Appendix I

Process Information

A. Process Information

Applicability As a "Miscellaneous Unit" (Parts VI.A. and X.A. [Adopts by reference 40 CFR 264.600 and 270.23] of the GHWMRs)

Activities performed at the OB/OD units at AAFB consist of treatment in "miscellaneous units" as defined in 40 CFR 260.10 in the RCRA regulations. Specifically, the units do not meet the definition of containers, tanks, surface impoundments, piles, land treatment units, landfills, incinerators, boilers, industrial furnaces, underground injection wells, or units eligible for research, development, and demonstration permits. Additionally, the preamble to the Subpart X regulations specifically states that the miscellaneous unit regulations are applicable to OB/OD activities for propellants, explosives, and pyrotechnics (PEP).

A1. Open Burning (OB) in Containment Devices (Part X.A. [Adopts by reference 40 CFR 270.23 and 270.32] of the GHWMRs)

Appropriateness of Treatment Methods (Part X.A. [Adopts by reference 40 CFR 270.32(b)] of the GHWMRs)

Waste energetic materials have been historically treated by OB, since this technology has been determined to be the most appropriate from a health and safety standpoint. Many types of military ordnances are designed so that they cannot be easily and safely disassembled, and for these types of ordnances, the OB technology may be the only method of treatment that provides an adequate margin of worker safety. In addition, OB is also inexpensive, and technically simple and relatively easy to conduct.

The effectiveness of other forms of treatment of waste energetic material is for the most part, unknown. Effectiveness in this context refers to the following:

- The ability to eliminate the reactive or explosive hazard posed by the materials, or to reduce such hazards so that the materials are no longer defined to be reactive or explosive.

- The ability to reduce hazardous and/or toxic materials to innocuous materials, as compared to the original material treated.

The Department of Defense has performed and continues to perform significant research and development activities to identify and evaluate alternative treatment technologies to OB/OD. While some alternatives have progressed beyond the conceptual or laboratory scale, most are still years away from being a viable alternative to OB/OD technologies. Additionally, although some technologies may show promise on a laboratory or pilot scale, they are only applicable to a small subset of the total universe of wastes, which may require treatment at AAFB. Therefore, implementation of alternative technologies that may be applicable at some future date may not permit total elimination of OB/OD activities at AAFB.

The current OB/OD treatment technologies are also very safe for waste handlers. In the process of refining OB/OD procedures throughout DOD, numerous SOPs have been developed that

specifically ensure the safety of waste handlers. In fact, one of the key limitations to implementing alternative technologies is that the quality of worker safety provisions is not verified.

Containment Device Description (Part X.A. [Adopts by reference 40 CFR 270.23(a)] of the GHWMRs)

Physical characteristics, construction materials, and dimensions of the unit (Part X.A. [Adopts by reference 40 CFR 270.23(a)(1)] of the GHWMRs)

All OB operations treating reactive hazardous wastes occur in a metallic containment device. The containment device used for these activities is selected to meet the following objectives:

- Prevent incorporation of soil into the wastes and materials being burned;
- Contain fuels used in OB operations to prevent releases to the environment;
- Minimize the ejection of materials or wastes from the device onto the ground;
- Retain a large quantity of the heat generated during the burn; and
- Retain the minor detonations, which might occur when munitions are burned.

A large array of containment devices could meet these objectives and therefore could be employed for OB operations. Previously, a containment device used at AAFB was fabricated from a former aboveground fuel storage tank, which has been cut in half and placed on end. The device takes the form of a cylinder with a flat bottom and no top. The approximate dimensions of this containment device is 4 ft in diameter and 5 ft tall. This device is made of one-quarter inch steel. A section of chain-link fence is placed over the top of the containment device to minimize the ejection of materials or wastes during the burn. **This device is no longer in use**.

The integrity of the existing containment device is expected to deteriorate with time, necessitating renovation or replacement of the device. Replacement devices may not necessarily consist of former aboveground tanks. Although specific designs or dimensions of future containment devices cannot be identified at this time all devices will meet the containment objectives provided above. Additionally, the dimensions of the existing devices will be typical of future devices.

