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Decontamination and Inspection Plan for Phase 1 Closure of the 300 Area Waste Acid Treatment System

S. N. Luke
Rust Federal Services of Hanford Inc., Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

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Abstract: This plan identifies decontamination and inspection activities in support of the first phase (Phase 1) of three proposed phases of RCRA closure of the 300 Area Waste Acid Treatment System. Phase 1 closure addresses RCRA portions of the 313 Building.

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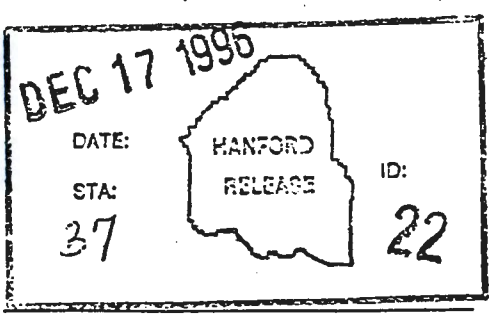

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Decontamination and Inspection Plan for Phase 1 Closure of the 300 Area Waste Acid Treatment System

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management
DE-AC06-96RL13200

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GLOSSARY

ALARA	as low as reasonably achievable
CFR	*Code of Federal Regulations*
Cr	chromium
CWC	Central Waste Complex
DIP	Decontamination and Inspection Plan
DOE	U.S. Department of Energy
DOT	Department of Transportation
Ecology	Washington State Department of Ecology
HEPA	high-efficiency particulate air (filter)
HSRCM-1	*Hanford Site Radiological Control Manual*
LLBG	Low-Level Burial Grounds
NaOH	sodium hydroxide
NDA	nondestructive assay
PCB	polychlorinated biphenyl
PMM	Project Manager Meetings
RCRA	*Resource Conservation and Recovery Act of 1976*
RL	U.S. Department of Energy, Richland Operations Office
SAA	satellite accumulation areas
TCLP	Toxicity Characteristic Leachate Procedure
TSD	treatment, storage, and/or disposal
WAC	*Washington Administrative Code*
WATS	Waste Acid Treatment System
WCR	waste characterization report
WCS	waste certification summary
WHC	Westinghouse Hanford Company

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DECONTAMINATION AND INSPECTION PLAN FOR PHASE 1 CLOSURE OF THE 300 AREA WASTE ACID TREATMENT SYSTEM

1.0 INTRODUCTION

1.1 DOCUMENT PURPOSE AND SCOPE

This decontamination and inspection plan (DIP) describes decontamination and verification inspection activities in support of proposed partial clean closure of the 300 Area Waste Acid Treatment System (WATS). The DIP is provided as a supplement to the *300 Area Waste Acid Treatment System Closure Plan*, DOE/RL-90-11, Revision 1 (DOE/RL 1996). It is intended to satisfy the *Washington Administrative Code* (WAC) 173-303-610 requirement that closure documents describe the methods for removing, transporting, storing and disposing of all dangerous waste at the unit and the steps to remove or decontaminate dangerous waste residues on materials that will remain at the unit after closure. The decontamination and the verification inspections described in this DIP are based on the closure plan and on agreements reached between Washington State Department of Ecology (Ecology) and the U.S. Department of Energy (DOE), Richland Operations Office (RL) during closure activity workshops, and/or Project Manager Meetings (PMM).

This DIP will address the first phase (Phase 1) of 3 proposed phases of closure for the 300 Area WATS. Phase 1 will provide for closure of 300 Area WATS portions of the 313 Building. The DIP will describe the designation and management process for waste and debris generated during Phase 1 closure. Information regarding the decontamination and verification methods for Phase 2 and Phase 3 of closure will be provided in later documents.

The effectiveness of the decontamination and verification activities presented in this plan will be summarized and evaluated in a Phase 1 closure activities report to be issued when Phase 1 closure is complete. The report may also include the results of activities in support of closure that are not directly related to clean closure decontamination and verification, such as decontamination of components for disposal and waste designation.

1.2 PHASE 1 CLOSURE STRATEGY AND STANDARDS

The Phase 1 closure strategy is to partially clean close the 300 Area WATS portions of the 313 Building by clean closing the building 'from the floor up.' This will be accomplished by: (1) removal of all 300 Area WATS equipment and tank system components from the 313 Building as debris after designation and decontamination (as necessary), (2) decontamination to clean closure standards of the building and secondary containment structures that will remain at the unit after closure, and (3) inspection of remaining structures for attainment of clean closure standards.

The clean closure performance standard for the 313 Building structure and concrete secondary containment surfaces remaining after closure will be a 'clean debris surface' as provided for in the *300 Area Waste Acid Treatment*

System Closure Plan (DOE/RL 1996) and as defined in Section 5.0 of this DIP. This is a visually verifiable performance standard promulgated for hazardous debris that has been identified in Ecology guidance (Ecology 1994) as an appropriate clean closure standard for such materials. When visual inspections indicate that a 'clean debris surface' has been met, the unit structures will be clean closed.

The intent of Phase 1 closure is to minimize the generation of mixed waste. This will be achieved by decontamination of components to below their dangerous waste designation levels while the components are still in place at the unit and before their generation as waste. To this end, tanks and piping system components will undergo waste designation in-place as described in Section 3.0. Debris shown to be potentially hazardous will be decontaminated in-place to avoid its generation as mixed waste. Most components will be accessible for designation and, if necessary, for decontamination in-place. However, components that are inaccessible for designation in-place (e.g., piping) will be removed and then designated. Debris that designates as hazardous after removal from the system will not be decontaminated at the unit but will be managed as mixed waste.

Soil beneath the 313 Building floor may have been impacted by *Resource Conservation and Recovery Act of 1976* (RCRA) operations, but will not be closed as a portion of Phase 1 closure activities. As indicated in the 300 Area WATS closure plan, soil closure will occur at a later date. Phase 1 closure will assist future subfloor soil characterization and closure at this location by inspecting floors and mapping potential contaminant pathways to soil.

