

Attachment FF-2

Decontamination Process Section of the Clean Closure Verification for the Building 1002 Mixed Waste Storage Facility (MWSF)

1. This attachment contains the processes for decontamination and subsequent removal and disposal of dangerous wastes (decontamination residuals) generated during the decontamination of the MWSF. The residuals generated as a result of the decontamination may be either liquids from cleaning surfaces or concrete from physical removal. All residuals, generated as a result of this process, will be contained temporarily at the decontamination site until sampled for dangerous constituents to determine the best method for processing. After evaluating the results of the sampling plan, the decontamination residuals will be assigned applicable dangerous waste codes. Waste designation procedures and disposal determination for concrete surfaces associated with the decontamination will be based on the dangerous constituents stored in the MWSF. The MWSF is operated in a manner that minimizes the potential for contamination of structures, floor surfaces and the surrounding area. This minimization is accomplished by established spill prevention measures such as allowing only specifically trained personnel access to the MWSF and inspection of the MWSF both when occupied and weekly. These prevention measures are intended to provide for safe MWSF operation and to minimize the need for site clean up and decontamination. Due to the manner in which the MWSF is operated, the actual implementation of the following decontamination procedure is considered remote. However, if decontamination is required it is anticipated only the surface of the floor will require decontamination. Samples collected will be analyzed to verify if the surface was contaminated and subsequently to verify decontamination is completed. Decontamination will be considered complete when laboratory results meet the standards identified in Attachment (1) of the MWSF Closure Plan.

(1) Decontamination of the MWSF will be based on sampling results and visual inspection of surfaces: For this closure plan, decontamination, if required, will be based on the results of the sampling plan. All information relative to the decontamination will be entered into the MWSF field log book. The floor

surface and any cleaning equipment will be initially cleaned per 40CFR 268.45 Table 1 -- *Alternative Treatment Standards For Hazardous Debris* using the treatment and technology for Water Washing and Spraying. The structure will be considered acceptable for reuse/disposal without further treatment when the following performance standard criteria is met:

"Clean debris surface" means the surface, when viewed without magnification, shall be free of all visible contaminated soil and dangerous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area.

(2) Surface Cleaning and Surface Removal:

Decontamination will be based on the above sampling results. *Note: miscellaneous MWSF equipment, if contaminated, may be cleaned with damp sponges*

a. Mapping of Contaminated Surfaces of the MWSF: Prior to cleaning of the surface and immediate adjacent area to the surface, the MWSF will be photographed and visually inspected for cracks and other openings through which the decontamination wash could be released to the environment. Cracks or openings will be sealed and the location of the these sealed locations annotated on a map of the area. The map will show the location and dimension of each sealed location. These maps and the photo essay will be placed in the record of closure. After decontamination all cracks and crevices will be visually inspected again to determine if the release of dangerous waste or constituents may have occurred. The results of this investigation will be placed in the field log book.

b. Abrasive Water Blasting: One method for cleaning the MWSF is abrasive water blasting. Trisodium Phosphate solutions (to facilitate processing of the decontamination residuals at the Industrial Wastewater Pretreatment Facility (IWPF)) may be applied to the MWSF surface prior to Abrasive water blasting to facilitate contaminant removal. Decontamination residuals will be collected with wet/dry vacuum cleaners or sponges and transferred to 15 gallon plastic containers for characterization per Attachment (1) of the MWSF Closure Plan and subsequent disposal. Surfaces

shall then be rinsed a minimum of three times. The resulting decontamination residuals will be collected with wet/dry vacuum cleaners or sponges and transferred to 15 gallon plastic collection containers for characterization per Attachment (1) of the MWSF Closure Plan and subsequent disposal. After sampling, this procedure may be repeated until no longer cost effective. Results of each decontamination will be entered into the field log book. Further decontamination, if necessary, will be accomplished using the physical extraction technologies for hazardous concrete debris in accordance with 40CFR 268.45.

c. Alternative Manual Cleaning: Instead of Abrasive water blasting, surfaces of the MWSF that show contamination above limits may be manually decontaminated with Trisodium Phosphate solutions. All areas will be cleaned with brooms or brushes and then be rinsed and flushed a minimum of three times. The decontamination residuals will be collected with wet/dry vacuum cleaners or sponges and transferred to 15 gallon plastic containers for characterization per Attachment (1) of the MWSF Closure Plan and subsequent disposal. After sampling, this procedure may be repeated until no longer cost effective. Results of each decontamination will be entered into the field log book. Further decontamination will be accomplished using the physical extraction technologies for hazardous concrete debris in accordance with 40CFR 268.45, as follows.

d. Removal of Concrete Surface of the MWSF: Removal of the concrete surface to facilitate decontamination may be necessary if surface cleaning is not effective. The hazardous debris performance standards for physical extraction are based initially on removal of the layer of contaminated debris. Per 40 CFR 268.45 Table 1 the performance standard for concrete removal requires the removal of 0.6cm of surface layer. To meet this standard the surface layer will be removed using mechanical equipment such as striking piston heads, saws or rotary grinding wheels. The concrete surface will then be examined to meet the requirement for "clean debris surface". Results of this decontamination process will be entered into the log book.