Engineering drawings of the fabricated device Part X.A. [Adopts by reference 40 CFR 270.23(a)(2)] of the GHWMRs)

As the rudimentary containment device as described in the previous paragraph has not been designed and fabricated specifically for use at the OB area, no engineering drawings of this former tank exist. Similarly, future containment devices used to replace the existing structure are not expected to be designed specifically for OB application. Therefore, it is not anticipated that engineering drawings of these devices will be available or necessary for proper identification and description of the unit. A general site plan of the area showing the OB unit is located in Appendix H.

Similarly, engineering plans and reports are not applicable to operation, maintenance, monitoring, and inspection activities. Engineering plans and reports for closure are addressed in the closure plan contained in Appendix G.

Lining material within device (Part X.A. [Adopts by reference 40 CFR 270.23(a)(1) and (2)] of the GHWMRs)

No lining materials are present in the containment device as previously described. Future containment devices are similarly not expected to include a lining material.

Lining material below device Part X.A. [Adopts by reference 40 CFR 270.23(a)(1) and (2)] of the GHWMRs)

No lining materials below the containment device are used. Placement of lining materials beneath the device is not feasible given the potential destructive nature of the surf during storm events, as well as high temperature.

Leak Detection Provisions (Part X.A. [Adopts by reference 40 CFR 270.23(a) (2)] of the GHWMRs)

Following residue collection at the end of each burn event, the containment device was turned upside down to prevent accumulation of precipitation within the device. At that time, the device is inspected to ensure there are no holes, cracks, or other weaknesses in the structure of the device, and thus detect any leaks that may have occurred. This same inspection procedure is performed before the device is turned right side up prior to subsequent OB events. These activities prevent any wastes or materials placed within the device from leaking and therefore prevent releases to the environment.

Precipitation Cover (Part X.A. [Adopts by reference 40 CFR 270.23(a)(1) and (2)] of the GHWMRs)

Following residue collection at the end of each burn event, the containment device was turned upside down to prevent accumulation of precipitation within the device. This negates the need for a formal precipitation cover above the containment device.

Control of Releases of Ashes and Residues During OB (Integrity of Containment Devices) (Part X.A. Adopts by reference 40 CFR 270.23(a) (2)] of the GHWMRs)

Several procedures or facets of the containment device design have been implemented to control the release of ash and other residues during OB activities. Some of the wastes treated in the containment device may have a tendency to be ejected from the device during certain circumstances. The AAFB device is covered with a section of chain link fence to minimize the quantity of items, which are ejected from the device during the burn.

The second action taken to minimize the ejection of partially burned wastes consists of proper placement of materials and wastes to be burned within the containment device. All materials and wastes are placed at least 2 feet below the top of the containment device to minimize the possibility that wastes could be ejected from the device.

Because these measures will minimize but not completely prevent the ejection of wastes from the containment device, the Andersen AFB OB/OD Residue Management Plan, contained in the appendices, includes procedures to identify, collect and properly manage any wastes, which may have been ejected.

These procedures are implemented after the OB device is safe to approach, and never later than the day following the OB event. The following is an excerpt from the Residue Management Plan:

- 1.2.3 The vicinity of the containment device is inspected for any items, which may have been ejected from the device. Items still containing energetic materials are placed back into the containment device for burning that day. Metallic items not containing energetic materials are placed in the OB metal fragments container.

Ash and other residues are removed from the containment device the day after the burn is initiated. This action further minimizes the potential for release of ash after the burn is completed.

A final procedure to prevent release of residues from the OB containment device is to regularly monitor the integrity of the device and repair it if there is a concern over its integrity. Following residue collection at the end of each burn event, the containment device is turned upside down to prevent accumulation of precipitation within the device. At that time, the device is inspected to ensure there no holes, cracks, or other weaknesses in the structure of the device. This same inspection procedure is performed before the device is turned right side up prior to subsequent OB events. These activities prevent any wastes or materials placed within the device from leaking from the device and therefore prevent releases of ash or other residues to the environment.

To retain ejected materials in close proximity of the containment device, the device has been placed in a shallow depression in the beach. In this configuration, the vast majority of wastes ejected from the containment device are retained within the depression, facilitating location and collection of the ejected wastes following completion of the burns.

Methods to Control Deterioration of Fabricated Devices (Part X.A. [Adopts by reference 40 CFR 270.23(a) (2)] of the GHWMRs)

Deterioration of the containment device is not controlled; however, the device is routinely inspected for deterioration and maintained if deterioration is evident. Following residue collection at the end of each burn event, the containment device is turned upside down to prevent accumulation of precipitation within the device.

