

GRCB 05



BILL RICHARDSON  
GOVERNOR

State of New Mexico  
**ENVIRONMENT DEPARTMENT**

Hazardous Waste Bureau  
2905 Rodeo Park Drive East, Building 1  
Santa Fe, New Mexico 87505-6303

Telephone (505) 428-2500

Fax (505) 428-2567

www.nmenv.state.nm.us

ENTERED



RON CURRY  
SECRETARY



DERRITH WATCHMAN-MOORE  
DEPUTY SECRETARY

**CERTIFIED MAIL  
RETURN RECEIPT REQUESTED**

August 17, 2005

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

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

**SUBJECT: VOLUNTARY CORRECTIVE MEASURES REPORT FOR RIVER  
TERRACE INVESTIGATION, MONITORING AND TEMPORAY WELL  
INSTALLATIONS (MW-48, MW-49, TP-1 THROUGH TP-13)  
BLOOMFIELD REFINING COMPANY  
EPA ID NO. NMD089416416  
HWB-GRCB-05-003**

Dear Mr. Schmaltz and Mr. Riege:

The New Mexico Environment Department (NMED) is requiring Giant Refining Company, Bloomfield Refinery (GRCB) to submit a Voluntary Corrective Measures Report (VCM Report). The VCM Report must summarize all investigation activities that have occurred to date at the River Terrace Area prior to the installation of the remediation system. The VCM Report must summarize all activities including the installation of monitoring wells (MW) 48, MW-49 and temporary well points one through 13 (TP-1 - TP-13). The VCM Report must incorporate all proposed activities submitted by GRCB beginning with the October 27, 2004 letter containing the activity plan. The VCM Report must also incorporate the conditions listed in NMED's Approval with Conditions to the Voluntary Corrective Measures included in NMED's letters dated December 29, 2004, February 17, 2005, and any other correspondence that required specific actions. For conditions not met, an explanation of why the conditions were not met must be included in the VCM Report. To date, NMED has received various submittals regarding

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specific aspects of the Voluntary Corrective Measures occurring at the River Terrace Area; however, not all NMED required conditions have been addressed. Finally, the VCM Report format must be submitted in a format similar to that provided in Attachment I to this letter. Attachment I is an excerpt from another permit and its purpose is to provide GRCB with general guidelines for report formats. GRCB must also submit a copy of this report to the Oil Conservation Division (OCD) Santa Fe and Aztec offices attention Wayne Price and Denny Foust, respectively and also to the U.S. Environmental Protection Agency (EPA) attention Bob Wilkinson.

The VCM Report must contain but is not limited to the following:

1. well specifications addressed in the February 17, 2003 letter, condition # 1. The boring logs do not contain schedule PVC type, or screen slot size,
2. information indicating whether vadose zone headspace vapor readings were collected for temporary well points TP-1 through TP-13 as stated in condition # 3 in the February 17, 2003 letter. If the headspace vapor readings were not collected the VCM Report must explain why the readings were not collected,
3. a site map containing the locations and names of all monitoring wells and temporary well points,
4. analytical laboratory reports including quality control (QC) summary reports,
5. summary tables of the analytical data as necessary.

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The VCM Report must be submitted to NMED no later than December 30, 2005. If you have any questions regarding this letter please call me at (505) 428-2545.

Sincerely,



Hope Monzeglio  
Project Leader  
Hazardous Waste Bureau

HCM:hcm

cc: J. Kieling, NMED HWB  
D. Cobrain, NMED HWB  
W. Price, OCD  
D. Foust, OCD Aztec Office  
B. Wilkinson, EPA

Reading File and GRCB 2005 File

**ATTACHMENT 1**

**Investigation Report Format Excerpt**

### E.3 INVESTIGATION REPORT

The format listed below fulfills the requirements acceptable to the Secretary for the reporting of site investigations at the Facility. This section provides a general outline for site investigation reports and also lists the minimum requirements for reporting within each subsection when preparing site investigation reports for Facility units. All data, collected during each site investigation event in the reporting period, shall be included in the reports. In general, interpretation of data shall be presented only in the Background, Conclusions and Recommendations sections of the reports. The other text sections of the reports shall be reserved for presentation of facts and data without interpretation or qualifications. The general report outline is provided below.