2.0 SITE DESCRIPTION/BACKGROUND

The 300 Area WATS (Figure 1), is a RCRA tank system treatment, storage, and/or disposal (TSD) unit located in the 300 Area of the Hanford Site. The 300 Area WATS is comprised of tanks, piping, equipment, and secondary containment pads and structures located in portions of the 334-A Building, the 303-F Building, the 333 Building, the 313 Building, and the 311 and 334 Tank Farms. Transfer piping between the buildings is contained in covered concrete pipe trenches. Figure 1 shows the location of the buildings and trenches. Figure 2 shows the RCRA components of the 313 Building addressed by Phase 1 closure. A complete description of the 300 Area WATS and unit processes is provided in the 300 Area WATS closure plan.

The 300 Area WATS provided tank treatment of dangerous waste acid and other compatible, nonroutine waste from other Hanford Site locations. Waste acids treated in the 300 Area WATS were generated during fuel fabrication operations in the 333 Building. Fuel fabrication process Tanks 7 and 11, which are located in the 333 Building, also were used to treat the waste acid by reducing chromium from Cr^{+6} to Cr^{+3}. From the 333 Building, waste acids were piped to the 334-A Building where they were stored temporarily in Tanks A, B, C, or Tank 4 of the 334 Tank Farm. Tank 4 in the 334 Tank Farm was removed and disposed of in 1988. The acids then were piped to the south room (also called the sludge recovery area) of the 313 Building for neutralization in Tank 2 to a pH of 10-12 by the addition of sodium hydroxide (NaOH).

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Beginning in November, 1985, solids were separated from the neutralized Tank 2 waste acid slurry through the combined use of a centrifuge and a filter press located in the sludge recovery area of the 313 Building. Solids from the centrifuge were considered waste and were drummed and transported to either the 303-K Radioactive Mixed Waste Storage Facility for storage or the 200 Area Low-Level Burial Grounds (LLBG) for disposal. Solids from the filter press were not considered waste and were drummed for offsite uranium recovery. The 313 Building effluents were pumped to Tank 40 and Tank 50 (after 1985) in the 311 Tank Farm. Waste was circulated between Tanks 40 and 50 and sometimes back to the 313 Building by pumps located in the 303-F Building. Effluent was stored in Tanks 40 and 50 until being pumped to tanker trucks for shipment to the 340-B Building and from there to the 200 Area Double-Shell Tank System.

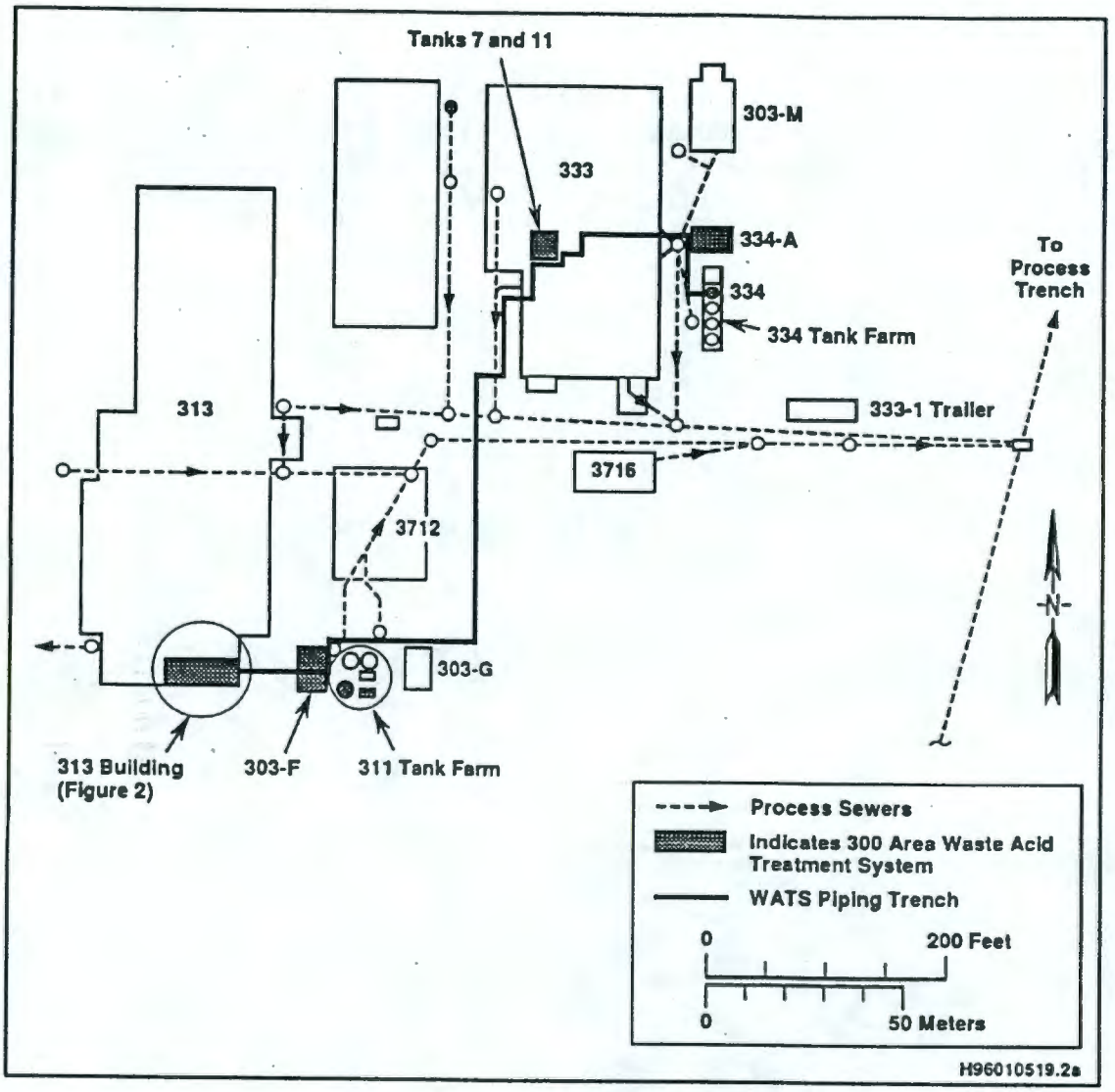
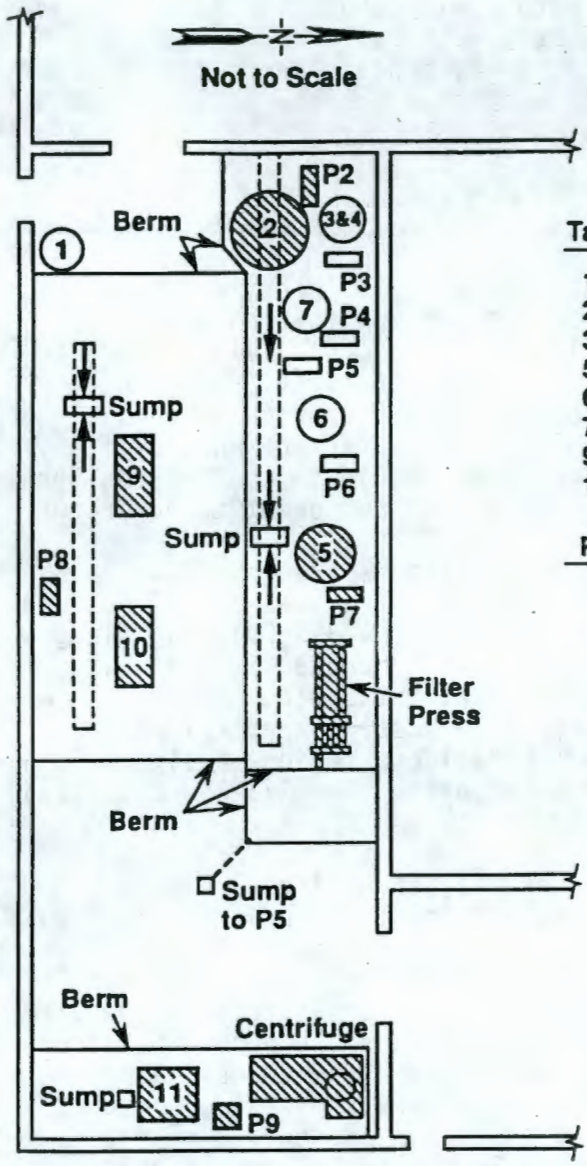