At that time, the device is inspected to ensure there are no holes, cracks, or other weaknesses in the structure of the device. This same inspection procedure is performed before the device is turned right side up prior to subsequent OB events. If a weak spot or hole is observed, either a piece of steel is welded over the problem area, or a replacement containment device is obtained.

Prevention of Accumulation of Precipitation (Part X.A. [Adopt by reference 40 CFR 270.23(a) (2)] of the GHWMRs)

Although attempts are made not to schedule burn activities during and immediately after rainfall events, measurable precipitation may occur in the vicinity of the EOD Range any day of the year, especially during the rainy season. Additionally, it is impossible to predict with complete certainty if measurable precipitation will occur after the burn but before the containment device can be approached. Therefore, measures are taken to minimize the accumulation of precipitation in the OB containment device but complete prevention of accumulation of precipitation is nearly impossible.

The following measures are implemented to minimize accumulation of precipitation. After the containment device can be safely approached following completion of the burn (not later than the day after the burn was initiated), EOD personnel inspect and collect the residues contained within the device. If precipitation has collected within the device, a second burn will be initiated to evaporate the liquid in the device. Following residue collection at the end of each burn event, the containment device is turned upside down to prevent accumulation of precipitation within the device between burn events.

Handling of Precipitation Accumulated in Fabricated Devices (Part X.A. [Adopts by reference 40 CFR 270.23(a) (2)] of the GHWMRs)

After the containment device can be safely approached following completion of the burn (not later than the day after the burn was initiated), EOD personnel inspect and collect the residues contained within the device. If precipitation has collected within the device, a second burn will be initiated to evaporate the liquid in the device.

Controls to Prevent Wind Dispersion of Ash and Other Residue (Part X.A. [Adopts by reference 40 CFR 270.23(a)(J) and (2)] of the GHWMRs)

The design of the containment device, use of a fence to cover the device, placement of the containment device within a shallow depression, and procedures for placement of wastes and materials within the device are such that the ejection of residues from the device during the burn is minimized. Additionally, following completion of the burn, ash and other residue is routinely only several inches deep, therefore well below the top of the containment device. Wind dispersion is minimized in this way. Additionally, ash is removed from the device soon after the burn is completed and never later than the day after the burn, further minimizing the opportunity for ash to be dispersed by the wind.

Inspection, Monitoring, and Maintenance Plan (Part X.A. [Adopts by reference 40 CFR 270.23(a)(2)] of the GHWMRs)

As there are no facets of the containment system specifically engineered for OB operations, and no movable parts, inspection, monitoring and maintenance can be very effective yet quite simplified. Following residue collection at the end of each burn event, the containment device is turned upside down to prevent accumulation of precipitation within the device. At the time, the device is inspected and monitored to ensure there are no holes, cracks, or other weaknesses in the structure of the device. This same inspection procedure is performed before the device is turned right side up prior to subsequent OB events. If a weak spot or hole is observed, either a piece of steel is welded over the problem area, or a replacement containment device is obtained. Welding will only occur

when no energetic materials are present at the EOD Range. More general inspection procedures for the EOD Range are described in Appendix C.

The OB containment device is not approached for at least 12 hours after a burn is conducted to ensure the burn is completed and the residue has cooled. Not later than one calendar day after the burn occurs, residue management and inspection procedures are put into place. As stated in the Andersen AFB OB/OD Residue Management Plan contained in the appendices:

- 1.2.1 Residues within the containment device are inspected to ensure all items have been successfully burned. Items remaining in the containment device still containing energetic materials are burned the day they are discovered.

- 1.2.3 The vicinity of the containment device is inspected for any items which may have been ejected from the device. Items still containing energetic materials are placed back into the containment device for burning that day. Metallic items not containing energetic materials are placed in the OB metal fragments container.

