PERMIT ATTACHMENTS

ATTACHMENT 1 GENERAL FACILITY DESCRIPTION 1

ATTACHMENT 2 FACILITY MAP.....1

ATTACHMENT 3 INTERIM MEASURES IMPLEMENTATION SCOPE OF WORK....1

ATTACHMENT 4 RCRA FACILITY INVESTIGATION SCOPE OF WORK.....1

ATTACHMENT 5 CORRECTIVE MEASURES STUDY SCOPE OF WORK 1

ATTACHMENT 6 CORRECTIVE MEASURES IMPLEMENTATION SCOPE OF WORK 1

ATTACHMENT 7 CLEANUP LEVELS 1

ATTACHMENT 8 HAZARDOUS WASTE MANAGEMENT UNIT, SOLID WASTE MANAGMENT UNIT, AND AREA OF CONCERN TABLE.....1

ATTACHMENT 9 CLOSURE PLANS 1

ATTACHMENT 10 FACILITY-WIDE GROUND WATER MONITORING PLAN 1

ATTACHMENT 11 GROUND WATER CORRECTIVE ACTION PROGRAM 1

ATTACHMENT 12 MAP OF OB/OD UNIT.....1

ATTACHMENT 13 OFF-SITE WELLS.....1

ATTACHMENT 14 CAMU WASTE ANALYSIS PLAN 1

ATTACHMENT 15 HAZARDOUS WASTE CONTINGENCY PLAN 2

~~1~~ ATTACHMENT 1
GENERAL FACILITY DESCRIPTION

Fort Wingate Depot Activity (FWDA or the Facility) is a former Ammunition Depot under the command of the United States Army. The Facility is located in western New Mexico in McKinley County and is approximately 8 miles east of the city of Gallup at latitude 35 degrees, 27 minutes, and 30 seconds North and longitude 108 degrees, 34 minutes, and 30 seconds West.

The Facility is surrounded by developed land to the north and east and by relatively undeveloped land to the south and west. The Facility is almost entirely surrounded by BIA administered land, national forest land, Navajo tribal land, Zuni tribal land, and individual Native American allotments.

During its active life, the Facility's mission was to store, ship, and receive military munitions and material; conduct functional tests on military munitions; reclaim, maintain, and renovate military munitions; and, demilitarize and destroy obsolete or deteriorated military munitions. In January 1993 the active mission of the Facility ended and operations ceased as a result of the Defense Authorization Amendments and Base Realignment and Closure Act (BRAC) of 1988.

In the 1980s, when the Facility became subject to RCRA permit requirements, it occupied approximately 22,120 acres. Since that time, the Facility has transferred approximately 6,277 acres to the Department of Interior. Currently, the Facility occupies approximately 15,843 acres (25 square miles).

THE OB/OD UNIT

The OB/OD Unit is located in the southwest part of the Facility. The OB/OD Unit is an inactive open burn/open detonation (OB/OD) unit that, when active, was used to treat waste military munitions and explosive contaminated waste from 1955 to 1993. After 1980, the OB/OD Unit was classified as a RCRA interim status, thermal treatment unit (see 20.4.1.600 NMAC (incorporating 40 CFR part 265, subpart P)) The OB/OD Unit includes; the area known as the Burning Ground Area, twelve Current Detonation Craters (CDC) known as CDC-1 through CDC-12, and ten (10) Current Residue Piles (CRP) known as CRP-1 through CRP-10, and the Corrective Action Management Unit (CAMU). The CAMU is located at Solid Waste Management Unit (SWMU) 14 near the Old Burning Ground and Demolition Landfill within Parcel 3 (See Permit Attachment 2, map of Fort Wingate.

The Burning Ground Area was used to destroy waste military munitions burned on the ground surface in unlined trenches and in metal burn pans or trays. The estimated area of the Burning Ground Area is approximately 7 acres (see Figure 3, Permit Attachment 2 (Topographic Map Showing Fort Wingate Depot Activity)). The Burning Ground Area is located on the east side and extends into the bottom of a large arroyo.

CDCs 1-12 are open detonation craters that were used to destroy waste military munitions. The areal extent of CDCs 1-12 is estimated to be approximately 6.5 acres. CDCs 1-12 are adjacent to and separated by a large arroyo that floods on occasion. Prior to 1993, the Permittee conducted both covered and uncovered detonations at CDCs 1-12. The Permittee conducted detonation of

explosives of up to 5,000 pounds above ground and detonation of explosives between 5,000 to 10,000 pounds with ten feet of earthen cover.

The Permittee periodically bulldozed the wastes and waste residue from the Burning Ground Area and CDCs 1-12 toward the arroyo, resulting in the formation of ten Residue Piles (CRP 1 through CRP 10). Waste military munitions have also been released from the OB/OD Unit and deposited within the arroyo due to waste management activities and natural processes.

CAMU DESCRIPTION

The CAMU is located at SWMU 14. The CAMU is designed for the treatment by OB/OD of WMM generated during cleanup of Solid Waste Management Units (SWMUs), Areas of Concern (AOCs) and the OB/OD area, and any munitions recovered from within the facility that cannot be transported offsite for treatment or disposal. The requirements for operation of the CAMU are described in Permit Section IX. The CAMU occupies approximately three acres and contains five demolition pits for the disposal of waste military munitions (WMM). Each demolition pit consists of a 15 foot by 15 foot area surrounded on three sides by a containment berm and is excavated to a depth of four feet below ground surface.

The CAMU is located in a relatively flat area, approximately 500 feet from the closest arroyo. Run-on and run-off can be readily controlled and does not have a history of flooding. The CAMU is remote and so is conducive to operations requiring explosives safety quantity-distance (ESQD), which provides the required protection to personnel and property. The area also has a natural protective control of the nearby hogback ridge that provides an extra safety barrier between FWDA property and Bureau of Indian Affairs (BIA) and Tribal Trust property. The CAMU is located near an access-controlled road that not only provides lock and fence control to the area, but also provides a stable surface for transportation of items to be treated. The CAMU is located within a double fenced area, which provides the required security requirements needed for the treatment operations.

THE KICKOUT AREA

The Kickout Area is the land surrounding the OB/OD Unit that received releases of hazardous waste and hazardous constituents from the OB/OD operations and historic operations associated with SWMU 16 (Demolition Landfill and Old Burning Ground), SWMU 17 (Old Demolition Area) and SWMU 35 (“Waste Pile” KPI). Waste military munitions in the Kickout Area were expelled or "kicked out" during detonation activities.

HAZARDOUS WASTES

The Permittee used the OB/OD Unit to thermally treat various waste military munitions including propellants, explosives, pyrotechnics, and explosive-contaminated items to render them inert. The following EPA hazardous waste numbers are associated with the hazardous wastes which may have been treated at the OB/OD Unit: D001 (ignitability), D003 (reactivity), D005 (barium), D006 (cadmium), D007 (chromium), D008 (lead), D009 (mercury), D030 (2,4-dinitrotoluene), F003 and F005 (explosive-contaminated solvents and rags), and K044 (wastewater treatment sludges from the manufacturing and processing of explosives). The OB/OD Unit may also contain wastes with other EPA hazardous waste numbers.

The CAMU is permitted to treat (by open burning or open detonation) reactive (D003) and ignitable (D001) hazardous wastes, such as MEC (including damaged, defective, expired, and unserviceable munitions) and explosive-contaminated wastes during remediation activities.

WASTE CHARACTERISTICS

The Permittee primarily treated waste military munitions at the OB/OD Unit. However, the Permittee also treated explosive-contaminated items such as rags, gloves, wood, and equipment. The Permittee used oils, fuels, solvents, and dunnage to initiate the burns. The Permittee also burned and detonated incidental solid wastes, such as wooden ammunition boxes, containers, and pallets.

The OB/OD Unit is underlain by wastes and waste residues. The burning and detonation of waste military munitions, explosive-contaminated items, and incidental solid waste is associated with a variety of contaminants (e.g., metals, explosive and propellant constituents, perchlorate, white phosphorus, volatile organic compounds, semi-volatile organic compounds, and potentially asbestos, dioxins and furans, cyanide, PCBs, pesticides, and herbicides).

~~2~~ ATTACHMENT 2
FACILITY MAP

~~3~~ ATTACHMENT 3
INTERIM MEASURES IMPLEMENTATION SCOPE OF WORK

PURPOSE

Interim measures (IM) are actions to control and/or eliminate releases or potential releases of hazardous waste and/or hazardous constituents at a facility prior to the implementation of a final corrective measure. The Permittee shall implement interim measures whenever necessary to control or abate threats to human health and the environment and to prevent or minimize the spread of hazardous waste or hazardous constituents while long-term corrective action alternatives are being evaluated. Controlling exposures or controlling the migration of a release does not necessarily mean that the site has been completely investigated or cleaned up. At some sites where interim measures are taken, additional investigations or remediation may be required.

SCOPE

The documents required for Interim Measures are, unless NMED specifies otherwise, an IM Work Plan, an Operation and Maintenance Plan, and a Proposed Schedule. If required by NMED, the IM documents may also include additional reports that evaluate the effectiveness of the interim measure and IM Plans and Specifications. The scope of work (SOW) for each document is specified below. If the Permittee can justify to the satisfaction of NMED that a plan or portions thereof are not needed in the given site specific situation, NMED may waive that requirement.

NMED may require the Permittee to conduct additional tasks or provide additional information beyond what is discussed in the SOW or specified in the approved IM documents to support the IM program. The Permittee shall furnish all personnel, materials, and services necessary for, or incidental to, conducting the IM and the additional tasks.

3.1 INTERIM MEASURES WORK PLAN

The Permittee shall prepare an IM Work Plan that evaluates interim measure options and clearly describes the proposed interim measure, the key components or elements that are needed, describes the designer's vision of the interim measure in the form of conceptual drawings and schematics, and includes procedures and schedules for implementing the interim measure(s). The IM Work Plan shall, at a minimum, include the elements specified below.

3.1.1 Introduction/Purpose

The Permittee shall describe the purpose of the document and provide a summary of the project.

3.1.2 Conceptual Site Model Of Hazardous Waste or Constituent Migration

The Permittee shall present a conceptual site model (CSM) of hazardous waste or hazardous constituent migration. The conceptual site model shall consist of a working hypothesis of how the hazardous waste or hazardous constituent may move from the release source to the receptor population. The Permittee shall develop the conceptual site model considering the applicable

physical parameters (e.g., water solubility, density, Henry's Law Constant, etc.) for each hazardous waste or hazardous constituent and assessing how the hazardous waste or hazardous constituent may migrate given the existing site conditions (geologic features, depth the ground water, etc.). The Permittee shall describe the phase (water, soil, gas, non-aqueous) and location where hazardous waste or hazardous constituents are likely to be found. This analysis may have already been done as part of earlier work (e.g., Current Conditions Report). If this is the case, the IM Work Plan shall provide a summary of the conceptual site model with a reference to the earlier document.

3.1.3 Evaluation of Interim Measure alternatives

The Permittee shall list, describe, and evaluate interim measure alternatives that have the potential to stabilize the release or potential release under consideration. The Permittee shall propose interim measures for implementation and provide the rationale for the selection. The Permittee shall document the reasons for excluding any interim measure alternatives.

3.1.4 Description of Interim Measures

The Permittee shall qualitatively describe what the proposed interim measures are supposed to do and how it shall function.

3.1.5 Data Sufficiency

The Permittee shall review existing data needed to support the design effort and establish if there is sufficient accurate data available for this purpose. The Permittee shall summarize the assessment findings and specify any additional data needed to complete the interim measures design. NMED may require or the Permittee may propose that sampling and analysis plans and/or treatability study Work Plans be developed to obtain the additional data. The Permittee shall include submittal times for any new sampling and analysis plans and/or treatability study Work Plans in the project schedule.

3.1.6 Project Schedule

The Permittee shall provide a project schedule that specifies all significant steps in the process, when any key documents (e.g., Plans and Specifications, Operation and Maintenance Plan, Progress Reports) shall be submitted to NMED, and when the interim measure shall be implemented.

3.1.7 Design Basis

The Permittee shall discuss the process and methods used to design all major components of the IM. The Permittee shall discuss all assumptions made and possible sources of error. The Permittee shall provide justification for the assumptions. The Permittee shall discuss the following:

1) Conceptual process/Schematic diagram;

2) Site plan showing preliminary plant layout and/or treatment area;

3) Tables listing number and type of major components with approximate dimensions;

4) Tables giving preliminary mass balances; and

5) Site safety and security provisions (e.g., fences, fire control, etc.)

3.1.8 Waste Management Practices

The Permittee shall describe the wastes to be generated by the interim measure and shall specify how and where they shall be managed. The Permittee shall also discuss drainage and shall indicate how rainwater runon and runoff shall be managed.

3.1.9 Required Permits

The Permittee shall list and describe any permits needed to construct the IM. The Permittee shall indicate on the project schedule when the permit applications shall be submitted to the applicable agencies and an estimate of the permit issuance date.

3.1.10 Investigation, sampling and monitoring activities

NMED may require the Permittee to gather additional data for design of the IM during construction and/or during the operation and maintenance of the IM. NMED may require the Permittee to use a variety of data gathering techniques including geophysical surveys, trenching, wipe samples, field samples, and fixed laboratory samples. NMED may require the Permittee to conduct investigation, sampling, and monitoring activities to obtain this data. If these activities are required, the IM Work Plan shall specify the investigation, sampling, and monitoring activities that the Permittee will use to gather the additional data. The IM Work Plan shall specify the following information:

1) Description and purpose of investigation, sampling, monitoring tasks;

2) List and description of what the Permittee will investigate, sample, or monitor (e.g., hazardous waste or hazardous constituents, chemicals, substances, parameters, and properties);

3) Data quality objectives;

4) Analytical test methods, method detection limits (MDLs), practical quantitation limits (PQLs), equivalent quantitation limits (EQLs), dilution factors, etc., achieved for each sample (i.e., fixed laboratory and field sample);

5) Laboratory quality assurance/quality control (QA/QC) sample results, results of the matrix spike duplicates, percent recovery, duplicate analysis, and the results of any screening analyses; and,

6) Investigation, sample collection, and monitoring procedures and equipment;

7) Field quality control procedures;

8) Criteria for data acceptance and rejection; and,

9) Schedule and frequency of investigation, sampling, and monitoring.

The Permittee shall follow all NMED and/or EPA guidance for sampling and analysis. The Permittee shall analyze for hazardous waste or hazardous constituents that are reasonably expected to be present. NMED may require the Permittee to sample for additional chemicals, substances, parameters, and properties. NMED may require the Permittee to submit the investigation, sampling, and monitoring plan as a separate document.

3.1.11 Data Collection/Quality Assurance

To ensure that all information, data and resulting decisions are technically sound, statistically valid, and properly documented, the Permittee shall prepare a Quality Assurance Project Plan (QAPP) to document all monitoring procedures, sampling, field measurements and sample analyses performed during the IM. The Permittee shall use quality assurance, quality control, and chain-of-custody procedures approved by NMED. The QAPP shall include the minimum elements of a quality assurance program for data collection activities specified in Chapter One of SW-846.

3.1.12 Data Management and Reporting

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and establish data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

3.1.12.a Data Record

The data record shall include the following, at a minimum:

1) Description and purpose of the investigation, sampling, and monitoring tasks;

2) Data quality objectives;

3) Analytical test methods, dilution factors, method detection limits, practical quantitation limits, and actual detection limits;

4) Laboratory quality control sample results;

5) Sample collection procedures and equipment;

6) Field quality control procedures;

7) Evaluation of data acceptance and rejection and criteria used;

8) Unique sample collection code for each sample (i.e., fixed laboratory and field sample) and each field measurement;

9) Location and depth of each sample (i.e., fixed laboratory and field sample) and field measurement;

10) Sample type (e.g., composite, grab, wipe) and media (e.g., ground water, soil) of each sample (i.e., fixed laboratory and field sample) and field measurement;

11) Raw data for each sample (i.e., fixed laboratory and field sample) and field measurement;

12) Laboratory analysis ID number;

13) Time and date of collection of each sample (i.e., fixed laboratory and field sample) and field measurement;

14) Hazardous waste or constituent, chemical, substance, parameter, and property measured;

15) Result of analysis (e.g., concentration);

16) Cleanup levels used for comparison;

17) Conditions during sampling; and,

18) Identity of the individuals performing the investigation, sampling, and monitoring.

3.1.12.b Tabular Displays

The following data shall be presented in tabular displays, including, but not limited to:

1) Unsorted (raw) data;

2) Results for each medium and for each hazardous waste or constituent, chemical, substance, parameter, and property investigated, sampled, and monitored;

3) Data reduction for statistical analysis;

4) Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and,

5) Summary data.

3.1.12.c Graphical Displays

The following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):

1) Sampling location and sampling grid;

2) Boundaries of sampling area, and areas where additional data are required;

3) Contamination concentrations at each sampling location;

4) Geographical extent of contamination;

5) Contamination concentrations, averages, and maxima;

6) Changes in concentration in relation to distance from the source, time, depth or other parameters;

7) Features affecting intramedia transport; and,

8) Potential receptors.

3.1.13 Appendices

The Permittee shall submit an IM Work Plan that includes the following appendices:

1) Design data - Tabulations of data used in the design effort;

2) Equations - List and describe the source of all equations used in the design process;

3) Sample calculation - Present and explain one example calculation for each calculation; and,

4) Laboratory and field test results.

3.2 INTERIM MEASURE OPERATION AND MAINTENANCE PLAN

The Permittee shall prepare an IM Operation and Maintenance (O&M) Plan that includes a strategy and procedures for performing operations, maintenance, and monitoring of the IM. The Permittee shall submit the IM O&M Plan to NMED simultaneously with the Plans and Specifications. The O&M Plan shall, at a minimum, include the following elements:

3.2.1 Purpose/Approach

The Permittee shall describe the purpose of the document and provide a summary of the project.

3.2.2 Project Management

The Permittee shall specify the levels of authority and responsibility (include organization chart), lines of communication, and a description of the qualifications of key personnel who shall operate and maintain the interim measure(s) (including contractor personnel).

3.2.3 System Description

The Permittee shall describe the interim measure and identify significant equipment.

3.2.4 Personnel Training

The Permittee shall describe the training process for O&M personnel. The Permittee shall prepare, and include in the technical specification governing treatment systems, contractor requirements for providing appropriate service visits by experienced personnel to supervise the installation, adjustment, start up and operation of the treatment systems, and training covering appropriate operational procedures once the start-up has been successfully accomplished.

3.2.5 Start-up Procedures

The Permittee shall describe system start-up procedures including any operational testing.

3.2.6 Operation and Maintenance Procedures

The Permittee shall describe normal operation and maintenance procedures including:

1) Description of task for operation;

2) Description of tasks for maintenance;

3) Description of prescribed treatment or operation conditions; and,

4) Schedule showing frequency of each O&M task.

3.2.7 Waste Management Practices

The Permittee shall describe the wastes generated by operation of the interim measure and how and where they shall be managed. The Permittee shall also discuss drainage and indicate how rainwater run-on and runoff shall be managed.

3.2.8 Sampling and monitoring activities

If sampling and monitoring activities are necessary for effective operation and maintenance of the IM, the Permittee shall provide a complete sampling and analysis section in the IM Work Plan that specifies the methods and procedures to be used during IM implementation.

The Permittee shall analyze for hazardous waste or hazardous constituents that are reasonably expected to be present. NMED may require the Permittee to sample for additional constituents, parameters, and properties. The Permittee shall follow all NMED and/or EPA guidance for sampling and analysis. NMED may require the Permittee to submit the sampling and analysis section as a separate document.