Figure 1. The 300 Area Waste Acid Treatment System.



Tank No.	Use
1	Hot Water Heat Exchanger
2	Waste Acid Neutralizer
3 and 4	Uranium-Bearing Acid Holding Tanks
5	Filter Press Feed Tank
6	NaOH Mixing Tank
7	Uranium-Bearing Acid Neutralizer
9 and 10	Filter Press Effluent Tanks
11	Centrifuge Effluent Tank

Pumps	
P2	Tank 2 Recirculation and Transfer to Centrifuge
P3	Uranium-Bearing Acid Feed to Tank 7
P4	pH Recirculation for Tank 7
P5	Transfer from Tank 7 to 6 or 5
P6	Transfer from Tank 6 to 7
P7	Transfer from Tank 5 Through Filter Press
P8	Transfer from Tanks 9 and 10 to Tank 5 or Outside Storage Tanks
P9	Transfer from Tank 11 to Tank 5 or Outside Storage Tanks

Indicates Waste Acid Treatment System Components

Figure 2. The 300 Area WATS Components of the 313 Building.

3.0 WASTE DESIGNATION AND MANAGEMENT

This section describes the designation and management of Phase 1 closure waste and debris. It identifies the waste designation process for debris components that are primarily contaminated with residues of the waste managed at the system. The designation of other closure waste will occur using a combination of process knowledge and sampling or by process knowledge alone as described in this section. Waste will be managed as described in Section 3.3 in accordance with the results of waste designation.

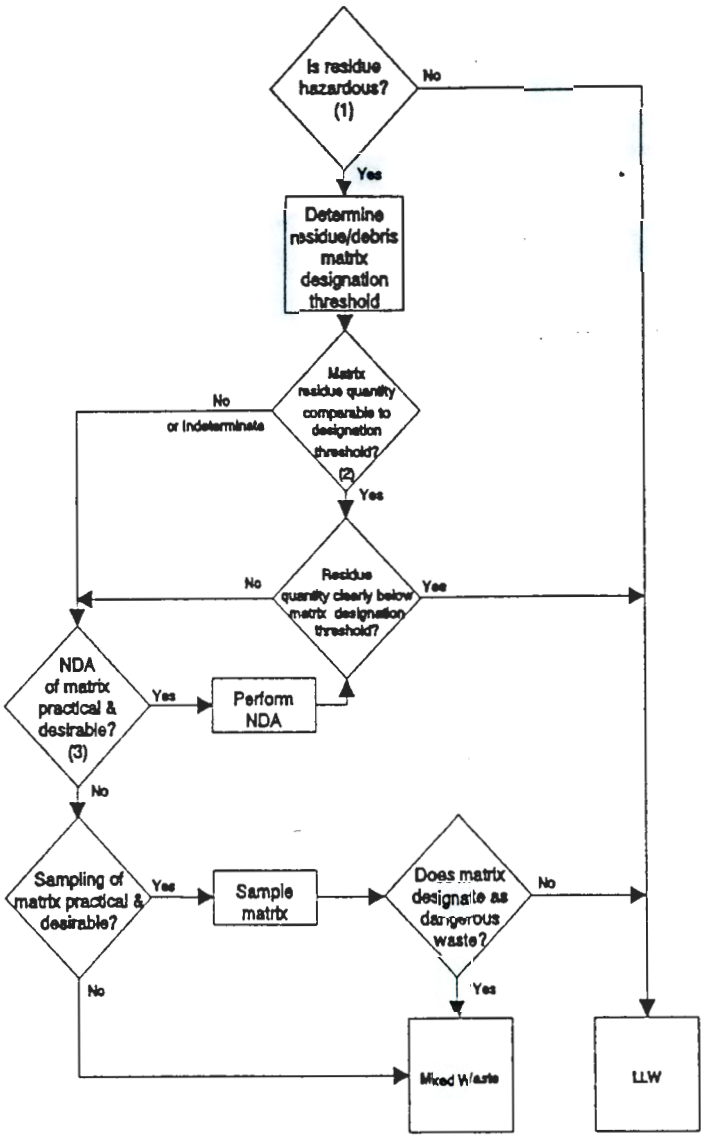
3.1 DEBRIS DESIGNATION DUE TO WASTE RESIDUES

The dangerous waste that was managed at this unit is identified in the closure plan and unit-specific Part A, Form 3, Permit Application as characteristic dangerous waste for ignitability (D001), corrosivity (D002), heavy metals (D004-D009), and for state-only toxicity criteria (WT02). The designation of Phase 1 debris contaminated by residues from this waste will follow the logic provided in Figure 3. It will first determine which, if any, of these waste codes still apply to system residues and if so, do the residues exist in sufficient quantities to designate the entire component as hazardous.

