START

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Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

APR 04 1994

94-RPS-176

Mr. David C. Nylander
Nuclear Waste Program
State of Washington
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7601 W. Clearwater Avenue, Suite 102
Kennewick, Washington 99336

Mr. Douglas R. Sherwood
Hanford Project Manager
U.S. Environmental Protection Agency
712 Swift Boulevard, Suite 5
Richland, Washington 99352

9413275.2148

Dear Messrs. Nylander and Sherwood:

PLAN FOR THE CLOSURE OF 222-S DANGEROUS AND MIXED WASTE STORAGE AREA METAL STORAGE STRUCTURES (TSD: TS-2-1)

Enclosed is a proposed plan for closure of the 222-S Laboratory Complex, 222-S Dangerous and Mixed Waste Storage Area Storage Structures. This plan describes the planned activities for closing the existing storage structures in accordance with the performance standards set forth in the Washington Administrative Code (WAC) 173-303-610(2). The storage structures are located on a concrete pad north of the 222-S Laboratory Complex analytical laboratory.

The 222-S Dangerous and Mixed Waste Storage Area consists of two metal storage structures 19 feet 10 inches (6 meters) by 8 feet 6 inches (2.6 meters). The storage structures have wooden interior floors and are situated on top of a portion of a concrete pad. A Hanford Facility Dangerous Waste Permit Application (Part B), Revision 0, for the 222-S Laboratory Complex was submitted to the State of Washington Department of Ecology in December 1991 in accordance with the Hanford Federal Facility Agreement and Consent Order Milestone M-20-22. The Part B includes a Chapter 11, "Closure and Postclosure Requirements," which states that the storage structures shall be clean closed in accordance with WAC 173-303-610(2).

The attached closure plan provides for the clean closure of the storage structures. Clean closure requires that all dangerous waste be removed and disposed of in accordance with applicable regulations. The clean closed storage units will be moved to a predesignated area and reused for non-dangerous waste storage. After the storage units are clean closed they will be removed and replaced by two state-of-the-art manufactured units which will meet all applicable storage requirements for the storage of dangerous wastes. A schedule to achieve closure and install the new units is included as part of the attached closure plan.

A response to this request is needed by April 27, 1994. This response is needed to ensure that the procurement and installation of the storage structure is complete this fiscal year.

Should you have any questions, please contact Mr. R. N. Krekel, U.S. Department of Energy, Richland Operations Office, on (509) 376-4264 or Mr. F. A. Ruck III, Westinghouse Hanford Company, on (509) 376-9876.

Sincerely,

Steven H. Wisness, Acting Program Manager
Office of Environmental Assurance,
Permits, and Policy
DOE Richland Operations Office

EAP:RNK

for R. E. Lerch, Deputy Director
Restoration and Remediation
Westinghouse Hanford Company

Enclosure:
Closure plan for 222-S Dangerous
and Mixed Waste Storage Area
Storage Structures

cc w/encl:
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CLOSURE PLAN FOR 222-S DANGEROUS AND MIXED WASTE STORAGE AREAS METAL STORAGE STRUCTURES

1.0 SAMPLING OBJECTIVES

1.1 Introduction

This closure plan describes the planned activities and performance standards for closing the 222-S Dangerous and Mixed Waste Storage Area storage units. Clean closure is proposed for the 222-S Dangerous and Mixed Waste Storage Areas. This plan provides for the clean closure and replacement of the metal storage structures located on a concrete pad North of the 222-S Laboratory. No post closure activities are applicable or required for the closure of the storage units because they will be clean closed. Clean closure requires that all dangerous waste be removed and disposed in accordance with applicable regulations. After the storage units are clean closed, they will be removed and replaced by two manufactured units which meet all applicable storage requirements for hazardous wastes. The clean closed storage units will be moved to a predesignated area and reused for storage.

The words contamination and decontamination as used in this document refer to contamination by dangerous waste regulated by Ecology. The words dangerous or extremely hazardous used in this document are in the context of Ecology regulated waste.

Clean closure will be contingent on verification that constituents originating from the storage units are not present in concentrations that represent a threat to human health or the environment. This verification will be made using data obtained from sampling activities. The closure activities that will be performed include the following:

- Removal and disposal of dangerous waste from all components of the regulated storage units and ancillary structures
- Decontamination or removal and disposal of the components of the regulated storage units and ancillary structures
- Verification sampling and analysis of building surfaces, equipment and concrete pad
- Certification of closure

Clean closure will be accomplished by demonstrating that dangerous waste in the storage units is not present above action levels. Action levels are the constituent concentration levels that will prompt an action, including additional evaluation, cleanup, or deferral to the CERCLA process. Action level values include concentrations based on risk to human health and the environment, baseline threshold concentrations, background, or other appropriate cleanup criteria. For purposes of this closure plan, the action levels for all contaminants of concern will be background, Level of

Quantitation (LOQ), or Model Toxic Control Act (MTCA) B levels for each type of sampling medium. The report, *Characterization and use of Soil and Groundwater Background for the Hanford Site* (DOE/RL-92-24) presents the justification for, use of, and method for obtaining the Hanford Site background.