3.2.9 O&M Contingency Procedures

The Permittee shall describe the procedures used to address system breakdowns and operational problems including a list of redundant and emergency back-up equipment and procedures;

If the interim measure suffers complete failure, the Permittee shall specify alternate procedures to prevent the release and/or threatened releases of hazardous substances, pollutants, or

hazardous waste or hazardous constituents which may endanger public health and the environment or exceed cleanup levels; and,

The Permittee shall specify in the O&M Plan that, in the event of a major breakdown and/or complete failure of the interim measure(s) (including emergency situations), the Permittee shall orally notify NMED within 24 hours of the event and shall notify NMED in writing within 72 hours of the event. The written notification shall, at a minimum, specify what happened, what response action is being taken and/or is planned, and any potential impacts on human health and the environment.

3.2.10 Data Management and Documentation Requirements

The Permittee shall describe how analytical data and results shall be evaluated, documented, and managed, including development of an analytical database. The Permittee shall specify the criteria that shall be used by the project team to review and to determine the quality and usability of the data.

The O&M Plan shall specify that the Permittee shall collect, maintain, and submit the following information:

1) Progress Report information, including work accomplishments (e.g., performance levels achieved, hours of treatment operation, treated and/or excavated volumes, concentrations of hazardous waste or hazardous constituents in treated and/or excavated volumes, nature and volume of wastes generated, etc.), and record of significant activities (e.g., sampling events, inspections, problems encountered, action taken to rectify problems, etc.).

2) Monitoring and laboratory data;

3) Records of operating costs; and,

4) Personnel, maintenance, and inspection records.

NMED may require the Permittee to submit additional reports that evaluate the effectiveness of the interim measure in meeting the stabilization goal.

3.3 INTERIM MEASURES PLANS AND SPECIFICATIONS

NMED may require the Permittee to prepare Plans and Specifications for the interim measure that are based upon the conceptual design but includes additional detail. If required by NMED, the Plans and Specifications shall be submitted simultaneously with the O&M Plan. The design package shall include drawings and specifications needed to construct the interim measure. Depending on the nature of the interim measure, many different types of drawings and specifications may be needed. Some of the elements that may be required include:

1) General site plans;

2) Process flow diagrams;

3) Mechanical drawings;

4) Electrical drawings;

5) Structural drawings;

6) Piping and instrumentation diagrams;

7) Excavation and earthwork drawings;

8) Equipment lists;

9) Site preparation and field work standards; and,

10) Preliminary specifications for equipment and material.

4 ATTACHMENT 4
RCRA FACILITY INVESTIGATION
SCOPE OF WORK

PURPOSE

The purpose of the RCRA Facility Investigation (RFI) is to determine the nature and extent of releases of hazardous waste or constituents from solid waste management units (SWMUs), areas of concern (AOCs), and other source areas at a facility and to gather all necessary data to support a Corrective Measures Study.

SCOPE

The RFI is one step in the corrective action program. The RFI includes the following phases: pre-investigation tasks in support of the RFI; preparation and submittal of a RFI work plan (RFI WP), the implementation of the approved RFI WP, the preparation and submittal of a RFI Report; the Preliminary Evaluation of Corrective Measure Technologies; and quarterly progress reports.

NMED may require the Permittee to conduct additional tasks or provide additional information beyond what is discussed in the SOW or specified in the approved RFI documents in order to support the RFI program. The Permittee shall furnish all personnel, materials, and services necessary for, or incidental to, conducting the RFI and the additional tasks.

4.1 PRE-INVESTIGATION TASKS

Pre-investigation tasks shall include the preparation and submittal of the following documents: a Current Conditions Report; a Health and Safety Plan; and, a Proposed Schedule.

4.1.1 Current Conditions Report

The Permittee shall submit for NMED's review and approval a Current Conditions Report that provides information on site conditions, historical site use, contamination, and interim measures for the SWMUs and AOCs under investigation. The Permittee shall identify all data gaps in the Current Conditions Report (i.e., identify the information that is not available). The Current Conditions Report shall present the information and data gathered during previous investigations and studies.

4.1.1.a Facility Background

The Current Conditions Report shall summarize the regional location, pertinent boundary features, general physiography, hydrogeology, and historical uses of the area in the vicinity of and including the SWMUs and AOCs under investigation for the treatment, storage, and/or disposal of solid and hazardous waste or hazardous constituents. The Current Conditions Report shall include the items specified below.

4.1.1.a.i Maps and aerial photographs

The Current Conditions Report shall include maps that are consistent with 20.4.1.900 NMAC (incorporating 40 CFR 270.14) and shall be of sufficient detail and accuracy to locate and report all previous, current, and future studies or work performed at the SWMUs and AOCs under investigation. The Current Conditions Report shall also include aerial photographs of the subject, SWMUs, AOCs, and source areas superimposed on them.

All maps shall also depict the following:

1) General geographic location;

2) Property lines, with the owners of all adjacent property clearly indicated;

3) Topography and surface drainage depicting all waterways, wetlands, flood plains, water features, drainage patterns, and surface-water containment areas;

4) All tanks, buildings, utilities, paved areas, easements, rights-of-way, and other features;

5) Surrounding land uses (residential, commercial, industrial, agricultural, recreational);

6) The location of all production and ground water monitoring wells at and in the vicinity of the SWMUs and AOCs under investigation and within a quarter-mile-mile radius of the facility boundary. These wells shall be clearly labeled and ground and top of casing elevations and construction details included (these elevations and details may be included as an attachment);

7) Wind rose and meteorology; and

8) The location of the boundaries of all active, inactive, closed, transferred, or transferring military ranges.

Maps and aerial photographs shall also depict the location of all known or suspected contaminated sites and areas at the facility, including the following:

1) All known or suspected solid or hazardous waste treatment, storage, management, handling, or disposal areas that were active before or after November 19, 1980;

2) All known or suspected product storage, management, or handling areas including aboveground and underground product tanks or piping;

3) All former or existing buildings and structures that are known or suspected to contain lead-based paint, PCBs in paint, or asbestos containing material;

4) All former or existing buildings and structures that have associated floor drains, piping, septic tanks, cesspools, sumps, dry wells, piping, drain fields, or outfalls;

5) All former or existing indoor and outdoor electrical transformers;

6) All known or suspected spill areas; and

7) All known or suspected areas where military munitions or waste military munitions were stored, handled, maintained, managed, demilitarized, used, tested, treated, burned, detonated, destroyed, or disposed of.

4.1.1.a.ii History

The Permittee shall provide all existing site history information for the SWMUs and AOCs under investigation in the Current Conditions Report.

4.1.1.a.iii Permits and Enforcement Actions

The Current Conditions Report shall present a summary of past permits applied for and/or received, any enforcement actions and their subsequent responses, and a list of documents and studies prepared for the facility. This may include information from previous owner/operators, if available.

4.1.1.b Preliminary Assessment of Nature and Extent of Contamination

The Current Conditions Report shall include a preliminary assessment of the nature and extent of known contamination at the SWMUs and AOCs under investigation based on existing information. The Current Conditions Report shall , at a minimum,identify the following:

1) Location and boundaries of each unit/area;

2) Quantities of solid and/or hazardous wastes (managed, spilled, placed, disposed of, or released);

3) Type of hazardous waste or hazardous constituents (both causing or potentially causing contamination), to the extent known;

4) Identification of areas where additional information is necessary;

5) A list and brief description of all previous investigations that have occurred at the SWMUs and AOCs under investigation, who they were conducted for (i.e., which bureau, agency, etc.) and contacts; and

6) The results of previous investigations and studies including the RCRA Facility Assessment (RFA) and a summary of suggested further actions for all SWMUs and AOCs under investigation.

4.1.1.c Preliminary Assessment and Description of Potential Migration Pathways

The Current Conditions Report shall include a description and evaluation of the potential migration pathways based on existing information. This shall include:

1) All potential migration pathways including information on geology, pedology, hydrogeology, physiography, hydrology, water quality, food webs, meteorology, and air quality;

2) Physical properties of hazardous waste or hazardous constituents; and,

3) An assessment of whether off-site migration of hazardous waste or hazardous constituents has occurred (may include a conceptual site model of hazardous waste or constituent migration).

The Current Conditions Report shall describe the potential impact(s) on human health and the environment, including demography, identification of possible sensitive subpopulations (e.g., schools, homes for the elderly, hospitals, and ecosystems), ground water, and surface water use, and present and future land use.

4.1.1.d Data Record

The data record shall include the following, at a minimum:

1) Description and purpose of the investigation, sampling, and monitoring tasks;

2) Data quality objectives;

3) Hazardous constituents analyzed for;

4) Sample collection procedures and equipment;

5) Field quality control procedures;

6) Conditions during sampling;

7) Identity of the individuals performing the investigation, sampling, monitoring;

8) Evaluation of data acceptance and rejection and criteria used;

9) Unique sample collection code for each sample (i.e., fixed laboratory and field sample) and each field measurement;

10) Location and depth of each sample (i.e., fixed laboratory and field sample) and field measurement;

11) Sample type (e.g., composite, grab, wipe) and media (e.g., ground water, soil) of each sample (i.e., fixed laboratory and field sample) and field measurement;

12) Raw data for each sample (i.e., fixed laboratory and field sample) and field measurement;

13) Laboratory analysis identification number;

14) Time and date of collection of each sample (i.e., fixed laboratory and field sample) and field measurement;

15) Hazardous waste or hazardous constituent, chemical, substance, parameter, and property measured;

16) Result of analysis (e.g., concentration);

17) Analytical test methods, method detection limits (MDLs), practical quantitation limits (PQLs), equivalent quantitation limits (EQLs), dilution factors, etc., achieved for each sample (i.e., fixed laboratory and field sample);

18) Laboratory quality assurance/quality control (QA/QC) sample results, results of the matrix spike duplicates, percent recovery, duplicate analysis, and the results of any screening analyses; and,

19) Cleanup levels used for comparison.

4.1.1.e Tabular Displays

The following data shall be presented in tabular displays, including, but not limited to:

1) Unsorted (raw) data;

2) Results for each medium, hazardous waste or hazardous constituent, chemical, substance, parameter, and property investigated, sampled, and monitored;

3) Data reduction for statistical analysis;

4) Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and,

5) Summary data.

4.1.1.f Graphical Displays

The following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):

1) Sampling location and sampling grid;

2) Boundaries of sampling area, and areas where additional data are required;

3) Contamination concentrations at each sampling location;

4) Geographical extent of contamination;

5) Contamination concentrations, averages, and maxima;

6) Changes in concentration in relation to distance from the source, time, depth or other parameters;

7) Features affecting intramedia transport; and,

8) Potential receptors.

4.1.2 Health and Safety Plan

The Permittee shall submit a Health and Safety Plan for all field activity. The Health and Safety Plan shall be developed as a stand-alone document.

4.2 RCRA FACILITY INVESTIGATION

4.2.1 Purpose/Objectives

The Permittee shall prepare and submit for NMED's review and approval a RFI Work Plan (RFI WP) to: characterize the environmental setting of the SWMUs and AOCs under investigation; determine the source; describe the source unit or area and describe the solid waste and hazardous waste that were released, placed, or disposed of; define the nature and extent of the releases of hazardous waste or hazardous constituents; and, identify actual or potential receptors.

The data generated by the Permittee during the RFI shall be of adequate technical quality to support the development and evaluation of the corrective measure alternative(s) during the Corrective Measures Study (CMS) and/or Interim Measures.

Upon receiving approval from NMED the Permittee shall implement the RFI Work Plan (RFI WP) and upon completion of the investigation the Permittee shall prepare and submit a RFI Report.

4.2.2 RFI Work Plan

The RFI WP shall specify the procedures by which the Permittee shall collect or obtain the following information or data:

1) Update the current conditions in accordance with Permit Attachment 4.1;

2) Description of the solid and/or hazardous wastes;

3) Waste and media characterization; and,

4) Potential receptor identification.

4.2.2.a Environmental Setting

The Permittee shall collect information to supplement and verify existing information on the environmental setting. NMED may request additional information not included on the following lists. The Permittee shall characterize the environmental setting as specified below.

4.2.2.a.i Hydrogeology

The Permittee shall evaluate the hydrogeologic conditions at the SWMUs and AOCs under investigation. This evaluation shall include, but not be limited to, the following:

1) A description of the geologic and hydrogeologic characteristics affecting ground water flow beneath the SWMUs and AOCs under investigation, including:

   (a) stratigraphy including a description of strata including strike and dip, and identification of stratigraphic contacts;

   (b) Structural geology including: description of local and regional structural features (e.g., folding, faulting, tilting, jointing, etc.);

   (c) Depositional history;

   (d) Areas and amounts of recharge and discharge;

   (e) Regional and facility-specific ground water flow patterns; and,

   (f) Seasonal variations in the ground water flow regime.

2) An analysis of any topographic features that might influence the ground water flow system.

3) A representative and accurate classification and description of the hydrogeologic units based on field data, tests, and cores that may be part of the migration pathways at the SWMUs and AOCs under investigation (i.e., the aquifers and any intervening saturated and unsaturated zones), including, but not limited to:

   (a) Hydraulic conductivity, intrinsic permeability, and porosity (total and effective);

   (b) Lithology, grain size, sorting, degree of cementation;

   (c) An interpretation of hydraulic interconnections between saturated zones; and,

   (d) The attenuation capacity and mechanisms of the natural earth materials (e.g., ion exchange capacity, organic carbon content, mineral content, etc.).

4) Based on field studies and cores, structural geology and hydrogeologic cross-sections showing the extent (depth, thickness, lateral extent) of hydrogeologic units that may be part of the migration pathways identifying:

   (a) Sand and gravel in unconsolidated deposits;

   (b) Zones of fracturing or channeling in consolidated and unconsolidated deposits;

   (c) Zones of higher permeability or low permeability that might direct and restrict the flow of hazardous waste or constituents;

(d) The uppermost aquifer;

(e) Water-bearing zones above the first confining layer that may serve as a pathway for hazardous waste or constituent migration, including perched zones of saturation; and,

(f) All other geologic formations, or parts thereof, yielding a significant amount of ground water.

5) Based upon data obtained from ground water monitoring wells and piezometers installed upgradient and downgradient of the potential hazardous waste or constituent source, a representative description of water level or fluid pressure monitoring including:

(a) Water level contour and/or potentiometric maps:

(b) Hydrologic cross-sections showing vertical flow gradients;

(c) The flow system, including the vertical and horizontal components of flow; and,

(d) Any temporal changes in hydraulic gradients, (due to seasonal influences, etc.)

(e) A description of man-made influences that may affect the hydrogeology of the site, identifying:

(i) Active and inactive local water-supply and production wells with an approximate schedule of pumping; and,

(ii) Man-made hydraulic structures (pipelines, french drains, ditches, unlined ponds, septic tanks, NPDES outfalls, retention areas, etc.).

4.2.2.a.ii Soils

The Permittee shall characterize the soil and rock units potentially affected by hazardous waste or hazardous constituent release(s). Such characterization shall include, but not be limited to, the following information:

1) Where remediation by removal of soils is the only corrective measure option, the Permittee shall provide map(s) and cross-sections showing the extent of contamination, depth of ground water, and the consistency and distribution of soils (using the Unified Soil Classification System (USCS, ASTM D 2487).

2) Where remediation by removal is the likely option, and it is necessary to determine the extent of migration (e.g., to assess the mobility of wastes from an unlined surface impoundment or landfill), the Permittee shall also provide the following in addition to the requirements immediately above:

(a) Depth to bedrock and the characteristics of the bedrock including discontinuities such as faults, fissures, joints, fractures, sinkholes, etc.;

(b) A detailed soil survey conducted according to USDA Soil Conservation Service (SCS) procedures including:

(c) USDA Textural Soil Classification and soil profiles showing stratifications or zones that may affect or direct the subsurface flow;

(d) Hydraulic conductivity and the SCS hydrologic group classification of A, B, C or D;

(e) Relative permeability (only if the waste may have changed the soil's hydraulic conductivity, such as concentrated organics);

(f) Storage capacity (if excavated soil will be stored);

(g) Shrink-swell potential (where extreme dry weather could lead to the formation of cracks);

(h) Potential for hazardous waste or hazardous constituent transport via erosion, using the Universal Soil Loss Equation;

(i) Soil sorptive capacity;

(j) Cation exchange capacity;

(k) Soil organic content; and,

(l) Soil pH.

3) The following hazardous waste or hazardous constituent characteristics shall be included:

(a) Physical state;

(b) Viscosity;

(c) pH;

(d) pKa;

(e) Density;

(f) Water solubility;

(g) Henry's Law Constant;

(h) Kow;

(i) Biodegradability; and,

(j) Rates of hydrolysis, photolysis, and oxidation.

4) Where in-situ soil treatment is likely to be implemented, the above information and the following additional information shall be provided:

(a) Bulk density;

(b) Porosity;

(c) Grain size distribution;

(d) Mineral content;

(e) Soil moisture profile;

(f) Unsaturated hydraulic conductivity;

(g) Effect of stratification on unsaturated flow; and,

(h) Infiltration and evapotranspiration.

4.2.2.a.iii Surface Water and Sediment

The Permittee shall characterize the surface water bodies likely to be affected by releases at or from the SWMUs and AOCs under investigation. Such characterization shall include the following activities and information:

1) Description of the temporal and permanent surface water bodies including:

(a) Lakes and ponds: location, elevation, surface area, inflow, outflow, depth, temperature stratification, and volume;

(b) Impoundments: location, elevation, surface area, depth, volume, freeboard, and purpose of impoundment;

(c) Arroyos, streams, ditches, drains, and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, and flooding tendencies (e.g., 100-year event, arial extent, channels);

(d) Wetlands;

(e) Containment measures in place (e.g., levees, concrete lining, etc.)

(f) Drainage patterns; and,

(g) Evapotranspiration rates.

2) Description of the chemistry of the natural surface water and sediments, including:

(a) pH;

(b) Total dissolved solids;

(c) Total suspended solids;

(d) Biological oxygen demand;

(e) Alkalinity;

(f) Conductivity;

(g) Dissolved oxygen profiles;

(h) Nutrients (NH_3, $N0_3/N0_2$, PO_4^{-3});

(i) Chemical oxygen demand;

(j) Total organic carbon; and,

(k) Specific hazardous waste or constituent concentrations.

3) Description of sediment characteristics including:

(a) Deposition area;

(b) Thickness profile; and,

(c) Physical and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.).

4.2.2.a.iv Air

The Permittee shall characterize the climate in the vicinity of the SWMUs and AOCs under investigation. Such characterization shall include the following information:

1) A description of the following parameters:

(a) Annual and monthly rainfall averages;

(b) Monthly temperature averages and extremes;

(c) Wind speed and direction;

(d) Relative humidity/dew point;

(e) Atmospheric pressure;

(f) Evaporation data;

(g) Development of inversions; and,

(h) Climate extremes that have been known to occur in the vicinity of the SWMUs and AOCs under investigation, including frequency of occurrence.

2) A description of topographic and man-made features that affect air flow and emission patterns, including:

(a) Ridges, hills, or mountain areas;

(b) Canyons or valleys;

(c) Surface water bodies (e.g., rivers, lakes, ponds, etc.);

(d) Wind breaks and forests; and,

(e) Buildings and structures.

4.2.2.b Source Characterization

The Permittee shall provide a description of the solid and/or hazardous wastes, and the areas where wastes have been treated, stored, disposed of, placed, collected, or removed including: type, quantity, physical form, disposition (containment or nature of disposal), and any facility characteristics that may affect or have affected a release (e.g., facility security, engineered barriers).