Ash and Residue Management (Part X.A. [Adopts by reference 40 CFR 270.23(a)(2)] of the GHWMRs)

The Andersen AFB OB/OD Residue Management Plan, contained in the EOD operating procedures Appendix has been specifically prepared to address management of ash and other residues resulting from OB/OD operations. The following OB residue management procedures, described in the Management Plan, are implemented as soon as the containment device can be approached, and not later than the calendar day after the burn occurs:

- Ash Contained in the Containment Device – separated from metallic fragments, collected, analyzed for explosive and TCLP metal content, containerized, and disposed of properly based on the results of the analytical testing;

- Metallic Fragments Not Containing Energetic Materials. Located in the Containment Device – separated from the ash, collected, and accumulated for recycling at a permitted facility;

- Metallic Fragments Containing Energetic Materials. Located in the Containment Device – burned in the containment device the day they are located;

- Metallic Fragments Containing Energetic Materials. Ejected from the Containment Device – collected, and burned in the containment device the day they are located; and

- Metallic Fragments Not Containing Energetic Materials. Ejected from the Containment Device – collected, accumulated for shipment to the Defense Reutilization & Marketing Office to facilitate recycling at a permitted facility.

Copy of Standard Operating Procedures (SOPs) (Part X.A. [Adopts by reference 40 CFR 270.23(a)(2)] of the GHWMRs)

APPENDIX I – PROCESS INFORMATION

A significant number of U.S. Air Force and Andersen AFB SOPs have been developed to effectively perform both OB and OD operations. A brief summary of the principal SOPs follows:

1. Flight Operating Instruction
32-3002 (July 2017)

This document is an eighteen -page outline for all operational procedures conducted on the range. This document in turn references four other documents, which are Air Force-wide documents:

AFMAN 91-201 (12 January 2011): See separate discussion section on AFMAN 91-201, Explosives Safety Standards

TO 11A-1-42 (6 October 2000): See separate discussion section on TO 11A-1-42, General Instructions for Disposal of Conventional Munitions.

TO 11A-1-66 (1 August 2003): General Instructions. Demolitions

TO 60A-1-1-31 (24 April 2009): Explosive Ordnance Disposal Procedures. EOD Disposal Procedures

This Wing Instruction also includes seven attachments:

1. Range Notification Lists
    a. Non-Fragmenting Operations/5 Inch Diameter or Less
    b. Fragmenting Munitions Greater than 5 Inch Diameter
2. Range Operation Checklist
3. Post Range Operations Checklist
4. Safety Briefing
5. Proper Detonation Point/Cliff Orientation and Quarterly Clean-up Area
6. Security Forces Cordon Locations

Attachment 3 outlines the procedures followed during treatment of RCRA waste munitions. This attachment is included in the EOD Operating Procedures Appendix in its entirety.

2. Technical Order 11A-1-42. General Instructions for Disposal of Conventional Munitions
Dated: 15 July 1997
Revised: Change 6 – 30 October 2000

This is a very comprehensive USAF-wide document, which details procedures for disposal/demolition of a wide variety of munitions. Chapter headings of significance for this application are:

- Safety and Accident Prevention
- Description of Demolition Materials
- Methods of Disposal
- Firing Systems Procedures

- Treatment of Chemical Agent Casualties
- Munition Disposal Procedures
- Missile Explosive Components
- Rocket Motors and Warheads
- Aircraft Egress Items

3. Technical Order 11-A-1-46 (1 December 2003), Fire Fighting Guidance, Transportation, and Storage Management Data and Ammunition Complete Round Chart

This document presents data in lists of tables regarding munitions. The information presented in this document consists of item stock number, cross-reference numbers, net explosive weight, and munitions descriptions.

4. AFMAN 91-201, Explosive Safety Standards
Dated: 12 January 2011

This document is USAF-wide and contains mechanical details of explosive safety. This document is for general handling of explosives, not necessarily specifically oriented to EOD operations.

5. Technical Order 60A-1-1-31, Explosive Ordnance Disposal Procedures, EOD Disposal Procedures
Dated: 24 April 2009
Revised: Revision 6

This manual describes the type and nature of the materials and equipment used to conduct EOD disposal procedures. This document covers general instruction for explosive ordnance disposal. This document is not releasable. Most of the operational material is covered in TO 11A-1-42. Other areas covered in this document include operations that are not included in this TSD application, including emergency operations, training, etc.

6. 36 AW Operations Plan 32-1, Disaster Preparedness Peacetime Operations
Dated: May 2002
Reference: OPR: 36 CES/CEV

This plan specifies procedures for preparing for and recovering from the effects of major peacetime accidents and natural disasters. This plan also specifies procedures for rendering assistance to civil authorities after natural disasters. It provides Andersen AFB specific outlines for responses to major accidents (military mishaps), and natural disasters.

