GW - 1

MONITORING REPORTS

DATE:

2006

2005 GROUNDWATER REMEDIATION AND MONITORING ANNUAL REPORT
VOLUME I

SAN JUAN REFINING COMPANY
GIANT – BLOOMFIELD REFINERY
SUBMITTED: APRIL 2006

GIANT
REFINING COMPANY

April 12, 2006

Wayne Price
Environmental Bureau
New Mexico Oil Conservation Division
1220 South Francis Drive
Santa Fe, New Mexico 87505

Hope Monzeglio
New Mexico Environmental Department
Hazardous Waste Bureau
2905 Rodeo Park Dr. East
Bldg. 1
Santa Fe, New Mexico 87505

RE: Corrective Measures Study and Corrective Measures Implementation (Site Investigation and Abatement Plan)
Groundwater Remediation and Monitoring Annual Report
Giant Refining Company, Bloomfield Refinery
EPA ID# NMD089416416
GW – 001

Dear Wayne and Hope:

Giant Refining Company, Bloomfield Refinery submits the 2005 Annual Groundwater Report as required by NMED and OCD directives. This report summarizes all soil and groundwater monitoring activities that occurred in 2005.

If you have questions or would like to discuss any aspect of the report, please contact me at (505) 632-4171.

Sincerely,

James R. Schmaltz
Environmental Manager
San Juan Refining Company
Bloomfield Refinery

cc: Robert Wilkinson, EPA Region VI
Denny Foust, NMOCD Aztec District Office
Ed Riege, Environmental Superintendent – Giant Refinery

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

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

CONTENTS

Section 1.0 Executive Summary

Executive Summary

Bloomfield Refinery
#50 Road 4990
Bloomfield, New Mexico
87413

US EPA ID: NMD089416416

The North Boundary Barrier Wall was completed in March 2005. Giant will submit The North Boundary Interim Measures Implementation Report by July, 2006 which will include as-built drawings of the barrier wall.

Fourteen observation wells were installed on the north side of the barrier and fifteen collection wells were installed on the south side of the wall in April. Baseline analytical monitoring occurred in May and August. Fluids levels were monitored on both sides of the barrier wall. Analytical reports, groundwater elevation measurements, and a summary of analytical results can be found in the System Start-up Six Month Report of the North Boundary Barrier Collection System that was submitted to NMED and OCD January 5, 2006.

Currently, monitoring results show groundwater levels have not risen significantly in the collection wells following fluid removal efforts. The presence of separate phase hydrocarbon in collection wells has decreased behind the barrier and in observation wells immediately down gradient of the barrier wall. Areas where seepage of fuel hydrocarbon impacted water was present have been reduced or eliminated. The data suggests the barrier has been effective.

Future remedial action will consist of continuing to remove fluids from the observation and collection wells three times per week. In addition, fluid monitoring will continue on a bimonthly schedule. The location of separate phase hydrocarbon in all wells along Hammond Ditch will be assessed and trends in detection, absence, SPH thickness, and fluid build up on both sides of the barrier will be assessed.

In April, the River Terrace Investigation continued with the installation of five additional temporary piezometers. Dewatering Wells #1 and #2 and thirteen bioventing wells were drilled in August at the River Terrace. Construction of the River Terrace Bioventing Project was initiated in August. The system was put on-line in January 2006. Monitoring events and remedial actions are following the Voluntary Measures Bioventing Monitoring Plan that has been approved by NMED. It is too early to draw conclusions for this project.

The San Juan River was sampled on a quarterly basis throughout 2005. Analytical results indicate that contaminated groundwater from the refinery has not impacted the river. Quarterly sampling will continue.

Semi-annual monitoring occurred in April. Samples were collected from all wells with the exception of wells that contain separate phase hydrocarbon or wells that were dry or did not contain enough water to pull a sample. Annual sampling started the week of August 8, 2005. Giant followed NMED guidelines from the Corrective Measures Study and Corrective Measures Implementation letter dated January 6, 2003. In conjunction, OCD guidance was followed per the Site Investigation and Abatement plan letter dated December 30, 2002.

Future monitoring and remedial action will be addressed in an updated monitoring plan that will be submitted to the agencies for approval. The updated plan will attempt to incorporate all the current projects and remediation systems that are situated at Giant – Bloomfield Refinery.

Section 2.0 Introduction

INTRODUCTION

2005 Groundwater Remediation and Monitoring Annual Report

Owner:	San Juan Refining Company 23733 North Scottsdale Road Scottsdale, Arizona 85255	(parent corporation)
Operator:	Giant Refining Company P.O. Box 159 Bloomfield, New Mexico 87413	(postal address)
	Giant Refining Company #50 Rd 4990 Bloomfield, New Mexico 87413	(physical address)
Facility Name:	Bloomfield Refinery: #50 Rd 4990 Bloomfield, New Mexico 87413	(physical address)
Facility Status	Corrective Action/Compliance	
US EPA ID	NMD089416416	
SIC Code	2911	
Submittal Date:	April 2006	
Purpose of Groundwater Monitoring:	To evaluate present contamination	
Type of Groundwater Monitoring:	Semi-annual, Annual, and Investigative	

BACKGROUND INFORMATION

SITE LOCATION AND DESCRIPTION

The Bloomfield Refinery is a crude oil refining facility with a crude capacity of 18,000 barrels per day. It is located approximately 1 mile south of Bloomfield, New Mexico, in San Juan County, latitude N36 41' 87", longitude W107 58' 70". It is further located approximately ½ mile east of State Route 550 on Count Road 4990 (a.k.a. Sullivan Road).

The refinery is located on a bluff 120 feet above the south side of the San Juan River. The top of the bluff is relatively flat and is at an elevation of 5,540 feet above sea level. The geological units that comprise the site include, in order of increasing depth, San Juan River Alluvium, Quaternary apron deposits, Aeolian sand and silt, Jackson Lake Terrace, and the Tertiary Nacimiento Formation. An unnamed arroyo flows toward the San Juan River on the southern and western edges of the site. East of the site, a well-defined arroyo cuts a small canyon from the bluff to the San Juan River. Hammond Ditch lies on the bluff between the limit of the Jackson Lake Terrace and the refinery.

Refinery offices are on the western end of the facility, along with warehouse space, maintenance areas, and a storage yard containing used material (e.g., pipes, valves). Petroleum processing units, located in the northwest portion of the refinery, include the crude unit, fluidized cracking unit, catalytic polymerization unit, and hydrodesulfurization unit. The API Separator is located in the northwestern portion of the site. The aeration lagoons are located in the north central section of the refinery.

In the central portion of the site, aboveground storage tanks (AST's) occupy a large percentage of refinery property. South of the refinery and across Sullivan Road are terminals for loading product and off-loading crude, as well as gas storage and hazardous waste storage.

The Refinery owner is San Juan Refining Company (SJRC) and is operated by Giant Refining Company. The historical and current activities conducted at the refinery are petroleum processing, crude and product storage, crude unloading and product loading, waste management (closed and existing facilities), and offices and non-petroleum material storage

HISTORY OF FACILITY MODIFICATIONS AND IMPROVEMENTS

Previous Owner's Activities

Local entrepreneur, Kimball Campbell, constructed the crude topping unit that eventually became the GRC facility in the late 1950s. O.L. Garretson bought the facility in the early 1960s, renamed it Plateau, Inc. and sold it in 1964 to Suburban Propane of New Jersey.

Operationally, the facility has steadily evolved through a series of improvements, modifications and expansions. Suburban upgraded the facility in 1966, increasing the Crude Unit throughput to 4,100 bpcd and adding 1,850 bpcd Reformer and Naphtha Hydrotreater. In 1975, the Crude Unit was expanded to 8,400 bpcd.

In 1979, the Crude Unit was expanded again to 16,800 bpcd (later demonstrated to have a hydraulic capacity in excess of 18,000 bpcd). A Fluidized Catalytic Cracker (FCC) with a nominal capacity of 6,000 bpcd, an Unsaturated Gas Plant and a Treater Unit were also added at that time. The capacity of the Reformer / Hydrotreater was increased to 2,250 bpcd. The FCC was upgraded in 1982 to conform to State and Federal air quality standards.

Bloomfield Refining Activities

Bloomfield Refining Company (BRC) acquired the facility from Suburban Propane (Plateau) on October 31, 1984. BRC made many improvements to facility operations and equipment. These improvements are summarized below.

1986

Relocated the spent caustic tank onto a concrete pad with retaining walls.

1987

Upgraded the Reformer and increased its capacity to 3,600 bpcd, modified the Laboratory and Treater Unit and increased tank storage capacity.

Cleaned up the North and South bone yards.

Decommissioned and dismantled old tanks 6 and 7.

Relocated the API recoverd oil tanks 8 & 9 to concrete pads with concrete retaining walls.

Established a systematic inspection, maintenance and repair program for tanks.

1988

Added a 2,000 bpcd Catalytic Polymerization Unit. Removed the facility's two underground storage tanks and replaced them with aboveground storage tanks.

Completed installation of cathodic protection system for the tank farm and underground piping.

Rebuilt the process area sewer system and added curbed, concrete paving to the unpaved process areas.

1989

Increased Reformer throughput to 4,000 bpcd.

Activated the groundwater hydrocarbon recovery system.

Constructed the first double-lined Evaporation Pond as part of discharge plan improvements.

1990

Constructed the second double-lined Evaporation Pond as part of discharge plan improvements.

Constructed a drum storage shed and converted to bulk chemical usage where possible in order to minimize the use of drummed chemicals.

1991

Revamped the burner fuel sales rack with concrete paving and curbing.

Submitted the permit application for a Class 1 disposal well.

Upgraded the groundwater hydrocarbon recovery system.

1992

Submitted an air quality permit application proposing the installation of a Diesel Hydrodesulferization (HDS) Unit and a Sulfur Recovery Unit (SRU) to comply with new EPA low-sulfur diesel regulations and to decrease air emissions.

1993

Began a program under a consent agreement with the US EPA to conduct interim measures (IM), a RCRA facility investigation (RFI) and a corrective measures study (CMS) addressing groundwater contamination.

Replaced portions of the underground cooling water piping.

Added concrete paving around the API Separator.

Added process units: HDS Unit (2,000 bpcd) and SRU.

Improved (eliminated) storm water runoff to the North.

1994

Completed the Class 1 injection well.

Retrofitted the Aeration Lagoons with two additional liners.

Installed a floating cover for the API Separator.

Closed the clay-lined evaporation ponds and spray evaporation area.

Giant Activities

In 1995, San Juan Refining Company, a wholly owned subsidiary of Giant Industries Arizona, Inc., purchased the Bloomfield Refinery from BRC.

1995

Improved the diking South of the Refinery to further reduce storm water runoff.

Began implementation of additional corrective measures for groundwater cleanup as determined from the CMS.

1998

Converted the former evaporation ponds on the East side of the Refinery to raw water storage ponds.

1999

Installed sheet piling and a bentonite slurry wall adjacent to the San Juan River, North of the process units, in order to intercept a small hydrocarbon seep that had been detected in the area.

2001

Began a program to inoculate the Aeration Lagoons with sludge-consuming micro-organisms.

2002

A concrete liner was installed on the Hammond Ditch. At that time, Giant constructed the Hammond Ditch French Drain Recovery System to address contamination under the ditch.

2003

Converted several monitoring wells into recovery wells to further enhance the continuing ground water remediation efforts. Installed MW #45, #46 & #47 to replace unreliable seeps. Installed East Outfall #1 Recovery System to return impacted water back to the refinery.

2004

Installed MW #48 & MW #49 and 8 temporary piezometers to launch a River Terrace Investigation. Drilled several temporary piezometers on the north side of Hammond Ditch to chart the Naciemento Formation. Initiated the development of a slurry wall that will be constructed on the north side of Hammond Ditch to prevent the spread of hydrocarbons to the San Juan River. Construction will begin in 2005.

Replaced sewer lines in the Treater and FCC.

2005

The North Boundary Barrier Wall installation was completed March 2005. Fourteen observation wells were installed on the north side of the slurry wall and fifteen collection wells were installed on the south side of the slurry wall in April 2005. Also in April, five more temporary piezometers were installed at the River Terrace. Dewatering Wells #1 and #2 and thirteen bioventing wells were drilled in August at the River Terrace. Construction of the River Terrace Bioventing Project was initiated in August. The system was put on-line in January 2006.

Section 3.0 Scope of Services

Scope of Services

The semi-annual monitoring event occurred during the first week of April 2005. Groundwater samples were collected from all wells with the exception of wells that contain separate phase hydrocarbon or wells that were dry or did not contain enough water to pull a sample. Outfalll #2, and Outfall #3 were sampled. Outfall #1 flows into Tank #38 and is not sampled.
Samples were analyzed for BTEX and MTBE using EPA Method 8021B. Semi-annual results are summarized in Section 9.0 - Tab 3 (Groundwater Analysis – Organics). Field measurements (EC, pH, and Temperature) can be found in Section 9.0 - Tab 2 (Water Quality Field Measurements).
Groundwater elevation was measured during the sampling event. Results are in Section 9.0 - Tab 1.

At the request of NMED, baseline sampling from all Observation and Collection Wells along the North Boundary Barrier Wall Collection System took place in May and August. Only samples that did not contain separate phase hydrocarbon were pulled. Samples for both events were analyzed for BTEX using EPA Method 8021B, RCRA Metals using EPA Methods 6010C and 7470, and general chemistry using EPA Method 300. Field measurements of total dissolved solids (TDS), conductivity, temperature, and pH were taken as well. Analytical reports, groundwater elevation measurements, and a summary of analytical results can be found in the System Start-up Six Month Report of the North Boundary Barrier Collection System that was submitted to NMED and OCD January 5, 2006.

Annual sampling started the week of August 8, 2005. Giant followed NMED guidelines from the Corrective Measures Study and Corrective Measures Implementation letter dated January 6, 2003. In conjunction, OCD guidance was followed per the Site Investigation and Abatement plan letter dated December 30, 2002.
MW #24 was not sampled as the construction design of this well does not accommodate monitoring. MW #48 and MW #49 replaced P-#4 and P-#5 in the sampling program.
The following wells were sampled; MW #1, MW #3, MW #8, MW #11, MW #12, MW #13, MW #26, MW #27, MW #32, MW #33, MW #34, MW #35, MW #36, MW #37, MW #38, MW #48, MW #49, RW #18, O/F #2, O/F #3. The samples were analyzed for BTEX and MTBE using EPA Method 8260B, Total Lead and Chromium using EPA Methods 6010, WQCC Dissolved Metals using EPA Method 6010C, Cations, Anions, and Carbon Dioxide using EPA Methods 300.0, 160.1, 120.1,and 310.1. Results are summarized in Section 9.0 - Tabs 3,4,5, and 6..
All wells were measured for groundwater elevation during the sampling event. Results are in Section 9.0 - Tab 1.

The San Juan River was sampled on a quarterly basis throughout 2005. Samples were analyzed for BTEX/MTBE (8021B), TPH (8015B), WQCC metals(6010C), semi-volatile organics (8270), and general chemistry. Analysis is summarized in Section 9.0 - Tab 7 and sample locations are identified in Figure 10.

At the request of NMED and OCD, BTEX (EPA Method 8021B) samples were taken from Tank #33 and the fresh water ponds on a monthly basis. Summary tables are in Section 9.0 - Tab 10.

The River Terrace Investigation was initiated in October 2004 with the installation of eight Temporary Piezometers (TP #1 – TP #8), MW #48, and MW #49. In April 2005, five more Temporary Piezometers were drilled (TP #9 – TP #13). Water samples were pulled and analyzed for BTEX, MTBE (EPA Method 8021B), and TPH (EPA Method 8015B). In August, Dewatering Wells #1 and #2 were drilled. Baseline sampling included EPA Methods 8310 (PAH), 8260B, Dissolved (6010C) and Total (6010, 7470) WQCC Metals, and General Chemistry (106.1, 120.1, 300.0, 310.1). Thirteen Bioventing wells were also drilled at that time. Soil from those wells was analyzed for BTEX (8021B) and Gasoline Range Organics (8015B).
TP #1 through TP #13 were pulled and analyzed for BTEX, MTBE (EPA Method 8021B) and Total Petroleum Hydrocarbons (EPA Method 8015B).
Drill logs can be found in Section 14.0 – Tabs 13, 14, and 15. Analytical results can be found in Section 9.0 – Tabs 8 and 9.

Field Data Collection

All facility monitoring wells, recovery wells, and piezometers were gauged in April and August. Observation and Collection Wells were gauged in May and August. Recovery well pumps were shut off and removed 24 hours prior to water elevation measurements.

All water/product levels were measured to an accuracy of 0.01 foot using a Geotech Interface Meter. After determining water levels, well volumes were calculated.

At least three well volumes were purged from each well prior to sampling. Electrical conductance, pH, and temperature were monitored during purging using an Ultrameter 6P. The wells were considered satisfactorily purged when the pH, E.C., and temperature values did not vary by more than 10 percent for at least three measurements.

Field data and well elevations can be found in Section 9.0 - Tabs 1 and 2.

All purged water was collected in a fifty-five gallon drum and disposed of through the refinery wastewater system.

Section 4.0 Regulatory Criteria / Groundwater Cleanup Standards/ State of New Mexico Soil Screening Levels

TABLE OF NEW MEXICO AND THE U. S. EPA'S GROUNDWATER STANDARDS

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
General Properties				
non-aqueous phase liquid (NAPL)	NP			
petroleum				
floating product	NP			
undesirable odor (a)	NP			
pH (units) (a)	6 - 9	6.5 - 8.5		
total dissolved solids (TDS) (a)	1000	500		
turbidity		tt		
Biological Contaminants				
giardia lambia	tt	Zero		
legionella	tt	Zero		
total coliform	<5%+	Zero		
viruses	tt	Zero		
Inorganic Contaminants				
aluminum	5.0 (i)	0.05 - 0.2 (a)		
ammonia				30
antimony		0.006	0.006	
arsenic	0.1	0.05	0.05	
asbestos-fibers/liter (longer than 10 um)		7 million	7 million	
barium	1.0	2	2	
beryllium		0.004	0.004	
boron	0.75 (i)			0.06
bromate		0.01 (p)	Zero (p)	
cadmium	0.01	0.005	0.005	
chlorate				0.01

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
chloride (a)	250	250		0.01
chlorine				1
chlorine dioxide				0.08
chlorite		1.0 (p)	0.08 (p)	
chromium	0.05	0.1	0.1	
cobalt (i)	0.05			
copper		1.3 (al)	1.3	
cyanide	0.2	0.2	0.2	
fluoride	1.6	4.0		
fluoride (a)		2		
iron (a)	1.0	0.3		
lead	0.05	0.015 (al)	Zero	
manganese (a)	0.2	0.05		
mercury	0.002	0.002	0.002	
molybdenum	1.0 (i)			0.05
nickel	0.2 (i)	0.1	0.1	
nitrate - N	10	10	10	
nitrite - N		1	1	
nitrate + nitrite (as N)		10	10	
selenium	0.05	0.05	0.05	
silver	0.05	0.05	0.05	
silver (a)		0.1		
sodium				20
strontium				17
sulfate	600 (a)	250 (a) / 400 (p)	400	
thallium		0.002	0.0005	
vanadium				0.02
zinc (a)	10.0	5		
Radioactive Contaminants				
Gross alpha (pCi/L) *		15	Zero	
Gross beta & photon emitters (mrem/yr) **		4	Zero	

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
radium 226 (pCi/L)		20 (p)	Zero	
radium 228 (pCi/L)		20 (p)	Zero	
radium 226 + 228 (pCi/L)	30	5	Zero	
radon 222 (pCi/L)		300 (p)	Zero	
uranium	5	0.02 (p)	Zero	
Benzenes				
benzene	0.01	0.005	Zero	
Alkyl Benzenes				
methylbenzene (toluene)	0.75	1 (p) / 0.04 (a)	1	
ethylbenzene	0.75	0.7 (p) / 0.03 (a)	0.7	
dimethyl benzene isomers (xylenes)	0.62	10 (p) / 0.02 (a)	10	
vinylbenzene (styrene)		0.1	0.1	
trimethyl benzene isomers				
propyl benzene isomers				
butyl benzene isomers				
Chlorinated Benzenes				
chlorobenzene	tox	0.1	0.1	
o-dichlorobenzene	tox	0.6	0.6	
m-dichlorobenzene	tox			
p-dichlorobenzene	tox	0.075 (p) / 0.005 (a)	0.075	
1,2,4-trichlorobenzene		0.07	0.07	
1,3,5-trichlorobenzene				0.04
1,2,4,5-tetrachlorobenzene	tox			
pentachlorobenzene	tox			
hexachlorobenzene	tox	0.001	Zero	
Toluenes				
o-chlorotoluene				0.1
p-chlorotoluene				0.1
2,4-dinitrotoluene (2,4-DNT)	tox			

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
2,4,6-trinitrotoluene (TNT)				0.002
isopropyltoluene				
Nitrogenated Benzenes				
aminobenzene (aniline)				
nitrobenzene	tox			
1,3-dinitrobenzene				0.001
Phenols (hydroxybenzenes)	0.005 (a)			
phenol (carbolic acid)	tox			4
2-chlorophenol				0.04
2,4-dichlorophenol	tox			0.02
2,4-dinitro-o-creosol	tox			
2,4-dimethylphenol				
2-methylphenol				
4-methylphenol				
2-nitrophenol				
dinitrophenols	tox			
2,4,5-trichlorophenol	tox			
2,4,6-trichlorophenol	tox			
2,4,6-trichlorophenol	tox			
pentachlorophenol	tox	0.001 (p) / 0.03 (a)	Zero	
p-cresol				
Polycyclics				
acenapthene				
anthracene	tox			
benz(a)anthracene		0.0001 (p)	Zero	
benzo(a)pyrene	0.0007	0.0002	Zero	
benzo(b)fluoranthene		0.0002 (p)	Zero	
benzo(k)fluoranthene	tox	0.0002 (p)	Zero	
chrysene		0.0002 (p)	Zero	
dibenz(a)anthracene		0.0003 (p)	Zero	
diphenylhydrazine	tox			

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
fluoranthene	tox			
fluorene	tox			
indeno(1,2,3-c,d)pyrene		0.0004 (p)	Zero	
naphthalene	tox			0.3
naphthalenes ****	0.03			
phenanthrene	tox			
polychlorinated biphenyls (PCBs)	0.001			
PCBs as decachlorobiphenyl		0.0005	Zero	
pyrene	tox			
Methanes				
chloromethane (methyl chloride)	tox			0.003
dichloromethane (methylene chloride)	0.1	0.005	Zero	
trichloromethane (chloroform)	0.1		Zero (p)	
tetrachloromethane (carbon tetrachloride)	0.01	0.005	Zero	
bromomethane (methyl bromide)	tox			0.01
bromochloromethane				0.09
bromodichloromethane	tox		Zero (p)	
chlorodibromomethane			Zero (p)	0.1
tribromomethane (bromoform)	tox		Zero (p)	
trihalomethanes (THMs) ***		0.1/0.08 (p)	Zero	
fluorotrichloromethane (Freon 11)	tox			2
dichlorodifluoromethane (Freon 12)	tox			1
Ethanes				
1,2-dibromoethane (ethylene dibromide, EDB)	0.0001	0.00005	Zero	
1,1-dichloroethane	0.025			
1,2-dichloroethane (ethylene dichloride, EDC)	0.01	0.005	Zero	
1,1,1-trichloroethane (TCA)	0.06	0.2	0.2	
1,1,2-trichloroethane	0.01	0.005	0.003	
1,1,1,2-tetrachloroethane				0.07

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
1,1,2,2-tetrachloroethane	0.01			
hexachloroethane	tox			
Ethenes (Ethylenes)				
chloroethane (vinyl chloride)	0.001	0.002	Zero	
1,1-dichloroethene	0.005	0.007	0.007	
cis-1,2-dichloroethene	tox	0.07	0.07	
trans-1,2-dichloroethene	tox	0.1	0.1	
trichloroethene (TCE)	0.1	0.005	Zero	
tetrachloroethene (perchloroethylene, PCE)	0.02	0.005	Zero	
Propanes & Propenes				
1,2-dichloropropane (propylene dichloride, PDC)		0.005	Zero	
1,2,3-trichloropropane				0.04
1,2-dibromo-3-chloropropane (DBCP)		0.0002	Zero	
dichloropropenes	tox			
1,3-dichloropropene	tox			0.01
Aldehydes, Ethers, Furans, & Ketones				
acetone				
bis (2-chloroethyl) ether	tox			
bis (2-chloroisopropyl) ether	tox			0.3
bis (chloromethyl) ether	tox			
dibenzofuran				
p-dioxane (diethylene dioxide)				0.568
formaldehyde (methanal)				1
isophorone	tox			0.1
methyl ethyl ketone (MEK, 2-butanone)				0.1
methyl tertiary butyl ether (MTBE)	0.1 (a)			0.04
tetrahydrofuran				

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
Nitrosamines				
N-nitrosodiethylamine	tox			
N-nitrosodimethylamine (NDMA)	tox			
N-nitrosodibutylamine	tox			
N-nitrosodiphenylamine	tox			
N-nitrosopyrrolidine	tox			
Phthalate Esters				
dibutyl phthalate	tox			
di-2-ethylhexyl phthalate	tox	0.006	Zero	
diethyl phthalate	tox			
dimethyl phthlate	tox			
Explosives				
dinitrophenols	tox			
2,4-dinitrotoluene (2,4-DNT)	tox			
hexahydro-1,3,5-trinitro-s-triazine (RDX)				0.002
HMX				0.4
nitroglycerin (glycerol trinitrate)				0.005
nitroguanidine				0.7
2,4,6-trinitrotoluene (TNT)				0.002
Other Organics				
acrolein	tox			
acrylamide		tt	Zero	
acrylonitrile	tox			0.004
benzidine	tox			
chloral hydrate		tt (p)	0.04 (p)	
chloramine				0.3

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
dibromoacetonitrile				0.02
dichloroacetic acid				0.003
dichloroacetonitrile				0.006
dichlorobenzidine	tox			
di(2-ethylhexyl)adipate		0.4	0.4	
diisopropyl methylphosphonate				0.6
epichlorohydrin (1-chlor-2,3-epoxypropane)		tt	Zero	
ethylene glycol (1,2-ethanediol)				7
Haloacetic Acids ****		0.06 (p)		
dichloroacetic acid			Zero (p)	
trichloroacetic acid			0.3 (p)	
hexachlorobutadiene	tox			0.001
hexachlorocyclopentadiene	tox	0.05 (p) / 0.008 (a)	0.05	
n-hexane				4.0
Other Pesticides				
acifluorfen				0.1
alachlor		0.002	Zero	
aldicarb		0.003 (p)	0.001	
aldicarb sulfone		0.002 (p)	0.001	
aldicarb sulfoxide		0.004 (p)	0.001	
aldrin	tox			0.001
ametryn				0.06
ammonium sulfamate				2
arsenal (imazapyr)				
atrazine		0.003	0.003	
baygon				0.003
bentazon				0.02
bromacil				0.09
butylate				0.35
carbaryl				0.7
carbofuran		0.04	0.04	

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
carboxin				0.7
chloramben				0.1
chlordane	tox	0.002	Zero	
chlorothalonil				0.5
chlorpyrifos				0.02
cyanazine				0.01
2,4-D (2,4-dichlorophenoxyacetic acid)		0.07	0.07	
dacthal				4
dalapon		0.2	0.2	
DDT (dichloro diphenyl trichloroethane)	tox			
4,4'-DDD				
4,4'-DDE				
diazinon				0.0006
dicamba				0.2
dieldrin	tox			0.002
dimethrin				2
dinoseb		0.007	0.007	
dioxin		0.00000005	Zero	
diphenamid				0.2
diquat		0.02	0.02	
disulfoton				0.0003
diuron				0.01
endosulfan	tox			
endothall		0.1	0.1	
endrin	tox	0.002	0.002	
ethylene thiourea				0.001
fenamiphos				0.002
fluometuron				0.09
fonofos				0.01
glyphosate		0.7	0.7	
heptachlor	tox	0.0004	Zero	
heptachlor epoxide		0.0002	Zero	
hexazinone				0.2
lindane (gamma-BHC)	tox	0.0002	0.0002	

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
alpha-BHC	tox			
beta-BHC	tox			
delta-BHC				
malathion				0.2
maleic hydrazide				4
methomyl				0.2
methoxychlor		0.04	0.04	
methyl chlorophenoxyacetic acid (MCPA)				0.011
methyl parathion				0.002
metolachlor				0.1
metribuzin				0.2
oxamyl (vydate)		0.2	0.2	
paraquat				0.03
picloram		0.5	0.5	
prometon				0.1
pronamide				0.05
propachlor				0.09
propazine				0.01
propham				0.1
simazine		0.004	0.004	
2,4,5-T (2,4,5-trichlorophenoxyacetic acid)				0.07
tebuthiuron				0.5
terbacil				0.09
terbufos				0.0009
toxaphene	tox	0.003	Zero	
2,4,5-TP (silvex)		0.05	0.05	
trifluralin				0.005

Abbreviations

al Action Level that, if exceeded, requires water treatment
BHC benzene hexachloride, also called hexachlorocyclohexane
DDD 1,1'-(2,2-dichloroethylidene) -bis/4-chlorobenzene

DDE 1,1'-(2,2-dichloroetheneylidene)-bis/4-chlorobenzene
HA Health Advisory
HMX octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
MCL Maximum Contaminant Level
MCLG Maximum Contaminant Level Goal
mg/L milligrams per liter
mrem/yr millirem per year
mrem ede/yr dose committed over a 50-year period to a "reference man" from an annual intake rate of 2 liters drinking water per day
MTBE methyl tertiary butyl ether, a synonym for 2-methoxy-2-methyl propane (the standard includes other ether-based gasoline additives)
NP the contaminant shall Not be Present
pCi/L picocuries per liter
tox a numerical standard has not been established, but the contaminant is listed in a narrative standard of "toxic pollutant" defined in WQCC regulations
2,4,5-TP 2,4,5-trichlorophenoxypropionic acid
tt Treatment Technique that public water system operators must adhere to instead of a numerical standard
um micrometer
U.S. EPA Uniter States Environmental Protection Agency
WQCC New Mexico Water Quality Control Commission

Footnotes

* The proposed standard excludes radon 222, radium 226 and uranium activity
** This standard excludes radium 228 activity. Units for the existing standard are mrem/yr. U.S. EPA has proposed to change the units to mrem ede/yr.
*** The "THMs" standard applies to the sum of chloroform, dichlorobromomethane, dibromochloromethane, and bromoform.
**** This standard applies to the sum of naphthalene and monomethylnaphthalene isomers.
***** This standard applies to the sum of mono-, di-, and trichloroacetic acids, and mono- and dibromoacetic acids.

Use and Applicability of Standards

All New Mexico standards are adopted by the WQCC except for the MTBE and petroleum (floating product and undesirable odor) standards, which are adopted by the New Mexico Environmental Improvement Board.

U.S. EPA's MCLGs are set at levels that would result in no known or anticipated adverse health effects with an adequate margin of safety. MCLGs do not take treatment costs into considerartion and are not enforceable. Health-based proposed MCLs and final enforceable MCLs are set as close to MCLGs as feasible with use of best technology, treatment techniques and other means.

U.S. EPA's HAs serve as informal technical guidance to assist Federal, State and Local officials responsible for protecting public health when emergency spills or contamination situations occur. They are not to be construed as legally enforceable Federal standards and are subject to change as new information becomes available. All HAs listed are for lifetime exposures except for p-dioxane (10 day) and n-hexane (7 year).

Appendix A

State of New Mexico Soil Screening Levels

Table A-1 provides State of New Mexico Soil Screening Levels (SSLs), as developed by the New Mexico Environment Department (NMED) Hazardous Waste Bureau (HWB) and the Ground Water Quality Bureau Voluntary Remediation Program for 208 chemicals most commonly associated with environmental releases within the state. These NMED SSLs are derived using default exposure parameter values (as presented in Table A-2) and chemical- and State of New Mexico-specific physical parameters (as presented in Table B-1 of Appendix B). These default values are assumed to be appropriately conservative in the face of uncertainty and are likely to be protective for the majority of site conditions relevant to soil exposures within New Mexico.

However, the NMED SSLs are not necessarily protective of all known human exposure pathways, reasonable land uses or ecological threats. Thus, before applying NMED SSLs at a site, it is extremely important to compare the conceptual site model (CSM) with the assumptions upon which the NMED SSLs are predicated to ensure that the site conditions and exposure pathways match those used to develop the NMED SSLs. If this comparison indicates that the site at issue is more complex than the corresponding SSL scenarios, or that there are significant exposure pathways not accounted for by the NMED SSLs, then the NMED SSLs are insufficient for use in a defensible assessment of the site. A more detailed site-specific approach will be necessary to evaluate the additional pathways or site conditions.

Table A-1

Column 1: The first column in Table A-1 presents the names of the chemicals for which NMED has developed SSLs.

Column 2: The second column presents NMED SSLs predicated on residential soil exposures.

Column 3: The third column presents indicator categories for the NMED SSL residential basis, whether predicated on carcinogenic effects (ca), noncarcinogenic effects (nc), soil saturation limits (sat) or a non-risk based "max" determination. NMED SSLs predicated on a carcinogenic endpoint reflect age-adjusted child-to-adult exposures. NMED SSLs predicated on a noncarcinogenic endpoint reflect child-only exposures. Detected concentrations above the "sat" value may indicate the presence of nonaqueous phase liquid (NAPL). For certain inorganic and semivolatile organic compounds (SVOCs) that exhibit relatively low toxicity, a non risk-based maximum concentration of 10^5 mg/kg is given when the risk-based SSL exceeds that level. These are noted as "max" in the tables.

Columns 4 and 6: The fourth and sixth columns present NMED SSLs analogous to Column 1, with the exception that these values correspond to Industrial/Occupational and Construction worker (adult-only) exposures, respectively.

Columns 5 and 7: The fifth and seventh columns present endpoint bases analogous to Column 3 for the Industrial/Occupational and Construction worker receptor

populations, respectively. Unlike the Residential population, noncarcinogenic endpoint notes for these receptor populations are predicated on adult-only exposures.

Column 8: The eighth column notes which chemicals are considered VOCs (for inhalation considerations). Those chemicals not considered VOCs are evaluated within the SSLs relative to inhalation of particulate emissions.

Column 9: Presents the tap water SSL for the residential scenario.

Columns 10 and 11: The ninth column presents NMED SSLs for the migration to groundwater pathway developed using a default dilution attenuation factor (DAF) of 1, which assumes no effective dilution or attenuation. These values can be considered at sites where little or no dilution or attenuation of soil leachate concentrations is expected (e.g., shallow water tables, karst topography). Column 10 presents NMED SSLs for the migration to groundwater pathway developed using a DAF of 20 to account for natural processes that reduce contaminant concentrations in the subsurface.

As noted above, separate NMED SSLs are presented for use in evaluating three discrete potential receptor populations: Residential, Industrial/Occupational, and Construction. Each NMED SSL considers incidental ingestion of soil, inhalation of volatiles (limited to those chemicals noted as volatile organic compounds [VOCs] within Table A-1) or particulate emissions from impacted soil, and dermal contact with soil.

Generally, if a contaminant is detected at a level in soil exceeding the most relevant NMED SSL, and the site-specific CSM is in general agreement with the underlying assumptions upon which the NMED SSLs are predicated, this result indicates the potential for adverse human health effects to occur. Conversely, if no contaminants are detected above the most relevant NMED SSL, this tends to indicate to the user that environmental conditions may not necessitate remedial action of the surface soil or the vadose zone.

A detection above an NMED SSL does not indicate that unacceptable exposures are, in fact, occurring. The NMED SSLs are predicated on relatively conservative exposure assumptions and an exceedance only tends to indicate the potential for adverse effects. The NMED SSLs do not account for additive exposures, whether for carcinogenic or noncarcinogenic endpoints. Section 5 of Part A addresses a methodology by which an environmental manager may determine whether further site-evaluation is warranted, however, this methodology does not replace the need for defensible risk assessment where indicated.

The NMED SSLs address a basic subset of exposures fundamental to the widest array of environmentally-impacted sites within the State of New Mexico. The NMED SSLs cannot address all relevant exposure pathways associated with all sites. The utility of the NMED SSLs depends heavily upon the understanding of site conditions as accurately reflected in the CSM and nature and extent of contamination determinations. Consideration of the NMED SSLs does not preclude the need for site-specific risk assessment in all instances

Table A-1
NMED Soil Screening Levels

Chemical	Residential Soil (mg/kg)	End-point	Industrial/ Occupational Soil (mg/kg)	End-point	Construction Worker Soil (mg/kg)	End-point	VOC	Tap Water (ug/L)	End-point	DAF 1 (mg/kg)	DAF 20 (mg/kg)
Acenaphthene	3.19E+01	sat	3.19E+01	sat	3.19E+01	sat	x	3.65E+02	nc	2.75E+00	5.49E+01
Acetaldehyde	3.39E+01	nc	1.23E+02	nc	1.11E+02	nc	x	1.72E+01	ca		
Acetone	1.26E+04	nc	5.30E+04	nc	4.26E+04	nc	x	5.48E+03	nc	9.55E-01	1.91E+01
Acrylonitrile	1.81E+00	ca	4.70E+00	ca	2.10E+01	nc	x	3.81E-01	ca	6.68E-05	1.34E-03
Acetophenone	1.48E+03	sat	1.48E+03	sat	1.48E+03	sat	x	3.65E+03	nc	8.86E-01	1.77E+01
Acrolein	6.51E-02	nc	2.37E-01	nc	2.13E-01	nc	x	4.16E-02	nc	8.55E-06	1.71E-04
Aldrin	2.84E-01	ca	1.12E+00	ca	6.99E+00	nc		3.87E-02	ca	1.42E-01	2.84E+00
Aluminum	7.78E+04	nc	1.00E+05	max	1.44E+04	nc		3.65E+04	nc	5.48E+04	1.10E+06
Anthracene	1.93E+00	sat	1.93E+00	sat	1.93E+00	sat	x	1.83E+03	nc	8.11E+01	1.62E+03
Antimony	3.13E+01	nc	4.54E+02	nc	1.24E+02	nc		1.46E+01	nc	6.61E-01	1.32E+01
Arsenic	3.90E+00	ca	1.77E+01	ca	8.52E+01	nc		4.42E-01	ca	1.46E-02	2.92E-01
Barium	5.45E+03	nc	7.83E+04	nc	1.44E+03	nc		2.56E+03	nc	1.06E+02	2.11E+03
Benzene	3.32E+00	ca	8.08E+00	ca	5.83E+01	nc	x	3.49E+00	ca	1.01E-03	2.02E-02
Benzidine	2.11E-02	ca	8.33E-02	ca	7.09E-01	ca		2.89E-03	ca	1.24E-05	2.47E-04
Benzo(a)anthracene	6.21E+00	ca	2.34E+01	ca	2.12E+02	ca		9.09E-01	ca	5.43E-01	1.09E+01
Benzo(a)pyrene	6.21E-01	ca	2.34E+00	ca	2.12E+01	ca		9.09E-02	ca		2.78E+00
Benzo(b)fluoranthene	6.21E+00	ca	2.34E+01	ca	2.12E+02	ca		9.09E-01	ca	1.68E+00	3.35E+01
Benzo(k)fluoranthene	6.21E+01	ca	2.34E+02	ca	2.12E+03	ca		9.09E+00	ca	1.68E+01	3.35E+02
Beryllium	1.56E+02	nc	2.25E+03	nc	5.62E+01	nc		7.30E+01	nc	5.77E+01	1.15E+03
a-BHC	9.02E-01	ca	3.99E+00	ca	3.00E+01	ca		1.05E-01	ca	2.13E-04	4.25E-03
b-BHC	3.16E+00	ca	1.40E+01	ca	5.39E+01	nc		3.69E-01	ca	7.61E-04	1.52E-02
g-BHC	4.37E+00	ca	1.93E+01	ca	8.09E+01	nc		5.10E-01	ca	9.08E-04	1.82E-02
1,1-Biphenyl	8.91E+01	sat	8.91E+01	sat	8.91E+01	sat	x	3.04E+02	nc	3.61E+00	7.22E+01
Bis(2-chloroethyl) ether	1.05E+00	ca	2.76E+00	ca	5.09E+01	ca	x	9.65E-02	ca	1.90E-05	3.80E-04
Bis(2-chloroisopropyl) ether	4.53E+02	sat	4.53E+02	sat	4.53E+02	sat	x	2.43E+02	nc	6.48E-02	1.30E+00
Bis(2-ethylhexyl) phthalate	3.47E+02	ca	1.37E+03	ca	4.66E+03	nc		4.74E+01	ca	1.07E+03	2.15E+04
Bis(chloromethyl) ether	1.64E-03	ca	4.05E-03	ca	8.55E-02	ca	x	5.09E-04	ca	8.96E-08	1.79E-06
Boron	1.22E+04	nc	1.00E+05	max	2.69E+04	nc		7.30E+03	nc	2.40E+01	4.81E+02
Bromobenzene	1.14E+01	nc	4.16E+01	nc	3.72E+01	nc	x	2.06E+01	nc	1.07E-02	2.15E-01
Bromodichloromethane	4.36E+00	ca	1.07E+01	ca	2.29E+02	ca	x	1.78E+00	ca	4.70E-04	9.41E-03
Bromomethane	2.73E+00	nc	1.01E+01	nc	8.95E+00	nc	x	8.66E+00	nc	1.88E-03	3.77E-02
1,3-Butadiene	3.04E-01	ca	7.27E-01	ca	1.40E+00	nc	x	1.26E+00	ca		

Chemical	Residential Soil (mg/kg)	End-point	Industrial/ Occupational Soil (mg/kg)	End-point	Construction Worker Soil (mg/kg)	End-point	VOC	Tap Water (ug/L)	End-point	DAF 1 (mg/kg)	DAF 20 (mg/kg)
2-Butanone (MEK)	4.86E-03	sat	4.86E-03	sat	4.86E-03	sat	x	7.06E+03	nc	1.27E+00	2.54E+01
tert-Butyl methyl ether (MTBE)	6.67E-03	sat	6.67E-03	sat	6.67E-03	sat	x	6.26E+03	nc		
n-Butylbenzene	6.21E+01	sat	6.21E+01	sat	6.21E+01	sat	x	2.43E+02	nc	1.08E+00	2.16E+01
sec-Butylbenzene	6.06E+01	sat	6.06E+01	sat	6.06E+01	sat	x	2.43E+02	nc	8.68E-01	1.74E+01
tert-Butylbenzene	1.06E+02	sat	1.06E+02	sat	1.06E+02	sat	x	2.43E+02	nc	8.60E-01	1.72E+01
Cadmium	3.90E+01	nc	5.64E+02	nc	1.54E+02	nc		1.83E+01		1.37E+00	2.75E+01
Carbon disulfide	1.97E+02	nc	4.60E+02	sat	4.60E+02	sat	x	1.04E+03	nc	4.03E-01	8.06E+00
Carbon tetrachloride	9.65E-01	nc	2.69E+00	ca	3.16E+00	nc	x	1.69E+00	ca	9.88E-04	1.98E-02
Chlordane	1.62E+01	ca	7.19E+01	ca	1.30E+02	nc		1.90E+00	ca	3.42E-01	6.83E+00
2-Chloroacetophenone	1.35E-02	nc	4.97E-02	nc	4.42E-02	nc	x	5.22E-02	nc	4.43E-05	8.85E-04
2-Chloro-1,3-butadiene	1.93E+00	nc	7.00E+00	nc	6.29E+00	nc	x	1.43E+01	nc	5.79E-03	1.16E-01
1-Chloro-1,1-difluoroethane	2.11E+02	sat	2.11E+02	sat	2.11E+02	sat	x	8.66E+04	nc	6.52E+01	1.30E+03
Chlorobenzene	6.44E+01	nc	2.41E+02	nc	2.12E+02	nc	x	1.06E+02	nc	5.51E-02	1.10E+00
1-Chlorobutane	2.99E+02	sat	2.99E+02	sat	2.99E+02	sat	x	2.43E+03	nc	9.84E-01	1.97E+01
Chlorodifluoromethane	2.11E+02	sat	2.11E+02	sat	2.11E+02	sat	x	9.75E+04	nc	7.33E+01	1.47E+03
Chloroethane	1.96E+01	ca	4.71E+01	ca	1.05E+03	ca	x	3.81E+01	ca	9.53E-03	1.91E-01
Chloroform	1.21E+00	ca	2.90E+00	ca	6.53E+01	ca	x	1.65E+00	ca	4.14E-04	8.28E-03
Chloromethane	6.83E+00	ca	1.65E+01	ca	8.63E+01	nc	x	1.49E+01	ca	5.12E-03	1.02E-01
b-Chloronaphthalene	3.09E+01	sat	3.09E+01	sat	3.09E+01	sat	x	4.87E+02	nc	1.25E+00	2.51E+01
o-Chloronitrobenzene	6.72E-01	nc	2.46E+00	nc	2.20E+00	nc	x	1.45E-01	nc	3.94E-05	7.88E-04
p-Chloronitrobenzene	5.37E+00	nc	2.05E+01	nc	1.78E+01	nc	x	1.20E+00	nc	3.25E-04	6.50E-03
2-Chlorophenol	7.25E+01	nc	3.06E+02	nc	2.45E+02	nc	x	3.04E+01	nc	2.36E-02	4.72E-01
2-Chloropropane	9.39E+01	nc	3.52E+02	nc	3.09E+02	nc	x	1.76E+02	nc	4.61E-02	9.21E-01
o-Chlorotoluene	7.15E+01	nc	2.02E+02	sat	2.02E+02	sat	x	1.22E+02	nc	5.23E-02	1.05E+00
Chromium III	1.00E+05	max	1.00E+05	max	1.00E+05	max		5.48E+04	nc	9.86E+07	1.97E+09
Chromium VI	2.34E+02	nc	3.40E+03	nc	2.61E+01	ca		1.10E+02	nc	2.10E+00	4.20E+01
Chrysene	9.55E-01	sat	9.55E-01	sat	9.55E-01	sat	x	2.91E+01	ca	1.74E+01	3.48E+02
Cobalt	1.52E+03	nc	2.05E+04	nc	6.10E+01	nc		7.30E+02	nc	3.31E+01	6.61E+02
Copper	3.13E+03	nc	4.54E+04	nc	1.24E+04	nc		1.46E+03	nc	5.15E+01	1.03E+03
Crotonaldehyde	3.37E+00	ca	1.67E+01	ca	5.27E+01	sat	x	3.49E-01	ca	9.20E-04	1.84E-02
Cumene (isopropylbenzene)	3.41E+01	sat	3.41E+01	sat	3.41E+01	sat	x	6.78E+02	nc	3.79E-01	7.59E+00
Cyanide	1.56E+03	nc	2.27E+04	nc	6.19E+03	nc		7.30E+02	nc	7.35E+00	1.47E+02
Cyanogen	7.68E+01	nc	2.84E+02	nc	2.52E+02	nc	x	2.43E+02	nc	5.78E-02	1.16E+00