This shall include a description of the following specific characteristics at each source area:

1) Location, boundaries, dimensions, and depth below ground surface of the SWMU and/or AOC;

2) Type of SWMU and/or AOC;

3) Design and construction features;

4) Operating practices (past and present) including the history of releases;

5) Period of operation;

6) Age of SWMU and/or AOC;

7) General physical conditions; and,

8) Method used to close or remediate the SWMU and/or AOC.

9) Solid/Hazardous Waste Description;

10) Type of waste released, placed or disposed of in the SWMU and/or AOC;

(a) Hazardous classification (e.g., flammable, reactive, corrosive, oxidizing or reducing agent);

(b) Location and depth;

(c) Quantity and volume; and,

(d) Chemical composition.

11) Physical and chemical characteristics of waste;

(a) Physical form (solid, liquid, gas);

(b) Physical description (e.g., powder, oily sludge);

(c) Size and dimensions (e.g., size of military munitions);

(d) Temperature;

(e) pH;

(f) General chemical class (e.g., acid, base, solvent);

(g) Molecular weight;

(h) Density;

(i) Boiling point;

(j) Viscosity;

(k) Solubility in water;

(l) Cohesiveness;

(m) Vapor pressure;

(n) Flash point; and

(o) Waste constituents including hazardous constituents.

12) Migration, dispersal, and fate characteristics;

(a) Sorption;

(b) Hazardous constituents and chemical composition;

(c) Biodegradability, bioconcentration, biotransformation;

(d) Photodegradation rates;

(e) Combustion and detonation products;

(f) Hydrolysis rates;

(g) Chemical transformation and degradation; and,

(h) Physical migration due to erosion, freeze thaw, flood events, etc.

The Permittee shall document the procedures used in making the above determinations.

4.2.2.c Waste and Media Characterization

The Permittee shall collect data to characterize the waste and contaminated environmental media associated with releases at or from the SWMUs and AOCs under investigation. This data shall be sufficient to define the location, nature, extent, origin, direction, and rate of movement of hazardous waste or hazardous constituents in the ground water, soils, surface water, sediment, air, and subsurface gas. The Permittee may use a variety of data gathering techniques including geophysical surveys, trenching, wipe samples, field samples, and fixed laboratory samples, etc.

The Permittee shall provide a work plan for investigation, sampling and analysis, and monitoring. The work plan shall specify the following information, at a minimum:

1) Description and purpose of investigation, sampling, and monitoring tasks;

2) List of hazardous waste or hazardous constituents to be investigated, sampled, and monitored;

3) Data quality objectives;

4) Analytical test methods, method detection limits (MDLs), practical quantitation limits (PQLs), equivalent quantitation limits (EQLs), dilution factors, etc., achieved for each sample (i.e., fixed laboratory and field sample);

5) Laboratory quality assurance/quality control (QA/QC) sample results, results of the matrix spike duplicates, percent recovery, duplicate analysis, and the results of any screening analyses; and,

6) Cleanup levels used for comparison;

7) Investigation, sample collection, and monitoring procedures and equipment;

8) Field quality control procedures;

9) Criteria for data acceptance and rejection; and,

10) Schedule and frequency for investigation, sampling, and monitoring.

The Permittee shall provide complete work plans to characterize all wastes and media at the SWMUs and AOCs under investigation, including the following:

4.2.2.c.i Waste Characterization

The Permittee shall conduct an investigation to characterize solid waste and hazardous waste or hazardous constituents associated with releases at or from the SWMUs or AOCs under investigation. The Permittee shall analyze for hazardous waste or hazardous constituents that are reasonably expected to be present. NMED may require the Permittee to investigate, sample, or monitor for additional chemicals, substances, parameters, and properties. The Permittee shall follow all NMED and/or EPA guidance for sampling and analysis. The investigation shall provide the following information regarding solid waste and/or hazardous waste that was released, placed, or disposed of:

1) A description and delineation of the maximum concentrations of the waste;

2) A description and delineation of the horizontal and vertical extent of the waste;

3) Specific concentrations of hazardous wastes or hazardous constituents;

4) A description of the chemical properties of the hazardous waste or hazardous constituents. This includes hazardous waste characteristics, stability, contaminant solubility, speciation, adsorption, biodegradability, oxidation and other factors that might affect remediation, migration, transformation;

5) An evaluation of factors influencing waste movement; and,

6) An extrapolation of future waste movement over the time period specified by NMED.

The Permittee shall document the procedures used in making the above determinations (e.g., well design, well construction, geophysics, modeling, etc.).

4.2.2.c.ii Ground water characterization

The Permittee shall conduct an investigation to characterize any ground water plumes at or from the SWMUs and AOCs under investigation. The Permittee shall analyze for hazardous waste or hazardous constituents that are reasonably expected to be present. NMED may require the Permittee to sample for additional chemicals, substances, parameters, and properties. The Permittee shall follow all NMED and/or EPA guidance for sampling and analysis.

The investigation shall provide the following information:

1) A description and delineation of the maximum concentrations (e.g., hot spots, source areas) of the plume(s);

2) A description and delineation of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating at or from the SWMUs and AOCs under investigation;

3) The horizontal and vertical direction of hazardous waste or hazardous constituent movement;

4) The velocity of hazardous waste or hazardous constituent movement;

5) Specific concentrations of hazardous wastes or hazardous constituents;

6) Background concentrations for naturally occurring constituents;

7) A description and delineation of the chemical properties of the hazardous waste or hazardous constituents and ground water chemistry within and throughout the plume(s). This includes contaminant solubility, speciation, adsorption, biodegradability, oxidation and other factors that might affect migration and transformation;

8) The horizontal and vertical concentration profiles of hazardous waste or hazardous constituents in the plume(s);

9) An evaluation of factors influencing the plume movement; and,

10) An extrapolation of future contaminant movement over the time period specified by NMED.

The Permittee shall document the procedures used in making the above determinations (e.g., well design, well construction, geophysics, modeling, etc.).

4.2.2.c.iii Soil characterization

The Permittee shall conduct an investigation to characterize the contamination of the soil and rock units in the vicinity of the release from the SWMUs and AOCs under investigation. The Permittee shall analyze for hazardous waste or hazardous constituents that are reasonably expected to be present. NMED may require the Permittee to sample for additional chemicals, substances, parameters, and properties. The Permittee shall follow all NMED and/or EPA guidance for sampling and analysis.

The investigation shall include the following information:

1) A description and delineation of the vertical and horizontal extent of hazardous wastes or hazardous constituents;

2) A description and delineation of the maximum concentrations (e.g., hot spots, source areas) of hazardous wastes or hazardous constituents;

3) A description and delineation of hazardous wastes or hazardous constituents and soil chemical properties within the source area and plume. This includes contaminant solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation;

4) Background concentrations for naturally occurring constituents;

5) Specific concentrations of hazardous wastes or hazardous constituents;

6) An extrapolation of future contaminant movement over the time period specified by NMED.

The Permittee shall document the procedures used in making the above determinations.

4.2.2.c.iv Surface Water and Sediment Characterization

The Permittee shall conduct an investigation to characterize releases to surface water bodies and sediment at or from SWMUs and AOCs under investigation. The Permittee may also be required to characterize releases from storm water runoff. The Permittee shall analyze for hazardous waste or hazardous constituents that are reasonably expected to be present. NMED may require the Permittee to sample for additional chemicals, substances, parameters, and properties. The Permittee shall follow NMED and/or EPA guidance when conducting sampling and analysis.

The investigation shall include the following information:

1) A description and delineation of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating at or from SWMUs and AOCs under investigation, and the extent of contamination in sediments;

2) A description of the chemical and physical properties of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, specific contaminant concentrations, etc.

3) Background concentrations for naturally occurring constituents;

4) A description and delineation of the maximum concentrations (e.g., hot spots, source areas) of hazardous wastes or hazardous constituents;

5) The horizontal and vertical direction of movement of hazardous wastes or hazardous constituents;

6) The contaminant velocity or rate of movement;

7) An evaluation of the physical, biological, and chemical factors influencing contaminant movement; and

8) An extrapolation of future contaminant movement over the time period specified by NMED.

The Permittee shall document the procedures used in making the above determinations.

4.2.2.c.v Air Characterization

The Permittee shall conduct an investigation to characterize the particulate and gaseous contaminants released into the atmosphere from the SWMUs and AOCs under investigation. The Permittee shall analyze for hazardous waste or hazardous constituents that are reasonably expected to be present. NMED may require the Permittee to sample for additional chemicals, substances, parameters, and properties. The Permittee shall follow all NMED and/or EPA guidance for sampling and analysis. This investigation shall provide the following information:

1) The chemical and physical composition of the contaminant(s) released, including horizontal and vertical concentration profiles.

2) A description of the horizontal and vertical direction and velocity of contaminant movement; and,

3) The rate and amount of the release.

The Permittee shall document the procedures used in making the above determinations.

4.2.2.c.vi Subsurface gas characterization

The Permittee shall conduct an investigation to characterize subsurface gases emitted from hazardous waste or hazardous constituents at the SWMUs and AOCs under investigation. The Permittee shall analyze for hazardous waste or hazardous constituents that are reasonably expected to be present. NMED may require the Permittee to sample for additional chemicals, substances, parameters, and properties. The Permittee shall follow all NMED and/or EPA guidance for sampling and analysis. This investigation shall include the following information:

1) A description of the horizontal and vertical extent of subsurface gas migration;

2) The chemical composition of the gases being emitted;

3) The rate, amount, and density of the gases being emitted; and,

4) Horizontal and vertical concentration profiles of the subsurface gases emitted.

The Permittee shall document the procedures used in making the above determinations.

4.2.2.d Potential Receptor Identification

The Permittee shall collect data describing the human populations and environmental systems that currently or potentially are at risk of contaminant exposure at or from the SWMUs or AOCs under investigation. The chemical analysis of biological samples and may be needed. Data on

observable effects in ecosystems may also be required by NMED. The Permittee shall identify the following characteristics:

4.2.2.d.i Local uses and possible future uses of ground water

The Permittee shall identify the local uses and possible future uses of ground water with respect to the following considerations:

1) Type of use (e.g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial);

2) Location of ground water users including wells and discharge areas;

3) Domestic and municipal (e.g., potable and lawn/gardening watering);

4) Recreational (e.g., swimming, fishing);

5) Agricultural;

6) Industrial; and,

7) Environmental (e.g., fish and wildlife propagation).

4.2.2.d.ii Authorized and unauthorized human use and access to the facility and adjacent lands

The Permittee shall identify the authorized and unauthorized human use of, and access to, the parcels on which the SWMUs and AOCs under investigation are located and adjacent lands with respect to the following considerations: recreation; hunting; residential; commercial; zoning; and, relationship between population locations and prevailing wind direction.

4.2.2.d.iii Demographic Profile

The Permittee shall submit a demographic profile of the people who use and have access (authorized and unauthorized) to the parcel on which the SWMUs and AOCs under investigation are located and adjacent lands. The Permittee shall detail the following: age; sex; sensitive subgroups; and, environmental justice concerns.

4.2.2.d.iv Ecology

The Permittee shall submit a description of the ecology of the parcel on which the SWMUs and AOCs under investigation are located and adjacent areas, including habitat and species present and expected to be present.

4.2.2.d.v Biota In Surface Water Bodies

The Permittee shall provide a description of the biota in surface water bodies on, adjacent to, or affected by the parcel on which the SWMUs or AOCs are located.

4.2.2.d.vi Tribal, State and Federal Regulations

The Permittee shall provide a description of any tribal, state and federal threatened and/or endangered species (both proposed and listed), cultural sites or other regulated areas located near the parcel on which the SWMUs or AOCs under investigation.

4.3 PRELIMINARY EVALUATION OF CORRECTIVE MEASURE TECHNOLOGIES BY LABORATORY OR BENCH-SCALE STUDIES

NMED may require the Permittee to conduct laboratory and/or bench scale studies to determine the applicability of a corrective measure technology or technologies to conditions at the SWMUs and AOCs under investigation.

These studies may be conducted at any time during the RFI. The Permittee shall analyze the technologies, based on literature review, vendor contracts, and past experience to determine the testing requirements.

The Permittee shall develop a testing plan identifying the type(s) and goal(s) of the study or studies, the level of effort needed, and the procedures to be used for data management and interpretation. Upon completion of the testing, the Permittee shall evaluate the testing results to assess the technology or technologies with respect to the site specific questions identified in the test plan. The Permittee shall prepare a report summarizing the testing program and its results (if studies are performed), both positive and negative.

4.4 PROJECT SCHEDULE

The Permittee's proposed project schedule shall specify all significant steps in the RFI process and when all RFI deliverables (*e.g.*, Current Conditions Report, a Health and Safety Plan; RFI WP, *etc*.) shall be submitted to NMED.

~~5~~ ATTACHMENT 5
CORRECTIVE MEASURES STUDY
SCOPE OF WORK

PURPOSE

The purpose of the Corrective Measures Study (CMS) is to identify and evaluate potential remedial alternatives for all releases. NMED may require the Permittee to conduct a CMS whenever hazardous waste or constituents may pose a threat to human health and the environment, whenever concentrations of hazardous waste or hazardous constituents exceed the cleanup levels specified in Permit Attachment 7 (Cleanup Levels for Environmental Media), or as otherwise required by NMED.

SCOPE

The CMS includes, unless otherwise specified by NMED, a CMS Work Plan, a CMS Report, Progress Reports, and a Proposed Schedule. The scope of work (SOW) for each document is specified below. NMED may require the Permittee to conduct additional tasks or provide additional information beyond what is discussed in the SOW or specified in the approved CMS documents in order to support the CMS program. The Permittee shall furnish all personnel, materials, and services necessary to conduct the CMS and any additional tasks.

5.1 CORRECTIVE MEASURES STUDY WORK PLAN

The CMS Work Plan shall include the following elements:

1) A site-specific description of the overall purpose of the Corrective Measure Study;

2) A description of the corrective measure objectives, including applicable cleanup levels;

3) A description of how a risk assessment shall be performed, if required;

4) A description of the specific corrective measure technologies and/or corrective measure alternatives that the Permittee shall study;

5) A description of the general approach to investigating and evaluating potential corrective measures;

6) A detailed description of any proposed pilot, laboratory and/or bench scale studies;

7) A proposed outline for the CMS Report including a description of how information shall be presented; and,

8) A description of overall project management including overall approach, levels of authority (include organization chart), lines of communication, project schedules, budget and personnel, and a description of qualifications for personnel directing or performing the work.

5.1.1 Introduction/Purpose

The Permittee shall describe the purpose of the document and provide a summary description of the project.

5.1.2 Description of Current Conditions

The Permittee shall include a brief summary/discussion of any new information that has been discovered since the RFI Current Conditions Report was finalized. This discussion shall concentrate on those issues that could significantly affect the evaluation and selection of the corrective measures alternative(s).

5.1.3 Cleanup and Screening Levels

Cleanup and screening levels shall be determined in accordance with Permit Attachment 7.

5.1.4 Corrective Measure Alternatives

5.1.4.a Identification

For sites with simple contamination and/or obvious remedies, the Permittee shall propose appropriate "presumptive remedies." For more complex sites and/or as required by NMED, the Permittee shall list and briefly describe potentially applicable technologies for each affected media that the Permittee may use to achieve the corrective action objectives. Depending on the site-specific situation, NMED may require the Permittee to consider additional technologies.

The Permittee may wish to consider proven innovative treatment technologies, especially in situations where there are a limited number of applicable corrective measure technologies.

Innovative technologies are defined as those technologies utilized for remediation other than incineration, solidification/stabilization, and pumping with conventional treatment for contaminated ground water. Innovative treatment technologies may require extra effort to gather information, to analyze options, and to adapt the technology to the site-specific situation. Treatability studies and on-site pilot scale studies may be necessary for evaluating innovative treatment technologies.

5.1.4.b Screening

When evaluating several corrective measures technologies, the Permittee shall also evaluate the technology limitations to show why certain corrective measures technologies may prove unfeasible to implement given existing waste and site-specific conditions. If only one corrective measure alternative is being analyzed, the Permittee shall indicate any technological limitations given waste and site-specific conditions at the facility for which it is being considered.

5.1.4.c Corrective Measure Development

As required by NMED, the Permittee shall assemble the technologies that pass the screening step into specific alternatives that have potential to meet the corrective action objectives for each

media. Options for addressing less complex sites may only require evaluation of a single or limited number of alternatives.

Each alternative may consist of an individual technology or a combination of technologies used in sequence (i.e., treatment train). Depending on the site-specific situation, different alternatives may be considered for separate SWMUs and/or AOCs. The Permittee shall list and briefly describe each corrective measure alternative.

5.1.5 Evaluation of a Final Corrective Measure Alternative

For each remedy that warrants a more detailed evaluation, including those situations when only one remedy is being proposed, the Permittee shall provide detailed documentation of how the potential remedy shall comply with each of the standards listed below. These standards reflect the major technical components of remedies including cleanup of releases, source control, and management of wastes that are generated by remedial activities. The specific standards are provided below.

1) Protect human health and the environment;

2) Attain media cleanup standards set by NMED;

3) Control the source of releases so as to reduce and/or eliminate, to the extent practicable, further releases that may pose a threat to human health and the environment;

4) Comply with any applicable standards for management of wastes; and,

5) Other factors.

In evaluating the selected alternative or alternatives, the Permittee shall prepare and submit information that documents that the specific proposed remedy meets the standards listed above. The Permittee shall use the following standards in evaluating each proposed remedy.

5.1.5.a Protect human health and the environment

Proposed corrective measures shall be protective of human health and the environment. Remedies may include those measures that are needed to be protective, but are not directly related to media cleanup, source control, or management of wastes. An example would be a requirement to provide alternative drinking water supplies to prevent exposures to releases from an aquifer used for drinking water purposes. Another example would be a requirement for the construction of barriers or for other controls to prevent harm arising from direct contact with waste management units. Therefore, the Permittee shall include a discussion on what types of short-term remedies are appropriate for the particular facility to meet this standard. This information shall be provided in addition to a discussion of how the other corrective measure alternatives meet this standard.

5.1.5.b Attain media cleanup standards set by NMED

Proposed remedies shall attain approved media cleanup standards. The Permittee shall also include an estimate of the time frame necessary for each alternative to meet these standards.

5.1.5.c Control the sources of releases

As part of the CMS Report, the Permittee shall address the issue of whether source control measures are necessary, and if so, the type of actions that would be appropriate. Any source control measure proposed should include a discussion on how well the method is anticipated to work given the particular situation at specific SWMUs and/or AOCs and the known track record of the specific technology.

5.1.5.d Comply with any applicable standards for management of wastes.

The Permittee shall include a discussion of how the specific waste management activities shall be conducted in compliance with all applicable state and federal regulations (e.g., closure requirements, land disposal restrictions).

5.1.5.e Other factors

There are five general factors that NMED will consider as appropriate in selecting/approving a remedy that meets the four standards listed above. These factors represent a combination of technical measures and management controls for addressing environmental problems. The five general decision factors include:

1) Long-term reliability and effectiveness;

2) Reduction in the toxicity, mobility, or volume of wastes;

3) Short-term effectiveness;

4) Implementability; and,

5) Cost.

NMED may require the Permittee to provide additional information to support the use of these factors in the evaluation of viable remedial alternatives. Examples of the types of information that may be required are provided below:

5.1.5.e.i Long-term reliability and effectiveness

The Permittee may consider whether the technology or a combination of technologies have been used effectively under analogous site conditions, whether failure of any one technology in the alternative would have an immediate impact on receptors, and whether the alternative would have the flexibility to deal with uncontrollable changes at the site (e.g., heavy rain storms, earthquakes, etc.).

