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Subject: TRANSMITTAL OF PARTIAL CLOSURE PLAN FOR THE 222-S DANGEROUS AND MIXED WASTE STORAGE AREA STORAGE STRUCTURES

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0048502

DEC 18 1997

97-EAP-824

Mr. Moses N. Jaraysi  
 200 Area Unit Supervisor  
 Nuclear Waste Program  
 State of Washington  
 Department of Ecology  
 1315 West Fourth Avenue  
 Kennewick, Washington 99336



Dear Mr. Jaraysi:

TRANSMITTAL OF PARTIAL CLOSURE PLAN FOR THE 222-S DANGEROUS AND MIXED WASTE STORAGE AREA STORAGE STRUCTURES

Enclosed please find the Partial Closure Plan for the 222-S Dangerous and Mixed Waste Storage Area Storage Structures and the Notice of Deficiency Response Table for Closure Plan for 222-S Dangerous and Mixed Storage Areas Metal Storage Structures. Please respond to this transmittal with a letter indicating approval of the partial closure plan.

The only portions of the 222-S Laboratory Complex treatment, storage, and/or disposal unit undergoing closure at this time are the two structures located on the north side of the 222-S Analytical Laboratory Building. These structures have stored various sized containers of mixed waste and nonradioactive dangerous waste. The structures will be clean closed. The clean closed storage structures will be moved and reused for storage of nondangerous waste materials. The two structures will be replaced and the area and associated container storage capacity will remain within the Part A Permit Application, Form 3. The soil and concrete beneath the structures will not be closed. No postclosure activities will be required.

After completion of the activities described in the attached closure plan, the U.S. Department of Energy, Richland Operations Office (RL) will submit to the State of Washington Department of Ecology (Ecology) copies of the professional engineer's certification, the inspection checklists, the radiation survey plan for the closure, and the radiation survey reports. Final owner and operator certification of this closure action will occur as part of the Part B Permit Application certification.



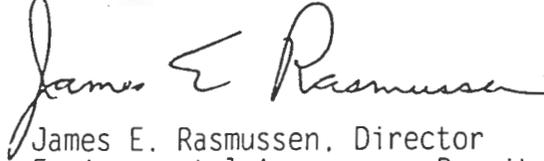
DEC 18 1997

Mr. Moses N. Jaraysi  
97-EAP-824

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Should you have questions regarding this transmittal, please contact Ellen M. Mattlin, of my staff, on (509) 376-2385.

Sincerely,



James E. Rasmussen, Director  
Environmental Assurance, Permits,  
and Policy Division  
DOE Richland Operations Office

EAP:EMM



William D. Adair, Director  
Environmental Protection  
Responsible Party for  
Fluor Daniel Hanford, Inc.

Enclosure:  
Partial Closure Plan for the 222-S  
Dangerous and Mixed Waste Storage  
Area Storage Structures

cc w/encl:  
W. D. Adair, FDH  
R. C. Bowman, WMH  
A. D. Huckaby, Ecology  
S. M. Price, FDH  
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EDMC HL-08

PARTIAL CLOSURE PLAN FOR THE 222-S DANGEROUS  
AND MIXED WASTE STORAGE AREA STORAGE STRUCTURES

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## 1.0 INTRODUCTION

1  
2  
3  
4 This partial closure plan describes the closure strategy, performance  
5 standards, and closure activities that will be used to clean close the  
6 222-S Dangerous and Mixed Waste Storage Area storage structures. The only  
7 portions of the 222-S Laboratory Complex (222-S) treatment, storage, and/or  
8 disposal (TSD) unit undergoing closure at this time are the two structures  
9 located on the north side of the 222-S Analytical Laboratory Building. These  
10 structures have stored various sized containers of mixed waste and  
11 nonradioactive dangerous waste. The two structures will be replaced and the  
12 area and associated container storage capacity will remain within the Part A  
13 Permit Application (Part A), Form 3. For informational purposes the Part A,  
14 Form 3, Revision 3, is attached to this partial closure plan. The soil and  
15 concrete beneath the structures will not be closed.