Chemical	Residential Soil (mg/kg)	End-point	Industrial/ Occupational Soil (mg/kg)	End-point	Construction Worker Soil (mg/kg)	End-point	VOC	Tap Water (ug/L)	End-point	DAF 1 (mg/kg)	DAF 20 (mg/kg)
Cyanogen bromide	1.73E+02	nc	6.39E+02	nc	5.67E+02	nc	x	5.48E+02	nc	1.30E-01	2.60E+00
Cyanogen chloride	9.60E+01	nc	3.55E+02	nc	3.15E+02	nc	x	3.04E+02	nc	7.22E-02	1.44E+00
DDD	2.44E+01	ca	1.11E+02	ca	8.07E+02	ca		2.77E+00	ca	4.15E+00	8.30E+01
DDE	1.72E+01	ca	7.81E+01	ca	5.70E+02	ca		1.95E+00	ca	1.31E+01	2.62E+02
DDT	1.72E+01	ca	7.81E+01	ca	1.38E+02	nc		1.95E+00	ca	7.70E+00	1.54E+02
Dibenz(a,h)anthracene	6.21E-01	ca	2.34E+00	ca	2.12E+01	ca		9.09E-02	ca	5.18E-01	1.04E+01
Dibenzofuran	3.66E+01	sat	3.66E+01	sat	3.66E+01	sat	x	1.22E+01	nc	1.44E-01	2.87E+00
1,2-Dibromo-3-chloropropane	1.03E+00	nc	4.52E+00	nc	3.51E+00	nc	x	3.47E-01	nc	7.49E-05	1.50E-03
Dibromochloromethane	4.42E+00	ca	1.09E+01	ca	2.30E+02	ca	x	1.32E+00	ca	1.16E-03	2.32E-02
1,2-Dibromoethane	1.82E-01	ca	4.49E-01	ca	9.49E+00	ca	x	5.53E-02	ca	1.33E-05	2.66E-04
1,4-Dichloro-2-butene	4.29E-02	ca	1.06E-01	ca	2.23E+00	ca	x	1.19E-02	ca	2.93E-06	5.87E-05
1,2-Dichlorobenzene	4.30E+01	sat	4.30E+01	sat	4.30E+01	sat	x	3.70E+02	nc	1.02E-01	2.04E+00
1,3-Dichlorobenzene	1.74E+02	sat	1.74E+02	sat	1.74E+02	sat	x	1.83E+02	nc	2.03E-01	4.06E+00
1,4-Dichlorobenzene	1.33E+01	ca	3.28E+01	ca	8.19E+01	sat	x	4.95E+00	ca	5.49E-03	1.10E-01
3,3-Dichlorobenzidine	1.08E+01	ca	4.26E+01	ca	3.63E+02	ca		1.47E+00	ca	1.86E-03	3.71E-02
Dichlorodifluoromethane	4.95E+01	nc	1.80E+02	nc	1.62E+02	nc	x	3.95E+02	nc	2.97E-01	5.94E+00
1,1-Dichloroethane	3.00E+02	nc	1.12E+03	nc	9.88E+02	nc	x	8.11E+02	nc	2.01E-01	4.03E+00
1,2-Dichloroethane	1.82E+00	ca	4.42E+00	ca	1.83E+01	nc	x	1.22E+00	ca	2.48E-04	4.97E-03
cis-1,2-Dichloroethene	2.49E+01	nc	9.24E+01	nc	8.17E+01	nc	x	6.08E+01	nc	1.50E-02	3.00E-01
trans-1,2-Dichloroethene	3.71E+01	nc	1.37E+02	nc	1.22E+02	nc	x	1.22E+02	nc	3.63E-02	7.26E-01
1,1-Dichloroethene	6.41E+01	nc	2.36E+02	nc	2.10E+02	nc	x	3.39E+02	nc	1.33E-01	2.67E+00
2,4-Dichlorophenol	1.83E+02	nc	2.05E+03	nc	6.99E+02	nc		1.10E+02	nc	4.31E-02	8.63E-01
1,2-Dichloropropane	1.90E+00	ca	4.60E+00	ca	1.08E+01	nc	x	1.63E+00	ca	4.11E-04	8.22E-03
1,3-Dichloropropene	4.36E+00	ca	1.08E+01	ca	2.87E+01	nc	x	3.90E+00	ca	1.28E-03	2.57E-02
Dicyclopentadiene	1.98E-01	nc	7.19E-01	nc	6.47E-01	nc	x	4.17E-01	nc	4.50E-04	9.01E-03
Dieldrin	3.04E-01	ca	1.20E+00	ca	1.02E+01	ca		4.15E-02	ca	1.34E-03	2.68E-02
Diethyl phthalate	4.89E+04	nc	1.00E+05	max	1.00E+05	max		2.92E+04	nc	1.77E+01	3.54E+02
Dimethyl phthalate	1.00E+05	max	1.00E+05	max	1.00E+05	max		3.65E+05	nc	8.36E+01	1.67E+03
Di-n-butyl phthalate	6.11E+03	nc	6.84E+04	nc	2.33E+04	nc		3.65E+03	nc	1.86E+02	3.72E+03
2,4-Dimethylphenol	1.22E+03	nc	1.37E+04	nc	4.66E+03	nc		7.30E+02	nc	3.55E-01	7.11E+00
2,4-Dimethylphenol	6.11E+00	nc	6.84E+01	nc	2.33E+01	nc		3.65E+00	nc	3.93E-03	7.85E-02
4,6-Dinitro-o-cresol	1.22E+02	nc	1.37E+03	nc	4.66E+02	nc		7.30E+01	nc	5.25E-02	1.05E+00

Chemical	Residential Soil (mg/kg)	End-point	Industrial/ Occupational Soil (mg/kg)	End-point	Construction Worker Soil (mg/kg)	End-point	VOC	Tap Water (ug/L)	End-point	DAF 1 (mg/kg)	DAF 20 (mg/kg)
2,4-Dinitrotoluene	1.22E+02	nc	1.37E+03	nc	4.66E+02	nc		7.30E+01	nc	2.31E-02	4.62E-01
1,2-Diphenylhydrazine	6.08E+00	ca	2.39E+01	ca	2.04E+02	ca		8.30E-01	ca	4.48E-03	8.95E-02
Endosulfan	3.67E+02	nc	4.10E+03	nc	1.40E+03	nc		2.19E+02	nc	7.41E-01	1.48E+01
Endrin	1.83E+01	nc	2.05E+02	nc	6.99E+01	nc		1.10E+01	nc	2.04E-01	4.08E+00
Epichlorohydrin	6.13E+00	nc	2.29E+01	nc	2.02E+01	nc	x	2.03E+00	nc	3.62E-04	7.25E-03
Ethyl acetate	1.09E+04	nc	2.10E+04	sat	2.10E+04	sat	x	5.48E+03	nc	1.44E+00	2.87E+01
Ethyl acrylate	8.61E-01	ca	2.07E+00	ca	4.62E+01	ca	x	2.30E+00	ca	6.01E-03	1.20E-01
Ethyl chloride	1.96E+01	ca	4.71E+01	ca	1.05E+03	ca	x	3.81E+01	ca	9.53E-03	1.91E-01
Ethyl ether	1.94E+03	sat	1.94E+03	sat	1.94E+03	sat	x	1.22E+03	nc	2.37E-01	4.73E+00
Ethyl methacrylate	5.27E+01	sat	5.27E+01	sat	5.27E+01	sat	x	5.48E+02	nc	1.44E+00	2.88E+01
Ethylbenzene	1.28E+02	sat	1.28E+02	sat	1.28E+02	sat	x	1.34E+03	nc	1.01E+00	2.03E+01
Ethylene oxide	1.18E+00	ca	3.13E+00	ca	5.74E+01	ca	x	2.41E-01	ca	4.27E-05	8.54E-04
Fluoranthene	2.29E+03	nc	2.44E+04	nc	8.73E+03	nc		1.46E+03	nc	2.35E+02	4.69E+03
Fluorene	3.97E+01	sat	3.97E+01	sat	3.97E+01	sat	x	2.43E+02	nc	5.08E+00	1.02E+02
Fluoride	4.68E+03	nc	6.77E+04	nc	1.85E+04	nc		2.19E+03	nc	3.29E+02	6.58E+03
Furan	1.76E+00	nc	6.51E+00	nc	5.78E+00	nc	x	6.08E+00	nc	1.32E-03	2.65E-02
Heptachlor	1.08E+00	ca	4.26E+00	ca	3.63E+01	ca		1.47E-01	ca	3.12E-01	6.24E+00
Hexachlorobenzene	3.04E+00	ca	1.20E+01	ca	1.02E+02	ca		4.15E-01	ca	3.43E-02	6.86E-01
Hexachloro-1,3-butadiene	1.22E+01	nc	1.37E+02	nc	4.66E+01	nc		7.30E+00	nc	5.90E-01	1.18E+01
Hexachlorocyclopentadiene	3.66E+02	nc	4.10E+03	nc	4.31E+02	nc		2.19E+02	nc	6.58E+01	1.32E+03
Hexachloroethane	6.11E+01	nc	6.84E+02	nc	2.33E+02	nc		3.65E+01	nc	1.04E-01	2.09E+00
n-Hexane	3.80E+01	sat	3.80E+01	sat	3.80E+01	sat	x	4.16E+02	nc	8.78E-01	1.76E+01
HMX	3.06E+03	nc	3.42E+04	nc	1.17E+04	nc		1.83E+03	nc	5.39E+00	1.08E+02
Hydrogen cyanide	7.05E+00	nc	2.57E+01	nc	2.30E+01	nc	x	6.20E+00	nc	1.24E-03	2.47E-02
Indeno(1,2,3-c,d)pyrene	6.21E+00	ca	2.34E+01	ca	2.12E+02	ca		9.09E-01	ca	4.73E+00	9.46E+01
Iron	2.35E+04	nc	1.00E+05	max	9.29E+04	nc		1.10E+04	nc	2.77E+02	5.54E+03
Isobutanol	8.44E+03	nc	2.26E+04	sat	2.26E+04	sat	x	1.83E+03	nc	4.86E-01	9.72E+00
Isophorone	5.12E+03	ca	2.02E+04	ca	4.66E+04	nc		6.99E+02	ca	1.70E-01	3.40E+00
Lead	4.00E+02	IEUBK	8.00E+02	IEUBK	8.00E+02	IEUBK					
Lead (tetraethyl-)	6.11E-03	nc	6.84E-02	nc	2.38E-02	nc		3.65E-03	nc	6.33E-07	1.27E-05
Maleic hydrazide	9.30E+02	nc	1.61E+03	sat	1.61E+03	sat	x	3.04E+03	nc	8.17E-01	1.63E+01
Manganese	1.02E+04	nc	1.00E+05	max	1.51E+02	nc		5.11E+03	nc	3.34E+02	6.67E+03

Chemical	Residential Soil (mg/kg)	End-point	Industrial/ Occupational Soil (mg/kg)	End-point	Construction Worker Soil (mg/kg)	End-point	VOC	Tap Water (ug/L)	End-point	DAF 1 (mg/kg)	DAF 20 (mg/kg)
Mercury (elemental)	1.00E+05	max	1.00E+05	max	9.27E+02	nc			ca	1.05E-01	2.09E-03
Mercury (methyl)	6.11E+00	nc	6.84E+01	nc	2.38E+01	nc		3.65E+00	nc	8.37E-04	1.67E-02
Methacrylonitrile	1.83E+00	nc	8.08E+00	nc	6.25E+00	nc	x	1.04E+00	nc	1.83E-04	3.65E-03
Methomyl	2.65E+01	nc	9.72E+01	nc	8.68E+01	nc	x	1.52E+02	nc	5.90E-02	1.18E+00
Methyl acetate	1.94E+04	nc	8.64E+04	nc	6.62E+04	nc	x	6.08E+03	nc	1.08E+00	2.15E+01
Methyl acrylate	2.91E+01	nc	1.06E+02	nc	9.51E+01	nc	x	1.83E+02	nc	4.76E-01	9.52E+00
Methyl isobutyl ketone	4.36E+03	nc	7.01E+03	sat	7.01E+03	sat	x	1.99E+03	nc	7.35E-01	1.47E+01
Methyl methacrylate	1.52E+03	nc	2.92E+03	sat	2.92E+03	sat	x	1.42E+03	nc	2.76E-01	5.52E+00
Methyl styrene (alpha)	2.17E+02	sat	2.17E+02	sat	2.17E+02	sat	x	4.26E+02	nc	3.09E-01	6.17E+00
Methyl styrene (mixture)	5.30E+01	nc	2.10E+02	nc	1.77E+02	nc	x	5.48E+01	nc	3.97E-02	7.93E-01
Methylcyclohexane	7.89E+01	sat	7.89E+01	sat	7.89E+01	sat	x	5.23E+03	nc	2.95E+01	5.89E+02
Methylene bromide	4.22E+01	nc	1.60E+02	nc	1.39E+02	nc	x	6.08E+01	nc	1.31E-02	2.62E-01
Methylene chloride	6.47E+01	ca	1.61E+02	ca	2.63E+03	sat	x	4.22E+01	ca	8.53E-03	1.71E-01
Molybdenum	3.91E+02	nc	5.68E+03	nc	1.55E+03	nc		1.83E+02	nc	3.70E+00	7.41E+01
Naphthalene	2.52E+01	nc	9.25E+01	nc	8.25E+01	nc	x	6.20E+00	nc	1.97E-02	3.94E-01
Nickel	1.56E+03	nc	2.25E+04	nc	5.61E+02	nc		7.30E+02	nc	4.77E+01	9.53E+02
Nitrate	1.00E+05	max	1.00E+05	max	1.00E+05	max		5.84E+04	nc	1.71E+01	3.43E+02
Nitrite	7.82E+03	nc	1.00E+05	max	3.10E+04	nc		3.65E+03	nc	7.63E-01	1.53E+01
Nitrobenzene	1.29E+01	nc	6.24E+01	nc	4.48E+01	nc	x	3.40E+00	nc	9.18E-04	1.84E-02
Nitroglycerin	3.47E+02	ca	1.37E+03	ca	1.17E+04	ca		4.74E+01	ca	2.81E-02	5.63E-01
N-Nitrosodiethylamine	3.24E-02	ca	1.28E-01	ca	1.09E+00	ca		4.42E-03	ca	8.73E-06	1.75E-04
N-Nitrosodimethylamine	9.54E-02	ca	3.76E-01	ca	1.86E+00	nc		1.30E-02	ca	1.22E-05	2.44E-04
N-Nitrosodi-n-butylamine	1.99E-01	ca	5.23E-01	ca	9.53E+00	ca	x	1.99E-02	ca	5.27E-05	1.05E-03
N-Nitrosodiphenylamine	7.40E+01	sat	7.40E+01	sat	7.40E+01	sat		1.35E+02	ca	2.86E-01	5.71E+00
N-Nitrosopyrrolidine	2.32E+00	ca	9.12E+00	ca	7.77E+01	ca		3.16E-01	ca	1.30E-04	2.60E-03
m-Nitrotoluene	4.73E+02	nc	5.69E+02	sat	5.69E+02	sat	x	1.22E+02	nc	3.30E-02	6.59E-01
o-Nitrotoluene	5.11E+00	ca	1.35E+01	ca	2.48E+02	ca	x	4.81E-01	ca	1.30E-04	2.61E-03
p-Nitrotoluene	6.91E+01	ca	1.83E+02	ca	5.69E+02	sat	x	6.51E+00	ca	1.76E-03	3.53E-02
Pentachlorobenzene	4.89E+01	nc	5.47E+02	nc	1.86E+02	nc		2.92E+01	nc	9.38E-02	1.88E+00
Pentachlorophenol	2.98E+01	ca	1.00E+02	ca	1.02E+03	ca		5.53E+00	ca	5.87E-03	1.17E-01
Phenanthrene	1.83E+03	nc	2.05E+04	nc	6.99E+03	nc		1.10E+03	nc	2.32E+01	4.64E+02
Phenol	1.83E+04	nc	1.00E+05	max	6.99E+04	nc		1.10E+04	nc	2.37E+00	4.74E+01

Chemical	Residential Soil (mg/kg)	End-point	Industrial/ Occupational Soil (mg/kg)	End-point	Construction Worker Soil (mg/kg)	End-point	VOC	Tap Water (ug/L)	End-point	DAF 1 (mg/kg)	DAF 20 (mg/kg)
Polychlorinatedbiphenyls											
Aroclor 1016	3.93E+00	nc	4.13E+01	nc	1.50E+01	nc		2.56E+00	nc	1.73E-01	3.45E+00
Aroclor 1221	1.12E+00	nc	8.26E+00	ca	4.28E+00	nc		3.32E-01	ca	2.24E-02	4.47E-01
Aroclor 1232	1.12E+00	nc	8.26E+00	ca	4.28E+00	nc		3.32E-01	ca	2.24E-02	4.47E-01
Aroclor 1242	1.12E+00	nc	8.26E+00	ca	4.28E+00	nc		3.32E-01	ca	2.24E-02	4.47E-01
Aroclor 1248	1.12E+00	nc	8.26E+00	ca	4.28E+00	nc		3.32E-01	ca	2.64E-01	5.28E+00
Aroclor 1254	1.12E+00	nc	8.26E+00	ca	4.28E+00	nc		3.32E-01	ca	2.64E-01	5.28E+00
Aroclor 1260	1.12E+00	nc	8.26E+00	ca	4.28E+00	nc		3.32E-01	ca	2.64E-01	5.28E+00
n-Propylbenzene	6.21E+01	sat	6.21E+01	sat	6.21E+01	sat	x	2.43E+02	nc	1.08E+00	2.16E+01
Propylene oxide	1.63E+01	ca	5.71E+01	ca	3.16E+02	nc	x	2.18E+00	ca	4.60E-04	9.20E-03
Pyrene	2.13E+01	sat	2.13E+01	sat	2.13E+01	sat	x	1.83E+02	nc	2.88E+01	5.76E+02
RDX	4.42E+01	ca	1.74E+02	ca	6.99E+02	nc		6.03E+00	ca	1.68E-03	3.36E-02
Selenium	3.91E+02	nc	5.68E+03	nc	1.55E+03	nc		1.83E+02	nc	9.53E-01	1.91E+01
Silver	3.91E+02	nc	5.68E+03	nc	1.55E+03	nc		1.83E+02	nc	1.57E+00	3.14E+01
Strontium	4.69E+04	nc	1.00E+05	max	1.00E+05	max		2.19E+04	nc	7.73E+02	1.55E+04
Styrene	4.21E+02	sat	4.21E+02	sat	4.21E+02	sat	x	1.62E+03	nc	2.20E+00	4.40E+01
1,2,4,5-Tetrachlorobenzene	1.83E+01	nc	2.05E+02	nc	6.99E+01	nc		1.10E+01	nc	2.14E-02	4.29E-01
1,1,1,2-Tetrachloroethane	1.56E+01	ca	3.86E+01	ca	8.09E+02	ca	x	4.27E+00	ca	1.34E-03	2.68E-02
1,1,2,2-Tetrachloroethane	2.00E+00	ca	4.94E+00	ca	1.04E+02	ca	x	5.46E-01	ca	1.72E-04	3.44E-03
Tetrachloroethene	3.52E+00	ca	8.56E+00	ca	9.93E+01	sat	x	4.32E+00	ca	2.15E-03	4.29E-02
Thallium	5.16E+00	nc	7.49E+01	nc	2.04E+01	nc		2.41E+00	nc	1.72E-01	3.43E+00
Toluene	2.52E+02	sat	2.52E+02	sat	2.52E+02	sat	x	7.23E+02	nc	3.47E-01	6.93E+00
Toxaphene	4.42E+00	ca	1.74E+01	ca	1.48E+02	ca		6.03E-01	ca	2.33E-01	4.65E+00
Tribromomethane	4.11E+02	ca	1.34E+03	ca	2.75E+03	nc		2.44E+01	ca	1.73E-01	3.47E+00
1,1,2-Trichloro-1,2,2-trifluoroethane	3.28E+03	sat	3.28E+03	sat	3.28E+03	sat	x	5.92E+04	nc	1.76E+02	3.53E+03
1,2,4-Trichlorobenzene	2.25E+01	nc	8.34E+01	nc	7.38E+01	nc	x	7.16E+00	nc	2.04E-02	4.08E-01
1,1,1-Trichloroethane	5.63E+02	sat	5.63E+02	sat	5.63E+02	sat	x	3.17E+03	nc	1.34E+00	2.68E+01
1,1,2-Trichloroethane	3.90E+00	ca	9.52E+00	ca	6.60E+01	nc	x	1.97E+00	ca	4.98E-04	9.96E-03
Trichloroethylene	2.26E-01	ca	5.45E-01	ca	1.21E+01	ca	x	2.77E-01	ca	1.31E-04	2.62E-03
Trichlorofluoromethane	1.82E+02	nc	6.65E+02	nc	5.96E+02	nc	x	1.29E+03	nc	1.15E+00	2.30E+01
2,4,5-Trichlorophenol	6.11E+03	nc	6.84E+04	nc	2.33E+04	nc		3.65E+03	nc	7.13E+00	1.43E+02
2,4,6-Trichlorophenol	6.11E+00	nc	6.84E+01	nc	2.33E+01	nc		3.65E+00	nc	7.13E-03	1.43E-01

Chemical	Residential Soil (mg/kg)	End-point	Industrial/ Occupational Soil (mg/kg)	End-point	Construction Worker Soil (mg/kg)	End-point	VOC	Tap Water (ug/L)	End-point	DAF 1 (mg/kg)	DAF 20 (mg/kg)
1,1,2-Trichloropropane	4.08E+01	nc	1.61E+02	nc	1.36E+02	nc	x	3.04E+01	nc	7.65E-03	1.53E-01
1,2,3-Trichloropropane	1.82E-01	ca	4.50E-01	ca	9.50E+00	ca	x	5.53E-02	ca	1.39E-05	2.78E-04
1,2,3-Trichloropropene	2.63E+00	nc	9.58E+00	nc	8.60E+00	nc	x	2.10E+00	nc	5.29E-04	1.06E-02
Triethylamine	1.98E+01	nc	7.94E+01	nc	6.61E+01	nc	x	1.21E+01	nc	2.14E-03	4.29E-02
1,2,4-Trimethylbenzene	1.77E+01	nc	6.45E+01	nc	5.79E+01	nc	x	1.23E+01	nc	7.09E-02	1.42E+00
1,3,5-Trimethylbenzene	7.54E+00	nc	2.74E+01	nc	2.46E+01	nc	x	1.23E+01	nc	1.78E-02	3.55E-01
2,4,6-Trinitrotoluene	3.06E+01	nc	3.42E+02	nc	1.17E+02	nc		1.83E+01	nc	5.34E-02	1.07E+00
Vanadium	7.82E+01	nc	1.14E+03	nc	3.10E+02	nc		3.65E+01	nc	3.65E+01	7.30E+02
Vinyl acetate	3.30E+02	nc	1.20E+03	nc	1.08E+03	nc	x	4.12E+02	nc	7.57E-02	1.51E+00
Vinyl bromide	8.65E-01	ca	2.07E+00	ca	6.15E+00	nc	x	1.18E+00	ca	4.73E-04	9.45E-03
Vinyl chloride (Child)	1.04E+00	ca					x	4.28E-01	ca	1.43E-04	2.86E-03
Vinyl chloride (adult)	2.02E+00	ca	5.43E+00	ca	8.07E+01	nc	x	8.33E-01	ca	2.78E-04	5.57E-03
m-Xylene	1.01E+02	nc	1.32E+02	sat	1.32E+02	sat	x	2.03E+02	nc	1.66E-01	3.33E+00
o-Xylene	1.32E+02	sat	1.32E+02	sat	1.32E+02	sat	x	7.30E+03	nc	5.43E+00	1.09E+02
Xylenes	1.02E+02	nc	1.33E+02	sat	1.33E+02	sat	x	2.03E+02	nc	1.67E-01	3.34E+00
Zinc	2.35E+04	nc	1.00E+05	max	9.29E+04	nc		1.10E+04	nc	6.82E+02	1.36E+04

Section 5.0 Groundwater Monitoring Results

Title	Tab/Figure	Section
Measured Depth to Groundwater	Tab 1	9.0
Direction of Groundwater Flow	Figures 4 & 5	10.0
Field Water Quality Measurements	Tab 2	9.0
Comparison to Previous Monitoring	Tabs 3,4,5,6	9.0

Section 6.0 Chemical Analytical Data

Section 7.0 Remediation System Monitoring

Remediation System Monitoring

Total Fluids Pumping

Traditionally, the primary remediation system in place at Bloomfield is separate phase hydrocarbon (SPH) removal utilizing total fluids pumping. The total fluids pumping system is used to bring SPH and hydrocarbon impacted groundwater to the surface for treatment or disposal. This is accomplished by pumping wells within the SPH plume. The recovery wells pump SPH and hydrocarbon impacted groundwater to the refinery API separator and through the refinery process wastewater treatment system. Pumping is most effective in saturated zones with high hydraulic conductivities such as those measured at the refinery. Each pump can discharge up to 1.5 to 2 gpm. In 2005 total fluids pumping was accomplished through the use of thirteen recovery wells: RW# 1, 2, 9, 15, 16, 17, 18, 19, 22, 23, 28, 42 and 43.

In 2005 the estimated total gallons pumped from the recovery wells was 3,330,372 gallons. This significant increase in volume is due to diligent preventive maintenance of the recovery pumps.

North Boundary Barrier Wall

The North Boundary Barrier Wall Collection System was completed in early 2005. The primary purpose of the wall and collection system was to prevent the flow of hydrocarbon-impacted groundwater to the San Juan River. The wall and the collection wells were designed to accumulate fluids in the depressions or troughs of the Naciemento Formation.

Observation wells were installed adjacent to and 5 to 10 feet downgradient of the wall to allow monitoring of fluid levels. The spacing of the wells (~300 feet between Collection Wells) captures groundwater/SPH behind the barrier preventing fluid levels to build up behind the barrier.

Monitoring of fluids levels on both sides of the barrier wall consisted of measuring the Depth to Water and Depth to Product in accordance with the schedule provided by NMED through the first three months. In order to better determine if the barrier wall is preventing contaminated groundwater from migrating beyond the barrier wall, Giant continues to measure all Observation and Collection Wells on a twice per month basis instead of the once per month as specified by NMED.

Using a vacuum truck, separate phase hydrocarbon has been removed from the Collection Wells on a 3X per week basis since May. SPH was removed from the Observation Wells on a monthly basis until September. At that time, the schedule was modified to 3X per week.

Total volume removed from Collection wells and Observation wells for 2005 is estimated at 20,880 barrels.

North Outfalls/Draws

The lined collection and barrier systems that were installed at the point of the seeps in the draws north of the barrier wall are monitored and pumped for recovery. For 2005, approximately 2,128 barrels of liquid was removed from the West Arroyo, 589 barrels from the draw north of MW #46, and 2,471 barrels from the draw north of MW #45.

Inspections of the draws north of the barrier wall indicate that the barrier wall is preventing migration of contaminated groundwater toward the San Juan River. Since installation of the barrier wall, all previous areas where seepage of fuel hydrocarbon impacted water was present have been reduced or eliminated.

As a matter of preventive maintenance, containments in the draws were upgraded in November and December.

River Terrace

The river terrace investigation continued with the installation TP-9 through TP13 in April. DW-1, DW -2 and 13 bioventing wells were drilled in August. Baseline sampling of the TP wells and the dewatering wells was conducted and results can be found in Section 9, Tabs 8 and 9.

Initial construction of the River Terrace Bioventing Project began in August. The system was put on-line in January 2006. Monitoring and remedial actions are following the Voluntary Measures Bioventing Monitoring Plan that has been approved by NMED.

Hammond Ditch Recovery System

The north collection system consists of recovery tank #37, which collects groundwater from two 8-inch influent lines connected to the perforated sub-drain beneath the Hammond ditch irrigation canal. The water is pumped to a 4 inch steel line beneath the road canal and up the embankment south of the tank,

which transport the groundwater to the API separator. The total volume pumped in 2005 was 43,772 barrels.

East Outfall

The east outfall is collected into a pipe, which flows to Tank #38 and then to Tank #33 located just south of the western fresh water pond. Hydrocarbons are skimmed off the top of the tank into a secondary tank, which is emptied with a vacuum truck and taken to the API separator. The remaining water from Tank #33 is then piped to the fresh water pond. The total gallons pumped in 2005 were 8,753,105 gallons.

Tank #33 effluent analytical summary can be found in Section 9, Tab 10.

Section 8.0 Summary

Summary

Groundwater Monitoring

Semi-annual monitoring occurred in April. Samples were collected from all wells with the exception of wells that contain separate phase hydrocarbon or wells that were dry or did not contain enough water to pull a sample. Annual sampling started the week of August 8, 2005. Giant followed NMED guidelines from the Corrective Measures Study and Corrective Measures Implementation letter dated January 6, 2003. In conjunction, OCD guidance was followed per the Site Investigation and Abatement plan letter dated December 30, 2002.

Well Elevation

Well elevations on all wells were also measured during the sampling events. Separate phase hydrocarbon was detected in MW #4, MW #20, MW #25, MW #40, MW #41, MW #45, MW #47, RW #1, RW #2, RW #9, RW #17, RW #19, RW #23, RW #28, RW #42, and RW #43 in both April and August. MW #21, MW #29, MW #44, RW #3, RW #15, and RW #16 contained separate phase hydrocarbon in August but not in April.

BTEX

MW #1, MW #3, MW #7, MW #8, MW #12, MW #13, MW #27, MW #29, MW #32, MW #33, MW #34, MW #35, MW #36, MW #37, MW #38, MW #44, East Outfall #2, and East Outfall #3 did not exceed the WQCC BTEX standards. MW #11, MW #21, MW #26, MW #49, RW #3, and RW #16 were over the benzene standard of 0.01 ppm. MW #31, and RW #18 exceeded the benzene and xylene (0.62 ppm) standards. MW #39, MW #48, and RW #22 surpassed benzene, ethylbenzene (0.75 ppm), and xylene standards. MW #30, RW #14, and RW #15 exceeded benzene, toluene (0.75 ppm), ethylbenzene, and xylene standards.

General Chemistry

WQCC TDS standard (1000 ppm) was exceeded by MW #3, MW #8, MW #11, MW #12, MW #13, MW #26, MW #27, MW #32, MW #33, MW #34, MW #35, MW #35, MW #37, MW #38, MW #48, MW #49, RW #14, and MW #15. The sulfate standard (600 ppm) was surpassed by MW #3, MW #8, MW #12, MW #27, MW #32, and MW #33. MW #3, MW #8, MW #13, MW #26, MW #32, MW #33, RW #14, and RW #15 were over the chloride standard (250 ppm). The nitrogen standard (10 ppm) was exceeded by MW #3, MW #8, and MW #33.

Dissolved Metals

The wells detected to have iron (1.00 ppm) and manganese (0.20 ppm) above the WQCC standard are MW #11, MW #34 MW #35, MW #37,and MW #38. MW

#3, MW #8, MW #12, MW #27, and MW #36 exceeded the iron standard and MW #26 surpassed the iron, manganese and barium (1.00 ppm) standards.

Total Metals (RCRA 8)
Chromium exceeded the MCL in MW #8, MW #12, and MW #38. Lead was over the MCL in MW #12, MW #35, MW #37, and MW #38.

Remedial Action and Conclusions

North Boundary Barrier Wall
The North Boundary Barrier Wall Collection System was completed in early 2005. The primary purpose of the wall and collection system was to prevent the flow of hydrocarbon-impacted groundwater to the San Juan River. The wall and the collection wells were designed to accumulate fluids in the depressions or troughs of the Naciemento Formation.
Groundwater elevation maps imply that the wall is performing as intended by capturing the water along the south side of the wall. Inspections of the draws north of the barrier wall indicate where seepage of fuel hydrocarbon impacted water was present has been reduced or eliminated.
Future remedial action will consist of continuing to remove fluids from the observation and collection wells three times per week. In addition, fluid monitoring will continue on a bimonthly schedule. The location of separate phase hydrocarbon in all wells along Hammond Ditch will be assessed and trends in detection, absence, SPH thickness, and fluid build up on both sides of the barrier will be assessed.
Conclusions and results will be submitted in the Annual System Monitoring Report for the North Boundary Barrier Collection System in June 2006.

River Terrace Investigation
The River Terrace Investigation continued with the installation of five additional piezometers in April. DW-1, DW-2, and thirteen bioventing wells were drilled in August. Initial construction of the River Terrace Bioventing Project began in August. The system was put on-line in January 2006. Monitoring and remedial actions are following the Voluntary Measures Bioventing Monitoring Plan that has been approved by NMED.
Monitoring results and conclusions will be presented in the System Start-up Six Month Report for the River Terrace Bioventing Project due in August 2006.

Future Remedial Actions

Future monitoring and remedial action will be addressed in an updated monitoring plan that will be submitted to the agencies for approval. The updated plan will attempt to incorporate all the current projects and remediation systems that are situated at Giant – Bloomfield Refinery.

Section 9.0 List of Tables

Groundwater Elevation Information

All Monitoring Wells, Recovery Wells, Observation Wells, and Collections Wells were resurveyed in February 2006. All Measuring Point Elevations were updated with the 2006 survey for this report.

The following equations were used to calculate "Corrected Groundwater Elevation":

(1) Separate Phase Hydrocarbon not detected=
MPE– DTW

(2) Separate Phase Hydrocarbon detected=
MPE – DTW+ (DTW – DTP X 0.8)

Separate Phase Hydrocarbon Thickness = DTW - DTP

MPE = Measuring Point Elevation
DTW = Depth to Water
DTP = Dept to Product

Groundwater Elevation 2005

Date	Well ID	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
8/15/2005	MW-01	5519.21	21.56	NPM	17.98	5501.23	NPM
4/11/2005		5519.21	21.56	NPM	17.43	5501.78	NPM
8/10/2005	MW-03	5539.27	36.75	NPM	36.44	5502.83	NPM
4/6/2005		5539.27	36.75	NPM	36.39	5502.88	NPM
8/11/2005	MW-04	5527.78	30.48	27.17	27.4	5500.56	0.23
4/4/2005		5527.78	30.48	26.88	26.91	5500.89	0.03
8/16/2005	MW-05	5548.56	37.2	NPM	NWM		NPM
4/4/2005		5548.56	37.2	NPM	NWM		NPM
8/16/2005	MW-06	5554.61	48	NPM	NWM		NPM
4/4/2005		5554.61	48	NPM	NWM		NPM
8/11/2005	MW-07	5527.66	62.61	NPM	27.8	5499.86	NPM
4/11/2005		5527.66	62.61	NPM	27.55	5500.11	NPM
8/10/2005	MW-08	5534.58	35.93	NPM	32.82	5501.76	NPM
4/12/2005		5534.58	35.93	NPM	32.92	5501.66	NPM
8/15/2005	MW-11	5510.31	22.94	NPM	11.76	5498.55	NPM
4/5/2005		5510.31	22.94	NPM	11.09	5499.22	NPM
8/8/2005	MW-12	5501.61	14.98	NPM	12.35	5489.26	NPM
4/4/2005		5501.61	14.98	NPM	10.2	5491.41	NPM
8/10/2005	MW-13	5542.04	52.89	NPM	40.4	5501.64	NPM
4/5/2005		5542.04	52.89	NPM	40.42	5501.62	NPM
8/11/2005	MW-20	5519.9	27.13	20.88	21.12	5498.97	0.24
4/12/2005		5519.9	27.13	20.92	21.22	5498.92	0.30
8/11/2005	MW-21	5521.99	30.38	21.96	21.97	5500.03	0.01
4/12/2005		5521.99	30.38	NPM	21.98	5500.01	NPM
8/11/2005	MW-25	5533.99	41.2	32.67	33.09	5501.24	0.42
4/6/2005		5533.99	41.2	32.65	33.1	5501.25	0.45
8/10/2005	MW-26	5517.88	25.11	NPM	17.9	5499.98	NPM
4/5/2005		5517.88	25.11	NPM	17.18	5500.70	NPM
8/10/2005	MW-27	5518.67	24.42	NPM	19.67	5499.00	NPM
4/5/2005		5518.67	24.42	NPM	18.46	5500.21	NPM

NPM = No Product Measured NWM = No Water Measured

Groundwater Elevation 2005

Date	Well ID	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
8/11/2005	MW-29	5524.97	28.62	23.06	23.07	5501.91	0.01
4/6/2005		5524.97	28.62	NPM	23.2	5501.77	NPM
8/11/2005	MW-30	5536.83	40.13	NPM	33.9	5502.93	NPM
4/12/2005		5536.83	40.13	NPM	33.99	5502.84	NPM
8/16/2005	MW-31	5536.24	39.16	NPM	34.07	5502.17	NPM
4/5/2005		5536.24	39.16	NPM	34.15	5502.09	NPM
8/10/2005	MW-32	5525.64	27.51	NPM	25.34	5500.30	NPM
4/5/2005		5525.64	27.51	NPM	24.98	5500.66	NPM
8/9/2005	MW-33	5521.79	25.51	NPM	22.64	5499.15	NPM
4/5/2005		5521.79	25.51	NPM	22.1	5499.69	NPM
8/9/2005	MW-34	5511.63	20.96	NPM	14.37	5497.26	NPM
4/4/2005		5511.63	20.96	NPM	13.92	5497.71	NPM
8/9/2005	MW-35	5518.95	26.45	NPM	23.9	5495.05	NPM
4/4/2005		5518.95	26.45	NPM	22.57	5496.38	NPM
8/9/2005	MW-36	5516.95	23.26	NPM	21.57	5495.38	NPM
4/5/2005		5516.95	23.26	NPM	20.84	5496.11	NPM
8/9/2005	MW-37	5519.62	27.58	NPM	24.2	5495.42	NPM
4/4/2005		5519.62	27.58	NPM	23.7	5495.92	NPM
8/9/2005	MW-38	5519.19	26.82	NPM	25.13	5494.06	NPM
4/5/2005		5519.19	26.82	NPM	23.91	5495.28	NPM
8/15/2005	MW-39	5520.83	38.34	NPM	27.43	5493.40	NPM
4/11/2005		5520.83	38.34	NPM	25.83	5495.00	NPM
8/15/2005	MW-40	5527.31	30.07	27.62	27.72	5499.67	0.10
4/13/2005		5527.31	30.07	28.2	28.28	5499.09	0.08
8/15/2005	MW-41	5526.41	31.62	26.7	27.15	5499.62	0.45
4/13/2005		5526.41	31.62	26.77	27.1	5499.57	0.33
8/11/2005	MW-44	5535.44	50.91	34.59	34.6	5500.85	0.01
4/12/2005		5535.44	50.91	NPM	33.8	5501.64	NPM
8/11/2005	MW-45	5506.36	16.92	11.07	11.9	5495.12	0.83
4/13/2005		5506.36	16.92	11.28	11.54	5495.03	0.26

NPM = No Product Measured NWM = No Water Measured

Groundwater Elevation 2005

Date	Well ID	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
8/15/2005	MW-46	5504.65	10.39	NPM	10.19	5494.46	NPM
4/13/2005		5504.65	10.39	NPM	10.15	5494.50	NPM
8/11/2005	MW-47	5506.77	14.28	12.4	12.51	5494.35	0.11
4/7/2005		5506.77	14.28	11.39	12.53	5495.15	1.14
8/9/2005	MW -48	5424.83	17.32	NPM	7.62	5417.21	NPM
4/4/2005		5424.83	17.32	NPM	7.55	5417.28	NPM
8/9/2005	MW -49	5425.2	16.48	NPM	9.57	5415.63	NPM
4/4/2005		5425.2	16.48	NPM	8.78	5416.42	NPM
8/16/2005	P-03	5510.77	22.73	NPM	10.27	5500.50	NPM
4/5/2005		5510.77	22.73	NPM	10.31	5500.46	NPM
8/16/2005	RW-01	5529.34	40.8	30.14	30.15	5499.20	0.01
4/8/2005		5529.34	40.8	30.18	30.21	5499.15	0.03
8/16/2005	RW-02	5526.94	35.86	26.38	26.39	5500.56	0.01
4/7/2005		5526.94	35.86	26.09	26.17	5500.83	0.08
8/15/2005	RW-03	5520.35	34.57	21.73	21.74	5498.62	0.01
4/7/2005		5520.35	34.57	NPM	21.12	5499.23	NPM
8/16/2005	RW-09	5523.21	34.04	25.28	25.45	5497.90	0.17
4/7/2005		5523.21	34.04	24.4	24.43	5498.80	0.03
8/15/2005	RW-14	5537.5	41.94	NPM	35.04	5502.46	NPM
4/16/2005		5537.5	41.94	NPM	35.18	5502.32	NPM
8/15/2005	RW-15	5536.83	43.43	34.72	34.73	5502.11	0.01
4/7/2005		5536.83	43.43	NPM	34.84	5501.99	NPM
8/16/2005	RW-16	5535.45	41.48	33.82	33.84	5501.63	0.02
4/7/2005		5535.45	41.48	NPM	33.78	5501.67	NPM
8/16/2005	RW-17	5533.84	41.89	32.98	33.06	5500.84	0.08
4/7/2005		5533.84	41.89	32.95	32.98	5500.88	0.03
8/16/2005	RW-18	5529.38	37.58	NPM	29.24	5500.14	NPM
4/7/2005		5529.38	37.58	NPM	29.98	5499.40	NPM
8/15/2005	RW-19	5530.51	36.64	30.02	30.09	5500.48	0.07
4/7/2005		5530.51	36.64	29.7	30.94	5500.56	1.24

NPM = No Product Measured NWM = No Water Measured

Groundwater Elevation 2005

Date	Well ID	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
8/16/2005	RW-22	5524.44	35.6	NPM	25.71	5498.73	NPM
4/7/2005		5524.44	35.6	NPM	25.71	5498.73	NPM
8/16/2005	RW-23	5521.38	35.53	23.33	23.44	5498.03	0.11
4/7/2005		5521.38	35.53	23.33	23.44	5498.03	0.11
8/16/2005	RW-28	5527.93	36.99	28.65	29.06	5499.20	0.41
4/7/2005		5527.93	36.99	28.83	29.8	5498.91	0.97
8/16/2005	RW-42	5527.48	32.02	26.9	27.44	5500.47	0.54
4/7/2005		5527.48	32.02	20.77	20.92	5506.68	0.15
8/16/2005	RW-43	5515.74	24.03	20.55	20.8	5495.14	0.25
4/7/2005		5515.74	24.03	26.87	27.52	5488.74	0.65

NPM = No Product Measured NWM = No Water Measured

Observation Well Fluids Monitoring August 2005

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation
OW 0+60	8/2/2005	5506.62	14.98	14.92	14.93	5491.70
	8/11/2005	5506.62	14.98	14.10	14.78	5492.38
	8/23/2005	5506.62	14.98	14.96	15.2	5491.61
OW 1+50	8/2/2005	5508.03	14.98	14.90	14.91	5493.13
	8/11/2005	5508.03	14.98	13.80	14.79	5494.03
	8/23/2005	5508.03	14.98	14.86	14.88	5493.17
OW 3+85	8/2/2005	5507.31	15.06	12.60	12.63	5494.70
	8/11/2005	5507.31	15.06	12.35	13.60	5494.71
	8/23/2005	5507.31	15.06	12.80	12.86	5494.50
OW 5+50	8/2/2005	5507.59	14.09	13.45	NWM	
	8/11/2005	5507.59	14.09	13.38	NWM	
	8/23/2005	5507.59	14.09	13.74	NWM	
OW 6+70	8/2/2005	5504.78	14.67	NPM	NWM	
	8/11/2005	5504.78	14.67	NPM	NWM	
	8/23/2005	5504.78	14.67	NPM	NWM	
OW 8+10	8/2/2005	5506.53	17.99	NPM	NWM	
	8/11/2005	5506.53	17.99	NPM	NWM	
	8/23/2005	5506.53	17.99	NPM	NWM	

NPM = No Product Measured NWM = No Water Measured

Observation Well Fluids Monitoring August 2005

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation
OW 11+15	8/2/2005	55076.70	16.67	NPM	11.65	55065.05
	8/11/2005	5506.70	16.67	NPM	11.65	5495.05
	8/23/2005	5506.70	16.67	NPM	11.67	5495.03
OW 14+10	8/2/2005	5508.14	13.03	12.58	12.88	5495.50
	8/11/2005	5508.14	13.03	12.52	12.59	5495.61
	8/23/2005	5508.14	13.03	12.63	12.85	5495.47
OW 16+60	8/2/2005	5508.43	15.21	12.50	13.05	5495.82
	8/11/2005	5508.43	15.21	12.42	12.96	5495.90
	8/23/2005	5508.43	15.21	12.54	13.01	5495.80
OW 19+50	8/2/2005	5508.03	13.07	NPM	12.25	5495.78
	8/11/2005	5508.03	13.07	NPM	12	5496.03
	8/23/2005	5508.03	13.07	NPM	12.95	5495.08
OW 22+00	8/2/2005	5506.91	14.31	NPM	11.72	5495.19
	8/11/2005	5506.91	14.31	NPM	11.29	5495.62
	8/23/2005	5506.91	14.31	NPM	11.71	5495.20
OW 23+10	8/2/2005	5514.12	15.79	NPM	13.70	5500.42
	8/11/2005	5514.12	15.79	NPM	13.70	5500.42
	8/23/2005	5514.12	15.79	NPM	13.69	5500.43

NPM = No Product Measured NWM = No Water Measured

Observation Well Fluids Monitoring August 2005

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation
OW 23+90	8/2/2005	5515.18	15.07	NPM	14.01	5501.17
	8/11/2005	5515.18	15.07	NPM	14.5	5500.68
	8/23/2005	5515.18	15.07	NPM	14.06	5501.12
OW 25+70	8/2/2005	5509.00	14.01	NPM	10.71	5498.29
	8/11/2005	5509.00	14.01	NPM	10.76	5498.24
	8/23/2005	5509.00	14.01	NPM	10.75	5498.25

NPM = No Product Measured NWM = No Water Measured

Collection Well Fluids Monitoring August 2005

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation
CW 0+60	8/2/2005	5506.68	14.93	NPM	8.9	5497.78
	8/11/2005	5506.68	14.93	NPM	8.92	5497.76
	8/23/2005	5506.68	14.93	NPM	8.72	5497.96
CW 1+50	8/2/2005	5505.13	13.84	NPM	6.84	5498.29
	8/11/2005	5505.13	13.84	NPM	6.87	5498.26
	8/23/2005	5505.13	13.84	NPM	6.85	5498.28
CW 3+85	8/2/2005	5503.87	15.21	NPM	7.51	5496.36
	8/11/2005	5503.87	15.21	NPM	7.53	5496.34
	8/23/2005	5503.87	15.21	NPM	7.48	5496.39
CW 5+50	8/2/2005	5503.76	13.45	7.37	7.38	5496.39
	8/11/2005	5503.76	13.45	7.35	7.37	5496.41
	8/23/2005	5503.76	13.45	7.34	7.35	5496.42
CW 6+70	8/2/2005	5503.84	12.70	7.90	7.91	5495.94
	8/11/2005	5503.84	12.70	7.90	7.91	5495.94
	8/23/2005	5503.84	12.70	7.91	7.93	5495.93
CW 8+10	8/2/2005	5504.02	12.02	7.87	7.88	5496.15
	8/11/2005	5504.02	12.02	7.90	7.91	5496.12
	8/23/2005	5504.02	12.02	NPM	7.87	5496.15

NPM = No Product Measured NWM = No Water Measured

Collection Well Fluids Monitoring August 2005

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation
CW 8+45	8/2/2005	5503.80	14.95	9.47	9.58	5494.31
	8/11/2005	5503.80	14.95	9.49	9.61	5494.29
	8/23/2005	5503.80	14.95	9.42	9.73	5494.32
CW 11+15	8/2/2005	5503.95	13.88	7.34	7.41	5496.60
	8/11/2005	5503.95	13.88	7.36	7.47	5496.57
	8/23/2005	5503.95	13.88	7.30	7.31	5496.65
CW 14+10	8/2/2005	5504.39	14.09	7.43	7.44	5496.96
	8/11/2005	5504.39	14.09	7.53	7.54	5496.86
	8/23/2005	5504.39	14.09	NPM	7.45	5496.94
CW 16+60	8/2/2005	5504.32	14.87	8.33	8.34	5495.99
	8/11/2005	5504.32	14.87	8.41	8.42	5495.91
	8/23/2005	5504.32	14.87	NPM	8.39	5495.93
CW 19+50	8/2/2005	5504.52	12.07	NPM	8.60	5495.92
	8/11/2005	5504.52	12.07	NPM	8.66	5495.86
	8/23/2005	5504.52	12.07	NPM	8.48	5496.04
CW 22+00	8/2/2005	550804.00	14.10	NPM	11.00	550793.00
	8/11/2005	5508.04	14.10	10.73	10.82	5497.29
	8/23/2005	5508.04	14.10	NPM	10.97	5497.07

NPM = No Product Measured NWM = No Water Measured

Collection Well Fluids Monitoring August 2005

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation
CW 23+10	8/2/2005	5510.04	15.5	NPM	11.52	5498.52
	8/11/2005	5510.04	15.5	NPM	11.55	5498.49
	8/23/2005	5510.04	15.5	NPM	11.53	5498.51
CW 23+90	8/2/2005	5507.32	12.66	NPM	9.27	5498.05
	8/11/2005	5507.32	12.66	NPM	9.29	5498.03
	8/23/2005	5507.32	12.66	NPM	9.21	5498.11
CW 25+95	8/2/2005	5505.90	14.07	NPM	9.02	5496.88
	8/11/2005	5505.90	14.07	NPM	9.02	5496.88
	8/23/2005	5505.90	14.07	NPM	9.00	5496.90

NPM = No Product Measured NWM = No Water Measured

Monitoring Well Fluids Monitoring August 2005

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation
MW #11	8/2/2005	5510.31	22.94	NPM	11.82	5498.49
	8/11/2005	5510.31	22.94	NPM	11.87	5498.44
	8/23/2005	5510.31	22.94	NPM	11.62	5498.69
MW #12	8/2/2005	5501.61	14.98	NPM	12.04	5489.57
	8/11/2005	5501.61	14.98	NPM	12.15	5489.46
	8/23/2005	5501.61	14.98	NPM	12.40	5489.21
MW #20	8/2/2005	5519.90	27.13	20.87	21.11	5498.98
	8/11/2005	5519.90	27.13	20.88	21.12	5498.97
	8/23/2005	5519.90	27.13	20.86	21.08	5499.00
MW #21	8/2/2005	5521.99	30.38	21.96	21.97	5500.03
	8/11/2005	5521.99	30.38	21.96	21.97	5500.03
	8/23/2005	5521.99	30.38	21.97	21.98	5500.02
MW #39	8/2/2005	5520.83	38.34	NPM	27.40	5493.43
	8/11/2005	5520.83	38.34	NPM	27.43	5493.40
	8/23/2005	5520.83	38.34	NPM	26.50	5494.33
MW #45	8/2/2005	5506.36	16.92	11.11	11.19	5495.23
	8/11/2005	5506.36	16.92	11.07	11.90	5495.12
	8/23/2005	5506.36	16.92	11.11	11.89	5495.09

NPM = No Product Measured NWM = No Water Measured

Montioring Well Fluids Monitoring August 2005

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation
MW #46	8/2/2005	5504.65	10.39	NPM	10.28	5494.37
	8/11/2005	5504.65	10.39	NPM	10.19	5494.46
	8/23/2005	5504.65	10.39	NPM	10.21	5494.44
MW #47	8/2/2005	5506.77	14.28	12.38	13.32	5494.20
	8/11/2005	5506.77	14.28	12.40	12.51	5494.35
	8/23/2005	5506.77	14.28	12.47	13.51	5494.09

