



**BILL RICHARDSON**  
GOVERNOR

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**ENTERED**



**RON CURRY**  
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**DERRITH WATCHMAN-MOORE**  
DEPUTY SECRETARY

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

September 30, 2005

Randy Schmaltz  
Environmental Supervisor  
Giant Refining Company  
P.O. Box 159  
Bloomfield, New Mexico 87413

Ed Riege  
Environmental Superintendent  
Giant Refining Company  
Route 3, Box 7  
Gallup, New Mexico 87301

**Subject: APPROVAL WITH MODIFICATIONS  
SUPPLEMENT TO THE RIVER TERRACE VOLUNTARY  
CORRECTIVE MEASURES WORK PLAN  
GIANT REFINING COMPANY, BLOOMFIELD REFINERY  
NMD089416416 HWB-GRCB-05-002**

Dear Messrs. Schmaltz and Riege:

The New Mexico Environment Department (NMED) is in receipt of the Giant Refining Company, Bloomfield Refinery (GRCB) *Voluntary Corrective Measures Bioventing Monitoring Plan* for the River Terrace Sheet Pile Area, dated September 9, 2005 this plan is a supplement report to the July 15, 2005 report and NMED hereby issues this Approval with Modifications. GRCB must only revise the sections addressed below and submit the revised plan with a table or letter cross-referencing the changes. The revised plan must be submitted to NMED on or before October 31, 2005. Upon final approval of the September 9, 2005 Supplemental Plan, any modifications or changes must be submitted in writing to NMED within fifteen (15) days of implementation.

1. All sections must be revised to include the correct sampling locations in accordance with Tables 1A – 1E or make reference to Tables 1A-1E for the sampling locations.

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2. Section 2.0 (Baseline Monitoring) and Section 2.1 (Groundwater Sampling) must be revised to include methyl tert-butyl ether (MTBE) and total metals as part of the sampling collection and analysis. See Tables 1A-1E.
3. Table 1 of GRCB's monitoring plan must be replaced with Tables 1A, 1B, 1C, 1D and 1E, included in this letter. If requested by GRCB, NMED will forward an electronic version of the tables.
4. Section 2.3 (Soil Gas Sampling) must be revised to omit diesel range organics (DRO) analysis. DRO is a heavier end petroleum hydrocarbon with a low capacity to volatilize. The sampling analysis still requires Volatile Organic Compounds - BTEX by EPA Method 8021B and Total Petroleum Hydrocarbons - Gasoline Range Organics (GRO) by EPA Modified Method 8015B. See Tables 1A-1E.
5. Section 4.2 (Soil Sampling Procedures) applies the term "drill cuttings" as part of describing sample collection methods. This appears to be a typographical error and likely refers to "soil samples." This same error appears to have been repeated in the following paragraph. Please correct as necessary.
6. Figure 1 must be revised to include the locations of all thirteen (13) temporary well points.
7. Appendix B (Sampling Forms) needs to be adjusted. Some forms do not contain all parameters to be monitored, such as dissolved oxygen and oxidation-reduction potential and some do not contain the correct sampling \ analysis information. NMED viewed these as templates and it is recommended these forms be updated prior to field activities referred to in Tables 1A-1E.
8. GRCB must submit a plan that describes the soil sampling activities that will be completed once remediation has commenced. This plan must be submitted no later than thirty (30) days prior to the start of sampling activities. The plan must identify the sampling locations and activities that will take place.

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Should you have any questions regarding this letter, please call me at 505-428-2545.