16  
17 No postclosure activities will be performed as part of this partial  
18 closure plan. Clean closure requires that all dangerous and/or mixed waste be  
19 removed and disposed in accordance with applicable regulations. Clean closure  
20 performance standards are described in Section 6.0. After the waste is  
21 removed and the storage structures are confirmed to be noncontaminated or  
22 decontaminated, the structures will be clean closed, removed, and replaced  
23 with new manufactured structures that meet all applicable storage requirements  
24 for dangerous and/or mixed waste. The clean closed storage structures will be  
25 moved and reused for storage of nondangerous waste materials. If it is not  
26 possible to meet the performance standard for any portions of the structures  
27 undergoing closure, those portions will be removed and disposed in accordance  
28 with applicable regulations.

## 2.0 CLOSURE PROCESS

29  
30  
31 This partial closure plan will be approved by letter from the State of  
32 Washington, Department of Ecology (Ecology). The approved partial closure  
33 plan will be placed in the Administrative Record.

34  
35 The closure activities described in this plan will be monitored by an  
36 independent registered professional engineer (PE) and the PE will certify at  
37 the end of the described process that this plan was followed in the closure of  
38 the two storage structures. The storage structures will be considered clean  
39 closed and available for unrestricted reuse upon receipt of the PE  
40 certification.

41  
42 A copy of the PE certification will be transmitted to Ecology and placed  
43 into the Administrative Record. The approved partial closure plan and the PE  
44 certification will become attachments to the Hanford Facility Dangerous Waste  
45 Permit Application for the 222-S (Part B), as appendices to chapter 11,  
46 Closure and Financial Assurance, currently being reviewed by Ecology.  
47 Owner/Operator certification of this partial closure will occur at the time of  
48 certification of the Part B for the 222-S Complex.  
49  
50  
51  
52  
53

### 3.0 222-S DANGEROUS AND MIXED WASTE STORAGE AREA DESCRIPTION

The 222-S Dangerous and Mixed Waste Storage Area consists of two metal storage structures 6.0 meters by 2.4 meters by 2.6 meters. The storage structures have wooden floors and are situated on top of a portion of a concrete pad (Figure 1). One static-flow roof vent is centered in the top of each structure. Each storage structure has a full-width double door at one end. Each storage structure also employs a secondary containment flooring (covering the entire wood floor area) consisting of a stainless steel containment basin covered with a nonslip fiberglass grate that overlies the wooden flooring.

The 222-S Dangerous and Mixed Waste Storage Area receives waste from laboratory operations consisting of both liquid and solid dangerous and mixed waste. All waste is received in 208-liter containers; waste is not added to or removed from the containers while in the 222-S Dangerous and Mixed Waste Storage Area. The lids are not removed while the containers are in the storage area. Containerized liquid waste is labpacked in polyethylene-lined within the 208-liter containers. Solid mixed waste is segregated from liquid waste and packaged in the same manner. The liquid-bearing waste packed in the containers is surrounded by a minimum 2-to-1 ratio (by volume) of absorbent. Each storage structure can hold a maximum of 18 containers. The storage structures remain locked except during inspections, waste deposition, or waste removal.

### 4.0 WASTE INVENTORY

This section describes the volume and characteristics of waste stored in the two storage structures.

#### 4.1 WASTE VOLUME

The combined maximum potential storage volume for both storage structures being closed is estimated to be 7,490-liters (36 208-liter containers). Because most of the containers are labpacks consisting of waste and absorbent material, the actual maximum waste volume is much less. The estimated operating capacity for both storage structures is 2,050 liters (assuming 57 liters of liquids per container).

#### 4.2 WASTE CHARACTERISTICS

Dangerous and/or mixed waste generated from operations of the 222-S Laboratory Analytical and 222-SA Standards Laboratories are stored in the 222-S Dangerous and Mixed Waste Storage Area. This waste consists of the following waste categories:

- Lead Waste--consisting of radioactively contaminated lead shielding, scrap lead, and flat lead sheets.