#### E.3.a TITLE PAGE

The title page shall include the type of document, the Facility name and SWMU, AOC, and/or unit name(s) and the submittal date. A signature block providing spaces for the name, title and organization of the preparer and the responsible Facility representative shall be provided on the title page.

#### E.3.b EXECUTIVE SUMMARY

This section shall provide a brief summary of the purpose, scope and results of the investigation conducted at the subject site during the reporting period. The Facility name and SWMU, AOC and/or unit name(s) and location shall be included in the executive summary. In addition, this section shall include a brief summary of conclusions based on the investigation data collected and recommendations for future investigation, monitoring, remedial action or site closure.

#### E.3.c TABLE OF CONTENTS

The table of contents shall list all text sections and subsections, tables, figures and appendices or attachments included in the report. The corresponding page numbers for the titles of each unit of the report shall be included in the table of contents.

#### E.3.d INTRODUCTION

This section shall include the Facility name, unit name and location and unit status (active operations, closed, corrective action, etc.). General information on the site usage and status shall be included in this section. A brief description of the purpose of the investigation, the type of site investigation conducted and the type of results presented in the report also shall be provided in this section.

### E.3.e BACKGROUND

Relevant background information shall be provided in this section. This section shall briefly summarize historical site uses including the locations of current and former site structures and features (a labeled figure shall be included in the document showing the locations of current and former site structures and features). The locations of subsurface features such as pipelines, underground tanks, utility lines and other subsurface structures shall be included in the background summary and labeled on the site plan. In addition, this section shall include a brief summary of the possible sources, release history, known extent of contamination and the results of previous investigations including references to previous reports. The references to previous reports shall include page, table and figure numbers for referenced information. A site plan, showing relevant investigation locations, and summary data tables shall be included in the Figures and Tables sections of the document, respectively.

### E.3.f SCOPE OF SERVICES

This section shall provide a summary listing of all activities actually performed during the investigation event including, but not limited to, background information research, implemented health and safety measures that affected or limited the completion of tasks, drilling, test pit or other excavation methods, well construction methods, field data collection, survey data collection, chemical analytical testing, aquifer testing, remediation system pilot testing, and IDW storage and/or disposal.

### E.3.g FIELD INVESTIGATION RESULTS

This section shall provide a summary of the procedures used and the results of all field investigation activities conducted at the site including, but not limited to, the dates that investigation activities were conducted, the type and purpose of field investigation activities performed, field screening measurements, logging and sampling results, pilot test results, construction details and conditions observed. Field observations or conditions that altered the planned work or may have influenced the results of sampling, testing and logging shall be reported in this section. Tables summarizing all pertinent sampling, testing and screening results shall be prepared in a format approved by the Secretary. The tables shall be presented in the Tables section of the reports. At a minimum, the following subsections shall be included, where appropriate.

#### E.3.g.i Surface Conditions

This subsection shall provide a description of current site topography, features and structures including a description of drainages, vegetation, erosional features and current site uses. In addition, descriptions of features located in surrounding sites that may have an impact on the subject site regarding sediment transport, surface water runoff or contaminant transport shall be included in this subsection.

### E.3.g.ii Exploratory Drilling or Excavation Investigations

This subsection shall describe the locations, methods and depths of subsurface explorations including the types of equipment used, the logging procedures and the soil or rock classification system used to describe the observed materials, exploration equipment decontamination procedures and conditions encountered that may have affected or limited the investigation.

A description of the site conditions observed during subsurface investigation activities shall be included in this section including soil horizon and stratigraphic information. Site plans showing the locations of all borings and excavations shall be included in the Figures section of the report. Boring, test pit and excavation logs for all exploratory borings and excavations shall be presented in an Appendix or Attachment to the report.

### E.3.g.iii Subsurface Conditions

This subsection shall provide a description of known subsurface lithology and structures based on observations made during the current and previous subsurface investigations and including interpretation of geophysical logs and as-built drawings of man-made structures, if applicable. A description of the known locations of pipelines and utility lines and observed geologic structures shall also be included in this subsection. A site plan showing boring and/or excavation locations and the locations of site above- and below-ground structures shall be included in the Figures section of the report. In addition, cross sections shall be constructed, if appropriate, to provide additional visual presentation of site or regional subsurface conditions.

### E.3.g.iv Monitoring Well Construction, Exploratory Boring or Excavation Abandonment

The methods and details of monitoring well construction and the methods used to abandon or backfill exploratory borings and excavations shall be described in this section. The description shall include the dates of well construction, boring abandonment or excavation backfilling. In addition, well construction diagrams shall be included in the Appendix or Attachment with the associated boring logs for monitoring well borings.

