SECTION IV. OPEN BURNING AND OPEN DETONATION (OB/OD)

A. SECTION HIGHLIGHTS

The OB/OD facilities at McAlester Army Ammunition Plant (McAAP) consist of an area for open burning and two different areas for open detonation. These areas are known as the Open Burning Grounds, the Old Demolition Area (Demo Range 1), and the New Demolition Area (Demo Range 2).

The propellants, explosives and pyrotechnics (PEP) or munitions that are treated at the demolition units are under the control of the Department of Defense. The categories of PEP to be treated at McAAP consist primarily of military energetic materials and ordnance that have exceeded their shelf life and off-specification versions of these same materials.

Open Burning (OB). This area consists of five (5) burning pads with pans and three (3) rocket static-firing pads in the south central area of McAAP. The burning pads are leveled, open areas, cleared of all vegetation, measuring approximately 100-200 feet wide by 100-200 feet long. Each pad is equipped with steel burning pans. The pans are covered when not in use to restrict accumulation of precipitation and are cleaned following each burn. The pans are of sufficient depth to contain the PEP being burned and are set off the ground to allow visual inspection after each burn for any material ejected to the ground during the burn. The pans have a refractory lining to protect them from warping from the high temperatures generated by the burn. Small amounts of solid residue left in the pans are routinely collected and disposed of as hazardous waste. Net Explosive Weight (NEW) per burn, per pad (or pan,) is limited to 4,000 pounds or a total of 20,000 pounds of NEW per burn event. Also, the NEW is limited to 6,400,000 pounds in any yearly period.

The rocket static-fire pads are located 300 feet from the nearest burning pad. This area measures approximately 125 feet wide by 600 feet long. The rocket is placed onto the saddle of the pad, strapped down, and burned out. The area is inspected after each burn for any ejected items. Saddles are inspected after each burn for any structural damage that is repaired prior to future burns. The NEW from rocket burns is limited to 1,280,000 pounds in any yearly period.

Open Detonation (OD). McAAP utilizes two OD units. Each OD unit is composed of a series of 26 pits connected by an access road. The pits, measuring approximately 15 feet wide and 30 feet long, and access roads are excavated approximately 10-15 feet below grade and are constructed of the naturally occurring soil materials. Explosive items are placed in the pits, wired for detonation, and covered with a minimum of two feet of dirt. After all personnel are inside the shelter, all roads blocked and the area checked and confirmed clear, the detonations are started by remote firing from inside the shelter. Two shots are fired and sound levels checked. If sound levels are not exceeded, detonation is to continue one pit at a time. From time to time trials may be conducted utilizing new technologies to investigate other methods of demilitarization. The

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immediate area of the pits is checked daily for unexploded items or energetic pieces. If any items are found that are unsafe to move, they are detonated in place. Scrap metal is picked up from the pits and the pit roads after each detonation and turned in for proper disposal. A scrap metal removal operation will be performed annually. NEW per pit is limited to 500 pounds. Also, the NEW detonated is limited to 2,280,000 pounds in any yearly period.

The open burning operations are governed by the McAAP Standing Operating Procedure MC-0000-H-003 (OB SOP) and other SOPs specific to each rocket burned at the static firing pads. The open detonation operations are governed by the McAAP Standing Operating Procedure MC-0000-G-274 (OD SOP). Each of these SOPs is maintained as part of the hazardous waste management operating record of McAAP.

The Permittee is required to report to the Division Director any revision or change in the above-mentioned SOPs that materially relates to any of the conditions of this Permit.

B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

B.1 The Permittee may treat the following wastes subject to the terms of this permit and as described below. No waste prohibited under Condition IV.B.2 may be treated in the OB/OD units.

Propellants, Explosives and Pyrotechnics (PEP) in bulk and contained in various munitions, rockets, missiles, missile sub-assemblies and ordnance items in the Department of Defense stockpile having the hazardous waste code of D003. The Waste Analysis Plan, Permit Attachment 1, describes PEP and gives representative chemical compositions of expected PEP waste compounds. Ancillary waste codes may also apply to the PEP.

