

## ATTACHMENT 4 - TREATMENT

### 4.1 Permitted and Prohibited Treatment of Wastes

The Permittee shall not treat gaseous chemical agents at TEADS in the EDS.

The Permittee shall only treat the wastes with RCRA waste codes as listed in this Permit. Treatment of any other waste codes is prohibited. These wastes must be contained within recovered munitions or other items (containers) containing chemical agent or industrial chemicals that were solely generated on the TEADS site. These items to be treated in the EDS must fit the category of recovered chemical warfare materiel (RCWM) as that term is defined by the Army. They may include explosive components.

Personnel must follow approved SOP's for usage of an EDS unit and treatment of wastes therein. The following document is considered part of this Permit and is enforceable for determining compliance with this Permit: *Standing Operating Procedures for Explosive Destruction System Phase 2 series Operations*. If this document has been updated, then it must be submitted to the Director in accordance with III.C.1.c and the approved version shall be used.

### 4.2 Pre-treatment Waste Characterization and Classification

For the purpose of this Permit, all energetic (explosive) components of a waste are classified as RCRA reactive waste in addition to any other classification they may have.

For the purpose of this Permit, FS smoke and FM smoke will be classified as RCRA reactive and corrosive waste hazardous waste in addition to any other classification they may have.

For the purpose of this Permit, all wastes that contain chemical agent shall be classified as either P999 or F999 as applicable, in addition to any other classification they may have.

Prior to treatment, all wastes must be characterized by the U.S. Army Materiel Assessment Review Board (MARB). Records of the assessment shall be maintained in the operating record.

Agents HD, H, HT, HN-3, GA and GB must be treated using monoethanolamine (MEA) as a treatment reagent.

FS smoke and FM smoke must be treated using sodium hydroxide (NaOH) as a treatment reagent.

If the Permittee identifies chemical fills or munitions other than what is allowed in this Permit, they shall not be treated until the Permit is modified to allow their treatment.

### 4.3 Post-treatment Waste Characterization and Classification

Treatment effectiveness of energetic components shall be determined by visual observation for unexploded components. Any observed unexploded components will be removed from the EDS, placed in a compatible container and held on-site for reprocessing in the EDS or will be transferred to EOD for disposition.

Liquid neutralant and rinsewaters must meet the treatment effectiveness levels in Table 3. The determination of treatment effectiveness must be done by chemical analysis as prescribed in Attachments 2 and 3.

Sampling and analysis protocol in this Permit and in related SOP's shall be followed.

Treatment effectiveness of the metal parts and fragments will be determined by visually observing for residual contamination on the munitions' fragments. If residual contamination is observed, the contamination must be removed and then appropriately managed or the part must be re-treated.

Air monitoring results of the metal parts and fragments must meet required vapor screening levels (VSLs) identified for each waste in Table 3 as conducted by the approved sampling and analysis plan.

Used carbon filters from change-out or decommissioning the EDS unit shall carry the RCRA waste code F999 and all RCRA codes from the wastes or products that were treated in the EDS while that filter was in-line.

Unless sample analysis or the MARB dictates a different determination and the operating record documents that determination, the following wastes and codes are applicable and shall be used before waste treatment in the EDS and for waste generated from EDS operations:

- a. Mustard (HD, H, or HT) filled RCWM items shall carry RCRA waste codes D003, D004, D005, D006, D007, D008, D009, D010, D011, D022, D028, D034, D039, D040, D043, P999.
- b. Nitrogen Mustard (HN-3) filled RCWM items shall carry RCRA waste codes D003, D004, D005, D006, D007, D008, D009, D010, D011, P999.
- c. Nerve agent GA-filled RCWM items shall carry RCRA waste codes D003, D004, D005, D006, D007, D008, D009, D010, D011, D021, P999.
- d. Nerve agent GB-filled RCWM items shall carry RCRA waste codes D003, D004, D005, D006, D007, D008, D009, D010, D011, P999.
- e. FS smoke-filled RCWM shall carry RCRA waste codes D002, D003, D008.
- f. FM smoke-filled RCWM shall carry RCRA waste codes D002, D003, D008.
- g. Mustard neutralants (HD, H, or HT decomposition byproducts plus MEA and water and MEA rinsewater) shall carry RCRA waste codes D001, D002, D003, D004, D005, D006,