### E.3.g.v Groundwater Conditions

This subsection shall describe groundwater conditions observed beneath the subject site and relate subsurface groundwater conditions to regional groundwater conditions. A description of the depths to water, aquifer thickness and groundwater flow directions shall be included in this section for each water bearing zone as appropriate to the investigation. Figures showing well locations and the appropriate site, surrounding area and regional groundwater elevations and flow directions for each hydrologic zone shall be included in the Figures section of the report.

E.3.g.vi Surface Water Conditions

This subsection shall describe surface water runoff, drainage, surface water sediment transport and contaminant transport in surface water as suspended load and/or as dissolved phase in surface water via natural and man-made drainages, if applicable. A description of contaminant fate and transport shall be included, if appropriate.

E.3.g.vii Surface Air and Subsurface Vapor Conditions

This subsection shall provide a description of air and vapor monitoring and sampling methods used during the site investigation, if conducted, and provide a description of observations made during the site investigation regarding subsurface flow pathways and the subsurface air flow regime.

E.3.g.viii Materials Testing Results

Materials testing results such as core permeability testing, grain size analysis or other materials testing results shall be reported in this subsection. Sample collection methods, locations and depths also shall be included. Corresponding summary tables shall be included in the Tables section of the report.

E.3.g.ix Pilot Testing Results

Pilot testing is typically conducted after initial subsurface investigations are completed and the need for additional investigation or remediation has been evaluated. Pilot testing, including aquifer testing and remediation system pilot testing shall be addressed through separate work plans and pilot test reports. The format for pilot test work plans and reports shall be approved by the Secretary prior to submittal.

E.3.h REGULATORY CRITERIA

This section shall provide information regarding applicable cleanup standards, screening levels and/or risk-based cleanup goals for each pertinent media at the subject unit. The appropriate cleanup levels for each unit within the subject site shall be included if site-specific levels have been established at separate facility locations. A table summarizing the applicable cleanup standards or inclusion of applicable cleanup standards in the data tables shall be included in the Tables section of the document. Risk-based evaluation procedures, if used to calculate cleanup levels, shall be presented in a separate document. If cleanup levels calculated in a risk evaluation are employed, the risk evaluation document shall be referenced including pertinent page numbers for referenced information.



### E.3.i SITE CONTAMINATION

This section shall provide a description of sampling intervals and methods for detection of surface and subsurface contamination in soils, sediments, groundwater, surface water and vapor-phase contamination as appropriate to the scope of the investigation. Factual information only shall be included in this Section. Interpretation of the data shall be reserved for the Summary and Conclusions Section of the reports.

#### E.3.i.i Soil and Sediment Sampling

This subsection shall briefly describe the dates, locations and methods of sample collection, sampling intervals, methods for sample logging, screening and laboratory sample selection methods including the sample depths for samples submitted for laboratory analyses. A site plan showing the sample locations shall be included in the Figures section of the report.

#### E.3.i.ii Soil Sample Field Screening Results

This subsection shall describe the field screening methods used during the investigation and the field screening results. Field screening results also shall be presented in summary tables in the Tables section of the document. The limitations of field screening instrumentation and any conditions that influenced the results of field screening shall be discussed in this subsection.

#### E.3.i.iii Soil Sampling Chemical Analytical Results

This subsection shall briefly summarize the laboratory analyses conducted, the analytical methods and the analytical results and provide a comparison of the data to cleanup standards or established cleanup levels for the site. The laboratory results also shall be presented in summary tables in the Tables section of the document. Field conditions and sample collection methods that could potentially affect the analytical results shall be described in this section. If appropriate, soil analytical data shall be presented with sample locations on a site plan and included in the Figures section of the report.

#### E.3.i.iv Groundwater Sampling

This subsection shall briefly describe the dates, locations, depths and methods of sample collection and methods for sample logging, screening and laboratory sample selection methods. A map showing the locations of all site and surrounding area well locations shall be included in the Figures section of the report.

