ADDENDUM H

CLOSURE PLAN

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Glossary

Component The term ‘component” is used synonymously with ancillary equipment. "Ancillary equipment" means any device including, but not limited to, such devices as piping, fittings, flanges, valves, and pumps, that is used to distribute, meter, or control the flow of dangerous waste from its point of generation to a storage or treatment tank(s), between dangerous waste storage and treatment tanks to a point of disposal on-site, or to a point of shipment for disposal off-site [WAC 173-303-040].

Interim closure The term “Interim Closure” is used to define activities which would be employed on a case-by-case basis to remove waste from and/or decontaminate DST system components in a manner that minimizes or eliminates escape of dangerous waste constituents to the environment.

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H CLOSURE

This addendum describes the planned activities and performance standards for closing the DST System. Final closure will begin when the DST System, 242-A Evaporator, and 222-S Complex complete their mission of supporting SST tank system retrieval, closure, and WTP waste feed. The DST System includes the double-shell tank systems and the 204-AR Waste Unloading Station. This closure plan also describes interim closure for DST System components identified as unfit for use/no longer required. Known releases from the DST System are described in Appendix 1.

Viability of clean closure may not be achievable. If clean closure cannot be achieved, an amended closure plan in accordance with WAC 173-303-610(3) and WAC 173-303-830 will be submitted to Ecology. The U.S. Department of Energy (USDOE) may request the director to apply alternative requirements under WAC 173-303-610(3)(1)(d), WAC 173-303-645(1)(e), or WAC 173-303-665 for landfill closure.

H.1. Closure Plan for the DST System

The DST System shall be clean closed with respect to dangerous waste contamination that resulted from operation as a TSD unit. Closure activities for the DST System can be grouped into five functional areas, corresponding to the following five elements of the DST System: tanks, ancillary equipment and piping, concrete floors/liners, structures, and underlying soil. Only dangerous waste management units that have treated, or stored dangerous/mixed waste, or have been affected by releases of dangerous waste or dangerous constituents from these units, are subject to the closure requirements of this Addendum.

Remedial actions will be taken for contamination resulting from treatment and storage. Areas of contamination resulting from prior storage and treatment of dangerous/mixed waste will be closed by removal or decontamination in conjunction with the dangerous waste management units.

Contaminated equipment, tanks, and piping removed from the DST System will be considered "debris" as defined in WAC 173-303-040. Debris will be transported to an appropriate on-site dangerous waste management unit or a permitted off-site facility for final disposition. Uncontaminated structures will be left for future use or disassembled, dismantled, and removed for disposal. To minimize radiation (rad) exposure during closure, pipes located outside the DST System may be closed simultaneously with piping for the DST System.

To clean close the DST System, it will be demonstrated that dangerous waste has not been left on-site at levels above the closure performance standard for removal and decontamination. Regulations and laws will be reviewed periodically and the closure plan modified as necessary. If it is determined that clean closure is not possible, the closure plan will be modified to address required post-closure activities.

Closure of dangerous waste management units in conjunction with DSTs, such as the 204-AR Waste Unloading Station (WUS) will include meeting tank standards WAC 173-303-640(8) as well as treatment decontamination standards for debris and contaminated equipment. DOE proposes partial closure of these types of units. The following closure steps will be performed as necessary.

Clean closure will require decontamination or removal and disposal of dangerous waste within the limits of technology, waste residues, contaminated equipment, soil, or other material established in accordance with the clean closure performance standards of WAC 173-303-610(2). This and future closure plan revisions shall provide for compliance with the required clean closure performance standards. All work shall be performed according to minimize worker exposure to dangerous and/or any other workplace hazards. Activities that are planned to achieve closure are presented in the following sections.

- Liquid waste removal from the storage process tank. All remaining tank waste will be removed,, treated and disposed of in accordance with Land Disposal Restriction (LDR) requirements (40 CFR 268 and incorporated by reference by WAC-173-303-140). Complete removal of the tanks is not necessarily a viable option given their locations without removal of the buildings, at this time.

- Equipment decontamination and removal. All contaminated equipment will be handled pursuant to the contaminated equipment policy (DOE/RL 95 PCA 337) or equivalent procedures. All equipment will either be designated for reuse or decontaminated, treated, and packaged for disposal pursuant to LDR Standards.
- Soil sampling beneath pads may be required if documentation indicates a need, or dependent upon spill history, if there is evidence of a spill.