5.1.5.e.ii Reduction in the toxicity, mobility, or volume of wastes

As a general goal, remedies will be preferred that employ techniques, such as removal or treatment technologies that are capable of eliminating or substantially reducing the inherent potential for the hazardous waste or constituents in SWMUs, AOCs, and other source areas to cause future environmental releases or other risks to human health and the environment.

Estimates of how much the corrective measures alternatives will reduce the waste toxicity, volume, and/or mobility may be helpful in applying this factor. This may be done through a comparison of initial site conditions to expected post-corrective measure conditions.

5.1.5.e.iii Short-term effectiveness

The Permittee shall evaluate each corrective measure alternative for short-term effectiveness. Possible factors to consider include fire, explosion, exposure to hazardous substances, and potential threats associated with treatment, excavation, transportation, and redisposal or containment of waste material.

5.1.5.e.iv Implementability

The Permittee shall evaluate the implementability of each remedial option. Information to consider when assessing implementability may include:

1) The administrative activities needed to implement the corrective measure alternative (e.g., permits, rights of way, off-site approvals, etc.) and the length of time these activities will take;

2) The constructibility, time for implementation, and time for beneficial results;

3) The availability of adequate off-site treatment, storage capacity, disposal services, needed technical services and materials; and,

4) The availability of prospective technologies for each corrective measure alternative.

5.1.5.e.v Cost

The Permittee shall develop an estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital and operation and maintenance costs. The capital costs shall include, but are not limited to, costs for: engineering, site preparation, construction, materials, labor, sampling/analysis, waste management/disposal, permitting, health and safety measures, training, operation and maintenance, etc. The operation and maintenance costs shall include, but are not limited to, labor, training, sampling and analysis, maintenance materials, utilities, waste management, equipment replacement or repair, etc. Costs shall be calculated as the net present value of the capital and operation and maintenance costs.

5.1.6 Recommendation by Permittee for a Final Corrective Measure Alternative

In the CMS Report, the Permittee shall justify and recommend in the CMS report a preferred remedial option(s) for consideration by NMED. Such a recommendation should include a description and supporting rationale for the proposed remedy consistent with the remedial standards and the decision factors discussed above.

5.2 PROJECT SCHEDULE

The Permittee's proposed project schedule shall specify all significant steps in the CMS process and when all CMS deliverables (*e.g.*, CMS Work Plan, a CMS Report, Progress Reports, *etc*.) shall be submitted to NMED.

~~6~~ ATTACHMENT 6
CORRECTIVE MEASURES IMPLEMENTATION
SCOPE OF WORK

PURPOSE

The purpose of the Corrective Measures Implementation (CMI) program is to design, construct, operate, maintain, and monitor the performance of the corrective measure or measures selected by NMED. Corrective measures are intended to protect human health and the environment from releases at or from the facility.

6.1 SCOPE

The CMI Work Plan includes, unless otherwise specified by NMED, Conceptual Design, Operation and Maintenance Plan, Plans and Specifications, Construction Work Plan, Health and Safety Plan, and a Proposed Schedule. The scope of work (SOW) for each document is specified below. NMED may require the Permittee to conduct additional tasks or provide additional information beyond what is discussed in the SOW or specified in the approved CMI documents in order to support the CMI program. The Permittee shall furnish all personnel, materials, and services necessary to conduct the CMI and any additional tasks.

6.1.1 Conceptual Design

The Permittee shall prepare a Conceptual Design Plan that clearly describes the size, shape, form, and content of the proposed corrective measure; the key components or elements that are needed; the designer's vision of the corrective measure in the form of conceptual drawings and schematics; and, the procedures and schedules for implementing the corrective measure(s). More than one conceptual design may be needed in situations where there is a complex site with multiple technologies being employed at different locations. The Permittee shall obtain NMED approval of the Conceptual Design Plan prior to implementation. The Conceptual Design Plan shall, at a minimum, include the elements specified below.

6.1.2 Introduction/Purpose

The Permittee shall describe the purpose of the document and provide a summary description of the project.

6.1.3 Corrective Measures Objectives

The Permittee shall discuss the corrective measure objectives including applicable media cleanup levels.

6.1.4 Conceptual Site Model of Hazardous Waste or Constituent Migration

The Permittee shall present a conceptual site model of migration of hazardous waste or hazardous constituents. The conceptual site model shall consist of a working hypothesis of how the hazardous waste or hazardous constituents may move from the release source to the receptor population. The Permittee shall develop the conceptual site models by looking at the applicable

physical parameters (e.g., water solubility, density, Henry's Law Constant, etc.) for each hazardous waste or hazardous constituent and assessing how the hazardous waste or hazardous constituent may migrate given the existing site conditions (geologic features, depth to ground water, etc.). The Permittee shall describe the phase (water, soil, gas, non-aqueous) and location where hazardous waste or hazardous constituents are likely to be found.

6.1.5 Description of Corrective Measures

The Permittee's conceptual site model of hazardous waste or hazardous constituent migration shall qualitatively describe what the corrective measure is supposed to do and how it will function . The Permittee shall discuss the feasibility of the corrective measure and its ability to meet the corrective measure objectives.

6.1.6 Data Sufficiency

The Permittee shall review existing data needed to support the design effort and establish if there is sufficient accurate data available for this purpose. The Permittee shall summarize the data already collected and specify any additional data needed to complete the corrective measure design. NMED may require, or the Permittee may propose, that sampling and analysis plans and/or treatability study Work Plans be developed to obtain the additional data. NMED will determine the submittal times for any new sampling and analysis plans and/or treatability study Work Plans.

6.1.7 Project Management

The Permittee shall describe the management approach including levels of authority and responsibility (include organization chart), lines of communication and the qualifications of key personnel who shall direct the corrective measure design and the implementation effort (including contractor personnel).

6.1.8 Project Schedule

The Permittee's project schedule shall specify all significant steps in the process and when all CMI deliverables (e.g., Operation and Maintenance Plan, Corrective Measure Construction Work Plan, etc.) shall be submitted to NMED.

6.1.9 Design Criteria

The Permittee shall specify performance requirements for the overall corrective measure and for each major component. The Permittee shall select equipment that meets the performance requirements.

6.1.10 Design Basis

The Permittee shall discuss the process and methods for designing all major components of the corrective measure and shall discuss the significant assumptions made and possible sources of error. The Permittee shall provide justification for the assumptions. The discussion of the Design Basis shall include the following:

1) Conceptual process/schematic diagrams;

2) Site plan showing preliminary corrective measures layout including treatment areas;

3) Tables listing number and type of major components with approximate dimensions;

4) Tables giving preliminary mass balances; and

5) Site safety and security provisions (e.g., fences, fire control, etc.).

6.1.11 Waste Management Practices

The Permittee shall describe the wastes generated during the implementation of the corrective measures and how and where they shall be managed. The Permittee shall also discuss drainage at the site and indicate how rainwater runon and runoff shall be managed.

6.1.12 Required Permits

The Permittee shall list and describe any permits needed to construct and operate the corrective measure. The Permittee shall indicate on the project schedule when the permit applications shall be submitted to the applicable agencies and an estimate of the permit issuance date.

6.1.13 Long-Lead Procurement Considerations

The Permittee shall prepare a list of any elements or components of the corrective measure that will require custom fabrication or are considered long-lead procurement items. The list shall include the reason why the items are considered long-lead items, the length of time necessary for procurement, and the recognized sources of such procurement.

6.1.14 The Permittee shall include the following appendices:

1) Design data - Tabulations of significant data used in the design effort;

2) Equations - List and describe the source of all equations used in the design process;

3) Sample calculations - Present and explain one example calculation for significant or unique design calculations; and,

4) Laboratory or field test results.

6.2 OPERATION AND MAINTENANCE PLAN

The Permittee shall prepare an Operation and Maintenance (O&M) Plan that outlines procedures for performing operations, long term maintenance, and monitoring of the corrective measure. A CMI O&M Plan shall be submitted to NMED simultaneously with the CMI Plans and Specifications and Construction Work Plan. The O&M plan shall, at a minimum, include the elements specified below.

6.2.1 Introduction/Purpose

The Permittee shall describe the purpose of the document and provide a summary description of the project.

6.2.2 Project Management

The Permittee shall describe the management approach including levels of authority and responsibility (include organization chart), lines of communication and the qualifications of key personnel who shall operate and maintain the corrective measures (including contractor personnel).

6.2.3 System Description

The Permittee shall describe the corrective measure and identify significant equipment.

6.2.4 Personnel Training

The Permittee shall describe the training process for O&M personnel. The Permittee shall prepare, and include in the technical specifications governing treatment systems, the contractor requirements for providing: appropriate service visits by experienced personnel to supervise the installation, adjustment, start up and operation of the treatment systems, and training covering appropriate operational procedures once the start-up has been successfully accomplished.

6.2.5 Start-Up Procedures

The Permittee shall describe system start-up procedures including any operational testing.

6.2.6 Operation and Maintenance Procedures

The Permittee shall describe normal operation and maintenance procedures including:

1) Description of tasks for operation;

2) Description of tasks for maintenance;

3) Description of prescribed treatment or operation conditions;

4) Schedule showing frequency of each O&M task; and,

5) Replacement schedule for equipment and installed components.

6.2.7 Waste Management Practices

The Permittee shall describe the wastes generated by operation of the corrective measure and how and where they shall be managed. The Permittee shall also discuss site drainage and indicate how rainwater runon, and runoff shall be managed.

6.2.8 Sampling and Analysis

Sampling and monitoring activities may be needed for effective operation and maintenance of the corrective measure. To ensure that all information, data and resulting decisions are technically sound, statistically valid, and properly documented, the Permittee shall prepare a Quality Assurance Project Plan (QAPP) to document all monitoring procedures, sampling, field measurements and sample analyses performed during these activities. The Quality Assurance Project Plan shall, at a minimum, include the elements of a quality assurance program for data collection activities as specified in Chapter One of SW-846. The Permittee shall use quality assurance, quality control, and chain-of-custody procedures approved by NMED.

6.2.9 Corrective Measure Completion Criteria

The Permittee shall describe the process and criteria (e.g., ground water cleanup level met for 3 years) for determining when corrective measures have achieved media cleanup levels. The Permittee shall also describe the process and criteria for determining when maintenance and monitoring may cease. Criteria for corrective measures such as a landfill cap shall reflect the need for long-term monitoring and maintenance. Satisfaction of the completion criteria shall trigger preparation and submittal of the Corrective Measures Completion Report.

6.2.10 O&M Contingency Procedures

The Permittee shall describe O&M Contingency Procedures including:

1) Procedures to address system breakdowns and operational problems including a list of redundant and emergency back-up equipment and procedures;

2) Alternate procedures to be implemented if the corrective measure suffers complete failure. The alternate procedures shall be able to prevent release or threatened releases of hazardous wastes or hazardous constituents which may endanger human health and the environment or exceed media cleanup levels;

3) Contingency that, in the event of a major breakdown and/or complete failure of the corrective measure (includes emergency situations), the Permittee shall orally notify NMED within 24 hours of the event and shall notify NMED in writing within 72 hours of the event. Written notification shall, at a minimum, specify what happened, what response action shall be or has been, and any potential impacts on human health and the environment; and,

4) Procedures to be implemented in the event that the corrective measure is experiencing major operational problems, is not performing to design specifications, and/or will not achieve the cleanup goals in the expected time frame. For example, in certain circumstances both a primary and secondary corrective measure may be selected for the facility. If the primary corrective measure were to fail, the secondary measure would be implemented. This section shall specify that if the primary corrective measure failed, then design plans would be developed for the secondary measure.

6.2.11 Data Management and Documentation Requirements

The O&M Plan shall specify that the Permittee shall collect and maintain the following information:

1) Progress Report information;

2) Monitoring and laboratory data;

3) Records of operating costs; and,

4) Personnel, maintenance and inspection records.

This data and information shall be used to prepare Progress Reports and the Corrective Measure Completion Report.

6.3 PLANS AND SPECIFICATIONS

The Permittee shall prepare Plans and Specifications that are sufficient to be included in a contract document and be advertised for bid. The design package shall consist of the detailed drawings and specifications needed to construct the corrective measure. Depending on the nature of the corrective measure, many different types of drawings and specifications may be needed. Some of the elements that may be required include:

1) General site plans;

2) Process flow diagrams;

3) Mechanical drawings;

4) Electrical drawings;

5) Piping and instrumentation diagrams;

6) Structural drawings;

7) Excavation and earthwork drawings;

8) Site preparation and field work standards;

9) Construction drawings;

10) Facility drawings;

11) Equipment lists; and,

12) Detailed specifications for equipment and material.

6.4 CONSTRUCTION WORK PLAN

The Permittee shall prepare a Construction Work Plan that documents the overall management strategy, construction quality assurance procedures, and schedule for constructing the corrective measure. Upon receipt of written approval from NMED, the Permittee shall commence the construction process and implement the Construction Work Plan in accordance with the schedule and provisions contained therein. The Construction Work Plan shall, at a minimum, include the elements specified below.

6.4.1 Introduction/Purpose

The Permittee shall describe the purpose of the document and provide a summary description of the project.

6.4.2 Project Management

The Permittee shall describe the construction management approach including levels of authority and responsibility (include organization chart), lines of communication and the qualifications of key personnel who shall direct the corrective measure construction effort and provide construction quality assurance/quality control (including contractor personnel).

6.4.3 Project Schedule

The project schedule shall include timing for key elements of the bidding process, timing for initiation and completion of all major corrective measure construction tasks as specified in the Plans and Specifications, and specify when the Construction Completion Report shall be submitted to NMED.

6.4.4 Construction Quality Assurance/Quality Control Programs

The purpose of construction quality assurance is to ensure, with a reasonable degree of certainty, that a completed corrective measure will meet or exceed all design criteria, plans, and specifications. The Construction Work Plan shall include a complete Construction Quality Assurance Program to be implemented by the Permittee.

6.4.5 Waste Management Procedures

The Permittee shall describe the wastes generated during the CMI and how and where they shall be managed.

6.4.6 Sampling and Analysis

Sampling and monitoring activities may be needed for construction quality assurance/quality control and/or other construction related purposes. To ensure that all information, data and resulting decisions are technically sound, statistically valid, and properly documented, the Permittee shall prepare a Quality Assurance Project Plan (QAPP) to document all monitoring procedures, sampling, field measurements and sample analysis performed during these activities.

The Permittee shall use quality assurance, quality control, and chain-of-custody procedures approved by NMED.

6.4.7 Construction Contingency Procedures

The Construction Work Plan shall include procedures to notice NMED and to address changes to the design and/or specifications caused by unforeseen problems encountered in the field.

The Construction Work Plan shall specify that, in the event of a construction emergency (e.g., fire, earthwork failure, etc.), the Permittee shall orally notify NMED within 24 hours of the event and shall notify NMED in writing within 72 hours of the event. The written notification shall, at a minimum, specify what happened, what response action shall be or has been, and any potential impacts on human health and the environment.

The Permittee shall specify procedures to be implemented if unforeseen events prevent corrective measure construction. For example, in certain circumstances both a primary and secondary corrective measure may be selected for the Facility. If the primary corrective measure could not be constructed, the secondary measure would be implemented. This section shall specify that if the primary corrective measure could not be constructed, design plans would be developed for the secondary measure.

6.4.8 Construction Safety Procedures

The Permittee shall specify construction safety procedures in a separate Health and Safety Plan.

6.4.9 Documentation Requirements

The Permittee shall describe how analytical data and results shall be evaluated, documented, and managed.

6.5 HEALTH AND SAFETY PLAN

The Permittee shall submit a Health and Safety Plan for all field activity. The Health and Safety Plan shall be developed as a stand-alone document but may be submitted with the CMI Work Plan. The Health and Safety Plan should, at a minimum, include the elements specified below.

6.5.1 Objectives

The Permittee shall describe the goals and objectives of the health and safety program (shall apply to on-site personnel and visitors). The health and safety plan shall be consistent with the Facility Contingency Plan, OSHA Regulations, NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985), all state and local regulations, and other NMED guidance, as provided.

6.5.2 Hazard Assessment

The Permittee shall list and describe the potentially hazardous substances, hazardous wastes or hazardous constituents, and conditions that could be encountered by field personnel during construction and/or operation and maintenance activities.

The Hazard Assessment section shall discuss the following:

1) Inhalation hazards;

2) Dermal exposure;

3) Ingestion hazards;

4) Physical hazards; and

5) Overall hazard rating

The Permittee shall include a table that, at a minimum, lists known hazardous waste or constituents, highest observed concentration, media, and symptoms/effects of acute exposure.

6.5.3 Personal Protection/Monitoring Equipment

The Health and Safety Plan shall describe the following:

1) Personal protection levels and identify all monitoring equipment for each operational task;

2) Any action levels and corresponding response actions (i.e., when will levels of safety be upgraded); and

3) Decontamination procedures and areas.

6.5.4 Site Organization and Emergency Contacts

The Health and Safety Plan shall list and identify all emergency contacts (include phone numbers), identify the nearest hospital and provide a regional map showing the shortest route at or from the facility to the hospital. The Health and Safety Plan shall describe site emergency procedures and any site safety organizations and shall include evacuation procedures for neighbors (where applicable). The Health and Safety Plan shall include a facility map showing emergency station locations (first aid, eye wash areas, etc.).

6.6 PROJECT SCHEDULE

The Permittee's proposed project schedule shall specify all significant steps in the CMI process and when all CMI deliverables (*e.g.*, CMS Work Plan, a CMS Report, Progress Reports, *etc*.) shall be submitted to NMED.

~~7~~ ATTACHMENT 7
CLEANUP LEVELS

GROUND WATER, SOIL AND SURFACE WATER CLEANUP LEVELS

The Permittee shall attain the cleanup levels specified below when implementing the closure and corrective action requirements of this Permit.

7.1 GROUND WATER CLEANUP LEVELS

The Permittee shall attain the following cleanup levels for hazardous waste and hazardous constituents in ground water:

1. For all contaminants listed in 20.6.2.7.VV and 3103 NMAC the Permittee shall attain the WQCC standards of 20.6.2.4103.A and B NMAC,

2. For all contaminants for which EPA has adopted a drinking water maximum contaminant level (MCL) under 40 CFR Parts 141 and 143, the Permittee shall attain the MCL,

3. If both a WQCC standard and an EPA MCL have been established for a contaminant, then the Permittee shall attain the lower of the two,

4. If no WQCC standard or EPA MCL has been established for a carcinogenic hazardous waste or hazardous constituent, then the Permittee shall use the most recent version of the EPA Regional Screening Levels (RSLs) for tap water and a target excess cancer risk level of 10^{-5} to develop a proposed cleanup level for NMED approval, and

5. If no WQCC standard or EPA MCL has been established for a noncarcinogenic hazardous waste or hazardous constituent, then the Permittee shall use the most recent version of the EPA RSLs for tap water and a Hazard Index (HI) of one (1.0) to develop a proposed cleanup level for NMED approval.

6. There currently is no WQCC groundwater standard or MCL for perchlorate; however, the Permittee shall determine the nature and extent of the perchlorate contamination at the Facility and, if necessary, down gradient of the Facility. If either the WQCC adopts a groundwater standard for perchlorate, or EPA or the EIB adopts an MCL for perchlorate, such standard shall be followed in accordance with this Attachment (7). If perchlorate is detected at concentrations at or greater than 6 µg/L and no groundwater standard or MCL has been adopted by the EIB, WQCC or EPA for perchlorate, then the Permittee shall use the cleanup goal with a HI of one (1.0) to develop the proposed cleanup level for use in their site investigation or corrective measure evaluation.

7.2 SOIL CLEANUP LEVELS

The Permittee shall attain the following cleanup levels for hazardous waste and hazardous constituents in soil:

1. For all contaminants for which NMED has specified a soil screening level in NMED's *Technical Background Document for Development of Soil Screening Levels*, the cleanup level shall be the screening level specified in the most recent version of that document.