A2. OB on the Ground Surface Where Unit Incorporates the Soil as Part of the Unit (Part X.A. [Adopts by reference 40 CFR 270.23 and 270.32] of the GHWMRs)

This section does not apply, since all OB activities at AAFB occur within a containment device, which prevents the incorporation of soil as part of the unit. These activities are addressed in A1.

A3. Open Detonation (OD) (Part X.A. [Adopts by reference 40 CFR 270.23 and 270.32] of the GHWMRs)

Appropriateness of Treatment Technology (Part X.A. [Adopts by reference 40 CFR 270.32(b)] of the GHWMRs)

The first portion of A1 provided a rationale as to why the OB technology is the most appropriate treatment technology for energetic reactive hazardous wastes. This discussion is also applicable to OD activities. Given the large net explosive weight contained in many of the ordnance items routinely detonated at the AAFB OD unit, the potential for use of alternative technologies is even more limited than in OB.

Description of OD Unit (Part X.A. [Adopts by reference 40 CFR 270.23(a)] of the GHWMRs)

Physical characteristics, materials of construction, and dimensions of the unit (Part X.A. [Adopts by reference 40 CFR 270.23(a)(1)] of the GHWMRs)

All OD operations occur directly on the ground (beach) surface; therefore, there are no physical characteristics or materials of construction to discuss. Detonation activities occur adjacent to the base of the lower cliff, and are limited to a small portion of the cliff base less than 50 feet in length.

Engineering plan and drawings of the OD unit (Part X.A. [Adopts by reference 40 CFR 270.23(a)(2)] of the GHWMRs)

Engineering plans or drawings of the OD unit are not applicable, since there is no man-made device or structure at the unit. A general site plan of the area showing the OD unit is contained in Appendix H.

Inspection, Monitoring, and Maintenance Plan (Part X.A. [Adopts by reference 40 CFR 270.23(a)(2)] of the GHWMRs)

As there are no "engineered" facets of the OD system, and no moving parts, inspection and monitoring can be very effective yet quite simplified. Soon after the OD unit can be safely approached following completion of a detonation (generally within 1 hour of the detonation), the OD unit is inspected for any items which may remain after detonation, as stated in the Andersen AFB OB/OD Residue Management Plan contained in the EOD Operating Procedures Appendix:

2.2 The OD area will be inspected for any items which may remain after detonation. Items still containing energetic materials are either placed into the OB containment device for burning that day, or detonated that day. Metallic items not containing energetic materials are placed in a container labeled "OD Metal Fragments."

More general inspection procedures for the EOD Range are described in Appendix C.

Ash and Residue Management (Part X.A. [Adopts by reference 40 CFR 270.23(a)(2)] of the GHWMRs)

The Andersen AFB OB/OD Residue Management Plan, contained in Appendix J, has been specifically prepared to address management of ash and other residues resulting from OB/OD operations. The following OD residue management procedures, described in the Management Plan, are implemented as soon as the OD unit can be approached, generally within 1 hour of completion of the detonation:

- Metallic Fragments Containing Energetic Materials – collected, and either burned in the OB containment device or detonated the day they are collected; and

- Metallic Fragments Not Containing Energetic Materials – collected, and accumulated recycling or disposal at a Guam EPA permitted facility.

Negligible quantities of ash are generated from OD operations. Therefore, the residue management procedures described above strictly address any metallic residues (principally metal fragments), which may remain after the detonation.

Run-on and Run-off Management (Part X.A. [Adopts by reference 40 CFR 270.23(a)(2)] of the GHWMRs)

The OD unit is located in the upper beach area on highly permeable materials. As such, even in major precipitation events, run-on and run-off are negligible at this site. Management of run-on and run-off at the OD unit is therefore not necessary.

Copy of SOPs (Part X.A. [Adopts by reference 40 CFR 270.23(a)(2)] of the GHWMRs)

The last portion of Section A1, Copy of Standard Operating Procedures (SOPs), contains a summary of several SOPs, which address operations both at OD and OB activities. It also references specific SOPs contained in the Appendix.