- 1 • Chemical Waste--consisting of outdated or off-specification (both  
2 solid and liquid) chemicals managed as dangerous waste. Waste from  
3 the 222-S Analytical Laboratory consists of: (1) discarded chemical  
4 products, (2) toxic or persistent waste, or (3) characteristic waste.  
5  
6 • Liquid Organic Waste--consisting of waste resulting from radiochemical  
7 separation methods and organic analyses of volatile, semi-volatile,  
8 pesticide, and polychlorinated biphenyl compounds generated during  
9 daily laboratory operations. This liquid organic waste includes  
10 liquid scintillation cocktails, consisting primarily of  
11 1,2,4-trimethylbenzene (pseudocumene), discarded environmental and  
12 process characterization samples, and outdated or off-specification  
13 chemical reagents.  
14  
15 • Occasional Waste--consisting of rags, paper towels, disposable  
16 pipettes, contaminated gloves, and other miscellaneous materials  
17 associated with the performance of analytical methods. This type of  
18 waste is collected separately, segregated from nondangerous dry waste,  
19 and managed as a non-specific (F listed) waste. A second example of  
20 occasional waste is waste oil generated from maintenance of vacuum  
21 pump systems, entrainer units, elevator blower fans, and continuous  
22 oilers. This waste could have lead, cadmium, and polychlorinated  
23 biphenyls present in the oil.  
24

## 25 5.0 CLOSURE STRATEGY

26  
27  
28  
29 The operating records for the 222-S show no documented spills in the  
30 222-S Dangerous and Mixed Waste Area storage structures. Clean closure is  
31 based on confirmation of no spills or leaks of dangerous waste into or onto  
32 components undergoing closure. These components are the interior metal walls,  
33 the fiberglass grate, the stainless steel containment basin, and the wood  
34 floor. (The outside walls and roofs of the storage units will not be required  
35 to meet any performance standards.) Any component or portion of a component  
36 suspected to be contaminated with dangerous waste or waste residue will be  
37 decontaminated and re-examined. Any component or portion of a component  
38 unable to be cleaned sufficiently to meet performance standards will be  
39 removed and disposed in accordance with applicable regulations.  
40

41 Contamination scenarios other than superficial contamination are unlikely  
42 because the exposed interior surfaces of the storage structures are steel, and  
43 waste is containerized. Also, the 222-S Dangerous and Mixed Waste Storage  
44 Area is inspected weekly.  
45

46 The concrete pad and soil beneath the structures will not be closed as  
47 part of this effort. The concrete pad and soil beneath the unit will remain  
48 in the 222-S TSD unit.  
49

50 The closure activities that will be performed include the following:

- 51  
52 • Perform document review and interview of personnel  
53  
54 • Remove waste inventory from the structures  
55

- 1 • Perform a radiation survey and visual inspection of the surfaces
- 2
- 3 • Decontaminate, as necessary, if survey or inspection indicates
- 4 potential contamination
- 5
- 6 • Perform a verification radiation survey and visual inspection
- 7
- 8 • Remove and dispose of all portions of the structures that cannot meet
- 9 the performance standards (specified in Section 6.0)
- 10
- 11 • Obtain a PE certification of closure.
- 12

## 13 6.0 CLOSURE PERFORMANCE STANDARDS

14  
15  
16  
17 Clean closure, as provided for in this plan, and in accordance with  
18 Washington Administration Code (WAC) 173-303-610(2), will control, minimize,  
19 or eliminate to the extent necessary to protect human health and the  
20 environment, post-closure escape of dangerous waste, dangerous constituents,  
21 leachate, contaminated run-off, or dangerous waste decomposition products to  
22 the ground, surface water, groundwater, or the atmosphere.

23  
24 The operating records for the 222-S show no documented spills in the  
25 222-S Dangerous and Mixed Waste Storage Area storage structures. Clean  
26 closure is based on confirmation of no spills or leaks of dangerous waste into  
27 or onto components undergoing closure. The performance standard for all  
28 surfaces will be no measurable amounts of radiological contamination above  
29 background and no obvious visual signs of contamination.

30  
31 All surfaces examined will be surveyed for radiological contamination.  
32 Radiological contamination will be used to indicate the potential presence of  
33 dangerous waste contamination. The performance standard for radiological  
34 contamination is measurable amounts of radiation above background levels.