If clean closure cannot be achieved, the closure plan will be modified in accordance with WAC 173-303-640(8)(b) and WAC 173-303-830.

H.2. Closure Performance Standard

Closure performance standards for the DST System dangerous waste management units are established in this closure plan pursuant to WAC 173-303-610(2) and WAC 173-303-640 to achieve a clean debris surface for equipment and structures contaminated by or affected by releases of dangerous waste and/or dangerous constituents. Specifics of how the debris rule extraction technologies are applied to each of the DST closure components identified in Addendum H, are documented below.

This closure plan proposes to leave clean structures and equipment in place after closure. Any changes to closure requirements that result will be reflected in this closure plan through the permit modification process in WAC 173-303-830.

Closure by removal or decontamination as provided for in this plan based on the requirements of WAC 173-303-610(2), will eliminate future maintenance and will be protective of human health and the environment by removing or reducing chemical contamination at the DST System to levels that are below concern with respect to human health and the environment.

This closure plan proposes use of a 'clean debris surface' (defined below) as the clean closure performance standard for the metal surfaces, and concrete that will remain after closure. This approach is consistent with Guidance for Clean Closure of Dangerous Waste Units and Facilities (Ecology Publication #94-111, May 2005) for achievement of clean closure.

Clean closure decontamination standards for structures, equipment, bases, liners, etc., will be those specified for hazardous debris in 40 CFR 268.45, Table 1. The 'clean debris surface' will be the performance standard for metal and concrete surfaces. This standard is consistent with Ecology guidance (Publication #94-111, May 2005) for achieving clean closure. Attainment of a 'clean debris surface' will be verified by a visual inspection in accordance with the standard that states:

"A clean debris surface means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except 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 percent of each square inch of surface area. WAC-173-303-140 *adopted by reference from* 40 CFR 268*.45, Table 1".*

Where it is possible to inspect visually and directly beneath the tanks, a visual inspection will be performed. Where it is not possible to inspect visually beneath the tanks, an evaluation of the tank integrity will be made. The condition of the tank will be evaluated to determine if there was any potential for leakage. If no cracks, severe corrosion, or evidence of leaks is observed, it will be reasoned that mixed or dangerous waste solutions could not have penetrated to the soil directly below the tank.

Some unit equipment such as pumps, filters, and pipes may not be sufficiently visible for in-place contamination evaluation and waste designation. To meet the clean debris surface standard, equipment that cannot be designated in-place will be removed and then designated. If the clean performance standard cannot be met, an alternative approach will be proposed at the time of closure. Any waste disposed of during closure activities will meet the waste acceptance criteria for the accepting facility.

H.2.1 Closure Standards for Tanks

Using water or other decontamination solutions, the DST and 204-AR tanks approximately 2,000 gallons or less shall be flushed and decontaminated. The rinsate shall be sampled and analyzed. Results of the analysis with less than designation limits for the constituents of concern shall be accepted as indicating that the tanks are clean with respect to dangerous waste residues. An alternative to decontaminating the tanks is to remove and dispose of the tanks accordingly. Any waste disposed of during closure activities will meet the waste acceptance criteria for the accepting facility.

For tanks greater than 2,000 gallons, the waste will be treated at the Waste Treatment Plant (WTP), Operating Unit Group #10, by vitrification. Waste will be placed into a safe and stable waste form, (e.g., glass by vitrification at WTP) as glass, and will be placed into storage either on-site, or at an alternative permitted facility. It is anticipated that the larger tanks will be emptied of allwaste according to the best available technology and decontaminated in accordance with WAC 173-303-640(8)(a).

H.2.2 Closure Standards for Piping and Ancillary Equipment

All tank system ancillary equipment subject to closure requirements shall be drained and flushed as part of closure. For piping or equipment where the contaminated surfaces can be inspected, an inspection will be performed to see if the piping meets the clean debris surface standard in 40 CFR 268.45 incorporated by reference and can be declared non-dangerous in accordance with WAC 173-303-071(3)(qq). If it is not possible to inspect the contaminated surfaces to meet the clean debris surface performance standard, the particular ancillary equipment may be removed, designated, and disposed of accordingly to achieve clean closure.