B. Environmental Performance Standards

Environmental performance standards for OB/OD RCRA hazardous waste treatment activities at the Andersen AFB EOD Range are provided in the following list of 21 items. References to those sections of this application which provide technical justification for the development of these performance standards are provided in parentheses.

Environmental Performance Standards

General

1. OB/OD activities will only occur during daylight hours.

2. OB/OD activities will only occur when wind speeds are less than or equal to 15 miles per hour.

3. OB/OD activities will not be performed if electrical storms are within 5 nautical miles of

the EOD Range.

4. OB/OD activities will not be performed if major storms capable of flooding the EOD Range are forecasted to occur within 24 hours.

5. Residue from OB or OD activities which contains energetic materials will be burned or detonated the day they are located.

6. The beach area in the vicinity of the EOD Range will be policed, and all metal items collected, at least quarterly in addition to the policing conducted following each OB or OD operation.
7. Usage of the EOD Range will be restricted, as follows:

   12 hours per day
   50 days/year
   1 Open Burn operation per day
   4 Open Detonation operations per day of any listed ordnance
   Up to 23 additional Open Detonation operations per day of bombs containing tritonal (No. 10 and/or No. 42, see list at end of Environmental Performance Standards)

   Burn and detonation events may occur on the same day.

8. At least once per quarter, the reef will be inspected for fragments and unexploded ordnance (UXO), with all identified items recovered from the water. The area inspected will be from the beach to the reef line, and 100 ft east and west of the OD area.

Open Burning/Open Detonation RCRA hazardous waste treatment waste materials restrictions

9. Any ordnance or other energetic material listed in Table III-7 of Appendix A may be burned or detonated, subject to limitations contained in Environmental Performance Standards number 19 and 21.

10. Any ordnance or other energetic material <u>not</u> listed in Table III-7 of Appendix A may be burned or detonated, if they do not contain metals or sulfur-bearing compounds, subject to limitations contained in Environmental Performance Standard numbers 19 and 21.

11. Waste ordnance or other energetic material <u>not</u> listed in Table III-7 of Appendix A which contains metals or sulfur-bearing compounds, may be burned or detonated, subject to the maximum acceptable quantities specified by the tables listed in Tables III-1 or III-2.

Open Burning RCRA hazardous waste treatment operating restrictions

12. OB activities will occur in a suitable containment device.

13. The OB containment device will incorporate a coarse screen over the top of the device in

order to minimize ejection of materials during OB treatment. Also, waste ordnance will be placed a minimum of 2 feet below the top of the device, and the containment device will be placed in a shallow depression in the sand.

14. The OB containment device will be inspected before and after each burn to ensure structural integrity.

15. The OB containment device will be turned upside down after each burn to prevent accumulation of precipitation.

16. Residues remaining in the OB containment device will be collected no later than the day after the burn, but before the device is turned upside down.

17. If precipitation accumulates in the OB containment device before residue can be removed, then an additional burn will take place to evaporate all moisture from the residue.

18. Residues ejected from the OB containment device will be collected no later than the day after the burn.

19. The maximum NEW for each OB event is 100 lbs, except for the following items (as numbered in Table III-7 of Appendix A):

    Restricted to 5 lbs (total): Nos. 10, 42, 43, 45, 50
    Restricted to 10 lbs (total): Nos. 36, 37, 38, 39, 40, 51
    Restricted to 50 lbs (total): No. 4

Open Detonation RCRA hazardous waste treatment operating restrictions

20. Residues remaining after detonation must be collected no later than 1 hour after the detonation is initiated.

21. The maximum NEW for each OD event is 600 lbs, except for the following items (as numbered in Table III-7 of Appendix A):

Total NEW (lbs) For OD Event	No. 95	Weight Restriction (lbs) No. 14 or 15
1	0.26	1.0
5	0.54	2.7
20	0.64	3.2
50	1.4	7.0
100	2.1	10
200	3.5	17
300	5.0	25
400	6.7	33

500	8.3	42
600	10.0	50

Restricted Open Burn items:

4 – 7.62 blank
18 – fuse, time
42 – detonator, percussion, M2A1
43 – detonator, percussion, M2A2
45 – detonator kit, M1
36 – firing device, M1
37 – firing device, demolition, M1A1
38 – firing device, demolition, M5
39 – firing device, demolition, M3
40 – firing device, demolition, M1
50 – primer, percussion, cap
29 – cratering charge M180