Miscellaneous Waste Streams as identified in Section 2) d) of the Waste Analysis Plan, Permit Attachment 1.

The permittee is limited to the following maximum amounts of waste treatment expressed in terms of net explosive weight (NEW):

Open Burning Pads: 20,000 pounds per five pads per burn and 6,400,000 pounds in any yearly period.

Rocket static-fire pads: 1,280,000 pounds in any yearly period.

Open Detonation: 500 pounds per pit per detonation event for each of fifty- two (52) pits and 2,280,000 pounds in any yearly period.

B.2 The Permittee is prohibited from treating by OB/OD any hazardous waste except for waste explosives; waste explosives include waste which has the potential to detonate and bulk military propellants which cannot safely be disposed of through other modes of treatment [40 CFR 265.382]. The Permittee is prohibited from treating, in the OB/OD areas, any hazardous wastes not identified in the previous permit section. Also, the Permittee is prohibited, except under emergency conditions, from treating any material containing, contaminated with, or suspected of being contaminated with, military chemical warfare agents such as choking agents, nerve agents, blood agents, blister agents, incapacitating agents, vomiting compounds, tear-producing compounds, herbicides, radioactive materials, smokes, incendiary devices or biological agents as identified in Section 3) g) of the Waste Analysis Plan, Permit Attachment 1. Before treating any waste not authorized under this permit, the Permittee shall obtain approval for a permit modification authorizing such treatment.

B.3 The Permittee is required to report to the Division Director any revision or change in the above-mentioned SOPs that materially relates to any of the conditions of this Permit.

C. DESIGN, CONSTRUCTION AND OPERATING REQUIREMENTS

The permittee shall maintain the OB/OD areas in accordance with the design plans and specifications contained in the Part B Permit Application.

C.1 General Operating Conditions

C.1.1. OB/OD operations shall be conducted within the secure area of the OB/OD area with controlled access. At a minimum, DOD Explosives Safety Standards found in the Defense Disposal Manual DOD 4160.21-M shall be used to dictate safe separation distances from external receptors.

C.1.2. The OB/OD area shall be posted with warning signs to keep unauthorized personnel out. Warning flags shall fly and/or red lights shall flash and access roads shall be barricaded and posted during OB/OD operations.

C.1.3. During OB/OD operations, telephone or two-way radio contact shall be available and operational with support personnel, including security and fire fighting units.

C.1.4. The integrity of the OB/OD area and support equipment shall be determined through regular inspections in accordance with the inspection schedule in Tables F-3 and F-4 of Permit Attachment 2, Procedures to Prevent Hazards. Inspection records shall be maintained at the facility.

C.1.5. Prior to OB/OD, meteorological data including wind speed and direction, approach of storms (including electrical storms), precipitation, cloud cover, and visibility shall be monitored to ensure that OB/OD is not conducted under adverse weather conditions. Meteorological data shall be recorded for each burn or detonation and maintained in the operating record.

C.2. Open Burning in a Containment Device

Open burning shall be conducted in steel pans elevated above earthen pads. Rocket and missile static-firing shall be conducted on saddles inside earthen pads with a ten (10) foot high earthen berm.

C.2.1 Design and construction of open burning pads and pans are detailed in Permit Attachment 6.

C.2.2 The Permittee shall operate and maintain the open burning devices in accordance with procedures contained in the appropriate Standing Operating Procedure(s).

C.2.3 The Permittee shall use precipitation covers on all burning pans during non-operational periods in accordance with the OB SOP.

C.2.4 The Permittee shall manage accumulated precipitation within the burn pans, if any, in accordance with the OB SOP.

C.2.5 Ash residue from the open burning unit shall be managed in accordance with the Waste Analysis Plan, Permit Attachment 1.

C.3 Open Detonation On/In the Ground

The open detonation areas consists of two separate units, each unit having twenty- six (26) pits for a total of fifty-two (52) pits.

C.3.1 The Permittee shall maintain the open detonation areas in accordance with the design plans and specifications found in Permit Attachment 6.

C.3.2 The Permittee shall operate the open detonation areas in accordance with the OD SOP.