1.2 Closure Plan

The closure of the storage units will consist of the following:

- Removal of all containerized waste present within the storage units
- Check of operating records for documented incident(s) of spillage
- Visual inspection of the interiors and exteriors of the storage units for signs of spillage and/or contamination
- Decontamination, if visual signs or recorded incidents of release are found
- Performance of verification sampling, if necessary
- Decontamination of equipment, if necessary
- Disposal of contaminated equipment and any generated waste, if necessary

1.3 Closure Performance Standard

This closure plan has been developed to close the storage units in a manner that meets the following closure performance standards of WAC 173-303-610(2)(a).

- Minimize the need for future site maintenance.
- Control, minimize, or eliminate to the extent necessary to protect human health and the environment, postclosure escape of dangerous waste, dangerous waste constituents, leachate, contaminated run-off, or dangerous waste decomposition products to the ground, surface water, groundwater, or atmosphere.
- Return the land to the appearance and use of surrounding land areas to the greatest degree possible.

These standards will be achieved by closing the storage units at the 222-S Complex in accordance with WAC 173-303-610(2)(b). All equipment, structures, and other material associated with closure of the storage units also will be decontaminated or removed in accordance WAC 173-303-610(2)(b). Because of the design and operation of the storage units (waste stored in its original collection containers, inside two sealed plastic bags, inside a polyethylene liner, inside a steel drum, which is stored over a stainless

steel containment basin) and its location (on a 10-inch thick reinforced concrete pad), soil contamination resulting from the storage units operations is not anticipated. Therefore, no soil sampling will be performed as part of the closure of the storage units.

The specific steps to be used during the closure period to ensure minimal escape of dangerous waste constituents and minimal exposure of the public to dangerous waste constituents are the following:

- Access to the storage units will be controlled during the closure period to prevent contact with waste constituents by people and animals. During the closure period, access will be limited to personnel required to support the closure of the storage units. Personnel will be trained in accordance with the requirements of Chapter 8.0 of the 222-S Part B Permit Application before being granted access.

- When the removal of all contaminated equipment has been completed and the storage units are believed to be decontaminated to appropriate action levels, a sampling program will be conducted to verify that no contaminants exceeding action levels exist in the storage units. When this sampling program confirms that concentrations of dangerous constituents are not detectable in excess of action levels, the storage units will be considered clean closed. The closed storage units will no longer be designated as dangerous waste units and will be released for future use.

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1.4 Removal or Decontamination Standard

Clean closure of the storage units requires removal and disposal of all dangerous waste present, removal and disposal or decontamination of all process equipment and contaminated structural components, and decontamination of all building surfaces as required. Materials, equipment, structures, etc., removed from each unit will be designated according to contaminants present and disposed of accordingly. The disposition of the contaminated equipment is discussed in Section 1.6.3. The storage units will be considered clean when the action levels for all contaminants of concern are at background, LOQ, or MTCA B levels for each type of sampling medium.

If no visual signs of spillage are present and the operating record contains no incidents of spillage, all containerized regulated waste will be removed and the storage units will be considered clean.

If visual signs of spillage are present and/or the operating record indicates spills have occurred in the storage units, the affected area(s) will be decontaminated. The method of decontamination used will depend on the nature of the suspected contaminant. Wipe samples will be collected and analyzed for the dangerous waste constituents present in the spilled material, if known, or for all contaminants of concern if the source of the spilled material is unknown. Collection of wipe samples is described in Section 1.6.4. For organic constituents, decontamination will be considered complete and

successful if no organics are present above analytical detection limits given in SW-846.

For metals, decontamination will be considered complete if no substantial contamination above background level is present. To determine background concentrations of metals on steel surfaces, wipe samples will be collected from the outside wall of one of the storage structures, as described in *A Compendium of Superfund Field Operations Methods*, Section 13.1. The area to be sampled will be divided into 3.28-foot by 3.28-foot blocks (or nearest approximation) to determine sample locations. Five percent of the grids will be used. The locations to be sampled will be identified using a random number generator and the additional criterion that no two adjacent grids will be sampled. This criterion will ensure that the samples will be well separated and will be an accurate representation of the background concentration of metals on steel.