#### E.3.i.v Groundwater General Chemistry

This subsection shall describe the results of measurement of field purging parameters and field analytical measurements. Field parameter measurements and field analytical results also shall be presented in summary tables in the Tables section of the document. The limitations of field measurement instrumentation and any conditions that may have influenced the results of the field measurements shall be discussed in this subsection. If appropriate, relevant water chemistry concentrations shall be presented in data tables or as isoconcentration contours on a site plan included in the Figures section of the report.

#### E.3.i.vi Groundwater Chemical Analytical Results

This section shall summarize groundwater chemical analytical methods and analytical results, and provide a comparison of the data to the cleanup standards or established cleanup levels for the site. The rationale or purpose for altering or modifying the groundwater sampling program outlined in the site investigation work plan also shall be provided in this section. Field conditions that may have affected the analytical results during sample collection shall be described in this section. Tables summarizing the groundwater laboratory, field and QA/QC chemical analytical data, applicable cleanup levels and modifications to the groundwater sampling program shall be provided in the Tables section of the report. If appropriate, relevant analytical data concentrations shall be presented in data tables or as isoconcentration contours on a site plan included in the Figures section of the report.

#### E.3.i.vii Air and/or Subsurface Vapor Sampling

This subsection shall briefly describe the dates, locations, depths and methods of sample collection and methods for sample logging and laboratory sample selection methods. A site plan showing the locations of all air sampling locations shall be provided in the Figures section of the report.

#### E.3.i.viii Air and/or Subsurface Vapor Field Screening Results

This subsection shall describe the field screening methods used for ambient air and/or subsurface vapors during the investigation and the field screening results. Field screening results also shall be presented in summary tables in the Tables section of the document. The locations of ambient air and/or subsurface vapor screening sample collection shall be presented on a site plan included in the Figures section of the report. The limitations of field screening instrumentation and any conditions that influenced the results of field screening shall be discussed in this subsection.

E.3.i.ix Air and/or Subsurface Vapor Laboratory Analytical Results

This section shall list air sampling laboratory analytical methods and analytical results and provide a comparison of the data to emissions standards or established cleanup or emissions levels for the site, if applicable. The rationale or purpose for altering or modifying the air monitoring or sampling program outlined in the site investigation work plan also shall be provided in this section. Field conditions that may have affected the analytical results during sample collection shall be described in this section. Tables summarizing the air sample laboratory, field and QA/QC chemical analytical data, applicable cleanup levels or emissions standards and modifications to the air sampling program shall be provided in the Tables section of the report. If appropriate, relevant concentrations shall be presented in data tables or as isoconcentration contours on a map included in the Figures section of the report.

E.3.j CONCLUSIONS

This section shall provide a brief summary of the investigation activities and a discussion and conclusions with regard to the results of the investigation conducted at the site. In addition, this section shall provide a comparison of the results to applicable cleanup levels and relevant historical investigation results and chemical analytical data. Potential receptors, including groundwater, shall be identified and discussed and the need for further investigation, corrective measures and/or a risk analyses shall be included in this section. An explanation shall be provided with regard to data gaps. If appropriate, a risk analysis may be included as an Appendix in an investigation report; however, the risk analysis shall be presented in the Risk Analysis format included in Appendix E, Section E.5 of this Permit. References to the risk analysis shall be presented only in the Summary and Conclusions section of the Investigation Report.

E.3.k RECOMMENDATIONS

Recommendations and explanations regarding future investigation, monitoring, corrective measures, risk analyses or site closure shall be included in this section. A corresponding schedule for further action regarding the unit also shall be provided.

### E.3.1 TABLES

The following summary tables shall be included in each investigation report as appropriate. Data presented in the tables shall include the current data including information on dates of data collection, analytical methods, detection limits and significant data quality exceptions. All data tables shall include only detected analytes and data quality exceptions that could potentially mask detections.

1. Summaries of regulatory criteria, background and/or the applicable cleanup levels (this information may be included in the analytical data tables instead of as separate tables).
2. Summaries of field survey location data. Separate tables shall be prepared for well locations and individual media sampling locations except where the locations are the same for more than one media.
3. Summaries of field screening and field parameter measurements of soil, sediments, groundwater, surface water and/or air quality data.
4. Summaries of soil laboratory analytical data shall include the analytical methods, detection limits and significant data quality exceptions that could influence interpretation of the data.
5. Summaries of groundwater elevation and depth to groundwater data. The table shall include the monitoring well depths and the screened intervals in each well.
6. Summary of groundwater laboratory analytical data. The analytical data tables shall include the analytical methods, detection limits and significant data quality exceptions that could influence interpretation of the data.
7. Summary of surface water laboratory analytical data. The analytical data tables shall include the analytical methods, detection limits and significant data quality exceptions that could influence interpretation of the data.
8. Summary of air sample screening and chemical analytical data. The data tables shall include the screening instruments used, laboratory analytical methods, detection limits and significant data quality exceptions that could influence interpretation of the data.
9. Summary of pilot testing data, if applicable, including units of measurement and types of instruments used to obtain measurements.
10. Summary of materials testing data, if applicable.