C.3.3 The Permittee shall manage residue from the open detonation area in accordance with the OD SOP.

C.3.4 The Permittee shall maintain run-on control by the present design of demolition pits. Both the pits and access roads are excavated approximately 10-15 feet below

grade and are constructed of the naturally occurring soil materials, as referenced in Permit Attachment 6.

C.3.5 The Permittee shall maintain run-off control by the sedimentary lagoons at both ranges. Both lagoons shall be sampled semi-annually as a part of McAAP's Storm Water Monitoring Plan.

D. HANDLING AND STORAGE REQUIREMEMTS

The Permittee shall handle/manage energetic waste in accordance with the applicable SOPs and with 40 CFR Part 266 Subpart M. The waste will be loaded and transported by personnel trained in munitions handling as well as hazardous waste handling. All provisions for loading, handling, transporting, accidental spillage or ignition/detonation will be in accordance with the applicable SOPs.

E. INSPECTION SCHEDULES AND PROCEDURES

The Permittee shall inspect the OB/OD areas in accordance with the inspection schedules, Permit Attachment 2, and shall complete the following as part of those inspections.

E.1 The Permittee shall inspect burning pans for precipitation accumulation prior to each burn.

E.2 The Permittee shall inspect detonation units after the completion of each detonation series for scrap metal and unexploded items.

F. PREVENTION OF UNINTENDED IGNITION, REACTION OR RELEASE OF WASTES

Policing and maintenance of the OB/OD area will be conducted according to Facility SOPs. A search will be conducted after the completion of each detonation series of the immediate surrounding area of each pit to locate any unexploded munitions or materials containing explosives. Non-hazardous waste (e.g. scrap metal) removed by personnel is screened and taken to the flashing trenches to be flashed; once the materials have been flashed they are turned over for recycling. In addition, during the policing and maintenance, pieces of energetic material will be removed along with the scrap metal.

G. MONITORING REQUIREMENTS

The units authorized to conduct open burning/open detonation of explosives by this permit must be located, designed, constructed, operated, maintained and closed in a manner that will ensure protection of human health and the environment. This section contains detection and monitoring requirements necessary to demonstrate that no releases to soil, surface water, ground water, wetlands, or air are occurring which may have an adverse impact on human health or the environment.

ODEQ provisionally accepts the unit boundaries of the OB/OD units described in Permit Attachment 6. The ground water point of compliance (POC) shall be as defined in 40 CFR 264.95. The unit boundaries will be reassessed in consideration of future EPA permitting guidance for Subpart X units.

G.1. Tiered Monitoring Approach

It is the intent of this permit that a tiered monitoring approach be implemented to determine whether a release of hazardous constituents to the environment has occurred (Release Detection Monitoring), and if so, to delineate the extent of the release (Release Delineation Monitoring). If a significant release is found to have occurred, the Permittee shall be required to submit a work plan to evaluate the risks to human health and the environment, including characterization of current emissions, which shall be used to determine whether operating modifications to the unit and/or corrective actions to address the release are necessary.

G.2. Release Detection Monitoring Work Plan Submittal

The Permittee is required to submit, within six months of the effective date of this Permit, a Release Detection Monitoring Work Plan to implement a monitoring program, in accordance with 40 CFR 264.602, to characterize any hazardous waste or hazardous constituents released from the OB/OD units. This work plan shall include the following:

G.2.1. A complete list of hazardous constituents identified in the Waste Analysis Plan as having been historically treated in the unit, or expected to be treated in the unit in the future, and all hazardous degradation products of these constituents.

G.2.2. For each hazardous constituent, Media Specific Screening Levels (MSSLs) appropriate for industrial and residential soils, surface waters, and ground waters (i.e. drinking water Maximum Contaminant Levels (MCLs), when available), as well as Ecological Screening Levels (ESLs);

G.2.3. A plan for implementation of a release detection groundwater monitoring system. The monitoring well system shall meet the requirements of 40 CFR §264.97 and §264.98.

G.2.4. Procedures to sample and analyze soils, sediments, surface water, and any other environmental media for contaminants deposited by the OB/OD processes.