The internal and/or external piping of the DST System will be flushed and drained as part of closure. When practical, ancillary equipment, which has contacted dangerous waste shall also be flushed and drained. For ancillary equipment where the contaminated surfaces can be inspected, an inspection will be performed to determine if the piping meets the clean debris surface standard in 40 CFR 268.45 incorporated by reference by WAC 173-303-071(3)(qq). If it is not possible to inspect the contaminated surfaces or meet the clean debris surface performance standard, the particular piping of concern may be removed, designated, and disposed of accordingly to achieve closure.

Dangerous and/or mixed-waste materials generated during closure activities will be managed in accordance with WAC 173-303-610(5). Removal of any dangerous wastes or dangerous constituents during partial or final closure will be handled in accordance with applicable requirements of WAC 173-303-610.

H.2.3 Closure Standards for Concrete and Structures

This closure plan proposes “clean debris surface” as the clean closure performance standard for concrete and structures that will remain after closure. This approach is consistent with Ecology guidance (Publication #94-111, Ecology 2005) for achievement of clean closure.

H.2.4 Closure Standards for Underlying Soils

Clean closure of soil under buildings and structures will be accomplished by verifying that the coated concrete floor and stainless steel liners serving as secondary containment for dangerous waste management units were effective in preventing migration of any dangerous waste or dangerous constituents from DST System dangerous waste management units from reaching the soil. The coated concrete and liners provided secondary containment for all the tanks, process piping, and ancillary equipment within any buildings and structures. This verification will consist of several key steps as follows:

- Review inspection records in the DST System section of the Hanford Facility Operating Record, DST System file, to evaluate the significance of any cracks or conditions that may previously have compromised the integrity of the floor or liners.

- Inspect all coated floors and stainless steel liners serving as secondary containment for DST System, (including 204-AR) dangerous waste management units for the presence of through-thickness cracks or other conditions that might compromise integrity of the floor or liners.
- Inspection of the DST annulus lower mat (refractory concrete and flow channels) will not be possible. However, it may be possible to get a small camera and crawler into some of the flow channels. Many have debris from construction and in some cases, there is a steel lip at the entrance to the flow channel that would prevent entry. If it is not possible to use a camera and crawler, consideration of ways to obtain a sample from beneath the DSTs will be investigated and addressed.
- Review records of any spills and the corresponding spill cleanup reports associated with the DST System dangerous waste management units to ensure that any cleanup was sufficient to satisfy the closure performance standard documented in Addendum H.2.

Unless inspections at the time of closure, or the results of inspections are documented in the Hanford Facility Operating Record, DST System file, identify potential through-thickness cracks indicating containment failure and a subsequent potential for soil contamination from TSD unit operations, the soil will be considered clean closed. However, if inspections identify such cracks, and there have been documented spills in the vicinity or that were not cleaned up in a manner consistent with the closure performance standard of Addendum H.2, potential soil contamination will be investigated. This circumstance will be considered an unexpected event during closure, which will require that the Permittees seek appropriate modification of this Closure Plan, pursuant to Permit Condition II.J.2. This modification will contain any necessary sampling and analysis requirements, soil remediation requirements, and revised establish closure performance standards and verification requirements needed to fulfill WAC 173-303-610(2).

If there is no evidence of leaks from the DST tanks, the soil will be considered clean and no further actions will be required.

H.2.5 Constituents of Concern for Closure for the DST Systems

Sampling and analysis is not expected to be necessary as a means of demonstrating compliance with the closure performance standards in Addendum H, Closure Plan, Section H.2, since the performance standards are based on application of a specified method of treatment (the debris rule treatment standards in 40 CFR 268.45, incorporated by reference by WAC 173-303-140), not a concentration-based standard and further, soil contamination is not anticipated. Therefore, it is not necessary to establish constituents of concern for purposes of closure verification.

H.3. Closure Activities

At the time of closure, this closure plan will be modified as necessary to reflect current regulations and information. If it is determined that clean closure is not possible, the closure plan will be modified to address required post-closure activities. [WAC 173-303-640(8)(b)] The Hanford Facility Operating Record, DST System File, will be reviewed to identify any previous spills and releases that occurred at the DST System. The review will also verify that the cleanup of spills was performed and satisfied the closure performance standards at the time of the cleanup.

H.3.1 General Closure Activities

Closure of the DST System may include the following:

- Document review to determine spill history
- Removal of waste from tanks
- Process equipment decontamination and/or removal
- Structure decontamination and/or removal
- Designation of wastes generated during closure

- Obtain independent registered professional engineer certification that closure activities were completed in accordance with the approved closure plan (to include any approved permit modifications).

