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June 21, 2000

Dear RCRA-Regulated Facilities and Stakeholders:

The Hazardous and Radioactive Materials Bureau (HRMB) of the New Mexico Environment Department (NMED) has developed the *General Reporting Requirements for Routine Groundwater Monitoring at RCRA Sites* position paper. This paper has been developed to provide the Resource Conservation and Recovery Act (RCRA) regulated community direction in understanding what is expected in documents submitted to HRMB. This paper has been through a thorough review internal to HRMB and would like input from the RCRA-regulated community and the various stakeholders.

Any recommendations and comments regarding this position paper must be received by HRMB no later than July 31, 2000. If you have any comments regarding this letter please contact John Kieling at the address above.

Sincerely,

James P. Bearzi
Chief
Hazardous and Radioactive Materials Bureau

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HAZARDOUS AND RADIOACTIVE MATERIALS BUREAU
New Mexico Environment Department

Position Paper *Position Paper*

GENERAL REPORTING REQUIREMENTS FOR ROUTINE GROUNDWATER MONITORING AT RCRA SITES

The purpose of this document is to provide guidance for the reporting of periodic or routine groundwater and remediation system monitoring at RCRA facilities. This document provides a general outline for groundwater monitoring reports and also lists the minimum requirements for reporting within each subsection when preparing routine groundwater monitoring reports for RCRA regulated sites. All data, collected during each groundwater monitoring and sampling event in the reporting period, must be included in the reports. The general report outline is provided below.

TITLE PAGE

The title page should include the identity of the owner/operator, facility name, site or unit name, address, U.S. Environmental Protection Agency (EPA) or New Mexico Environmental Department (NMED) facility identification number and the submittal date.

EXECUTIVE SUMMARY

This section should provide a brief summary of the purpose, scope and results of groundwater monitoring conducted at the subject site during the reporting period. The site facility name, address and U.S. Environmental Protection Agency (EPA) or New Mexico Environmental Department (NMED) facility identification number(s) should be included in the executive summary. In addition, this section should include a brief summary of conclusions based on the monitoring results and recommendations for future monitoring, remedial action or site closure.

TABLE OF CONTENTS

The table of contents should 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 should be included in the table of contents.

INTRODUCTION

This section should include the facility name, facility address, facility status (e.g. compliance, corrective action, post-closure care, etc), EPA and/or NMED facility identification number(s), the name of the owner/operator of the facility and the purpose and type of groundwater monitoring being conducted (e.g. quarterly, semi-annual, annual, closure, etc.). Pertinent background information should be provided in this section.

SCOPE OF SERVICES

This section should provide a summary of all activities actually performed during the groundwater monitoring event including field data collection, chemical testing, remediation system monitoring, if applicable, and purge/decontamination water storage and/or disposal.

REGULATORY CRITERIA

This section should provide information regarding applicable groundwater cleanup standards, risk-based screening levels and/or risk-based cleanup goals for the subject facility. The appropriate cleanup levels for each unit within the subject facility should 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 can be substituted for this section. Risk-based evaluation procedures, if used to calculate cleanup levels, must either be included or referenced.

GROUNDWATER MONITORING RESULTS

This section should provide a summary of the results of groundwater monitoring conducted at the site including, but not limited to, the dates that groundwater monitoring was conducted, the measured depths to groundwater, direction(s) of groundwater flow, field water quality measurements and a comparison to previous groundwater monitoring results. Field observations or conditions that may influence the results of groundwater monitoring should be reported in this section. Tables summarizing groundwater elevation/depth to groundwater measurements and field water quality measurements can be substituted for this section.

GROUNDWATER CHEMICAL ANALYTICAL DATA

This section should summarize the dates of groundwater sampling, 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 rational or purpose for altering or modifying the groundwater sampling program should be provided in this section. A table summarizing the groundwater and QA/QC chemical analytical data, applicable cleanup levels and modifications to the groundwater sampling program can be substituted for this section.

REMEDIATION SYSTEM MONITORING

This section should summarize remediation system capabilities, performance, monitoring data, treatment system discharge sampling requirements and system influent and effluent sampling chemical analytical results. The dates of operation, system failures and modifications made to the remediation system during the reporting period should be included in this section. A summary table may be substituted for this section.

SUMMARY

This section should provide a discussion and conclusions with regard to the results of groundwater monitoring conducted at the site. In addition, this section should provide a comparison of the results to applicable cleanup levels and relevant historical groundwater monitoring and chemical analytical data. An explanation should be provided with regard to data gaps. A discussion of remediation system performance, monitoring results, modifications, if applicable, and compliance with discharge requirements should be provided in this section. Recommendations and explanations regarding future monitoring, remedial action or site closure also should be included in this section.

LIST OF TABLES

The following summary tables should be included in each groundwater monitoring report. Data presented in the tables should include the current data plus data from the three previous monitoring events or, if data from less than three monitoring events is available, all data acquired during previous subsurface investigations and groundwater and/or remediation system monitoring. Summary tables can be substituted for portions of the text.

- Summary of regulatory criteria (a Regulatory Criteria text section can be substituted for this table or the applicable cleanup levels can be included in the analytical data tables).
- Summary of groundwater elevation and depth to groundwater data. The table should include the monitoring well depths and the screened intervals in each well.
- Summary of field measurements of water quality data (must include historical water quality data as described above).
- Summary of groundwater chemical analytical data (must include historical groundwater chemical analytical data as described above).
- Summary of remediation system monitoring data, if applicable (must include historical remediation system monitoring data as described above).

LIST OF FIGURES

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

- Vicinity map showing topography and the general location of the subject site relative to surrounding features or properties.
- Facility site plan that presents pertinent site features and structures, well locations and remediation system location(s) and features. Off-site well locations and pertinent

features should be included on the site plan if practical. Additional site plans may be required to present the locations of off-site well locations, structures and features.

- Figure presenting groundwater elevation data and indicating groundwater flow direction(s).
- Figure(s) presenting groundwater chemical analytical data for the current monitoring event. The chemical analytical data corresponding to each sampling location can be presented in tabular form on the figure or as an isoconcentration map.

APPENDICES

Groundwater monitoring reports should include the following appendices. Additional appendices may be necessary to present data or documentation not listed below.

FIELD METHODS

The methods used to acquire field measurements of groundwater elevations, water quality data and groundwater samples should be included in this section. Methods include, but are not limited to, the methods and types of instruments used to measure depths to water, air or headspace parameters, and water quality parameters. In addition, decontamination, well purging and well sampling techniques and sample handling procedures should be provided in this appendix. Methods of measuring and sampling remediation systems should be reported in this section, if applicable. Purge and decontamination water storage and disposal methods also should be presented in this appendix. Copies of purge and decontamination water disposal documentation should be provided in a separate appendix.

CHEMICAL ANAYTICAL PROGRAM

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

CHEMICAL ANAYTICAL REPORTS

This section should 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.