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1.5 Maximum Waste Inventory

The combined maximum potential storage volume for both storage units is estimated to be 1,980 gallons (7,495 liters). Because most of the drums are labpacks consisting of waste and absorbent material, the actual maximum waste volume is much less.

1.6 Inventory Removal, Disposal or Decontamination of Equipment and Structures

This section discusses inventory removal, handling of uncontaminated equipment, and process equipment decontamination or removal for the storage units.

1.6.1 Inventory Removal

At the start of closure, all waste will be removed from within the storage units and transported to an appropriate accumulation area or TSD unit(s).

1.6.2 Uncontaminated Equipment

The storage units are expected to be uncontaminated. The storage units are not expected to become contaminated because of removal of the waste currently in storage; however, various areas and items will be sampled and analyzed to ensure that no contamination has occurred. The uncontaminated equipment and structures will be removed from the area and utilized elsewhere within the 222-S Complex.

1.6.3 Process Equipment Decontamination and/or Removal

There is no process equipment associated with the storage units. Liquid and solid waste resulting from decontamination operations will be separated and characterized into the following waste categories:

- Nondangerous and nonradioactive
- Nondangerous and radioactive
- Dangerous and nonradioactive
- Mixed

Depending on the classification of the waste, disposal might include additional processing at a treatment unit.

1.6.4 Structure Decontamination

A visual assessment of whether spills have occurred within the storage units will be performed after all waste has been removed. The visual inspection also will include evaluation of the stainless steel containment basins, storage structure wooden floors, and the concrete pad on which the storage units rest. If evidence of spillage is observed on the concrete pad (outside of the storage units secondary containment), appropriate action to decontaminate and/or remove the pad in accordance with WAC 173-303-610(2) will be taken. Evidence of spillage will include but will not be limited to discoloration or material degradation, such as pitting due to corrosion, wetness, and odor. If signs of spillage are evident, the affected areas, including the nonskid fiberglass grate, containment basins, and wooden floors, will be marked off for investigation. Indelible markers, paint, and dimensions from some fixed point will be methods used to delineate affected areas. The method of delineating an affected area will be such that the area can be identified to verify decontamination.

Contamination scenarios other than superficial contamination are unlikely because the exposed interior surfaces of the storage units are steel, and waste is containerized within drums. Also, the storage units are inspected on a regular basis for contamination, which is promptly removed. The method of decontamination will be steam cleaning or the best method available at the time of closure.

The nonskid fiberglass grates will be surface wiped while still in place over the containment basins. Following initial grate cleaning, rinse water will be applied to the grate over the delineated area of contamination and will be collected within the containment basin. Following initial decontamination, the grate either will be removed or raised to enable access to the underlying containment basins, which also will be decontaminated. Accumulated decontamination rinsate will be removed from the containment basin by sponges, mops, pumps, or vacuum truck, depending on the quantity of rinsate generated. Solid decontamination residue will be swept up, and the affected area will be vacuumed before final rinsing. The grate will be repositioned over the containment basin, and the delineated area of contamination of the grate and containment basin will be flushed with a final water rinse.

All decontamination residue, solid or liquid, will be managed in accordance with all applicable Federal, State, DOE and Westinghouse Hanford Company regulations, requirements and procedures for packaging, container labeling,

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manifesting, inspection, loading, placarding, transportation (onsite and offsite), and disposal of dangerous, radioactive, and mixed waste for points of origin and/or destination on the Hanford Site. All water used for decontamination activities will be potable water. Sampling, sample management, and subsequent analysis will be performed using procedures and protocols established in the most recent version of SW-846. The samples will be analyzed for the dangerous waste constituents present in the material (if known) or for all contaminants of concern if the source of the material is unknown. All rinsate will be containerized and stored temporarily on pallets placed in an approved storage area.

If the storage units cannot be successfully decontaminated, the storage units will be dismantled and disposed of as described in Section 1.1.4.5.

For metals, background levels will form the basis for determining adequate decontamination of the storage units. For organics, analytical detection limits as provided in SW-846 will form the basis for determining adequate decontamination.