Equipment or materials (personnel protective equipment (PPE), steam cleaners, etc.) used in performing closure activities will be managed under the generator and generator accumulation standards of WAC 173-303-170 and WAC 173-303-200, respectively. However, if an area is controlled for rad contamination only, the PPE may only be rad and will not be subject to the Dangerous Waste Regulations.

H.3.2 Removing Dangerous Waste

As the first step in the closure process, all of the waste inventory at the DST System will be processed or removed and transferred to appropriate on-site dangerous waste management units or a permitted off-site TSD facility. At completion of closure, no waste will remain in the DST System. Residue remaining in process lines and equipment will be removed during decontamination as necessary to achieve a clean debris surface. Equipment used in performing closure activities may be decontaminated as necessary to meet the closure performance standard for equipment in Section H.2. Equipment that is not or cannot be decontaminated, as well as materials used in performing closure activities, will be disposed at an on-site TSD facility or an off-site permitted facility.

H.3.3 Decontaminating Structures, Equipment, and Soils

Before closure activities begin, all waste inventories will be removed. . Final decisions on whether to decontaminate, or remove and dispose of individual DST System components will be made at the time of closure. The method of decontamination used will depend on the nature of the structure and the extent and type of contamination. Decontamination methods might include wiping, washing, brushing, or scrubbing, and rinsing with water or other appropriate media.

Decontamination procedures will address minimization of decontamination waste, measures to contain and collect such waste. Decontamination waste will be designated in accordance with WAC 173-303-070 through -100 and managed appropriately. It is expected that most process equipment can be successfully decontaminated, and the need to remove and dispose of process equipment will be infrequent. Clean closure of the soil will be accomplished by demonstrating that the concrete/liners kept contaminants from reaching the soil, and that the underground storage tanks maintain their integrity.

H.3.4 Tanks

At the start of the closure process, waste will be removed from the interior of the tanks, including the internal components such as the process condensate agitator. Both interior and exterior tanks surfaces will be decontaminated by flushing or spraying with steam, a water-soluble cleaner, or other technology which has been approved for use by Ecology pursuant to 40 CFR 268.42(b), incorporated by reference by WAC 173-303-140, or removed as debris and disposed appropriately. Inspection of the secondary containment integrity prior to the exterior tank decontamination will be conducted to avoid the spreading of any potential contamination by the wash water.

Once water washing or other chemical or physical extraction technology has been applied, the tanks will be inspected visually, both internally and externally (for above ground tanks only), for compliance with the clean debris surface standard (40 CFR 268.45, Table 1, Extraction Technologies). If any areas fail to meet the clean debris surface performance standard, these areas will undergo additional decontamination in place through application of one or more debris rule treatment technologies other than water washing and spraying. Per the debris rule, only removal of contaminants from the surface layer is necessary for metal surfaces.

Before using decontamination solutions on the outside of the above ground tanks in buildings (e.g., 204-AR), the coated concrete floor or stainless steel liner will be inspected for cracks or other openings that could provide a pathway to soil. This inspection will be performed as described in Addendum H, of this closure plan along with mapping of potential through-thickness cracks. The cracks will be sealed before beginning decontamination, or other engineered containment devices (e.g., collection basins) will be used to collect and contain solutions.

H.3.4.1 Underground DST System Tanks

DST System tanks that are underground will have all waste removed and will be visually verified through alternative devices (e.g., electronic cameras and pictures) to ensure waste inside the tank has been removed.

Where it is possible to inspect visually and directly beneath the tanks, a visual inspection will be performed. Where it is not possible to inspect visually beneath the tanks, an evaluation of the tank integrity will be made. The condition of the tank will be evaluated to determine if there was any potential for leakage. If no cracks, severe corrosion, or evidence of leaks is observed, it will be reasoned that mixed or dangerous waste solutions could not have penetrated to the soil directly below the tank.

Once waste is documented to have been removed, the documentation will be placed into the Hanford Facility Operating Record, DST System File. A closure certification will then be submitted to Ecology.