The initial determination of whether system residues are hazardous is based on Toxicity Characteristic Leachate Procedure (TCLP) analysis of residue samples taken from various 300 Area WATS tanks within the 313 Building sludge recovery area and on process knowledge regarding waste managed at the unit. This determination has been made for each portion of the system and is summarized in *The 313 Building Sludge Recovery Area Waste Characterization Report* (WCR) provided by the facility. The WCR reflects residue designation in accordance with the waste designation requirements of WAC 173-303-070(3)(a) and (5).

Where the WCR identifies residues as hazardous, it will use residue characteristics to provide a designation threshold for the debris matrix (i.e., the quantity of residues that would cause a debris matrix to designate). This designation quantity will be used by field personnel to perform a full matrix designation of debris with regard to system residues. Debris will be considered nonhazardous where the residues are nonhazardous or where hazardous residues do not exist in sufficient quantity to designate the entire matrix. Debris will designate as hazardous where the residues are hazardous and exist in sufficient quantity to designate the entire matrix. Where residue levels are indeterminate, components may either be designated and managed as mixed waste or may undergo further testing, such as nondestructive assay (NDA) or further sampling.

For waste designation purposes, the WCR divides the 300 Area WATS piping into tank subsystems. Each tank subsystem includes its primary tank and associated piping, pumps, and components. Piping system components within the subsystem will be designated in accordance with the subsystem residue characterization and designation criteria.



Notes:

1) Hazardous determination for residues based on residue sampling results.

2) Debris matrix designation begins at this point.

3) Nondestructive assay performed to determine the quantity of dangerous waste residues on component based upon the relationship of radionuclides to RCRA dangerous waste constituents in residues.

4) NDA = Nondestructive assay
LLW = Low-level waste

Figure 3. Logic Flowpath for Designation of 300 Area WATS 313 Building Debris with Respect to System Residues.

3.2 DESIGNATION OF OTHER CLOSURE WASTE

Tank level switches that contain mercury, scabble residues and debris, decontamination rags and solutions, free liquids from the system (if encountered), drainage trench grates, and, pump and equipment fluids potentially containing polychlorinated biphenyls (PCB) will be designated as described below and managed as described in Section 3.3.

Liquid level switches that will be removed from Tanks 2, 5, 9, and 10 contain elemental mercury and will be managed as low-level, mixed-waste.

Concrete scabble residue and debris and free liquids (if encountered) will be sampled upon generation and designated in accordance with the results of sampling. The containerized concrete scabble residues and acid brick debris will be designated based on the results of composite drum sampling carried out separately for each bermed area.

Pump and equipment lubricating and hydraulic oils have been removed from reservoirs and sampled for purposes of waste designation. Sample results have shown that the oils are nonregulated for polychlorinated biphenyls (PCB) but in some cases designate for heavy metals (cadmium, lead, and selenium). Consequently, these oils will be managed as mixed waste. However, the thin film of oil remaining on equipment surfaces has no potential to designate the debris matrix as hazardous.

The polyvinyl chloride (PVC) feed piping for neutralization Tank 2 in the 313 Building that will be removed during closure will automatically be designated as mixed waste due to corrosivity.

Trench grates will be composite sampled in support of waste designation after decontamination as described in Section 4.0.

Rags and solutions (if any) from decontamination of system components are planned to be worst-case designated similarly to the residue in that portion of the system. However, where practicable and cost effective, this waste may be designated using other methods (e.g., NDA, sampling) and managed accordingly.

Residues removed from any portion of a tank subsystem in which the residues designates as dangerous, will be managed as mixed waste.

3.3 WASTE MANAGEMENT

After designation as described above, hazardous debris or dangerous waste will be identified and managed with respect to packaging, transport and receiving facility acceptance, in accordance with the appropriate *waste certification summary* (WCS). The WCS is a portion of the *Waste Specification System*, WHC-EP-0846-0 (WHC 1995), that has been incorporated into *Hanford Solid Waste Acceptance Criteria*, WHC-EP-0063-4 (WHC 1993).

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The 300 Area WATS waste contained uranium and so all waste and debris will undergo radiological survey. The survey and applicable release procedures will be in accordance with the *Hanford Site Radiological Control Manual* (HSRCM-1) (DOE/RL 1995). It is anticipated that little, if any, waste will be releasable and will, at a minimum, require management as low-level waste.

Hazardous waste that exceeds radiological release limits will be managed as mixed waste and transported to Central Waste Complex (CWC) to await future treatment and disposal. Nonhazardous waste that exceeds radiological release limits will be managed as low-level waste and transported to the 200 Area LLBG for disposal.

Although not expected, hazardous but nonradioactive waste would be transported to a permitted TSD unit off of the Hanford Site for treatment or disposal. Nonhazardous, nonradioactive equipment or materials (also not expected) may be dispositioned and managed as excess equipment or recyclable scrap, as appropriate.

The final waste management method actually used will be based on the results of waste designation as described in Sections 3.1 and 3.2 and will be reported in a final closure activity evaluation report.

4.0 SCOPE OF WORK

This section identifies the removal and decontamination activities for Phase 1 partial clean closure of 300 Area WATS portions of the 313 Building. Waste designation and management referred to in this section will follow the processes described in Section 3.0 of this plan.