G.2.5. Procedures for statistical evaluation of the data in determining whether background values of concentrations have been exceeded [40 CFR 264.98(f)];

G.2.6. Procedures to determine the groundwater elevation of the well prior to each sampling event;

G.2.7. Procedures to sample and analyze unfiltered groundwater samples;

G.2.8. A Quality Assurance Project Plan which documents the data quality objectives and procedures used to ensure sample collection, handling, and analyses are performed in a technically sound manner, including Standard Operating Procedures (SOPs) describing anticipated sampling activities;

G.2.9. A Sampling and Analysis Plan to quantify the organic, inorganic, and explosive constituents in the OB/OD areas;

G.2.10. A site specific Health and Safety Plan;

G.2.11. A three-tiered monitoring approach (Release Detection Monitoring, Release Delineation, and Risk Evaluation and Emissions Characterization Program) which shall implement a program designed to determine whether releases of hazardous constituents to the environment are occurring, then characterize and evaluate any such releases; and

G.2.12. A schedule for monitoring including quarterly monitoring for all constituents at the new sampling locations, and semi-annual monitoring for existing sampling locations. In accordance with Condition IV.G.4, the Permittee may request a reduction in the monitoring frequency. The schedule shall require the Permittee to submit a report of the sample results within one hundred and eighty (180) days after each sample collection event;

G.3. Release Detection Sampling Event Report

The Permittee shall submit Release Detection Sampling Event Reports which will document the results of each sampling event, including:

G.3.1. Field collection activities and any variations from sampling plans;

G.3.2. Analytical results, presented in summary tables, of detections in the body of the report, with those values exceeding any MSSLs or ESLs, or background concentrations (for metals) in bold type or highlighting, and complete analytical documentation in the appendices;

G.3.3. A discussion of any QA/QC problems;

G.3.4. Maps depicting the location and distribution of any hazardous constituents detected (other than naturally occurring metals at concentrations at or below background levels);

G.3.5. Historical data trend analyses;

G.3.6. A statement of whether releases have been detected (or metals detected above background levels) and thus implementation of release delineation is required, and if so, whether such detections exceed MSSL's or ESL's;

G.3.7. Any proposed modifications to the Release Detection Monitoring Program.

G.4. Frequency of Monitoring

The Permittee may request a Class 1 permit modification to reduce the required groundwater sampling frequency for any constituent which was not detected (or in the case of metals, which was not detected above background levels) for four (4) consecutive sampling events. The Permittee may request a Class 1 permit modification to adjust sampling frequency of other media.

G.5. Air Monitoring

The Permittee shall perform air monitoring as directed by the Air Quality Division of ODEQ. The Permittee is required to examine any new air emissions factors for OB/OD which may become available as a result of current and future studies and utilize such data in studies required by ODEQ.

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G.6 Storm Water Monitoring

The Permittee shall conduct storm water sampling in accordance with the storm water regulations of 40 CFR 122.26 and as directed by the Water Quality Division of ODEQ.

G.7 Release Detection Monitoring Program

In addition to the preceding requirements, the Permittee's Release Detection Monitoring Work Plan shall document the collection of samples of each of the following:

G.7.1. Composite surface soils from multiple locations across the units, to be selected based on historical sampling data, surface water drainage patterns, wind rose data, and blast ejecta patterns at the OD units; and

G.7.2. Sediment from multiple locations within all sedimentation ponds located within the OB/OD areas.

These samples shall be analyzed for each hazardous constituent identified in the facility operating record as having been historically treated in the unit.

Release Detection Monitoring shall continue regardless of the Permittee's implementation of Release Delineation program or Risk Evaluation and Emission Characterization.

