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APPENDIX J – OB/OD RESIDUE MANAGEMENT PLAN

1.0 PURPOSE

The purpose of this plan is to provide a procedure by which OB/OD residue is identified, collected, and directed for further treatment, proper hazardous waste storage, recycling, or land filling, as appropriate. For the purposes of this plan, residue generated during OB/OD activities includes:

1. Ash contained in the OB containment device (note that OD operations produce no identifiable ash).
2. Metallic fragments which include partially burned/detonated energetic materials contained within the OB or OD treatment units.
3. Items containing partially burned/detonated energetic materials ejected from the OB or OD treatment units.
4. Metallic fragments not containing partially burned/detonated energetic materials contained within the OB or OD treatment units.
5. Items not containing partially burned/detonated energetic materials ejected from the OB or OD treatment units.
6. Miscellaneous materials found at the EOD range.

These residue(s) may be generated from either RCRA hazardous waste treatment or non-RCRA (i.e. training or emergency disposal) operations. This Residue Management Plan is intended to address all residues on the EOD Range, regardless of origin.

In addition, this Residue Management Plan outlines procedures for maintaining general cleanliness of the EOD Range.

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2.0 RELATED DOCUMENTS

2.1 Flight Operating Instruction 32-3002 (FOI 32-3002)

- 2.1.1 Attachment 1: Range Notification List
- 2.1.2 Attachment 2: Range Operation Checklist
- 2.1.3 Attachment 3: Post Range Operations Checklist
- 2.1.4 Attachment 4: Safety Briefing
- 2.1.5 Attachment 5: Proper Detonation Point/Cliff Orientation and Quarterly Clean-up Area
- 2.1.6 Attachment 6: Rescission of Compensatory Measure

2.2 Andersen AFB Hazardous Waste Management Plan

2.3 Andersen AFB Hazardous Waste Characterization Form

2.4 Explosive Ordnance Disposal Scrap Metal Clearance Log

2.5 Certificate of Clearance for Munitions Residue

2.6 DOD Form DD1348, for Scrap Turn-in

3.0 DEFINITIONS

AAFB: Andersen Air Force Base

Ash: All solid residue remaining following Open Burning operations.

Containment Device: Essentially a large drum with a wire fitting for holding OB materials for disposal. Into this container are placed the materials for treatment (within the pierced burn container), dunnage, and ignition material. A removable wire mesh cover is placed on the top of the drum during burn operations to further limit ejecta.

DOD: Department of Defense

DLA: Defense Logistics Agency Disposition Services

Dunnage: Wood, combustible material placed within the OB containment device to sustain the combustion during treatment process.

Ejecta: Any ordnance material, which is thrown from the treatment unit during the treatment process.

Energetic Material: Any explosive material, whether contained within an ordnance or separated from ordnance.

EOD: Explosive Ordnance Disposal

EOD Flight: Military designation for the group of individuals assigned to conduct the EOD operations.

EOD Range: The area used by EOD personnel to perform treatment operation, as well as EOD mission training, and emergency operations. The EOD Range is surrounded by a safety exclusion zone to minimize risk to human life during operations.

Explosive (Explosive Ordnance): Any chemical compound, mixture, or device whose primary purpose is to function by detonation or deflagration with instantaneous release of heat and gas.

Hazardous Waste: A solid waste that exhibits any of the characteristics of hazardous waste. (ignitability, corrosivity, reactivity, and toxicity) or is a listed hazardous waste under RCRA (40 CFR 261.3)

IDW: Investigative derived waste, waste materials generated during completion of investigation activities.

Ignition Materials: Materials used to initiate the OB combustion process. These generally consist of a radio-controlled igniter with a small quantity (approximately 5 gallons) of virgin diesel fuel.

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Metallic Fragment: A metallic material that remains following ordnance treatment. Metallic fragments can include items remaining in the OB or OD treatment units or ejecta thrown out during treatment.

Non-hazardous Waste: A solid waste that does not exhibit characteristics of hazardous waste.

Open Burning (OB): Combustion of PEP or explosive ordnance without the control of combustion air, containment of the combustion reaction in an enclosed device, or control of emission of gaseous and particulate combustion products.

Open Detonation (OD): Unconfined, violent reaction of PEP or explosive ordnance without the control of combustion air, containment of the combustion reaction in an enclosed device, or control of emission of gaseous and particulate combustion products.

PEP: Term used to refer collectively to propellants, explosives, and pyrotechnics.

Pierced Burn Container: A small metallic box, pierced with holes, in which the OB materials to be treated are placed. This Pierced Burn Container is then placed within the Containment Device for treatment by combustion.

PPE: Personal protective equipment, safety equipment worn by individuals to eliminate or mitigate potential exposure to harmful materials.