4.1 REMOVAL OF COMPONENTS

All RCRA tanks, tank system piping and components, and equipment in the sludge recovery room of the 313 Building will be removed as waste during Phase 1 closure. The tanks include 2, 5, 9, 10, and 11. The piping system components include Pumps 2, 7, 8, and 9, transfer piping, and associated piping system components. The equipment includes the centrifuge and the filterpress. Other miscellaneous waste materials include drainage trench gratings and miscellaneous metal support structures. Components may be removed in any order.

As an as low as reasonably achievable (ALARA) measure, loose or readily smearable residues may be damp wiped from component exteriors using a detergent-and-water solution. Field personnel will be prepared to catch, absorb, designate, and appropriately manage free liquids if found in piping or pumps.

Hazardous, or suspected hazardous, waste or debris may be accumulated or otherwise temporarily staged in nearby satellite accumulation areas (SAA) at the unit. Such waste will be kept in appropriate final or interim storage containers (e.g., storage boxes or barrels) while accumulating or awaiting waste designation. Hazardous material will then be removed from interim

storage and packaged into a permanent disposal container. Material at the SAA will then be moved to a 90-day storage area to await transport to an appropriate receiving facility. Larger items (e.g., pipe spools, pumps) may be similarly managed at the 90-day storage area and be subject to the appropriate time limitations for the 90-day storage area.

All pumps, piping, and related equipment will be removed and dispositioned similarly. Pumps will be designated, unbolted from the floor, packaged, and managed in accordance with the results of designation. Piping spools will be removed in sections that facilitate visual designation inspections and managed accordingly.

Void-filling of low-level waste burial containers is required. Void-fill material and void-filling methodology will be in accordance with *Hanford Solid Waste Acceptance Criteria*, WHC-EP-0063-4 (WHC 1993). Waste will be packaged for transport to meet the State of Washington, Department of Transportation (DOT) requirements.

Decontamination in-place of components to avoid their generation as mixed waste is not expected to be necessary in most cases. However, if such decontamination is judged to be a cost-effective means of preventing the generation of mixed waste, it will be preformed by damp-wiping using rags and a water-detergent solution to below dangerous waste designation levels. Debris that is generated as hazardous debris (i.e., hazardous when removed from the system) will not be decontaminated at the unit but will be managed as mixed waste.

4.1.1 Tank 2

Tank 2, the acid neutralization tank, will be removed and managed as waste after designation in-place. Although the chromium level in tank residues of 39 mg/L slightly exceeds the regulatory level for chromium of 5 mg/L, the quantity of residues in the tank is not expected to designate the tank as hazardous debris. Consequently, decontamination is not expected to be necessary for disposal of this tank as low-level waste. However, the liquid-level switch containing mercury will be removed and managed as mixed-waste.

Loose residues exist at the bottom of the tank. While the tank is accessible, the residues will be removed to the extent practicable as a best management practice. The currently preferred residue removal method is vacuuming using a high-efficiency particulate air (HEPA) filtered vacuum assembly. The tank may be relocated to gain access for residue removal. The removed residues will be managed as mixed-waste.

Piping will be disconnected from the tank and the connection points sealed. The tank will be cut loose from the floor supports, wrapped and/or containerized in a burial box, appropriately void-filled, and transported to the LLBG for disposal as low-level waste.

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4.1.2 Centrifuge

The centrifuge separated solids from the neutralized waste acid slurry arriving from Tank 2. The centrifuge will be removed and managed as waste following designation in-place. Sample results for the centrifuge sludge barrel represent the centrifuge residues. Although the chromium levels in centrifuge residues of 5.4 mg/L slightly exceed regulatory levels for chromium of 5 mg/L, even if the centrifuge bowl cavity were filled with residue, the quantity of residue would not be sufficient to designate the entire centrifuge as hazardous debris. Consequently, no decontamination is expected to be necessary to remove and dispose of the centrifuge as low-level waste.

However, some visible residues (crystals) exist on the centrifuge exterior creating a potential for contamination spread. To minimize this risk, the centrifuge exterior will be vacuumed or swept and then damp-wiped as necessary using rags and a detergent-water solution to remove visible loose contamination. The rags and any remaining solutions will be worst-case designated and managed as mixed waste.

The centrifuge will be unbolted from its concrete support pedestals and removed as a single unit. It will be wrapped and/or containerized in a burial box, void-filled as appropriate, and transported to the LLBG for disposal as low-level waste.

4.1.3 Tank 11

Tank 11 stored the neutralized effluent after solids removal by the centrifuge. Tank 11 will be removed and managed as waste after designation in-place. Tank 11 residues only slightly exceed the 5 mg/L regulatory level for chromium at 8.68 mg/L. Virtually all of the visible, potentially designating residues were removed from the tank for the sample. A residue film could exist between the interior plastic tank lining and the metal tank shell due to a lining leak. However, this potential quantity and along with the quantity of tightly adhered visible trace residues on the tank's interior are not expected to designate the entire tank as hazardous debris. Consequently, no decontamination is planned prior to tank removal and disposal as low-level waste. Tank 11 liquid level monitors do not contain mercury and are not hazardous waste.

Piping will be disconnected and the connection points sealed as necessary. The tank will then be unbolted from the floor, void-filled as necessary, packaged, and transported to the LLBG for disposal as low-level waste.

4.1.4 Tank 5

Tank 5, the filterpress feed tank, will be removed and managed as low-level waste. Tank 5 contained neutralized 300 Area WATS effluent from the centrifuge and neutralized Uranium-Bearing sludge. Tank 5 is nonhazardous based on the results of TCLP sampling performed on tank residues identifying them as radioactive but nonhazardous. The piping and associated system components, including the tank mixer, are also nonhazardous and will be

managed as low-level waste. However, the tank liquid-level switch containing mercury will be removed and managed as mixed waste. The tank mixer contained no oil or grease and will be removed and managed as low-level waste.

Piping will be disconnected from the tank and the connection points sealed as appropriate. It will be appropriately containerized, void-filled, and transported to the LLBG for disposal as low-level waste.

4.1.5 Filterpress

The filterpress removed remaining fines and solids from the neutralized, centrifuged effluent. The filterpress will be removed and managed as low-level waste based on the results of waste designation sampling of upstream Tank 5 showing residues to be nonhazardous. The filterpress frames containing the same nonhazardous residues will be hoisted from the filterpress, packaged, and transported separately to the LLBG for disposal.