NPM = No Product Measured NWM = No Water Measured

Water Quality Field Measurements

DATE	RW/MW	DEPTH TO LIQUID (ft)	Depth to Product	WELL DEPTH	E.C. (umhos/cm)	pH	TEMP. (Farenheit)	D.O (mg/L)	ORP
Aug-05	MW #1	17.98	NPM	21.56	986	7.02	63	9.2	106
Apr-05		17.43	NPM	21.56	1115	6.90	54	NR	NR
Aug-04		17.15	NPM	21.56	927	6.90	63	5.4	-532
Aug-05	MW #3	36.44	NPM	36.75	7685	6.98	67	NS	-44
Apr-05		36.39	NPM	36.75	2535	7.02	61	NS	NS
Aug-04		36.31	NPM	36.75	7558	6.96	64	NS	-11
Aug-05	MW #4	27.4	27.17	30.5	SPH	SPH	SPH	SPH	SPH
Apr-05		26.91	26.88	30.5	SPH	SPH	SPH	SPH	SPH
Aug-04		27.96	27.31	30.5	SPH	SPH	SPH	SPH	SPH
Aug-05	MW #5	NWM	NPM	37.2	NS	NS	NS	NS	NS
Apr-05		NWM	NPM	37.2	NS	NS	NS	NS	NS
Aug-04		NWM	NPM	37.2	NS	NS	NS	NS	NS
Aug-05	MW #6	NWM	NPM	47.92	NS	NS	NS	NS	NS
Apr-05		NWM	NPM	47.92	NS	NS	NS	NS	NS
Aug-04		NWM	NPM	47.92	NS	NS	NS	NS	NS
Aug-05	MW #7	27.8	NPM	62.61	NR	NR	NR	NR	NR
Apr-05		27.55	NPM	62.61	8431	6.95	64	NR	NR
Aug-04		27.79	NPM	62.61	8693	7.00	63	2.8	84
Aug-05	MW #8	32.82	NPM	35.93	2730	6.91	59	7.3	114
Apr-05		32.92	NPM	35.93	2481	7.04	59	NR	NR
Aug-04		32.9	NPM	35.93	2600	7.02	62	2.9	142
Aug-05	MW #11	11.76	NPM	22.94	2084	7.03	68	>13.0	-55
Apr-05		11.09	NPM	22.94	1768	6.68	53	NR	NR
Aug-04		11.72	NPM	22.94	2093	6.81	68	13.8	-36
Aug-05	MW #12	12.35	NPM	14.98	4291	6.90	65	12.4	94
Apr-05		10.2	NPM	14.98	2052	6.97	51	NR	NR
Aug-04		12.38	NPM	14.98	2164	6.85	66	9.3	151
Aug-05	MW #13	40.4	NPM	52.89	4113	6.94	63	6.2	166
Apr-05		40.42	NPM	52.89	4038	7.05	60	NR	NR
Aug-04		40.51	NPM	52.89	3638	6.79	62	5.0	158
Aug-05	MW #20	21.12	20.88	27.13	SPH	SPH	SPH	SPH	SPH
Apr-05		21.22	20.92	27.13	SPH	SPH	SPH	SPH	SPH
Aug-04		21.44	21.10	27.13	SPH	SPH	SPH	SPH	SPH

SPH = Well Contains Separate Phase Hydrocarbon - No Sample

NS = Well is Dry or not Enough to Sample - No Sample

NM = Not Measured - Not a Well

NR = Not Required to Sample

Water Quality Field Measurements

DATE	RW/MW	DEPTH TO LIQUID (ft)	Depth to Product	WELL DEPTH	E.C. (umhos/cm)	pH	TEMP. (Farenheit)	D.O (mg/L)	ORP
Aug-05	MW #21	21.97	21.96	30.38	SPH	SPH	SPH	SPH	SPH
Apr-05		21.98	NPM	30.38	4352	7.01	62	NR	NR
Aug-04		22.27	22.25	30.38	4405	6.81	63	4.0	-43
Aug-05	MW #25	33.09	32.67	41.2	SPH	SPH	SPH	SPH	SPH
Apr-05		33.1	32.65	41.2	3130	SPH	SPH	SPH	SPH
Aug-04		33.4	32.77	41.2	SPH	SPH	SPH	SPH	SPH
Aug-05	MW #26	17.9	NPM	25.11	2543	6.99	66	7.4	-29
Apr-05		17.18	NPM	25.11	2386	7.02	61	NR	NR
Aug-04		17.39	NPM	25.11	2422	6.81	65	7.5	-33
Aug-05	MW #27	19.67	NPM	24.42	3404	6.94	63	>13.0	-66
Apr-05		18.46	NPM	24.42	3717	6.95	58	NR	NR
Aug-04		18.70	NPM	24.42	2474	6.89	65	1.7	-143
Aug-05	MW #29	23.07	23.06	28.62	SPH	SPH	SPH	SPH	SPH
Apr-05		23.20	NPM	28.62	1437	6.83	60	NR	NR
Aug-04		23.15	NPM	28.62	850	7.03	62	4.7	115
Aug-05	MW #30	33.90	NPM	40.13	NR	NR	NR	NR	NR
Apr-05		33.90	NPM	40.13	3349	6.99	61	NR	NR
Aug-04		33.95	NPM	40.13	4480	6.90	62	over range	-196
Aug-05	MW #31	34.07	NPM	39.16	NR	NR	NR	NR	NR
Apr-05		34.15	NPM	39.16	3731	7.01	61	NR	NR
Aug-04		34.21	NPM	39.16	3945	7.07	64	3.4	-19
Aug-05	MW #32	25.34	NPM	27.51	3936	6.93	60	NR	142
Apr-05		24.98	NPM	27.51	4028	6.95	56	NR	NR
Aug-04		24.93	NPM	27.51	3576	6.88	62	5.6	79
Aug-05	MW #33	22.64	NPM	25.51	4595	7.02	63	>13.0	106
Apr-05		22.1	NPM	25.51	4722	6.93	58	NR	NR
Aug-04		22.29	NPM	25.51	4630	6.81	63	5.6	106
Aug-05	MW #34	14.37	NPM	20.96	2147	6.97	63	7.6	-40
Apr-05		13.92	NPM	20.96	2139	7.00	55	NR	NR
Aug-04		14.24	NPM	20.96	2144	6.80	64	1.7	-51
Aug-05	MW #35	23.9	NPM	26.45	2029	6.97	62	5.6	-40
Apr-05		22.57	NPM	26.45	2068	7.00	59	NR	NR
Aug-04		22.81	NPM	26.45	2000	6.81	60	3.6	-63

SPH = Well Contains Separate Phase Hydrocarbon - No Sample

NS = Well is Dry or not Enough to Sample - No Sample

NM = Not Measured - Not a Well

NR = Not Required to Sample

Water Quality Field Measurements

DATE	RW/MW	DEPTH TO LIQUID (ft)	Depth to Product	WELL DEPTH	E.C. (umhos/cm)	pH	TEMP. (Farenheit)	D.O (mg/L)	ORP
Aug-05	MW #36	21.57	NPM	23.26	1695	7.05	66	7.9	-78
Apr-05		20.84	NPM	23.26	2341	6.92	54	NR	NR
Aug-04		21.30	NPM	23.26	1880	6.85	68	8.4	-111
Aug-05	MW #37	24.2	NPM	27.58	2132	6.97	62	4.1	-56
Apr-05		23.7	NPM	27.58	2071	7.02	59	NR	NR
Aug-04		23.99	NPM	27.58	2085	7.06	62	4.3	-103
Aug-05	MW #38	25.13	NPM	26.82	2073	7.05	65	9.4	-62
Apr-05		23.91	NPM	26.82	2269	6.95	55	NR	NR
Aug-04		24.51	NPM	26.82	2058	6.84	63	12.3	-124
Aug-05	MW #39	27.43	NPM	38.34	NR	NR	NR	NR	NR
Apr-05		25.83	NPM	38.34	5666	6.93	59	NR	NR
Aug-04		24.59	NPM	38.34	5424	7.51	65	4.7	-162
Aug-05	MW #40	27.72	27.62	30.07	SPH	SPH	SPH	SPH	SPH
Apr-05		28.28	28.2	30.07	SPH	SPH	SPH	SPH	SPH
Aug-04		29.76	28.94	30.07	SPH	SPH	SPH	SPH	SPH
Aug-05	MW #41	27.15	26.7	31.62	SPH	SPH	SPH	SPH	SPH
Apr-05		27.1	26.77	31.62	SPH	SPH	SPH	SPH	SPH
Aug-04		28.34	27.43	31.62	SPH	SPH	SPH	SPH	SPH
Aug-05	MW #44	34.6	34.59	50.91	NR	NR	NR	NR	NR
Apr-05		33.8	NPM	50.91	5559	6.93	59	NR	NR
Aug-04		33.8	NPM	50.91	5589	6.90	60	5.3	-52
Aug-05	MW #45	11.90	11	16.9	SPH	SPH	SPH	SPH	SPH
Apr-05		11.54	11.28	16.92	SPH	SPH	SPH	SPH	SPH
Aug-04		well is	pumping	hydrocarbon	SPH	SPH	SPH	SPH	SPH
Aug-05	MW #46	10.19	NPM	10.39	NS	NS	NS	NS	NS
Apr-05		10.15	NPM	10.39	NS	NS	NS	NS	NS
Aug-04		NWM	NPM	10.39	NS	NS	NS	NS	NS
Aug-05	MW #47	12.51	12.4	14.28	SPH	SPH	SPH	SPH	SPH
Apr-05		12.53	11.39	14.28	SPH	SPH	SPH	SPH	SPH
Aug-04		11.55	10.32	14.28	SPH	SPH	SPH	SPH	SPH
Aug-05	MW #48	7.62	NPM	17.3	2703	6.96	69	1.6	190
Apr-05		7.55	NPM	17.3	2393	7.02	69	NR	NR
Dec-04		7.97	NPM	17.3	2845	7.02	54	NR	NR

SPH = Well Contains Separate Phase Hydrocarbon - No Sample

NS = Well is Dry or not Enough to Sample - No Sample

NM = Not Measured - Not a Well

NR = Not Required to Sample

Water Quality Field Measurements

DATE	RW/MW	DEPTH TO LIQUID (ft)	Depth to Product	WELL DEPTH	E.C. (umhos/cm)	pH	TEMP. (Farenheit)	D.O (mg/L)	ORP
Aug-05	MW #49	9.57	NPM	16.5	2393	6.96	60	>13.0	-193
Apr-05		8.78	NPM	16.5	2301	6.94	50	NR	NR
Dec-04		9.3	NPM	16.5	2450	6.93	55	NR	NR
Aug-05	O/F #2	NM	NM	NM	882	7.06	65	>13.0	143
Apr-05		NM	NM	NM	1073	7.03	58	NR	NR
Aug-04		NM	NM	NM	996	6.88	67	6.3	74
Aug-05	O/F #3	NM	NM	NM	1149	7.05	65	>13.0	168
Apr-05		NM	NM	NM	1127	7.02	54	NR	NR
Aug-04		NM	NM	NM	980	6.81	64	9.8	103
Aug-05	RW #3	21.74	21.73	34.57	SPH	SPH	SPH	SPH	SPH
Apr-05		21.12	NPM	34.57	2535	7.02	61	NR	NR
Aug-04		22.74	22.71	34.57	3138	6.82	67	5.5	-47
Aug-05	RW #14	35.04	NPM	41.94	NR	NR	NR	NR	NR
Apr-05		35.18	NPM	41.94	4364	6.85	64	NR	NR
Aug-04		35.11	2.45	41.94	4422	6.87	62	6.4	-83
Aug-05	RW #15	34.73	NPM	43.43	NR	NR	NR	NR	NR
Apr-05		34.84	NPM	43.43	3559	6.93	60	NR	NR
Aug-04		34.92	NPM	43.43	3481	6.83	61	over range	-85
Aug-05	RW #16	33.84	33.82	41.48	SPH	SPH	SPH	SPH	SPH
Apr-05		33.78	NPM	41.48	3466	6.91	61	NR	NR
Aug-04		34.03	NPM	41.48	3162	6.93	62	8.7	-139
Aug-05	RW #17	33.06	32.98	41.89	SPH	SPH	SPH	SPH	SPH
Apr-05		32.98	32.95	41.89	SPH	SPH	SPH	SPH	SPH
Aug-04		33.63	33.37	41.89	SPH	SPH	SPH	SPH	SPH
Aug-05	RW #18	29.24	NPM	37.58	3469	6.99	65	NR	-103
Apr-05		29.98	NPM	37.58	2591	6.98	64	NR	NR
Aug-04		30.86	30.48	37.58	SPH	SPH	SPH	SPH	SPH
Aug-05	RW #22	25.46	25.45	35.61	SPH	SPH	SPH	SPH	SPH
Apr-05		25.71	NPM	35.61	2725	6.76	60	NR	NR
Aug-04		29.98	29.95	35.61	SPH	SPH	SPH	SPH	SPH

SPH = Well Contains Separate Phase Hydrocarbon - No Sample

NS = Well is Dry or not Enough to Sample - No Sample

NM = Not Measured - Not a Well

NR = Not Required to Sample

ORGANICS

Groundwater Analysis

	mg/L	DATE SAMPLED	MW #1	MW #3	MW #7	MW #8	MW #11	MW #12	MW #13	MW #21	MW #26	MW #27	WQCC 20 NMAC 6.2.3103
EPA Method 8021B: August 2005 EPA Method 8260B	**Benzene**	Aug-05	0.0011	<0.001	NR	<0.001	4.2	<0.001	<0.001	NR	0.89	<0.001	0.01
		Apr-05	0.0013	<0.0005	<0.0005	0.00053	0.4	<0.0005	<0.0005	0.13	1.3	<0.0005	
		Aug-04	<0.0005	<0.0005	<0.0005	<0.0005	1.7	<0.0005	<0.0005	0.13	0.74	<0.0025	
		Mar-04	<0.0005	NR	NR	NR	NR	<0.0005	<0.0005	NR	NR	NR	
	Toluene	Aug-05	<0.001	<0.001	NR	<0.001	<0.05	<0.001	<0.001	NR	<0.01	<0.001	0.75
		Apr-05	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	<0.0005	<0.0005	<0.0025	<0.02	<0.0005	
		Aug-04	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	<0.0005	<0.0005	<0.0025	<0.025	<0.0025	
		Mar-04	<0.0005	NR	NR	NR	NR	<0.0005	<0.0005	NR	NR	NR	
	EthylBen	Aug-05	<0.001	<0.001	NR	<0.001	0.11	<0.001	<0.001	NR	0.47	<0.001	0.75
		Apr-05	<0.0005	<0.0005	<0.0005	<0.0005	<0.02	<0.0005	<0.0005	0.025	0.44	<0.0005	
		Aug-04	<0.0005	<0.0005	<0.0005	<0.0005	0.064	<0.0005	<0.0005	0.0098	0.46	<0.0025	
		Mar-04	<0.0005	NR	NR	NR	NR	<0.0005	<0.0005	NR	NR	NR	
	Xylene	Aug-05	<0.001	<0.001	NR	<0.001	0.5	0.0085	<0.001	NR	0.25	<0.001	0.62
		Apr-05	0.0011	<0.0005	0.00067	0.0008	0.28	0.00072	<0.0005	0.028	0.45	0.001	
		Aug-04	<0.0005	<0.0005	<0.0005	<0.0005	0.015	0.00094	<0.0005	0.003	0.19	<0.0025	
		Mar-04	<0.0005	NR	NR	NR	NR	<0.0005	<0.0005	NR	NR	NR	
	MTBE	Aug-05	<0.001	<0.001	NR	<0.001	<0.05	<0.001	0.015	NR	<0.01	<0.001	
		Apr-05	<0.0025	<0.0025	<0.0025	<0.0025	<0.1	0.0025	0.014	0.041	<0.1	<0.0025	
		Aug-04	<0.0025	<0.0025	<0.0025	<0.0025	<0.1	<0.0025	0.027	0.028	<0.130	<0.013	
		Mar-04	<0.0025	NR	NR	NR	NR	<0.0025	0.02	NR	NR	NR	

NR = Not Required to Sample
NS = Well is Dry or Not Enough Water to Sample- No Sample
NW = New Well After August 2004

ORGANICS

Groundwater Analysis

	mg/L	DATE SAMPLED	MW #29	MW #30	MW #31	MW #32	MW #33	MW #34	MW #35	MW #36	MW #37	MW #38	WQCC 20 NMAC 6.2.3103
EPA Method 8021B - August 2005 EPA Method 8260B	**Benzene**	Aug-05	NR	NR	NR	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	0.01
		Apr-05	<0.0005	5.7	2.6	<0.0005	<0.0005	<0.0025	<0.0025	<0.0005	<0.0025	<0.0005	
		Aug-04	<0.0005	17	3.7	<0.0005	<0.0005	<0.0025	0.00082	0.0009	<0.0005	<0.0005	
		Mar-04	NR	NR	NR	<0.0005	<0.0005	NR	0.006	NR	NR	NR	
	Toluene	Aug-05	NR	NR	NR	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	0.75
		Apr-05	<0.0005	3.7	0.062	<0.0005	<0.0005	0.024	<0.0025	<0.0005	<0.0025	<0.0005	
		Aug-04	<0.0005	0.37	0.4	<0.0005	<0.0005	0.0039	<0.0005	<0.0005	<0.0005	<0.0005	
		Mar-04	NR	NR	NR	<0.0005	<0.0005	NR	<0.0005	NR	NR	NR	
	EthylBen	Aug-05	NR	NR	NR	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	0.75
		Apr-05	<0.0005	4.4	0.45	<0.0005	<0.0005	0.0041	<0.0025	<0.0005	<0.0025	<0.0005	
		Aug-04	<0.0005	1.9	0.32	<0.0005	<0.0005	0.019	0.0061	<0.0005	0.0012	0.0012	
		Mar-04	NR	NR	NR	<0.0005	<0.0005	NR	<0.0005	NR	NR	NR	
	Xylene	Aug-05	NR	NR	NR	<0.001	<0.001	<0.005	<0.001	0.0016	<0.001	<0.001	0.62
		Apr-05	<0.0005	12	1.2	<0.0005	<0.0005	0.0039	0.0026	0.0019	<0.0025	0.0015	
		Aug-04	<0.0005	2.5	1.2	<0.0005	<0.0005	0.013	0.0033	0.004	0.00062	0.00068	
		Mar-04	NR	NR	NR	<0.0005	<0.0005	NR	0.003	NR	NR	NR	
	MTBE	Aug-05	NR	NR	NR	<0.001	<0.001	0.0057	0.0065	0.0032	0.0017	0.0062	
		Apr-05	0.0037	<0.10	<0.250	<0.0025	<0.0025	<0.013	<0.013	<0.0025	<0.013	0.0071	
		Aug-04	0.0026	<0.10	<0.250	<0.0025	<0.0025	<0.013	0.0096	0.0085	0.0026	0.0085	
		Mar-04	NR	NR	NR	<0.0025	<0.0025	NR	0.011	NR	NR	NR	

NR = Not Required to Sample
NS = Well is Dry or Not Enough Water to Sample- No Sample
NW = New Well After August 2004

ORGANICS

Groundwater Analysis

EPA Method 8021B ; August 2005 EPA Method 8260B	mg/L	DATE SAMPLED	MW #39	MW #44	MW #48	MW #49	RW #3	RW #14	RW #15	RW #16	RW #18	RW #22	WQCC 20 NMAC 6.2.3103
	Benzene	Aug-05	NR	NR	0.62	0.093	NR	NR	NR	NR	1.2	NR	0.01
		Apr-05	0.52	<0.0005	0.48	0.041	0.1	17	9	1.8	0.92	9.8	
		Aug-04	0.46	<0.0005	NR	NR	0.33	19	9.4	2.1	NR	NR	
		Mar-04	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Toluene	Aug-05	NR	NR	0.026	<0.002	NR	NR	NR	NR	<.1	NR	0.75
		Apr-05	0.057	<0.0005	<0.025	0.00068	0.1	15	11	<0.025	0.16	0.083	
		Aug-04	0.15	<0.0005	NR	NR	<0.020	17	15	<0..05	NR	NR	
		Mar-04	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	EthylBen	Aug-05	NR	NR	2.5	0.015	NR	NR	NR	NR	0.28	NR	0.75
		Apr-05	1.3	<0.0005	1.7	0.015	0.1	3.4	2.5	0.17	0.54	1.8	
		Aug-04	0.55	<0.0005	NR	NR	<0.020	3.2	2.8	0.17	NR	NR	
		Mar-04	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Xylene	Aug-05	NR	NR	9.9	0.004	NR	NR	NR	NR	0.54	NR	0.62
		Apr-05	1.5	<0.0005	7.5	0.024	0.45	20	19	0.12	1.1	7.9	
		Aug-04	0.92	<0.0005	NR	NR	1.4	20	22	0.82	NR	NR	
		Mar-04	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	MTBE	Aug-05	NR	NR	<0.02	<0.002	NR	NR	NR	NR	<.1	NR	
		Apr-05	<0.05	0.0041	<0.13	<0.0025	<0.05	<0.5	<0.1	<0.13	8.9	9.6	
		Aug-04	<0.050	0.0048	NR	NR	<0.10	<0.10	<0.25	<0.25	NR	NR	
		Mar-04	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	

NR = Not Required to Sample
NS = Well is Dry or Not Enough Water to Sample- No Sample
NW = New Well After August 2004

ORGANICS

Groundwater Analysis

	mg/L	DATE SAMPLED	O/F #2	O/F #3	WQCC 20 NMAC 6.2.3103
EPA Method 8021B August 2005 EPA Method 8260B	**Benzene**	Aug-05	<0.001	<0.001	0.01
		Apr-05	<0.0005	<0.0005	
		Aug-04	<0.0005	<0.0005	
		Mar-04	<0.0005	<0.0005	
	Toluene	Aug-05	<0.001	<0.001	0.75
		Apr-05	<0.0005	<0.0005	
		Aug-04	<0.0005	<0.0005	
		Mar-04	<0.0005	<0.0005	
	EthylBen	Aug-05	<0.001	<0.001	0.75
		Apr-05	<0.0005	<0.0005	
		Aug-04	<0.0005	<0.0005	
		Mar-04	<0.0005	<0.0005	
	Xylene	Aug-05	<0.001	<0.001	0.62
		Apr-05	<0.0005	<0.0005	
		Aug-04	<0.0005	<0.0005	
		Mar-04	<0.0005	<0.0005	
	MTBE	Aug-05	<0.001	<0.001	
		Apr-05	<0.0025	<0.0025	
		Aug-04	<0.0025	<0.0025	
		Mar-04	<0.0025	<0.0025	

NR = Not Required to Sample
NS = Well is Dry or Not Enough Water to Sample- No Sample
NW = New Well After August 2004

GENERAL CHEMISTRY

Groundwater Analysis

EPA Method 300.0

mg/L	DATE SAMPLED	MW #1	MW #3	MW #7	MW #8	MW #11	MW #12	MW #13	MW #21	MW #26	WQCC 20 NMAC 6.2.3103
Fluoride	Aug-05	0.68	0.33	NR	0.79	0.56	0.43	0.15	NR	0.42	1.6
	Aug-04	0.63	NS	0.75	0.64	0.41	0.52	0.2	0.18	0.29	
	Aug-03	0.58	0.17	NR	0.66	0.44	0.32	0.19	NR	0.39	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Chloride	Aug-05	31	1200	NR	260	85	100	320	NR	290	250
	Aug-04	29	NS	25	250	97	130	330	420	230	
	Aug-03	33	1400	NR	260	150	130	510	NR	160	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Nitrite	Aug-05	<0.10	<0.50	NR	<0.50	<0.10	<0.10	0.23	NR	<0.50	
	Aug-04	<0.10	NS	<0.10	NR	NR	NR	1.6	<0.10	<0.10	
	Aug-03	<0.10	NR	NR	<0.10	<0.10	<0.10	<0.10	NR	<0.10	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Bromide	Aug-05	<0.50	4.5	NR	<2.5	1.4	0.75	4.6	NR	4.5	
	Aug-04	0.14	NS	0.14	1.2	0.97	0.78	4.3	3.4	4.2	
	Aug-03	0.32	22	NR	5	5.3	3.7	13	NR	2.9	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Nitrogen	Aug-05	2.1	42	NR	27	<0.10	<0.10	6.1	NR	<0.10	10
	Aug-04	1.9	NS	<0.10	NR	NR	NR	6.6	<0.10	<0.10	
	Aug-03	1.6	41	NR	14	<0.10	<0.10	12	NR	<0.10	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
P	Aug-05	<0.50	<0.50	NR	<0.50	<0.50	<0.50	<0.50	NR	<0.50	
	Aug-04	<0.50	NS	<0.50	<0.50	<0.50	NR	<0.50	<0.50	<0.50	
	Aug-03	<0.50	<0.50	NR	<0.50	<0.50	<0.50	<0.50	NR	<0.50	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Sulfate	Aug-05	190	2300	NR	740	20	2400	1000	NR	<0.50	600
	Aug-04	220	NS	5100	920	13	680	950	1400	<0.50	
	Aug-03	200	1900	NR	950	4.2	3100	840	NR	1	
	Aug-02	NR	NR	NR	970	<0.50	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

GENERAL CHEMISTRY

Groundwater Analysis

	mg/L	DATE SAMPLED	MW #1	MW #3	MW #7	MW #8	MW #11	MW #12	MW #13	MW #21	MW #26	WQCC 20 NMAC 6.2.3103
EPA 160.1	TDS	Aug-05	650	6200	NR	2000	1500	4000	3000	NR	1600	1000
		Aug-04	650	NS	7400	2100	1500	1600	2800	3400	1600	
		Aug-03	610	5700	NR	2100	1100	5500	3100	NR	1400	
		Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
EPA 120.1	E.C.	Aug-05	980	8300	NR	2900	2200	4600	4600	NR	2700	
	(umhos/cm)	Aug-04	870	NS	7800	2600	2100	1900	3400	4000	2200	
		Aug-03	820	8500	NR	2900	2500	6600	5000	NR	1900	
		Aug-02	795	7358	NR	3263	2140	3010	NR	NR	NR	
	D.O.	Aug-05	9.2	NS	NR	7.3	>13.0	12.4	6.2	NR	7.4	
		Aug-04	5.4	NS	2.8	2.9	13.8	9.3	5	4	7.5	
		Aug-03	6.5	6.5	NR	7.1	5.6	5.3	5.6	NR	4.9	
		Aug-02	2.8	4.8	NR	3.8	1.1	NR	NR	NR	NR	
	O.R.P.	Aug-05	106	-44	NR	114	-55	94	166	NR	-29	
		Aug-04	-532	-11	84	142	-36	151	158	-43	-33	
		Aug-03	105	105	NR	176	-5.3	81	86	NR	-63	
		Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
EPA 310.1	CO2	Aug-05	300	680	NR	260	1100	310	1000	NR	1000	
		Aug-04	220	NS	98	210	330	970	860	600	910	
		Aug-03	240	NR	NR	220	1300	310	1000	NR	1300	
		Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Alk	Aug-05	300	680	NR	260	1100	310	1000	NR	1000	
		Aug-04	240	NS	110	230	390	1100	950	670	1000	
		Aug-03	262	NR	NR	208	1120	319	917	NR	1090	
		Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

GENERAL CHEMISTRY

Groundwater Analysis

EPA Method 300.0

mg/L	DATE SAMPLED	MW #27	MW #29	MW #30	MW #31	MW #32	MW #33	MW #34	MW #35	MW #36	WQCC 20 NMAC 6.2.3103
Fluoride	Aug-05	0.24	NR	NR	NR	0.27	0.3	0.81	0.45	0.52	1.6
	Aug-04	0.2	0.31	0.18	0.19	0.24	0.21	0.62	0.36	0.4	
	Aug-03	0.22	NR	NR	NR	0.18	0.24	0.57	0.39	NA	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Chloride	Aug-05	260	NR	NR	NR	710	560	100	100	60	250
	Aug-04	290	35	360	370	650	550	100	110	100	
	Aug-03	360	NR	NR	NR	940	750	120	120	NR	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Nitrite	Aug-05	<1.0	NR	NR	NR	<2.0	<0.5	<0.1	<0.1	<0.1	
	Aug-04	<0.1	<0.10	<0.10	<0.10	<0.10	NR	<0.10	<0.10	<0.10	
	Aug-03	<0.1	NR	NR	NR	<1.0	<1.0	<0.10	<0.10	NA	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Bromide	Aug-05	2.1	NR	NR	NR	2.9	3.2	1.2	1.2	0.54	
	Aug-04	3.1	<0.10	5.6	7.2	2.9	3.2	1.2	1.2	1	
	Aug-03	4.7	NR	NR	NR	13	19	5.1	2.1	NR	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Nitrogen	Aug-05	<0.1	NR	NR	NR	8.7	26	0.1	0.1	<0.10	10
	Aug-04	<0.1	0.6	<0.10	0.14	5	NR	<0.10	<0.10	<0.10	
	Aug-03	<0.1	NR	NR	NR	22	26	<0.10	<0.10	NA	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
P	Aug-05	<0.5	NR	NR	NR	<0.50	<0.50	<0.50	<0.50	<0.50	
	Aug-04	<0.5	<0.50	<0.10	<0.50	<0.50	ND	<0.50	<0.50	<0.50	
	Aug-03	<0.5	NR	NR	NR	<0.50	<0.50	<0.50	<0.50	NR	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Sulfate	Aug-05	1000	NR	NR	NR	780	1500	9	3.2	66	600
	Aug-04	120	150	720	750	580	1600	29	1.7	16	
	Aug-03	6.8	NR	NR	NR	1200	1200	150	6.6	NA	
	Aug-02	NR	NR	NR	NR	NR	NR	9.1	28	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

GENERAL CHEMISTRY

Groundwater Analysis

	mg/L	DATE SAMPLED	MW #27	MW #29	MW #30	MW #31	MW #32	MW #33	MW #34	MW #35	MW #36	WQCC 20 NMAC 6.2.3103
EPA 160.1	TDS	Aug-05	2600	NR	NR	NR	2600	3500	1500	1400	920	1000
		Aug-04	1700	550	3100	2800	2400	3700	1500	1400	1200	
		Aug-03	1700	NR	NR	NR	3800	3400	1700	1300	NA	
		Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
EPA 120.1	E.C.	Aug-05	3500	NR	NR	NR	4100	4700	2200	2100	1600	
	(umhos/cm)	Aug-04	2400	760	3900	3700	3300	4400	2100	2000	1700	
		Aug-03	3100	NR	NR	NR	5800	5000	2800	1900	NA	
		Aug-02	NR	NR	NR	NR	NR	NR	2130	1923	1386	
	D.O.	Aug-05	>13.0	NR	NR	NR	NA	>13.0	7.6	5.6	7.9	
		Aug-04	1.7	4.7	over range	3.4	5.6	5.6	1.7	3.6	8.4	
		Aug-03	4.1	NR	NR	NR	7.4	5	4.9	5.4	NA	
		Aug-02	NR	NR	NR	NR	NR	NR	2	2.1	2.4	
	O.R.P.	Aug-05	-66	NR	NR	NR	142	106	-40	-40	-78	
		Aug-04	-143	115	-196	-19	79	-7.3	-51	-63	-111	
		Aug-03	-188	NR	NR	NR	64	110	-76	-95	NA	
		Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
EPA 310.1	CO2	Aug-05	600	NR	NR	NR	250	160	1100	1100	740	
		Aug-04	890	210	1200	980	280	140	990	910	880	
		Aug-03	1200	NR	NR	NR	250	190	1300	1100	NA	
		Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Alk	Aug-05	600	NR	NR	NR	250	160	1200	1100	740	
		Aug-04	970	240	1400	1100	310	150	1100	1000	970	
		Aug-03	1040	NR	NR	NR	242	198	1130	984	NA	
		Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	

NA = Not Analyzed

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

GENERAL CHEMISTRY

Groundwater Analysis

EPA Method 300.0

mg/L	DATE SAMPLED	MW #37	MW #38	MW #39	MW #44	MW #48	MW #49	RW #3	RW #14	RW #15	WQCC 20 NMAC 6.2.3103
Fluoride	Aug-05	0.48	0.62	NR	NR	0.54	0.37	NR	NR	NR	1.6
	Aug-04	0.46	0.53	0.65	0.3	NW	NW	<0.50	0.18	0.3	
	Aug-03	0.49	0.67	NR	NR	NW	NW	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NW	NW	NR	NR	NR	
Chloride	Aug-05	150	100	NR	NR	120	140	NR	NR	NR	250
	Aug-04	98	140	140	210	NW	NW	170	840	460	
	Aug-03	110	120	NR	NR	NW	NW	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NW	NW	NR	NR	NR	
Nitrite	Aug-05	<0.1	<0.1	NR	NR	<0.1	<0.5	NR	NR	NR	
	Aug-04	<0.10	<0.1	<0.10	<0.10	NW	NW	NR	<0.10	<0.10	
	Aug-03	<0.10	<0.1	NR	NR	NW	NW	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NW	NW	NR	NR	NR	
Bromide	Aug-05	2.1	1.1	NR	NR	<0.5	<2.5	NR	NR	NR	
	Aug-04	1	1.3	1.7	0.79	NW	NW	2	5.7	6.7	
	Aug-03	1.3	1.3	NR	NR	NW	NW	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NW	NW	NR	NR	NR	
Nitrogen	Aug-05	<0.10	<0.1	NR	NR	<0.1	<0.1	NR	NR	NR	10
	Aug-04	<0.10	<0.1	<0.10	<0.10	NW	NW	NR	<0.10	<0.10	
	Aug-03	<0.10	<0.1	NR	NR	NW	NW	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NW	NW	NR	NR	NR	
P	Aug-05	<0.50	<0.5	NR	NR	0.53	<0.5	NR	NR	NR	
	Aug-04	<0.50	<0.5	<0.50	<0.50	NW	NW	<0.50	<0.50	<0.50	
	Aug-03	<0.50	<0.5	NR	NR	NW	NW	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NW	NW	NR	NR	NR	
Sulfate	Aug-05	52	310	NR	NR	140	280	NR	NR	NR	600
	Aug-04	15	330	3100	2800	NW	NW	340	2	3.4	
	Aug-03	19	310	NR	NR	NW	NW	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NW	NW	NR	NR	50	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

NW = New Well After August 2004

GENERAL CHEMISTRY

Groundwater Analysis

	mg/L	DATE SAMPLED	MW #37	MW #38	MW #39	MW #44	MW #48	MW #49	RW #3	RW #14	RW #15	WQCC 20 NMAC 6.2.3103
EPA 160.1	TDS	Aug-05	1400	1500	NR	NR	1800	1600	NR	NR	NR	1000
		Aug-04	1300	1500	4900	4800	NW	NW	200	2700	2100	
		Aug-03	1400	1600	NR	NR	NW	NW	NR	NR	NR	
		Aug-02	NR	NR	NR	NR	NW	NW	NR	NR	NR	
EPA 120.1	E.C.	Aug-05	2200	2100	NR	NR	2703	2393	NR	NR	NR	
	(umhos/cm)	Aug-04	1800	1800	5200	5200	NW	NW	2800	4000	3100	
		Aug-03	1800	1900	NR	NR	NW	NW	NR	NR	NR	
		Aug-02	NR	NR	NR	NR	NW	NW	NR	NR	3910	
	D.O.	Aug-05	4.1	9.4	NR	NR	1.6	>13.0	NR	NR	NR	
		Aug-04	4.3	12.3	4.7	5.3	NW	NW	5.5	6.4	over range	
		Aug-03	6.4	4.7	NR	NR	NW	NW	NR	NR	NR	
		Aug-02	NR	NR	NR	NR	NW	NW	NR	NR	2	
	O.R.P.	Aug-05	-56	-62	NR	NR	190	-58	NR	NR	NR	
		Aug-04	-103	-124	-162	-52	NW	NW	-47	-83	-85	
		Aug-03	-129	-145	NR	NR	NW	NW	NR	NR	NR	
		Aug-02	NR	NR	NR	NR	NW	NW	NR	NR	NR	
EPA 310.1	CO2	Aug-05	960	720	NR	NR	110	<2.0	NR	NR	NR	
		Aug-04	940	590	35	400	NW	NW	1100	1100	1100	
		Aug-03	960	670	NR	NR	NW	NW	NR	NR	NR	
		Aug-02	NR	NR	NR	NR	NW	NW	NR	NR	NR	
	Alk	Aug-05	960	720	NR	NR	1300	960	NR	NR	NR	
		Aug-04	1000	660	38	450	NW	NW	1200	1200	1300	
		Aug-03	1010	600	NR	NR	NW	NW	NR	NR	NR	
		Aug-02	NR	NR	NR	NR	NW	NW	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

NW = New Well After August 2004

GENERAL CHEMISTRY

Groundwater Analysis

EPA Method 300.0

mg/L	DATE SAMPLED	RW #16	RW #18	O/F #2	O/F #3	WQCC 20 NMAC 6.2.3103
Fluoride	Aug-05	NR	<1.0	0.64	0.61	1.6
	Aug-04	0.3	NR	0.67	0.46	
	Aug-03	NR	NR	NR	0.49	
	Aug-02	NR	NR	NR	NR	
Chloride	Aug-05	NR	110	18	37	250
	Aug-04	460	NR	23	28	
	Aug-03	NR	NR	NR	25	
	Aug-02	NR	NR	NR	NR	
Nitrite	Aug-05	NR	<1.0	<0.10	<0.1	
	Aug-04	<0.10	NR	<0.10	NR	
	Aug-03	NR	NR	NR	<0.10	
	Aug-02	NR	NR	NR	NR	
Bromide	Aug-05	NR	<5.0	<0.5	<0.5	
	Aug-04	5.8	NR	0.13	0.17	
	Aug-03	NR	NR	NR	0.26	
	Aug-02	NR	NR	NR	NR	
Nitrogen	Aug-05	NR	<1.0	2.2	5.2	10
	Aug-04	<0.10	NR	2.5	NR	
	Aug-03	NR	NR	NR	3.9	
	Aug-02	NR	NR	NR	NR	
P	Aug-05	NR	<5.0	<0.5	<0.5	
	Aug-04	<0.50	NR	<0.50	<0.50	
	Aug-03	NR	NR	NR	<0.50	
	Aug-02	NR	NR	NR	NR	
Sulfate	Aug-05	NR	940	210	270	600
	Aug-04	77	NR	200	200	
	Aug-03	NR	NR	NR	170	
	Aug-02	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

NW = New Well - Not Sampled before 2005

GENERAL CHEMISTRY

Groundwater Analysis

	DATE SAMPLED	mg/L	RW #16	RW #18	O/F #2	O/F #3	WQCC 20 NMAC 6.2.3103
EPA 160.1	Aug-05	TDS	NR	3900	620	790	1000
	Aug-04		1900	NR	670	660	
	Aug-03		NR	NR	NR	490	
	Aug-02		NR	NR	NR	NR	
EPA 120.1	Aug-05	E.C.	NR	3400	880	1100	
	Aug-04	umhos/cm	2800	NR	880	830	
	Aug-03		NR	NR	NR	780	
	Aug-02		NR	NR	NR	NR	
	Aug-05	D.O.	NR	NR	>13	>13.0	
	Aug-04		8.7	NR	6.3	9.8	
	Aug-03		NR	NR	NR	7.8	
	Aug-02		NR	NR	NR	NR	
	Aug-05	O.R.P.	NR	-103	143	168	
	Aug-04		-139	NR	74	103	
	Aug-03		NR	NR	NR	194	
	Aug-02		NR	NR	NR	NR	
EPA 310.1	Aug-05	CO2	NR	650	220	270	
	Aug-04		900	NR	250	240	
	Aug-03		NR	NR	NR	270	
	Aug-02		NR	NR	NR	NR	
	Aug-05	Alk	NR	650	230	270	
	Aug-04		1000	NR	280	270	
	Aug-03		NR	NR	NR	252	
	Aug-02		NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

NW = New Well - Not Sampled before 2005

DISSOLVED METALS

Groundwater Analysis

EPA Method 6010C												
mg/L	DATE SAMPLED	MW #1	MW #3	MW #7	MW #8	MW #11	MW #12	MW #13	MW #21	MW #26	MW #27	WQCC 20 NMAC 6.2.3103
Arsenic	Aug-05	<0.02	<0.02	NR	<0.02	<0.02	<0.02	<0.02	NR	<0.02	<0.02	0.10
	Aug-04	<0.02	NS	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
	Aug-03	<0.02	<0.02	NR	<0.02	<0.02	<0.02	<0.02	NR	<0.02	<0.02	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Barium	Aug-05	0.022	0.018	NR	0.021	0.73	0.07	0.028	NR	1.9	0.063	1.00
	Aug-04	0.025	NS	0.0097	0.021	0.47	0.06	0.022	0.028	1.8	0.083	
	Aug-03	0.46	0.3	NR	0.36	1.2	0.12	0.33	NR	2.3	0.52	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Cadmium	Aug-05	<0.002	<0.002	NR	<0.002	<0.002	<0.002	<0.002	NR	<0.002	<.002	0.01
	Aug-04	<0.002	NS	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	
	Aug-03	<0.002	<0.002	NR	<0.002	<0.002	<0.002	<0.002	NR	<0.002	<0.002	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Calcium	Aug-05	68	480	NR	230	96	370	240	NR	92	290	
	Aug-04	67	NS	300	210	100	130	210	450	75	170	
	Aug-03	61	490	NR	200	120	420	270	NR	91	210	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Cr	Aug-05	<0.006	<0.006	NR	<0.006	<0.006	0.022	<0.006	NR	<0.006	<.006	0.05
	Aug-04	<0.006	NS	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	
	Aug-03	<0.006	<0.006	NR	<0.006	<0.006	0.0066	<0.006	NR	0.0089	<0.006	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Copper	Aug-05	<0.006	<0.006	NR	<0.006	<0.006	<0.006	<0.006	NR	<0.006	<.006	1.00
	Aug-04	<0.006	NS	<0.006	<0.006	0.021	<0.006	<0.006	<0.006	<0.006	<0.006	
	Aug-03	<0.006	<0.006	NR	<0.006	<0.006	<0.006	0.0096	NR	<0.006	<0.006	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

DISSOLVED METALS

Groundwater Analysis

EPA Method 6010C												
mg/L	DATE SAMPLED	MW #1	MW #3	MW #7	MW #8	MW #11	MW #12	MW #13	MW #21	MW #26	MW #27	WQCC 20 NMAC 6.2.3103
Iron	Aug-05	0.14	0.047	NR	0.078	7.6	0.55	<0.02	NR	6.3	3.4	1.00
	Aug-04	0.27	NS	0.081	0.059	6.9	0.044	0.046	2.9	5.1	0.15	
	Aug-03	<0.005	0.27	NR	0.044	7.6	0.024	0.04	NR	5	0.44	
	Aug-02	NR	NR	NR	1.5	10	NR	NR	NR	NR	NR	
Lead	Aug-05	<0.005	<0.005	NR	<0.005	<0.005	<0.005	<0.005	NR	<0.005	<0.005	0.05
	Aug-04	<0.005	NS	<0.005	<0.005	0.022	<0.005	<0.005	<0.005	0.0056	<0.005	
	Aug-03	<0.005	<0.005	NR	<0.005	<0.005	<0.005	<0.005	NR	<0.005	<0.005	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Mg	Aug-05	18	130	NR	37	22	97	85	NR	32	45	
	Aug-04	18	NS	31	35	23	NR	80	97	27	26	
	Aug-03	16	140	NR	38	25	130	110	NR	32	34	
	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Mn	Aug-05	0.14	0.43	NR	0.65	1.6	0.64	1.1	NR	2.8	2.7	0.20
	Aug-04	0.13	NS	0.28	0.57	1.7	0.55	0.58	1.4	2	0.94	
	Aug-03	0.08	0.58	NR	0.68	2	1.8	1.1	NR	2.4	1.4	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
K	Aug-05	2.7	7.6	NR	3.1	1.7	2.8	3.8	NR	2.8	3.4	
	Aug-04	2.1	NS	8.1	3	1.5	1.5	3.6	6.8	2.6	206	
	Aug-03	2.6	10	NR	4	2.3	4.3	5.3	NR	4.2	4	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Se	Aug-05	<0.05	<0.05	NR	<0.05	<0.05	<0.05	<0.05	NR	<0.05	<0.05	0.05
	Aug-04	<0.05	NS	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
	Aug-03	0.043	0.024	NR	0.09	0.15	0.084	0.16	NR	0.1	0.13	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

DISSOLVED METALS

Groundwater Analysis

EPA Method 6010C												
mg/L	DATE SAMPLED	MW #1	MW #3	MW #7	MW #8	MW #11	MW #12	MW #13	MW #21	MW #26	MW #27	WQCC 20 NMAC 6.2.3103
Silver	Aug-05	<0.005	<0.005	NR	<0.005	<0.005	<0.005	<0.005	NR	<0.005	<0.005	0.05
	Aug-04	<0.005	NS	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
	Aug-03	<0.005	<0.005	NR	<0.005	<0.005	<0.005	<0.005	NR	<0.005	<0.005	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Sodium	Aug-05	140	1300	NR	360	380	560	570	NR	430	430	
	Aug-04	110	NS	1100	360	390	320	610	600	440	390	
	Aug-03	150	1100	NR	350	420	960	680	NR	430	420	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Uranium	Aug-05	<0.1	<0.1	NR	<0.1	<0.1	<0.1	<0.1	NR	<0.1	<0.1	5.00
	Aug-04	<0.1	NS	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
	Aug-03	<0.1	<0.1	NR	<0.1	<0.1	<0.1	<0.1	NR	<0.1	<0.1	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Zinc	Aug-05	<0.005	0.018	NR	0.014	0.014	0.022	0.0088	NR	0.17	0.0066	10.00
	Aug-04	0.021	NS	0.0096	0.022	63	0.035	0.021	0.028	0.013	0.011	
	Aug-03	0.12	0.094	NR	0.13	0.18	0.088	0.09	NR	0.19	0.037	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

DISSOLVED METALS

Groundwater Analysis

EPA Method 6010C												
mg/L	DATE SAMPLED	MW #29	MW #30	MW #31	MW #32	MW #33	MW #34	MW #35	MW #36	MW #37	MW #38	WQCC 20 NMAC 6.2.3103
Arsenic	Aug-05	NR	NR	NR	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.10
	Aug-04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
	Aug-03	NR	NR	NR	<0.02	<0.02	<0.02	<0.02	NR	<0.02	<0.02	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Barium	Aug-05	NR	NR	NR	0.026	0.019	0.77	0.54	0.26	0.38	0.18	1.00
	Aug-04	0.025	0.13	0.35	0.022	0.02	0.78	0.71	0.59	0.28	0.19	
	Aug-03	NR	NR	NR	0.35	0.02	1.5	1	NR	1.5	0.37	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Cadmium	Aug-05	NR	NR	NR	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.01
	Aug-04	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	
	Aug-03	NR	NR	NR	<0.002	<0.002	<0.002	<0.002	NR	<0.002	<0.002	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Calcium	Aug-05	NR	NR	NR	200	340	110	120	110	120	200	
	Aug-04	55	350	220	170	350	110	130	150	100	180	
	Aug-03	NR	NR	NR	370	330	110	130	NR	100	170	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Cr	Aug-05	NR	NR	NR	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.05
	Aug-04	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	
	Aug-03	NR	NR	NR	<0.006	<0.006	<0.006	<0.006	NR	<0.006	<0.006	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Copper	Aug-05	NR	NR	NR	<0.006	<0.006	<0.006	<.006	<0.006	<0.006	<0.006	1.00
	Aug-04	<0.006	0.0061	<0.006	<0.006	0.0062	0.015	0.0065	<0.006	<0.006	<0.006	
	Aug-03	NR	NR	NR	<0.006	<0.006	<0.006	<0.006	NR	<0.006	<0.006	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

DISSOLVED METALS

Groundwater Analysis

EPA Method 6010C												
mg/L	DATE SAMPLED	MW #29	MW #30	MW #31	MW #32	MW #33	MW #34	MW #35	MW #36	MW #37	MW #38	WQCC 20 NMAC 6.2.3103
Iron	Aug-05	NR	NR	NR	<0.02	<0.02	4.9	5.9	0.78	2.5	7.1	1.00
	Aug-04	<0.005	4.7	0.46	0.056	0.11	5.6	7.2	3.1	1.5	8	
	Aug-03	NR	NR	NR	0.031	<0.005	5.5	6.3	NR	0.6	7.5	
	NR	NR	NR	NR	NR	NR	9.6	9.3	NR	NR	NR	
Lead	Aug-05	NR	NR	NR	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.05
	Aug-04	<0.005	0.0051	<0.005	<0.005	<0.005	<0.005	0.0063	<0.005	<0.005	<0.005	
	Aug-03	NR	NR	NR	<0.005	<0.005	<0.005	<0.005	NR	<0.005	<0.005	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Mg	Aug-05	NR	NR	NR	32	48	20	22	23	20	32	
	Aug-04	15	88	67	26	54	20	23	30	19	32	
	Aug-03	NR	NR	NR	56	51	21	22	NR	20	28	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Mn	Aug-05	NR	NR	NR	<0.002	0.0065	4.2	3	1.7	1.4	3.7	0.20
	Aug-04	0.82	2.1	0.58	<0.002	0.013	4.3	3.1	4.1	1.3	3.6	
	Aug-03	NR	NR	NR	0.0037	0.01	4.6	3.3	NR	1.4	3	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
K	Aug-05	NR	NR	NR	3	4.9	1.2	2.9	4.8	4.2	4.4	
	Aug-04	2.7	<10.0	4.8	2.7	5.3	1.3	3	7.2	5	4.7	
	Aug-03	NR	NR	NR	5	6.2	2.1	3.7	NR	6.6	6.6	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Se	Aug-05	NR	NR	NR	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
	Aug-04	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
	Aug-03	NR	NR	NR	0.05	0.023	0.15	0.15	NR	0.13	0.11	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