G.8. Release Delineation Program

Should hazardous constituents (other than naturally occurring metals at concentrations below background levels) be detected in the Release Detection Monitoring Program, the Permittee shall submit a Release Delineation Work Plan, proposing efforts to delineate the detected release(s), within one hundred and eighty (180) days of submission of the Release Detection Sampling Event Report notifying the ODEQ of such detection(s). The Release Delineation Work Plan shall document the following:

G.8.1 Maps depicting the current and, if appropriate, historical location(s) and distribution of any hazardous constituent(s) detected (other than naturally occurring metals at concentrations at or below background levels);

G.8.2. Proposed sample locations and analyses to delineate the detected releases in each media. As a minimum, ground water monitoring wells that have had a statistically significant increase of the concentrations of a constituent of concern (COC) or of a background concentration for any constituent must be re-sampled;

G.8.3. Proposed sample types and locations to evaluate whether contamination has migrated into another media;

G.8.4. For each hazardous constituent detected in the Release Detection Monitoring Program, MSSLs appropriate for industrial and residential soils, surface waters, and ground waters (e.g., drinking water Maximum Contaminant Levels (MCLs), when available), as well as ESLs;

G.8.5. Any required changes to the Quality Assurance Project Plan;

G.8.6. A proposed schedule for implementing field activities and submitting interim reports at least every six (6) months, and not to exceed 24 months for submission of the final Release Delineation Report.

G.9. Format for the Release Delineation Report:

The Release Delineation Report will document the results of the sampling efforts, including:

G.9.1 Installation of any borings, temporary wells, or monitoring wells;

G.9.2. Field collection activities and any variations from sampling plans;

G.9.3. Analytical results, presented in summary tables, of detections in the body of the report, with those values exceeding any MSSLs or ESLs, or background concentrations (for metals) in bold type or highlighting, and complete analytical documentation in the appendices;

G.9.4. A discussion of any QA/QC problems;

G.9.5. Maps depicting the location and distribution of any hazardous constituents detected (other than naturally occurring metals at concentrations at or below background levels);

G.9.6. Historical data trend analyses;

G.9.7. A statement of whether releases have been detected (or metals are above background levels) and thus implementation of Release Delineation monitoring is required, and if so, whether such detections exceed MSSLs or ESLs;

G.9.8. Any proposed modifications to the Release Detection Monitoring Program.

G.10. Risk Evaluation and Emissions Characterization Program

If the results of the Release Delineation Program indicate releases of hazardous constituents to the environment have occurred at concentrations exceeding appropriate MSSLs, ESLs, or metals background levels, or at any other time the ODEQ determines it is necessary, the Permittee shall be required to implement a program to evaluate risks to human health and the environment.

ODEQ will determine the appropriate components of the Risk Evaluation and Emissions Characterization Program at the time it imposes this requirement, but as a minimum shall include:

G.10.1. A projection of future environmental concentrations from continuing the treatment operations;

G.10.2. Evaluation of risks to human health and the environment from current and projected future concentrations;

G.10.3. Development of design and/or operations changes to reduce releases from the unit;

G.10.4. Evaluation of whether corrective actions are required to address the contaminated media.

G.11 Geotechnical Investigation

The Permittee is required to submit a work plan for an expanded hydrogeological study for the OB/OD facility areas, in accordance with the considerations of 40 CFR 264.601, to the ODEQ within six months of the effective date of this Permit. The work plan is to contain the description of a field investigation which will define the occurrence and flow direction of groundwater beneath the OB/OD areas by means of direct measurement.

H. CLOSURE

Upon commencement of closure of any OB/OD unit, the Permittee shall follow the procedures in the Closure Plan, Permit Attachment 5.

I. OB/OD OPERATION RECORD

The Permittee shall maintain an operating record describing the OB/OD activities. Portions of the operating record may be maintained at the area where the report is generated. For example, records of waste treated at the OB/OD units may be maintained by ammunition operations

personnel and kept in their office. The record shall include the following information:

I.1. Description and quantity (number and NEW) of each type of hazardous waste received and treated at the OB/OD units.

I.2. Date of treatment.

I.3. Copies of documents showing the disposition of hazardous waste residues transported off the OB/OD area.

I.4. Current copies of all SOPs used at the OB/OD units,

I.5. An annual running total of the NEW of all energetics treated at the OB/OD units.

I.6. Meteorological conditions during each burn or detonation as listed in Condition IV.C.1.5.