H.3.4.2 DST System Tanks in Buildings and Structures (e.g., 204-AR)

DST System tanks in buildings and structures such as the 204-AR will be decontaminated using high-pressure steam, and water sprays along with hand water washing, and/or other decontamination solutions. The outside of the tanks and structures will be washed with surfactants, and will ensure that the surfaces are in contact with the water solution at least 15 minutes to remove hazardous contaminants from debris surfaces and surface pores or to remove contaminated debris surface layers. A visual inspection will be performed to verify cleanliness for a clean debris surface in accordance with Table 1, (40 CFR 268.45, Table 1, Extraction Technologies) of the EPA Clean Closure Guidance. If it is not possible to meet the closure by removal or decontamination (clean closure) performance standard, contaminated portions of the tanks could be removed, designated, and disposed of in accordance with 40 CFR 268, incorporated by reference by WAC 173-303-140, as appropriate.

H.3.4.3 Decontamination Waste

Decontamination waste will be generated as a result of decontamination activities. Decontamination waste may include but not be limited to the following: contaminated rags, and decontamination residue (liquids and solvents used in the decontamination process). This waste will be collected, designated, and managed in accordance with the generator and generator accumulation standards of WAC 173-303-170 and WAC 173-303-200. The inspections for a clean debris surface will be documented on an inspection record and placed in the Hanford Facility Operating Record, DST System file, in accordance with WAC 173-303-380.

H.3.5 Internal and/or External Ancillary Equipment

The DST ancillary equipment will be thoroughly flushed corresponding to application of the debris rule *Water Washing and Spraying* chemical extraction technology. Flushing will remove any remaining liquid and soluble waste residuals. After flushing, all metal tank system ancillary equipment surfaces subject to closure performance standards will be inspected as necessary to demonstrate that rinsing has satisfied the "Clean debris surface" performance and/or design and operating standard for the water washing and spraying debris rule technology.

Tank surfaces that cannot be decontaminated as necessary to achieve a clean debris surface using water washing may be subjected to one or more additional debris rule treatment technologies such as abrasive blasting or high-pressure steam and water sprays. If it is not possible to meet the clean debris surface

standard or a particular piece of ancillary equipment cannot be inspected, the equipment may be removed, designated, and disposed of accordingly to meet clean closure performance standards.

External piping (transfer lines) and ancillary equipment consists of below grade and above grade piping. Below grade piping will be dispositioned at closure by removal, designation and disposal in accordance with WAC 173-303-610(5) and 40 CFR 268. For above grade piping, it will be dispositioned consistent with the provisions for internal piping. Decontamination will be by flushing and inspection to clean debris surface standards.

Rinsate from the external piping and internal piping shall be processed through the Effluent Treatment Facility (ETF), or another process/facility. Additional information regarding the process for rinsing any internal and external piping and ancillary equipment will be provided in the closure plan in accordance with WAC 173-303-610(3)(a)(v) upon modification. Dangerous and/or mixed-waste generated during closure activities will be managed in accordance with WAC 173-303-610(5). Removal of any dangerous wastes or dangerous constituents during closure of some or all of the DST/204-AR dangerous waste management units will be handled in accordance with applicable requirements of WAC 173-303-610(5).

H.3.6 Concrete/Liner

All concrete and liners shall be inspected visually before any decontamination. The purpose of the inspection will be two-fold: to identify and map any cracks in the concrete that might have allowed contaminants a pathway to the soil below and to identify areas that potentially are contaminated with dangerous waste or dangerous waste residues. The inspection standard will be a clean debris surface. The inspection of the concrete for a clean debris surface will be documented on an inspection record. Those areas already meeting the standard will clean close, as is.

Closure of the annulus will, by necessity, need to be demonstrated through operating history of each DST on a case-by-case basis. If there is no record of a DST having had a leak during its operating period, the annulus concrete and steel cannot possibly be contaminated with dangerous waste and an inspection of the vertical wall and outer part of the annulus floor should be sufficient to prove clean closure.

Those potentially contaminated areas will undergo decontamination to meet the clean closure standard of a clean debris surface. The concrete will be washed down; the rinsate collected, designated, and disposed of accordingly. The concrete will be re-inspected for a clean debris surface. Concrete surfaces indicated by visual examination, as potentially still being contaminated will have the surface layer removed to a depth of 0.6 centimeter by scabbling or other approved methods. This will not threaten the environment, even if potential through-thickness cracks had been found during the inspection, because concrete decontamination (scabbling) will not employ liquid solutions that could enter cracks and because scabbling residues will be vacuumed away from cracks as any residue is generated.