Restricted Open Detonation items:

14 – caps, electric blasting
15 – caps, non-electric blasting
95 – grenade, MK1, illuminating

TABLE III-1 MAXIMUM PERMISSIBLE QUANTITY OF METALS AND SULFUR THAT CAN BE TREATED PER OB EVENT

Constituent	Quantity per Event (lbs)
Aluminum Cpds, as Al	2.53E+01
Antimony Cpds, as Sb	2.50E+00
Barium Cpds, as Ba	5.11E-01
Calcium Cpds, as Ca	3.37E-01
Copper Cpds, as Cu	0.00E+00
Iron Cpds, as Fe	8.48E+01
Lead Cpds, as Pb	2.72E+00
Magnesium Cpds, as Mg	5.72E+01
Potassium Cpds, as K	4.59E+01
Silver Cpds, as Ag	1.02E+00
Sodium Cpds, as Na	3.51E+01
Strontium Cpds, as Sr	4.09E+00
Sulfur Cpds, as S	6.26E-01
Tin Cpds, as Sn	7.25E-02
Uranium Cpds, as U	1.11E+00
Zinc Cpds, as Zn	1.90E+01

This table presents maximum quantities of metals and sulfur compounds that can be treated during a single OB event. The table is used to comply with Environmental Performance Standard # 11, i.e., only when waste ordnance or other energetic materials not listed in Table III-7 of Appendix A are to be treated.

TABLE III-2 MAXIMUM PERMISSIBLE QUANTITY OF METALS AND SULFUR THAT CAN BE TREATED PER OD EVENT								
	Quantity per Event (lbs)							
Constituent	Total NEW 1 lb	Total NEW 5 lb	Total NEW 20 lb	Total NEW 50 lb	Total NEW 100 lb	Total NEW 200 lb	Total NEW 400 lb	Total NEW 600 lb
Aluminum Cpds, as Al	4.03E+00	8.36E+00	1.40E+01	2.16E+01	3.24E+01	5.40E+01	1.01E+02	1.52E+02
Antimony Cpds, as Sb	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Barium Cpds, as Ba	6.65E-02	1.38E-01	2.31E-01	3.57E-01	5.35E-01	8.92E-01	1.67E+00	2.51E+00
Calcium Cpds, as Ca	2.04E-01	4.23E-01	7.08E-01	1.10+00	1.64E+00	2.74E+00	6.13E+00	7.70E+00
Copper Cpds, as Cu	5.83E-03	1.21E-02	2.02E-02	3.13E-02	4.69E-02	7.82E-02	1.47E-01	2.20E-01
Iron Cpds, as Fe	8.32E+00	1.73E+01	2.88E+01	4.47E+01	6.70E+01	1.12E+02	2.09E+02	3.14E+02
Lead Cpds, as Pb	4.72E-01	9.79E-01	1.64E+00	2.53E+00	3.80E+00	6.33E+00	1.19E+01	1.78E+01
Magnesium Cpds, as Mg	8.47E+00	1.81E+01	3.03E+01	4.69E+01	7.04E+01	1.17E+02	2.20E+02	3.30E+02
Potassium Cpds, as K	3.60E-01	7.48E-01	1.25E+00	1.93E+00	2.90E+00	4.84E+00	9.07E+00	1.36E+01
Silver Cpds, as Ag	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sodium Cpds, as Na	5.59E+00	1.16E+01	1.94E+01	3.00E+01	4.50E+01	7.50E+01	1.41E+02	2.11E+02
Strontium Cpds, as Sr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sulfur Cpds, as S	1.59E-06	3.30E-06	5.52E-06	8.53E-06	1.28E-05	2.13E-08	4.00E-05	6.00E-05
Tin Cpds, as Sn	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Uranium Cpds, as U	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zinc Cpds, as Zn	3.02E+00	6.27E+00	1.05E+01	1.62E+01	2.43E+01	4.05E+01	7.60E+01	1.14E+02

This table presents maximum quantities of metals and sulfur compounds that can be treated during a single OB event. The table is used to comply with Environmental Performance Standard # 11, i.e., only when waste ordnance or other energetic materials not listed in Table III-7 of Appendix A are to be treated.