### E.3.m FIGURES

The following figures shall be included with each investigation report as appropriate. All figures must include a scale and north arrow. An explanation shall be provided on each figure for all abbreviations, symbols, acronyms and qualifiers.

1. Vicinity map showing topography and the general location of the subject site relative to surrounding features or properties.
2. Unit site plan that presents pertinent site features and structures, underground utilities, well locations and remediation system location(s) and details. Off-site well locations and other relevant features shall be included on the site plan if practical. Additional site plans may be required to present the locations of relevant off-site well locations, structures and features.
3. Figure(s) showing boring or excavation locations and sampling locations.
4. Figure(s) presenting soil sample field screening and laboratory analytical data.
5. Figure(s) displaying the locations of all newly installed and existing wells and borings.
6. Figure(s) presenting monitoring well and piezometer locations, groundwater elevation data and indicating groundwater flow direction(s).
7. Figure(s) presenting groundwater laboratory analytical data including past data, if applicable. The chemical analytical data corresponding to each sampling location may be presented in tabular form on the figure or as an isoconcentration map.
8. Figure(s) displaying surface water sample locations and field measurement data including past data, if applicable.
9. Figure(s) presenting surface water laboratory analytical data including past data, if applicable. The laboratory analytical data corresponding to each sampling location may be presented in tabular form on the figure.
10. Figure(s) showing air or subsurface vapor sampling locations and presenting air quality data. The field screening or laboratory analytical data corresponding to each sampling location may be presented in tabular form on the figure or as an isoconcentration map.
11. Figure(s) presenting geologic cross-sections based on outcrop and borehole data.
12. Figure(s) presenting pilot testing locations and data, where applicable, including site plans or graphic data presentation.

### E.3.n APPENDICES

Investigation reports shall include the following appendices. Additional appendices may be necessary to present data or documentation not listed below.

#### E.3.n.i FIELD METHODS

Detailed descriptions of the methods used to acquire field measurements of each media that was surveyed or tested during the investigation shall be included in this section. Methods include, but are not limited to, exploratory drilling or excavation methods, the methods and types of instruments used to obtain field screening, field analytical or field parameter measurements, instrument calibration procedures, sampling methods for each media investigated, decontamination procedures, sample handling procedures, geophysical methods, documentation procedures and field conditions that affected procedural or sample testing results. Methods of measuring and sampling during pilot testing shall be reported in this section, if applicable. Investigation derived waste storage and disposal methods also shall be presented as a subsection of this appendix. Copies of IDW disposal documentation shall be provided in a separate appendix.

#### E.3.n.ii BORING/TEST PIT LOGS AND WELL CONSTRUCTION DIAGRAMS

Boring logs, test pit or other excavation logs and well construction details shall be presented in this appendix. In addition, a key(s) to symbols and soil or rock classification system shall be included in this section.

#### E.3.n.iii CHEMICAL ANALYTICAL PROGRAM

Chemical analytical methods, a summary of data quality objectives and data quality review procedures shall be reported in this appendix. A summary of data quality exceptions and their effect on the acceptability of the field and laboratory analytical data with regard to the investigation and the site status shall be included in this appendix along with references to case narratives provided in the laboratory reports.

#### E.3.n.iv CHEMICAL ANALYTICAL REPORTS

This section shall include all laboratory chemical analytical data generated for the reporting period. The reports must include all chain-of-custody records and QA/QC results provided by the laboratory. The laboratory reports may be provided electronically in a format approved by the Secretary and shall be in the form of a final laboratory report. Laboratory report data tables may be submitted in Microsoft Excel format. Hard (paper) copies of the chain-of-custody forms shall be submitted with the reports regardless of whether the final laboratory report is submitted electronically or in hard copy.

#### E.3.n.v OTHER APPENDICES

Other appendices containing additional information shall be added as appropriate.