discharge plan for the Ciniza Refinery (GW-32). While this summary is meant to be inclusive, if any differences occur between the schedule presented here and presented in the discharge plan, the discharge plan (including subsequent correspondence) is the controlling document.

Monitoring	Sampling Parameters	Reporting Frequency	Discharge Plan Reference
API separator effluent quarterly at the two Weir locations for four consecutive quarters, thence bi-annually coincidentally with high-flow periods. Neutralization stream measured on same schedule.	Flow rate of discharge	Quarterly reports during first year on same schedule as RCRA results to NMEID; annual thereafter with submittal to OCD within 30 days of receipt and verification.	Giant's response to OCD comments, p. 11, dated 2/3/86; p. 2, Giant's letter dated 4/30/86; p. 4, Giant's letter dated 6/26/86
Aerated lagoon input for four quarters, thence annually.	BOD	Same as above	p. 2, Giant's letter dated 4/30/86; and p. 4, Giant's letter dated 6/26/86
Evaporation ponds inspected monthly for freeboard, fluid levels, and seepage. Inspection also after 10-year precipitation event (1.8"/24 hrs.) as measured at refinery.	None	None. Refinery records kept on monthly inspections, and on precipitation events exceeding 1.8" per 24 hrs.	p. 3, Giant's letter dated 4/30/86; and p. 4, Giant's letter dated 6/26/86
MW-Series monitor wells sampled January and July, as per RCRA. SMW-Series sampled for four consecutive quarters, thence January and July, as per RCRA.	All approved RCRA (including contucti-vity , TOC, TOX, and pH)	Copies of RCRA MW and SMW results sent to OCD on same as to NMEID.	Giant's response to OCD comments, p. 11, dated 2/3/86; p. 3, Giant's letter dated 4/3/86
MW-Series monitor wells July, 1986 and January 1987, thence annually at time of RCRA sampling.	sodium, potassium, calcium, magnesium, chloride, sulfate, carbonate-bicarbonate, TDS, pH, and conductance	Submit 1986 results with January 1987 results by March 1, 1987. Thereafter annual results submitted within 30 days of analysis receipt verification.	Giant's response to OCD comments, p. 11, dated 2/3/86; p. 3, Giant's letter dated 4/3/86; p. 4, Giant's letter dated 6/26/86
SMW-Series monitor wells April and July, 1986, January, 1987, thence annually at time of RCRA sampling	sodium, potassium, calcium, magnesium, chloride, sulfate, carbonate-bicarbonate, TDS, pH, conductance, and volatile aromatic hydrocarbons (BTX)	Same as immediately above	Same as immediately above
Monitor Wells OW1, OW2 and OW3, sampled annually	Same as immediately above	Submitted within 30 days of analysis receipt and verification	p. 3, Giant's letter dated 4/3/86; p. 4 Giant's letter dated 6/26/86

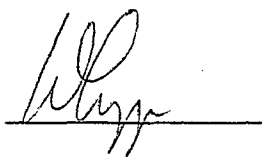
EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)
Method Blank Analysis

Sample ID:	Method Blank	Date Reported:	06/07/01
Laboratory ID:	MB01-144	Date Extracted:	05/24/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Analytical Result	PQL	Units
9020B			
Total Organic Halides (TOX)	ND	30	µg/L

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: 

EPA METHOD 9020B
TOTAL ORGANIC HALIDES (TOX)
Blank Spike Duplicate Analysis

Sample ID:	Blank Spike Duplicate	Date Reported:	06/07/01
Laboratory ID:	BSD01-144	Date Extracted:	05/24/01
Sample Matrix:	Water	Date Analyzed:	05/24/01

Parameter	Analytical Result µg/L	Spike Added µg/L	Spike Results µg/L	Spike Recovery %	Duplicate Results µg/L	Duplicate Recovery %	Relative Difference %RSD
9020B							
Total Organic Halides (TOX)	ND	50	53	106	58	117	10

ND - Compound not detected at stated Detection Limit.

Reference: Test Methods for Evaluating Water, Wastewater and Solid Waste, SW-846,U.S.E.P.A., Volume IB, Revision 2, December 1996.

Reveiwed By: _____