35  
36 A visual inspection also will be performed on the metal surfaces.  
37 Evidence of potential dangerous waste contamination will include, but will not  
38 be limited to, discoloration or material degradation, such as pitting due to  
39 corrosion, wetness, and staining. The performance standard for the visual  
40 inspection is no obvious signs of potential dangerous waste contamination.

41  
42 The surface will be considered free of dangerous waste contamination if  
43 there is no measurable amounts of radiological contamination above background  
44 levels and no obvious visual signs of potential dangerous waste contamination.

## 45 46 47 7.0 GENERAL CLOSURE ACTIVITIES

48  
49  
50 This section describes the specific activities that will be employed to  
51 implement the closure strategy and meet the clean closure performance  
52 standards. Activities will be documented on an inspection checklist  
53 (attached). Closure activities could be performed individually on each  
54 storage structure. Any areas not obtaining clean status will be removed and  
55 disposed.

1 As required in the following sections a radiation survey plan will be  
2 prepared for activities associated with this partial closure. The plan will  
3 be prepared prior to performing the associated activities. The plan will be  
4 made available to Ecology for informational only purposes upon request.  
5  
6

### 7 7.1 REMOVAL OF WASTE INVENTORY

8  
9 As a first step of closure, all containers of waste will be removed from  
10 the storage structures. The containers of waste will be transferred to  
11 another permitted onsite TSD unit or permitted offsite facility for storage.  
12 The waste could be moved out of the storage structures at different times,  
13 first removing the containers from one of the structures. This would allow  
14 some containers to be moved into the still active structure, while the other  
15 structure undergoes closure activities.  
16

### 17 7.2 INSPECTION

18  
19 After removal of the waste containers, a radiation survey will be  
20 performed on the interior walls, the fiberglass grate, the stainless steel  
21 containment basin, and the wood floor. Any area showing measurable  
22 radiological levels above background levels will be noted for closer  
23 examination during the visual inspection.  
24  
25

26 A visual assessment of whether spills have occurred within the  
27 222-S Dangerous and Mixed Waste Storage Area will be performed after all waste  
28 has been removed. The visual inspection also will include evaluation to the  
29 extent possible of the interior walls, the stainless steel containment basins,  
30 the fiberglass grate, and wood floors. (Photographs of the components will be  
31 taken during visual inspections and included with inspection checklist.) For  
32 areas that show potential dangerous waste contamination, field personnel will  
33 determine whether to remove and dispose or to decontaminate.  
34  
35

### 36 7.3 DECONTAMINATION

37  
38 If necessary, to allow sufficient time for installing the new storage  
39 structures, the storage structures undergoing closure could be moved before  
40 decontamination. If movement of the existing storage structures becomes  
41 necessary before decontamination, the structures will be placed on a liner  
42 (e.g., 10 mil plastic) as near as possible to their original location. A  
43 radiation survey will be performed on the area where the liner will be placed.  
44 The liner and the structures will only be moved to a location that is at or  
45 below background radiation levels. A proposed location for the structures,  
46 west of the 222-S Laboratory and north of the 222-SA Laboratory, is noted in  
47 Figure 2.  
48

49 If the radiation survey and visual inspection indicate areas of potential  
50 dangerous waste contamination, the component or portion of component will be  
51 decontaminated. The method of decontamination used will depend on the nature  
52 of the area of potential contamination. Decontamination methods might include  
53 wiping, washing, brushing, or scrubbing, and rinsing with water or other  
54 appropriate method.  
55

1 The most likely areas of potential contamination would be on the  
2 containment basin, fiberglass grates, or wood floor. If the grates require  
3 decontamination, the grates will be surface wiped while still in place over  
4 the containment basins. Following initial grate cleaning, rinse water will be  
5 applied to the grate over the area of potential contamination and will be  
6 collected within the containment basin. Following initial decontamination,  
7 the grate either will be removed or raised to enable access to the underlying  
8 containment basin, which also will be decontaminated. Accumulated  
9 decontamination rinsate will be removed from the containment basin by sponges,  
10 mops, pump, or vacuum truck, depending on the quantity of rinsate generated.  
11 Solid decontamination residue will be swept up. Decontamination methods for  
12 the wood floor might include wiping, washing, brushing, scrubbing, or other  
13 appropriate method.

