

**ATTACHMENT FF  
MIXED WASTE STORAGE FACILITY  
CLOSURE PLAN**

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## 1. INTRODUCTION - OVERVIEW OF CLOSURE ACTIVITIES

a. The purpose of this facility closure plan is to document the steps to clean close the Mixed Waste Storage Facility (MWSF) located at Puget Sound Naval Shipyard (Shipyard) at the Bremerton Naval Complex. Clean closure will be in accordance with the requirements of 40 CFR Part 264, Subpart G which is invoked by Washington Administrative Code (WAC) 173-303-610 for permitted facilities. This plan has been written using the *Guidance for Clean Closure of Dangerous Waste Facilities*, (Washington State Department of Ecology) Publication #94-111, dated August, 1994.

b. Background:

(1) Figure 1 shows the location of the MWSF (building 1002) within the Bremerton Naval Complex. The MWSF is within the controlled (access) industrial area (CIA) of Puget Sound Naval Shipyard proper. Figure 2 shows the area within 1000 feet of the MWSF. This area is mainly industrial except for a grassy/brushy unused area along the north edge, and includes no residential areas. The CIA boundary is shown passing to the west of the MWSF. The MWSF has been used to store mixed waste (a mixture of radioactive and chemically dangerous waste) generated as a result of the repair and maintenance of naval nuclear powered vessels. The MWSF is approximately 54 feet by 42 feet in size. Figure 3 (identical to Figure D-1 of section D of the MWSF permit application) provides the interior layout. The building is constructed of concrete masonry unit walls with a concrete floor. The building has been specifically designed for the storage of mixed waste.

(2) The MWSF is designed and operated in a manner which minimizes the potential for contamination of structures, equipment, and surrounding property. The building is designed to prevent the release of dangerous waste from the MWSF to the environment. The MWSF is operated by a dedicated staff trained and qualified in waste operations. During the operation of the MWSF, inspections occur weekly, and repair and replacement of equipment and structures occurs as necessary. Any spills occurring in the MWSF are documented in the MWSF operating log. These measures were intended to ensure the safe operation of the MWSF, thus minimizing the need for site clean-up and decontamination at closure.

(3) For both solid and liquid containerized wastes, no contamination is expected since the wastes are stored in approved storage containers. The majority of waste stored at the MWSF is in the solid form. Solid mixed waste items were verified to contain no free liquid prior to containerization and thus posed a minimal threat of spreading chemical contamination.

c. Overview of Closure Activities: Through the review of MWSF records; visual inspection and verification sampling of the storage area; and decontamination (if necessary), final clean closure requirements will be met in accordance with WAC 173-303-610. All waste containers will be transported to an off-site treatment, storage, and disposal facility. Attachment (1) contains a sampling

and analysis plan. Attachment (2) is a decontamination procedure, to be invoked should the sampling plan detect dangerous constituents that require removal. Areas requiring decontamination will be resampled per Attachment (1) to verify clean closure levels have not been exceeded.

d. Selection of Clean-Up Levels: Clean-up levels specified in Table 3 of Attachment (1) are those derived from the Model Toxic Control Act (MTCA) contained in WAC 173-340. The primary clean-up levels are calculated using MTCA Method B. However, if the constituent is not listed (e.g. lead), the levels of Method A (residential) are used.

Initial confirmatory sampling will be used to determine if there are detectable levels of contaminants. The clean closure requirement for phase one sampling is that all constituents of concern are below practical quantitation limits. If no contaminants are detected during the phase one sampling (as described in Attachment (1)) then the clean closure requirements will be met. If clean closure requirements have not been met after phase one sampling is complete, then phase two sampling will be performed as described in Attachment (1).

The clean closure requirements for phase two and after decontamination (if performed) are determined using the MTCA levels listed in Table 3 of Attachment (1), and the following equations.

Equation 1

$$Risk = \sum_x \left( \frac{conc_x}{MTCA_x^C} \right) (10^{-6})$$

Equation 2

$$Hazard\ Index = \sum_x \left( \frac{conc_x}{MTCA_x^{NC}} \right)$$

Where  $conc_x$  is the highest sample result for a particular constituent (in mg/kg) and the  $MTCA^C$  is the cancer (carcinogenic) MTCA value (where available) and  $MTCA^{NC}$  is the non-cancer MTCA value. These values are listed in Table 3 of Attachment 1. The clean closure requirement is that the *Risk* in Equation 1 must be less than  $1.0 \times 10^{-6}$  and the *Hazard Index* in Equation 2 must be less than one.