Piping connected to the filterpress will be disconnected. The filterpress will be unbolted from its concrete support pedestals, packaged, and transported to the LLBG for disposal as low-level waste.

4.1.6 Tanks 9 and 10

Tanks 9 and 10 are identical in construction and both provided temporary storage of neutralized, filtered effluent from the filterpress. These tanks will both be removed and managed as low-level waste based on the results of TCLP sampling of Tank 5 residues. Further, TCLP sampling of each tank's insulation has also identified the sampled portion as radioactive but nonhazardous.

The liquid-level switch containing mercury will be removed and managed as mixed-waste. The tanks will have feed and exit piping disconnected. The tanks will be unbolted from the floor, filled with the tank covers, piping, or any low-level waste that will fit inside the tanks, containerized, appropriately void-filled, and transported to the LLBG for disposal as low-level waste.

4.2 DECONTAMINATION OF BUILDING AND CONTAINMENT SURFACES

The 313 Building and secondary containment structures will remain after Phase 1 closure and will be clean closed. The concrete and metal surfaces potentially contaminated by RCRA operations are the portions of the floor and wall identified in Figure 4. The concrete surfaces include the floor, the support pedestals of the filterpress and centrifuge, three concreted sumps, and portions of the concrete block (cinderblock) building wall. The metal surfaces are the metal liners for each of the two drainage trenches.

Decontamination of these surfaces will consist of 2 steps. The first step for both the concrete and metal surfaces will be sweeping or vacuuming to remove loose contamination. For concrete surfaces, the second step will be

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scabbling. For the metal surfaces, the second step will be handwashing. The final step for each surface is intended to meet the clean closure standard of a 'clean debris surface.'

4.2.1 Decontamination by Scabbling

The concrete floor, berms, and walls shown in Figure 4 will be decontaminated to a 'clean debris surface' by scabbling off at least .6 centimeter (1/4 inch) of the potentially contaminated surface layer. These areas include the lower 15 centimeters (6 inches) of the walls within the bermed areas and an area of the west wall. The west wall area near Tank 2 is approximately 1.2 meters (4 feet) wide starting at the floor and extends upward to the height of the block wall approximately 2.4 meters (8 feet).

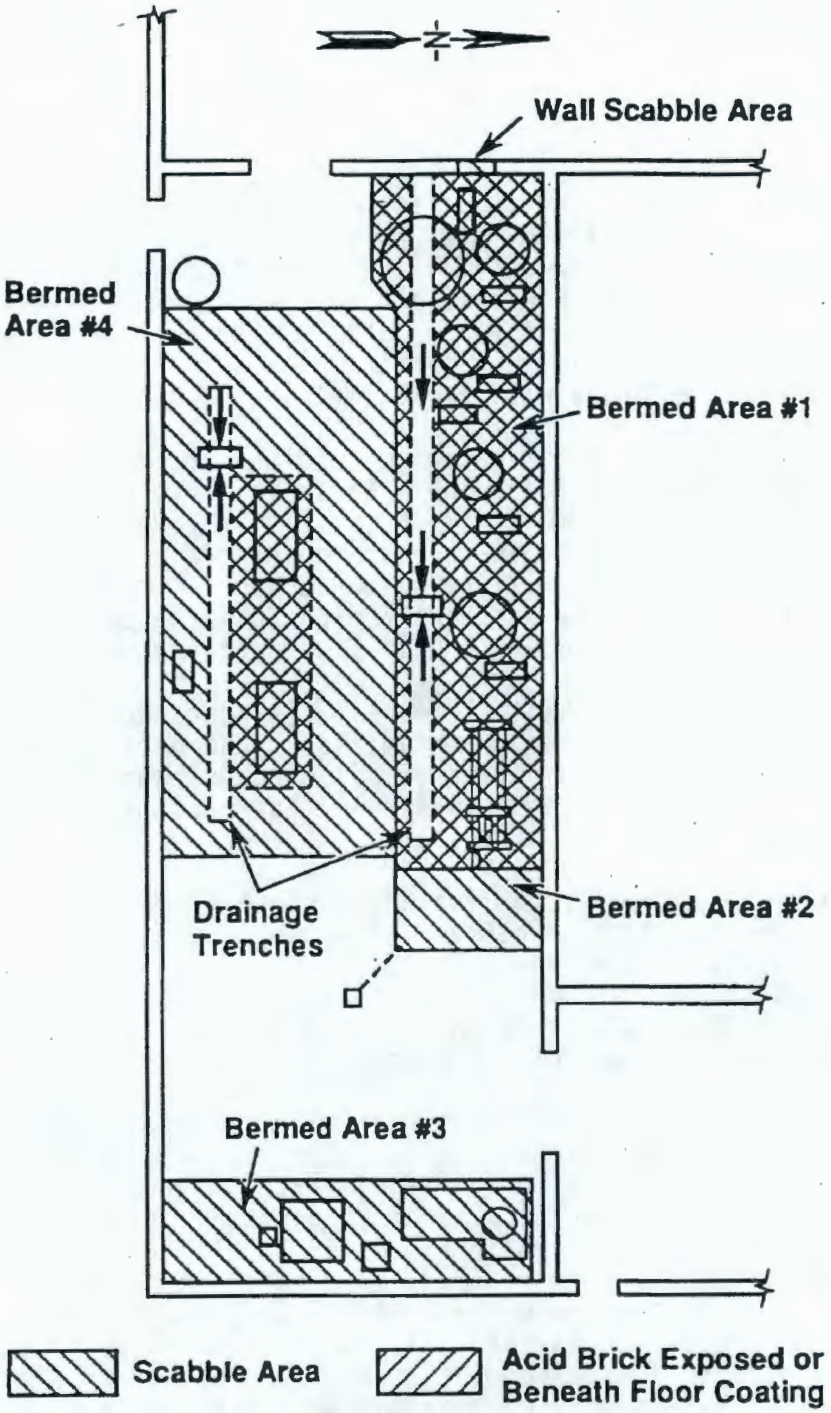
The parameters of this decontamination method are identified in Figure 5, *Waste and Residue Removal and Verification - Concrete*, that will be used to document the decontamination. Removal of .6 centimeter (1/4 inch) of the concrete surface will be ensured by in-process measurements during scabbling. The depth of removal by scabbling will be measured every two linear feet of operation. The field logbook will document the performance of in-process depth measurements but need not document individual measurements.