Achievement of a clean debris surface will be documented on an inspection record and placed in the Hanford Facility Operating Record, DST System file. Decontamination residues will be collected, designated, and managed as appropriate.

H.3.7 Structures

If contaminated with dangerous constituents, structures will be decontaminated and/or disassembled, if necessary, then packaged and disposed in accordance with existing land disposal restrictions (WAC 173-303-140). Due to the design and operation of the DST System/204-AR as a dangerous waste management unit, it will not be presumed that structures are contaminated by dangerous waste or dangerous constituents absent information establishing a spill or release outside of secondary containment. No Sampling and Analysis Plan (SAP) will be prepared for this closure plan based on the assumption that no leaks have occurred.

Closure steps may include the following activities:

- Containerize (as necessary and practicable) and remove any remaining waste.

- Review operating records for spillage incidents and visually inspect area surfaces for evidence of contamination or for cracks that could harbor contamination or allow the escape of decontamination solutions. Inspect storage area surfaces for visible evidence of contamination (e.g., discoloration, material degradation, wetness, and odor). If contamination is evident, the affected area(s) will be decontaminated.
- Decontaminate walls and floors to minimize the potential for loose contamination and to facilitate any required rad surveys and/or chemical field screening. Wash down could be by water rinse or high-pressure, low-volume steam cleaning coupled with a detergent wash as appropriate for the surfaces and the debris rule treatment technology(s) selected. After decontamination, the building walls and floor will be compared to closure performance standards.
- Collect rinsate and manage as dangerous waste for appropriate disposal.
- Secure (lock) personnel entries into building and post doors with appropriate warning signs.

H.3.8 Underlying Soils

Clean closure of soil under the DST System buildings and structures will be accomplished by demonstrating that the coated concrete floor and stainless steel liners kept contaminants from reaching the soil. The coated concrete floor provided secondary containment for all the tanks, process piping, and ancillary equipment. Unless inspections identify potential through-thickness cracks indicating containment failure and a subsequent potential for soil contamination from DST System operations, the soil shall be considered clean closed. However, if inspections identify such cracks, and there have been documented spills in the vicinity, potential soil contamination shall be investigated.

Where it is possible to inspect visually and directly beneath the tanks, a visual inspection will be performed. Where it is not possible to inspect visually beneath the tanks, an evaluation of the tank integrity will be made. The condition of the tank will be evaluated to determine if there was any potential for leakage. If no cracks, severe corrosion, or evidence of leaks is observed, it will be reasoned that mixed or dangerous waste solutions could not have penetrated to the soil directly below the tank.

H.3.9 Quality Assurance/Quality Control

Once the DSTs are scheduled for closure, constituents of concern, if needed, will be established for soil remediation requirements, soil closure performance standards, and associated sampling, analysis, and QA/QC requirements necessary to demonstrate compliance with closure performance standards as necessary. The sampling and analysis plan will be prepared consistent with EPA/240-B-01/003 (EPA/QA R-5), *EPA Requirements for Quality Assurance Project Plans*, as amended.

H.4. Maximum Waste Inventory

The DST System uses the 242-A Evaporator to treat mixed waste by removing water and most volatile organics. There are two waste streams coming from the 242-A Evaporator. The first waste stream, the concentrated slurry (in which approximately half the water content is removed and a portion of the volatile organics), is pumped back into the DST System. The second waste stream, process condensate (containing a portion of the volatile organics removed from the mixed waste during the evaporation process), is routed through condensate filters before being transferred to the Liquid Effluent Retention Facility (LERF).

The design capacity for waste inventory in the DST System is divided between 28 tanks and is 126,184,960 liters. The volume in the DST System varies at any given time on a daily basis. It is dependent upon retrievals and the amount of waste treated.

The design capacity (2,050 gallons) for the 204-AR includes the 1,500 gallon tank in the building and the 550 gallon diesel tank located underground at the northwest corner of the west side of the building. The operating volume for the 1,500 gallon tank inside 204-AR is 1,200 gallons. It currently has 950 gallons of waste awaiting removal. The diesel tank located outside and underground, is empty, and is undergoing interim closure.

H.5. Certification of Closure

Clean closure of the DST System will consist of the removal and disposal of dangerous waste and the decontamination and/or removal and disposal of contaminated equipment, including tanks.