DISSOLVED METALS

Groundwater Analysis

EPA Method 6010C												
mg/L	DATE SAMPLED	MW #29	MW #30	MW #31	MW #32	MW #33	MW #34	MW #35	MW #36	MW #37	MW #38	WQCC 20 NMAC 6.2.3103
Silver	Aug-05	NR	NR	NR	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.05
	Aug-04	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
	Aug-03	NR	NR	NR	<0.005	<0.005	<0.005	<0.005	NR	<0.005	<0.005	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Sodium	Aug-05	NR	NR	NR	580	640	390	310	210	370	270	
	Aug-04	100	750	640	550	670	400	300	180	350	250	
	Aug-03	NR	NR	NR	800	660	470	330	NR	370	240	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Uranium	Aug-05	NR	NR	NR	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	5.00
	Aug-04	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
	Aug-03	NR	NR	NR	<0.1	<0.1	<0.1	<0.1	NR	<0.1	<0.1	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Zinc	Aug-05	NR	NR	NR	0.011	0.012	0.1	0.095	0.0051	0.13	0.016	10.00
	Aug-04	0.017	0.046	0.019	0.019	0.031	0.02	0.022	0.018	0.028	0.035	
	Aug-03	NR	NR	NR	0.095	0.0072	0.15	0.078	NR	0.29	0.31	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

DISSOLVED METALS

Groundwater Analysis

EPA Method 6010C											
mg/L	DATE SAMPLED	MW #39	MW #44	MW #48	MW #49	RW #3	RW #14	RW #15	RW #16	RW #18	WQCC 20 NMAC 6.2.3103
Arsenic	Aug-05	NR	NR	<0.02	<0.02	NR	NR	NR	NR	<0.02	0.10
	Aug-04	<0.02	<0.02	NW	NW	<0.02	<0.02	<0.02	<0.02	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	
Barium	Aug-05	NR	NR	0.23	0.24	NR	NR	NR	NR	0.038	1.00
	Aug-04	0.15	0.046	NW	NW	0.12	1.7	1.2	0.35	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	
Cadmium	Aug-05	NR	NR	<0.002	<0.002	NR	NR	NR	NR	<0.002	0.01
	Aug-04	<0.002	<0.002	NW	NW	<0.002	<0.002	<0.002	<0.002	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	
Calcium	Aug-05	NR	NR	100	120	NR	NR	NR	NR	220	
	Aug-04	290	520	NW	NW	85	180	160	100	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	
Cr	Aug-05	NR	NR	<0.006	<0.006	NR	NR	NR	NR	<0.006	0.05
	Aug-04	<0.006	0.034	NW	NW	<0.006	<0.006	<0.006	<0.006	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	
Copper	Aug-05	NR	NR	<0.006	<0.006	NR	NR	NR	NR	<0.006	1.00
	Aug-04	<0.006	0.027	NW	NW	<0.006	<0.006	<0.006	<0.006	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

NW = New Well After August 2004

DISSOLVED METALS

Groundwater Analysis

EPA Method 6010C											
mg/L	DATE SAMPLED	MW #39	MW #44	MW #48	MW #49	RW #3	RW #14	RW #15	RW #16	RW #18	WQCC 20 NMAC 6.2.3103
Iron	Aug-05	NR	NR	<0.02	0.72	NR	NR	NR	NR	5	1.00
	Aug-04	0.18	76	NW	NW	0.48	8.5	6	1.9	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	
Lead	Aug-05	NR	NR	0.012	<0.005	NR	NR	NR	NR	<0.005	0.05
	Aug-04	<0.005	0.015	NW	NW	<0.005	<0.005	<0.005	<0.005	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	
Mg	Aug-05	NR	NR	20	29	NR	NR	NR	NR	64	
	Aug-04	28	87	NW	NW	21	87	52	56	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	
Mn	Aug-05	NR	NR	0.01	1.9	NR	NR	NR	NR	4.1	0.20
	Aug-04	0.3	17	NW	NW	1.1	3.6	3.3	1.7	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	
K	Aug-05	NR	NR	4	4.7	NR	NR	NR	NR	4.4	
	Aug-04	8.7	44	NW	NW	3.4	<10.0	3.7	3.3	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	
Se	Aug-05	NR	NR	0.077	<0.05	NR	NR	NR	NR	<0.05	0.05
	Aug-04	<0.05	<0.05	NW	NW	<0.05	<0.05	<0.05	<0.05	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

NW = New Well After August 2004

DISSOLVED METALS

Groundwater Analysis

EPA Method 6010C											
mg/L	DATE SAMPLED	MW #39	MW #44	MW #48	MW #49	RW #3	RW #14	RW #15	RW #16	RW #18	WQCC 20 NMAC 6.2.3103
Silver	Aug-05	NR	NR	<0.005	<0.005	NR	NR	NR	NR	<0.005	0.05
	Aug-04	<0.005	<0.005	NW	NW	<0.005	<0.005	<0.005	<0.005	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	
Sodium	Aug-05	NR	NR	510	360	NR	NR	NR	NR	500	
	Aug-04	750	970	NW	NW	620	810	580	560	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	
Uranium	Aug-05	NR	NR	<0.1	<0.1	NR	NR	NR	NR	<0.1	5.00
	Aug-04	<0.10	<0.10	NW	NW	<0.10	<0.10	<0.10	<0.10	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	
Zinc	Aug-05	NR	NR	0.012	0.0055	NR	NR	NR	NR	0.021	10.00
	Aug-04	<0.005	0.084	NW	NW	0.036	0.044	0.043	0.029	NR	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

NW = New Well After August 2004

DISSOLVED METALS

Groundwater Analysis

EPA Method 6010C				
mg/L	DATE SAMPLED	O/F #2	O/F #3	WQCC 20 NMAC 6.2.3103
Arsenic	Aug-05	<0.002	<.02	0.10
	Aug-04	<0.02	<0.02	
	Aug-03	NS	<0.02	
	Aug-02	NR	NR	
Barium	Aug-05	0.054	0.033	1.00
	Aug-04	0.048	0.03	
	Aug-03	NS	0.25	
	Aug-02	NR	NR	
Cadmium	Aug-05	<.002	<.002	0.01
	Aug-04	<0.002	<0.002	
	Aug-03	NS	<0.002	
	Aug-02	NR	NR	
Calcium	Aug-05	96	110	
	Aug-04	95	98	
	Aug-03	NS	79	
	Aug-02	NR	NR	
Cr	Aug-05	0.0076	<.006	0.05
	Aug-04	0.0071	<0.006	
	Aug-03	NS	<0.006	
	Aug-02	NR	NR	
Copper	Aug-05	<.006	<.006	1.00
	Aug-04	<0.006	<0.006	
	Aug-03	NS	<0.006	
	Aug-02	NR	NR	

mg/L	DATE SAMPLED	O/F #2	O/F #3	WQCC 20 NMAC 6.2.3103
Iron	Aug-05	<.02	<.02	1.00
	Aug-04	<0.02	0.024	
	Aug-03	NS	<0.02	
	Aug-02	NR	NR	
Lead	Aug-05	<.005	<.005	0.05
	Aug-04	<0.005	<0.005	
	Aug-03	NS	<0.005	
	Aug-02	NR	NR	
Mg	Aug-05	22	25	
	Aug-04	23	22	
	Aug-03	NS	18	
	Aug-02	NR	NR	
Mn	Aug-05	0.0033	0.01	0.20
	Aug-04	0.0038	0.019	
	Aug-03	NS	0.017	
	Aug-02	NR	NR	
K	Aug-05	2.2	1.9	
	Aug-04	2.3	1.8	
	Aug-03	NS	2.1	
	Aug-02	NR	NR	
Se	Aug-05	<.05	<.05	0.05
	Aug-04	<0.05	<0.05	
	Aug-03	NS	0.032	
	Aug-02	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

DISSOLVED METALS

Groundwater Analysis

EPA Method 6010C				
mg/L	DATE SAMPLED	O/F #2	O/F #3	WQCC 20 NMAC 6.2.3103
Silver	Aug-05	<.005	<.005	0.05
	Aug-04	<0.005	<0.005	
	Aug-03	NS	<0.005	
	Aug-02	NR	NR	
Sodium	Aug-05	85	100	
	Aug-04	100	90	
	Aug-03	NS	88	
	Aug-02	NR	NR	
Uranium	Aug-05	<.1	<.1	5.00
	Aug-04	<0.10	<0.10	
	Aug-03	NS	<0.10	
	Aug-02	NR	NR	
Zinc	Aug-05	0.0066	0.0066	10.00
	Aug-04	0.034	0.014	
	Aug-03	NS	0.04	
	Aug-02	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

TOTAL METALS

Groundwater Analysis

EPA Method 6010, EPA Method 7470: Mercury												40CFR141.62
mg/L	Date Sampled	MW #1	MW #3	MW #7	MW #8	MW #11	MW #12	MW #13	MW #21	MW #26	MW #27	MCL
Arsenic	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.01
	Aug-04	<0.02	NS	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
	Aug-03	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Barium	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	2
	Aug-04	0.052	NS	<0.002	0.071	0.54	0.19	0.028	0.029	<2	0.13	
	Aug-03	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Cadmium	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.005
	Aug-04	<0.002	NS	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	
	Aug-03	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Cr	Aug-05	<0.006	0.016	NR	0.33	<0.006	4.1	0.012	NR	<0.006	<0.006	0.1
	Aug-04	<0.006	NS	<0.006	1.9	<0.006	0.11	0.085	<0.006	<0.006	0.019	
	Aug-03	0.013	0.029	NR	0.72	0.011	0.51	0.45	NR	0.017	0.014	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Lead	Aug-05	<0.005	<0.005	NR	<0.005	0.011	0.21	<0.005	NR	<0.005	<0.005	0.015
	Aug-04	<0.005	NS	<0.005	<0.005	0.027	0.18	<0.005	<0.005	<0.005	<0.005	
	Aug-03	<0.005	0.022	NR	<0.005	0.02	0.16	<0.005	NR	0.0084	<0.005	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Se	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.05
	Aug-04	<0.05	NS	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
	Aug-03	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

TOTAL METALS

Groundwater Analysis

EPA Method 6010 , EPA Method 7470: Mercury												40CFR141.62
mg/L	Date Sampled	MW #1	MW #3	MW #7	MW #8	MW #11	MW #12	MW #13	MW #21	MW #26	MW #27	MCL
Silver	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Aug-04	<0.005	NS	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
	Aug-03	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Mercury	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.002
	Aug-04	<0.0002	NS	<0.0002	<0.0002	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	
	Aug-03	<0.0002	<0.0002	NR	<0.0002	0.00026	<0.0002	<0.0002	NR	<0.0002	<0.0002	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	

TOTAL METALS

Groundwater Analysis

EPA Method 6010 , EPA Method 7470: Mercury												40CFR141.62
mg/L	Date Sampled	MW #29	MW #30	MW #31	MW #32	MW #33	MW #34	MW #35	MW #36	MW #37	MW #38	MCL
Arsenic	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.01
	Aug-04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
	Aug-03	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Barium	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	2
	Aug-04	0.039	0.24	0.35	0.049	0.038	0.94	1.2	2.6	1.3	0.74	
	Aug-03	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

TOTAL METALS

Groundwater Analysis

EPA Method 6010, EPA Method 7470: Mercury												40CFR141.62
mg/L	Date Sampled	MW #29	MW #30	MW #31	MW #32	MW #33	MW #34	MW #35	MW #36	MW #37	MW #38	MCL
Cadmium	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.005
	Aug-04	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	
	Aug-03	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Cr	Aug-05	NR	NR	NR	<0.006	<0.006	0.011	0.017	0.022	0.082	0.34	0.1
	Aug-04	<0.006	0.0073	0.0088	<0.006	<0.006	<0.006	<0.006	0.025	0.018	0.079	
	Aug-03	NR	NR	NR	<0.006	<0.006	0.018	0.011	NR	0.18	0.31	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Lead	Aug-05	NR	NR	NR	<0.005	<0.005	0.0078	0.017	<0.005	0.072	0.18	0.015
	Aug-04	<0.005	0.011	<0.005	<0.005	0.0067	<0.005	0.0067	0.0072	0.05	0.028	
	Aug-03	NR	NR	NR	<0.005	<0.005	<0.005	<0.005	NR	0.18	0.21	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Se	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.05
	Aug-04	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
	Aug-03	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Silver	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Aug-04	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
	Aug-03	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Mercury	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.002
	Aug-04	<0.0002	0.00023	0.00022	<0.0002	0.00069	<0.0002	<0.0002	0.00031	0.00044	0.0012	
	Aug-03	NR	NR	NR	<0.0002	<0.0002	<0.0002	<0.0002	NR	<0.0002	<0.0002	
	Aug-02	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

TOTAL METALS

Groundwater Analysis

EPA Method 6010 , EPA Method 7470: Mercury												40CFR141.62
mg/L	Date Sampled	MW #39	MW #44	MW #48	MW #49	RW #3	RW #14	RW #15	RW #16	RW #18	P #4	MCL
Arsenic	Aug-05	NR	NR	NR	NR	NR	NR	NR		<0.02	NR	0.01
	Aug-04	<0.02	<0.02	NW	NW	<0.02	<0.02	<0.02	<0.02		<0.02	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	NR	
Barium	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	0.038	NR	2
	Aug-04	0.71	0.084	NW	NW	0.17	1.8	1.2	0.67		0.58	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	NR	
Cadmium	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	<.002	NR	0.005
	Aug-04	<0.002	<0.002	NW	NW	<0.002	<0.002	<0.002	<0.002		<0.002	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	NR	
Cr	Aug-05	NR	NR	<0.006	0.013	NR	NR	NR	NR	0.32	NR	0.1
	Aug-04	0.59	0.1	NW	NW	<0.006	<0.006	<0.006	0.012	NR	<0.006	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	<0.006	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	NR	
Lead	Aug-05	NR	NR	0.015	0.0075	NR	NR	NR	NR	0.16	NR	0.015
	Aug-04	0.019	0.036	NW	NW	0.0068	<0.005	<0.005	<0.005	NR	0.0082	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	0.007	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	NR	
Se	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.05
	Aug-04	<0.05	<0.05	NW	NW	<0.05	<0.05	<0.05	<0.05	NR	<0.05	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

NW = New Well After August 2004

TOTAL METALS

Groundwater Analysis

EPA Method 6010C , EPA Method 7470: Mercury												40CFR141.62
mg/L	Date Sampled	MW #39	MW #44	MW #48	MW #49	RW #3	RW #14	RW #15	RW #16	RW #18	P #4	MCL
Silver	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
	Aug-04	<0.005	<0.005	NW	NW	<0.005	<0.005	<0.005	<0.005	NR	<0.005	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	NR	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	NR	
Mercury	Aug-05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.002
	Aug-04	0.00021	0.00033	NW	NW	<0.0002	<0.0002	<0.0002	<0.0002	NR	<0.0002	
	Aug-03	NR	NR	NW	NW	NR	NR	NR	NR	NR	<0.0002	
	Aug-02	NR	NR	NW	NW	NR	NR	NR	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

NW = New Well After August 2004

TOTAL METALS

Groundwater Analysis

EPA Method 6010, EPA Method 7470: Mercury					
mg/L	Date Sampled	P #5	O/F #2	O/F #3	40CFR141.62 MCL
Arsenic	Aug-05	NR	NR	NR	0.01
	Aug-04	<0.02	<0.02	<0.02	
	Aug-03	NR	NR	NR	
	Aug-02	NR	NR	NR	
Barium	Aug-05	NR	NR	NR	2
	Aug-04	0.52	0.055	0.032	
	Aug-03	NR	NR	NR	
	Aug-02	NR	NR	NR	
Cadmium	Aug-05	NR	NR	NR	0.005
	Aug-04	<0.002	<0.002	<0.002	
	Aug-03	NR	NR	NR	
	Aug-02	NR	NR	NR	
Cr	Aug-05	NR	NR	NR	0.1
	Aug-04	<0.006	0.0069	<0.006	
	Aug-03	<0.006	NR	<0.006	
	Aug-02	NR	NR	NR	
Lead	Aug-05	NR	NR	NR	0.015
	Aug-04	0.011	<0.005	<0.005	
	Aug-03	0.0066	NR	<0.005	
	Aug-02	NR	NR	NR	

mg/L	Date Sampled	P #5	O/F #2	O/F #3	40CFR141.62 MCL
Se	Aug-05	NR	NR	NR	0.05
	Aug-04	<0.05	<0.05	<0.05	
	Aug-03	NR	NR	NR	
	Aug-02	NR	NR	NR	
Silver	Aug-05	NR	NR	NR	
	Aug-04	<0.005	<0.005	<0.005	
	Aug-03	NR	NR	NR	
	Aug-02	NR	NR	NR	
Mercury	Aug-05	NR	NR	NR	0.002
	Aug-04	<0.0002	<0.0002	<0.0002	
	Aug-03	<0.0002	NR	<0.0002	
	Aug-02	NR	NR	NR	

NR = Not Required to Sample

NS = Well is Dry or Not Enough Water to Sample- No Sample

NW = New Well - Not Sampled before 2005

RIVER ANALYSIS - 2005

General Chemistry

	mg/L	DATE Sampled	North of MW #46	North of MW #45	Upstream of Refinery	Downstream of Refinery	WQCC 20 NMAC 6.2.3103
EPA Method 300.0	Fluoride	10/24/05	0.12	0.12	0.1	0.11	1.60
		7/19/05	0.21	0.2	0.2	0.22	
		4/13/05	0.16	0.16	0.22	0.15	
		1/25/05	0.16	0.17	0.16	0.16	
	Chloride	10/24/05	3.3	3.3	3.3	3.3	250
		7/19/05	3.6	3.5	3.6	3.6	
		4/13/05	4	4	4.1	4.2	
		1/25/05	3.9	4	3.9	4.1	
	Nitrite	10/24/05	<0.1	<0.1	<0.1	<0.1	
		7/19/05	<0.1	<0.1	<0.1	<0.1	
		4/13/05	<.0.1	<0.1	<0.1	<0.1	
		1/25/05	<0.1	<0.1	<0.1	<0.1	
	Bromide	10/24/05	<0.5	<0.5	<0.5	<0.5	
		7/19/05	<0.5	<0.5	<0.5	<0.5	
		4/13/05	<0.5	<0.5	<0.5	<0.5	
		1/25/05	<0.5	<0.5	<0.5	<0.5	
	Nitrogen	10/24/05	<0.1	<0.1	<0.1	<0.1	10
		7/19/05	<0.1	<0.1	<0.1	<0.1	
		4/13/05	<.0.1	<0.1	<0.1	<0.1	
		1/25/05	<0.1	<0.1	<0.1	<0.1	
	Phosphorous	10/24/05	<0.5	<0.5	<0.5	<0.5	
		7/19/05	<0.5	<0.5	<0.5	<0.5	
		4/13/05	<0.5	<0.5	<0.5	<0.5	
		1/25/05	<0.5	<0.5	<0.5	<0.5	
	Sulfate	10/24/05	67	67	65	68	600
		7/19/05	73	74	74	80	
		4/13/05	82	84	88	89	
		1/25/05	110	110	110	120	
EPA 160.1	TDS	10/24/05	190	200	200	200	1000
		7/19/05	240	230	250	250	
		4/13/05	260	260	260	270	
		1/25/05	280	300	290	320	

RIVER ANALYSIS - 2005

General Chemistry

	mg/L	DATE Sampled	North of MW #46	North of MW #45	Upstream of Refinery	Downstream of Refinery	WQCC 20 NMAC 6.2.3103
EPA 310.1	CO3	10/24/05	<2.0	<2.0	2	2	
		7/19/05	<2.0	<2.0	2	2	
		4/13/05	<4.0	<4.0	<4.0	<4.0	
		1/25/05	<4.0	<4.0	<4.0	<4.0	
	ALK	10/24/05	100	100	110	110	
		7/19/05	100	97	99	99	
		4/13/05	100	100	96	100	
		1/25/05	100	10	110	110	
EPA 120.1	E.C.	10/24/05	340	340	330	340	
	(umhos/cm)	7/19/05	340	340	350	380	
		4/13/05	390	390	400	400	
		1/25/05	390	390	370	410	

RIVER ANALYSIS - 2005

Organics

	mg/L	DATE Sampled	North of MW #46	North of MW #45	Upstream of Refinery	Downstream of Refinery	WQCC 20 NMAC 6.2.3103
EPA Method 8021B	Benzene	10/24/05	<0.0005	<0.0005	<0.0005	<0.0005	0.01
		7/19/05	<0.0005	<0.0005	<0.0005	<0.0005	
		4/13/05	<0.0005	<0.0005	<0.0005	<0.0005	
		01/25/05	<0.0005	<0.0005	<0.0005	<0.0005	
	Toluene	10/24/05	<0.0005	<0.0005	<0.0005	<0.0005	0.75
		7/19/05	<0.0005	<0.0005	<0.0005	<0.0005	
		4/13/05	<0.0005	<0.0005	<0.0005	<0.0005	
		01/25/05	<0.0005	<0.0005	<0.0005	<0.0005	
	EthylBen	10/24/05	<0.0005	<0.0005	<0.0005	<0.0005	0.75
		7/19/05	<0.0005	<0.0005	<0.0005	<0.0005	
		4/13/05	<0.0005	<0.0005	<0.0005	<0.0005	
		01/25/05	<0.0005	<0.0005	<0.0005	<0.0005	
	Xylene	10/24/05	<0.0005	<0.0005	<0.0005	<0.0005	0.62
		7/19/05	<0.0005	<0.0005	<0.0005	<0.0005	
		4/13/05	<0.0005	<0.0005	<0.0005	<0.0005	
		01/25/05	<0.0005	<0.0005	<0.0005	<0.0005	
	MTBE	10/24/05	<0.0025	<0.0025	<0.0025	<0.0025	
		7/19/05	<0.0025	<0.0025	<0.0025	<0.0025	
		4/13/05	<0.0025	<0.0025	<0.0025	<0.0025	
		01/25/05	<0.0025	<0.0025	<0.0025	<0.0025	
EPA Method 8015B	DRO	10/24/05	<1.0	<1.0	<1.0	<1.0	
		7/19/05	<1.0	<1.0	<1.0	<1.0	
		4/13/05	<1.0	<1.0	<1.0	<1.0	
		01/25/05	<1.0	<1.0	<1.0	<1.0	
	MRO	10/24/05	<5.0	<5.0	<5.0	<5.0	
		7/19/05	<5.0	<5.0	<5.0	<5.0	
		4/13/05	<5.0	<5.0	<5.0	<5.0	
		01/25/05	<5.0	<5.0	<5.0	<5.0	
	GRO	10/24/05	<0.05	<0.05	<0.05	<0.05	
		7/19/05	<0.05	<0.05	<0.05	<0.05	
		4/13/05	<0.05	<0.05	<0.05	<0.05	
		01/25/05	<0.05	<0.05	<0.05	<0.05	

RIVER ANALYSIS - 2005

TOTAL METALS

EPA Method 6010 , EPA Method 7470: Mercury						40CFR141.62
mg/L	DATE Sampled	North of MW #46	North of MW #45	Upstream of Refinery	Down stream of Refinery	MCL
Arsenic	10/24/05	<0.02	<0.02	<0.02	<0.02	0.01
	7/19/05	<0.02	<0.02	<0.02	<0.02	
	4/13/05	<0.02	<0.02	<0.02	<0.02	
	1/25/05	<0.02	<0.02	<0.02	<0.02	
Barium	10/24/05	0.083	0.079	0.08	0.089	2
	7/19/05	0.07	0.069	0.07	0.07	
	4/13/05	0.083	0.084	0.092	0.12	
	1/25/05	0.076	0.07	0.077	0.072	
Cadmium	10/24/05	<0.002	<0.002	<0.002	<0.002	0.005
	7/19/05	<0.002	<0.002	<0.002	<0.002	
	4/13/05	<0.002	<0.002	<0.002	<0.002	
	1/25/05	<0.002	<0.002	<0.002	<0.002	
Cr	10/24/05	<0.006	<0.006	<0.006	<0.006	0.1
	7/19/05	<0.006	<0.006	<0.006	<0.006	
	4/13/05	<0.006	<0.006	<0.006	<0.006	
	1/25/05	<0.006	<0.006	<0.006	<0.006	
Lead	10/24/05	<0.005	<0.005	<0.005	<0.005	0.015
	7/19/05	<0.005	<0.005	<0.005	<0.005	
	4/13/05	<0.005	<0.005	<0.005	<0.005	
	1/25/05	<0.005	<0.005	<0.005	<0.005	
Se	10/24/05	<0.05	<0.05	<0.05	<0.05	0.05
	7/19/05	<0.05	<0.05	<0.05	<0.05	
	4/13/05	<0.05	<0.05	<0.05	<0.05	
	1/25/05	<0.05	<0.05	<0.05	<0.05	
Silver	10/24/05	<0.005	<0.005	<0.005	<0.005	
	7/19/05	<0.005	<0.005	<0.005	<0.005	
	4/13/05	<0.005	<0.005	<0.005	<0.005	
	1/25/05	<0.005	<0.005	<0.005	<0.005	
Mercury	10/24/05	<0.0002	<0.0002	<0.0002	<0.0002	0.002
	7/19/05	0.00031	<0.0002	<0.0002	<0.0002	
	4/13/05	<0.0002	<0.0002	<0.0002	<0.0002	
	1/25/05	<0.0002	<0.0002	<0.0002	<0.0002	

RIVER ANALYSIS - 2005

DISSOLVED METALS

EPA Method 6010C						WQCC
mg/L	DATE Sampled	North of MW #46	North of MW #45	Upstream of Refinery	Downstream of Refinery	20 NMAC 6.2.3103
Arsenic	10/24/05	<0.02	<0.02	<0.02	<0.02	0.10
	7/19/05	<0.02	<0.02	<0.02	<0.02	
	4/13/05	<0.02	<0.02	<0.02	<0.02	
	1/25/05	<0.02	<0.02	<0.02	<0.02	
Barium	10/24/05	0.064	0.065	0.067	0.061	1.00
	7/19/05	0.07	0.07	0.071	0.07	
	4/13/05	0.073	0.075	0.073	0.074	
	1/25/05	0.064	0.065	0.066	0.064	
Cadmium	10/24/05	<0.002	<0.002	<0.002	<0.002	0.01
	7/19/05	<0.002	<0.002	<0.002	<0.002	
	4/13/05	<0.002	<0.002	<0.002	<0.002	
	1/25/05	<0.002	<0.002	<0.002	<0.002	
Calcium	10/24/05	38	38	37	38	
	7/19/05	36	36	36	39	
	4/13/05	38	38	38	41	
	1/25/05	48	51	47	51	
Cr	10/24/05	<0.006	<0.006	<0.006	<0.006	0.05
	7/19/05	<0.006	<0.006	<0.006	<0.006	
	4/13/05	<0.006	<0.006	<0.006	<0.006	
	1/25/05	<0.006	<0.006	<0.006	<0.006	
Copper	10/24/05	<0.006	<0.006	<0.006	<0.006	1.00
	7/19/05	<0.006	<0.006	<0.006	<0.006	
	4/13/05	<0.006	<0.006	<0.006	<0.006	
	1/25/05	<0.006	<0.006	<0.006	<0.006	
Iron	10/24/05	<0.02	<0.02	0.02	<0.02	1.00
	7/19/05	0.037	<0.2	<0.02	<0.02	
	4/13/05	0.041	0.038	0.037	0.035	
	1/25/05	0.022	0.074	0.025	0.023	

EPA Method 6010C						WQCC
mg/L	DATE Sampled	North of MW #46	North of MW #45	Upstream of Refinery	Downstream of Refinery	20 NMAC 6.2.3103
Lead	10/24/05	<0.005	<0.005	<0.005	<0.005	0.05
	7/19/05	<0.005	<0.005	<0.005	<0.005	
	4/13/05	<0.005	<0.005	<0.005	<0.005	
	1/25/05	<0.005	<0.005	<0.005	<0.005	
Mg	10/24/05	6.5	6.5	6.4	6.3	
	7/19/05	6.7	6.6	6.7	6.9	
	4/13/05	6.5	6.6	6.7	6.8	
	1/25/05	8.2	8.1	8.1	8.5	
Mn	10/24/05	0.014	0.016	0.015	0.025	0.20
	7/19/05	0.021	0.02	0.035	0.034	
	4/13/05	0.008	0.0094	0.016	0.033	
	1/25/05	0.013	0.074	0.016	0.042	
K	10/24/05	1.9	1.9	1.8	1.9	
	7/19/05	2	2	2	2.1	
	4/13/05	2.1	2.1	2.1	2.2	
	1/25/05	2.3	2.3	2.3	2.3	
Se	10/24/05	<0.05	<0.05	<0.05	<0.05	0.05
	7/19/05	<0.05	<0.05	<0.05	<0.05	
	4/13/05	<0.05	<0.05	<0.05	<0.05	
	1/25/05	<0.05	<0.05	<0.05	<0.05	
Silver	10/24/05	<0.005	<0.005	<0.005	<0.005	0.05
	7/19/05	<0.005	<0.005	<0.005	<0.005	
	4/13/05	<0.005	<0.005	<0.005	<0.005	
	1/25/05	>0.005	<0.005	<0.005	<0.005	
Sodium	10/24/05	19	19	18	19	
	7/19/05	22	21	22	23	
	4/13/05	25	26	28	27	
	1/25/05	38	37	37	41	

RIVER ANALYSIS - 2005

DISSOLVED METALS

EPA Method 6010C						WQCC
mg/L	DATE Sampled	North of MW #46	North of MW #45	Upstream of Refinery	Downstream of Refinery	20 NMAC 6.2.3103
Uranium	10/24/05	<0.1	<0.1	<0.1	<0.1	5.00
	7/19/05	<0.1	<0.1	<0.1	<0.1	
	4/13/05	<0.1	<0.1	<0.1	<0.1	
	1/25/05	<0.1	<0.1	<0.1	<0.1	
Zinc	10/24/05	0.027	0.013	0.029	0.021	10.00
	7/19/05	0.045	0.014	0.029	0.015	
	4/13/05	0.028	0.016	0.01	0.018	
	1/25/05	0.037	0.013	0.028	0.048	

River Terrace

Baseline Water Quality Field Measurements

DATE	RW/MW	DEPTH TO LIQUID (ft)	Depth to Product	WELL DEPTH	E.C. (umhos/cm)	pH	TEMP. (Farenheit)	TDS (mg/L)
Aug-05	TP-#1	5.35	NPM	9.38	2034	6.92	70.6	1512
Apr-05		NR	NPM	NR	NR	NR	NR	NR
Aug-05	TP-#2	6.84	NPM	9.92	2225	6.85	65.2	1666
Apr-05		NR	NPM	NR	NR	NR	NR	NR
Aug-05	TP-#3	6.61	NPM	12.35	1295	6.85	68.4	931
Apr-05		NR	NPM	NR	NR	NR	NR	NR
Aug-05	TP-#4	5	NPM	6.49	696	6.88	70	487
Apr-05		NR	NPM	NR	NR	NR	NR	NR
Aug-05	TP-#5	5.91	NPM	8.84	923	6.9	68.7	655
Apr-05		NR	NPM	NR	NR	NR	NR	NR
Aug-05	TP-#6	5.78	NPM	9.94	1128	6.94	68.2	808
Apr-05		NR	NPM	NR	NR	NR	NR	NR
Aug-05	TP-#7	5.72	NPM	9.72	1740	6.89	67.8	1271
Apr-05		NR	NPM	NR	NR	NR	NR	NR
Aug-05	TP-#8	5.83	NPM	9.72	1934	6.94	72.4	1420
Apr-05		NR	NPM	NR	NR	NR	NR	NR
Aug-05	TP-#9	5.12	NPM	10.97	1968	6.92	62.8	1456
Apr-05		5.63	NPM	10.97	780	6.96	52.8	533
Aug-05	TP-#10	5.1	NPM	9.95	377	6.94	71.2	259
Apr-05		5.5	NPM	9.95	778	6.98	51.9	529
Aug-05	TP-#11	5.67	NPM	7.98	794	6.93	68.2	556
Apr-05		5.9	NPM	7.98	637	7.03	52.9	429
Aug-05	TP-#12	7.43	NPM	11.79	2143	6.88	64.1	1586
Apr-05		7.69	NPM	11.79	1683	6.97	52.8	1175
Aug-05	TP-#13	6.27	NPM	16.09	973	6.89	63.1	685
Apr-05		6.54	NPM	16.09	804	6.99	52.5	546
Aug-05	MW #48	7.62	NPM	17.32	2703	6.96	69.2	2065
Apr-05		7.55	NPM	17.32	2393	7.02	50.3	1812
Aug-05	MW #49	9.57	NPM	16.48	2393	6.96	59.8	1801
Apr-05		8.78	NPM	16.48	2301	6.94	50.1	1736
Aug-05	DW #1	6.43	NPM	15.72	1226	6.97	58.4	883
Apr-05		NM	NM	NM	NM	NM	NM	NM
Aug-05	DW #2	6.65	NPM	15.58	696	6.99	64.9	488
Apr-05		NM	NM	NM	NM	NM	NM	NM

NR = Not Required

NM = Not Measured - Not Drilled Yet

NPM = No Product Measured

River Terrace
Baseline Analytical Summary

		EPA Method 8021B				EPA Method 8015B		
WQCC 20NMAC 6.2.3103		0.01	0.75	0.75	0.62			
DATE	RW/MW	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylene mg/L	MTBE mg/L	DRO mg/L	GRO mg/L
Aug-05	TP-#1	1.4	0.049	3.8	23	<0.05	1.9	66
Apr-05		NR	NR	NR	NR	NR	NR	NR
Aug-05	TP-#2	61	8.7	42	25	<0.05	1.1	84
Apr-05		NR	NR	NR	NR	NR	NR	NR
Aug-05	TP-#3	,0.005	<0.005	<0.005	0.0012	<0.0025	<1.0	<0.05
Apr-05		NR	NR	NR	NR	NR	NR	NR
Aug-05	TP-#4	<0.01	<0.01	0.42	0.22	<0.05	1.1	8.2
Apr-05		NR	NR	NR	NR	NR	NR	NR
Aug-05	TP-#5	0.35	0.025	3.5	21	<0.05	1.2	56
Apr-05		NR	NR	NR	NR	NR	NR	NR
Aug-05	TP-#6	0.28	<0.01	2.8	7.5	<0.05	1	26
Apr-05		NR	NR	NR	NR	NR	NR	NR
Aug-05	TP-#7	<0.0005	<0.0005	0.00065	0.0049	<0.0025	<1.0	<0.05
Apr-05		NR	NR	NR	NR	NR	NR	NR
Aug-05	TP-#8	1.1	<0.05	3.2	25	<0.25	7.8	84
Apr-05		NR	NR	NR	NR	NR	NR	NR
Aug-05	TP-#9	<0.005	<0.001	<0.001	0.02	0.027	<1.0	1.1
Apr-05		0.003	0.005	0.007	0.022	<0.0025	<1.0	0.67
Aug-05	TP-#10	<0.0005	<0.0005	<0.0005	0.0025	<0.0025	<1.0	<0.05
Apr-05		<0.0005	<0.0005	<0.0005	0.00056	<0.0025	<1.0	<0.05
Aug-05	TP-#11	<0.0005	<0.0005	<0.0005	0.0028	<0.0025	<1.0	<0.05
Apr-05		0.0015	0.0016	<0.0005	0.0027	<0.0025	<1.0	0.082
Aug-05	TP-#12	<0.0005	<0.0005	0.00055	0.0042	0.0028	1	<0.05
Apr-05		0.00075	0.0008	<0.0005	0.001	<0.0025	<1.0	<0.05
Aug-05	TP-#13	<0.0005	<0.0005	<0.0005	0.0037	<0.0025	<1.0	<0.05
Apr-05		0.0023	0.0022	0.00056	0.0036	<0.0025	<1.0	<0.05
		EPA Method 8260B						
Aug-05	MW #48	0.62	0.026	2.5	9.9	<0.02	NR	NR
Apr-05		0.48	<0.025	1.7	7.5	<0.13	1.8	22
Aug-05	MW #49	0.093	<0.002	0.015	0.0041	<0.002	NR	NR
Apr-05		0.041	0.00068	0.015	0.024	<0.0025	<1.0	0.52
Aug-05	DW #1	<0.001	<0.001	<0.001	0.0031	<0.001	NR	NR
Apr-05		NM	NM	NM	NM	NM	NM	NM
Aug-05	DW #2	0.012	<0.01	1.1	<0.01	<0.01	NR	NR
Apr-05		NM	NM	NM	NM	NM	NM	NM

NR = Not Required

NM = Not Measured - Not Drilled Yet

River Terrace - Bioventing Wells

Soils Analysis

	EPA Method 8015B			EPA Method 8021B				ASTM 2216
Sample ID	Date Sampled	mg/KG DRO	mg/KG MRO	mg/KG GRO	mg/KG benzene	mg/KG toluene	mg/KG ethylbenzene	mg/KG total xylene	Percent Moisture
BV1-6	8/15/05	<12	<60	<6	<0.03	<0.03	<0.03	0.086	17
BV2-3	8/15/05	48	<59	1400	<1.5	4.4	12	360	16
BV2-10	8/15/05	<11	<55	7.6	<0.027	<0.027	0.11	0.82	8.9
BV3-7	8/15/05	<12	<60	<6	<0.03	<0.03	0.11	0.24	17
BV4-3	8/15/05	230	<55	3800	<1.4	31	49	840	9.6
BV5-6	8/15/05	27	<60	340	<0.6	<0.6	0.82	23	17
BV5-10	8/15/05	<12	<58	<5.8	<0.029	<0.029	0.18	103	14
BV6-3	8/15/05	250	<60	3400	<1.5	9.5	20	590	16
BV6-9	8/16/05	14	<61	64	0.054	0.24	1.1	11	18
BV7-3	8/17/05	250	<61	3400	<3.1	4.8	48	650	19
BV7-8	8/17/05	27	<59	650	<0.59	0.76	13	110	15
BV8-10	8/17/05	170	<59	5200	12	180	170	1100	15
BV8-13	8/17/05	34	<61	940	1.9	5.6	31	180	18
BV9-3	8/17/05	38	<51	420	<0.64	<0.64	5.8	56	2.3
BV9-8	8/17/05	<12	<62	16	0.13	0.036	0.77	2.9	19
BV10-3	8/16/05	240	<54	5400	<2.7	4.7	82	660	8
BV10-8	8/16/05	71	<62	1900	3	40	59	370	20
BV11-3	8/16/05	930	82	7400	<3.2	29	190	2200	22

River Terrace - Bioventing Wells

Soils Analysis

	EPA Method 8015B			EPA Method 8021B				ASTM 2216
Sample ID	Date Sampled	mg/KG DRO	mg/KG MRO	mg/KG GRO	mg/KG benzene	mg/KG toluene	mg/KG ethylbenzene	mg/KG total xylene	Percent Moisture
BV11-8	8/16/05	20	<62	310	<0.62	<0.62	6.4	18	19
BV12-3	8/16/05	110	<61	370	<0.61	<0.61	5.7	28	19
BV12-8	8/16/05	550	<59	11000	45	200	360	2100	15
BV13-7	8/16/05	490	73	2300	5.1	5.4	87	330	15

Tank #33 Summary

	mg/L	Date Sampled	Tk #33	Fresh Water Ponds	WQCC 20 NMAC 6.2.3103
EPA Method 8021B	Benzene	2/23/05	0.05	N/A	0.01
		3/7/05	0.038	<0.0005	
		4/27/05	0.0045	<0.0005	
		5/4/05	0.0018	<0.0005	
		6/8/05	0.0012	<0.0005	
		7/6/05	<0.0005	<0.0005	
		8/24/05	<0.0005	<0.0005	
		9/21/05	0.00084	<0.0005	
		10/19/05	0.00093	<0.0005	
		11/9/05	0.00061	<0.0005	
		12/5/05	<0.0005	<0.0005	
	Toluene	2/23/05	<0.005	N/A	0.75
		3/7/05	0.0043	<0.0005	
		4/27/05	<0.0005	<0.0005	
		5/4/05	<0.0005	<0.0005	
		6/8/05	<0.0005	<0.0005	
		7/6/05	<0.0005	<0.0005	
		8/24/05	<0.0005	<0.0005	
		9/21/05	<0.0005	<0.0005	
		10/19/05	<0.0005	<0.0005	
		11/9/05	<0.0005	<0.0005	
		12/5/05	<0.0005	<0.0005	
	EthylBen	2/23/05	0.02	N/A	0.75
		3/7/05	0.0079	<0.0005	
		4/27/05	0.0024	<0.0005	
		5/4/05	0.0011	<0.0005	
		6/8/05	0.00063	<0.0005	
		7/6/05	<0.0005	<0.0005	
		8/24/05	<0.0005	<0.0005	
		9/21/05	<0.0005	<0.0005	
		10/19/05	<0.0005	<0.0005	
		11/9/05	<0.0005	<0.0005	
		12/5/05	<0.0005	<0.0005	

Tank #33 Summary

	mg/L	Date Sampled	Tk #33	Fresh Water Ponds	WQCC 20 NMAC 6.2.3103
EPA Method 8021B	Xylene	2/23/05	0.022	N/A	0.62
		3/7/05	0.02	<0.0005	
		4/27/05	0.0024	<0.0005	
		5/4/05	0.0014	<0.0005	
		6/8/05	0.0013	<0.0005	
		7/6/05	<0.0005	<0.0005	
		8/24/05	<0.0005	<0.0005	
		9/21/05	<0.0005	<0.0005	
		10/19/05	<0.0005	<0.0005	
		11/9/05	<0.0005	<0.0005	
		12/5/05	<0.0005	<0.0005	

Section 10.0 List of Figures

Figure 1

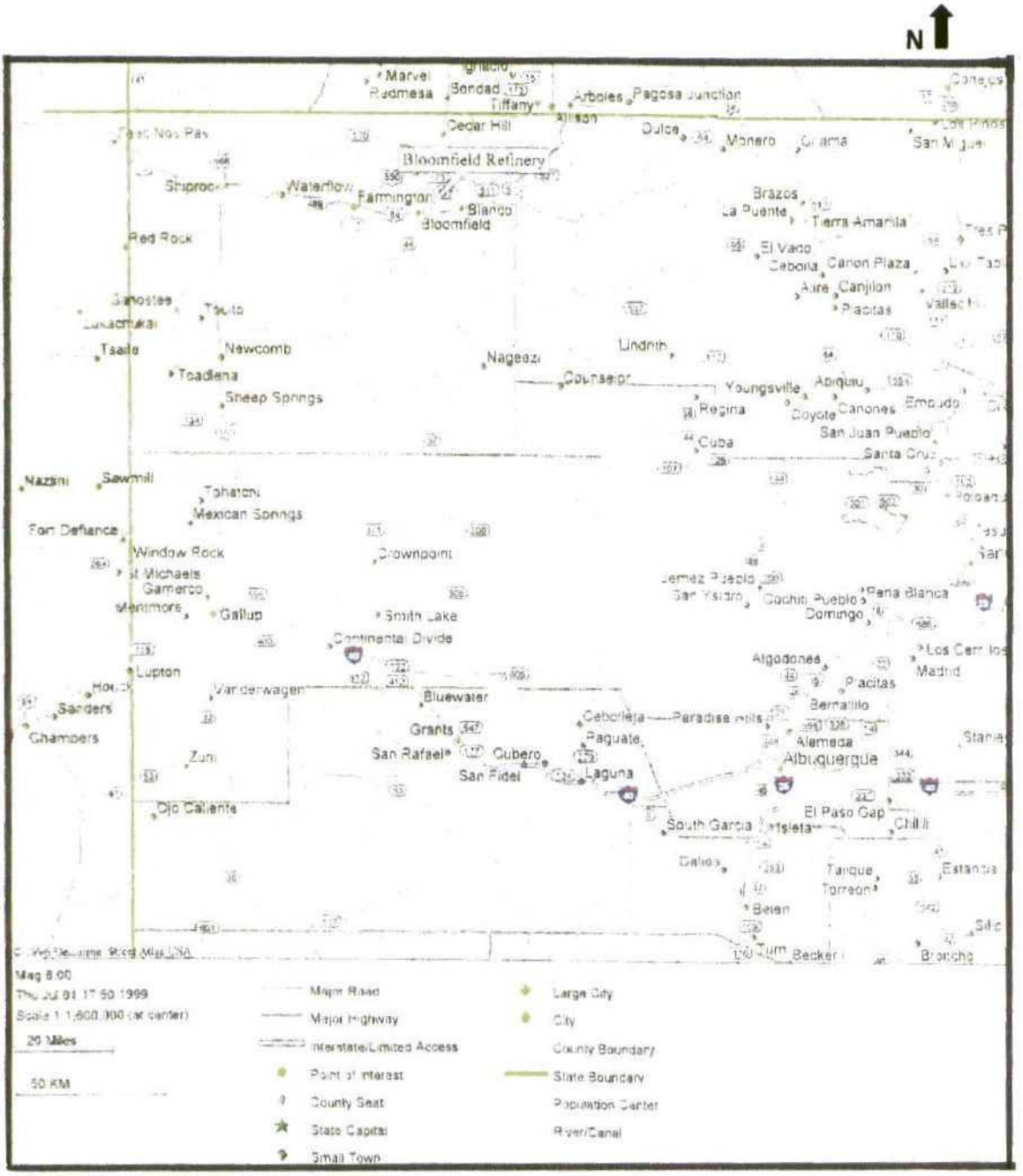

N
Bloomfield Refinery
Farmington
Bloomfield
Shiprock
Waterflow
Red Rock
Tsaile
Newcomb
Toadlena
Sheep Springs
Nazlini
Sawmill
Tohatchi
Mexican Springs
Fort Defiance
Window Rock
St Michaels
Gamerco
Gallup
Lupton
Sanders
Chambers
Vanderwagen
Bluewater
Grants
San Rafael
Cubero
San Fidel
Laguna
Paguate
Ceboleta
Paradise Hills
Alameda
Albuquerque
Bernalillo
Algodones
Placitas
Madrid
Los Cerrillos
Cochiti Pueblo
Domingo
Jemez Pueblo
San Ysidro
Cuba
Regina
Youngsville
Abiquiu
Coyote
Canones
Ojo Caliente
Zuni
Continental Divide
South Garcia
El Paso Gap
Chilili
Tijeras
Tajique
Torreon
Belen
Becker
Broncho
Estancia
Dulce
Monero
Arboles
Pagosa Junction
Cedar Hill
Tiffany
Marvel
Redmesa
Bondad
Ignacio
Allison
Brazos
La Puente
Tierra Amarilla
El Vado
Cebolla
Canon Plaza
Aure
Canjilon
Placitas
Lindrith
Nageezi
Counselor
Santa Cruz
San Juan Pueblo
Mag 8.00
Thu Jul 01 17:50:1999
Scale 1:1,600,000 (at center)
20 Miles
50 KM
Major Road
Major Highway
Interstate/Limited Access
Point of Interest
County Seat
State Capital
Small Town
Large City
City
County Boundary
State Boundary
Population Center
River/Canal