Range Policing: The periodic and routine visual inspection and removal of OB/OD residue from the EOD Range.

Reef Crest: Sharp break in slope at seaward margin or edge of reef flat

Reef Flat: The area located between the beach and the reef rock rim/reef crest.

Reef Rock Rim: The highest energy zone of a coral reef ecosystem with intense wave action and surges. Parts of it may be exposed at low tide.

Residue: Any material remaining from OB/OD activities (examples include: ash, incompletely treated ordnance, fragments). The term residue may also include materials from non-RCRA treatment OB/OD operations (i.e., training, or emergency operations), which may also take place on the EOD range.

TCLP: Toxic characteristic leaching procedure, a hazardous waste regulatory specified method for waste analysis, also includes list of specific compounds, which determine hazardous characteristic.

T.O.: DOD Technical Order documents.

4.0 RESIDUE MANAGEMENT – OB EVENTS

4.1 General

Residue management activities related to OB activities area are allowed to begin no sooner than 12 and not later than 24 hours after the burn is conducted. This delay (as required by USAF EOD procedures) provides time to ensure that the burn is complete and the residue has cooled to a temperature allowing safe handling in case there is incomplete treatment.

4.2 Follow-up Range Policing Activities

Range policing is performed to collect any material, which may have been ejected, from the treatment unit for retreatment or proper disposal. Policing involves a thorough visible inspection of the beach area from the water to the jungle. During range policing, the EOD Team performs an organized “sweep” of the range.

The inspection sweep follows a “Foreign Object Detection” approach, whereby team members line up, separated by a short distance, and walk forward, searching the area directly ahead of their forward progress. Large objects, which are not easily picked up and carried, and objects that may pose a potential hazard (i.e., are suspected to contain energetic material), are marked with a flag and removed following the range sweep. Any other object is removed during the sweep. The sweep is continued until the entire range area has been cleared.

Particular attention is given to the area within 200 feet of the burn containment device where shrapnel may have been ejected during the burn.

4.3 Residue Collection Procedures

4.3.1 Within the OB Treatment Unit

Residues within the OB pierced burn container as well as the OB containment device are visually inspected to ensure that energetic material has been destroyed. If visual inspection is inconclusive, a representative sample of the ash is removed and tested for presence of nitro explosives using Webster’s Reagent.

If untreated wastes or items still containing energetic materials are discovered, they are re-treated the same day. If the treatment operation is determined to have been complete, the burn ash residues are removed for proper handling in accordance with Section 4.5.

4.3.2 Ejecta

During the post burn policing, any items, which may have been ejected during the burn, are collected. Each collected item is inspected for energetic material.

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Items still containing energetic material are re-treated the day they are discovered. Metal fragments not containing energetic material are handled in accordance with Section 4.4.

4.4 OB Metallic Fragments Handling Procedure

Metal fragments not containing energetic material will be policed up and be disposed of or recycled properly at a permitted facility.

4.5 OB Ash Handling Procedures

Handling of OB ash subsequent to the completion of the OB treatment event is accomplished in accordance with the Andersen AFB Hazardous Waste Management Plan (Sept. 2007). Specific procedures pertinent to this particular waste stream are reiterated in this Residue Management Plan as follows.

4.5.1 Waste Characterization

Based upon historical data, the ash generated by Open Burning treatment events is presumed to be hazardous waste based upon TCLP Lead criteria. Following confirmation of complete reaction (i.e., no explosive materials remaining), this OB ash is handled, transported, and disposed of as a TCLP Lead hazardous waste.

4.5.2 Environmental Flight Notification

Andersen AFB Environmental Flight (36 CES/CEV) is notified of the generation of OB ash by completion and submission of the Andersen AFB Material/Waste Characterization Form. (Note: Due to the scheduled nature of most, if not all, of the OB events, and the need for notification to initiate the event, Environmental Flight will already be cognizant of the waste generation.)

4.5.3 On-Base Transportation

Upon authorization by Environmental Flight (36 CES/CEV), AAFB EOD personnel transport this waste to the on-base less than 90 days hazardous waste accumulation site, Building 19017.

4.5.4 OB Ash Handling Procedures

OB ash consists of materials remaining within the small, pierced burn container and the OB containment device. Note that any metal fragments present in the ash are handled as ash (hazardous waste), and not recovered. Handling of this ash is accomplished as follows.

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- The ash within the pierced burn container is dry brush swept into a small, 15 gallon sealed, metal container.
- The OB containment device is tipped on its side.
- The ash residue is transferred to the same small 15 gallon sealed metal container as the pierced burn container ash. This may be accomplished by dry brushing and scooping with hand tools (i.e., dust pan, trowel).
- This metal container is transported to Building 19017.
- The ash in the container is transferred to the designated temporary storage drum by simple pouring, followed by light dry brushing.
- The brush and any other small hand equipment used for transfer of ash material are returned to its original or replacement doubled plastic bag.