#### 14 15 16 7.4 VERIFICATION INSPECTION

17  
18 After decontamination, all areas of potential dangerous waste  
19 contamination will be radiation surveyed and visually inspected as per  
20 Section 7.2. For areas that continue to show potential dangerous waste  
21 contamination, field personnel will determine whether to repeat  
22 decontamination procedures. Once the radiation survey and visual inspection  
23 indicate no areas of potential dangerous waste contamination, the structures  
24 will be considered clean. Any areas not obtaining clean status will be  
25 removed and disposed.

#### 26 27 28 7.5 MATERIAL REMOVED DURING CLOSURE

29  
30 Decontamination waste, treatment residue, and/or closure debris will be  
31 placed in containers at appropriate areas (e.g., satellite accumulation areas)  
32 at the unit. When full, these containers will be moved to a designated  
33 accumulation area at the unit to await designation in accordance with WAC  
34 173-303-070 and disposal. Containers used for transfer of regulated materials  
35 will be U.S. Department of Transportation-approved containers compatible with  
36 the waste being shipped offsite under manifest according to WAC 173-303-180  
37 and WAC 173-303-190 or transferred to an onsite TSD unit.

#### 38 39 40 8.0 CLOSURE SCHEDULE \*

43 Activity	Proposed Completion date
44 Remove waste inventory	December 15, 1997
45 Move structures, if necessary	December 23, 1997
46 Inspection/decontamination/ 47 verification, as necessary	January 15, 1998
48 Relocate structures	February 16, 1998

49  
50 \* Proposed completion date subject to change with Ecology notification.