Figure 2

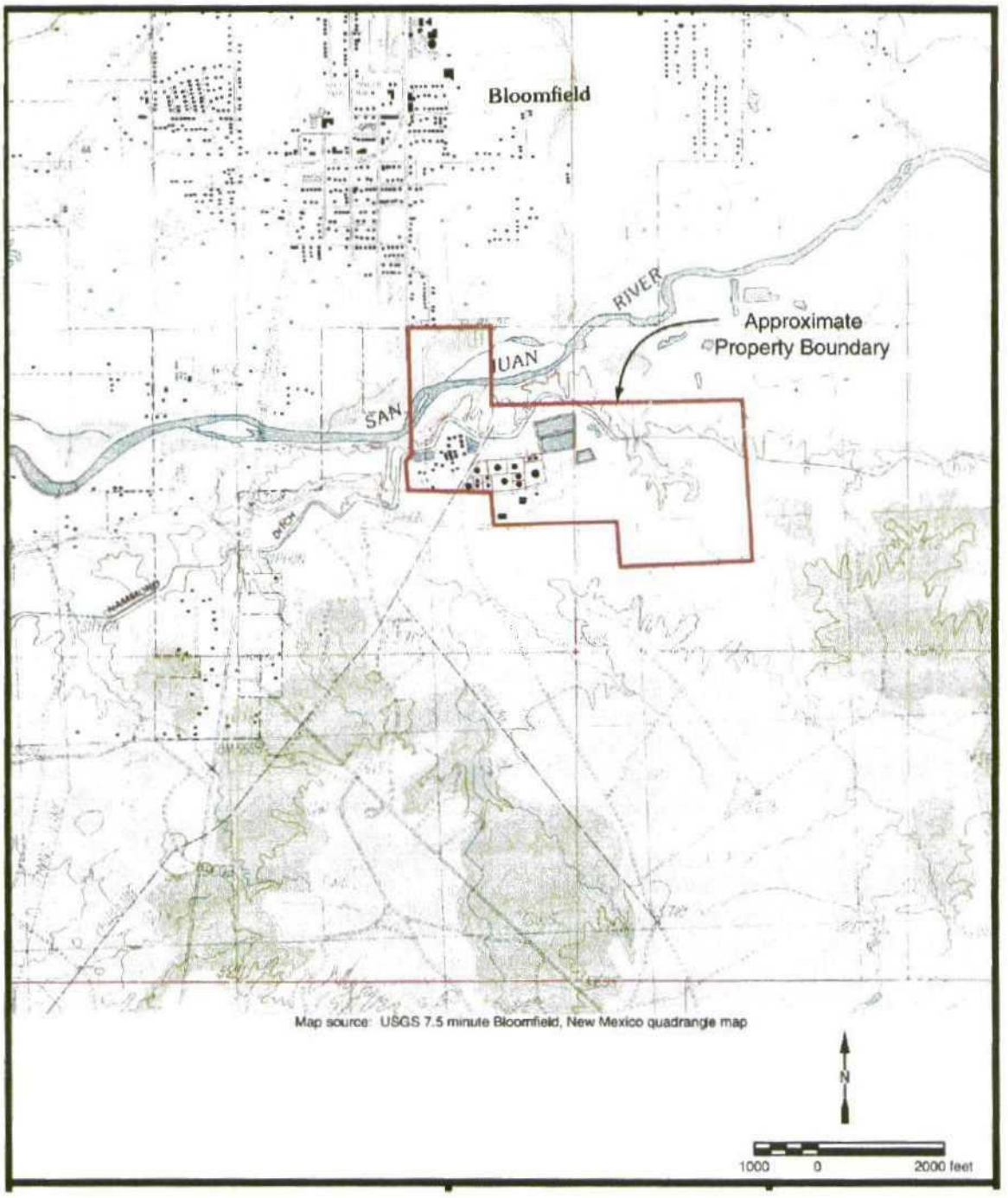

Bloomfield
RIVER
Approximate
Property Boundary
UAN
SAN
Map source: USGS 7.5 minute Bloomfield, New Mexico quadrangle map
N
1000
0
2000 feet

Figure 9

Giant Refining Company
Bloomfield Refinery

August 2005
Product Thickness

Scale: 1' = 200'

Contour Interval = 0.1'

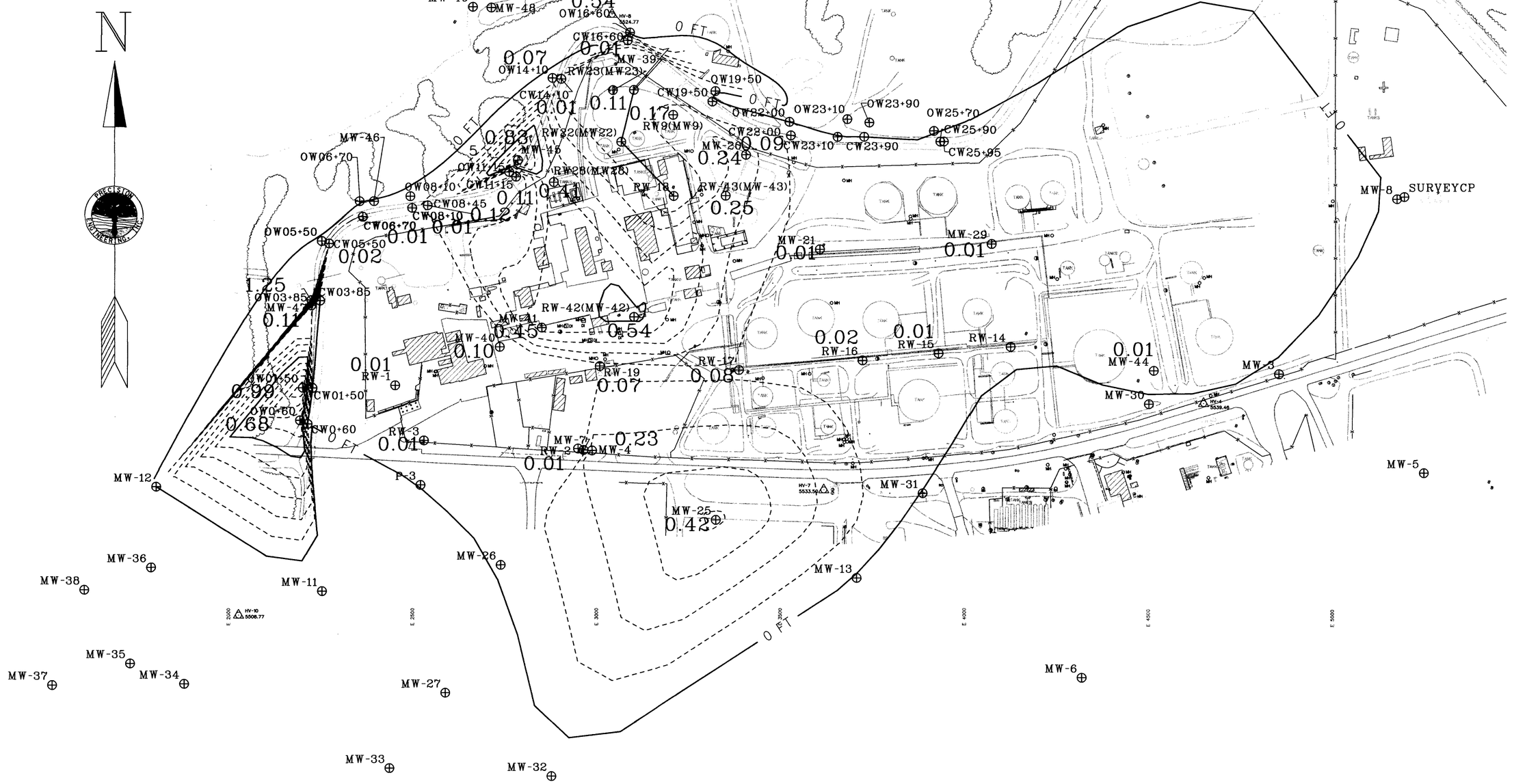


Figure 8

Giant Refining Company
Bloomfield Refinery
April 2005
Product Thickness

Contour Interval = 0.1'
Scale 1" = 200'

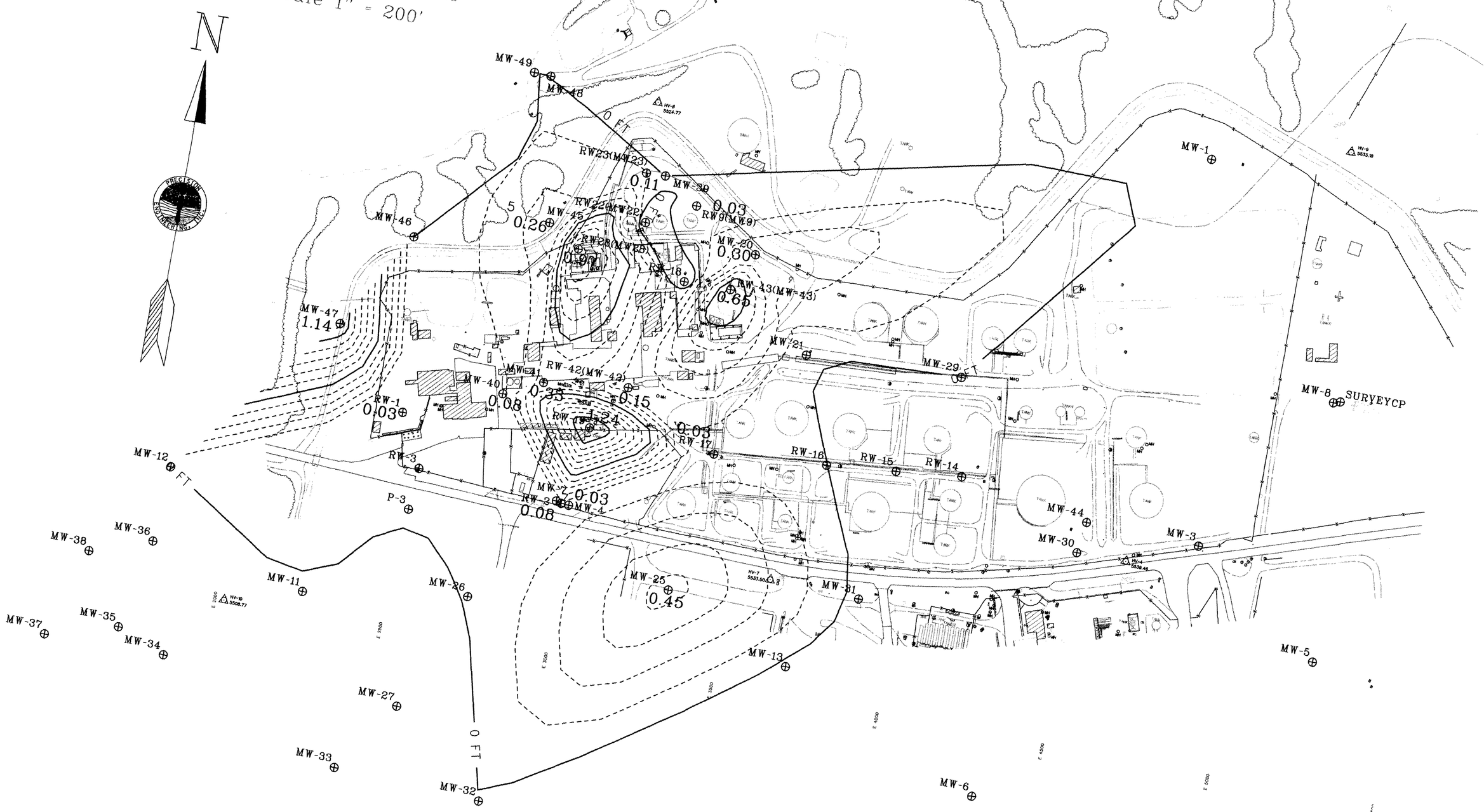
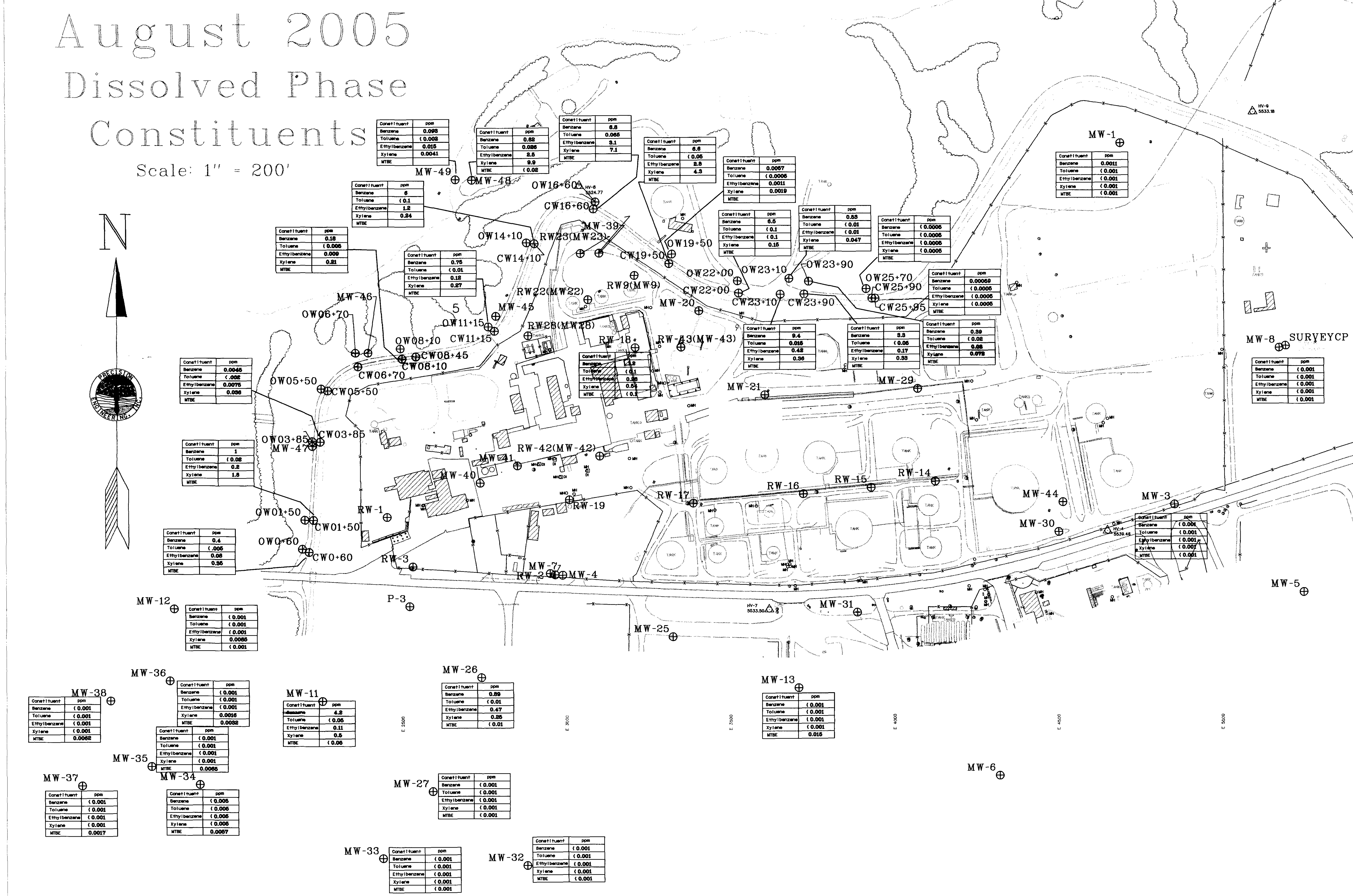


Figure 7

Giant Refining Company
Bloomfield Refinery

August 2005
Dissolved Phase Constituents

Scale: 1" = 200'



MW-49

Constituent	ppm
Benzene	0.093
Toluene	(0.002
Ethylbenzene	0.015
Xylene	0.0041
MTBE	

MW-48

Constituent	ppm
Benzene	0.62
Toluene	0.026
Ethylbenzene	2.5
Xylene	9.9
MTBE	(0.02

Constituent	ppm
Benzene	6.8
Toluene	0.065
Ethylbenzene	3.1
Xylene	7.1
MTBE	

Constituent	ppm
Benzene	6.6
Toluene	(0.05
Ethylbenzene	2.8
Xylene	4.3
MTBE	

Constituent	ppm
Benzene	0.0057
Toluene	(0.0005
Ethylbenzene	0.0011
Xylene	0.0019
MTBE	

Constituent	ppm
Benzene	6
Toluene	(0.1
Ethylbenzene	1.2
Xylene	0.24
MTBE	

Constituent	ppm
Benzene	0.18
Toluene	(0.005
Ethylbenzene	0.009
Xylene	0.21
MTBE	

Constituent	ppm
Benzene	0.75
Toluene	(0.01
Ethylbenzene	0.12
Xylene	0.27
MTBE	

Constituent	ppm
Benzene	6.5
Toluene	(0.1
Ethylbenzene	(0.1
Xylene	0.15
MTBE	

Constituent	ppm
Benzene	0.53
Toluene	(0.01
Ethylbenzene	(0.01
Xylene	0.047
MTBE	

Constituent	ppm
Benzene	(0.0005
Toluene	(0.0005
Ethylbenzene	(0.0005
Xylene	(0.0005
MTBE	

Constituent	ppm
Benzene	0.00059
Toluene	(0.0005
Ethylbenzene	(0.0005
Xylene	(0.0005
MTBE	

MW-1

Constituent	ppm
Benzene	0.0011
Toluene	(0.001
Ethylbenzene	(0.001
Xylene	(0.001
MTBE	(0.001

Constituent	ppm
Benzene	9.4
Toluene	0.015
Ethylbenzene	0.42
Xylene	0.36
MTBE	

Constituent	ppm
Benzene	3.3
Toluene	(0.05
Ethylbenzene	0.17
Xylene	0.33
MTBE	

Constituent	ppm
Benzene	0.39
Toluene	(0.02
Ethylbenzene	0.08
Xylene	0.072
MTBE	

Constituent	ppm
Benzene	1.2
Toluene	(0.1
Ethylbenzene	0.28
Xylene	0.54
MTBE	(0.1

Constituent	ppm
Benzene	0.0045
Toluene	(.002
Ethylbenzene	0.0075
Xylene	0.036
MTBE	

MW-8

Constituent	ppm
Benzene	(0.001
Toluene	(0.001
Ethylbenzene	(0.001
Xylene	(0.001
MTBE	(0.001

Constituent	ppm
Benzene	1
Toluene	(0.02
Ethylbenzene	0.2
Xylene	1.8
MTBE	

Constituent	ppm
Benzene	0.4
Toluene	(.005
Ethylbenzene	0.08
Xylene	0.35
MTBE	

MW-3

Constituent	ppm
Benzene	(0.001
Toluene	(0.001
Ethylbenzene	(0.001
Xylene	(0.001
MTBE	(0.001

MW-12

Constituent	ppm
Benzene	(0.001
Toluene	(0.001
Ethylbenzene	(0.001
Xylene	0.0065
MTBE	(0.001

MW-38

Constituent	ppm
Benzene	(0.001
Toluene	(0.001
Ethylbenzene	(0.001
Xylene	(0.001
MTBE	0.0062

MW-36

Constituent	ppm
Benzene	(0.001
Toluene	(0.001
Ethylbenzene	(0.001
Xylene	0.0016
MTBE	0.0032

MW-11

Constituent	ppm
Benzene	4.2
Toluene	(0.05
Ethylbenzene	0.11
Xylene	0.5
MTBE	(0.05

MW-26

Constituent	ppm
Benzene	0.89
Toluene	(0.01
Ethylbenzene	0.47
Xylene	0.25
MTBE	(0.01

MW-13

Constituent	ppm
Benzene	(0.001
Toluene	(0.001
Ethylbenzene	(0.001
Xylene	(0.001
MTBE	0.015

MW-35

Constituent	ppm
Benzene	(0.001
Toluene	(0.001
Ethylbenzene	(0.001
Xylene	(0.001
MTBE	0.0065

MW-37

Constituent	ppm
Benzene	(0.001
Toluene	(0.001
Ethylbenzene	(0.001
Xylene	(0.001
MTBE	0.0017

MW-34

Constituent	ppm
Benzene	(0.005
Toluene	(0.005
Ethylbenzene	(0.005
Xylene	(0.005
MTBE	0.0057

MW-27

Constituent	ppm
Benzene	(0.001
Toluene	(0.001
Ethylbenzene	(0.001
Xylene	(0.001
MTBE	(0.001

MW-33

Constituent	ppm
Benzene	(0.001
Toluene	(0.001
Ethylbenzene	(0.001
Xylene	(0.001
MTBE	(0.001

MW-32

Constituent	ppm
Benzene	(0.001
Toluene	(0.001
Ethylbenzene	(0.001
Xylene	(0.001
MTBE	(0.001

d:\win32app\ingr\insitu\bloomfield Apr. 12, 2006 11:10:18

Figure 6

Giant Refining Company
Bloomfield Refinery

April 2005

Dissolved Phase Constituents

Scale: 1" = 200'

N

PRECISION ENGINEERING, INC.

Constituent	ppm
Benzene	0.48
Toluene	< 0.025
Ethylbenzene	1.7
Xylene	7.5
MTBE	< 0.13

MW-49 MW-48

Constituent	ppm
Benzene	0.041
Toluene	0.00068
Ethylbenzene	0.015
Xylene	0.024
MTBE	< 0.0085

HV-8 5524.77

Constituent	ppm
Benzene	0.52
Toluene	0.057
Ethylbenzene	1.3
Xylene	1.5
MTBE	< 0.05

MW-39

RW23(MW23)

RW9(MW9)

Constituent	ppm
Benzene	9.8
Toluene	0.083
Ethylbenzene	1.8
Xylene	7.9
MTBE	9.6

RW22(MW22)

MW-45

MW-20

RW28(MW28)

RW-18

RW-43(MW-43)

Constituent	ppm
Benzene	0.92
Toluene	0.16
Ethylbenzene	0.54
Xylene	1.1
MTBE	8.9

MW-46

MW-47

RW-42(MW-42)

MW-21

MW-40

RW-1

RW-19

RW-17

RW-3

MW-7

RW-2

MW-4

P-3

MW-25

MW-12

Constituent	ppm
Benzene	< 0.0005
Toluene	< 0.0005
Ethylbenzene	< 0.0005
Xylene	0.00072
MTBE	< 0.0025

MW-36

Constituent	ppm
Benzene	< 0.0005
Toluene	< 0.0005
Ethylbenzene	< 0.0005
Xylene	0.0019
MTBE	< 0.0025

MW-38

Constituent	ppm
Benzene	< 0.0005
Toluene	< 0.0005
Ethylbenzene	< 0.0005
Xylene	0.0015
MTBE	0.0071

MW-35

Constituent	ppm
Benzene	< 0.0025
Toluene	< 0.0025
Ethylbenzene	< 0.0025
Xylene	0.0026
MTBE	< 0.013

MW-37

Constituent	ppm
Benzene	< 0.0025
Toluene	< 0.0025
Ethylbenzene	< 0.0025
Xylene	< 0.0025
MTBE	0.0071

MW-34

Constituent	ppm
Benzene	< 0.0025
Toluene	0.024
Ethylbenzene	0.0041
Xylene	0.0039
MTBE	< 0.013

MW-11

Constituent	ppm
Benzene	0.4
Toluene	<0.02
Ethylbenzene	<0.02
Xylene	0.28
MTBE	< 0.1

MW-26

Constituent	ppm
Benzene	1.3
Toluene	< 0.02
Ethylbenzene	0.44
Xylene	0.45
MTBE	< 0.1

MW-27

Constituent	ppm
Benzene	< 0.0005
Toluene	< 0.0005
Ethylbenzene	< 0.0005
Xylene	0.001
MTBE	< 0.0025

MW-33

Constituent	ppm
Benzene	< 0.0005
Toluene	< 0.0005
Ethylbenzene	< 0.0005
Xylene	< 0.0005
MTBE	< 0.0025

MW-32

Constituent	ppm
Benzene	< 0.0005
Toluene	< 0.0005
Ethylbenzene	< 0.0005
Xylene	< 0.0005
MTBE	< 0.0025

MW-13

Constituent	ppm
Benzene	< 0.0005
Toluene	< 0.0005
Ethylbenzene	< 0.0005
Xylene	< 0.0005
MTBE	0.014

MW-6

MW-1

Constituent	ppm
Benzene	0.0013
Toluene	< 0.0005
Ethylbenzene	< 0.0005
Xylene	0.0011
MTBE	< 0.0025

HV-9 5533.18

MW-8 SURVEYCP

Constituent	ppm
Benzene	0.0063
Toluene	< 0.005
Ethylbenzene	< 0.005
Xylene	0.00083
MTBE	< 0.0025

MW-21

Constituent	ppm
Benzene	0.13
Toluene	< 0.0025
Ethylbenzene	0.025
Xylene	0.028
MTBE	0.041

MW-29

Constituent	ppm
Benzene	< 0.0005
Toluene	< 0.0005
Ethylbenzene	< 0.0005
Xylene	< 0.0005
MTBE	0.0037

MW-44

Constituent	ppm
Benzene	< 0.0005
Toluene	< 0.0005
Ethylbenzene	< 0.0005
Xylene	< 0.0005
MTBE	0.0041

MW-3

Constituent	ppm
Benzene	< 0.0005
Toluene	< 0.0005
Ethylbenzene	< 0.0005
Xylene	< 0.0005
MTBE	< 0.0025

MW-30

Constituent	ppm
Benzene	5.7
Toluene	3.7
Ethylbenzene	4.4
Xylene	12
MTBE	< 0.1

MW-5

RW-16

Constituent	ppm
Benzene	1.8
Toluene	< 0.025
Ethylbenzene	0.17
Xylene	0.12
MTBE	< 0.13

RW-15

Constituent	ppm
Benzene	9
Toluene	11
Ethylbenzene	2.6
Xylene	19
MTBE	< 0.1

RW-14

Constituent	ppm
Benzene	1.7
Toluene	15
Ethylbenzene	3.4
Xylene	20
MTBE	< 0.5

HV-7 5533.50

MW-31

Constituent	ppm
Benzene	2.6
Toluene	0.062
Ethylbenzene	0.45
Xylene	1.2
MTBE	< 0.25

HV-4 5539.46

E 2500 E 3000 E 3500 E 4000 E 4500 E 5000

Figure 5

Giant Refining Company
Bloomfield Refinery
August 2005
Groundwater Elevation
Flow Direction

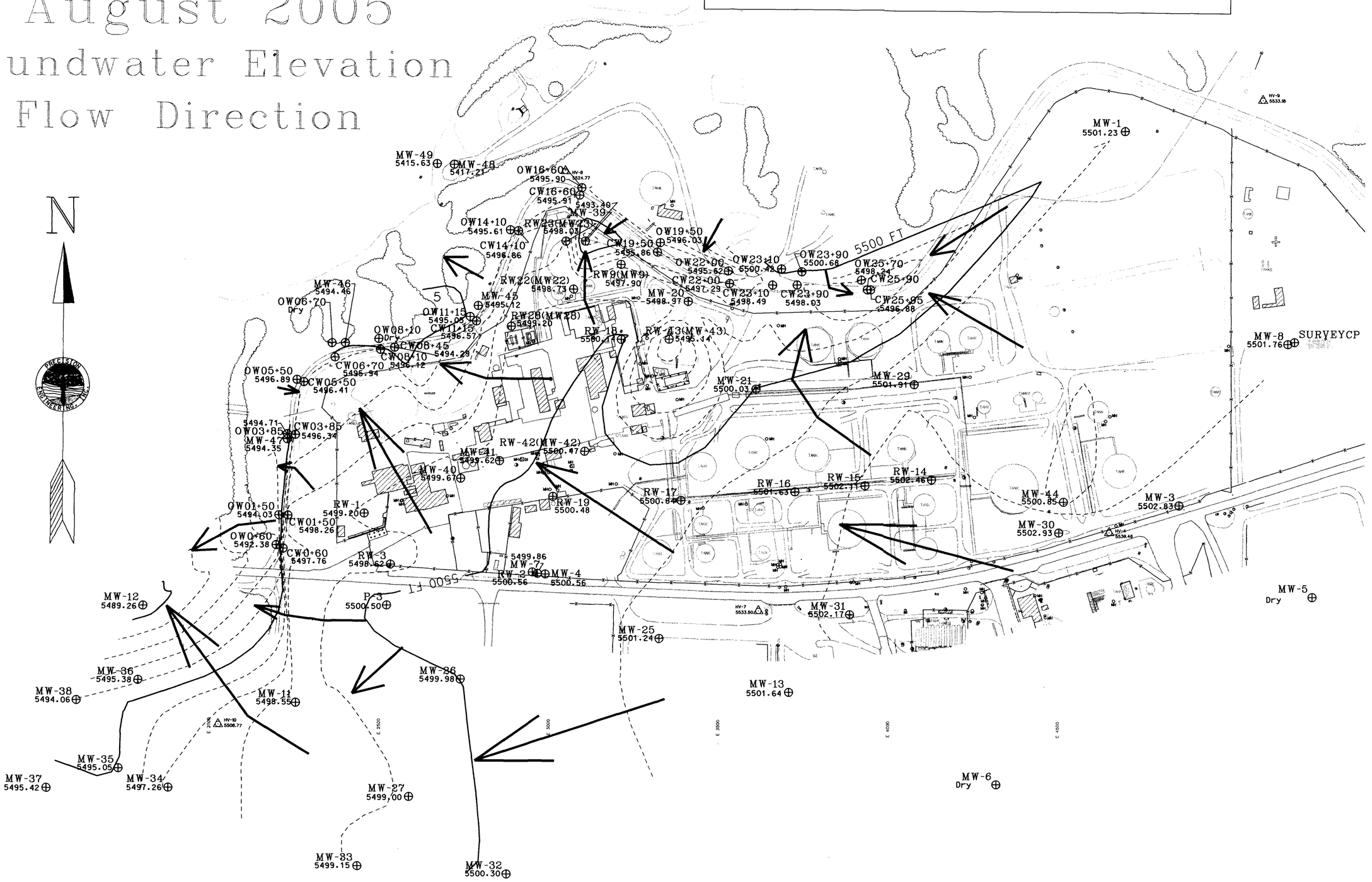
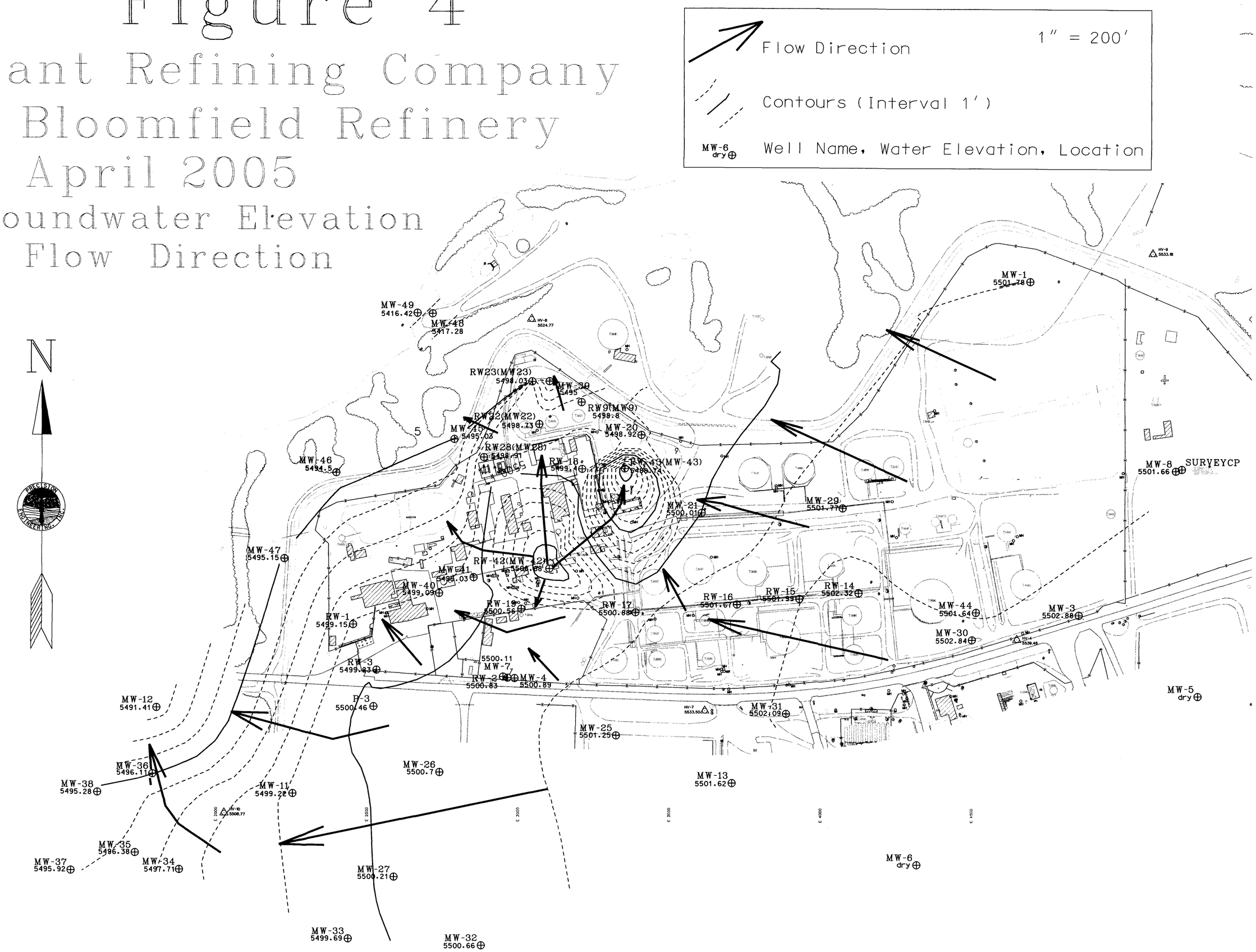
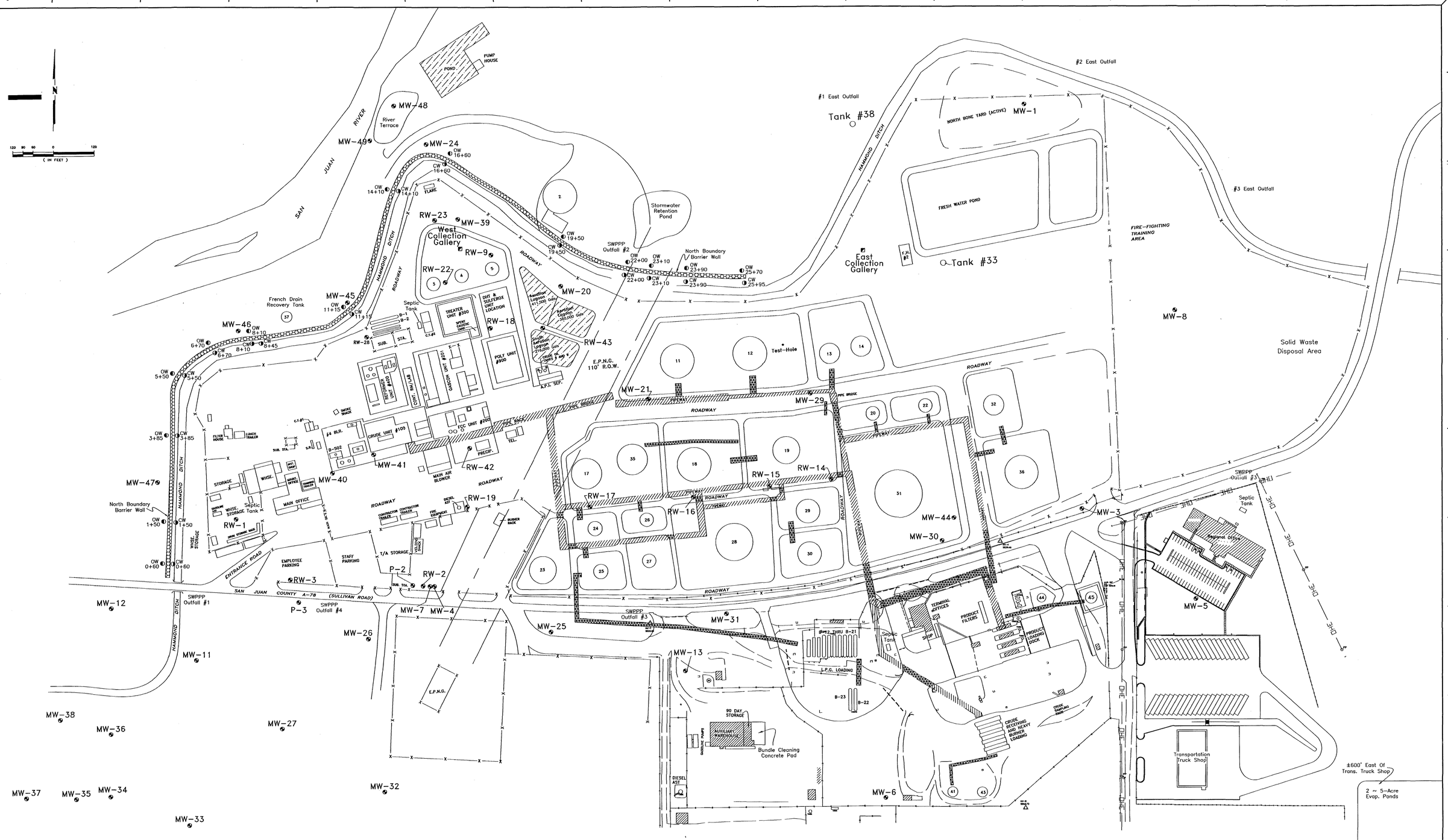


Figure 4

Giant Refining Company
Bloomfield Refinery
April 2005
Groundwater Elevation
Flow Direction





NOTES "MW-XX" – Monitoring Wells Locations
"RW-XX" – Recovery Well Locations
"P" – Piezometer
– Denotes Under Ground Pipe-Way.
– Denotes Above Ground Pipe-Way.
– Denotes Slurry Barrier Wall
"CW" – Collection Well Locations
"OW" – Observation Well Locations

REFERENCE DWGS.

NO.	REVISION	JOB No.	DRAWN	CHECKED	APPROVED
8	Revised To Indicate Tanks 24 & 25 Addition.		NHB 3/06		
7	Observation, & Collection Wells Added As Per Enviro. Dept. Mark-Ups.		NHB 12/05		
6	Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups.		NHB 7/05		
5	Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups.		NHB 3/05		
4	Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups.		NHB 2/04		
3	Updated To Indicate Under Ground Pipe Ways In The Tank Farm Area		NHB 12/03		
2	Updated As Per Enviromental Dept. Mark-Up. (C. Hurtado)		NHB 5/03		
1	Updated As Per Enviromental Dept. Mark Up		BY DATE	BY DATE	BY DATE

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

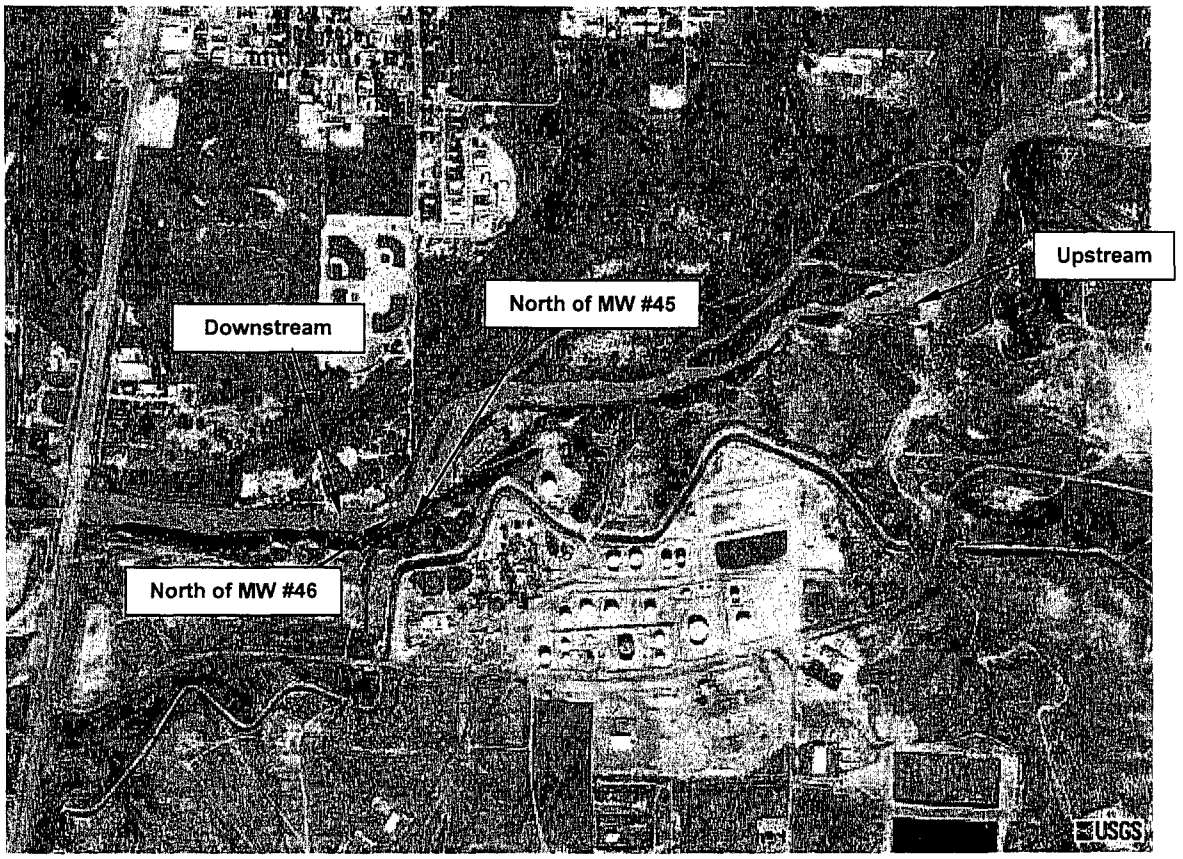
Giant Bloomfield Refinery Area Plot Plan Recovery Well & Monitoring Well Locations

GIANT REFINING CO.
BLOOMFIELD REFINERY — BLOOMFIELD NEW MEXICO

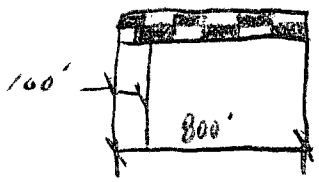
DWG. NO. D-000-900-023 — REV. 8

Figure 10

N



Scale 1" = 800'



San Juan River Sampling Points

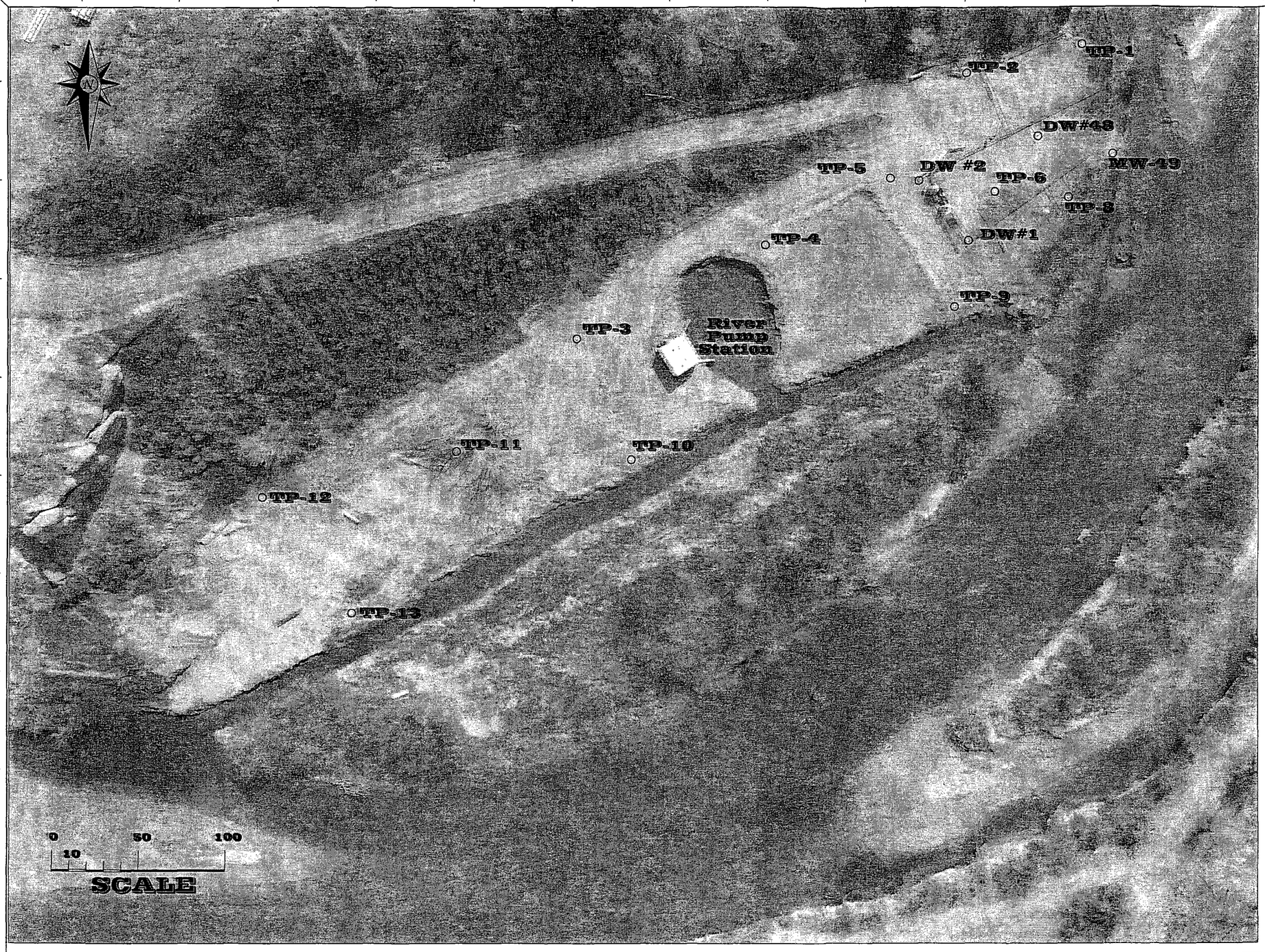


FIGURE 11

NOTES

REFERENCE DWGS.	NO.	REVISION	JOB No.	BY	DATE	BY	DATE	BY	DATE
				DRAWN		CHECKED		APPROVED	

SCALE	NONE
DRAWN BY	LDB
DATE	3/20/06
INITIAL CHK.	
FINAL CHK.	
ENGR.	
APPR. BY	
AFE/WO No.	NONE

GIANT REFINING INC.
BLOOMFIELD FACILITY
RIVER TERRACE PROJECT
TP WELL LOCATIONS PLOT

GIANT REFINING CO.
BLOOMFIELD REFINERY
BLOOMFIELD NEW MEXICO

DWG. NO. B-500-900-022
REV. 0

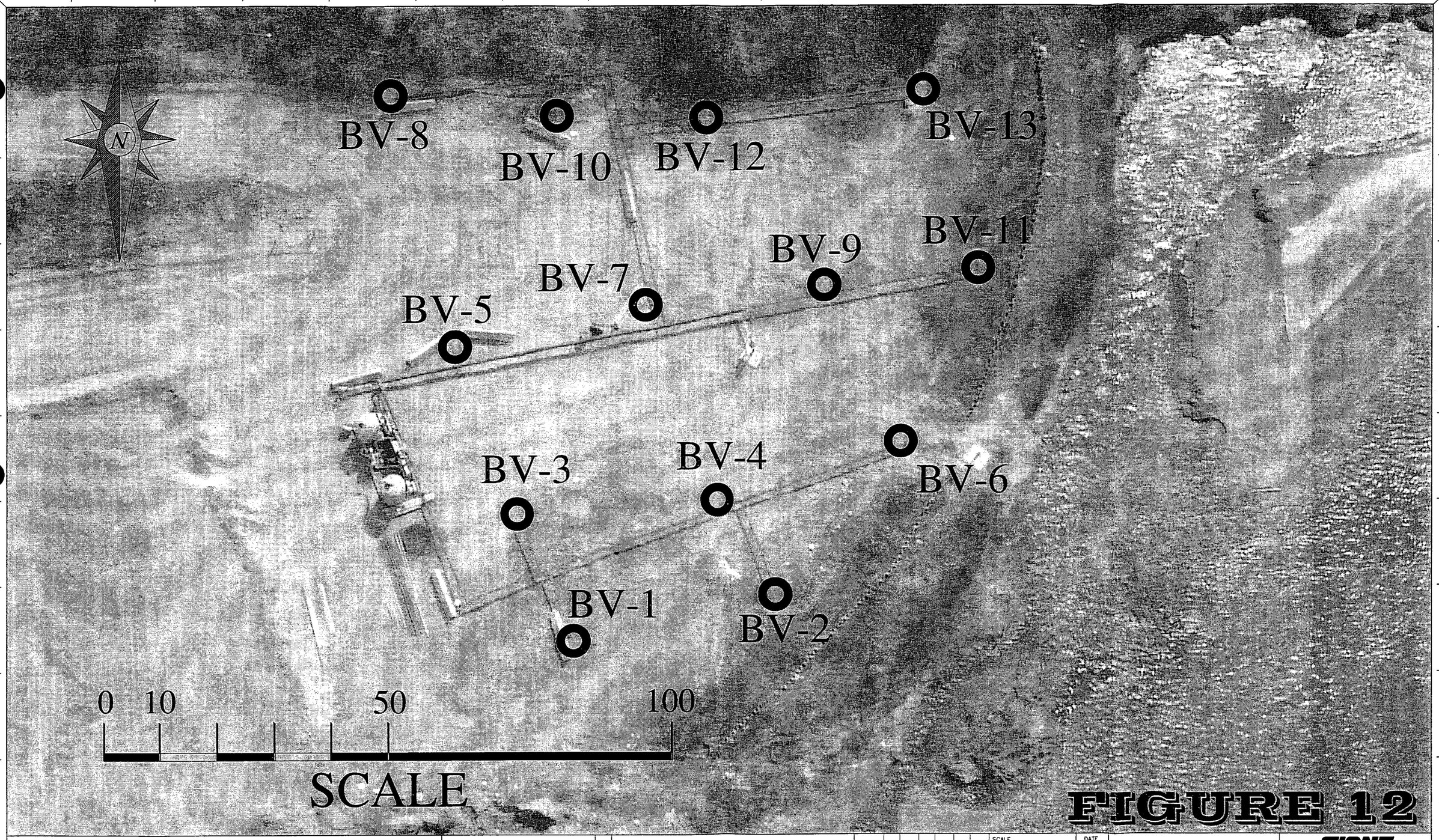


FIGURE 12

NOTES

REFERENCE DWGS.	NO.	REVISION	BY	DATE	BY	DATE	BY	DATE
			JOB No.	DRAWN		CHECKED		APPROVED

SCALE	DATE
DRAWN BY LDB	3-21-06
INITIAL CHK.	
FINAL CHK.	
ENGR.	
APPR. BY	
AFE/WO No.	