## 2. CLOSURE PERFORMANCE STANDARD

a. The closure performance standard as provided in 40 CFR Part 264.111 (as referenced by WAC 173-303-610) states that the owner or operator must close the facility in a manner that:

- Minimizes the need for further maintenance; and
- Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, postclosure escape of dangerous waste, dangerous constituents, leachate, contaminated run-off, or waste decomposition products to the ground or surface waters or to the atmosphere; and
- Returns the land to the appearance and use of surrounding land areas to the degree possible given the nature of the previous dangerous waste activity.
- Where the closure requirements of this section, or of WAC 173-303-630(10) (container storage areas), WAC 173-303-640(8) (tanks - not applicable to the MWSF), 173-303-650(6) (surface impoundments - not applicable to the MWSF), WAC 173-303-655-6) (land treatment - not applicable to the MWSF), WAC 173-303-660(9) (waste piles - not applicable to the MWSF), WAC 173-303-665(6) (land fills - not applicable to the MWSF), WAC 173-303-670(8) (incinerators - not applicable to the MWSF), WAC 173-303-680(2) through (4) (miscellaneous units - not applicable to the MWSF), or 40 CFR 1102 (incorporated by reference at WAC 173-303-695 (containment buildings - not applicable to the MWSF)) call for the removal or decontamination of dangerous wastes, waste residues, or equipment, bases, liners, soils or other materials containing or contaminated with dangerous wastes or waste residue, then such removal or decontamination must assure that the levels of dangerous waste or dangerous waste constituents or residues do not exceed:
  - For soils, ground water or surface water, and air, the numeric cleanup levels calculated using residential exposure assumptions according to the Model Toxics Control Act Regulations, chapter 173-340 WAC as now or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA method A may be used as appropriate, see WAC 173-340-700 through 173-340-760, excluding WAC 173-340-745; and
  - For all structures, equipment, bases, liners, etc., clean closure standards will be set by the department on a case-by-case basis in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii) and in a manner that minimizes or eliminates post-closure escape of dangerous waste constituents.

b. Through the review of MWSF records; visual inspection and verification sampling of the storage area; and decontamination (if necessary), the final closure standard will be met. Attachments (1) and (2) contain detailed procedures for sampling and analysis and decontamination (if necessary).

### **3. PROCEDURES FOR THE REMOVAL OF WASTES:**

a. Maximum Dangerous Waste Inventory: The maximum permitted capacity of the MWSF is 600 fifty-five gallon drum equivalents. The maximum inventory of dangerous waste ever on-site over the active life of the MWSF is conservatively estimated to be 600 fifty five gallon drum equivalents. Metal boxes have been used for storage of waste at the MWSF. Each box's volume is equivalent to approximately twelve fifty-five gallon drums. A typical waste configuration in the MWSF with interior layout is shown in Figure 3. The MWSF building configuration at maximum capacity is provided in Figures 4 and 5. Figure 6 provides a description of waste streams stored at the MWSF, taken from the PSNS Mixed Waste Site Treatment Plan. Figure 6 is identical to figure B-2 of section B of the MWSF permit application.

b. Waste Containers: All waste containers stored at the MWSF prior to closure operations beginning will be transported to an off-site treatment, storage, and disposal in accordance with the PSNS Mixed Waste Site Treatment Plan.

c. Waste Generated as a Result of Closure Operations: Dangerous waste that could be generated as a result of waste operations includes; debris from decontamination operations, sampling and analysis waste, and personnel protective equipment potentially contaminated with dangerous constituents. Any debris or media generated during closure operations will be evaluated per Attachment (1). Waste designated as a dangerous waste per the WAC 173-303-070 will be managed in accordance with WAC 173-303-200. Wastewater and rinse water generated as a result of closure operations will be managed in accordance with the procedures contained in Attachment (2).

d. Methods of Final Closure: A sampling and analysis plan is contained in Attachment (1). Decontamination procedures are contained in Attachment (2).

(1) The concrete floor: The bermed concrete floor, coated with a special epoxy sealer, has been used as a secondary containment system.

(a) The entire floor will be visually inspected for physical evidence of chemical contamination (e.g., signs of spills; presence of liquid, stains and residues, or large areas of corrosion). The MWSF operating log will be reviewed for any record of spills. Sampling will be performed in those areas showing physical evidence of chemical contamination, or indicated as spill areas in the operating log, and other locations as outlined in Attachment (1). If the phase one

sampling indicates that an area is chemically contaminated, phase two sampling of Attachment (1) will be invoked to quantify the levels of contamination present. Note: The MWSF load/unload area will only be sampled if a review of the MWSF operating log shows a history of spills in the load/unload area. If sampling of the load/unload area is required, the closure plan will be amended to add these sample requirements.