H.5.1 Certification of DST System/204-AR Waste Unloading Station

Within sixty days of completion of closure of each dangerous waste management unit (including tank systems), and within sixty days of the completion of final closure, the Permittees will submit to the department by registered mail, a certification that the dangerous waste management units or facility, as applicable, has been closed in accordance with the specifications in the approved closure plan. The certification will be signed by an independent qualified registered professional engineer in accordance with WAC 173-303-610(6).

H.6. Schedule for Closure

Closure of the DST System is not anticipated to occur within the next 15 to 30 years. The actual date of last receipt of waste that triggers the notice of closure requirements in Permit Condition II.J. will depend on the time required for current waste to be processed. Other factors affecting the last receipt of waste include changes in operational requirements, lifetime extension upgrades, and unforeseen factors. When a final closure date is established, a revised closure plan will be submitted to Ecology.

Because of the size and complexity of the DST System, closure is expected to take longer than the required 180 days. Should a modified schedule be necessary, a revised schedule will be submitted to Ecology before closure in accordance with WAC 173-303-640(4)(b).

H.7. Interim Closure for Disposition of Unfit-for-Use/No Longer Required Components

DST System components are shown on H-14-107346, sheets 1 through 7, DST Waste Transfer Piping Diagram, including those components identified as compliant with WAC 173-303-640, those that are not in compliance with WAC 173-303-640, those that are identified as subject to variances, and those that are identified as "deferred use". The term "Disposition for Unfit-For-Use/No Longer Required Components" is used to define activities that would be employed on a case-by-case basis to remove waste from and/or decontaminate DST system components[1] in a manner that minimizes or eliminates escape of dangerous waste constituents to the environment.

DST System components that may require disposition as described under this section are those that have contacted Hanford tank waste and have been determined "unfit for use" or "no longer required". Unfit-for-use components are defined as components of a tank system that have been determined through an integrity assessment or other inspection to be no longer capable of storing or treating dangerous waste without posing a threat of release of dangerous waste to the environment (WAC 173-303-040). Components that are determined to be "no longer required" will be identified through a documented review of future potential use of the DST system, or repair or replacement based on events that occur during the active life of the facility. Based on these definitions prior to final or partial closure, some DST system components may fall under one of the three following component categories:

- Category 1: Unfit for use, but still required for operation of the DSTs.

[1] "Component" is used synonymously with ancillary equipment. "Ancillary equipment" means any device including, but not limited to, such devices as piping, fittings, flanges, valves, and pumps, that is used to distribute, meter, or control the flow of dangerous waste from its point of generation to a storage or treatment tank(s), between dangerous waste storage and treatment tanks to a point of disposal on-site, or to a point of shipment for disposal off-site (WAC 173-303-040).

- Category 2: Unfit for use (WAC 173-303-640(7)), and no longer required for operation of the DST system.
- Category 3: No longer required for operating the DST System (i.e., the DST system is reconfigured or upgraded for efficiency). These components are considered to not pose an immediate threat to human health and the environment.

In accordance with WAC 173-303-640, 'Category 1' components shall be replaced or repaired before operation. Components identified as 'Category 2' or 'Category 3' will require interim steps to be completed as described in the following. Components subject to interim closure will meet the clean closure performance standard.

H.7.1 Interim Closure for Category 2 Components

Category 2 components will require immediate response actions under WAC 173-303-640(7) and/or the emergency pumping guide (See Addendum J). For these components, the Permittees shall submit to Ecology a closure plan addressing these components 180 days from completion of the response actions. This closure plan will address the following general closure standards:

- Minimize the need for further maintenance,
- Methods to be used for removing, transporting, treating, storing, or disposing of all dangerous wastes, and identification of the type(s) of the off-site dangerous waste management units to be used, if applicable;
- Control, minimize or eliminate to the extent necessary to protect human health and the environment, post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, ground water, or the atmosphere.

For these components, H-14-107346, sheets 1 through 7, DST Waste Transfer Piping Diagram, will be modified, as appropriate, to remove all category 2 components from the operating system and will identify the components as still being part of the DST System but undergoing closure.

H.7.2 Interim Closure for Category 3 Components

Category 3 shall be isolated, stabilized and monitored (if required) within 6 months of removal from service. These terms are defined as follows:

- Isolated is "administrative" or "engineering" controls put in place to prevent use.
- Stabilized is removal of liquids and waste using practices commonly employed to remove materials (e.g., flushing, pouring, pumping, etc.).
- Monitored is using the necessary equipment and frequency employed to ensure that each component remains free of liquids.