2. **Clean Debris:** When the concrete containment areas meet the clean debris surface requirements, the facility will be considered clean. However, if clean closure still cannot be accomplished using the above physical extraction technologies, bulk concrete sections will be removed.

a. Concrete Removal/Scarification (Contingent Clean Closure Verification): If the concrete surface does not meet the definition of a clean debris surface per 40CFR 268.45, Table 1 after the removal of 0.6cm of the surface, additional portions of concrete will be removed. To avoid the generation of large quantities of solid waste, concrete removal will be limited to mapped and logged areas that do not meet "clean debris surface requirements". The exact amount material to be removed will be evaluated on a case by case basis and logged in the field log book. Removal methods may entail the use of saws and/or jackhammers. Demolished concrete will be temporarily placed in boxes for characterization and disposal according to waste designation. Roll-off boxes will be properly labeled, lined and covered with plastic liner material.

b. Control of concrete debris will meet the requirements of 173-303 WAC. The concrete will be collected in roll off containers, sampled and then characterized in accordance with Attachment (1) of the MWSF Closure Plan.

3. **General process and precautions.**

a. Safety: Safety precautions will be followed in accordance with 29 CFR 1910 and the direction of the Shipyard's Environmental Safety and Health Office based on the level of constituents detected in the MWSF.

b. Waste: All Containerized dangerous wastes in the MWSF will have been transported to a permitted Storage Facility prior to mapping, photographs, surveys and decontamination.

c. Control of Liquids/Decontamination Residuals: All decontamination residuals or other accumulated liquids used for liquid decontamination process will

be collected with portable wet/dry vacuum cleaners or rags and sponges. The decontamination residuals will then be collected and transferred to temporary holding containers (15 gallon plastic drums). These containers will remain sealed/covered and within a designated area at the decontamination site until sampling and designation is completed. Decontamination residual samples will be collected to determine the best method for disposal of the waste. After obtaining the sample results, the 15 gallon plastic containers will then be labeled.

d. Handling of Residuals: Decontamination residuals may have low concentrations of chemicals (see paragraph 5 of this attachment) that make the residuals suitable for discharge to the sanitary sewer system, discharging procedures for these chemicals will be coordinated through the Shipyard's Environmental Safety and Health Office. Higher concentration residuals which cannot be discharged will be transported to the IWPFF or Oily Waste Treatment Facility (OWTF)(see paragraph 6 of this attachment). The final disposition of all wastes will be entered into the field log book.

e. Flushing of Hoses: Contaminated hoses and equipment used during the decontamination will be flushed to remove remaining residues and sediments. A minimum of three flushes will be used. The flush water will be collected in the holding container. After a third wash a composite flush water sample will be collected to verify that levels are acceptable. Additional flushes will be accomplished as necessary. The result of these flushes will be entered into the field log book.

f. Handling and Control of Cleaning Equipment: Equipment used during decontamination (e.g., brooms or brushes) will be washed in soap and water. This rinse water will be disposed of with the wash water. If the equipment is heavily contaminated and decontaminating is not economically justified, the equipment will be sampled for constituents of concern and handled as dangerous waste as directed by the Shipyard's Environmental Safety and Health Office. The criteria for disposing of equipment

generated during closure operations is the dangerous waste criteria contained in WAC 173-303-070.

g. A decontamination station shall be established adjacent to any areas requiring decontamination if equipment decontamination will be performed. The station will be constructed from a plastic liner placed on the ground or over a cofferdam. The station shall have a berm of at least 4 inches high. All equipment decontamination shall be conducted in the station.

4. Inspections of Cleaned Surfaces and Equipment:

After decontamination the area will be inspected to the clean debris surface performance standard. The result of this inspection will be entered into the field log book. If the criterion for clean closure is met no further action is required. A final photo essay will be conducted of the decontaminated area. This final photo essay will be maintained with the closure final report.

5. Criteria for Sanitary Sewer Discharge of Wastewater Generated from Decontamination of an area within the MWSF:

Process: The affected area will be scrubbed and washed with soap and water.

Quality: Decontamination residuals may be contaminated with Barium, Cadmium, Chromium, Copper, Lead, Silver, Mercury, Acetone, Methanol, MEK, Butyl Alcohol, and Toluene.

Criteria:

- The wastewater cannot be a dangerous waste.
- The wastewater has to be below the following limits:

<u>Parameters</u>	<u>Limits</u>	<u>Test Methods</u>
Barium	100 mg/L	EPA 200.7
Cadmium	.17 mg/L	EPA 200.7
Chromium	5 mg/L	EPA 200.7
Copper	5.2 mg/L	EPA 200.7
Lead	1.3 mg/L	EPA 200.7
Silver	2 mg/L	EPA 200.7
Mercury	0.09 mg/L	EPA 200.7
Selenium	1 mg/L	EPA 200.7
PCB	15 ug/L	EPA 608

Oil & Grease	100 mg/L	EPA 413.1
Total Toxic Organics (TTO)	2.13 mg/L	EPA 624

- Summation of all quantifiable values greater than .01 mg/L, i.e, detection limit for individual compound has to be at least .01 mg/L.

The analyses required are Total Metals (Cadmium, Chromium, Lead only, unless other metals are present), PCB, Oil & Grease, and Volatiles.

6. Criteria for Processing of Wastewater Generated from Decontamination of an area within the MWSF:

If the analysis determines that the limits of paragraph 5 for discharge to the sanitary system are exceeded the Shipyard will process all non-oily dangerous wastes at the IWPF. Liquid wastes exceeding 15mg/L oils or grease wastes will be treated at the Shipyard's Oily Water Treatment System.