4.6 Waste Disposal Procedures

Two waste streams, one hazardous and one non-hazardous, are associated with the OB treatment process. These are disposed of as follows.

- 4.6.1 Hazardous waste includes burn ash generated by the OB treatment operation and small amounts of miscellaneous waste generated through handling of the ash. These materials are presumed hazardous due to TCLP Lead content.

Both the burn ash and the ash handling generated wastes such as PPE (limited to disposable gloves and respirator cartridges) and plastic bags from the equipment storage, are placed with other IDW or hazardous waste handling PPE wastes in Building 19017 for proper disposal.

- 4.6.2 Non-hazardous wastes are composed primarily of scrap metal fragments. This non-hazardous metallic fragment waste will be disposed of or recycled properly at a permitted facility.

4.7 Ash Handling Equipment Storage

When not in use, the equipment used in handling OB ash is secured at the EOD Flight, Building 2600. The handling equipment consists of small containers and hand tools including pierced burn container, 15 gallon steel ash drum, small brush, and metal dustpan or scoop. These items are stored in doubled sealed plastic bags and properly labeled to avoid usage in other applications.

4.8 Personnel Health and Safety

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Health and safety issues are addressed in the AAFB basewide Health and Safety Plan. The only issues of consequence for ash handling are: (1) dermal contact, and (2) respirable dust. These are mitigated by use of disposable gloves, and half face respirators respectively.

4.9 Documentation

FOI 32-3002 Attachment 2 checklist is completed which documents the operational aspects of handling the waste generated by EOD treatment operations within AAFB.

4.9.1 Hazardous Waste

For the burn ash, a known hazardous waste, the AAFB Waste Characterization form is completed and forwarded to Environmental Flight for review and acceptance of the waste at Building 19017.

4.9.2 Scrap Metal

EOD Flight completes a Certificate of Clearance for Munitions Residue to document the waste is no longer reactive and forwards to Environmental Flight.

The scrap metal will be properly recycled at a permitted facility.

5.0 RESIDUE MANAGEMENT – OD EVENTS

5.1 General

Residue management activities related to OD activities begin as soon as the area is declared safe. This generally occurs within one hour after completing treatment activities.

5.2 Follow-up Range Policing Activities

Range policing is performed to collect any material, which may have been ejected, from the treatment unit for retreatment or proper disposal. Policing involves a thorough visible inspection of the beach area from the ocean to the jungle. During range policing, the EOD Team performs an organized “sweep” of the range.

The inspection sweep follows a “Foreign Object Detection” approach, whereby team members line up, separated by a short distance, and walk forward, searching the area directly ahead of their forward progress. Large objects which are not easily picked up and carried, and objects that may pose a potential hazard (i.e., are suspected to contain energetic material), are marked with a flag and removed following the range sweep. Any other object is removed during the sweep. The sweep is continued until the entire range area has been cleared.

Particular attention is given to the area within 200 feet of the OD treatment unit where material may have been ejected by the detonation.

5.3 Residue Collection Procedures

5.3.1 Within OD Treatment Unit

Residues within the OD containment device, if found, are inspected to ensure that energetic material has been destroyed. Typically, the OD treatment is very complete. If untreated wastes or items still containing energetic materials are discovered, they are immediately retrieved for treatment the same day. Experience indicates that there is no identifiable ash which remains following a detonation event and that residue will be metal fragments (shrapnel).

Metal fragments without evidence of energetic material are removed from the treatment unit. These materials are then handled in accordance with the procedures in Section 5.4.

5.3.2 Ejecta

During the post detonation policing, any items, which may have been ejected beyond the OD treatment unit, are collected. Each collected item is inspected

for energetic material. Items still containing energetic material are retrieved for retreatment the day they are discovered. Metal fragments not containing energetic material are handled in accordance with Section 5.4. A visual survey of the nearby Pacific Ocean will be conducted from the beach area quarterly to identify and recover any UXO ejected into the ocean during OD activities. The area surveyed will be that area of the ‘reef flat’ that lies within the Quantity-Distance arc. This area is approximately 4,000 feet up the shoreline (west) from our detonation point and as far as safely and reasonably possible down the shoreline (east). The shore line area east of the detonation site is dangerous cliff lined area (no beach) with high crashing surf.

5.4 OD Metallic Fragments Handling Procedures

Metal fragments not containing energetic material will be policed up and be disposed of or recycled properly at a permitted facility.