2. The Permittee shall propose a soil cleanup level for PCBs based on NMED's Position Paper Risk-based Remediation of Polychlorinated Biphenyls at RCRA Corrective Action Sites (March 2000 as updated).

3. If an NMED soil screening level has not been established for a hazardous waste or hazardous constituent the Permittee shall propose for NMED approval, a cleanup level based on the most recent version of the EPA RSLs (based on a HI of one (1.0) for compounds designated as "n" (noncarcinogen effects), "max" (maximum concentration), and "sat" (soil saturation concentration), or ten times the EPA Region VI HHMSSL for compounds designated "c" (carcinogen effects) (*i.e.* a target excess cancer risk level of 10^{-5}).

7.3 LAND USE DETERMINATION

All soil cleanup levels shall be based on a residential land use scenario unless the Secretary determines that an alternate land use is appropriate (*e.g.* subsistence farming, cultural, or industrial). The Permittee may only propose an alternate land use with higher cleanup levels (e.g. industrial) if NMED or EPA can legally and practicably enforce the institutional controls limiting the land use. If an alternate land use for which NMED or EPA has not established soil cleanup levels is determined to be the current and reasonably foreseeable future land use, then the Permittee may propose cleanup levels based on a risk assessment using a target excess cancer risk level of 10^{-5} for carcinogenic hazardous waste or hazardous constituent or, for noncarcinogenic hazardous waste or hazardous constituent, a HI of one (1.0).

7.4 SURFACE WATER CLEANUP LEVELS

The Permittee shall comply with the surface water quality standards specified in 20.6.2.2000-2201 NMAC and the Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC).

7.5 ECOLOGICAL RISK CLEANUP LEVELS

The Permittee shall derive cleanup levels for each hazardous waste and hazardous constituent for each ecological zone at the Facility using the methodology in the Department's "*Guidance for Assessing Ecological Risks Posed by Chemicals: Screening–Level Ecological Risk Assessment.*" If the ecological risk evaluation indicates that a lower cleanup level for a hazardous waste or hazardous constituent in groundwater, soil, or surface water is necessary to protect environmental receptors, NMED may establish cleanup levels based on ecological risk for hazardous waste or hazardous constituents in groundwater, soil, or surface water that are lower than levels that are solely protective of human health.

7.6 BACKGROUND CONCENTRATIONS

If the naturally occurring (background) concentration of a hazardous waste or hazardous constituent in ground water, soil, or surface water exceeds the standards specified above, then the cleanup level shall be the background concentration. To use background concentration as a cleanup level, the Permittee must obtain a written background determination from NMED.

7.7 VARIANCE FROM CLEANUP LEVELS

The Permittee may seek a variance from a cleanup level for soil or ground water as follows;

7.7.1 WQCC Standards

The Permittee may seek a variance from a WQCC standard in accordance with 20.6.2.4103.E or F NMAC.

7.7.2 Soil Standards and Non-WQCC Ground water Standards

The Permittee may seek a variance from any cleanup level for soil or for ground water (other than a WQCC standard) by submitting a written request to NMED for a determination that attainment of the cleanup level is technically infeasible or otherwise impracticable due to conflict with other environmental laws or requirements for the preservation of cultural resources. If based on technical infeasibility, the request shall include; a demonstration of technical or physical impossibility of attaining the cleanup level using potential corrective action remedies. If based on conflict with other environmental laws or requirements for the preservation of cultural resources, the request shall include documentation showing that Permittee has attempted to resolve the conflict or mitigate the impact on cultural or natural resources and shall explain why mitigating measures cannot resolve the conflict or adequately protect the cultural or natural resource (e.g. consultation and a determination of incidental taking or reasonable and prudent measures to minimize the impact under 16 U.S.C. § 1536). All requests shall include a discussion of the effectiveness of potential corrective action remedies, whether the proposed variance will allow a present or future hazard to public health or the environment, and any other information required by the Secretary. In addition, the request shall propose alternate cleanup levels for NMED approval, based on the effectiveness of potential corrective action remedies and a site-specific risk assessment based on NMED's guidance, *Technical Background Document for Development of Soil Screening Levels* (February 2004 as updated), *Assessing Human Health Risks Posed by Chemicals: Screening Level Risk Assessment* (March 2000), and *Guidance for Assessing Ecological Risks Posed by Chemicals: Screening-Level Ecological Risk Assessment* (March 2000, as updated).

~~8~~ ATTACHMENT 8
HAZARDOUS WASTE MANAGEMENT UNIT, SOLID WASTE MANAGMENT UNIT, AND AREA OF CONCERN TABLE

TABLE 1
SOLID WASTE MANAGEMENT UNITS (SWMUS)
AND AREAS OF CONCERN (AOCS)
THAT REQUIRE CORRECTIVE ACTION

SWMU/ AOC.	Parcel	Description
SWMU 1	21	TNT Leaching Beds & Building 503
SWMU 2	21	Building 515 (Painting and Acid Washout Building and Acid Holding Pond)
SWMU 3	11	Fenced Storage Yard (Former Storage Yard or DRMO Area, Extended Storage Yard, Former Coal Storage Area)
SWMU 4	6	Building 600 (Building 539, Ammunition Work Shop Area Change House and Laundry)
SWMU 5	11	Building 5
SWMU 6	11	Building 11 (Former Locomotive Shop)
SWMU 7	21	Fire Training Ground
SWMU 8	6	Building 537 (Pesticide and Field Battery Shop)
SWMU 9	7	POL Waste Discharge Area
SWMU 10	11	Sewage Treatment Plant (includes Buildings/ Structures 22, T-37, 63, 69, 70, 71, 72, 73, 74a, 74b, 74c, 74d, 82, 83, document incinerator, Structure 745, drainage ditch, septic system at sewage treatment plant)
SWMU 11	6	Building 542 (Ammunition Workshop) and Building 541

TABLE 1
SOLID WASTE MANAGEMENT UNITS (SWMUS)
AND AREAS OF CONCERN (AOCS)
THAT REQUIRE CORRECTIVE ACTION

SWMU/ AOC.	Parcel	Description
SWMU 12	22	Building 536 (Inspectors Workshop and Ammunition Renovation Depot) (includes one former PCB transformer)
SWMU 13	18	Eastern Landfill
SWMU 14	3	Old Burning Ground and Demolition Landfill Area (Includes KGA-3, KGA-4, KGA-5, KP-2, KP-3, KP-4, Arroyo in Fenced Up Horse Valley, and Dump Pile)
SWMU 15	3	Old Demolition Area (includes Inactive EOD Area, KGA-1, KGA-2, Old OB/OD & Buried White Phosphorus Rounds, and Three Mounds in Fenced-Up Horse Valley)
SWMU 16	16, may include 15	Functional Test Range 2/3
SWMU 17	2	Western Rifle Range
AOC 18	9, 24	Igloo Block A
SWMU 19	21	Building 501 (Former Boiler House and Heating Plant No. 7)
SWMU 20	7	Western Landfill, includes Features 3 and 4 on 1962 air photo API-3 (1995 Archive Search Report)
SWMU 21	23	Central Landfill
SWMU 22	2	Group C Landfill
SWMU 23	11	Building 8 (Paint Shop or Carpenter Shop) and Building 7 (Paint Shop and Paint Storage Warehouse)
SWMU 24	11	Building 15 (Garage and Storage Bldg.)
SWMU 25	7	Trash Burning Ground Property Disposal Office includes Features 1, 2 and 5 on the 1962 aerial photo API-3 (from the 1995 Archive Search Report)
SWMU 26	10	Suspected POL Area. Large berm north of the railroad classification yard.

TABLE 1
SOLID WASTE MANAGEMENT UNITS (SWMUS)
AND AREAS OF CONCERN (AOCS)
THAT REQUIRE CORRECTIVE ACTION

SWMU/ AOC.	Parcel	Description
SWMU 27	22	Building 528 Complex. Includes Building 528 (Ammunition Normal Maintenance Building), Building 528A (temporary storage igloo), AOC 121 (Building 528B, temporary storage igloo), AOC 122 (Building 529), AOC 125 (Building 550, vacuum collector barricade), AOC126 (Building 551, service magazine)
AOC 28	6	Igloo Block B
AOC 29	2, 4, 19, 23	Igloo Block C
AOC 30	19, 22	Igloo Block D
AOC 31	19	Igloo Block E
AOC 32	19	Igloo Block F
SWMU 33	3	Waste Pile KP1
AOC 34	19	Igloo Block G
AOC 35	2	Igloo Block H
AOC 36	2	Igloo Block J (includes Missile Launch Pad used by MDA)
SWMU 37	11	Building 9 (Machine Shop and Signal Shop)
SWMU 38	20	Functional Test Range 1
SWMU 39	19	Pistol Range
SWMU 40	11	South Administration Area Formerly named the Coal Tar Storage Tanks (Structures 58, 59, and 60), SWMU 48 (Building 10), SWMU 49 (Building 12), SWMU 50 (Building 13), SWMU 51 (Building 29), SWMU 52 (Building T-33), SWMU 53 (Building 36), SWMU 54 (UST #5), AOC 55 (Structure T-49), AOC 56 (Building T-

TABLE 1
SOLID WASTE MANAGEMENT UNITS (SWMUS)
AND AREAS OF CONCERN (AOCS)
THAT REQUIRE CORRECTIVE ACTION

SWMU/ AOC.	Parcel	Description
		50), AOC 72 (Building 14), SWMU 77 (Building T-34), AOC 83 (Structure 63), and AOC 87 (Structure 57)
AOC 41	16	Igloo Block K
AOC 42	6	Building 516 (Ammunition Receiving Building)
AOC 43	7	Railroad Classification Yard
AOC 44	10	Former Administration and Utilities Area
SWMU 45	11	Building 6 (Gas Station)
AOC 46	11	Above Ground Tank located near Blg. 11
AOC 47	11	TPL spill of photoflash powder west of Blg. 11
AOC 48	11	Building 34 (Fire Station)
AOC 49	11	Structure 38 (End Loading Dock) and Structure 39 (Side Loading Dock)
SWMU 50	11	Structure 35 (Underground Storage Tank (UST #7) located by Building 45)
AOC 51	6 or 11	Structure 64 (Underground Storage Tank)
AOC 52	11	Building 79 and Building 80 (Storage Vaults)
AOC 53	13	Lake Knudson
AOC 54	13	Building 311 (Standard Magazine)
AOC 55	13	Structure 506 (TNT Storage Barricade)
AOC 56	13	Structure 533 (Explosive Barricade)

TABLE 1
SOLID WASTE MANAGEMENT UNITS (SWMUS)
AND AREAS OF CONCERN (AOCS)
THAT REQUIRE CORRECTIVE ACTION

SWMU/ AOC.	Parcel	Description
AOC 57	16	Buildings 306, 307, 308, 309, 310 (Standard Magazines near Knudson Lake)
AOC 58	19	Buildings 303 and 304 (Standard Magazines) and 320 (Field Dunnage Building along Arterial Road No. 3)
AOC 59	19	Building T-422 (former Blg. X-11, Normal Maintenance Blg., Bomb and Shell Paint Blg.)
AOC 60	21	Building 522 formerly designated as Building 500 (Ammunition Receiving Bldg.)
AOC 61	21	Building 507 (Smokeless Powder Magazine)
AOC 62	21	Building 508 (Smokeless Powder Magazine)
AOC 63	21	Building 509 (Primary Collector Barricade or Propellant Baghouse)
AOC 64	21	Building 510 (Vacuum Producer Building)
AOC 65	21	Building 511 (Service Magazine)
AOC 66	21	Building 512 (Service Magazine)
AOC 67	21	Building 513 (Service Magazine)
AOC 68	21	Structure 514 (Deboostering Barricade) and Structure 545 (Earthen Barricade)
AOC 69	22	Buildings 301, 302, and 312 (Standard Magazines), Building 316 (Field Lunch Room),
SWMU 70	22	Disassembly Plant and TPL QA Test Area (Disassembly Plant includes Building 517, Structure 518, Building 519, Structure 520, Structure 521, Structure 547) Disassembly Plant and TPL QA Test and OB/OD Area

TABLE 1
SOLID WASTE MANAGEMENT UNITS (SWMUS)
AND AREAS OF CONCERN (AOCS)
THAT REQUIRE CORRECTIVE ACTION

SWMU/ AOC.	Parcel	Description
AOC 71	22	Former rectangular structure near TMW-5 and north of Blg. 528
SWMU 72	21 and may include 22	Deactivation Furnace, Deactivation Furnace Acid Pits, and surrounding area (includes pre-1958 buildings and areas in the vicinity of Blg. 530)
AOC 73	23	Former buildings or structures along Road C-3.
SWMU 74	3	Area 16 or Site 16 (Proposed Burning Ground) – to be addressed under the Kickout Area requirements unless the location is determined to be outside the Kickout Area boundary as defined Section IV.A
AOC 75	6, 7, 11, 12, 13, 19, 21, 22, and may include other parcels	Electrical Transformers (at least 65 former or existing transformers)
AOC 76	2	Feature 19 on the 1973 aerial photo (API-5) in the 1995 Archive Search Report.
AOC 77	2	Feature 20 on the 1973 aerial photo (API-5) in the 1995 Archive Search Report.
AOC 78	5	Feature 18 on 1973 aerial photo (API-5) in 1995 Archive Search Report
AOC 79	6	Feature 2 on 1973 aerial photo (API-5) in 1995 Archive Search Report
AOC 80	6	Feature 9 on 1962 aerial photo (API-3) in 1995 Archive Search Report
AOC 81	6	Feature 11 on 1962 aerial photo (API-3) in 1995 Archive Search Report
AOC 82	6 and 5	Area adjacent to the east of Feature 18 on 1973 aerial photo (API-5) in 1995 Archive Search Report that includes drainage swale, wetland area and arroyo
AOC 83	6	Feature 22 on 1973 aerial photo (API-5) in 1995 Archive Search Report
AOC 84	6	Feature 12 on 1962 aerial photo (API-3) in 1995 Archive Search Report

TABLE 1
SOLID WASTE MANAGEMENT UNITS (SWMUS)
AND AREAS OF CONCERN (AOCS)
THAT REQUIRE CORRECTIVE ACTION

SWMU/ AOC.	Parcel	Description
AOC 85	9	Feature 11-1 on 1962 aerial photo (API-3) in 1995 Archive Search Report and Feature 1 on 1973 aerial photo (API-5) in 1995 Archive Search Report.
AOC 86	13	Feature 15 on 1973 aerial photo (API-5) in 1995 Archive Search Report.
AOC 87	21	Feature 18 on 1962 aerial photo (API-3) and Feature 23 on 1973 aerial photo (API-5) in 1995 Archive Search Report.
AOC 88	22	Former buildings or structures and disposal areas southwest, south, and southeast of Blg. 528.
AOC 89	3	Feature 30 and Feature 34 on 1973 aerial photo (API-5) in 1995 Archive Search Report
AOC 90	3	Feature 36 on 1973 aerial photo (API-5) in 1995 Archive Search Report
AOC 91	3	Feature 41 in the 1973 aerial photo (API-5) and Feature 27 on the 1978 historic aerial photo (API-7) in the 1995 Archive Search Report.
AOC 92	3	Feature 31 on the 1973 historic aerial photo (API-5) and Feature 21 on the 1978 aerial photo (API-7) in 1995 Archive Search Report
AOC 93	Un-known	Bivouac and Tank Training Area

TABLE 2
HAZARDOUS WASTE MANAGEMENT UNITS (HWMUS)

HWMU	PARCEL NO.	DESCRIPTION
OB/OD Unit	3	The OB/OD Unit is an inactive open burn/open detonation (OB/OD) unit (see Permit Attachment 1) subject to the Permitting Requirements. The OB/OD Unit includes: the area known as the Burning Ground Area, twelve Current Detonation Craters (CDC) known as CDC-1 through CDC-12, ten (10) Current Residue Piles (CRP) known as CRP-1 through CRP-10.
CAMU	3	The CAMU is an active open burn/open detonation (OB/OD) treatment unit (see Permit Attachment 1) subject to the Permitting Requirements. The CAMU is located on approximately 3 acres in SWMU 14 near the Old Burning Ground and Demolition Landfill Area. The CAMU utilizes up to five temporary demolition pits and one burn pan (placed within a pit) or safe alternative technology, when it becomes available, to treat WMM.

TABLE 3 SOLID WASTE MANAGEMENT UNITS (SWMUS) AND AREAS OF CONCERN (AOCS) CORRECTIVE ACTION COMPLETE WITH CONTROLS

TABLE 4
SOLID WASTE MANAGEMENT UNITS (SWMUS) AND AREAS OF CONCERN (AOCS)
CORRECTIVE ACTION COMPLETE WITHOUT CONTROLS

9ATTACHMENT 9
CLOSURE PLANS

[To be submitted and approved pursuant to Permit Part VIII]

1.0 INTRODUCTION

This closure plan describes the activities necessary to close the Corrective Action Management Unit at the Fort Wingate Depot Activity (Facility), hereinafter referred to as the CAMU. The information provided in this closure plan addresses the applicable closure requirements specified in the Code of Federal Regulations (CFR), Title 40, Part 264, Subparts G and 264.552 (e) and (f) for the CAMU treatment units at the Facility under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act.

Until closure is complete and has been certified in accordance with Section 8.0 of this closure plan and 40 CFR 264.115, a copy of the approved closure plan, any approved revisions, and closure activity documentation associated with the closure will be on file in the information repository in Building 1 at the Facility. Prior to closure of the unit, this closure plan may be amended in accordance with 40 CFR 265.112(c), as necessary and appropriate, to provide, at a minimum, updated sampling and analysis plans and to incorporate updated technologies. An updated closure plan shall be submitted to the New Mexico Environment Department (Department) for approval, if necessary, prior to implementing closure.

2.0 DESCRIPTION OF UNIT TO BE CLOSED

The CAMU is located in SWMU 14 in Parcel 3 as shown in Permit Attachment 12. The CAMU is designed for the treatment by open burn/open detonation (OB/OD) of waste military munitions (WMM) generated during cleanup of Solid Waste Management Units (SWMUs), Areas of Concern (AOCs) and the OB/OD Hazardous Waste Management Unit, and any munitions recovered from within the facility that cannot be safely transported offsite for treatment or disposal. The requirements for operation of the CAMU are described in Permit Section IX. The CAMU occupies approximately three acres and contains five demolition pits for the disposal of WMM. Each demolition pit consists of a 15 foot by 15 foot area surrounded on three sides by a containment berm and is excavated to a depth of four feet below ground surface.

The CAMU is located in a relatively flat area, approximately 500 feet from the closest arroyo. Run-on and run-off can be readily controlled and evidence of flooding has not been observed at the site. The CAMU is remote and so is conducive to operations requiring explosives safety quantity-distance (ESQD), which provides the required protection to personnel and property. The area also has a natural protective control to the west by a nearby hogback ridge that provides an extra safety barrier between FWDA property and Bureau of Indian Affairs (BIA) and Tribal Trust property. The CAMU is located near an access-controlled road that not only provides lock and fence control to the area, but also provides a stable surface for transportation of items to be treated. The CAMU is located within a double fenced area, which provides the required security and restricted access requirements needed for the treatment operations.

For the purposes of closure the CAMU Treatment Area consists of the detonation pits and surrounding berms, the temporary staging area, and all access areas for loading, transporting and unloading of WMM and any ignition sources used during treatment. The burn pan will be used exclusively within the confines of one or more of the detonation pits. Figures depicting the location and design of the CAMU are provided in Permit Attachment 12.