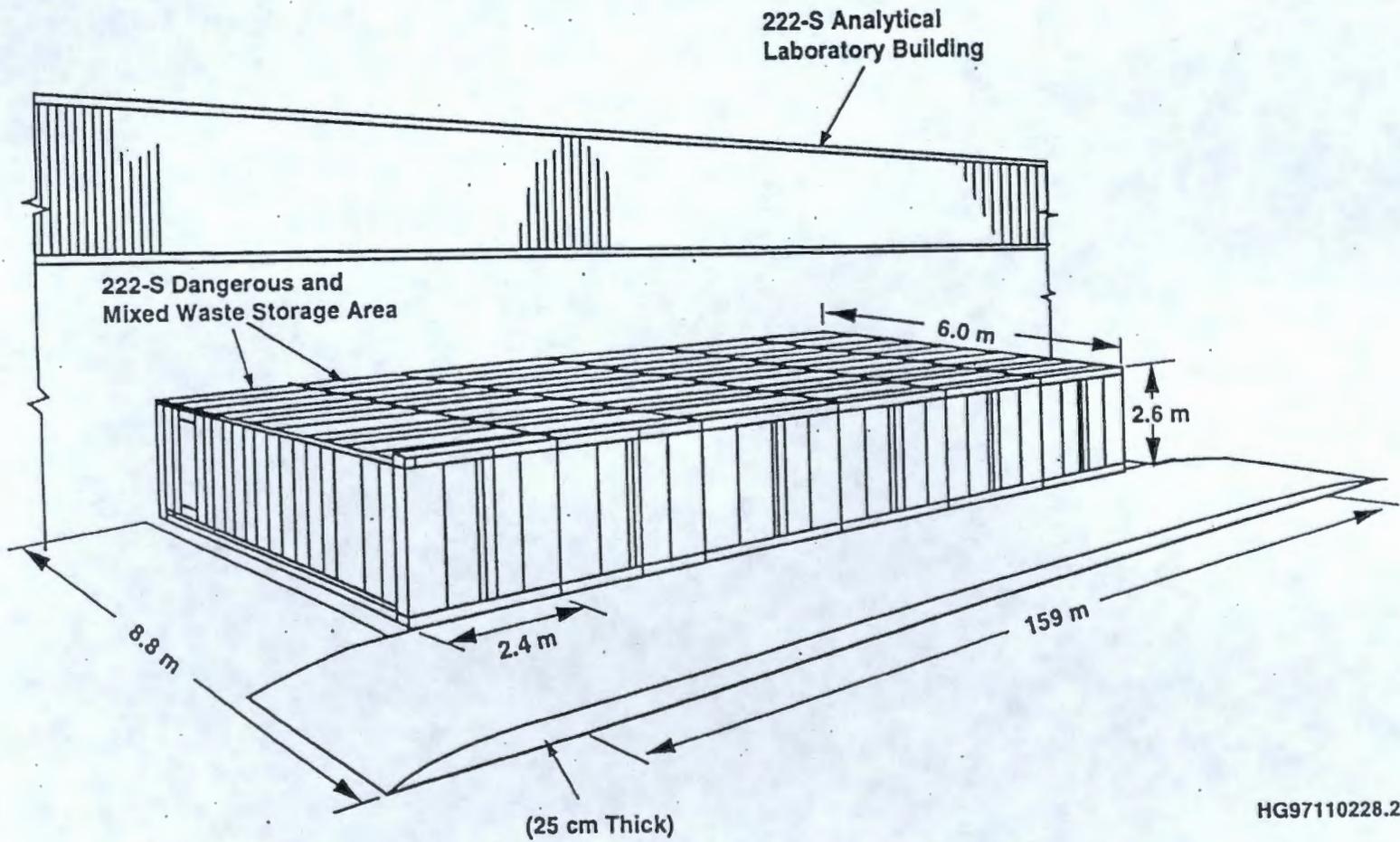
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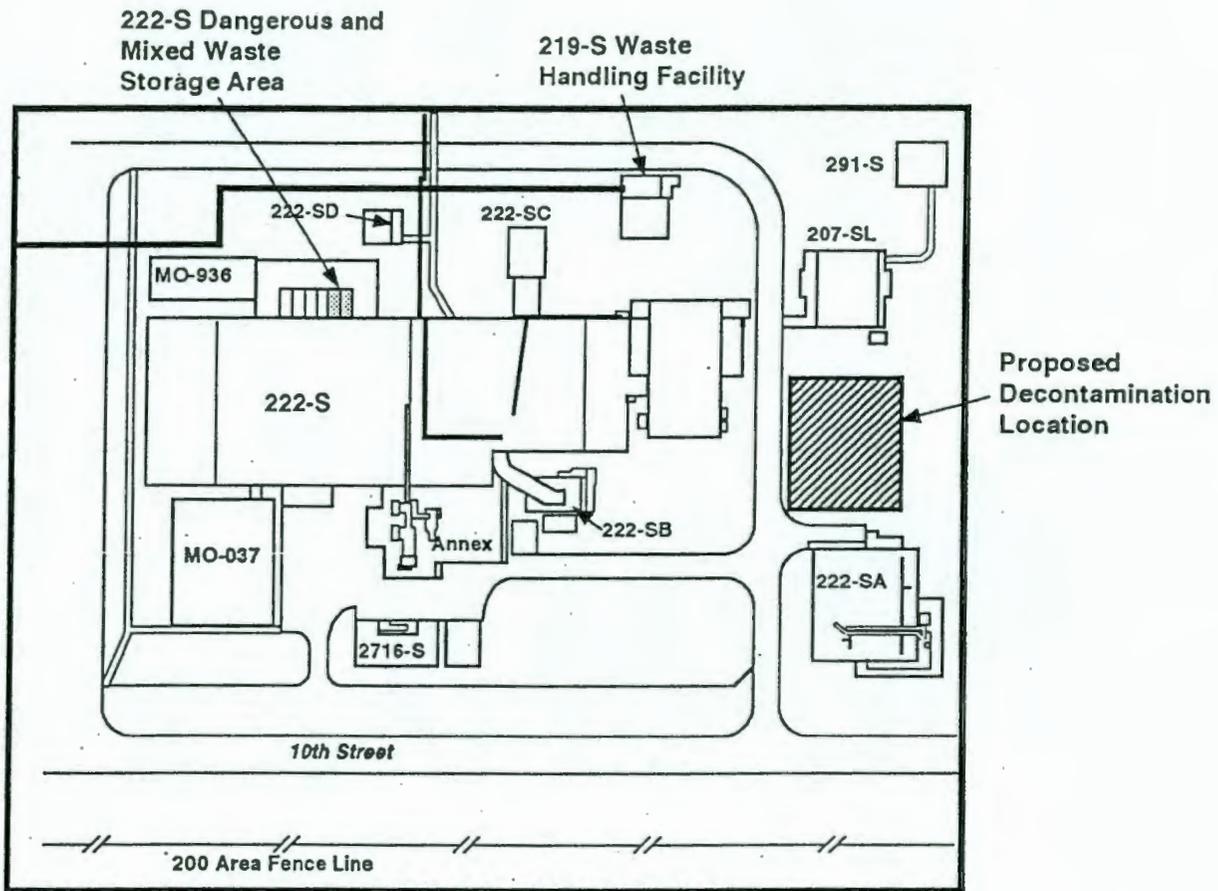
## 9.0 CERTIFICATION OF CLOSURE