The scabbling will be by mechanical means. Air-operated grit or shot blasting equipment will be used along with smaller, hand held air-tools, such as a needle gun, for hard to reach places (e.g., corners, sumps). All equipment will use a HEPA filter vacuum assembly that vacuums residues as generated and deposits them into a barrel.

As a waste minimization step, the two north-south berms outlining Bermed Area 4 will remain in-place after closure. Although, these berms were installed after the start of RCRA operations, the floor beneath them was prepared by sandblasting and only minimal (if any) contamination from RCRA operations could reasonably exist beneath them. Not removing these berms will eliminate the generation of 4 barrels of waste.

Except at Bermed Area 4, acid [resistent] brick is located beneath floor coatings that predate RCRA operations. These floor coatings would preclude contamination of acid brick from RCRA operations except where the acid brick is visible or beneath coating cracks or areas of general coating failure. The areas of visible acid brick are shown in Figure 6. Small surface cracks are not identified. After equipment is removed, acid brick removal areas will be marked on the floor. These areas and the areas of acid brick identified in Figure 6 will be removed down to the original concrete surface. The brick and mortar will be jackhammered loose from the floor. The work area will be kept moist to minimize dust. The debris will be shoveled into barrels and any remaining residues vacuumed. As discussed in the closure plan, acid brick removal will constitute removal of .6 centimeter (1/4 inch) of the floor surface. The floor beneath the acid brick will only be scabbled where necessary to achieve a 'clean debris surface.'

1



2 Figure 4. Plan View 313 Uranium Recovery Room Scabble Area.

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WASTE AND RESIDUE REMOVAL VERIFICATION
300 Area Waste Acid Treatment System

This documents decontamination and 'clean debris surface' verification inspections for the following components, structures and/or materials.

1. TSD Unit: 300 Area Waste Acid Treatment System

2. Building/location: 313 Building - Sludge Recovery Room

3. Component(s)/Area(s): Floors and Cinderblock Walls

4. Material (e.g., concrete, metal, plastic): Concrete

5. Decontamination:

A. Method[1] (NA if no decontamination performed): Scabbling

B. Parameters (Check appropriate parameters):

[ ]	NA if no decontamination performed	
[ ]	Temperature	
[x]	Propellant	Compressed air
[x]	Solid Media (e.g., shot, grit, beads)	Steel shot and/or grit
[ ]	Pressure	
[ ]	Residence time	
[ ]	Surfactant(s)	
[ ]	Detergents	
[x]	Grinding/striking media (e.g., wheels, piston heads)	Steel rods, Jackhammer
[x]	Depth of surface layer removal (cm)	.6 cm
[ ]	Other	

C. The decontamination of the components/areas/materials identified in steps 1 - 4 was completed as specified in step 5.

_____ / _____
Signature Date

6. Verification of Performance Standard: The above identified components, areas, and/or materials have been visually inspected and have attained a clean debris surface[2].

Authorized Representative: _____ / _____
Signature Date

Notes:
1. Although not mandatary, decontamination may use a physical extraction method from Table 1, Alternative Treatment Standards for Hazardous Debris (40 CFR 268.45).
2. Definition of "clean debris surface' from Table 1, Alternative Treatment Standards for Hazardous Debris (40 CFR 268.45): "'Clean debris surface' means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous 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."

Figure 5. Waste and Residue Removal Verification - Concrete.

The scabbled concrete floor and the acid brick removal area will be inspected for a 'clean debris surface' as defined in Section 5.0. Where initial removal of .6 centimeter (1/4 inch) does not meet clean debris surface standards, more material may be removed to meet the standard. If the Field Team Leader determines that decontamination standards can not be met, work will stop, Ecology will be notified, and a new decontamination plan will be developed before decontamination restarts. Scabbling residues will be designated and managed as low-level or mixed waste in accordance with the results of waste designation sampling.

After scabbling, the floor will be reinspected for cracks and visible construction joints or seams as possible contaminant pathways for effluent spills. The information will be compared to Figure 6 to reverify the continued presence of already identified openings. It will also identify any new openings exposed during treatment as potential non-WATS contaminant contributors to soil. The information will be entered into the field logbook and used to assist future characterization and RCRA closure of 313 Building subfloor soils.

4.2.2 Drainage Trench Decontamination

The two drainage trenches identified in Figure 4 are each lined with an impervious stainless steel liner that predates 300 Area WATS operations. The trench liners will be decontaminated to a 'clean debris surface' first by sweeping or vacuuming and then by damp-wipe hand washing using rags and a detergent-water solution. An acceptable detergent would be Built[1] Laundry Detergent or equivalent cleaner. The equivalent cleaner will be listed in the field logbook. The parameters of this decontamination are identified in Figure 7, *Waste and Residue Removal Verification - Metal*, that will be used to document the decontamination. The liners will be inspected to verify achievement of a 'clean debris surface' as described in Section 5.0.

The drainage trenches are currently covered with cast iron gratings that will be removed during closure as debris. They will be decontaminated in the same manner as the trench liners, designated, and managed as low-level or mixed-waste in accordance with the results of waste designation.

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[1]Built is a trademark of Klix Corporation, San Francisco, California.