2.1 Description of the Wastes Treated at the Unit

The Permittee treats reactive (D003) and ignitable (D001) hazardous wastes, such as munitions and explosives of concern (MEC) (including damaged, defective, expired, and unserviceable munitions), explosive-contaminated wastes, propellants, bulk explosives, metal powders, detonators, miscellaneous munitions constituents, and soils containing hazardous or reactive concentrations of explosive compounds. The waste types treated are generated during corrective action activities conducted at the Facility and include incidental solid waste that cannot be safely separated and transported off-site for disposal.

2.2 Description of the Treatment Unit

The CAMU Treatment Area consists of five detonation pits and a burn pan that is operated within a selected detonation pit and includes a temporary staging area and all areas used for loading, unloading and transport of WMM. The pits are each surrounded on three sides by berms constructed with soils to a width of 35 feet and a height of 8 feet with an entrance to allow access to the interior of the pit. The pits are a maximum depth of eight feet bgs. The demolition pits are composed of well-packed earth and are free from loose stones and deep cracks in which explosives might lodge. The CAMU treatment Area is surrounded by a buffer zone where vegetation is kept cropped to less than six inches in height for a radius of 200 feet.

2.3 Description of Treatments Conducted at the Unit

Detonations are initiated in the pits using boosters or perforators placed in intimate contact with each item and, if required, covered with earth or other material to prevent imminent hazards to workers and to minimize kickout.

Burns are initiated in a steel burn tray using an ignition source which consists of a bed of combustible material, such as fuel oil or diesel fuel.

3.0 ESTIMATE OF MAXIMUM WASTE TREATED

A maximum of 52,000 lbs of WMM and incidental waste are treated each year in CAMU.

4.0 GENERAL CLOSURE INFORMATION

4.1 Closure Performance Standard

The unit will be closed to meet the following performance standards:

a. Removal of all hazardous waste residues and hazardous constituents;

b. contaminated media do not contain concentrations of contaminants greater than the clean-up levels established in Attachment 7 of the Permit. For soils the cleanup levels shall be established based on residential use.

c. The Permittee must also demonstrate that there is no potential to contaminate groundwater.

d. removal of hazardous waste residues, hazardous constituents, and, as applicable, contaminated media to the extent that it does not exceed a total excess cancer risk of 10-5 for carcinogenic substances and, for non-carcinogenic substances, a target Hazard Index of 1.0 for human receptors, and meet Ecological Screening Levels established in Attachment 7 of the Permit;

e. removal of all equipment and structures and re-grading and restoration of the site to its original condition;

Closure must comply with 20.4.1.500 NMAC (incorporating 40 CFR 264.111, 114 and 264.552(e)(6)(i) and (ii) and (f))

4.2 Closure Schedule

An updated closure plan for the CAMU will be submitted no less than 180 days prior to the completion of corrective action activities at the Facility. The updated closure plan shall include all proposed activities, methods and procedures and other actions necessary to complete closure of the CAMU in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.111, 264.114, 264.552(e)(6)(i) and (ii) and 264.552(f)) and Permit Attachment 7, and include a schedule to complete closure.

Closure shall begin no later than 30 days after final corrective action activities are completed at the Facility or in accordance with an alternate schedule included in the NMED-approved updated closure plan. All closure activities shall be completed no later than 180 days after implementation of the closure plan or as specified by an alternate schedule included in the NMED-approved updated closure plan.

4.3 Closure Report

The Permittee shall submit to NMED a CAMU closure report within 180 days, or other time specified by NMED, that summarizes all activities conducted to complete closure of the CAMU and demonstrates compliance with the cleanup requirements of Permit Attachment 7 and 20.4.1.500 NMAC (incorporating 40 CFR 264.111, 264.114 and 264.552(e)(6)(i) and (ii) and 264.552(f)). The closure report shall contain the minimum requirements listed in Section 8.0 below. The Permittee shall submit a certification of closure and survey plat in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.115 and 264.116) within 90 days of NMED approval of the closure report.

5.0 CLOSURE PROCEDURES

Closure activities at the unit shall include: a physical review of the unit and a review of the waste management and treatment records; proper management and disposal of hazardous waste residues, if applicable; removal of all equipment and structures associated with the unit; soil sampling and analysis to demonstrate that the closure performance standards and applicable cleanup levels have been achieved; and site restoration and submittal of a final closure report. The following sections provide descriptions of the closure activities.

5.1.1 Records Review

The record for CAMU operations (including, but not limited to, treatment activities, inspection and contingency plan implementation records) shall be reviewed at the time of closure and in accordance with the schedule in Section 4.2 this closure plan. The goals of the review will be to:

a. confirm the specific hazardous waste constituents of concern listed in Table 1 of this closure plan;

b. update Table 1 as necessary; and

c. confirm additional sampling locations based on site records (e.g., locations of spills, kickout, damage to treatment pits).

The Permittee shall determine whether any spills or releases, damage, or hazards (e.g., damage to the pits, pit berms, burn box or other unit materials) affecting waste containment or treatment occurred or developed during the operational life of the unit. If the records indicate any such incidents, the Permittee shall include the information in the updated closure plan required by Permit Section III.D.1. All additional sampling procedures, as applicable, shall be included in the updated closure plan.

5.2 Decontamination and Removal of Structures and Equipment

In accordance with 40 CFR 265.112(b)(4) (which is incorporated herein by reference), the unit's related equipment and materials (e.g., burn pan and fencing) shall be decontaminated, or removed, or both and managed accordingly. All such equipment must either be recycled or properly disposed at a permitted landfill.

5.2.1 Equipment Used During Decontamination Activities

Reusable tools and equipment used during decontamination activities shall be cleaned with a wash water solution. Residue, disposable equipment, and small reusable equipment that cannot be decontaminated shall be containerized and managed as waste in accordance with Section 7.0 below.

6.0 SAMPLING AND ANALYSIS PLAN

The Permittee shall submit a Sampling and Analysis Plan (SAP) that identifies the specific sampling and analysis requirements for this unit and ensures the closure requirements of 40 CFR Part 264 Subparts G and 264.552(e) and (f) are met. It also shall describes the required methods to demonstrate that the Permittee has met the closure performance standards described in Section 4.1. The Permittee shall comply with all the requirements in this closure plan as well as the applicable requirements in Section III of the Permit. The SAP shall be submitted no less than 180 days prior to the completion of corrective action activities at the Facility.

The SAP is designed to:

1) verify removal of equipment, structures, and materials; and

2) verify that all releases of hazardous constituents to any environmental media have been remediated to the levels specified in Permit Attachment 7.

The SAP must include:

1) Proposed soil sampling activities and groundwater sampling, as necessary,

2) the rationale for sampling locations,

3) proposed field screening and laboratory analytical methods,

4) the rationale for the proposed field screening and analytical methods,

5) the method for delineating the treatment unit kickout area,

6) proposed methods for 100% clearance of the treatment unit kickout area,

7) the methods for removal and disposition of all equipment and structures,

8) proposed schedule for conducting complete removal of all CAMU facilities and contaminated media, if present.

The list of hazardous constituents of concern for which soil, and potentially groundwater, samples will be analyzed are included in Table 1. The list of hazardous constituents of concern shall be utilized to select the analytical methods capable of detecting those constituents.

The Closure Plan SAP, as it is updated, shall include a site plan depicting discrete sampling locations within the CAMU Treatment Area and multi-incremental sampling (MI) decision units within the treatment kickout area to include the 200-foot radius buffer zone surrounding the CAMU Treatment Area as described in Section 2.2 of this plan.

6.1 Sampling Activities

Sampling activities shall consist of collection of discrete surface and subsurface samples within the CAMU Treatment Area, beneath the treatment units, and from the berms constructed around each detonation pit. In addition MI samples shall be collected from a minimum 200 foot radius from the CAMU Treatment Area and must include the entire treatment kickout area to demonstrate that soils within and in the vicinity of the CAMU meet the closure performance standards. Subsurface soil samples must be collected at each discrete sampling location and at locations where contamination is detected by MI sampling to minimum depths of five feet below ground surface (bgs) or to depths a minimum of three feet below the deepest detected contamination whichever is deeper. MI sample decision units shall consist of areas no greater than 10,000 ft2 and no less than 50 subsamples must be collected from each decision unit. All samples will be collected and analyzed in accordance with the procedures in this closure plan.

6.2 Soil Sampling

Soil samples will be collected at the locations specified in Section 6.1 above. Soil samples will be collected using a spade, scoop, auger, trowel or other method approved by NMED. The following procedures shall be used based on the sampling method for collection of soil samples.

At a minimum, the following procedures shall be used at all times when collecting samples during investigation, corrective action, and monitoring activities:

1. Neoprene, nitrile, or other protective gloves shall be worn when collecting samples. New disposable gloves shall be used to collect each sample;

2. All samples collected of each medium for chemical analysis shall be transferred into clean sample containers supplied by the project analytical laboratory with the exception of soil, rock, and sediment samples obtained in brass sleeves, shelby tubes, thin wall samplers, or in Encore™ samplers. Upon recovery of the sample collected using split barrel samplers with brass sleeves, the brass sleeves shall be removed from the split barrel sampler and the open ends of the sleeves shall be lined with Teflon tape or foil and sealed with plastic caps. The caps shall be fastened to the sleeve with tape for storage and shipment to the analytical laboratory. Samples collected in shelby tubes or thin wall samplers shall be capped in a similar fashion. The sample depth and the top of the sample shall be clearly marked. Sample container volumes and preservation methods shall be in accordance with EPA SW-846 and established industry practices for use by accredited analytical laboratories. Sufficient sample volume shall be obtained for the laboratory to complete the method-specific QC analyses on a laboratory-batch basis; and

3. Sample labels and documentation shall be completed for each sample following procedures included in the site-specific work plans approved by NMED. Immediately after the samples are collected, they shall be stored in a cooler with ice or other appropriate storage method until they are delivered to the analytical laboratory. Standard chain-of-custody procedures shall be followed for all samples collected. All samples shall be submitted to the laboratory soon enough to allow the laboratory to conduct the analyses within the method holding times. All samples shall be submitted to the laboratory within 48 hours after their collection.

Shipment procedures shall include the following:

1. Individual sample containers shall be packed to prevent breakage and transported in a sealed cooler with ice or other suitable coolant or other EPA or industry-wide accepted method. The drainage hole at the bottom of the cooler shall be sealed and secured in case of sample container leakage. Temperature blanks shall be included with each shipping container;

2. Each cooler or other container shall be delivered directly to the analytical laboratory;

3. Glass bottles shall be separated in the shipping container by cushioning material to prevent breakage;

4. Plastic containers shall be protected from possible puncture during shipping using cushioning material;

5. The chain-of-custody form and sample request form shall be shipped inside the sealed storage container to be delivered to the laboratory;

6. Chain-of-custody seals shall be used to seal the sample-shipping container in conformance with EPA protocol; and

7. Signed and dated chain-of-custody seals shall be applied to each cooler prior to transport of samples from the site.

6.2.1 Cleaning of Sampling Equipment

The objective of the decontamination procedures is to minimize the potential for cross-contamination. A designated decontamination area shall be established for decontamination of drilling equipment, reusable sampling equipment and well materials. Drilling equipment or other exploration equipment that may come in contact with a borehole shall be decontaminated by steam cleaning, by hot-water pressure washing, or by other method approved by NMED prior to drilling each new boring.

Sampling or measurement equipment, including but not limited to, stainless steel sampling tools, split-barrel or core samplers, reusable field test kit equipment, well developing or purging equipment, groundwater quality measurement instruments, and water level measurement instruments, shall be decontaminated in accordance with the following procedures or other methods approved by NMED before each sampling attempt or measurement:

1. Brush equipment with a wire or other suitable brush, if necessary or practicable, to remove large particulate matter;

2. Rinse with potable tap water;

3. Wash with nonphosphate detergent or other detergent approved by NMED (examples include Fantastik™, Liqui-Nox®) followed by a tap water rinse;

4. Rinse with 0.1 molar nitric acid (to remove trace metals, if necessary) followed by a tap water rinse;

5. Rinse with methanol (to remove organic compounds, if necessary) followed by a tap water rinse;

6. Rinse with potable tap water; and

7. Double rinse with deionized water.

All decontamination solutions shall be managed as solid or hazardous waste based on characterization results.

6.2.1.1 Sample Logbook

Daily field activities, including observations and field procedures, shall be recorded on appropriate forms. Copies of the field forms shall be maintained at the Facility. Copies of the completed forms shall be maintained in a bound and sequentially numbered field file for reference during field activities. Indelible ink shall be used to record all field activities. Photographic documentation of field activities shall be performed, as appropriate. The daily record of field activities shall include the following:

- Site or unit designation;
- Date;
- Time of arrival and departure;
- Field investigation team members including subcontractors and visitors;
- Weather conditions;
- Daily activities and times conducted;
- Observations;
- Record of samples collected with sample designations and locations specified;
- Photographic log;
- Field monitoring data, including health and safety monitoring if conditions arise that require modification of required work;
- Equipment used and calibration records, if appropriate;
- List of additional data sheets and maps completed;
- An inventory of the waste generated and the method of storage or disposal; and
- Signature of personnel completing the field record.

6.2.2 Sample Analysis Requirements

Samples shall be analyzed for all constituents listed in Table 1. Samples shall be analyzed by an independent laboratory using the methods included in Table 1 or other NMED approved methods. To the extent possible all method detection limits and reporting limits shall be less than the applicable cleanup levels included in Permit Attachment 7.

6.2.3 Analytical Laboratory Requirements

All laboratory analysis will be performed by independent analytical laboratories that maintain National Environmental Laboratory Accreditation Conference (NELAC) accreditation.

6.2.4 Quality Assurance/Quality Control

All sampling and analysis will be conducted in accordance with QA/QC procedures defined by the latest revision of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846) (EPA, 1986) or other Department-approved procedures. Field sampling procedures and laboratory analyses will be evaluated through the use of QA/QC samples to assess the overall quality of the data produced. QC samples evaluate precision, accuracy, and the potential for sample contamination associated with the sampling and analysis process, which is described in the following sections.

6.2.4.1 Field Quality Control

The field QC samples that may be collected include, field blanks, field duplicates, and equipment rinsate blanks. QC samples shall be given a unique sample identification number and submitted to the analytical laboratory as blind samples. QC samples will be identified on the applicable forms so that the results can be applied to the associated sample.

6.2.4.2 Analytical Laboratory Quality Control Samples

Soil samples collected as part of closure shall be collected at predetermined locations. Field duplicates, field blanks, equipment rinseate blanks, and reagent blanks, if necessary, shall be obtained for quality assurance during sampling activities. The samples shall be handled as described in Section 6.2 of this Closure Plan.

Field duplicate soil samples shall be obtained at a frequency of ten percent. At a minimum, one duplicate sample per sampling event shall always be obtained.

Field blanks shall be obtained at a frequency of no less than one per day per site or unit. Field blanks shall be generated by filling sample containers in the field with deionized water and submitting the samples with the soil samples submitted to the laboratory.

Equipment rinseate blanks shall be obtained for chemical analysis at the rate of five percent but no fewer than one rinseate blank per sampling day. Equipment rinseate blanks shall be collected at a rate of one per sampling day if disposable sampling apparatus is used. Rinseate samples shall be generated by rinsing deionized water through unused or decontaminated sampling equipment. The rinseate sample then shall be placed in the appropriate sample container and submitted with the soil samples to the analytical laboratory for the appropriate analyses.

Reagent blanks shall be obtained at a frequency of ten percent but no fewer than one per day per unit if chemical analyses requiring the use of chemical reagents are conducted in the field during soil sampling activities.

6.2.5 Data Reporting Requirements

The Permittee shall present summary tables of these data and Level II QA/QC results in the Closure Report. The raw analytical data, including calibration curves, instrument calibration data, data calculation work sheets, and other laboratory support data for samples from this

project, shall be compiled and kept on file at the contract laboratory(s) for reference. The Permittee shall make the data available to NMED upon request.

7.0 WASTE MANAGEMENT

By removing any hazardous waste or hazardous waste constituents during closure, the owner/operator may become a generator of hazardous waste. The Permittee shall control, handle, characterize, and dispose of all wastes generated during closure activities in accordance with all applicable state, federal, and local requirements (see 40 CFR 264.114).

8.0 CLOSURE REPORT

Upon completion of the closure activities at the unit, the Permittee shall submit, by registered mail, a closure report (Report) for NMED review and approval. The Report shall document that the unit has been closed in compliance with the specifications in this closure plan. The Report shall summarize all activities conducted during closure including, but not limited to:

a) the results of all investigations;

b) the results of all remediation of environmental media

c) the results of all kickout clearance activities

d) remediation waste management;

e) removal and/or decontamination of equipment and structures;

f) decontamination verification and soil sampling activities; and

g) results of all chemical analyses and other characterization activities.

The Permittee shall submit the Report to NMED in accordance with Permit Section III.D. NMED may require interim reports that document the progress of closure.

The report shall document the unit's closure and contain, at a minimum copy of the certification pursuant to 40 CFR 264.115, any variance, and the reason for the variance, from the activities approved in this closure plan, and documentation of all activities conducted to complete closure. The certification must be signed by the Permittee and by an independent professional engineer registered in the State of New Mexico (see 40 CFR 264.115).

Table 1. List of Analytes and Laboratory Test Methods

Parameters	**Method Number***	**Test Method**
Metals:		
Arsenic	1311, 6010B, 7060A, 7061A	Toxicity characteristic leaching procedure (TCLP) is EPA method 1311
Barium	1311, 6010B, 7080A, 7081	
Cadmium	1311, 6010B, 7130, 7131A	
Chromium	1311, 6*010B, 7190, 7191	Inductively-coupled plasma atomic emission spectroscopy (ICP-AES)
Lead	1311, 6010B, 7420, 7421	
Mercury	1311, 6010B, 7470A, 7471A	Manual cold vapor technique
Selenium	1311, 6010B, 7740, 7741A, 7742	
Silver	1311, 6010B, 7760A, 7761	
Volatile Organic Compounds	8260B	Gas chromatography/mass spectrometry (GC/MS)
Semi-Volatile Organic Compounds	8270C	GC/MS
Explosives Compounds: HMX, RDX, TNT, 1,3,5-TNB, 1,3-DNB, tetryl, NB, 2A-4,6-DNT, 4A-2,6-DNT, DNT-mixture 2,4/2,6, 2,6-DNT, 2,4-DNT, 2-NT (o-), 3,NT (m-), 4-NT (p-), Nitroglycerin, PETN	8330, 8332	High performance liquid chromatography (HPLC)

Parameters	**Method Number***	**Test Method**
Perchlorate	314.0	Ion Chromatography
Nitrate	300 Series	Varies
Cyanide	9012	Automated Colorimetric, with Offline Distillation
PCBs	8082	GC
Dioxins and Furans	8280, 8290	High-Resolution Gas Chromatography/Low Resolution Mass Spectrometry (HRGC/LRMS)
TPH (Total Petroleum Hydrocarbons)	Modified 8015	GC

*All analytical methods as they may be updated or replaced.

~~10~~ ATTACHMENT 10
FACILITY-WIDE GROUND WATER MONITORING PLAN

[To be submitted and approved pursuant to Permit Part V and VII.]

~~11~~ ATTACHMENT 11
GROUND WATER CORRECTIVE ACTION PROGRAM

[To be submitted pursuant to Permit Part VIII.]

~~12~~ATTACHMENT 12
MAP OF OB/OD UNIT

~~13~~ATTACHMENT 13
OFF-SITE WELLS

The following off-site water supply wells are subject to ground water monitoring and sampling.