PE certification of closure will cover only the portions of the 222-S covered by this partial closure plan, specifically the two structures of the 222-S Dangerous and Mixed Waste Storage Area. The PE certification will occur upon disposition of decontamination generated waste and completion of all partial closure activities summarized in Section 5 and described in Section 7.0. The PE shall provide a signed statement that meets the applicable requirements of WAC 173-303-610(6), certifying that the closure activities were performed in accordance with the technical specifications of the approved partial closure plan. A copy of the PE certification will be transmitted to Ecology, placed in the Administrative Record, and provided as an appendix to Chapter 11, Closure and Financial Assurance in the 222-S Part B permit application.

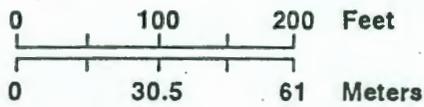
The PE will certify that the unit has been closed in accordance with the approved partial closure plan. The PE certification is to confirm that the activities took place as described. The PE is not responsible for corroborating information on any part of the partial closure plan not addressing activities completed in support of closure.

Figure 1. 222-S Dangerous and Mixed Waste Storage Area Storage Structures.





Scale



HG97110228.1

Figure 2. Proposed Storage Structure Decontamination Location.

EXAMPLE

INSPECTION CHECKLIST  
FOR THE 222-S DANGEROUS AND MIXED WASTE STORAGE AREA  
STORAGE STRUCTURES

1. Storage structure identification: \_\_\_\_\_
2. Component description (e.g., wall, wood floor): \_\_\_\_\_
3. Material (e.g., wood, metal): \_\_\_\_\_

NOTE: Attach photographs taken during visual inspection.

INITIAL INSPECTION

date: \_\_\_\_\_ time: \_\_\_\_\_

4. Radiation survey performance standard met? (at or below background):  
\_\_\_\_\_
5. Visual inspection performance standard met? (no obvious visual signs of potential contamination): \_\_\_\_\_
6. Comments on survey/inspection (or N/A if not applicable): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
7. If photographs taken, attach

DECONTAMINATION, if required

date: \_\_\_\_\_ time: \_\_\_\_\_

8. (If required to move the structures) Radiation survey performance standard at decontamination location met? (at or below background):  
\_\_\_\_\_
9. Decontamination method used (or N/A): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
10. Comments on decontamination (or N/A): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
11. If photographs taken, attach

VERIFICATION INSPECTION, if required  
date: \_\_\_\_\_ time: \_\_\_\_\_

12. Radiation survey performance standard met? (at or below background):  
\_\_\_\_\_

13. Visual inspection performance standard met? (no obvious visual signs of  
potential contamination): \_\_\_\_\_

14. Comments on verification inspection (or N/A): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

15. If photographs taken, attach.

WITNESSES:

\_\_\_\_\_  
Print: name and title

\_\_\_\_\_  
Signature / Date

\_\_\_\_\_  
Print: name and title

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