1

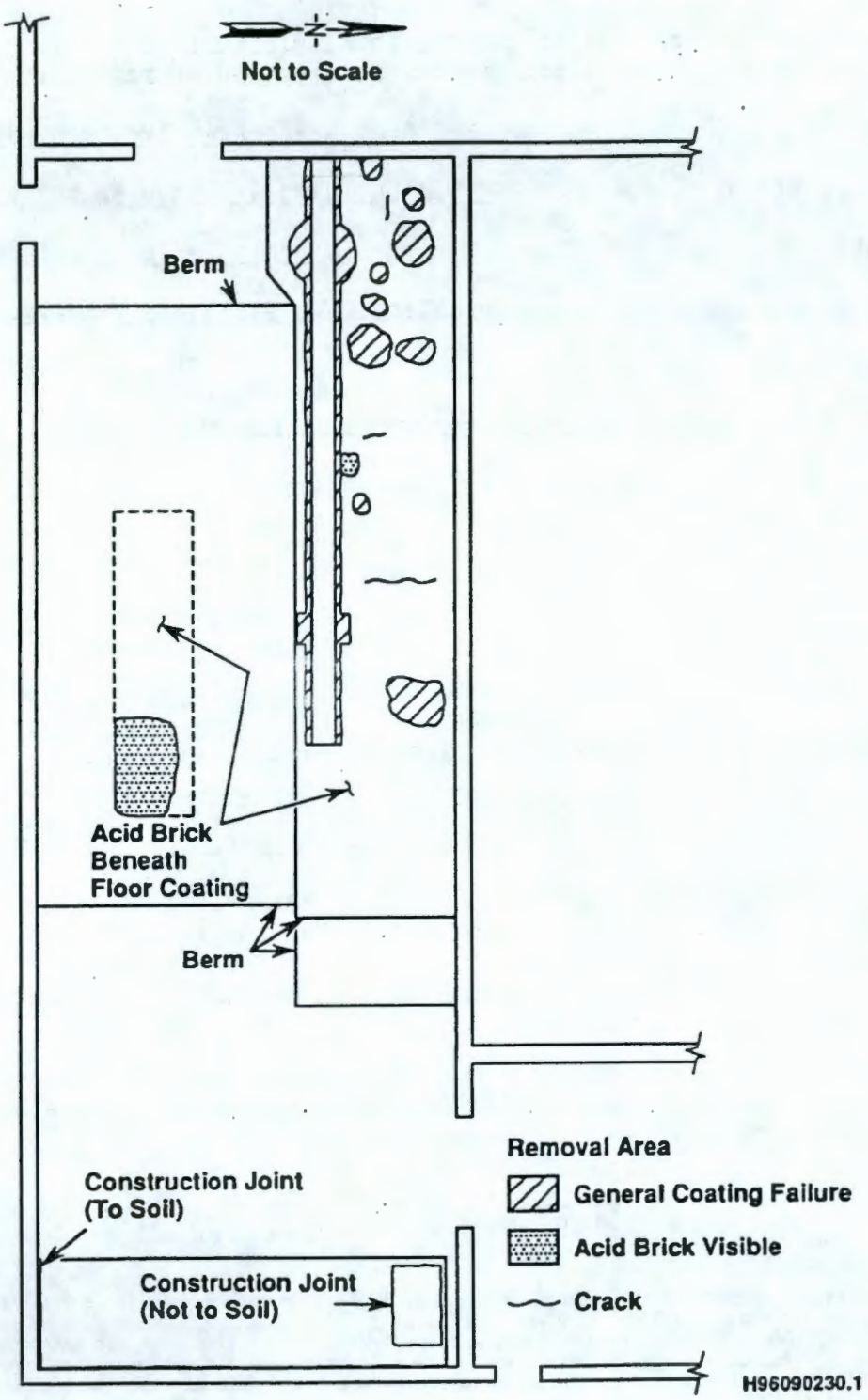

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Figure 6. Cracks and Exposed Acid Brick of the 313 Uranium Recovery Room.

WASTE AND RESIDUE REMOVAL VERIFICATION
300 Area Waste Acid Treatment System

This documents decontamination and 'clean debris surface' verification inspections for the following components, structures and/or materials.

1. TSD Unit: 300 Area Waste Acid Treatment System

2. Building/location: 313 Building - Sludge Recovery Room

3. Component(s)/Area(s): Drainage Trench Liners

4. Material (e.g., concrete, metal, plastic): Stainless steel

5. Decontamination:

   A. Method[1] (NA here if no decontamination performed): Hand washing

   B. Parameters (Check appropriate parameters):

   [ ] Temperature _____
   [ ] Propellant _____
   [ ] Solid Media (e.g., shot, grit, beads) _____
   [ ] Pressure _____
   [ ] Residence time _____
   [ ] Surfactant(s) _____
   [x] Detergents "Built" detergent or equivalent cleaner
   [ ] Grinding/striking media (e.g., wheels, piston heads) _____
   [ ] Depth of surface layer removal (cm) _____
   [x] Other Applicators (e.g., rags)

   C. The decontamination of the components/areas/materials identified in steps 1 - 4 was completed as specified in step 5.

   _____ / _____
   Signature Date

6. Verification of Performance Standard: The above identified components, areas, and/or materials have been visually inspected and have attained a clean debris surface[2].

Authorized Representative: _____ / _____
Signature Date

Notes:
1. Although not mandatary, decontamination may use a physical extraction method from Table 1, Alternative Treatment Standards for Hazardous Debris (40 CFR 268.45).
2. Definition of "clean debris surface' from Table 1, Alternative Treatment Standards for Hazardous Debris (40 CFR 268.45): "'Clean debris surface' means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous 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."

Figure 7. Waste and Residue Removal Verification - Metal.

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5.0 DECONTAMINATION VERIFICATION

This section identifies the inspections necessary to verify that decontamination of building and secondary containment structures has achieved a 'clean debris surface.'

5.1 'Clean Debris Surface' Verification Inspections

Decontamination verification will be by means of visual inspections. After floor, wall, and drainage trench decontamination as described in Section 4.0, the assigned Field Team Leader or other facility representative will inspect the decontaminated surfaces to verify achievement of a 'clean debris surface.' A 'clean debris surface' is defined by 40 Code of Federal Regulations (CFR) 268.45, Table I (the Debris Rule) as follows:

> "'Clean debris surface' means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous 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."

The 'clean debris surface' verification inspections will be documented on the Waste and Residue Removal Verification form (Figure 7) used to document decontamination.

Although not expected in this phase of closure, any materials meeting the 'clean debris surface' standard without decontamination can be clean closed as-is based on Ecology acceptance of a signed verification form similar to Figures 6 or 7.

6.0 REFERENCES

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