16T-538C

16T-538D

16T-538E

16T-538UNC

16T-602

16T-603

19

~~14~~ ATTACHMENT 14
CAMU WASTE ANALYSIS PLAN

14.0 INTRODUCTION

This Waste Analysis Plan (WAP) describes the procedures used to characterize wastes to be treated and the residues that are generated as a result of treatment of WMM by open burn or open detonation at the Corrective Action Management Unit (CAMU) at the Fort Wingate Depot Activity (FWDA). Waste analysis requirements are specified in 40 CFR 264.13, 270.14(b) and 268.7. The WAP is organized as follows:

1. Facility Description
2. Waste Analysis Parameters
3. Waste Characterization Procedures
4. Analytical Methods
5. Frequency of Analysis
6. Special Requirements

14.1 FACILITY DESCRIPTION

The CAMU is located in SWMU 14 near the Old Burning Ground and Demolition Landfill within Parcel 3 of FWDA. The CAMU is designated to treat recovered WMM generated during corrective action activities conducted within the Facility. A description of the CAMU is described in Permit Attachment 1.

14.1.1 Description of Waste Streams to be Treated at CAMU

Historical munitions used and stored at FWDA have been documented by various surveys and investigations conducted at FWDA between 1993 and 1999. The munitions managed at FWDA range from small arms munitions to 10,000 pound bombs. The WMM munitions to be treated at the CAMU are standard military end items with well-defined physical and chemical characteristics.

Waste Permitted to be treated in the CAMU shall be limited to reactive (D003) and ignitable (D001) hazardous wastes, such as MEC (including damaged, defective, expired, and unserviceable munitions) and explosive-contaminated wastes generated during remediation activities. EPA hazardous wastes containing the codes D001 (ignitability), D003 (reactivity), D005 (barium), D006 (cadmium), D007 (chromium), D008 (lead), D009 (mercury), and D030 (2,4-dinitrotoluene) may also be treated in the CAMU. Other waste that may be treated at the CAMU include waste which may be associated with propellants, bulk explosives, metal powders, detonators, and miscellaneous munitions constituents, and soils determined by field testing (e.g., visual inspection, burn test, EnSys®) to contain 10% or greater explosives compounds. Disposition of the propellants, bulk explosives, metal powders, detonators and miscellaneous munitions constituents shall be determined by the designated and UXO Quality

Control Specialist. Items may be treated in the CAMU only if the SUXOS and UXO Quality Control Specialist determines the items are unsafe to transport off-site.

Table 1 lists the wastes authorized for treatment at the CAMU. The Permittee shall not exceed 200 lbs net explosive weight (NEW) for cased explosives or maximum of 200 lbs for uncased explosives in any treatment event. No more than 1,000 lbs of NEW may be treated in any seven day period. Each detonation will require approximately one hour to complete, which includes placing the charge, covering the munitions with dirt (if warranted), detonating the munitions, inspecting the debris, and clearing the debris. The annual throughput of the CAMU is estimated at 52,000 lbs NEW. A minimum of 24 hours after each burn is completed is required before the debris can be inspected and cleaned.

The Permittee is prohibited from treating any wastes in the CAMU that can be safely transported off-site for treatment or disposal at an alternate facility. All debris and incidental solid wastes (e.g., wooden ammunition boxes, containers) that can be safely separated from the munition item/constituent and transported off-site and certified as material documented as safe (MDAS) in accordance with Department of Defense (DoD) and United States Army Corp of Engineers (USACE) regulations and requirements is prohibited from treatment at the CAMU. The Permittee is also prohibited from treating any waste that was not specifically generated at the Facility during clearance or other corrective action operations.

The placement of bulk or non-containerized liquid hazardous waste or free liquids contained in hazardous waste (whether or not sorbents have been added) in the CAMU is prohibited except where placement of such wastes facilitates the initiation of the treatment process. [20.4.1.500 NMAC (incorporating 40 CFR 264.552(a)(3)(i))]

Table 1: CAMU General Unit and Waste Description

Treatment Unit	Description of Treatment Unit	General Description of Hazardous Waste	Hazardous Waste No.	Maximum Quantity of Waste Allowed per Treatment Event
Open Burn	The burn pans, constructed of a fabricated steel structure that is approximately 4 ft wide, 8 ft long, and 1 ft deep.	MEC-Ignitable, Reactive, and Toxic Wastes.	D001, D003, D007, D008	200 lbs Net Explosive Weight for uncased explosives

Open Detonation	Each demolition pit will occupy a 15 foot by 15 foot area and have a depth of 4 feet below ground surface. The interior surface of the demolitions pits will be composed of dirt. Horseshoe-shaped earthen berms will surround each of the demolition pits. The berms will be constructed to a width of 35 feet and a height of 8 feet. The front will have an entrance approximately 25 feet wide for access to the interior of the pit.	MEC-Ignitable, Reactive, and Toxic Wastes	D001, D003, D005, D006, D007, D008, D009, D030	200 lbs Net Explosive Weight for cased explosives

14.1.2 Description of Waste Streams Generated at CAMU

The primary waste streams to be generated at the CAMU are recyclable scrap and ash. Other materials and potentially impacted soil may also potentially be generated.

Recyclable Scrap and Material Documented as Safe (MDAS). The end waste stream from the CAMU is scrap metal and MDAS that is deemed "safe to recycle" by the SUXOS and UXO Quality Control Specialist. All scrap metal and MDAS certified in accordance with the USACE procedures of EM 1110-1-4009 will be sent to a smelter, licensed recycler or appropriate permitted facility for final disposition.

Ash. Ash will be removed after each burn/treatment. The resulting ash shall be characterized (in accordance with Section 14.3 of of this attachment) and disposed at a permitted off-site facility in accordance with all applicable local, state, and federal regulations.

Non-MEC Debris and Incidental Solid Waste. Non-MEC debris and incidental solid wastes refers to items such as wooden ammunition boxes and containers. If deemed safe to do so by the SUXOS and UXO Quality Control Specialist, these solid wastes will be segregated for off-site disposal and will not be treated with other WMM in the CAMU. If the non-MEC debris or incidental solid waste is designated as unsafe to segregate from the WMM, the Permittee may also treat such non-MEC or incidental solid waste in the CAMU. The waste stream generated will be ash.

Potentially Impacted Soil. There is a potential for releases to soils to occur as a result of CAMU treatment processes. The Permittee shall conduct soil sampling at the CAMU in accordance with Permit Section IX.L to evaluate for the presence of contaminated soils. Section 14.3 also addresses soils, although this waste analysis activity will be managed primarily as part of the Closure of the unit.

14.2 WASTE ANALYSIS PARAMETERS

Characteristics of the wastes treated at the CAMU shall be identified using generator knowledge and written documentation about the wastes being treated. As noted in Section 14.1.1, the anticipated WMM are standard military end items with well-defined physical and chemical

characteristics. Military munitions are identifiable by their unique physical characteristics. The SUXOS and UXO Quality Control Specialist shall use the appropriate information sources (e.g., USEPA AP 42, Chapter 15, ORDATA online) to identify the type of munitions upon discovery. Sampling and analysis of WMM to be treated at the CAMU shall not be conducted as part of this WAP because the composition is well-known and well-controlled, and the inherent health and safety risks outweigh the potential value of the data that would be obtained by testing the WMM (i.e., sampling and subsequent laboratory analysis would present unnecessary hazards to personnel). However, post-treatment inspection must be completed to ensure that the WMM are effectively treated and rendered non-hazardous, thereby, "safe to recycle" off-site.

Sampling and analysis shall be conducted for the characterization of certain wastes generated after the completion of the CAMU treatment process, such as ash and potentially impacted soil. Generator knowledge shall be used to characterize non-MEC debris. Other wastes and incidental solid wastes generated by the treatment will undergo sampling and analysis of parameters identified in the following sections.

14.2.1 Criteria and Rationale for Parameter Selection

All waste shall be characterized for explosive related constituents prior to disposition. Table 2 provides a list of potential analytical methods for waste analysis under this WAP.

Ash. Based on knowledge of the WMM and MEC to be treated at the CAMU, the ash residue may contain the toxicity characteristic metals barium (D005), cadmium (D006), chromium (D007), lead (D008), mercury (D009) and organic compounds such as 2,4-dinitrotoluene (D030) present in the original wastes. The ash residue shall be sampled and analyzed for the constituents known to be in the original wastes the first time a specific waste stream is treated to establish a profile for the ash that will be generated by that waste stream, using TCLP and total analysis methods. Once a profile for the ash generated by a specific waste stream is established, additional ash sampling may not be necessary. If a specific waste stream's characteristics change, additional ash sampling and analysis shall be conducted to establish a new profile.

Potentially Impacted Soil. Based on the generator knowledge available for WMM to be treated, soil samples shall be analyzed for metals, explosive compounds, perchlorate, and total petroleum hydrocarbons. In addition, closure and baseline samples shall be analyzed for VOCs, SVOCs, nitrate, cyanide, PCBs, dioxins, and furans. Soil from the CAMU shall be sampled and analyzed for these parameters to comply with land disposal regulations (LDR) that may be applicable during the closure of the treatment unit (See Table 2).

Table 2: Residual Waste Testing and Analytical Methods

Parameters	Method Number*	Test Method
Metals:		
Arsenic	1311, 6010B, 7060A, 7061A	Toxicity characteristic leaching procedure (TCLP)
Barium	1311, 6010B, 7080A, 70681	
Cadmium	1311, 6010B, 7130, 7131A	Inductively-coupled plasma atomic emission spectroscopy (ICP-AES)
Chromium	1311, 6010B, 7190, 7191	
Lead	1311, 6010B, 7420, 7421	
Mercury	1311, 6010B, 7470A, 7471A	Manual cold vapor technique
Selenium	1311, 6010B, 7740, 7741A, 7742	
Silver	1311, 6010B, 7760A, 7761	
Volatile Organic Compounds	8260B	Gas chromatography/mass spectrometry (GC/MS)
Semi-Volatile Organic Compounds	8270C	GC/MS
Explosives Compounds: HMX, RDX, TNT, 1,3,5-TNB, 1,3-DNB, tetryl, NB, 2A-4,6-DNT, 4A-2,6-DNT, DNT-mixture 2,4/2,6, 2,6-DNT, 2,4-DNT, 2-NT (o-), 3,NT (m-), 4-NT (p-), Nitroglycerin, PETN	8330, 8332	High performance liquid chromatography (HPLC)
Perchlorate	314.0	Ion Chromatography
Nitrate	300 Series	Varies
Cyanide	9012	Automated Colorimetric, with Offline Distillation
PCBs	8082	GC

Parameters	Method Number*	Test Method
Dioxins and Furans	8280, 8290	High-Resolution Gas Chromatography/Low Resolution Mass Spectrometry (HRGC/LRMS)
TPH (Total Petroleum Hydrocarbons)	Modified 8015	GC

* All analytical methods as they may be updated.

14.3 WASTE CHARACTERIZATION PROCEDURES

The approach to waste characterization shall be based on the chemical and physical nature of the waste stream. The characterization strategy for the hazardous wastes treated and waste streams generated at the FWDA CAMU are described below. As noted in previous sections, the WMM that may be treated by CAMU treatment operations are standard military end items with well-defined physical and chemical characteristics. The WMM deemed safe to treat at the CAMU shall be based on generator knowledge available to meet waste analysis requirements. The Permittee shall conduct post-treatment inspection is to ensure that the WMM are effectively treated and rendered non-hazardous.

After treatment, the remaining munitions debris (MD) shall be inspected by the SUXOS and UXO Quality Control Specialist. The SUXOS and UXO Quality Control Specialist shall verify and certify that the munitions debris has been 100% properly inspected and does not present an explosive hazard. All scrap metal and MDAS certified in accordance with the USACE procedures of EM 1110-1-4009 shall be sent to a smelter licensed recycler or other permitted facility for final disposition.

If the MD and scrap is not deemed “safe to recycle” based on visual inspection by the SUXOS and UXO Quality Control Specialist, it shall be left in the demolition pit for re-venting (by OD) in a timely manner, followed by re-inspections. If it continues to “present an explosive hazard” it shall be re-vented (by CAMU treatment) until it no longer poses an explosive hazard. Small arms ammunition up to and including .50-caliber cartridges and medium caliber cartridges that cannot be vented or treated on site shall be profiled, packaged, and disposed of at an off-site in accordance with local, state, and federal regulations.

Acceptable Knowledge

Acceptable knowledge (AK) includes process knowledge, generator knowledge, additional characterization data, and facility records of analysis (EPA, 1994A).

Process knowledge (PK) includes information about the process used to generate the original munitions, material inputs to the process, and the time period during which the waste was generated. PK is described in 40 CFR 264.13(a)(2) as data developed under 40 CFR Part 261 and existing published or documented data on a specific hazardous waste or hazardous waste generated from similar processes. PK may include off-site facility waste characterization data

pertaining to a specific waste and laboratory analytical data performed prior to the effective date of applicable RCRA regulations.

Additional characterization data includes data obtained after the advent of RCRA and from chemical or physical analysis that is not subject to the most recent version of SW-846 and other approved methods, or through testing of similar or surrogate waste streams. This includes previous analytical data relevant to the waste stream including results from fingerprint analyses, spot checks, or routine waste verification sampling.

Facility records of analysis consist of waste analysis and physical characterization performed prior to the effective date of RCRA regulations.

The Permittee may use AK alone or in conjunction with sampling and analysis in the following instances (EPA, 1994A):

1. hazardous wastes from specific processes that are well documented;
2. F and K-listed wastes;
3. wastes are discarded, unused, commercial chemical products, reagents, or chemicals of known physical and chemical properties (P and U-listed wastes);
4. health and safety risks to personnel would not justify sampling and analysis ; and
5. physical nature of the waste does not lend itself to taking a laboratory sample (e.g., heterogeneous waste streams).

The Permittee shall document the basis for using AK on a waste profile form. The Permittee shall maintain AK information in accordance with Permit Section II.I in a format that allows waste management personnel and subject matter experts to obtain copies or review the documentation at the Facility. The Permittee shall assign a traceable identifier (i.e., process or AK document number or alphanumeric designation) in accordance with Permit Section 2.4.10 to the waste characterization documentation so that the Permittee can obtain the information for as long as required by RCRA regulation and this Permit.

14.3.1 CAMU Treatment Residuals

CAMU treatment operations may generate solid waste in the form of ash residue as well as impact soils in the demolition pit(s). Prior to treatment at the CAMU and to establish a baseline for soil sample analysis, samples shall be collected in accordance with Permit Section IX.L. The Permittee shall analyze any CAMU treatment residues remaining after treatment each time a new waste stream is treated. The Permittee shall sample the ash generated by open burn or detonation for potential contaminants of concern. Soils shall also be sampled upon completion of all CAMU operations in accordance with Permit Section IX.L.

Ash. The ash residue generated by treatment operations shall be characterized by sampling and chemical analysis the first time a specific waste stream is treated to establish a waste profile. A waste profile for ash residue shall be established for each specific waste stream treated at the CAMU. The samples shall be analyzed for the constituents known to be present in the original waste that was treated. The appropriate toxicity characteristic metals (specific for the waste

based on generator knowledge) shall be analyzed for by the TCLP method, and the appropriate toxicity characteristic organic compounds shall be analyzed for using the appropriate method for total analysis (See Table 2). Subsequently, ash residue resulting from treated waste in the CAMU shall be stored in appropriate containers in the 90-day storage area prior to disposal. The ash shall be characterized for disposal to determine the appropriate permitted waste disposal facility that will receive the waste. If additional sampling and analysis is required, a simple random grab or composite sample shall be collected from the ash in accordance with the methods prescribed in SW-846 or other approved methods.

Potentially Impacted Soil. The Permittee shall effectively monitor potentially contaminated soils, by collecting baseline and closure (upon completion of all operations) soil samples from the CAMU primary treatment pit(s) and the surrounding berm(s). The Permittee shall analyze all soil samples for TAL metals, explosive compounds, perchlorate, white phosphorus, and total petroleum hydrocarbons, VOCs, SVOCs, nitrate, cyanide, PCBs, dioxins, and furans in the soil sample analyses.

Non-MEC Debris and Incidental Solid Waste. All non-MEC debris and incidental solid wastes (i.e. wooden ammunition boxes, containers, etc.) that can be safely separated from the munitions item/constituent shall be separated and certified as MDAS in accordance with DoD and USACE regulations and requirements and transported off-site for disposal.

Groundwater. Groundwater monitoring at the CAMU will be conducted in accordance with the required facility wide groundwater monitoring plan (see Permit Section V).

14.3.1.1 Sampling Equipment

Soil and ash samples shall be collected using a stainless steel spoon or trowel, disposable sampling equipment or other method approved by NMED. Certified, pre-cleaned sample containers obtained from the laboratory shall be used to store the samples prior to laboratory analyses. Sample volumes, container types, and preservation requirements shall be followed per specific method requirements in accordance with EPA SWA 846 or other NMED approved method.

14.3.1.2 Field Decontamination

Disposable sampling equipment (e.g., plastic spoons and disposable buckets) does not require decontamination. If non-disposable soil sampling devices are used (e.g., stainless steel spoons), the devices shall be decontaminated prior to each use. The reusable devices shall be decontaminated by the following procedure:

1. Brush equipment with a wire or other suitable brush, if necessary or practicable, to remove large particulate matter;
2. Rinse with potable tap water;
3. Wash with nonphosphate detergent or other detergent approved by NMED (examples include Fantastik™, Liqui-Nox®) followed by a tap water rinse;

4. Rinse with 0.1 molar nitric acid (to remove trace metals, if necessary) followed by a tap water rinse;
5. Rinse with methanol (to remove organic compounds, if necessary) followed by a tap water rinse;
6. Rinse with potable tap water; and
7. Double rinse with deionized water.

Decontamination water and waste generated during decontamination shall be contained and transferred to a 55-gallon drum or a 1000-gallon polyethylene tank for disposal as investigation derived waste (IDW). If decontamination water has no detected contaminant levels (other than naturally occurring metals) the water may be placed in the evaporation tank behind Building 542. Alternative decontamination methods must be approved by NMED prior to use.

14.3.1.3 Sample Preservation and Storage

In the field, each sample container shall be marked with the sample identification number, sampling location, date, time of sample collection and the sampler's initials. Sample containers for chemical analysis shall be placed in ice-filled coolers immediately following collection, and stored at 4° Celsius prior to and during shipment. Sample containers shall be packaged to avoid breakage during transportation. Chain-of-Custody (CoC) shall be followed in accordance with EPA SW-846.

For each sample to be submitted to the analytical laboratory for analysis, an entry shall be made on a CoC form supplied by the laboratory. One CoC form shall be completed for each cooler for each day of sampling. The information recorded on the CoC form includes the sampling date and time, sample identification number, requested analyses and methods, and sampler's name.

CoC forms shall be placed in a sealed plastic bag and placed inside of the cooler with the samples.Upon receipt of the sample cooler, the laboratory will verify custody and condition of the samples. Non-conformances in sample receipt (e.g., broken sample containers, samples received out of temperature) shall be documented on the sample receipt form and communicated to the project team immediately.

14.3.1.4 Quality Assurance/Quality Control

To ensure that proper procedures and considerations for sample collection and preservation, QA/QC, and occupational safety and health are followed, the Permittee shall comply with the Facility-specific protocol consistent with the most recent version of EPA SW-846.

14.4 ANALYTICAL METHODS

Characterization of the wastes to be treated in the CAMU shall be accomplished using generator knowledge as presented in Section 14.2. Therefore the discussion on laboratory selection and laboratory testing/analytical methods is limited to the residual wastes, soil and ash, potentially produced by the treatment unit, and QA/QC samples. The Permittee shall comply with EPA SWA 846 analytical methods or other NMED approved methods.