Sincerely,



Hope Monzeglio  
Project Leader  
Hazardous Waste Bureau

HM:hcm

cc: \* D. Cobrain, NMED HWB  
W. Price, OCD  
D. Foust, OCD Aztec Office  
B. Wilkinson, EPA  
D. Tucker, Malcolm Pirnie  
K. Robinson, Malcolm Pirnie

Reading File and GRCB 2005 File  
\*denotes electronic version

**Table 1A**  
**Baseline Monitoring Prior to the start of Dewatering and Air Injection System Start Up**

Sample Points	DTW/DTP	T	Cond	pH	DO	ORP	% CO <sub>2</sub>	% O <sub>2</sub>	Organic Vapors (PID)	Pressure
TP-1	B	B	B	B	B	B	B	B	B	B
TP-2	B	B	B	B	B	B	B	B	B	B
TP-3	B	B	B	B	B	B	B	B	B	B
TP-4	B	B	B	B	B	B	B	B	B	B
TP-5	B	B	B	B	B	B	B	B	B	B
TP-6	B	B	B	B	B	B	B	B	B	B
TP-8	B	B	B	B	B	B	B	B	B	B
TP-9	B	B	B	B	B	B	B	B	B	B
TP-10	B	B	B	B	B	B	B	B	B	B
TP-11	B	B	B	B	B	B	B	B	B	B
TP-12	B	B	B	B	B	B	B	B	B	B
TP-13	B	B	B	B	B	B	B	B	B	B
MW-48	B	B	B	B	B	B	B	B	B	B
MW-49	B	B	B	B	B	B	B	B	B	B
DW-1	B	B	B	B	B	B	B	B	B	B
DW-2	B	B	B	B	B	B	B	B	B	B
GAC Inf										
GAC 1 Eff										
GAC 2 Eff										

**B** -baseline monitoring pre dewatering and system start up indicates parameters must be collected

**DTW** - depth to water measurement  
**DTP** - depth to product measurement  
**T** - temperature  
**Cond** - electrical conductivity  
**DO** - dissolved Oxygen

**ORP** - oxidation Reduction Potential  
**% CO<sub>2</sub>** - percent carbon dioxide  
**% O<sub>2</sub>** - percent oxygen  
**PID** - photoionization detector

**Table 1B**

**Baseline Monitoring After the start of Dewatering and Immediately Prior to Air Injection System Start Up**

Sample Points	DTW/DTP	T	Cond	pH	DO	ORP	% CO <sub>2</sub>	% O <sub>2</sub>	Organic Vapors (PID)	Pressure
TP-1	D	D	D	D	D	D	D	D	D	D
TP-2	D	D	D	D	D	D	D	D	D	D
TP-3	D	D	D	D	D	D	D	D	D	D
TP-4	D	D	D	D	D	D	D	D	D	D
TP-5	D	D	D	D	D	D	D	D	D	D
TP-6	D	D	D	D	D	D	D	D	D	D
TP-8	D	D	D	D	D	D	D	D	D	D
TP-9	D	D	D	D	D	D	D	D	D	D
TP-10	D	D	D	D	D	D	D	D	D	D
TP-11	D	D	D	D	D	D	D	D	D	D
TP-12	D	D	D	D	D	D	D	D	D	D
TP-13	D	D	D	D	D	D	D	D	D	D
MW-48	D	D	D	D	D	D	D	D	D	D
MW-49	D	D	D	D	D	D	D	D	D	D
DW-1	D	D	D	D	D	D	D	D	D	D
DW-2	D	D	D	D	D	D	D	D	D	D
GAC Inf										
GAC 1 Eff										
GAC 2 Eff										

**D** -post dewatering, pre system start up indicates parameters must be collected.

**DTW** - depth to water measurement

**DTP** - depth to product measurement

**T** - temperature

**Cond** - electrical conductivity

**DO** - dissolved Oxygen

**ORP** - oxidation Reduction Potential

**% CO<sub>2</sub>** - percent carbon dioxide

**% O<sub>2</sub>** - percent oxygen

**PID** - photoionization detector

**Table 1C  
Monitoring System Start Up**

Sample Points	DTW/DTP	T	Cond	pH	DO	ORP	% CO <sub>2</sub>	% O <sub>2</sub>	Organic Vapors (PID)	* Pressure
TP-1	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
TP-2	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
TP-3	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
TP-4	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
TP-5	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
TP-6	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
TP-8	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
TP-9	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
TP-10	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
TP-11	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
TP-12	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
TP-13	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
MW-48	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
MW-49	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
DW-1	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
DW-2	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ	WMQ
GAC Inf										
GAC 1 Eff										
GAC 2 Eff										