Category 3 components may be designated as "deferred use" if there is good potential that they will be needed for future closure activities. If a deferred use designation is assigned to these components the H-14-107346, sheets 1 through 7, will be modified to identify these components as deferred use.

If a category 3 component cannot be designated as deferred use, the Permittees shall submit a closure plan for these components within 12 months of removal from service.

The Permittees understand that Ecology, in lieu of completed closure documentation, can initiate closure of the DST System under corrective action provisions (WAC 173-303-646) as well as other enforcement actions, in the instances of a spill or leak to the environment and other laws and regulations as applicable. Federal facilities are not required to comply with WAC 173-303-620, "Financial Requirements".

APPENDIX 1 KNOWN RELEASES

No known liquid releases have occurred from the Double-Shell Tanks (DST) or 204-AR Waste Unloading Station (WUS). Liquid known releases (i.e. unplanned releases) to the soil from DST System ancillary equipment have occurred and are summarized in this appendix. Release information is tracked through the Waste Information Data System (WIDS) pursuant to TPA section 3.5.

Based upon the topographic maps H-13-000707 Rev 2 (Sheets 1 through 4) and the WIDS database the following release sites are associated with the DST System TSD unit boundary:

200-W-54

The original unplanned release was defined in 1997. It was a large, irregular shaped Soil Contamination Area (SCA) located on the east side of 241-S/SX Tank Farms. In 1997, it measured approximately 175 meters (575 feet) by 100 meters (330 feet). In 1998 another Global Positioning Survey was performed. The posted SCA had been extended approximately 50 meters (165 feet) to the west (up to the tank farm fence) and approximately 200 meters (660 feet) in the north-south direction. A site visit in August 2000 found multiple additional radiologically chained and posted areas in this vicinity. There is also one separately posted Contamination Area located north of 241-SY Tank Farm, across a gravel road.

200-W-96

The site is the soil inside and adjacent to the chain link fence that surrounds the 241-S/SX/SY Tank Farms. Various radiological postings and warning signs are attached to the chain link fence. The interior of the tank farm complex is covered with gravel. Many risers and monitoring devices for the underground structures are visible on the surface. The individual unplanned releases associated with the 241-S, SX, SY Tank Farms are not separately marked or posted. Occasionally, radioactive contamination is found adjacent to the outside of the tank farm fence, resulting in a contamination zone extension around the tank farm perimeter. These areas will also be considered tank farm soil. The 216-S-3 crib, 216-S-15 overflow pond and a portion of the 242-S Evaporator building are also located inside the tank farm fence.

Varied levels of remediation were done on individual surface releases at the time they occurred. Underground tank releases determined from waste level variations and dry well readings were documented and actions were taken to isolate the leaking waste.

UPR-200-E-100

Radiological surveys done in April 1985 identified large areas of surface contamination north and west of the 244-A Lift Station. Specks of contamination ranged from 50,000 counts per minute to 7 rad per hour. Another area east of 241-C Tank Farm and north of 7th Street was also identified with contamination levels up to 100,000 counts per minute. A small area of partially buried plastic sheeting, rebar and rags was found east of the 244-A Lift Station. A contamination characterization investigation was conducted in May 1985 to determine if it was the source of the contamination spread. Contamination with levels up to 7 rad per hour was found near a partially buried pile of debris. Core samples were taken at a distance of 0.9 meters (3 feet) and 0.45 meters (1.5 feet) from the debris and also through the center of the debris. In each area, core samples readings were "less than detectable" when surveyed with a GM and P-11 probe, eliminating the debris as the contamination source.

A shovel was used to remove 1.2 centimeter (0.5 inch) of contaminated surface soil and place it on a cardboard sheet. The soil was surveyed until a speck of contamination was identified. The soil was divided and separated until the source of the highest contamination reading was determined to be a speck of rodent feces.

200-E-131

The site is the soil inside and adjacent to the chain link fence that surrounds the 241-A, AN, AX, AY and AZ Tank Farms. Various radiological postings and warning signs are attached to the chain link fence. The interior of the tank farm complex is covered with gravel. Many risers and monitoring devises for the

underground structures are visible on the surface. The individual unplanned releases are not marked or posted. Occasionally, radioactive contamination is found adjacent to the outside of the tank farm fence, resulting in a contamination zone extension. These areas will also be considered tank farm soil.

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