- D007, D008, D009, D010, D011, D018, D019, D022, D028, D030, D034, D039, D040, D043, F999.
- h. Nitrogen Mustard neutralents (HN-3 decomposition byproducts plus MEA and water and MEA rinsewater) shall carry RCRA waste codes D001, D002, D004, D005, D006, D007, D008, D009, D010, D011, F999.
  - i. GA neutralents (GA decomposition byproducts plus MEA and water and MEA rinsewater shall carry RCRA waste codes D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D018, D021, F999.
  - j. GB neutralents (GB decomposition byproducts plus MEA and water and MEA rinsewater shall carry RCRA waste codes D002, D004, D005, D006, D007, D008, D009, D010, D011, D018, F999.
  - k. FS smoke neutralent (FS smoke byproducts plus NaOH) shall carry RCRA waste codes D002, D008.
  - l. FM smoke neutralent (FM smoke byproducts plus NaOH) shall carry RCRA waste codes D002, D008, D032.
  - m. Mustard neutralents (HD, H, HT, or HN-3) rinsewater (water, bleach and trace amounts of MEA) shall carry RCRA waste codes D002, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D022, D028, D034, D039, D040, D043, F999.
  - n. Nerve agent GA rinsewater (water, bleach, and trace amounts of MEA) shall carry RCRA waste codes D003, D004, D005, D006, D007, D008, D009, D010, D011, D018, D021, F999.
  - o. Nerve agent GB rinsewater shall carry RCRA waste codes D004, D005, D006, D007, D008, D009, D010, D011, D018, F999.
  - p. FS smoke rinsewater (water plus trace amounts of NaOH) may be classified as a non-hazardous waste.
  - q. FM smoke rinsewater (water plus trace amounts of NaOH) may be classified as a non-hazardous waste.
  - r. Decontamination solutions associated with Mustard agents HD, H, HT, or HN-3 (mostly water, trace amounts of bleach and trace amounts of MEA) shall carry RCRA waste codes D002, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D022, D028, D034, D039, D040, D043, and F999.
  - s. Decontamination solutions associated with Nerve agents GA (mostly water, trace amounts of bleach and trace amounts of MEA) shall carry RCRA waste codes D003, D004, D005, D006, D007, D008, D009, D010, D011, D018, D021, and F999.
  - t. Decontamination solutions associated with Nerve agents GB (mostly water, trace amounts of bleach and trace amounts of MEA) shall carry RCRA waste codes D004, D005, D006, D007, D008, D009, D010, D011, D018, and F999.
  - u. Decontamination solutions associated with FS smoke (mostly water, mild detergent and trace amounts of NaOH) may be classified as a non-hazardous waste.

- v. Decontamination solutions associated with FM smoke (mostly water, mild detergent and trace amounts of NaOH) may be classified as a non-hazardous waste.
- w. Decontaminated metal parts and fragments associated with mustard agents HD, H, HT, or HN-3 shall carry the RCRA waste code F999.
- x. Decontaminated metal parts and fragments associated with nerve agent GA or GB shall carry the RCRA waste code F999.
- y. Decontaminated metal parts and fragments associated with FS smoke may be classified as a non-hazardous waste.
- z. Decontaminated metal parts and fragments associated with FM smoke may be classified as a non-hazardous waste.
- aa. Empty containers and over packs generated during EDS operations shall be monitored for hazardous wastes. If none are present, they may be reused or managed in accordance with TEADS solid waste requirements.
- bb. Unexploded energetic components shall carry the RCRA waste codes D003, D004, D005, D006, D007, D008, D009, D010, D011 and F999.
- cc. Spent carbon from carbon change out activities shall carry the RCRA waste codes D002, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D028, D030, D032, D034, D039, D040, D043 and F999.
- dd. Used PPE from mustard (HD, H, HT, or HN-3) operations shall carry RCRA waste codes D004, D005, D006, D007, D008, D009, D010, D011, D022, D028, D034, D039, D040, D043, and F999.
- ee. Used PPE from GA or GB operations shall carry RCRA waste codes D018, D021 and F999.
- ff. Used PPE from FS smoke operations shall carry RCRA waste codes D008.
- gg. Used PPE from FM smoke operations shall carry RCRA waste codes D008.
- hh. Grayloc seals and O-rings shall carry RCRA waste code F999.
- ii. Solid laboratory waste involving Mustard agents HD, H, HT or HN-3 shall carry RCRA waste codes D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D022, D028, D034, D039, D040, D043 and F999 or P999 as applicable.
- jj. Solid laboratory waste involving nerve agents GA or GB shall carry RCRA waste codes D018, D021 and F999 or P999 as applicable.
- kk. Liquid laboratory waste involving Mustard agents HD, H, HT or HN-3 shall carry RCRA waste codes D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D022, D028, D034, D039, D040, D043, F001, F002, F003, F004, F005 and F999 or P999 as applicable.
- ll. Liquid laboratory waste involving nerve agents GA or GB shall carry RCRA waste codes D018, D021, F001, F002, F003, F004, F005 and F999 or P999 as applicable.

#### **4.4 Disposition of Post-treatment Wastes**

The following wastes shall be placed in “a less than 90 storage area” (i.e. waste may not reside on-site for more than 90 days without the area being permitted for storage under RCRA) pending shipment off-site to a permitted treatment, storage or disposal facility. All conditions listed in R315-5-3 (including reference 40 CFR 262.34) shall apply to these containers of waste:

- a. Containerized neutralent, rinsewater, decontamination solution, and solid wastes (metal parts and fragments) from RCWM treatment of HD, H, HT, HN-3, GA, GB, FS smoke, FM smoke in the EDS.
- b. Spent carbon from change out activities.
- c. Used PPE to be disposed.
- d. Grayloc seals and O-Rings.
- e. Solid laboratory waste from mobile chemical laboratories and air monitoring sampling activities.
- f. Liquid laboratory waste from mobile chemical laboratories.

Empty overpacks and containers will be monitored for contamination. They may be reused if they pass screening levels. If they do not pass screening levels they must be decontaminated to appropriate levels before reuse. If they pass screening levels but cannot be reused, they will be managed in accordance with the Permittee’s (TEADS) solid waste requirements.

Unexploded energetic components will either be retreated or transferred to EOD for disposition.

If any used PPE ever came into contact with liquid agent or was worn in an area where vapor agent was confirmed above the 15 minute STEL it must first be decontaminated, then cleared according to the criteria in Table 13 and then disposed as a hazardous waste. If reusable used PPE never contacted agent or an agent environment, it must first be cleared according to the criteria in Table 13, and then sent to ECBC in Edgewood for laundry or disposed of. If non-reusable used PPE never contacted agent or an agent environment, it must first be cleared according to the criteria in Table 13, and then disposed of. The rinsate from decontamination shall be sampled for waste characterization or declared a hazardous waste and be disposed of as hazardous waste.