\* **Pressure** - full system and individual well injection pressure must be recorded during each monitoring event

**WMQ** - weekly x 4 (a sample will be collected once a week for the initial four weeks of operation) and, monthly for the first quarter then quarterly thereafter

**Q** - Quarterly

**DTW** - depth to water measurement

**DTP** - depth to product measurement

**T** - temperature

**Cond** - electrical conductivity

**DO** - dissolved Oxygen

**ORP** - oxidation Reduction Potential

**% CO<sub>2</sub>** - percent carbon dioxide

**% O<sub>2</sub>** - percent oxygen

**PID** - photoionization detector

At 60 Days and in June 2006 -Perform In-Situ Respiration Testing

Shut down blower and monitoring oxygen/Carbon Dioxide levels in TP-1 through TP-13, MW-48, MW-49 and each of the 13 BV wells

Monitor every 1/2 hour for first 4 hours, then every hour until hour 12. Then monitor every 10-12 hours for 72 hours.

**Table 1D  
Groundwater Monitoring Frequency After System Start up**

Sample Points	Baseline Pre Dewater	Dewater Start up	Monitoring Frequency System Start Up
TP-1	B, G&D, T		Q-B, G&D
TP-2	B, G&D, T		Q-B, G&D
TP-3	B, G&D, T		Q-B, G&D
TP-4	B, G&D, T		Q-B, G&D
TP-5	B, G&D, T		Q-B, G&D
TP-6	B, G&D, T		Q-B, G&D
TP-8	B, G&D, T		Q-B, G&D
TP-9	B, G&D, T		Q-B, G&D
TP-10	B, G&D, T		Q-B, G&D
TP-11	B, G&D, T		Q-B, G&D
TP-12	B, G&D, T		Q-B, G&D
TP-13	B, G&D, T		Q-B, G&D
MW-48	B, G&D, T		Q-B, G&D, Pb & Cr
MW-49	B, G&D, T		Q-B, G&D, Pb & Cr
DW-1	B, G&D, T		Q-B, G&D, Pb & Cr
DW-2	B, G&D, T		Q-B, G&D, Pb & Cr
GAC Inf		B, G&D, T	Q-B, G&D If MTBE is detected in the GAC Inf, GAC Eff 1 & 2 must analyze for MTBE
GAC 1 Eff		B, G&D	-sample weekly until breakthrough detected and then monthly thereafter
GAC 2 Eff		B, G&D, -Q	

**Water Sample Analysis**

Q - Quarterly

B - BTEX EPA Method 8021 B + MTBE

G & D - GRO/DRO EPA Method 8015B

T - Total RCRA 8 Metals

Pb & Cr - Total Lead and Chromium EPA Method 6010C

**Note:** If metals are detected in any temporary well during baseline monitoring, GRCB must contact NMED for additional metals analysis

**Table 1E**  
**Soil Gas Sampling (Air Sampling) Frequency**

Sample Points	Pre Dewater	System Start up
TP-1	B, G	Quarterly B, G
TP-2	B, G	Quarterly B, G
TP-3	B, G	Quarterly B, G
TP-4	B, G	Quarterly B, G
TP-5	B, G	Quarterly B, G
TP-6	B, G	Quarterly B, G
TP-8	B, G	Quarterly B, G
TP-9	B, G	Quarterly B, G
TP-10	B, G	Quarterly B, G
TP-11	B, G	Quarterly B, G
TP-12	B, G	Quarterly B, G
TP-13	B, G	Quarterly B, G
MW-48	B, G	Quarterly B, G
MW-49	B, G	Quarterly B, G
DW-1	B, G	Quarterly B, G
DW-2	B, G	Quarterly B, G

**Air Sampling Analysis**

**B** - BTEX EPA Method 8021 B

**G** - GRO EPA Method 8015B

**BTEX** - benzene, toluene, ethyl benzene, xylenes

**GRO** - Gasoline Range Organics