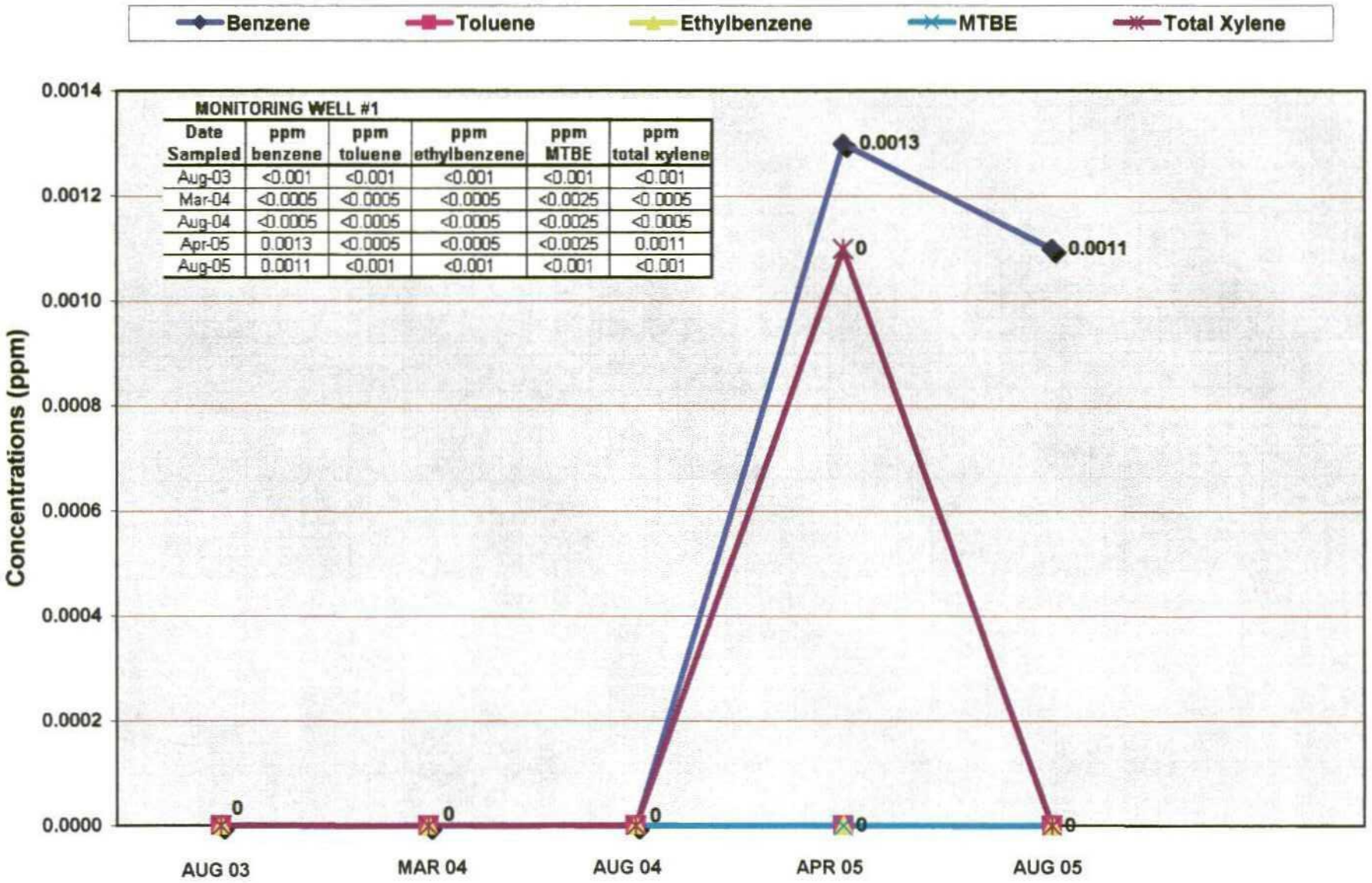
GIANT REFINING INC.
BLOOMFIELD FACILITY
RIVER TERRACE PROJECT
BIOVENT WELL LOCATION PLOT

GIANT REFINING CO.
BLOOMFIELD REFINERY — BLOOMFIELD NEW MEXICO

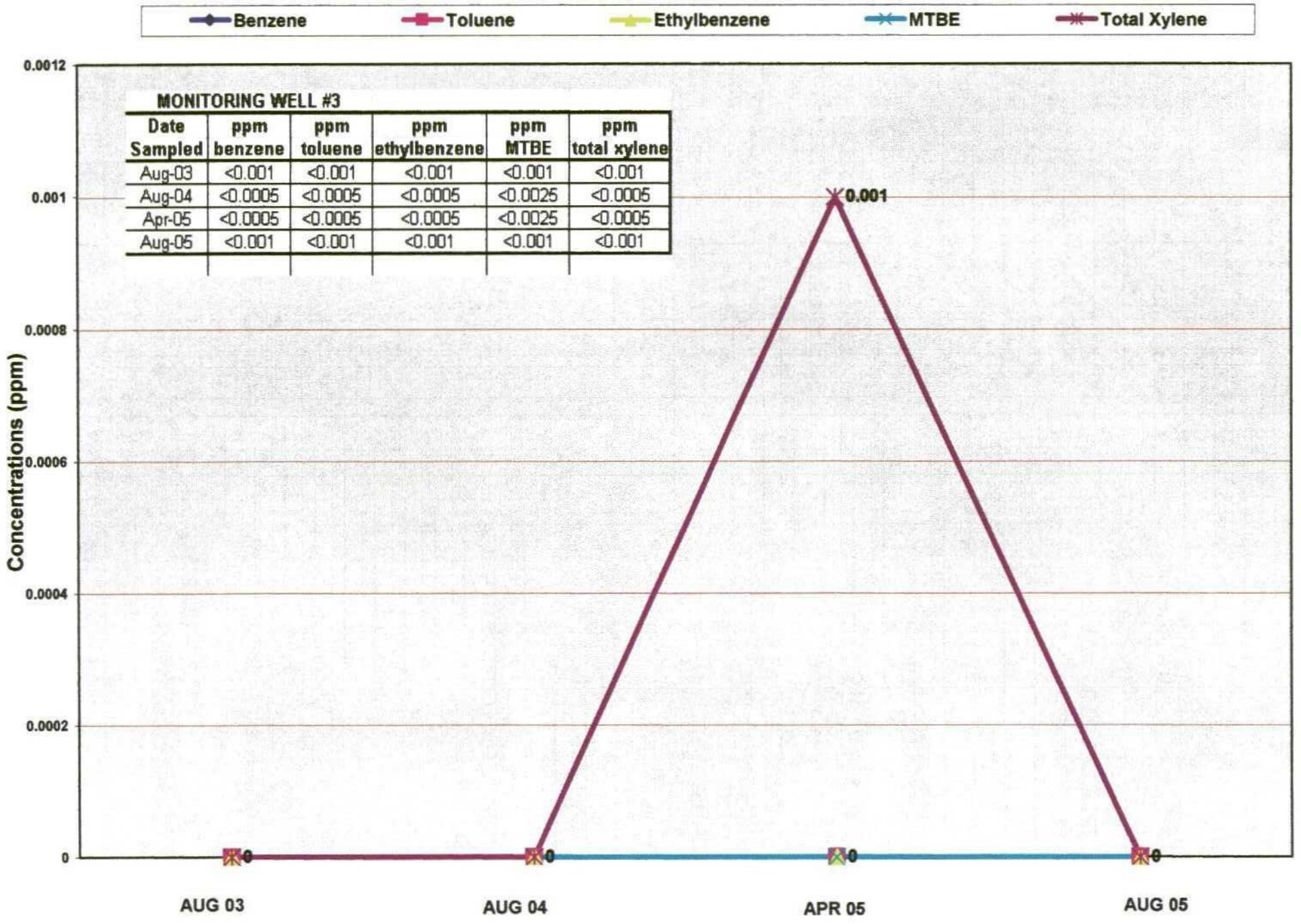
DWG. NO. B-500-900-023 — REV. 0

Section 11.0 BTEX & MTBE Concentration vs Time

Monitoring Well #1



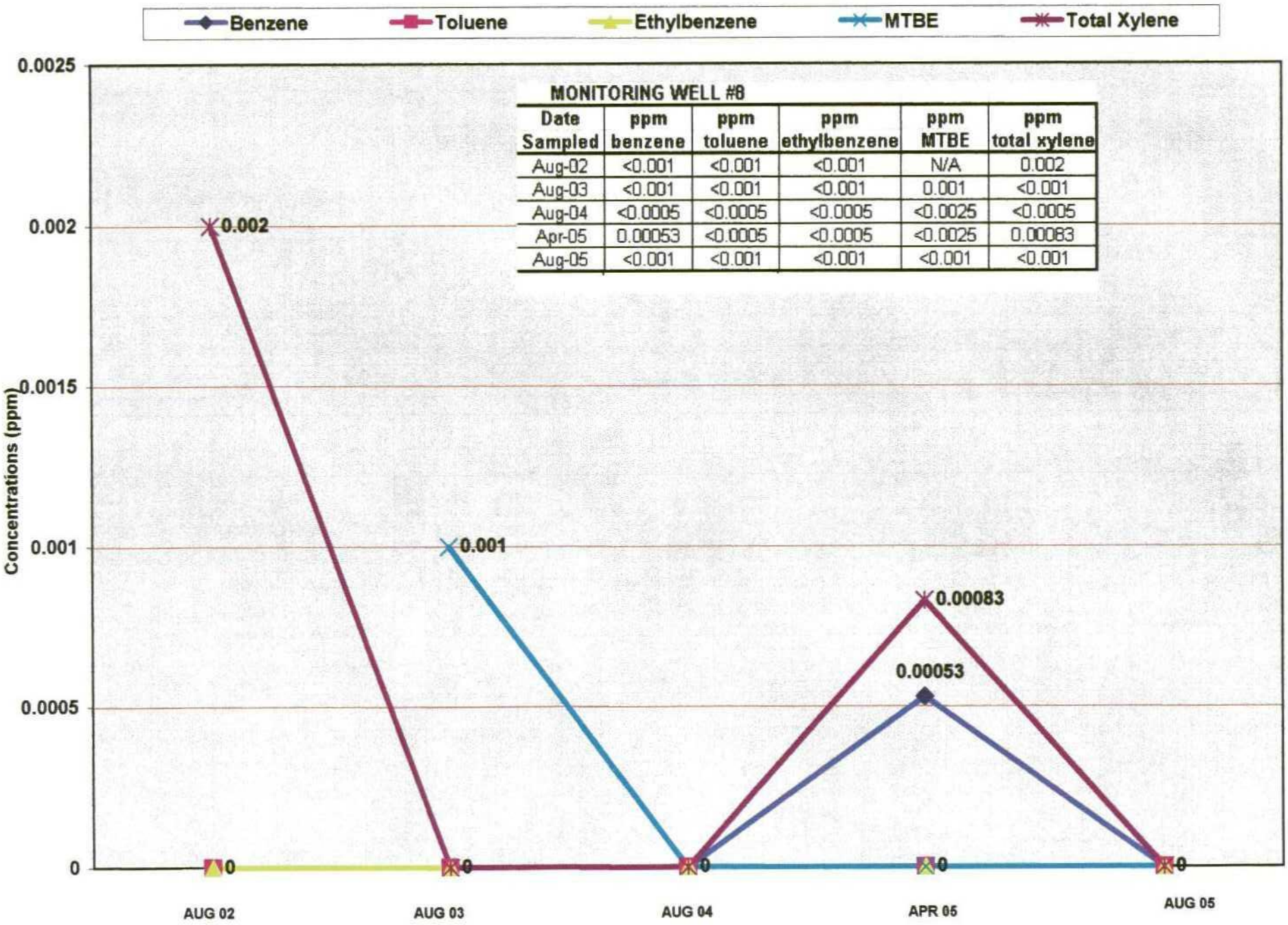
Monitoring Well #3



MONITORING WELL #3

Date Sampled	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Aug-03	<0.001	<0.001	<0.001	<0.001	<0.001
Aug-04	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005
Apr-05	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005
Aug-05	<0.001	<0.001	<0.001	<0.001	<0.001

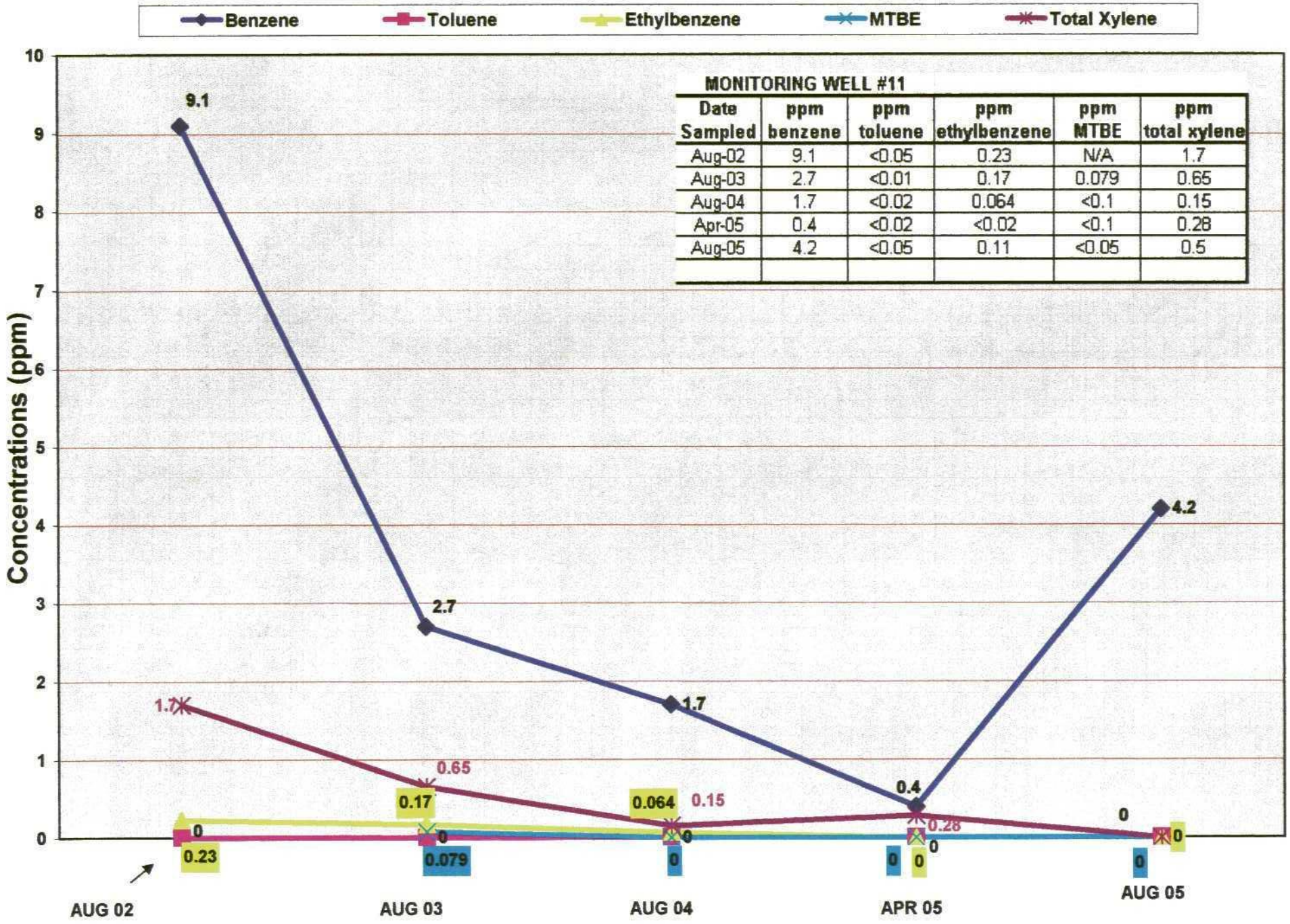
Monitoring Well #8



MONITORING WELL #8

Date Sampled	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Aug-02	<0.001	<0.001	<0.001	N/A	0.002
Aug-03	<0.001	<0.001	<0.001	0.001	<0.001
Aug-04	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005
Apr-05	0.00053	<0.0005	<0.0005	<0.0025	0.00083
Aug-05	<0.001	<0.001	<0.001	<0.001	<0.001

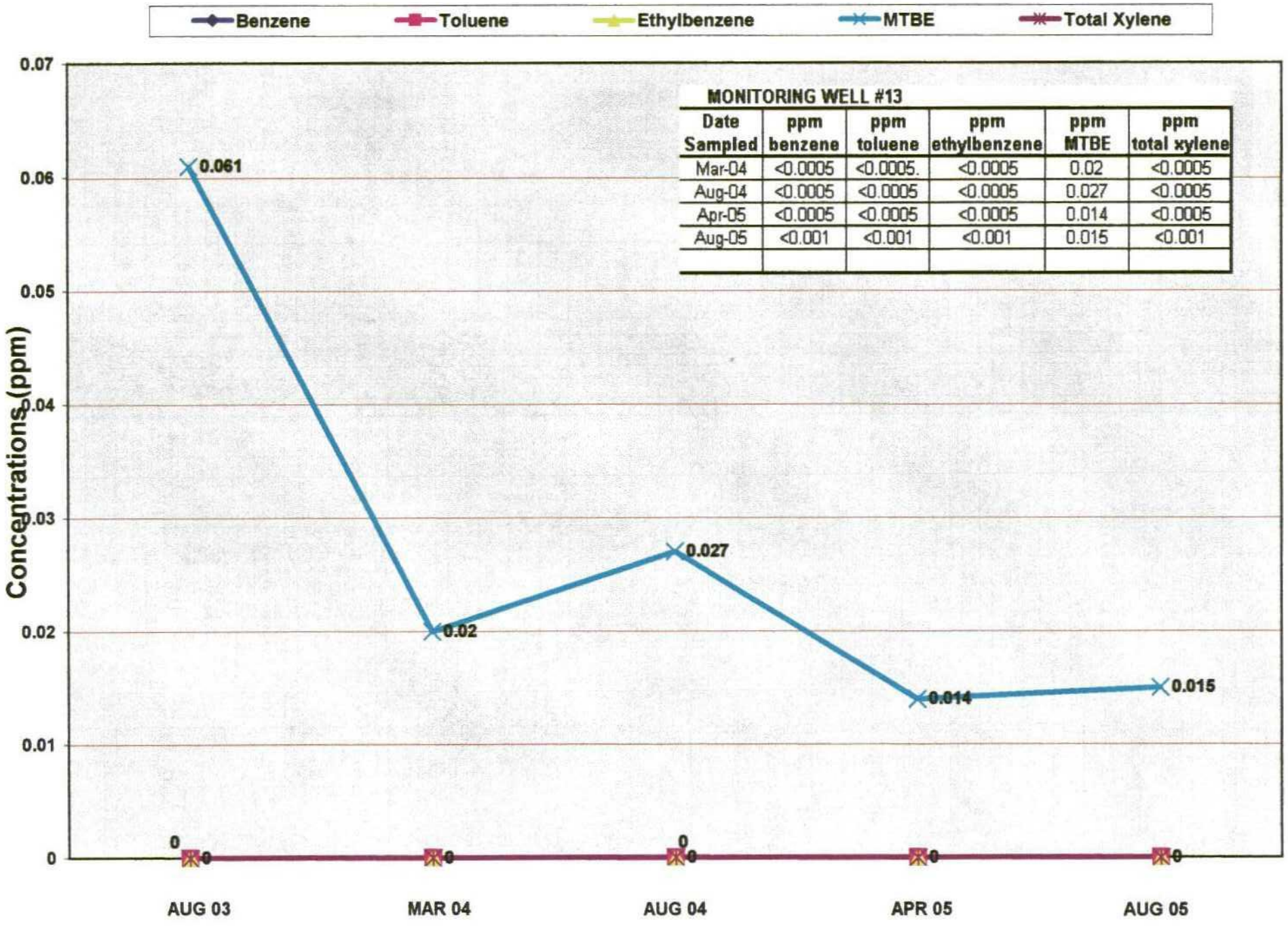
Monitoring Well #11



MONITORING WELL #11

Date Sampled	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Aug-02	9.1	<0.05	0.23	N/A	1.7
Aug-03	2.7	<0.01	0.17	0.079	0.65
Aug-04	1.7	<0.02	0.064	<0.1	0.15
Apr-05	0.4	<0.02	<0.02	<0.1	0.28
Aug-05	4.2	<0.05	0.11	<0.05	0.5

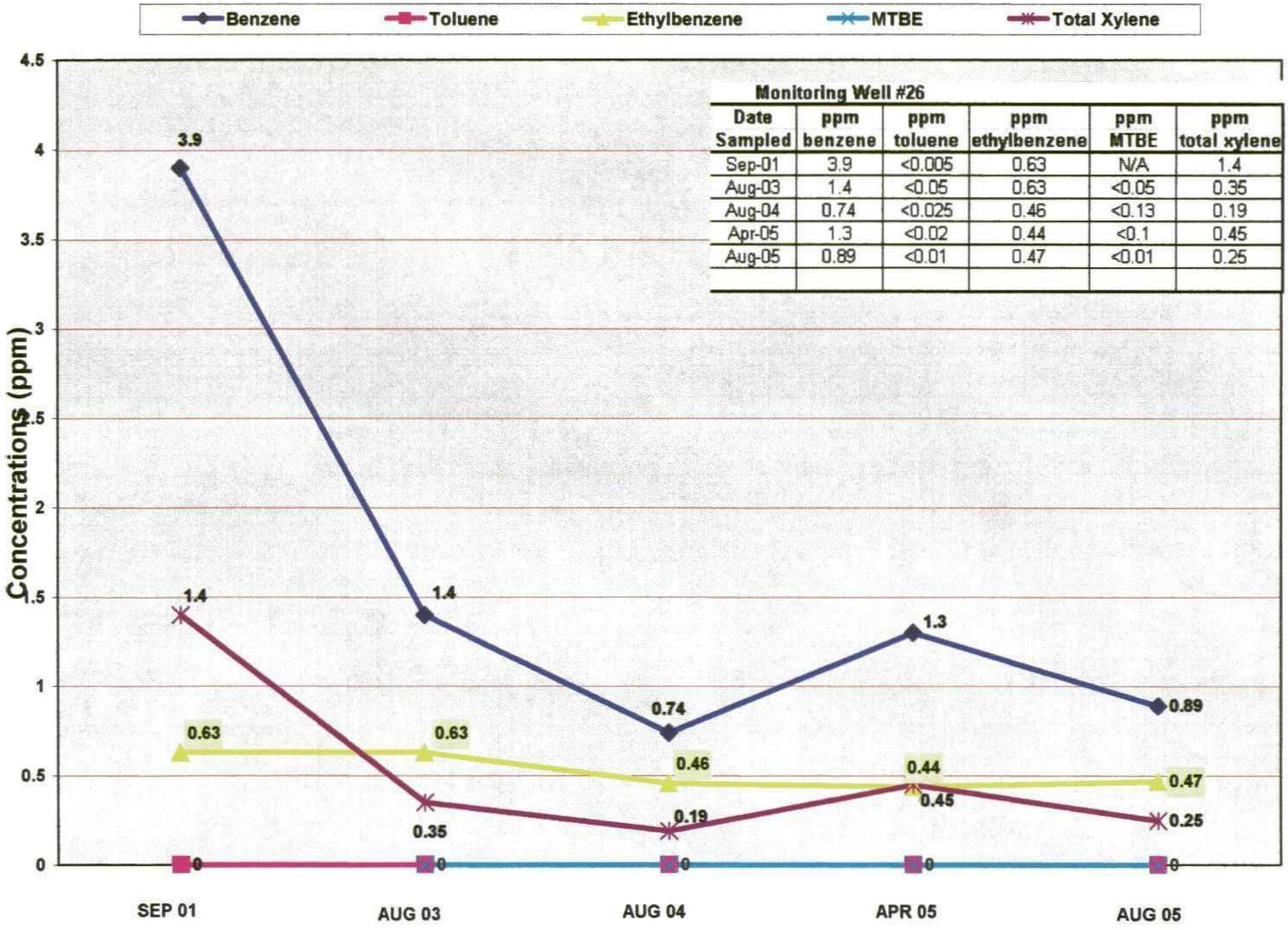
Monitoring Well #13



MONITORING WELL #13

Date Sampled	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Mar-04	<0.0005	<0.0005.	<0.0005	0.02	<0.0005
Aug-04	<0.0005	<0.0005	<0.0005	0.027	<0.0005
Apr-05	<0.0005	<0.0005	<0.0005	0.014	<0.0005
Aug-05	<0.001	<0.001	<0.001	0.015	<0.001

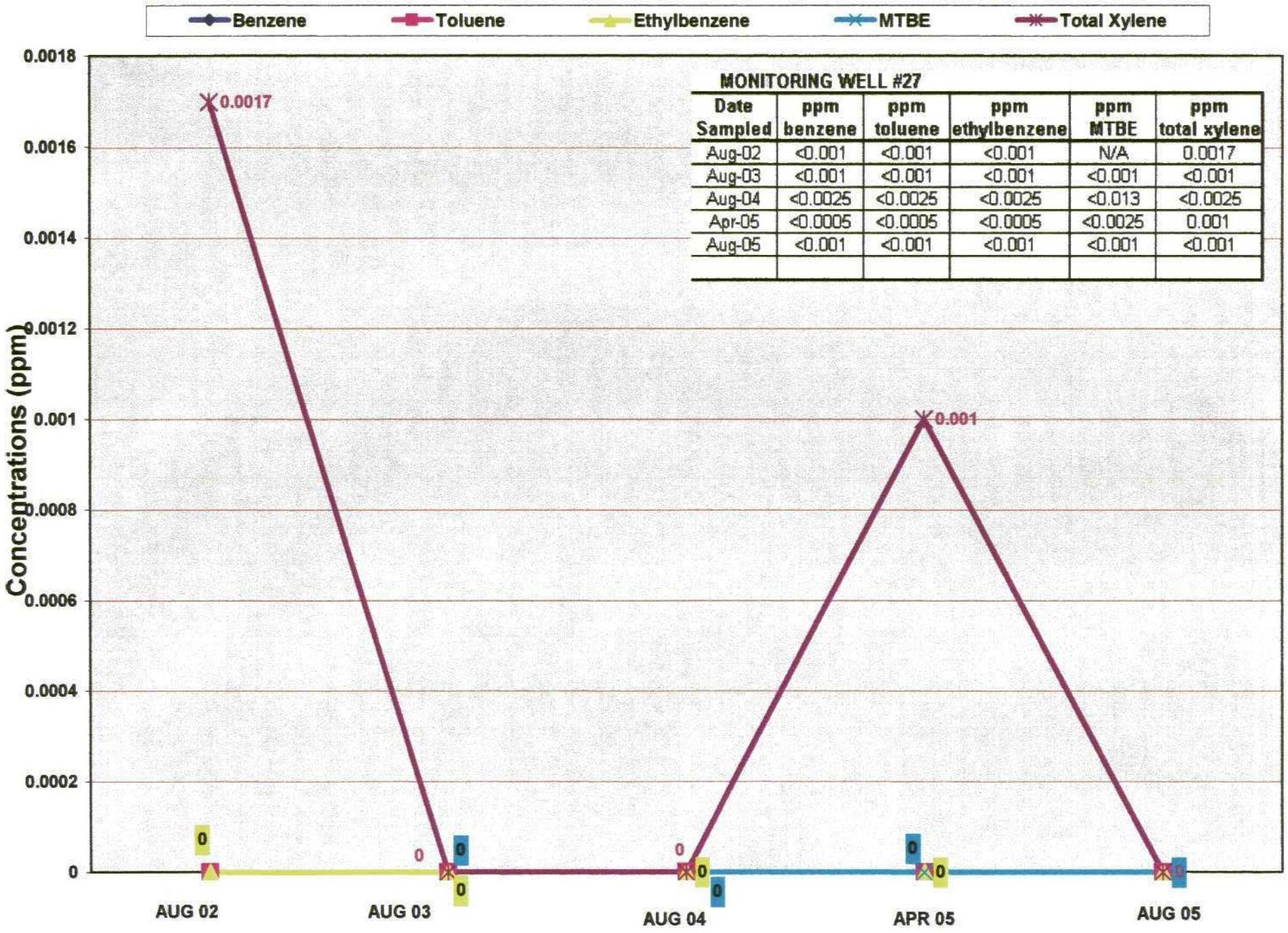
Monitoring Well #26



Monitoring Well #26

Date Sampled	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Sep-01	3.9	<0.005	0.63	N/A	1.4
Aug-03	1.4	<0.05	0.63	<0.05	0.35
Aug-04	0.74	<0.025	0.46	<0.13	0.19
Apr-05	1.3	<0.02	0.44	<0.1	0.45
Aug-05	0.89	<0.01	0.47	<0.01	0.25

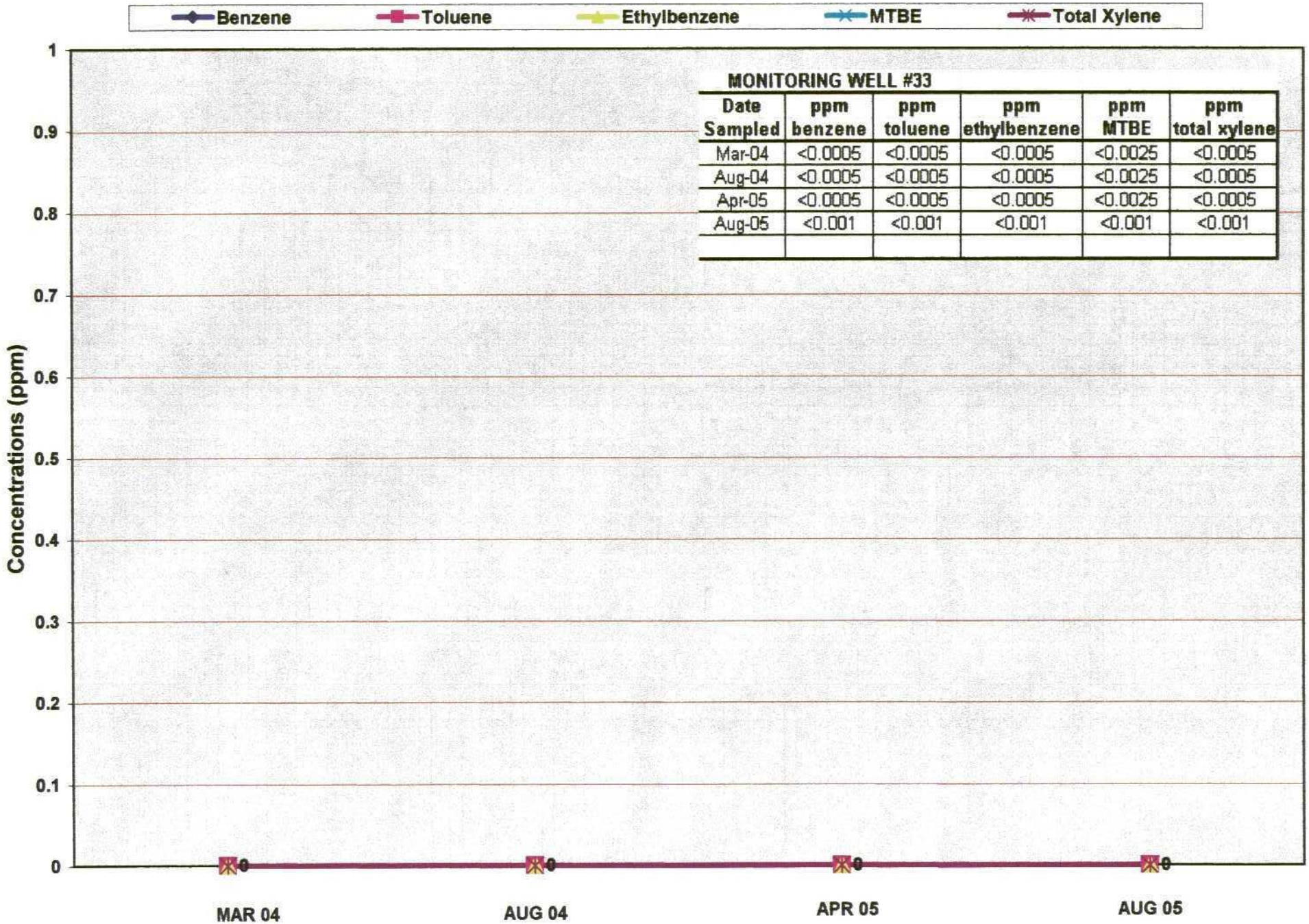
Monitoring Well #27



MONITORING WELL #27

Date Sampled	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Aug-02	<0.001	<0.001	<0.001	N/A	0.0017
Aug-03	<0.001	<0.001	<0.001	<0.001	<0.001
Aug-04	<0.0025	<0.0025	<0.0025	<0.013	<0.0025
Apr-05	<0.0005	<0.0005	<0.0005	<0.0025	0.001
Aug-05	<0.001	<0.001	<0.001	<0.001	<0.001

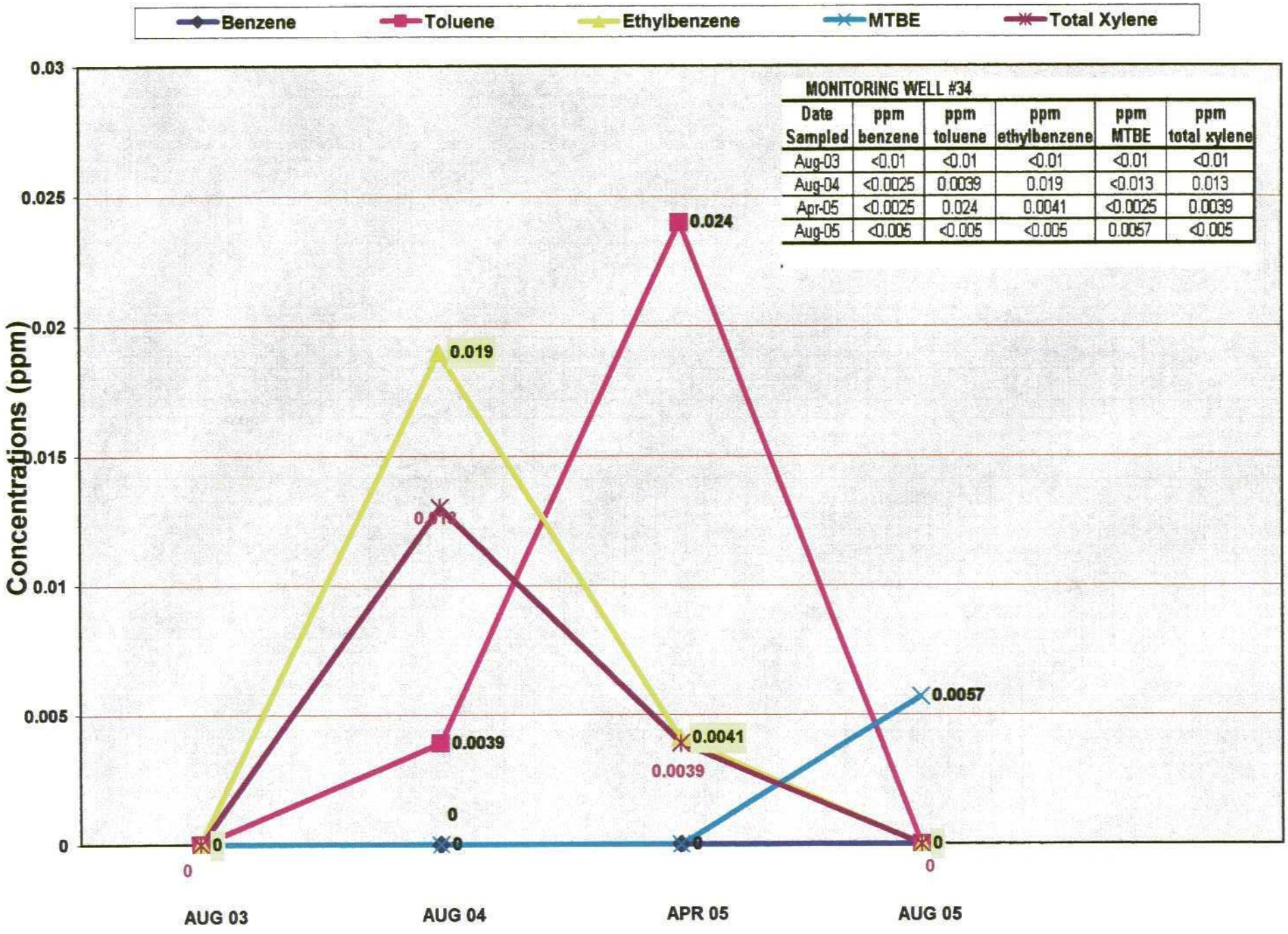
Monitoring Well #33



MONITORING WELL #33

Date Sampled	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Mar-04	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005
Aug-04	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005
Apr-05	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005
Aug-05	<0.001	<0.001	<0.001	<0.001	<0.001

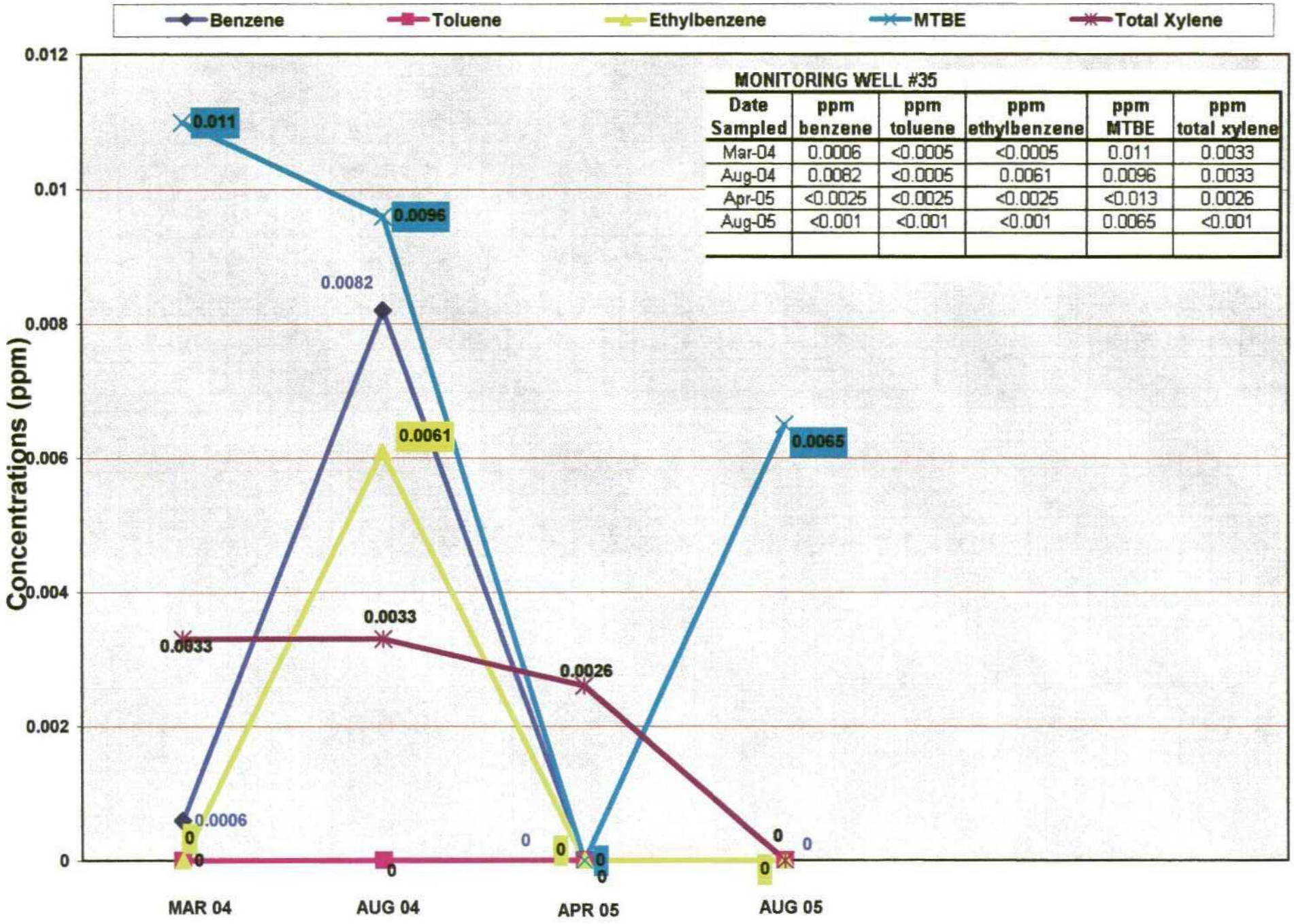
Monitoring Well #34



MONITORING WELL #34

Date Sampled	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Aug-03	<0.01	<0.01	<0.01	<0.01	<0.01
Aug-04	<0.0025	0.0039	0.019	<0.013	0.013
Apr-05	<0.0025	0.024	0.0041	<0.0025	0.0039
Aug-05	<0.005	<0.005	<0.005	0.0057	<0.005

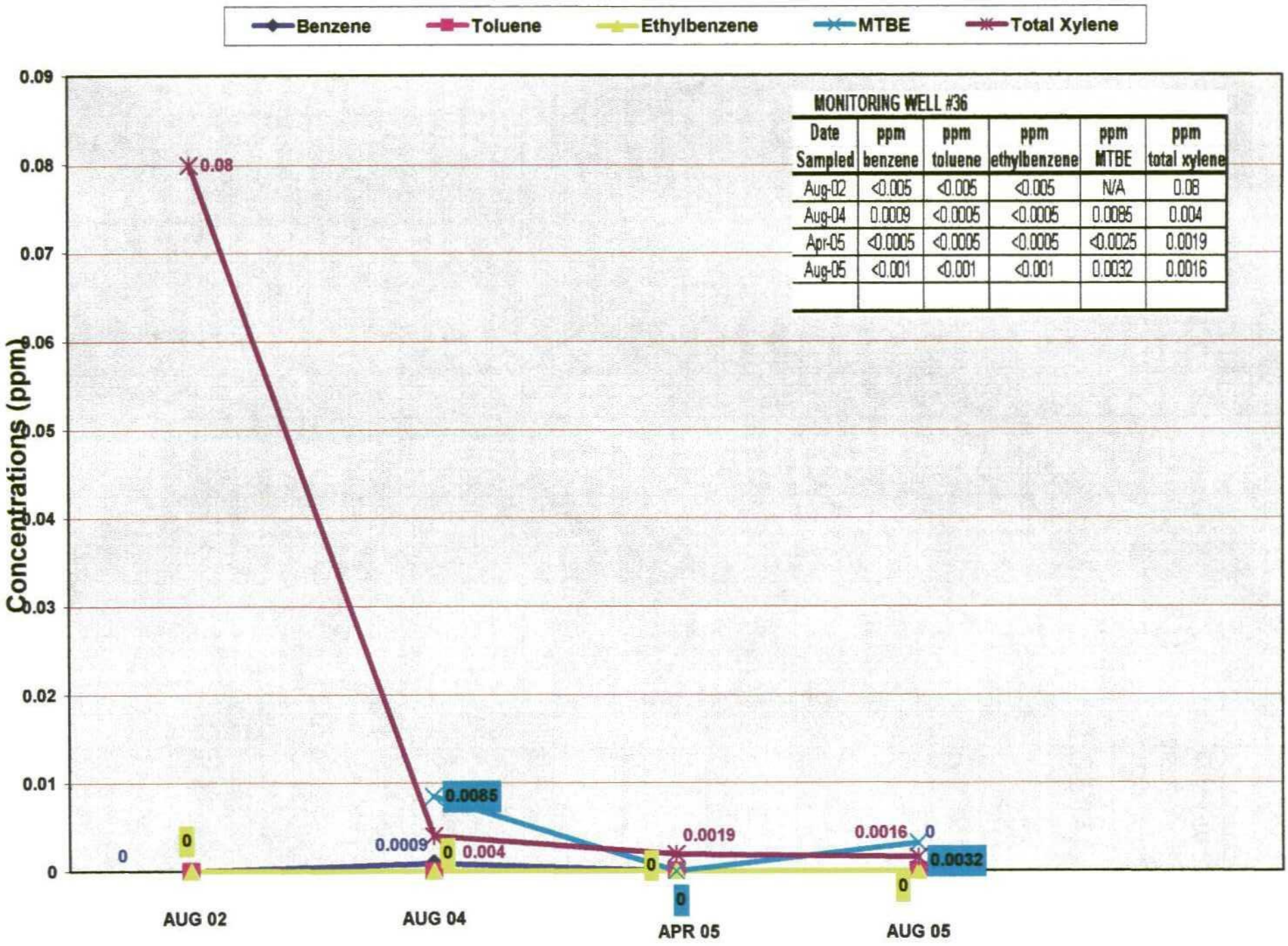
Monitoring Well #35



MONITORING WELL #35

Date Sampled	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Mar-04	0.0006	<0.0005	<0.0005	0.011	0.0033
Aug-04	0.0082	<0.0005	0.0061	0.0096	0.0033
Apr-05	<0.0025	<0.0025	<0.0025	<0.013	0.0026
Aug-05	<0.001	<0.001	<0.001	0.0065	<0.001

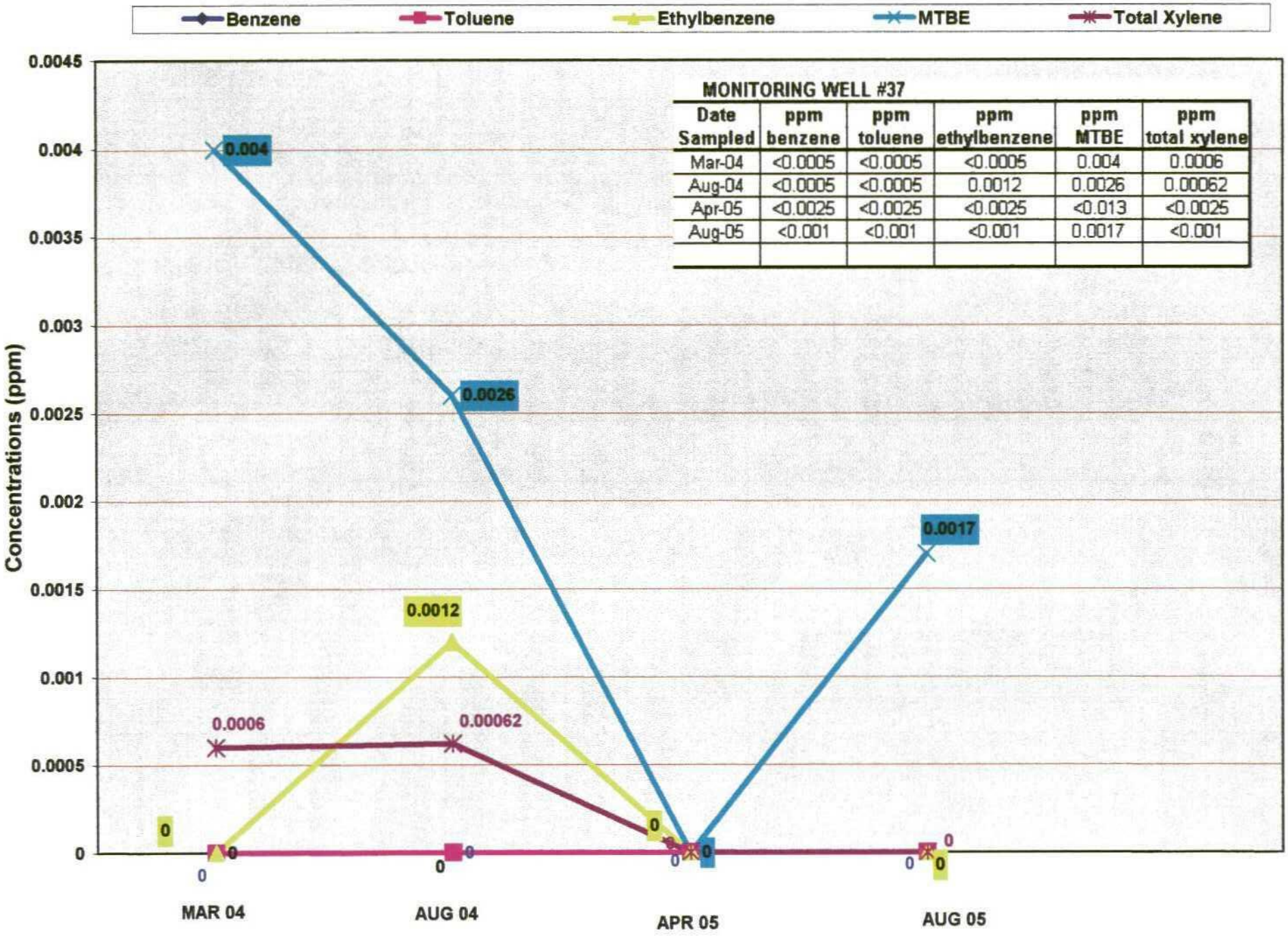
Monitoring Well #36



MONITORING WELL #36

Date Sampled	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Aug-02	<0.005	<0.005	<0.005	N/A	0.08
Aug-04	0.0009	<0.0005	<0.0005	0.0085	0.004
Apr-05	<0.0005	<0.0005	<0.0005	<0.0025	0.0019
Aug-05	<0.001	<0.001	<0.001	0.0032	0.0016