The storage units will be decontaminated to a level at which they do not show evidence of any substantial contamination with dangerous waste constituents above the permissible action levels (background for metals, detection limit for organics). Wipe sampling of the inside surfaces of the steel storage units, the overlying nonskid fiberglass grate, and the containment basins will be conducted. Each of the surfaces to be sampled will be gridded by evenly dividing the surfaces into approximately 3.28-foot- by 3.28-foot- blocks (or the nearest approximation) for sampling purposes. Sample locations will be determined by vertical and horizontal grid lines for walls and north-south and east-west grid lines for floors and ceilings. A total of 10 percent of the gridded area will be selected for sampling or at least one sample per side of the storage unit. The sample locations will be selected randomly with the additional constraint that no two sample locations can share a common side. Areas of suspected contamination, such as visibly stained areas, also will be sampled; these locations will be identified before grid sampling. Wipe samples will be collected as described in *A Compendium of Superfund Field Operations Methods*, Section 13.1.

To ensure that the sampling process is performed correctly, quality assurance samples equivalent to 10 percent of the equipment samples (or at least one sample) will be collected as described in Section 1.6.7. The analytical data from the sampling of each area will be averaged, and the resulting average and standard deviation will be used to compare the concentration of metals in the area with background levels. If this comparison supports the conclusion that the area does not contain substantially greater contaminant concentrations than the background level for metals, and if no organics were detected, the area will be considered decontaminated. If sample results from a particular area do not meet the decontamination criteria, further decontamination will be performed, or the storage units will be disposed of as appropriate.

Any waste spills associated with the storage units closure are noted in the operating record. The time, date, location, nature of the spill material, and

estimated volume of spillage are specified within the operating record. Any spills are cleaned up in accordance with the building emergency plan.

1.6.5 Closure Equipment Decontamination

Equipment used during the closure activities for both storage units will be cleaned three times with a steam cleaner. The equipment cleaning will be performed over a solid sheet of durable plastic. The plastic will be at least 8 mils (0.2 millimeter) thick. The thickness will depend on the equipment and the abrasion expected from the cleaning activities. The edges of the plastic will be elevated to prevent the escape of rinsate. The rinsate from steam cleaning will be collected, pumped into new bung-type drums, and sampled. The pump will be flushed three times with water that will be managed as rinsate. The plastic liner will be removed and disposed of in a manner to be determined based on contaminants detected in the rinsate.

A formal decontamination station is not anticipated to be necessary for closure of the storage units. Donning and removal of protective clothing and footgear and temporary storage of decontamination equipment will be done over 10-foot-square polyethylene sheeting laid on the concrete pad just outside of the storage units. The polyethylene sheeting and protective clothing will be containerized and disposed of as dangerous waste.

Equipment involved in closure decontamination efforts might include

- Swabs, brushes, rags, towels, mops
- Absorbent material
- Plastic bags
- Protective clothing
- Cleaning compounds
- Steam cleaner
- Pressure washer
- Grit blaster
- Collection drums.

1.6.6 Soil Sampling and/or Removal

Soil sampling and/or removal is not required for the storage units because the storage units rest on a concrete base. A contamination migration pathway between the storage structures and the soil does not exist.

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1.6.7 Sampling Quality Control

The required quality control procedures will be followed to the extent necessary to adequately control sampling activities. The various quality control methods are described in the following section.

1.6.7.1 Data Quality

To ensure quality data, all of the sampling procedures will be conducted in conformance with applicable methods described in the *Hanford Facility Dangerous Waste Permit Application*. All laboratory analysis will be performed in accordance with standard EPA methods described in the most recent edition of SW-846. The analytical laboratory will submit all analytical and quality assurance/quality control methods to the contractor for approval before samples are analyzed. The EPA guidelines for reporting accuracy, precision, and practical quantification limits specified in the analytical methods will be met.

Quality control of sampling will be ensured throughout the use of field duplicates, equipment blanks, and field blanks. Quality control of records and documentation will be accomplished by following applicable procedures described in the *Hanford Facility Dangerous Waste Permit Application*.

Sampling records to be kept on file will include field notes, daily memoranda, records of meetings and activities concerning the sampling program, and chain-of-custody records. In addition, quality control will be implemented through the recording of field memoranda and field notes. Before sampling begins, a quality assurance project plan for sampling and analysis will be completed.

1.6.7.2 Field Quality Control

Field quality control will be accomplished throughout the use of various sampling duplicates and blanks, as described in the following paragraphs.

Field duplicate samples will be taken for concrete chips. Duplicate samples are two separate samples collected from the same sampling point and placed into separate containers. The duplicate samples will be used as an indication of the reproducibility of the analytical data.

Equipment blanks will serve as a check on sampling device cleanliness. An equipment blank will consist of distilled water which is transported to the site, opened in the field, poured over or through the sample collection device, collected in a sample container, and returned to the laboratory for analysis. These samples will be collected daily.