14.4.1 Laboratory Selection

The Permittee shall ensure that a NELAC certified analytical laboratory be selected to perform the analysis of each specific soil and ash produced by the CAMU. The laboratory shall maintain a comprehensive QA/QC program, technical analytical expertise, and an effective information management system.

14.4.2 Testing and Analytical Method Selection

The selection of analytical testing methods for the ash and soil generated at the CAMU shall be based on the following:

1. The physical state of the waste,
2. The analytes of interest,
3. The required detection limits, and
4. Information requirements.

Collectively, these factors contributed to the selection of the testing/analytical procedures presented in Table 2.

14.5 FREQUENCY OF ANALYSIS

Waste streams treated at the CAMU consist of energetic materials that have been manufactured in accordance with military specifications and strict manufacturing requirements. As such, these waste streams of WMM will consist of materials that are known. Therefore, a re¨evaluation of waste characterization data may not be necessary.

Ash generated during CAMU treatment events will be collected and transported to the CAMU temporary storage area or the less-than-90-day storage area and characterized prior to disposal. Sampling frequency will be determined by the receiving disposal facility. If the sampling results indicate the ash will be classified hazardous waste, then the containers will be removed to a permitted hazardous waste disposal facility. If the sampling results indicate the ash is not hazardous then the ash will be managed as a solid waste.

14.6 SPECIAL REQUIREMENTS

The Permittee must comply with the applicable generator requirements of 20.4.1.300 NMAC (incorporating 40 CFR 262). Procedures for managing ignitable and reactive wastes and provisions for ensuring compliance with land disposal restrictions (LDR) requirements are summarized below.

14.6.1 Compliance with General Requirements for Ignitable, Reactive, or Incompatible Wastes

Wastes exhibiting the characteristics of reactivity and ignitability shall be treated in the CAMU. The Permittee shall ensure that these characteristics are documented based on generator knowledge or field testing (e.g., burn test). The Permittee shall meet the requirements in 40 CFR 264.17 when storing the waste.

14.6.2 Provisions for Complying with LDR Requirements

The Permittee shall demonstrate and document that all waste shipped offsite for disposal meets the land disposal restrictions (LDRs) as required by 40 CFR 268.40. Testing, tracking and record keeping must comply with 40 CFR 268.7. Generally, hazardous wastes must meet applicable treatment standards prior to land disposal. These treatment standards are expressed in two ways:

1. As constituent concentrations in the waste, either as an extract of the waste (as determined by TCLP), or as total waste analysis, or
2. As specified treatment technologies.

Wastes that have concentration–based treatment standards must be evaluated to determine if applicable constituent concentration levels have been attained. This can be accomplished by testing the waste, or applying knowledge of the process or materials used to produce the waste. The treatment standards are based on leachate concentrations or total concentrations. Leachate concentrations are determined using EPA Method 1311 (toxicity characteristic leachate procedure).

Characteristic wastes that have treatment standards expressed as specified technologies in 20.4.1.800 NMAC (incorporating 40 CFR 268.40) must also meet the Universal Treatment Standards in 20.4.1.800 NMAC (incorporating 40 CFR 268.48) prior to land disposal. Special rules regarding wastes that exhibit a characteristic are also presented in 20.4.1.800 NMAC (incorporating 40 CFR 268.9). In 20.4.1.800 NMAC (incorporating 40 CFR 268.9), it states that no prohibited waste that exhibits a characteristic under 20.4.1.800 NMAC, Subpart II, Part 261, Subpart C may be land disposed unless the waste complies with the treatment standards under 20.4.1.800 NMAC, (incorporating 40 CFR 268 subpart D). In addition, for wastes that exhibit a hazardous characteristic, the generator must determine the underlying hazardous constituents, as required in 20.4.1.800 NMAC (incorporating 40 CFR 268.9(a)).

14.6.3 Treatment Facility Requirements

For the ignitable and reactive hazardous wastes treated at the CAMU, the specified treatment technology is DEACT (deactivation). Deactivation is accomplished by treatment in the CAMU unit, which removes the hazardous characteristics of ignitability and/or reactivity. Placement of CAMU-eligible waste into the CAMU does not constitute land disposal of hazardous waste. The remaining residues resulting from treatment by the CAMU are subject to the LDRs.

~~15~~ATTACHMENT 15
HAZARDOUS WASTE CONTINGENCY PLAN

15.1 PURPOSE AND SCOPE

This Contingency Plan (CP) addresses the OB/OD Unit and the CAMU at FWDA and the applicable requirements of 20.4.1.500 (incorporating 40 CFR 264 subpart D).

15.1.1 Primary Hazards

FWDA is an inactive U.S. Army depot whose former mission was to receive, store, maintain, test and ship assigned materials (primarily explosives and military munitions), and to dispose of obsolete or deteriorated explosives and military munitions.

As described above, part of the FWDA mission was to demilitarize unserviceable, obsolete, and/or waste explosives, propellants, munitions and munitions components. Some of these demilitarization activities were accomplished by thermal treatment in the OB/OD Area. Related materials were also treated in the OB/OD Area, including objects that were potentially contaminated with explosives during storage and handling, such as shipping containers and dunnage. Open Burn (OB) was used to treat energetic wastes by self-sustained combustion. Typical materials treated by OB include bulk propellants and energetic materials that were not detonable and/or could be burned without causing an explosion. Open Detonation (OD) was used to destroy detonable energetic materials and munitions. Disposal charges were used to initiate detonations. OD was conducted in detonation craters on the ground surface or under earthen cover to minimize fragment dispersal.

As a result of OB/OD operations, the potential exists for MEC to be present in the OB/OD Unit, surrounding area and at other locations at the Facility. MEC are any of the following: unexploded ordnance (UXO), abandoned or discarded munitions; soil with a high enough concentration of explosives to present an explosive hazard; or facilities, equipment, or other materials contaminated with a high enough concentration of explosives such that it presents an explosive hazard. The term MEC has been implemented by the DoD to replace the previously used term “ordnance and explosives (OE)”. UXO is defined as military munitions that have been primed, fuzed, armed, or otherwise prepared for action, and that has been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installation, personnel, or material, and that remains unexploded by malfunction, design, or any other cause.

15.1.2 Name, Address, and Telephone Number of the Owner/Operator

Names, addresses, and telephone numbers of the Owner/Operator are provided in Appendix A.

15.2 CONTINGENCY PLAN

15.2.1 General (40 CFR 264.52 (A))

The CP addresses the potential emergencies involving reactive (explosive) hazardous wastes during treatment activities at the CAMU corrective action and closure and post-closure care of the OB/OD Area. These reactive wastes include a variety of potential MEC items.

15.2.2 Arrangements Agreed to By Local Agencies (40 CFR 264.52 (C))

FWDA has entered into mutual assistance agreements with local emergency, medical and law enforcement agencies. The names and phone numbers of the local agencies are provided in Appendix A of this attachment (15).

15.2.3 Installation on Scene

The Installation on Scene Coordinator (IOSC) has been designated by the WSMR command group to be the BRAC Environmental Coordinator (BEC) at FWDA. The IOSC will function as the facility emergency coordinator. The responsibilities of the IOSC include: assessing the emergency, determining the need for agency notification, requesting additional manpower and resources if required, and coordinating mitigation, cleanup, and reporting. The Advisory/Support Group (Section 15.2.4) will support the IOSC as necessary. Names, addresses, and phone numbers of the IOSC and alternates are provided in Appendix A.

During environmental restoration activities, the IOSC will be supported by an onsite remediation supervisor. Because many activities during closure/post-closure will be performed by contractors, the on-site Remediation Supervisor will change depending upon activities performed and types of contractors on-site.

15.2.4 Advisory/Support Group

Members of the Advisory/Support group are located at White Sands Missile Range (WSMR) and have the responsibility of assisting the IOSC as outlined below:

1. Environmental Office: Assists with determination of environmental threats, proper disposal and management of wastes, recordkeeping, technical guidance, and reporting to outside agencies as required by regulations.
2. Safety Office: Provides site-specific information on explosives hazards and quantity distance requirements.
3. Public Affairs Officer (PAO): The PAO may be called upon by the IOSC to interface with the news media.
4. Contracting Officer: The responsibility of the Contracting Officer is to initiate a contract for incident clean up if directed by the IOSC. Contracted clean up will be used when clean up operations exceed the capabilities of the installation
5. Directorate for Public Works and Logistics: The Facilities Support Division may provide heavy equipment support if needed and instructed by the IOSC.

15.2.5 Response During Off-Duty Hours

Duty hours for the Caretakers are 6:30 am to 5:00 pm Monday through Friday. The emergency response procedure for off-duty hours is the same as for duty hours, except for the following differences: During off-duty hours, the IOSC and Advisory/Support Group is not present; individual group members or alternates may have to be called and report to the incident site, if conditions require their presence. The primary contact for the Advisory/Support Group during off-duty hours is the BRAC Environmental Coordinator.

15.2.6 Emergency Equipment (40 CFR 264.52(E))

A list of supplies, materials, and equipment maintained at FWDA for emergency response is provided in Appendix C.

15.2.7 Evacuation Plan (40 CFR 264.52(F))

In the event that a safety or life-threatening hazard exists, the CAMU or OB/OD Area may be evacuated. The evacuation route for both areas is shown in CP Figure 4. The signals for commencement of evacuation are described below:

A steady continuous alarm with an air horn, siren, or vehicle horn will indicate that the area is being evacuated. In addition, personnel may be contacted via two-way radio or mobile phone, and instructed to evacuate the area. The Remediation Supervisor will account for the presence or absence of all personnel when assembled at a safe waiting area. Personnel working in the area of the evacuated site will assemble at the location shown on the evacuation route map (CP Figure 4) when instructed to evacuate.

15.2.8 Copies of Contingency Plan (40 CFR 264.53)

A copy of the contingency plan and all revisions to the plan will be maintained at the FWDA BEC Office in Building 1 at FWDA.

A copy of the contingency plan and all revisions to the plan will be submitted to all local police departments, fire departments, hospitals, and State and local emergency response teams that may be called upon to provide emergency services.

15.2.9 Amendment of Contingency Plan (40 CFR 264.54))

The CP will be reviewed and amended if necessary when any of the following conditions exist:

1. The facility RCRA permit is modified.
2. The CP fails in actual use during an emergency
3. The design, operation, or construction of the facility changes in such a way as to cause an increased potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency.
4. The list of emergency coordinators or emergency equipment changes

15.3 EMERGENCY PROCEDURES

15.3.1 Implementation (40 CFR 264.56 (a))

The IOSC shall implement the CP if there is a fire explosion or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment. These include uncontrolled burning or detonation, which could release hazardous constituents into the environment or endanger human health. The IOSC will act immediately to assess any such situation and determine if the CP should be implemented. The decision to implement this Plan will depend on IOSC assessment of several factors, such as:

1. The type and quantity of wastes and other materials involved;
2. The potential for the spread of fire or the initiation of an explosion; and
3. The available capability to respond to and control the situation.

If needed, the IOSC will be summoned by the on-site Remediation Supervisor. While waiting for the IOSC to arrive, on-scene personnel will try to control the incident, if safe to do so. If this is not possible, the area will be evacuated as described in Section 15.2.7.

15.3.2 Identification of Hazardous Materials Released at the OB/OD Unit (40 CFR 264.56 (B))

The IOSC, with the assistance of the Remediation Supervisor, is responsible for identifying the chemical and physical characteristics, exact source, amount, and areal extent of the release and hazards of the incident.

The IOSC shall gather available information by interviewing personnel at the CAMU or the OB/OD Unit and reviewing the schedules and records pertaining to the remedial action or closure operations. Information of any hazards presented by waste materials during an emergency would be limited to the items scheduled to be treated, that were identified during remediation activities, or were recently treated.

A summary of MEC items recovered and treated on-site during historical site characterization activities is provided in Appendix D. A summary of UXO items that may be treated at the CAMU are also provided in Appendix D. In general, similar types of MEC items are expected to be encountered during remedial actions and closure operations.

15.3.3 Assessment (40 CFR 264.56(C))

The IOSC is responsible for assessing the nature of the emergency incident. Because little or no quantitative information (for example, exposure levels) initially may be available, the criteria for assessing the hazards, risks, and vulnerabilities at the OB/OD HWMU and the CAMU are qualitative. The following criteria will be considered in making this determination:

1. The need to protect individuals present at the scene and those in the process of responding;

2. The nature and size of the incident;
3. Specific information available on the wastes and other materials involved;
4. Weather (e.g. wind speed and direction), topography, and other conditions (e.g., time of day);
5. Need to establish safety zones;
6. Factors that affect spread, ignition, or reactivity of the product;
7. The probability that the incident could spread beyond the incident scene; and
8. The need to deny access to unauthorized personnel.

To assist in the assessment of this situation, the IOSC may find it appropriate to confer with on-site personnel and/or the Advisory/Support Group, or with explosives experts from other DoD installations.

Under reasonably foreseeable conditions, the types and quantities of materials present at the CAMU and the OB/OD Unit would not result in any significant releases that could spread beyond the FWDA boundary. In the event of fires, the combination of natural firebreaks, paved roads, man-made firebreaks, and isolation distances present in the OB/OD Unit have been designed to prevent fires from spreading beyond the unit and outside the FWDA Facility.

15.3.4 Uncontrolled Fires

Uncontrolled fires, while unlikely, may occur as a result of treatment operations at the CAMU or from closure operations at the inactive OB/OD Unit. If an uncontrolled fire occurs within Parcel 3, it will not be fought unless necessary to provide assistance to injured personnel.

During uncontrolled fires, the IOSC typically performs the following functions:

1. Assess the situation using all available knowledge; the assessment determines whether or not to implement the CP;
2. Upon implementation of the CP, restricts all non-essential personnel from the area and evacuates all personnel if necessary;
3. Notifies all appropriate military authorities and emergency response units immediately;
4. Eliminates all possible sources of ignition in the immediate area. These include ignited tobacco products and unauthorized vehicle traffic;
5. Coordinates all response efforts without exposing personnel to undue risk;
6. With assistance from the WSMR Environmental Office, assumes responsibility for directing follow-up activities, if required; and
7. With assistance from the WSMR Environmental Office, prepares and submits all necessary reports on the incident.

The IOSC shall take the following actions upon implementation of the CP:

1. Stop all routine work in the affected area;
2. Stop all nonessential activities;
3. Evacuate all nonessential personnel;
4. Coordinate removal of any injured persons from the site and medical treatment of those persons;
5. Prevent access to Parcel 3 until "all-clear" notification by radio or portable telephone when all danger is over and is announced; and
6. Arrange for cleaning and inspecting all emergency equipment before resuming normal closure/post-closure operations.

15.3.5 Emergency Notifications for Off-Site Impacts (40 CFR 264.56(D))

If the IOSC determines that the facility has had an incident that could threaten human health or the environment outside of the facility, the following notification reports will be made:

a. If the IOSC's assessment indicates that evacuation of local areas may be advisable, they will immediately notify the appropriate local authorities and be available to assist the local authorities in making the decision of whether or not to evacuate.

b. Immediately notify the NMED Hazardous Waste Bureau (HWB) and the Local Community Emergency Coordinator, and the National Response Center. The notification report will include:

- Name and telephone number of the reporter
- Name and address of the facility
- Time and type of incident
- Name and quantity of material(s) involved
- Extent of any injuries
- Possible hazards to human health, or the environment, outside the facility.

Phone numbers for reporting emergency notifications of off-site impacts are provided in Appendix A.

Fires resulting from remedial actions, closure operations and unplanned burning or detonations resulting in personnel injury are the types of emergencies requiring emergency response. Dropping energetic materials during routine handling that does not result in ignition or detonation would not constitute an emergency. Any materials dropped would either be a discrete item (such as a projectile), or solid materials, which could be recovered easily.

15.3.6 Control of Fires and Prevention of Recurrence or Spread of Fires, Explosion, or Release (40 CFR 264.56(E))

Local fire departments will respond to any reported emergency situation involving fire, with the exception noted below. These fire departments are staffed and led by trained fire fighters.

Actions appropriate to controlling and preventing the spread of fires would be selected and implemented by these trained fire fighters. FWDA would rely upon their professional, on-scene judgment in selecting a course of action that is most protective of human health and the environment. Similarly, the knowledge and training of on-scene Army and remediation contractor ordnance experts shall be used in determining the most appropriate response to actual or potential releases of hazardous wastes.

As noted in the emergency response agreements (Appendix B), under no circumstances will local fire departments be expected or permitted to enter an area or fight a fire potentially involving high explosives or MEC.

Should any event occur that would require implementation of the CP, FWDA shall follow up with any actions necessary to prevent future recurrences. At a minimum, remedial actions or closure operations shall be suspended and an investigation of the incident would be conducted to determine the reasons for the occurrence. Based on the results of the investigation, any appropriate changes shall be instituted prior to resumption of closure operations.

15.3.7 Storage, Treatment, and Disposal of Released Material (40 CFR 264.56(G))

Immediately after an incident, the IOSC will arrange for the treatment, storage, or transportation and disposal of recovered waste and waste residues, contaminated soil, or other contaminated materials to eliminate any potential explosive hazards. Detonation and burning are the methods by which the items were treated at the OB/OD Unit and will be treated at the CAMU; therefore, an unintentional fire or explosion may result in partial or complete treatment of WMM. The cleanup residue will be collected by remediation personnel. Depending on the nature of the residue, the appropriate equipment will be used. The material will be collected and containerized until the arrangements for testing and disposal are made.

The IOSC shall be authorized to use all facility personnel and equipment or contractor services as necessary to complete this task. Should the services of a clean-up contractor be required, the IOSC shall request such support from the WSMR Director of Contracting. Reactive wastes or reactive waste residues recovered after an incident may be treated on-site by remediation personnel in the CAMU (if authorized).

15.3.8 Post-Emergency Equipment Maintenance (40 CFR 264.56(H)(2))

The local fire departments are responsible for maintaining emergency equipment in accordance with their organizations' established procedures. As appropriate, soiled equipment will be decontaminated with an appropriate cleaning solution and the rinsate collected in 55-gallon drums. Representative samples of the collected rinsate shall be analyzed for toxic metals (including barium, lead, and selenium) and for 2,4-dinitrotoluene and all other analyses specified by NMED. Rinsates exhibiting hazardous toxic characteristics as defined in 40 CFR 261 shall be managed accordingly and sent off-site for appropriate treatment or disposal at a RCRA-permitted facility. Remedial activities and closure operations will resume only when all emergency equipment is determined to be clean and in-service.

Notification will be provided to the NMED HWB demonstrating that the facility is in compliance with 20.4.1.500 NMAC, incorporating 40 CFR 264.56(h), before closure operations are resumed at the OB/OD Unit or treatment operations are resumed at the CAMU.

15.3.9 Reporting Requirements (40 CFR 264.56(J))

The IOSC will notify NMED, the WSMR Environmental Office and BRAC immediately of any incident that requires implementing the CP. The WSMR Environmental Office is responsible for making the required telephone notifications to Federal, State, and Army agencies. Telephone reporting should be done promptly (not to exceed 24 hours from the time of the incident), even if the information is incomplete. Telephone numbers for immediate notifications of Contingency Plan implementation are provided in Appendix A.

A copy of the FWDA Notification of Reportable Quantity Pollution Event form (and related instructions) used to record information used to make the telephone report is included in Appendix E. A copy of this form will be completed by the WSMR Environmental Office or the IOSC and inserted into the facility copy of the CP to satisfy the requirement for entry of the incident into the Facility Operating Record.

Within 15 days after the incident, the IOSC, in conjunction with the WSMR Environmental Office, shall prepare and submit a written report to the NMED HWB.