(b) If phase two sampling indicates that contaminants are present above the clean closure levels listed in Table 1 of Attachment (1), the contaminated areas will be decontaminated per Attachment (2). After decontamination, the suspect areas will be sampled in accordance with the phase two sampling and analysis procedures of Attachment (1).

(c) Should the decontamination result in removal of sections of the floor or surface of the floor per Attachment (2), waste generated as a result of these operations will be managed in accordance with paragraph 3.c of this closure plan.

(2) Miscellaneous:

(a) Field Logbook: A field logbook will be used to document the steps taken to achieve clean closure. The field logbook shall be arranged in a format which provides the following information; date, time, description (of action or observation), name and organization (of person entering information), and signature. The typical layout of the logbook entry sheets is as follows:

Date/Time	Description	Name (printed) and organization/ Signature

As a minimum the logbook documents the performance of each step of the closure process including recording detailed sampling information and data and detailed documentation of any decontamination procedures invoked at the MWSF. In addition, the logbook documents any unexpected circumstances encountered during the closure operations. The field logbook is to be maintained by the lead engineer directing the closure operation.

(b) Photographs will be taken of the MWSF prior to, during, and upon completion of each step of closure operations. In addition, any unexpected circumstances or problems encountered during closure operations should be photographed.

(c) Run-on and run-off control is not needed for the MWSF because the MWSF is covered and contained within a roofed building. If decontamination of the load/unload area is

required, the closure plan will be amended to add run-on and run-off control as necessary.

(d) Soil and groundwater will not be monitored as part of closure activities based on operational controls and the design of the MWSF.

#### **4. DECONTAMINATION PROCEDURES**

Decontamination procedures associated with the closure of the MWSF are contained in Attachment (2). These procedures include decontamination of the MWSF's concrete floor and equipment that may become contaminated during closure operations.

#### **5. PROCEDURES FOR SAMPLING AND ANALYSIS**

Procedures for sampling and analysis associated with the closure of the MWSF are contained in Attachment (1). Sampling and analysis procedures will be applied to the concrete floor.

#### **6. SCHEDULE OF CLOSURE**

The schedule for the closure of the MWSF is contained in Figure 6.

#### **7. CERTIFICATION OF CLOSURE**

Closure and decontamination procedures will be monitored by the Shipyard and by an independent, registered professional engineer (PE). The Shipyard will submit a certification of closure to Washington State Department of Ecology, signed by both the Shipyard and the independent PE, within 60 days of completion of final closure. The certification will state that the MWSF was closed in accordance with the approved closure plan.

#### **8. POST-CLOSURE**

The MWSF is a container storage unit only. No disposal units are associated with the MWSF. In addition, no waste will remain at the MWSF after closure. Therefore, according to the post-closure requirements in 40 CFR Part 264.110, no post-closure plans are required for the MWSF.

#### **9. CLOSURE COST ESTIMATES**

a. Per WAC 173-303-620(i)(c), federal facilities are exempt from preparing financial assurance mechanisms.

**Figure 6**  
**SCHEDULE FOR THE FINAL CLOSURE OF THE MWSF**

Item	Activity	Day of Completion <sup>a</sup>	Date <sup>b</sup>	WAC Closure Regulation Applicable
1	Notify Ecology of intended closure.	-60	January 5, 2030	173-303-610(3)(c)(i)
2	Receive final delivery of mixed waste	0	March 5, 2030	NA
3	Transfer existing inventory to an off-site TSD facility	90	June 5, 2030	173-303-610(4)
4	Conduct records review and visual site inspection	90	June 5, 2030	NA
5	Conduct Initial and Detailed Sampling (if required)	120	July 5, 2030	NA
6	Clean, detergent scrub MWSF and flooring surfaces, spill containment basin and sump, and loading area, (if necessary)	150	August 5, 2030	NA
7	Remove, sample and analyze contaminated concrete (if necessary)	150	August 5, 2030	NA
8	Analyze liquid wastes generated during cleaning operations, if done, pending transfer to a TSD facility	180	September 5, 2030	NA
9	Collect, package and ship wastes off-site if necessary. Decontaminate equipment and tools, and transfer waste to a TSD facility, (if necessary)	180	September 5, 2030	NA
10	Conduct final walk-through inspection and prepare letter of certification that closure has been accomplished in accordance with this closure plan. <b>Closure activities complete</b>	180	September 5, 2030	NA
11	Submit closure certification to Ecology	240	November 5, 2030	173-303-610(6)

NOTES:

- a. Prior to (-) or after authorization to proceed
- b. Dates provided assume closure start date of March 5, 2030

**Attachments to the Closure Plan**