Wipe sample blanks will consist of filter paper that has been laboratory prepared with the appropriate solution. The wipe sample blanks will be placed in a sample container in the field. Blanks will be submitted for analysis with the wipe samples to determine if contaminants were introduced by the paper, preparation solution, or sampling environment.

Trip blanks will be used to identify any possible contamination originating from container preparation methods, shipment, handling, storage, or site conditions. Trip blanks will consist of pure deionized, distilled water in a clean sample container that will accompany each batch of containers shipped to the field. Trip blanks will be taken unopened to the laboratory for analysis.

Field blanks will consist of pure deionized, distilled water that is transferred to a sample container at the site and preserved with the reagent specified for the analysis of interest. Field blanks will be used to check for possible contamination originating with the reagent or in the sampling environment and will be collected daily.

1.1.4.7.3 Laboratory Quality Control

The contractor laboratory will ensure the integrity and validity of test results through implementation of an internal quality control program. The program will meet the quality control criteria of SW-846. A system of reviewing and analyzing the results of these samples will be maintained to detect problems caused by contamination, inadequate calibrations, miscalculations, improper methods, or other factors. Standard methods will be used, and alternative methods that are developed or adapted will be tested and documented. All methods and method changes will be approved by a contractor contract representative.

The quality control procedures for hazardous chemical analysis will include (as appropriate to each analysis and as specified in Section 1.2 of SW-846) evaluation of blanks, random matrix spikes (for 10 percent of the samples), internal standards, surrogates, and standard calibration curves. Spikes will be added in amounts comparable to the amount of analyte present in the sample. The quality control procedures specific to individual methods will be detailed in the laboratory's documented analytical procedures and will be included with each batch of samples analyzed.

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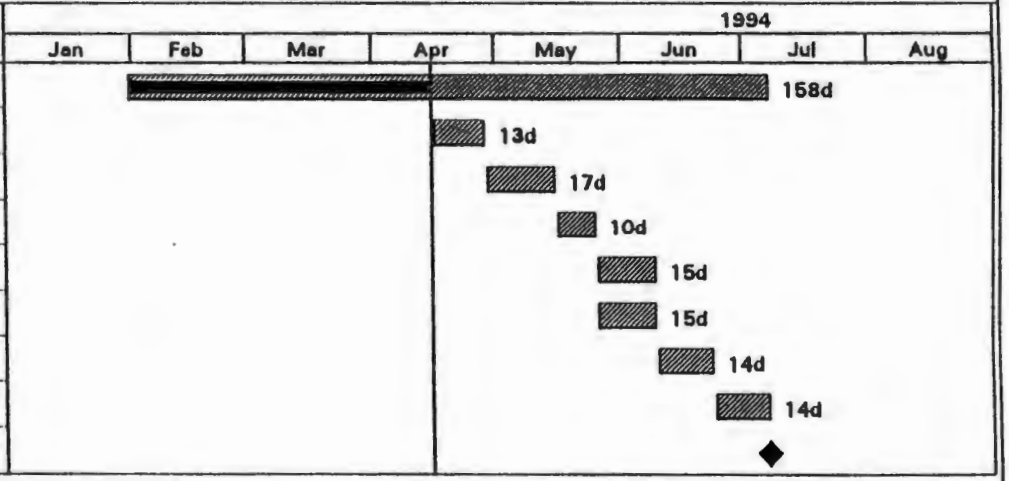
222-S Dangerous and Mixed Waste Storage Structures

Closure Plan/Replacement Schedule

Name	Start	Finish
Prepare Closure Plan/Install New Boxes	1/31/94	7/7/94
Plan Approval by Ecology	4/16/94	4/28/94
TSD Emptied of All Waste	4/29/94	5/15/94
Old Storage Structures Moved to New Location	5/16/94	5/25/94
HPT Release of Old Storage Structures	5/26/94	6/9/94
New Storage Structures Moved Into Place	5/26/94	6/9/94
Storage Structures Anchored and Electrical Installed	6/10/94	6/23/94
Misc. Inspection by Fire, Safety, and Ecology	6/24/94	7/7/94
New Waste Storage Structures Operational	7/7/94	7/7/94



File: 222S-REPL.MPW
Date: 4/15/94
Closure Lead: J. R. Laws

Scheduled Completed Milestone

CORRESPONDENCE DISTRIBUTION COVERSHEET

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Subject: PLAN FOR THE CLOSURE OF THE 222-S DANGEROUS AND MIXED WASTE STORAGE AREA METAL STORAGE STRUCTURES (TSD: TS-2-1)

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