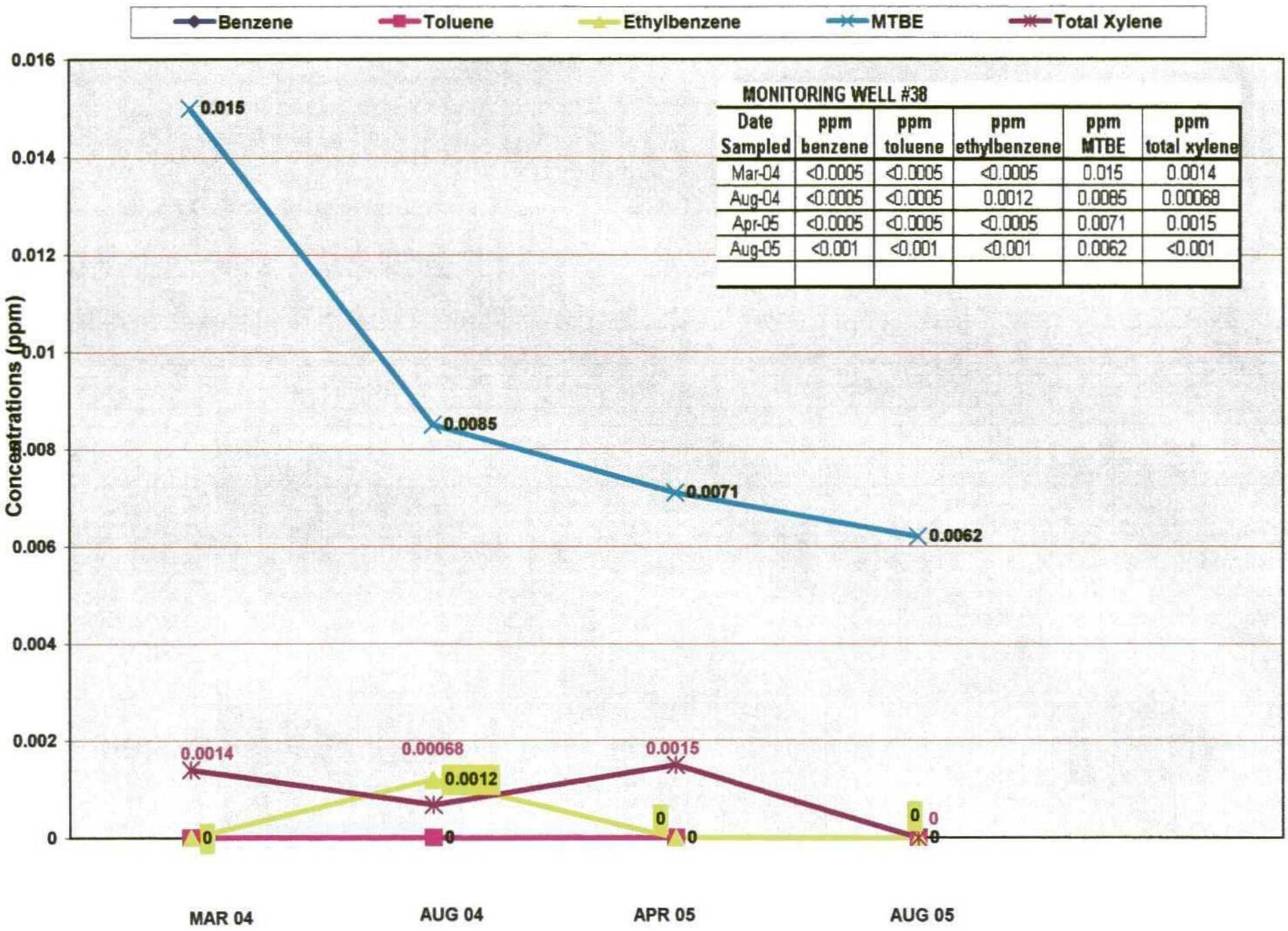
Monitoring Well #37



MONITORING WELL #37

Date Sampled	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Mar-04	<0.0005	<0.0005	<0.0005	0.004	0.0006
Aug-04	<0.0005	<0.0005	0.0012	0.0026	0.00062
Apr-05	<0.0025	<0.0025	<0.0025	<0.013	<0.0025
Aug-05	<0.001	<0.001	<0.001	0.0017	<0.001

Monitoring Well #38



MONITORING WELL #38

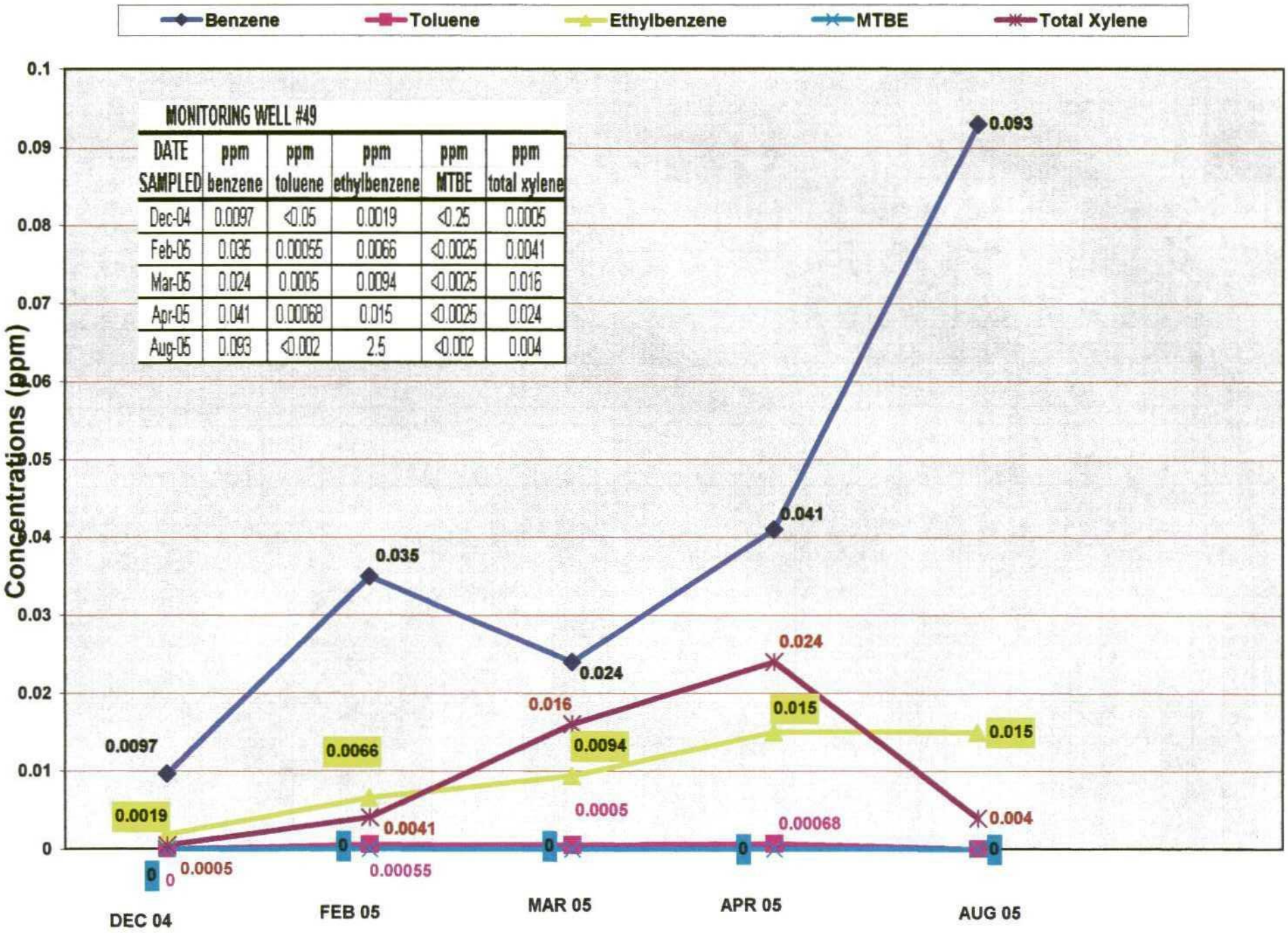
Date Sampled	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Mar-04	<0.0005	<0.0005	<0.0005	0.015	0.0014
Aug-04	<0.0005	<0.0005	0.0012	0.0085	0.00068
Apr-05	<0.0005	<0.0005	<0.0005	0.0071	0.0015
Aug-05	<0.001	<0.001	<0.001	0.0062	<0.001

Monitoring Well #48

MONITORING WELL #48

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Dec-04	0.69	<0.05	1.9	<0.25	8.2
Feb-05	0.66	<0.025	2.2	<0.13	11
Mar-05	0.63	<0.025	2.1	<0.13	10
Apr-05	0.48	<0.025	1.7	<0.13	7.5
Aug-05	0.62	0.026	2.5	<0.02	9.9

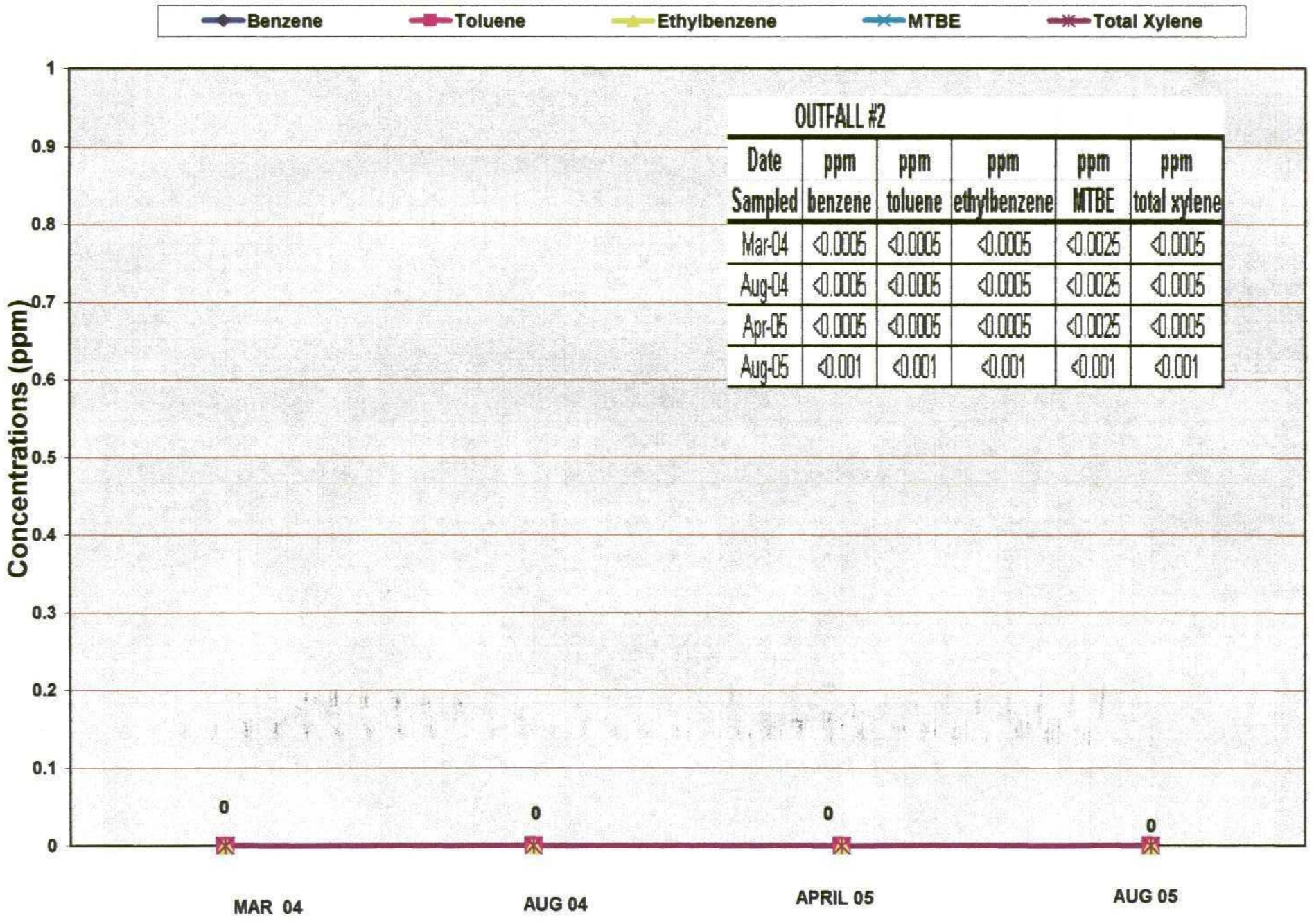
Monitoring Well #49



MONITORING WELL #49

DATE SAMPLED	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Dec-04	0.0097	<0.05	0.0019	<0.25	0.0005
Feb-05	0.035	0.00055	0.0066	<0.0025	0.0041
Mar-05	0.024	0.0005	0.0094	<0.0025	0.016
Apr-05	0.041	0.00068	0.015	<0.0025	0.024
Aug-05	0.093	<0.002	2.5	<0.002	0.004

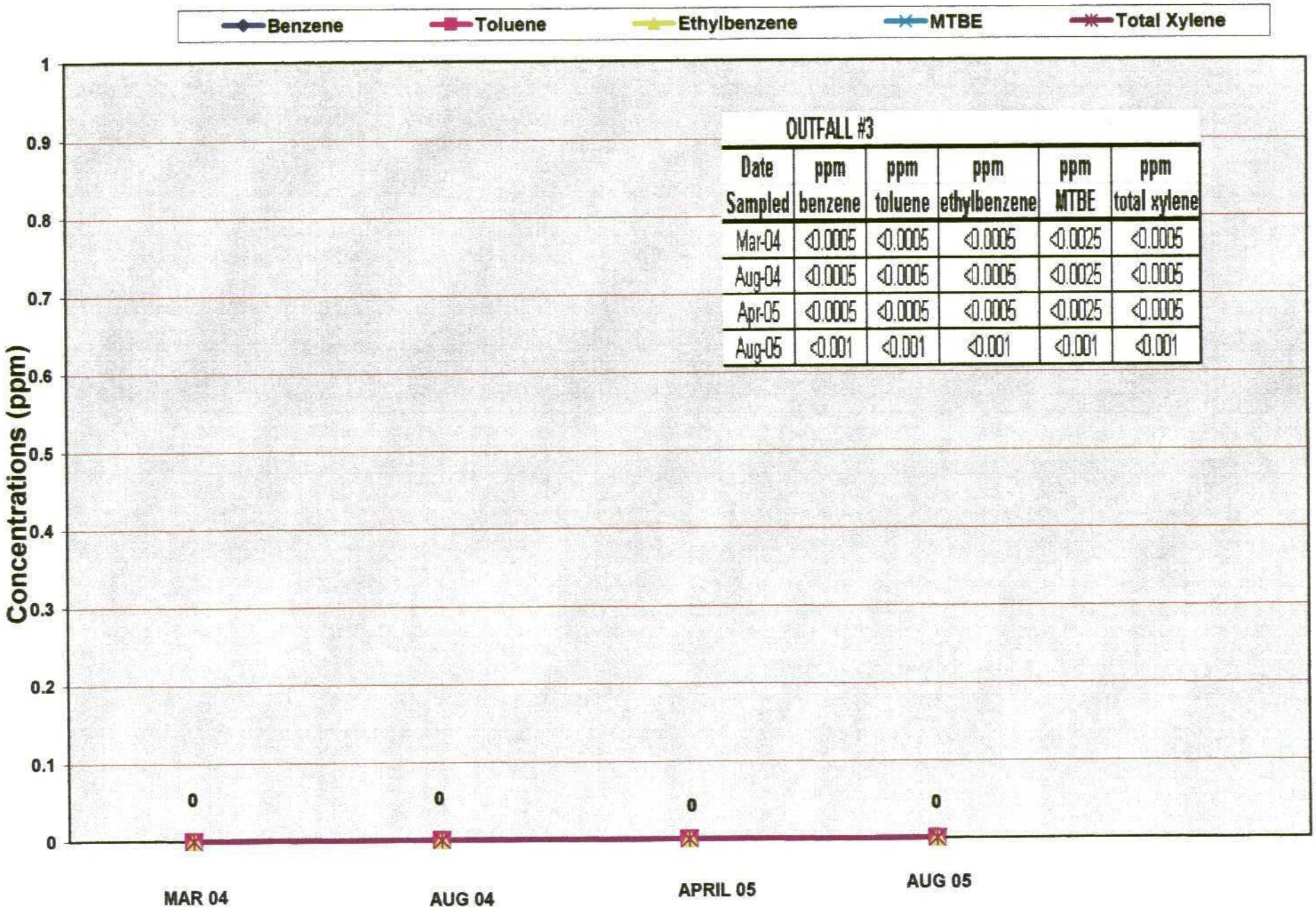
OUTFALL #2



OUTFALL #2

Date Sampled	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Mar-04	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005
Aug-04	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005
Apr-05	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005
Aug-05	<0.001	<0.001	<0.001	<0.001	<0.001

OUTFALL #3



OUTFALL #3

Date Sampled	ppm benzene	ppm toluene	ppm ethylbenzene	ppm MTBE	ppm total xylene
Mar-04	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005
Aug-04	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005
Apr-05	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005
Aug-05	<0.001	<0.001	<0.001	<0.001	<0.001

Section 12.0 Field Methods

Field Methods

Groundwater Elevation
All water/product levels are determined to an accuracy of 0.01 foot using a Geotech Interface Meter. The technician records separate phase hydrocarbon, depth to water, and total well depth using this probe.

Water Quality/Groundwater Sampling
Water quality parameters are measured using an Ultrameter 6P by the Myron L Company. Electrical conductance, pH, and temperature are monitored during purging. After the well is satisfactorily purged, the Ultrameter 6P can also measure Oxidation Reduction Potential. Dissolved oxygen is determined using the Hach High Range Dissolved Oxygen AccuVac method within thirty minutes of sampling.

Well Purging Technique
At least three well volumes are purged from the well. Purge volumes are determined using the following equation:
Well Depth – Casing Height – Depth to Liquid X Conversion Factor X Three.
The conversion factor is determined by the diameter of the well casing.

Casing	Conversion Factor
6"	1.50 gal/ft
5"	1.02 gal/ft
4"	0.74 gal/ft
3"	0.367 gal/ft
2"	0.163 gal/ft

Typically disposable bailers are used for purging and sampling. Each bailer holds one liter of liquid. Three well volumes can be calculated by counting the number of times a well is bailed.
On occasion, the submersible pump is used for purging wells that have a large volume of water. All purged water is poured/pumped into a 55-gallon drum designated for sampling events.

Well Sampling and Sample Handling Procedure
Equipment and supplies needed for collecting representative groundwater samples include:

- Interface Meter
- Ultrameter 6P
- Distilled Water
- Disposable Latex Gloves
- Disposable Bailers
- Submersible pump and Generator (if needed)
- String/Twine
- Cooler with Ice

- Bottle kits with Preservatives (provided by the contract laboratory)
- Disposable 0.45 micron Field Filters and Syringes
- Glass Jar (usually 4 oz.)
- Sharpie Permanent Marker
- Field Paperwork/Logsheet
- Two 5-gallon buckets
- Trash container (plastic garbage bag)
- Ziploc Bags
- Paper towels

After sufficient purging, samples are collected with the bailer and poured into the appropriate sample containers. Two people are usually utilized for sampling. Sampling takes place over a bucket to insure that spills are contained

For dissolved metals, sample water is poured into a jar and then extracted with a syringe. The syringe is then used to push water through a field filter into the proper sample bottle to collect the dissolved metals sample. Volatile organic analysis samples are collected as to allow no head space in the container.

Samples are labeled immediately with location, date, time, analysis, preservative, and sampler. Then they are put in a Ziploc and placed in a cooler holding sufficient ice to keep them cool. The field logsheet is reviewed to verify all entries.

Purge and Decontamination Water Disposal

The Ultrameter 6P and the interface probe are rinsed with distilled water after every well. The rinse procedure takes place over a bucket to insure that spills are contained.

All rinse and purge water is contained and then disposed of through the refinery wastewater system.

The submersible pump is decontaminated by placing it in a 55-gallon barrel filled with plant water and some Alconox. The pump is activated and will pump down the barrel twice. External areas are washed down and rinsed, also. All wash and rinse water is on containment and runs to the refinery wastewater system.

Any glassware used is taken to the refinery laboratory and washed with Alconox and water and rinsed with reverse osmosis water. Laboratory wastewater runs through the refinery system.

Remediation System Measurement

Recovery well flows are measured using a 500 ml graduated cylinder. The discharge line of the pump is disconnected and placed in the graduated cylinder. During a pump cycle, a measurement is taken over time and then calculated to a gallon per day rate.

Recovery rates at Tk #37 (Hammond Ditch French Drain) and Tk #38 (#1 East Outfall) are determined through flow meters installed in those systems. Refinery personnel record the rates periodically.

Section 13.0 Waste Disposition

Summary

As an interim corrective measure to mitigate further migration of petroleum hydrocarbons towards the San Juan River and beyond the northern property boundary of the refinery, a 2,600-foot long subsurface barrier wall was constructed along the north side of the Hammond Ditch. The subsurface barrier wall extends from County Road 4990 to a location approximately 200 feet east of the El Paso Natural Gas Pipelines.

The north boundary barrier was constructed by excavating a narrow trench, approximately 30-inches in width, through the Jackson Lake Terrace and into the Nacimiento Formation. The barrier was constructed with an average depth of approximately 15 feet below ground surface (bgs), keying into the Nacimiento Formation approximately 2-1/2 to 7 feet along the length of the barrier.

Trench Soils Segregation

A portion of the excavated soil from the trench was utilized for barrier construction and for backfill purposes. Excess excavated material (i.e., mixed with bentonite) was transported to the refinery site. The majority of the soils were stock-piled in lined basins formerly used for storm water retention, located in the northwest portion of the refinery. Visually hydrocarbon-stained soil excavated from the barrier trench was segregated and properly stock-piled in a separate location on the refinery site for subsequent management.

Trench Soils Sampling

Soil samples were collected from each of the spoils stock-pile areas. A total of eight samples were collected from the stock-piles in the former retention ponds. The samples were collected periodically during the placement of those spoils. A sample ID was assigned corresponding to the approximate survey station along the trench from which the soil was excavated. The soil samples were submitted to the laboratory and analyzed for the following parameters:

- Total Petroleum Hydrocarbons – Gasoline Range Organics (GRO) by EPA Modified Method 8015B
- Total Petroleum Hydrocarbons - Diesel Range Organics (DRO) and Motor Oil Range Organics (MRO) by EPA Modified Method 8015B
- Petroleum Hydrocarbons – TPH by EPA Method 418.1
- Volatile Organics Compounds – BTEX and MTBE by EPA Method 8021B

Following completion of excavation activities, one composite sample was collected of the visually hydrocarbon-stained soil. The sample was submitted to the laboratory and analyzed for the following parameters.

- Total Petroleum Hydrocarbons – Gasoline Range Organics (GRO) by EPA Modified Method 8015B

- Total Petroleum Hydrocarbons - Diesel Range Organics (DRO) by EPA Modified Method 8015B
- Petroleum Hydrocarbons – TPH by EPA Method 418.1
- Volatile Organics Compounds - BTEX by EPA Method 8021B

The analytical results were compared to the New Mexico Soil Screening Levels for industrial exposure. The NMED Soils Screening Levels (SSLs) for volatile organic compounds (VOCs) are based on a one-in-ten-thousand industrial target risk for carcinogens or a hazard quotient of 1 for non-carcinogens and considers incidental ingestion of soil, inhalation of volatiles or particulate emissions from impacted soil, and dermal contact with soil. The NMED SSLs listed for total petroleum hydrocarbons (DRO and MRO) are based on direct exposure for industrial workers in compliance with the NMED TPH screening guidelines for industrial exposure. The detected concentrations from the nine soil samples were below the NMED SSLs for industrial exposure.

North Boundary Barrier
Waste Disposition Summary

Giant Refinery - Bloomfield, NM

		EPA Method 8015B			EPA Method 418.1	EPA Method 8021B						
		Diesel Range Organics (DRO) *(mg/kg)*	Motor Oil Range Organics (MRO) *(mg/kg)*	Gasoline Range Organics (GRO) *(mg/kg)*	Petroleum Hydrocarbons, TPH *(mg/kg)*	Benzene *(mg/kg)*	Toluene *(mg/kg)*	Ethyl benzene *(mg/kg)*	Xylenes, Total *(mg/kg)*	p,m-Xylene *(mg/kg)*	o-Xylene *(mg/kg)*	Methyl tetra-butyl ether (MTBE) *(mg/kg)*
New Mexico SSLs -->		1120 mg/kg [1]	890 mg/kg[1]	NA		8.08 mg/kg[2]	252 mg/kg[2]	128 mg/kg[2]	132 mg/kg[2]			.00667 mg/kg[2]
Sample Date	**Sample ID**											
2/9/2005	0' - 300'	17	< 50	260	NA	NA	NA	NA	NA	NA	NA	NA
2/10/2005	300' - 600'	68	< 50	350	NA	NA	NA	NA	NA	NA	NA	NA
2/10/2005	600' - 900'	150	< 50	76	NA	NA	NA	NA	NA	NA	NA	NA
2/22/2005	900' - 1200'	11	< 50	40	NA	< 0.025	< 0.025	< 0.025	0.5	NA	NA	NA
3/5/2005	1500' - 1800'	15	< 50	120	NA	0.12	0.29	0.92	6.2	NA	NA	NA
3/6/2005	1800' - 2100'	< 10	< 50	130	NA	0.36	0.33	1.7	8	NA	NA	NA
3/16/2005	2100' - 2300'	NA	NA	NA	< 20	<0.025	< 0.025	< 0.025	< 0.025	NA	NA	< 0.1
3/6/2005	2300' - 2600'	< 10	< 50	7.4	NA	< 0.025	< 0.025	< 0.025	0.079	NA	NA	NA
9/16/2005	Slurry Wall Comp.	< 0.1	NA	1.5	NA	0.0041	0.016	0.08	NA	0.72	0.19	NA

Notes:

1. NMED SSLs based on New Mexico Environmental Department TPH Screening Guidelines for Industrial Exposure, November 2005.
2. NMED SSLs based on 1E-05 industrial target risk for carcinogens or hazard quotient of 1 for non-carcinogens.

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

September 19, 2005

Mr. Randy Schmaltz
Giant Refinery
P.O. Box 159
Bloomfield, NM 87413

Phone: (505) 632-4171

Client No.: 96012-009

Dear Mr. Schmaltz,

Enclosed are the analytical results for the soil sample taken from the location designated as "Bloomfield Refinery". One soil sample was collected by Giant designated personnel on 9/15/05, and received by the Envirotech laboratory on 9/15/05 for Total Petroleum Hydrocarbons (TPH) per USEPA Method 8015, BTEX per USEPA Method 8021.

The sample was documented on Envirotech Chain of Custody No. 14813. The sample was assigned Laboratory No. 34323 (Slurry Wall Comp) for tracking purposes.

The sample was analyzed on 9/16/05 using USEPA or equivalent methods.

Should you have any questions or require additional information, please do not hesitate to contact us at (505) 632-0615.

Respectfully submitted,
Envirotech, Inc.

Christine M Walters

Christine M. Walters
Laboratory Coordinator / Environmental Scientist

enc.

CMW/cmw

C:/files/labreports/Giant.wpd

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Giant	Project #:	96012-009
Sample ID:	Slurry Wall Comp.	Date Reported:	09-16-05
Laboratory Number:	34323	Date Sampled:	09-15-05
Chain of Custody No:	14813	Date Received:	09-15-05
Sample Matrix:	Soil	Date Extracted:	09-15-05
Preservative:	Cool	Date Analyzed:	09-16-05
Condition:	Cool and Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**1.5**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**1.5**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Bloomfield Refinery.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	09-16-05 QA/QC	Date Reported:	09-16-05
Laboratory Number:	34311	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	09-16-05
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	02-04-05	7.9937E+002	8.0017E+002	**0.10%**	**0 - 15%**
Diesel Range C10 - C28	02-04-05	2.4608E+003	2.4657E+003	**0.20%**	**0 - 15%**

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	**ND**	**0.2**
Diesel Range C10 - C28	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	**0.2**

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
Gasoline Range C5 - C10	**ND**	**ND**	**0.0%**	**0 - 30%**
Diesel Range C10 - C28	**ND**	**ND**	**0.0%**	**0 - 30%**

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	**ND**	**250**	**250**	**100.0%**	**75 - 125%**
Diesel Range C10 - C28	**ND**	**250**	**250**	**100.0%**	**75 - 125%**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 34311 - 34315 and 34323.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Giant	Project #:	96012-009
Sample ID:	Slurry Wall Comp.	Date Reported:	09-16-05
Laboratory Number:	34323	Date Sampled:	09-15-05
Chain of Custody:	14813	Date Received:	09-15-05
Sample Matrix:	Soil	Date Analyzed:	09-16-05
Preservative:	Cool	Date Extracted:	09-15-05
Condition:	Cool & Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**4.1**	**1.8**
Toluene	**16.6**	**1.7**
Ethylbenzene	**80.0**	**1.5**
p,m-Xylene	**720**	**2.2**
o-Xylene	**190**	**1.0**
Total BTEX	**1,010**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**99.0 %**
	1,4-difluorobenzene	**99.0 %**
	Bromochlorobenzene	**99.0 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Bloomfield Refinery.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	09-16-btex QA/QC	Date Reported:	09-16-05
Laboratory Number:	34312	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	09-16-05
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	1.8309E+007	1.8346E+007	0.2%	ND	0.2
Toluene	5.6480E+007	5.6593E+007	0.2%	ND	0.2
Ethylbenzene	4.2012E+007	4.2096E+007	0.2%	ND	0.2
p,m-Xylene	8.6084E+007	8.6256E+007	0.2%	ND	0.2
o-Xylene	4.1850E+007	4.1934E+007	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	130	130	0.0%	0 - 30%	1.8
Toluene	722	722	0.0%	0 - 30%	1.7
Ethylbenzene	317	317	0.0%	0 - 30%	1.5
p,m-Xylene	5,440	5,420	0.4%	0 - 30%	2.2
o-Xylene	1,310	1,300	0.8%	0 - 30%	1.0

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	130	50.0	180	100.0%	39 - 150
Toluene	722	50.0	771	99.8%	46 - 148
Ethylbenzene	317	50.0	366	99.8%	32 - 160
p,m-Xylene	5,440	100	5,530	99.8%	46 - 148
o-Xylene	1,310	50.0	1,360	100.0%	46 - 148

ND - Parameter not detected at the stated detection limit.

References:
Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **QA/QC for Samples 34312 - 34315 and 34323.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

CHAIN OF CUSTODY RECORD

14813

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
Giant	Bloomfield Refinery	
Sampler: Randy Schmaltz	Client No. 96012-009	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX	8015					Remarks
Slurry wall comp.	9/15/05	2:30	34323	Soil	1	✓	✓					

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	9/15/05	3:00pm	M Boshardt	9/15/05	3:00
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.

5796 U.S. Highway 64
Farmington, New Mexico 87401
(505) 632-0615

Sample Receipt	Y	N	N/A
Received Intact	✓		
Cool - Ice/Blue Ice			

san juan reproduction 578-129

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

February 16, 2005

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

RE: Stockpile

Order No.: 0502121

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 3 samples on 2/11/2005 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

Hall Environmental Analysis Laboratory

Date: *16-Feb-05*

CLIENT: San Juan Refining
Lab Order: 0502121
Project: Stockpile
Lab ID: 0502121-01

Client Sample ID: 0'-300'
Collection Date: 2/9/2005 3:50:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	17	10		mg/Kg	1	2/14/2005 8:11:24 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/14/2005 8:11:24 PM
Surr: DNOP	103	60-124		%REC	1	2/14/2005 8:11:24 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	260	50		mg/Kg	10	2/14/2005 5:37:34 PM
Surr: BFB	118	78.3-120		%REC	10	2/14/2005 5:37:34 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory

Date: *16-Feb-05*

CLIENT:	San Juan Refining	**Client Sample ID:**	300'-600'
Lab Order:	0502121	**Collection Date:**	2/10/2005 2:00:00 PM
Project:	Stockpile		
Lab ID:	0502121-02	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	68	10		mg/Kg	1	2/14/2005 8:41:00 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/14/2005 8:41:00 PM
Surr: DNOP	105	60-124		%REC	1	2/14/2005 8:41:00 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	350	100		mg/Kg	20	2/14/2005 6:07:31 PM
Surr: BFB	113	78.3-120		%REC	20	2/14/2005 6:07:31 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *16-Feb-05*

CLIENT:	San Juan Refining	**Client Sample ID:**	600'-900'
Lab Order:	0502121	**Collection Date:**	2/10/2005 2:15:00 PM
Project:	Stockpile		
Lab ID:	0502121-03	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	150	10		mg/Kg	1	2/14/2005 9:11:20 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/14/2005 9:11:20 PM
Surr: DNOP	104	60-124		%REC	1	2/14/2005 9:11:20 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	76	25		mg/Kg	5	2/15/2005 9:58:39 AM
Surr: BFB	114	78.3-120		%REC	5	2/15/2005 9:58:39 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory

Date: *16-Feb-05*

CLIENT: San Juan Refining
Work Order: 0502121
Project: Stockpile

QC SUMMARY REPORT

Method Blank

Sample ID **MB-7412**	Batch ID: **7412**	Test Code: **SW8015**	Units: **mg/Kg**	Analysis Date **2/14/2005 12:11:43 PM**	Prep Date **2/14/2005**
Client ID:		Run ID: **FID(17A) 2_050214A**		SeqNo: **339696**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10									
Motor Oil Range Organics (MRO)	ND	50									
Surr: DNOP	9.768	0	10	0	97.7	60	124	0			

Sample ID **MB-7411**	Batch ID: **7411**	Test Code: **SW8015**	Units: **mg/Kg**	Analysis Date **2/14/2005 3:37:41 PM**	Prep Date **2/11/2005**
Client ID:		Run ID: **PIDFID_050214A**		SeqNo: **339601**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5									
Surr: BFB	1042	0	1000	0	104	78.3	120	0			

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

1

Hall Environmental Analysis Laboratory

Date: *16-Feb-05*

CLIENT: San Juan Refining
Work Order: 0502121
Project: Stockpile

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID **LCS-7412** Batch ID: **7412** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **2/14/2005 12:42:24 PM** Prep Date **2/14/2005**
Client ID: Run ID: **FID(17A) 2_050214A** SeqNo: **339697**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54.31	10	50	0	109	67.4	117	0			

Sample ID **LCSD-7412** Batch ID: **7412** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **2/14/2005 1:12:18 PM** Prep Date **2/14/2005**
Client ID: Run ID: **FID(17A) 2_050214A** SeqNo: **339699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45.33	10	50	0	90.7	67.4	117	54.31	18.0	20	

Sample ID **LCS-7411** Batch ID: **7411** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **2/14/2005 4:07:36 PM** Prep Date **2/11/2005**
Client ID: Run ID: **PIDFID_050214A** SeqNo: **339602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28.01	5	25	0	112	84	120	0			

Sample ID **GRO std 2.5ug** Batch ID: **7411** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **2/15/2005 10:28:29 AM** Prep Date
Client ID: Run ID: **PIDFID_050215A** SeqNo: **340005**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23.77	5	25	0	95.1	84	120	0			

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

1

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/11/2005

Work Order Number 0502121 | Received by AT

Checklist completed by _____
Signature | Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?		Yes ☑	No ☐	Not Present ☐			
Custody seals intact on shipping container/cooler?		Yes ☐	No ☐	Not Present ☐	Not Shipped	☑	
Custody seals intact on sample bottles?		Yes ☑	No ☐	N/A ☐			
Chain of custody present?		Yes ☑	No ☐				
Chain of custody signed when relinquished and received?		Yes ☑	No ☐				
Chain of custody agrees with sample labels?		Yes ☑	No ☐				
Samples in proper container/bottle?		Yes ☑	No ☐				
Sample containers intact?		Yes ☑	No ☐				
Sufficient sample volume for indicated test?		Yes ☑	No ☐				
All samples received within holding time?		Yes ☑	No ☐				
Water - VOA vials have zero headspace?	No VOA vials submitted ☑		Yes ☐	No ☐			
Water - pH acceptable upon receipt?		Yes ☐	No ☐	N/A ☑			

Container/Temp Blank temperature? *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

Accreditation Ap
NELAC ☐ USACE ☐
Other: _____

Client: SAN Juan Refining
Address: # 50 Rd 4990
Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: Stock Pile
Project #:
Project Manager:
Sampler: Randy Schmaltz
Sample Temperature: 8 Cindy HURTADO

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.
2/09/05	330p	Soil	0' to 300'	1-4 oz				0502121
2/10/05	200p	"	300' to 600'	"				-2
2/10/05	215p	"	600' to 900'	"				-3

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
2/10/05	240pm	Cindy Hurtado	2/10/05 1573
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

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

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
		X														
		X														
		X														

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

March 04, 2005

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

RE: Stockpile

Order No.: 0502235

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 1 sample on 2/24/2005 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

ACCREDITED IN ACCORDANCE WITH nelac

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

Hall Environmental Analysis Laboratory

Date: *04-Mar-05*

CLIENT: San Juan Refining
Lab Order: 0502235
Project: Stockpile
Lab ID: 0502235-01

Client Sample ID: 900'-1200'
Collection Date: 2/22/2005 2:45:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	11	10		mg/Kg	1	3/3/2005 3:39:53 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/3/2005 3:39:53 AM
Surr: DNOP	109	60-124		%REC	1	3/3/2005 3:39:53 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	40	5.0		mg/Kg	1	2/28/2005 10:52:08 PM
Surr: BFB	119	78.3-120		%REC	1	2/28/2005 10:52:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	2/28/2005 10:52:08 PM
Toluene	ND	0.025		mg/Kg	1	2/28/2005 10:52:08 PM
Ethylbenzene	ND	0.025		mg/Kg	1	2/28/2005 10:52:08 PM
Xylenes, Total	0.50	0.025		mg/Kg	1	2/28/2005 10:52:08 PM
Surr: 4-Bromofluorobenzene	93.8	87.4-116		%REC	1	2/28/2005 10:52:08 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory

Date: *04-Mar-05*

CLIENT: San Juan Refining
Work Order: 0502235
Project: Stockpile

QC SUMMARY REPORT

Method Blank

Sample ID **MB-7480** Batch ID: **7480** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **2/25/2005 8:20:27 AM** Prep Date **2/24/2005**
Client ID: Run ID: **FID(17A) 2_050225A** SeqNo: **341574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10									
Motor Oil Range Organics (MRO)	ND	50									
Surr: DNOP	9.539	0	10	0	95.4	60	124	0			

Sample ID **MB-7477** Batch ID: **7477** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **2/28/2005 8:22:47 PM** Prep Date **2/24/2005**
Client ID: Run ID: **PIDFID_050228A** SeqNo: **341948**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5									
Surr: BFB	977.6	0	1000	0	97.8	78.3	120	0			

Sample ID **MB-7477** Batch ID: **7477** Test Code: **SW8021** Units: **mg/Kg** Analysis Date **2/28/2005 8:22:47 PM** Prep Date **2/24/2005**
Client ID: Run ID: **PIDFID_050228A** SeqNo: **341961**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.1									
Benzene	ND	0.025									
Toluene	ND	0.025									
Ethylbenzene	ND	0.025									
Xylenes, Total	ND	0.025									
Surr: 4-Bromofluorobenzene	0.9725	0	1	0	97.2	87.4	116	0			

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

Hall Environmental Analysis Laboratory

Date: *04-Mar-05*

CLIENT: San Juan Refining
Work Order: 0502235
Project: Stockpile

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID **LCS-7480** Batch ID: **7480** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **2/25/2005 8:51:03 AM** Prep Date **2/24/2005**
Client ID: Run ID: **FID(17A) 2_050225A** SeqNo: **341581**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52.98	10	50	0	106	67.4	117	0			

Sample ID **LCSD-7480** Batch ID: **7480** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **2/25/2005 9:20:39 AM** Prep Date **2/24/2005**
Client ID: Run ID: **FID(17A) 2_050225A** SeqNo: **341585**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53.28	10	50	0	107	67.4	117	52.98	0.561	17.4	

Sample ID **LCS-7477** Batch ID: **7477** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **2/28/2005 8:52:42 PM** Prep Date **2/24/2005**
Client ID: Run ID: **PIDFID_050228A** SeqNo: **341949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24.7	5	25	0	98.8	84	120	0			

Sample ID **LCS-7477** Batch ID: **7477** Test Code: **SW8021** Units: **mg/Kg** Analysis Date **2/28/2005 8:52:42 PM** Prep Date **2/24/2005**
Client ID: Run ID: **PIDFID_050228A** SeqNo: **341962**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.3979	0.025	0.41	0	97.1	83.4	113	0			
Toluene	1.986	0.025	1.9	0	105	86.3	118	0			
Ethylbenzene	0.3774	0.025	0.4	0	94.3	81.7	113	0			
Xylenes, Total	1.991	0.025	1.9	0	105	86.9	112	0			

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

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/24/2005

Work Order Number 0502235 | Received by AT

Checklist completed by _____ 2/24/05
Signature | Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☑	No ☐	N/A ☐	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	

Container/Temp Blank temperature? **2°** *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

_____

_____

_____

_____

Corrective Action _____

_____

_____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

Client: San Juan Refining
Address: #50 CR 4990
Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: Stock Pile
Project #:
Project Manager: Cindy Hurtado
Sampler: Randy Schmaltz
Sample Temperature: 2

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

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
2/22/05	2:45pm	Soil	900'-1200'	1-4oz			0502235-1	X		X														

Date: 2/23/05 Time: 3:15pm Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature) 2/24/05 1308

Date: Time: Relinquished By: (Signature)
Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

March 17, 2005

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

RE: Stockpile

Order No.: 0503084

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 3 samples on 3/8/2005 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

ACCREDITED IN ACCORDANCE WITH nelac

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

Hall Environmental Analysis Laboratory

Date: *17-Mar-05*

CLIENT: San Juan Refining
Project: Stockpile
Lab Order: 0503084

CASE NARRATIVE

Analytical Comments for METHOD 8021BTEX_S, SAMPLE 0503084-01a: Elevated surrogate due to matrix interference. Analytical Comments for METHOD 8015GRO_S, SAMPLE 0503084-01a: Elevated surrogate due to matrix interference. Analytical Comments for METHOD 8021BTEX_S, SAMPLE 0503084-03a: Elevated surrogate due to matrix interference.