5.5 OD Ash Handling Procedures

Any ash or secondary source of contamination due to OD airborne contaminants, which come to rest on the ground surface, will be characterized via chemical or visual methods, removed, and disposed of in accordance with all applicable rules and regulations.

5.6 Waste Disposal Procedures

All wastes generated by the OD treatment procedure are non-hazardous. These wastes are characterized as metallic fragments. These wastes are policed up and disposed of or recycled properly at a permitted facility.

6.0 ROUTINE EOD RANGE POLICING ACTIVITIES

6.1 General

While every effort is made to collect and properly dispose of OB/OD residues within 24 hours of any activity, remnants from past EOD operations, training exercises, and past wars are routinely found on the EOD range and adjacent beach area. In most cases, these items are either washed ashore from the ocean or brought to the surface from beneath the beach due to wave action, heavy rains, and or winds. The purpose of routine range policing activity is to minimize environmental exposure from any man-made materials located in the EOD range and adjacent areas.

In addition, the ocean wave and current actions also provide a continuing source of general trash, which washes onto the EOD Range. This material is routinely cleaned up during the general policing activities.

6.2 Routine Site Inspections

Routine range policing is performed regardless of whether any EOD operations have been conducted. Range policing is performed to collect any material that could be related to EOD operations, regardless of whether it was actually generated by EOD operations. Upon collection of such material, it is sorted for retreatment or proper disposal as outlined in Section 5.3. Policing involves a thorough visible inspection of the beach area from the ocean to the jungle. During range policing, the EOD Team performs an organized “sweep” of the range.

The inspection follows a “Foreign Object Detection” approach, whereby team members line up, separated by a short distance, and walk forward, searching the area directly ahead of their forward progress. Large objects which are not easily picked up and carried, and objects that may pose a potential hazard (i.e., are suspected to contain energetic material), are marked with a flag and removed immediately following the range sweep. Any other object is removed during the sweep. The sweep is continued until the entire range area has been cleared.

Particular attention is given to the areas within 200 feet of the OD treatment unit and the OB treatment unit where material may have been ejected by the detonation and/or burn.

Note that the areas adjacent to the EOD range area located on the beach but not easily accessible (i.e., jungle) are policed less frequently.

6.3 Frequency of Routine Range Policing Operations

6.3.1 Beach Area

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The beach area will be policed quarterly and following each explosive operation. If after a previous policing operation a significant amount of waste or debris material is discovered on the beach, the routine range policing operation frequency will be increased until such time as the policing uncovers no waste material.

6.3.2 Jungle Areas

Due to difficulty in accessibility, the jungle areas will be policed annually. Policing of the jungle area will be performed concurrent with a routine policing of the beach area. If, after a routine policing operation a significant amount of waste material is discovered in the jungle areas routine policing of these areas will be performed until the collection of waste reaches a minimal level.

6.4 Identification of Waste

During range policing operations, any object that could be related to EOD operations (metallic fragment, shell, ordnance, etc.) shall be collected and handled as appropriate.

6.5 Disposition of Waste Collected

One or more of three types of wastes may be collected during general policing activities: wastes with energetic materials, metal fragments without energetic materials, or general trash.

Waste found with energetic materials is treated as specified in Section 4.3.2 (OB) or Section 5.4 (OD), (i.e., disposed of or recycled properly at a permitted facility.).

General trash, which is retrieved from the EOD Range, is transferred to any one of the general trash dumpsters located throughout the base for disposal.

7.0 NON-ROUTINE EOD RANGE POLICING ACTIVITIES

7.1 General

Natural phenomena may result in the exposure of EOD residue, items remaining from training operations, or remaining shrapnel from past wars on the EOD Range beach area, which are not found during routine policing activities. Additionally, general trash also ends up on the EOD Range through the actions of these natural phenomena. These items are typically either washed ashore from the ocean, or brought to the surface from beneath the beach due to wave action, heavy rains, and/or winds. The purpose of non-routine EOD Range policing activities is to ensure that these materials, which end up on the EOD range through natural phenomena, are removed in a timely fashion in order to minimize any risk from exposure.

7.2 Non-routine Site Inspections

Non-routine site inspections are conducted following the occurrence of significant atmospheric, oceanic, or geological phenomena at the facility. Examples of such phenomena include typhoons, flooding tsunamis, landslides, etc. EOD personnel will schedule a non-routine inspection as soon as practical following such significant events. Once commenced, the non-routine inspection is carried out using the same procedures as outlined for routine site inspections (See Section 6.2).

7.3 Identification

Identification is performed in a manner consistent with the method outlined in Section 6.4.

7.4 Disposition of Waste

Disposition of waste collected is accomplished in a manner consistent with the method outlined in Section 6.5.