Hall Environmental Analysis Laboratory

Date: *17-Mar-05*

CLIENT: San Juan Refining
Lab Order: 0503084
Project: Stockpile
Lab ID: 0503084-01

Client Sample ID: 1500-1800
Collection Date: 3/5/2005 2:20:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	15	10		mg/Kg	1	3/15/2005 1:36:38 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/15/2005 1:36:38 PM
Surr: DNOP	118	60-124		%REC	1	3/15/2005 1:36:38 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	120	5.0		mg/Kg	1	3/10/2005 5:01:45 PM
Surr: BFB	131	78.3-120	S	%REC	1	3/10/2005 5:01:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.12	0.025		mg/Kg	1	3/10/2005 5:01:45 PM
Toluene	0.29	0.025		mg/Kg	1	3/10/2005 5:01:45 PM
Ethylbenzene	0.92	0.025		mg/Kg	1	3/10/2005 5:01:45 PM
Xylenes, Total	6.2	0.025		mg/Kg	1	3/10/2005 5:01:45 PM
Surr: 4-Bromofluorobenzene	123	87.4-116	S	%REC	1	3/10/2005 5:01:45 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory

Date: *17-Mar-05*

CLIENT: San Juan Refining
Lab Order: 0503084
Project: Stockpile
Lab ID: 0503084-02

Client Sample ID: 1800-2100
Collection Date: 3/6/2005 2:30:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/15/2005 3:41:47 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/15/2005 3:41:47 PM
Surr: DNOP	113	60-124		%REC	1	3/15/2005 3:41:47 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	130	5.0		mg/Kg	1	3/10/2005 5:32:00 PM
Surr: BFB	120	78.3-120		%REC	1	3/10/2005 5:32:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.36	0.025		mg/Kg	1	3/10/2005 5:32:00 PM
Toluene	0.33	0.025		mg/Kg	1	3/10/2005 5:32:00 PM
Ethylbenzene	1.7	0.025		mg/Kg	1	3/10/2005 5:32:00 PM
Xylenes, Total	8.0	0.025		mg/Kg	1	3/10/2005 5:32:00 PM
Surr: 4-Bromofluorobenzene	116	87.4-116		%REC	1	3/10/2005 5:32:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory

Date: *17-Mar-05*

CLIENT: San Juan Refining
Lab Order: 0503084
Project: Stockpile
Lab ID: 0503084-03

Client Sample ID: 2300-2600
Collection Date: 3/6/2005 2:00:00 PM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/15/2005 4:13:05 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/15/2005 4:13:05 PM
Surr: DNOP	110	60-124		%REC	1	3/15/2005 4:13:05 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7.4	5.0		mg/Kg	1	3/10/2005 6:02:12 PM
Surr: BFB	103	78.3-120		%REC	1	3/10/2005 6:02:12 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	3/10/2005 6:02:12 PM
Toluene	ND	0.025		mg/Kg	1	3/10/2005 6:02:12 PM
Ethylbenzene	ND	0.025		mg/Kg	1	3/10/2005 6:02:12 PM
Xylenes, Total	0.079	0.025		mg/Kg	1	3/10/2005 6:02:12 PM
Surr: 4-Bromofluorobenzene	113	87.4-116		%REC	1	3/10/2005 6:02:12 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory

Date: *17-Mar-05*

CLIENT: San Juan Refining
Work Order: 0503084
Project: Stockpile

QC SUMMARY REPORT
Method Blank

Sample ID **MB-7553** Batch ID: **7553** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **3/11/2005 7:12:31 PM** Prep Date **3/10/2005**
Client ID: Run ID: **FID(17A) 2_050310A** SeqNo: **344498**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10									
Motor Oil Range Organics (MRO)	ND	50									
Surr: DNOP	9.977	0	10	0	99.8	60	124	0			

Sample ID **MB-7545** Batch ID: **7545** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **3/10/2005 3:30:27 PM** Prep Date **3/9/2005**
Client ID: Run ID: **PIDFID_050310A** SeqNo: **343992**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5									
Surr: BFB	946.3	0	1000	0	94.6	78.3	120	0			

Sample ID **MB-7545** Batch ID: **7545** Test Code: **SW8021** Units: **mg/Kg** Analysis Date **3/10/2005 3:30:27 PM** Prep Date **3/9/2005**
Client ID: Run ID: **PIDFID_050310A** SeqNo: **343960**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.025									
Toluene	ND	0.025									
Ethylbenzene	ND	0.025									
Xylenes, Total	ND	0.025									
Surr: 4-Bromofluorobenzene	0.9907	0	1	0	99.1	87.4	116	0			

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

Hall Environmental Analysis Laboratory

Date: *17-Mar-05*

CLIENT: San Juan Refining
Work Order: 0503084
Project: Stockpile

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID **LCS-7553** Batch ID: **7553** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **3/11/2005 7:42:07 PM** Prep Date **3/10/2005**
Client ID: Run ID: **FID(17A) 2_050310A** SeqNo: **344499**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51.43	10	50	0	103	67.4	117	0			

Sample ID **LCSD-7553** Batch ID: **7553** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **3/15/2005 1:05:20 PM** Prep Date **3/10/2005**
Client ID: Run ID: **FID(17A) 2_050315A** SeqNo: **344580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57.01	10	50	0	114	67.4	117	51.43	10.3	17.4	

Sample ID **LCS-7545** Batch ID: **7545** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **3/10/2005 4:00:50 PM** Prep Date **3/9/2005**
Client ID: Run ID: **PIDFID_050310A** SeqNo: **343993**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24.13	5	25	0	96.5	84	120	0			

Sample ID **LCSD-7545** Batch ID: **7545** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **3/10/2005 4:31:17 PM** Prep Date **3/9/2005**
Client ID: Run ID: **PIDFID_050310A** SeqNo: **343994**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24.97	5	25	0	99.9	84	120	24.13	3.42	11.6	

Sample ID **GRO lcs 2.5ug** Batch ID: **7545** Test Code: **SW8015** Units: **mg/Kg** Analysis Date **3/11/2005 3:53:36 PM** Prep Date
Client ID: Run ID: **PIDFID_050311A** SeqNo: **344199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22.54	5	25	0	90.2	84	120	0			

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

CLIENT: San Juan Refining
Work Order: 0503084
Project: Stockpile

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID **LCS-7545** Batch ID: **7545** Test Code: **SW8021** Units: **mg/Kg** Analysis Date **3/10/2005 4:00:50 PM** Prep Date **3/9/2005**
Client ID: Run ID: **PIDFID_050310A** SeqNo: **343962**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.4062	0.025	0.42	0	96.7	83.4	113	0			
Toluene	2.083	0.025	1.9	0	110	86.3	118	0			
Ethylbenzene	0.3847	0.025	0.41	0	93.8	81.7	113	0			
Xylenes, Total	2.005	0.025	1.9	0	106	86.9	112	0			

Sample ID **LCSD-7545** Batch ID: **7545** Test Code: **SW8021** Units: **mg/Kg** Analysis Date **3/10/2005 4:31:17 PM** Prep Date **3/9/2005**
Client ID: Run ID: **PIDFID_050310A** SeqNo: **343969**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.3958	0.025	0.42	0	94.2	83.4	113	0.4062	2.59	27	
Toluene	2.015	0.025	1.9	0	106	86.3	118	2.083	3.35	19	
Ethylbenzene	0.384	0.025	0.41	0	93.7	81.7	113	0.3847	0.167	10	
Xylenes, Total	1.967	0.025	1.9	0	104	86.9	112	2.005	1.89	13	

Sample ID **BTEX lcs 100ng** Batch ID: **7545** Test Code: **SW8021** Units: **mg/Kg** Analysis Date **3/11/2005 4:23:49 PM** Prep Date
Client ID: Run ID: **PIDFID_050311A** SeqNo: **344196**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.013	0.025	1	0	101	83.4	113	0			
Toluene	1.023	0.025	1	0	102	86.3	118	0			
Ethylbenzene	1.011	0.025	1	0	101	81.7	113	0			
Xylenes, Total	3.033	0.025	3	0	101	86.9	112	0			

7 / 8

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

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 3/8/2005

Work Order Number 0503084 | Received by AT

Checklist completed by _____ 3/8/05
Signature | Date

Matrix | Carrier name | Client drop-off

Shipping container/cooler in good condition?	Yes	☑	No	☐	Not Present	☐	
Custody seals intact on shipping container/cooler?	Yes	☐	No	☐	Not Present	☐	Not Shipped ☑
Custody seals intact on sample bottles?	Yes	☐	No	☑	N/A	☐	
Chain of custody present?	Yes	☑	No	☐			
Chain of custody signed when relinquished and received?	Yes	☑	No	☐			
Chain of custody agrees with sample labels?	Yes	☑	No	☐			
Samples in proper container/bottle?	Yes	☑	No	☐			
Sample containers intact?	Yes	☑	No	☐			
Sufficient sample volume for indicated test?	Yes	☑	No	☐			
All samples received within holding time?	Yes	☑	No	☐			
Water - VOA vials have zero headspace?	No VOA vials submitted	☐	Yes	☑	No	☐	
Water - pH acceptable upon receipt?	Yes	☐	No	☐	N/A	☑	

Container/Temp Blank temperature? **3°** *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

Accreditation Applie
NELAC ☐ USACE ☐
Other:

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

Client: San Juan Refining
Project Name: Stockpile
Address: 50 Road 4990 Bloomfield, NM 87413
Project #:
Project Manager:
Phone #: 505-632-4161
Sampler: Randy Schmaltz
Fax #: 505-632-3911
Sample Temperature: 3

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
3/05/05	2:20pm	Soil	1500-1800	1-4oz			0503084-1	X		X														
3/06/05	2:30pm		1800-2100				-2	X		X														
3/07/05	2pm		2300-2600				-3	X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
3/07/05	3pm	Cindy Hurtado	3/8/05 1437
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

March 24, 2005

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

RE: Stockpile Order No.: 0503184

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 1 sample on 3/18/2005 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

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

Hall Environmental Analysis Laboratory

Date: *24-Mar-05*

CLIENT: San Juan Refining
Client Sample ID: 2100'-2300'
Lab Order: 0503184
Collection Date: 3/16/2005 9:00:00 AM
Project: Stockpile
Lab ID: 0503184-01
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 418.1: TPH						Analyst: **JT**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	3/21/2005
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	0.10		mg/Kg	1	3/23/2005 8:13:18 PM
Benzene	ND	0.025		mg/Kg	1	3/23/2005 8:13:18 PM
Toluene	ND	0.025		mg/Kg	1	3/23/2005 8:13:18 PM
Ethylbenzene	ND	0.025		mg/Kg	1	3/23/2005 8:13:18 PM
Xylenes, Total	ND	0.025		mg/Kg	1	3/23/2005 8:13:18 PM
Surr: 4-Bromofluorobenzene	110	87.4-116		%REC	1	3/23/2005 8:13:18 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory

Date: *24-Mar-05*

CLIENT: San Juan Refining
Work Order: 0503184
Project: Stockpile

QC SUMMARY REPORT
Method Blank

Sample ID **MB-7613**	Batch ID: **7613**	Test Code: **E418.1**	Units: **mg/Kg**	Analysis Date **3/21/2005**	Prep Date **3/21/2005**
Client ID:		Run ID: **BUCK IR_050321A**		SeqNo: **346101**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20									

Sample ID **MB-7609**	Batch ID: **7609**	Test Code: **SW8021**	Units: **mg/Kg**	Analysis Date **3/23/2005 10:42:54 AM**	Prep Date **3/21/2005**
Client ID:		Run ID: **PIDFID_050323A**		SeqNo: **346735**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.1									
Benzene	ND	0.025									
Toluene	ND	0.025									
Ethylbenzene	ND	0.025									
Xylenes, Total	ND	0.025									
Surr: 4-Bromofluorobenzene	1.03	0	1	0	103	87.4	116	0			

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

1

Hall Environmental Analysis Laboratory

Date: *24-Mar-05*

CLIENT: San Juan Refining
Work Order: 0503184
Project: Stockpile

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID **LCS-7613** Batch ID: **7613** Test Code: **E418.1** Units: **mg/Kg** Analysis Date **3/21/2005** Prep Date **3/21/2005**
Client ID: Run ID: **BUCK IR_050321A** SeqNo: **346102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	92	20	100	0	92.0	82	114	0			

Sample ID **LCSD-7613** Batch ID: **7613** Test Code: **E418.1** Units: **mg/Kg** Analysis Date **3/21/2005** Prep Date **3/21/2005**
Client ID: Run ID: **BUCK IR_050321A** SeqNo: **346105**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	99	20	100	0	99.0	82	114	92	7.33	20	

Sample ID **LCS-7609** Batch ID: **7609** Test Code: **SW8021** Units: **mg/Kg** Analysis Date **3/23/2005 11:12:58 AM** Prep Date **3/21/2005**
Client ID: Run ID: **PIDFID_050323A** SeqNo: **346736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.4093	0.025	0.42	0	97.5	83.4	113	0			
Toluene	2.071	0.025	1.9	0	109	86.3	118	0			
Ethylbenzene	0.4053	0.025	0.41	0	98.9	81.7	113	0			
Xylenes, Total	1.998	0.025	1.9	0	105	86.9	112	0			

3 / 4

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

1

Hall Environmental Analysis Laboratory

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 3/18/2005

Work Order Number 0503184 | Received by AT

Checklist completed by _____ Signature _____ Date 3/18/05

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☐	No ☑	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☑	No ☐	N/A ☐	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	

Container/Temp Blank temperature? **1°** *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

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

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: Stock Pile
Project #:
Project Manager:
Sampler: Cindy Hurtado
Sample Temperature: 1.0

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No.	BTEX + MTBE + ~~TMB's (8021)~~	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
3/16/05	9AM	Soil	2100-2300	1-4oz			0503184-1	X			X													

Date: 3/17/05 Time: 9AM Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature) 3/17/05 1600

Date: Time: Relinquished By: (Signature)
Received By: (Signature)

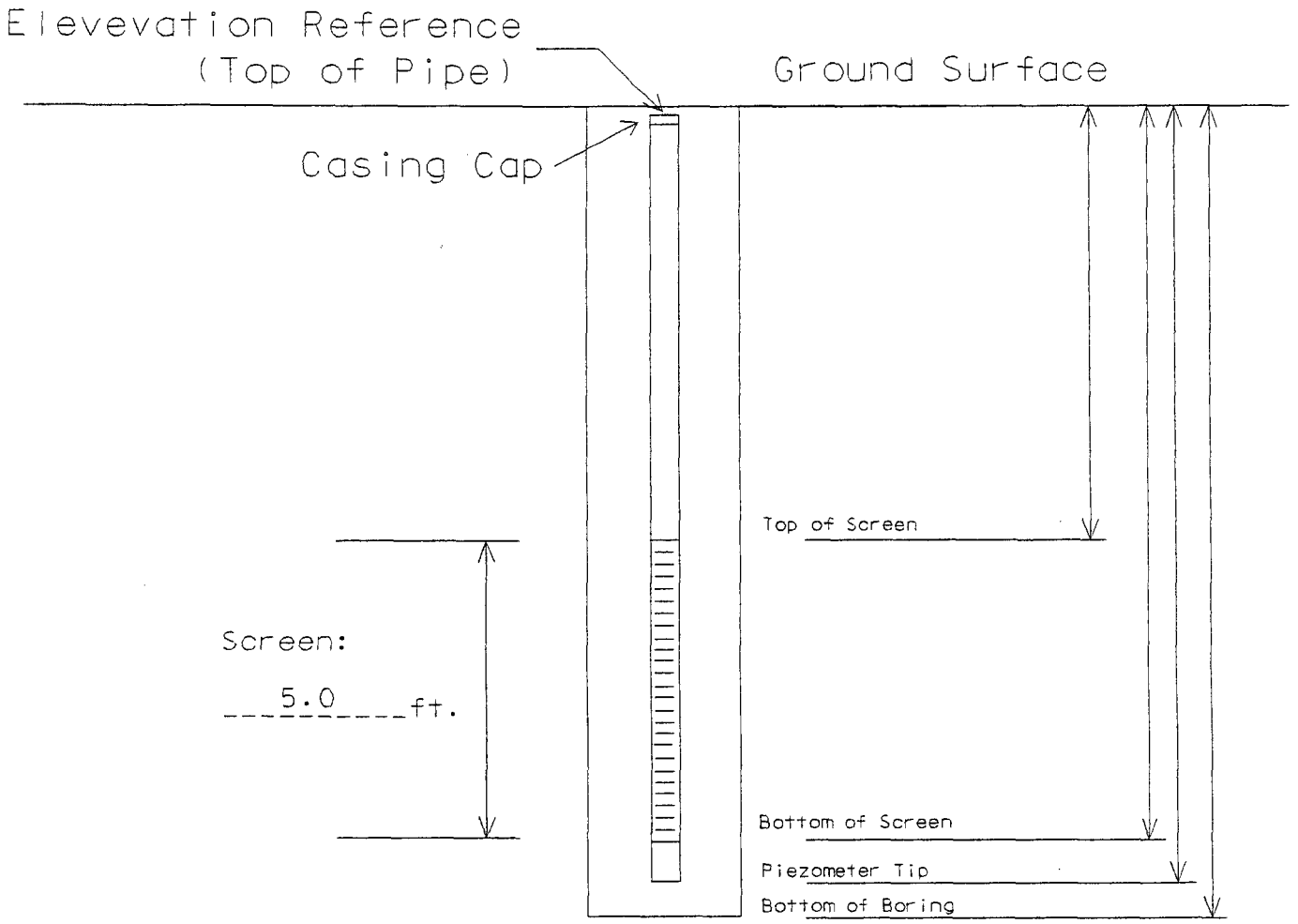
Remarks:

Section 14.0 Drilling Logs and Installation Diagrams

PRECISION ENGINEERING, INC.
505-523-7674

Temporary Piezometer Installation - Typical

See Logs for Depth Details



Boring Diameter: 8 5/8"

Sand Type: Native Backfill

Bollards, Type/Size: None

Bentonite: None

Screen Type/Size: 2" PVC Sch. 40, 0.060" Hand Slotted @ 3" Intervals

Cement/Grout: None

Riser Type/Size: 2" PVC Sch. 40

Water: Potable

Locking Expandable Casing Plug? No (Slip Cap)

Site Northing:

Other: N/A

Bottom Cap Used? Yes

Site Easting:

Giant Refining Co.

Project #: 03-122

Project Name: Bloomfield Wells

Elevation:

Sheet: 1 OF 5
Bore Point: River Terrace
Water Elevation: 7.0'
Boring No.: TP-9

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 05-038
Site: Bloomfield
Giant Refining
Elevation: EXISTING
Date: 4/5/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0.0-7.5		///**///		**Clay**, Slightly Sandy, Very Fine, Brown, Moist, Gravel, Cobbles				
			///**///						
			///**///						
			///**///						
			///**///	2.5					
			///**///						
			///**///						
			///**///						
			///**///						
			///**///	5.0					
			///**///						
			///**///						
			///**///						
	7.0		///**///		Water				
			///**///	7.5					
	7.5-10.0		**********		Sand, Very Fine, Grey, Water Bearing				
			**********						
			**********						
			**********						
			**********	10.0					
	10.0				TD				
					Set 2" Well @ 10.0'				
					5' of Screen, 6' of Riser				
					Top of Sand 3.1'				
					Top of Bentonite 1.5'				
				15.0					
				20.0					

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER — LOGGED BY: KMM

C:\Documents and Settings\cindyh\Local Settings\Temporary Internet Files\O

Sheet: 2 OF 5
Bore Point: River Terrace
Water Elevation: 4'2"
Boring No.: TP-10

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 05-038
Site: Bloomfield
Giant Refining
Elevation: EXISTING
Date: 4/5/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0.0-2.0		*-------* *-------* *-------*		**Silt**, Sandy, Very Fine, Brown, Gravel, Cobbles Moist				
	2.0-8.5		***_*** ***_*** ***_*** ***_*** ***_***	2.5	**Sand**, Very Fine to Fine, Silty, Brown, Gravel, Cobbles, Damp				
			_ ***_*** ***_*** ***_*** ***_*** ***_*** ***_*** ***_***	5.0 7.5	Water				
	8.5			10.0 15.0 20.0	TD Set 2" Well @ 8.5' 5' of Screen, 5' of Riser Top of Sand 2.5' Top of Bentonite 1.5'				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER LOGGED BY: KMM

C:\Documents and Settings\cindyh\Local Settings\Temporary Internet Files\O

Sheet: 3 OF 5
Bore Point: River Terrace
Water Elevation: 5.3'
Boring No.: TP-11

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 05-038
Site: Bloomfield
Giant Refining
Elevation: EXISTING
Date: 4/5/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0.0-2.0		////////// ////////// //////////		**Clay**, Brown, Moist, Gravel, Cobbles				
	2.0-3.5		***//*** ***//*** ***//***	2.5	**Sand**, Clayey, Brown, Moist, Gravel, Cobbles				
	3.5-5.0		***--*** ***--*** ***--*** ***--***	5.0	**Sand**, Silty, Brown, Damp, Gravel, Cobbles				
	5.0-9.5		********		**Sand**, Fine to Coarse,.Tan, Damp, Wet				
	5.3'		******** ******** ******** ******** ******** ******** ********	7.5	Water				
	9.5			10.0	TD Set 2" Well @ 9.5' 5' of Screen, 5' of Riser Top of Sand 3.5' Top of Bentonite 1.4'				
				15.0					
				20.0					

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER — LOGGED BY: KMM

C:\Documents and Settings\cindyh\Local Settings\Temporary Internet Files\O

Sheet: 4 OF 5
Bore Point: RiverTerrace
Water Elevation: 7.5'
Boring No.: TP-12

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 05-038
Site: Bloomfield
Giant Refining
Elevation: EXISTING
Date: 4/5/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0.0-3.0		***_*** ***_*** ***_*** ***_*** ***_***	2.5	**Sand**, Very Fine to Fine, Slightly Silty, Brown, Gravel, Cobbles, Moist				
	3.0-4.5		////**/// ////**/// ////**///		**Clay**, Sandy, Very Fine, Brown, Some Gravel/ Cobbles, Moist				
	4.5-9.0		***//*** ***//*** ***//*** ***//*** ***//*** ***//*** ***//***	5.0 7.5	**Sand**, Very Fine to Fine, Clayey, Brown, Moist, Some Gravel				
	9.0-13.0		******** ******** ******** ******** ******** ******** ******** ******** ******** ******** ********	10.0	Water **Sand**, Fine to Coarse, Tan, Water Bearing				
	13.0			15.0 20.0	TD Set 2" Well @ 12.0' 5' of Screen, 8' of Riser Top of Sand 5'2" Top of Bentonite 4'2"				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER LOGGED BY: KMM

C:\Documents and Settings\cindyh\Local Settings\Temporary Internet Files\O

Sheet: 5 OF 5
Bore Point: River Terrace
Water Elevation: 6.0'
Boring No.: TP-13

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 05-038
Site: Bloomfield
Giant Refining
Elevation: EXISTING
Date: 4/5/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0.0-1.5		*-------* *-------*		**Silt**, Sandy, Very Fine to Fine, Brown, Moist, Gravel, Cobbles				
	1.5-8.5		***//*** ***//*** ***//*** ***//*** ***//*** ***//*** ***//*** ***//*** ***//*** ***//***	2.5 5.0	**Sand**, Very Fine, Clayey, Brown, Moist, Gravel, Cobbles				
	6.0		***//*** ***//*** ***//*** ***//***	7.5	Water Level 6.0'				
	8.5-14.0		//////// //////// //////// //////// //////// //////// //////// //////// //////// //////// //////// ////////	10.0	**Clay**, Grey/Black, Moist, No Hydrocarbon Odor				
	14.0			15.0 20.0	TD Set 2"' Well @ 14.5' 10' of Screen, 5' of Riser Top of Sand 2.5' Top of Bentonite 1.5'				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER — LOGGED BY: KMM

C:\Documents and Settings\cindyh\Local Settings\Temporary Internet Files\O

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Dewatering Well DW-1

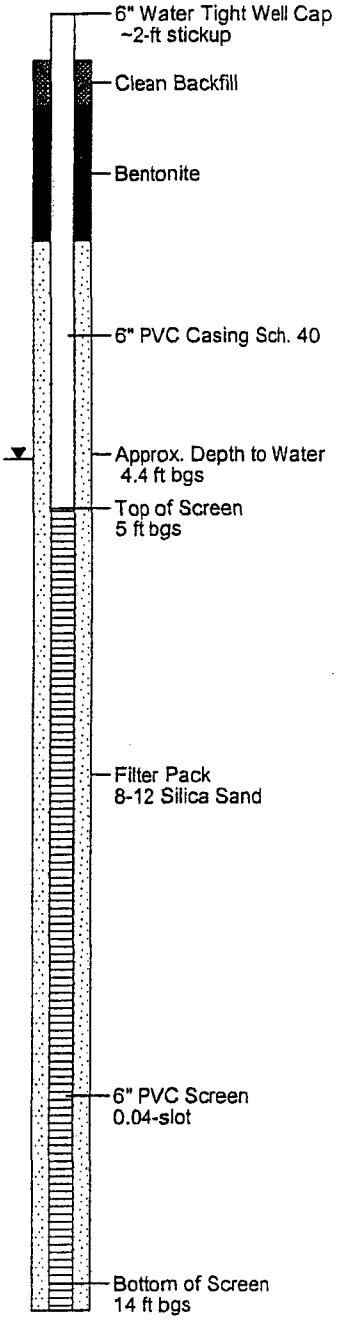
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 16, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 16, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0			NOTE: Lithologic Description from Boring #2.					
1								
2	ML		Poorly Graded Sandy SILT, brown, fine sand, non-plastic fines, trace of fine gravel, moist/damp.	T	30	70	1	12
3								
4								
5								
6	SM		Black staining starts.				3	
7			Poorly Graded SILTY SAND, gray/black, fine sand, non-plastic fines, trace of fine gravel.	T	70	30	1	12
8							1	
9								
10								
11	ML		Clayey SILT, gray, low plasticity fines, fine to coarse sand, fine gravel.	5	20	75	1	9
12								
13								
14								

Well Name: DW-1
Borehole Diameter: 12 inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\DW-1.bor

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Dewatering Well DW-2

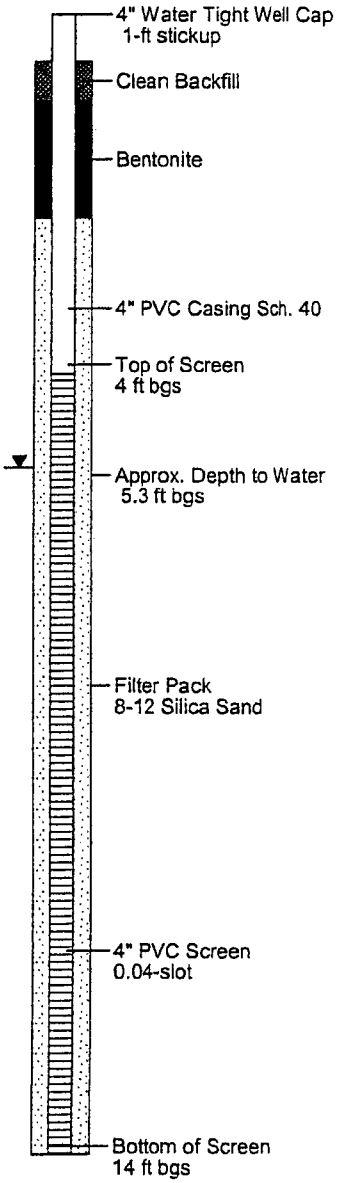
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 18, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 18, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0–5	ML		SILT, brown, non-plastic fines, fine sand, fine gravel. Clay 2" thick.	5	35	60	1 2 2	10
5–9	SM		Poorly Graded SILTY SAND, black, med. sand, non-plastic fines. Clay 3" thick.	5	70	25	1 2 5	12
9–13	SP-SM		POORLY GRADED SAND WITH SILT, coarse sand, fine gravel, non-plastic fines.	10	75	15		
13–16	SW		WELL GRADED Gravelly SAND, black, fine to med. gravel, fine to coarse sand, non-plastic fines.	25	70	5	10 17 23	24

Well Name: DW-2
Borehole Diameter: 12 inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\DW-2.bor

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-1

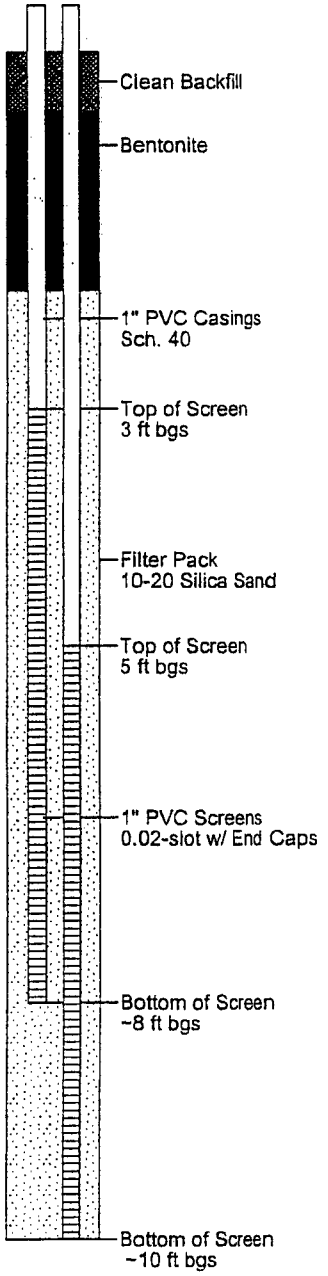
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 15, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 15, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recoevery (in.)
0								
1								
2	ML/SM		Sandy SILT/ SILTY SAND, light brown, non-plastic fines with intermittent clays, fine to coarse sand, fine subrounded gravel.	T	40	60	3 2 3	8
3								
4			Clay 3" thick					
5							5	
6			POORLY GRADED SAND with gravel, black staining starts.	20	80	T	5	12
7	SP		Cobbles and gravel at 7' bgs, increasing coarsenes with depth, split-spoon refusal no sample at 8 ft bgs.				9	
8				40	60			
9								
10								

Well Name1: BV-1a
Well Name2: BV-1b
Borehole Diameter: 6-inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\BV-1.bor

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-2

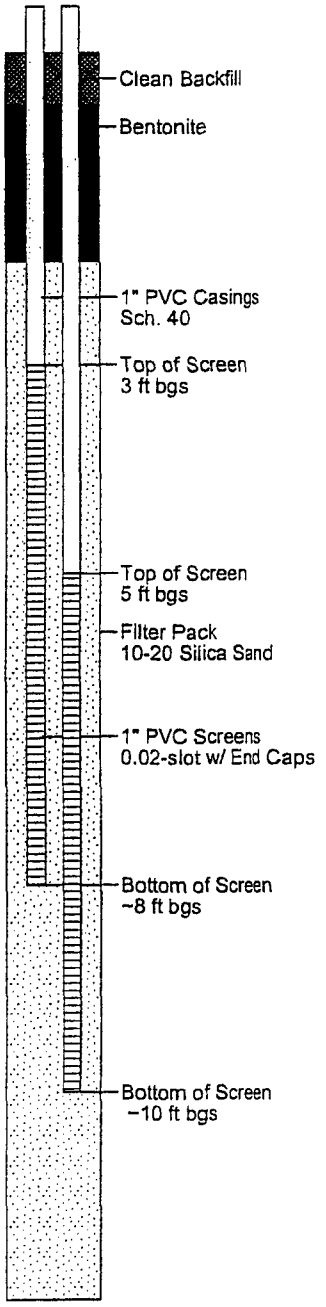
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 15, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 15, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0–5	ML		Poorly Graded Sandy SILT, light brown, non-plastic fines, fine sand, fine gravel, damp, very dense, black from 3'-4'. Odor.	T	30	70	50f6	0
5–9	SW-SM		WELL GRADED Gravelly SAND WITH SILT, dark brown/black, fine to coarse sand, fine to med. gravel, non-plastic fines, trace of cobbles, damp, dense.	35	50	15		
9–12	SW		WELL GRADED SAND, black, medium density, wet. Alternating 1'-2' thick layers of brown and black soil varying in odor. Staining continues to total depth	10	90	T	12 12 50f6	12

Well Name1: BV-2a
Well Name2: BV-2b
Borehole Diameter: 6-inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\BV-2.bor

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-3

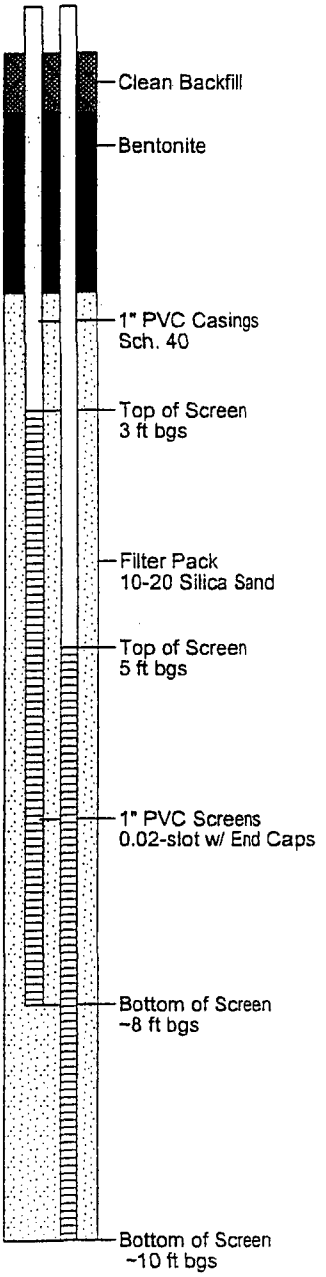
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 15, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 15, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils: % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1								
2	ML		Sandy SILT					
3								
4								
5								
6	SP		POORLY GRADED SAND with gravel, black starting at 6' bgs.				7 10 21	18
7			3" thick clay layers at 7' bgs.					
8			Gravelly sand starts at 8' bgs.					
9								
10								

Well Name1: BV-3a
Well Name2: BV-3b
Borehole Diameter: 6-inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\BV-3.bor

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-4

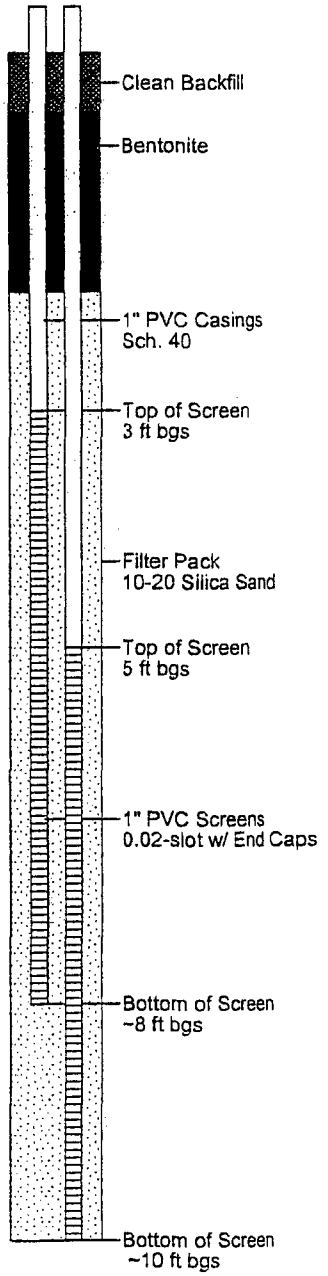
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 15, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 15, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1								
2			Cobble				8	
	ML		Poorly Graded Sandy SILT, light brown, slight to med. plasticity fines, fine to med. sand, fine subrounded gravel, damp.	T	30	70	7	12
3			Black staining starts				7	
4								
5								
6								
7							31	
	SW		WELL GRADED Gravelly SAND, black, fine to coarse sand, fine subrounded gravel, non-plastic fines, damp to wet.	20	80	T	32	1
8							10	
9								
10								

Well Name1: BV-4a
Well Name2: BV-4b
Borehole Diameter: 6-inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\BV-4.bor

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-5

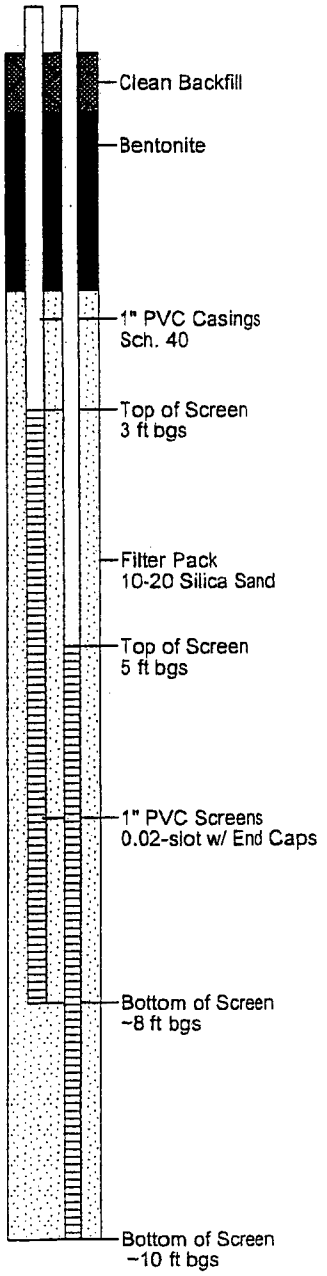
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 15, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 15, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils: % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1								
2	ML		Poorly Graded Sandy SILT, light brown, non-plastic fines, fine sand, fine gravel, damp.				4	
3							8 12	12
4								
5			Clay 2" thick					
6	SP		POORLY GRADED SAND, black, coarse sand, fine gravel. Black staining starts.				5 2 3	12
7								
8								
9							5	
10			3" layer of clay at 10' bgs, followed by more gravel.				12 13	18

Well Name1: BV-5a
Well Name2: BV-5b
Borehole Diameter: 6-inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\BV-5.bor

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-6

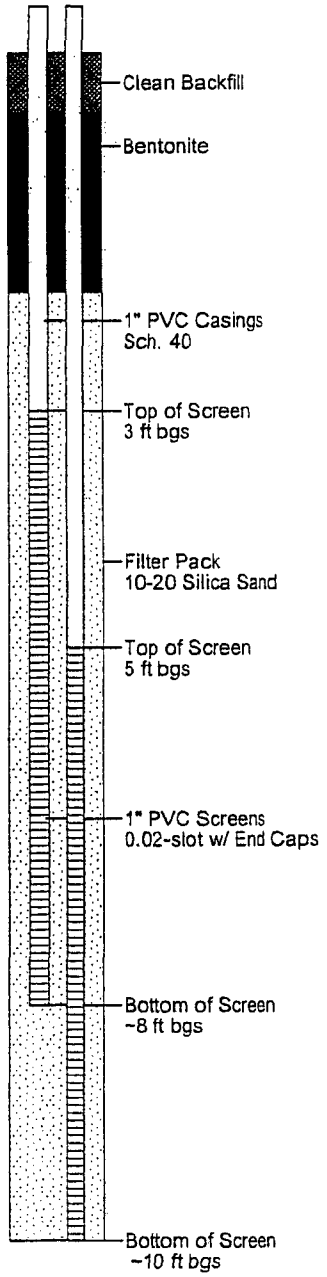
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 16, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 16, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1								
2							4	
	SP-SM		POORLY GRADED SAND WITH SILT, brown, med. sand, fine gravel, non-plastic fines, damp.	5	80	15	3	15
3			Black staining starts.				4	
4								
5								
	SW		WELL GRADED SAND, black, fine to coarse sand, fine gravel, trace of fines, wet.	10	90	T		
6								
7								
8			Clay 2" thick					
9							7	
			WELL GRADED Gravelly SAND, black, med. to coarse sand, fine to med. gravel, trace of fines, wet.	30	70	T	17	15
10							31	

Well Name1: BV-6a
Well Name2: BV-6b
Borehole Diameter: 6-inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\BV-6.bor

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-7

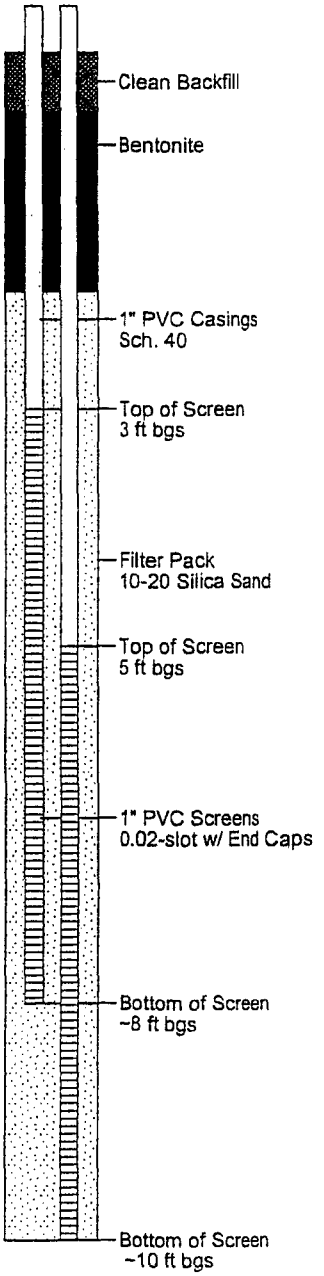
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 17, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 17, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1	SM/ML		WELL GRADED SILTY SAND/ Sandy SILT, brown, fine to coarse sand, non-plastic fines, fine gravel, damp.	10	50	40	8 7 12	18
2								
3			Black staining starts.					
4	SM		POORLY GRADED SILTY SAND, black, fine to med. sand, non-plastic fines, damp. PID = 2647 ppm.	0	70	30		
5								
6								
7			Clay 2" thick					
8	SP-SM		POORLY GRADED SAND WITH SILT, black, med. sand, non-plastic fines. PID = 2253 ppm.	0	90	10	2 1 1	6
9								
10								

Well Name1: BV-7a
Well Name2: BV-7b
Borehole Diameter: 6-inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\BV-7.bor

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-8

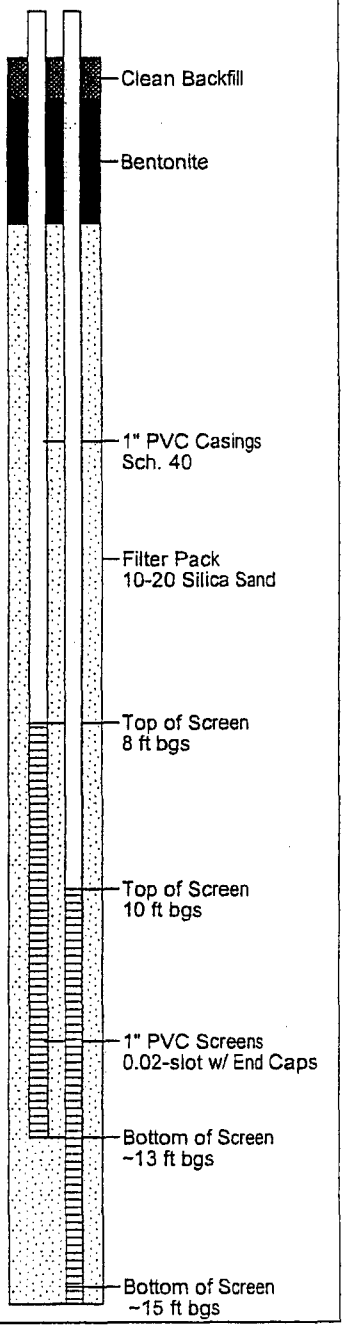
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 17, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 17, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0	ML		Sandy SILT	0	30	70		
1	SW-SM		WELL GRADED SAND WITH SILT, gray, fine to coarse sand, non-plastic fines, med. to high cementation. PID = 1.3 ppm.	0	90	10	27 35 18	18
8	ML		Sandy SILT, brown. PID = 0.7 ppm.	0	20	80	6 5 6	15
9	SP-SM		Black staining starts.					
11			POORLY GRADED SAND WITH SILT, black, med. sand, non-plastic fines, fine gravel, wet. PID = 2380 ppm.	5	85	10	3 4 7	15
13			Clay 2" thick Increasing sand with depth. PID = 2709 ppm.				2 3 8	24
15								

Well Name1: BV-8a
Well Name2: BV-8b
Borehole Diameter: 6-inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\BV-8.bor

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-9

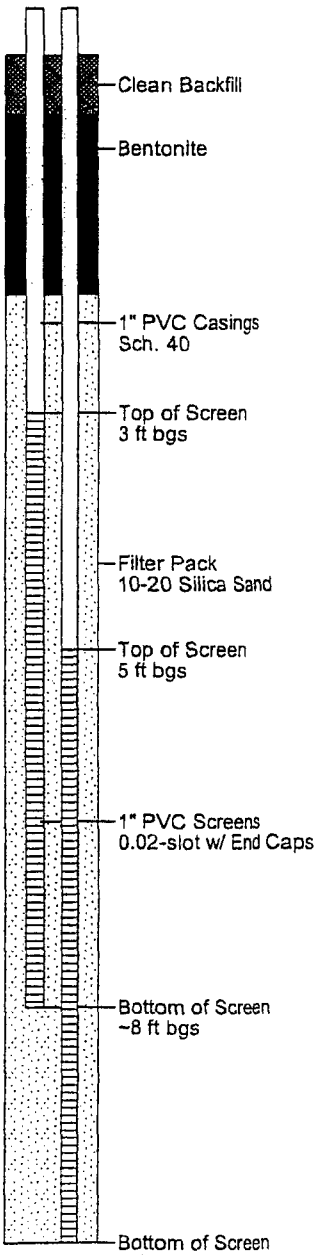
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 17, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 17, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1	SW-SM		WELL GRADED SAND WITH SILT, brown, fine to coarse sand, fine gravel, non-plastic fines, dry. PID = 1871 ppm.	10	80	10	11 17 11	12
2								
3			Poorly graded and black, odor. Black staining starts.					
4								
5								
6	SP-SM		POORLY GRADED SAND WITH SILT, black, wet, fine to med. sand, fine gravel, non-plastic fines, rotten egg odor. PID 56 ppm	10	80	10	5 6 8	12
7								
8								
9								
10								

Well Name1: BV-9a
Well Name2: BV-9b
Borehole Diameter: 6-inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\BV-9.bor

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-10

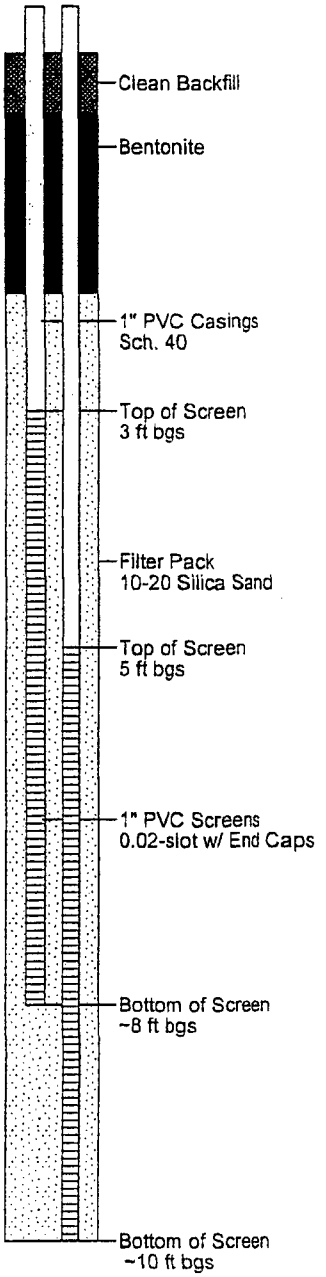
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 16, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 16, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1	SM		WELL GRADED SILTY SAND, brown, fine to coarse sand, non-plastic fines, fine gravel, cementation present, damp. PID = 2812 ppm.	10	70	20	8 7 8	18
2								
3			Black staining starts.					
4			Poorly Graded SILTY SAND, gray/black, fine sand, non-plastic fines.	0	70	30		
5	SM							
6								
7							3	
8	SP-SM		POORLY GRADED SAND WITH SILT, black, fine to med. sand, non-plastic fines. PID = 3247 ppm.	0	85	15	2 3	15
9								
10								

Well Name1: BV-10a
Well Name2: BV-10b
Borehole Diameter: 6-inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\BV-10.bor

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-11

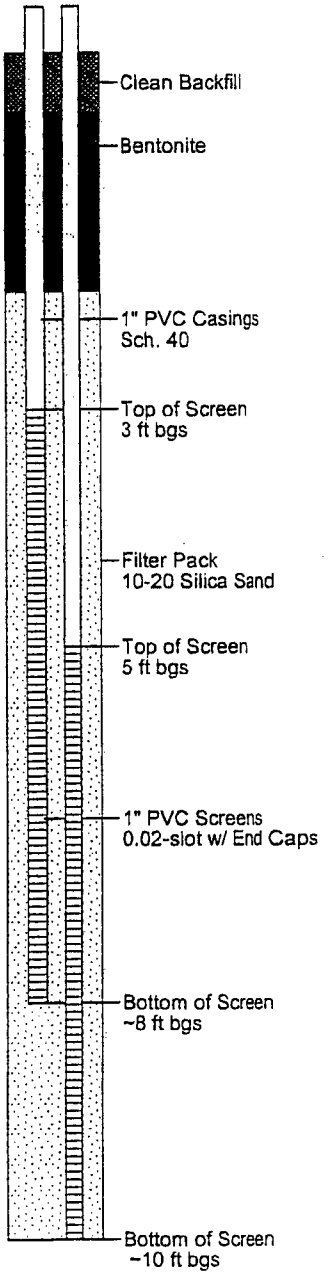
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 16, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 16, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0			Background PID 2- 12 ppm					
1								
2							3	
	SM/ML		POORLY GRADED SILTY SAND/ Sandy SILT, brown, fine sand, non-plastic fines, fine gravel, damp. PID = 145 ppm.	5	60	35	4	18
3			Black staining starts.				7	
4								
5								
6								
							4	
7	SP-SM		POORLY GRADED SAND WITH SILT, black, fine to med. sand, fine gravel, non-plastic fines. PID = 137 ppm.	15	70	15	2	6
							3	
8								
9								
10								

Well Name1: BV-11a
Well Name2: BV-11b
Borehole Diameter: 6-inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\BV-11.bor

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-12

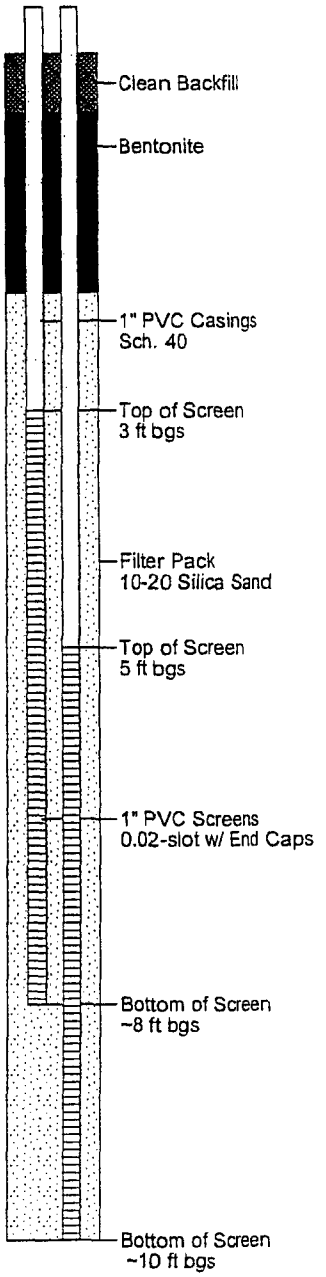
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 16, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 16, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils: % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1	SM		WELL GRADED SILTY SAND, brown, fine to med. sand, non-plastic fines, fine gravel, damp. PID = 350 ppm.				7	
2							7	18
3			Black staining starts.				7	
4								
5								
6	SP-SM						2	
7			POORLY GRADED SAND WITH SILT, fine sand, trace of gravel. PID = 2091 ppm.				1	12
8							3	
9								
10								

Well Name1: BV-12a
Well Name2: BV-12b
Borehole Diameter: 6-inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\BV-12.bor

MALCOLM PIRNIE | GIANT INDUSTRIES, INC.

Boring Log and Construction for Bio-Venting Well BV-13

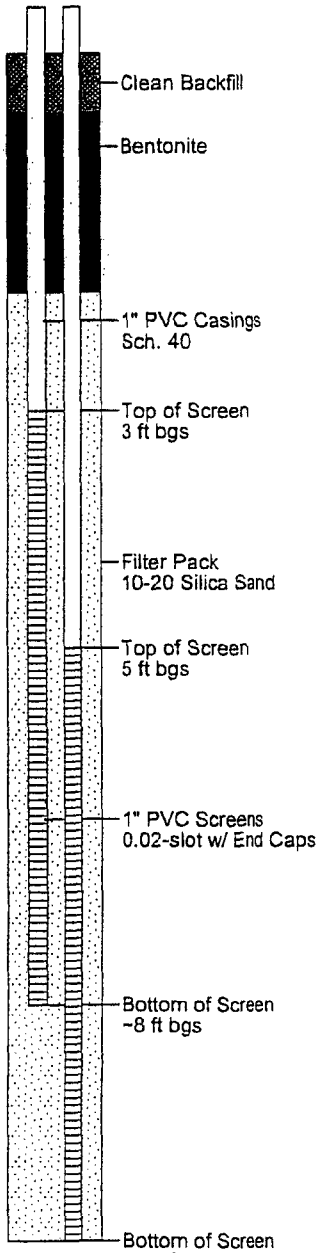
Giant Refining Company
Bloomfield Refinery
Well Installation
Bloomfield, New Mexico

Project No. 5127-003

Start Date	: Aug. 16, 2005	Drill Rig	: Hollow Stem Auger
Finish Date	: Aug. 16, 2005	Driller, Helpers	: Kelly, Kimo
Location	: Bloomfield Refinery	Sampling Method	: Split-Spoon
Logged By	: Brian Sperrazza	Northing	: NA
Drilling Subcontractor	: Envirotech	Easting	: NA

Depth in Feet	USCS	Graphic	Lithologic Description of Soil	Size Distribution of Soils % Gravel	% Sand	% Fines	Blows per 6"	Recovery (in.)
0								
1	ML		Poorly Graded Sandy SILT, brown, non-plastic fines, fine to med. sand, fine gravel.	T	40	60		
2								
3	SW-SM		WELL GRADED SAND WITH SILT, gray.				6 2 2	15
4			Black staining starts.					
5	SM		POORLY GRADED SILTY SAND, black and brown, well graded and poorly graded layers.	0	60	40		
6								
7								
8	SP-SM		POORLY GRADED SAND WITH SILT, black, slight cementation. PID = 225 ppm.					12
9								
10								

Well Name1: BV-13a
Well Name2: BV-13b
Borehole Diameter: 6-inch



02-20-2006 \\Phoenix\Projects\5127003\River Terrace VCM\Schematics\Boring Logs\BV-13.bor

2005 Below Grade Testing

System ID	Drawing Reference	Test Date	Test Method	Pass/Fail	Repair Information
Reformer	D-500-500-098	2/23/2005	Hydrotest	Pass	Tested 4" laterals & 2-12" main trunk lines
West of API	D-600-500-328	5/05 to 7/05	Hydrotest	Pass	Replaced several underground lines
API Rundown	B-600-500-330	7/25/2005	Hydrotest	Pass	Replaced underground piping with aboveground system
API Separator		8/31/2005	Internal Inspection	Pass	Reinspect in 2006
Tank #35		8/29/2005	Internal Inspection/Ultrasound Thickness Test of Floor	Pass	
Tank #36		8/24/2005	Internal Inspection/Ultrasound Thickness Test of Floor	Pass	
Tank #14		9/21/2005	Internal Inspection/Ultrasound Thickness Test of Floor	Pass	
Tank #5		9/6/2005	Internal Inspection/Ultrasound Thickness Test of Floor	Pass	

Section 15.0 Below Grade Testing