

Addendum A

Part A Form

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WASHINGTON STATE
DEPARTMENT OF
E C O L O G Y

Dangerous Waste Permit Application

Part A Form

Date Received			Reviewed by:				Date:			
Month	Day	Year	Approved by:				Date:			

I. This form is submitted to: (place an "X" in the appropriate box)

<input type="checkbox"/>	Request modification to a final status permit (commonly called a "Part B" permit)
<input type="checkbox"/>	Request a change under interim status
<input checked="" type="checkbox"/>	Apply for a final status permit. This includes the application for the initial final status permit for a site or for a permit renewal (i.e., a new permit to replace an expiring permit).
<input type="checkbox"/>	Establish interim status because of the wastes newly regulated on:
	(Date)
List waste codes:	

II. EPA/State ID Number

W A 7 8 9 0 0 0 8 9 6 7

III. Name of Facility

U.S. Department of Energy – Hanford Facility

IV. Facility Location (Physical address not P.O. Box or Route Number)

A. Street

Refer to Permit Attachment 2 – Hanford Facility Permit Legal Description

City or Town				State	ZIP Code
Near Richland				WA	
County Code (if known)		County Name			
0	0	5	Benton		

B. Land Type	C. Geographic Location		D. Facility Existence Date		
	Latitude (degrees, mins, secs)	Longitude (degrees, mins, secs)	Month	Day	Year
F	Refer to TOPO Map (Attachment A)		1	1	1 9 1 9 8 0

V. Facility Mailing Address

Street or P.O. Box

P.O. Box 550

City or Town				State	ZIP Code
Richland				WA	99352

VI. Facility contact (Person to be contacted regarding waste activities at facility)			
Name (last)		(first)	
Vance		Brian	
Job Title		Phone Number (area code and number)	
Manager		(509) 376-7395	
Contact Address			
Street or P.O. Box			
P.O. Box 550			
City or Town		State	ZIP Code
Richland		WA	99352
VII. Facility Operator Information			
A. Name		Phone Number	
U.S. Department of Energy Owner/Operator		(509) 376-7395	
CH2M HILL Plateau Remediation Company Co-Operator for the Waste Encapsulation and Storage Facility		(509) 376-0556	
Street or P.O. Box			
U.S. Department of Energy P.O. Box 550		CH2M HILL Plateau Remediation Company P.O. Box 1600	
City or Town		State	ZIP Code
Richland		WA	99352
B. Operator Type	F		
C. Does the name in VII.A reflect a proposed change in operator?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
If yes, provide the scheduled date for the change:		Month	Day Year
D. Is the name listed in VII.A. also the owner? If yes, skip to Section VIII.C.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
VIII. Facility Owner Information			
A. Name		Phone Number (area code and number)	
U.S. Department of Energy Owner/Operator		(509) 376-7395	
Street or P.O. Box			
P.O. Box 550			
City or Town		State	ZIP Code
Richland		WA	99352

B. Owner Type	F			
C. Does the name in VIII.A reflect a proposed change in owner?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
If yes, provide the scheduled date for the change:		Month	Day	Year

IX. NAICS Codes (5/6 digit codes)

A. First							B. Second						
5	6	2	2	1	1	Waste Treatment & Disposal	9	2	4	1	1	0	Administration of Air & Water Resource & Solid Waste Management Programs
C. Third							D. Fourth						
5	4	1	7	1	5	Research & Development in the Physical, Engineering, & Life Sciences	5	6	2	9	1	0	Remediation Services

X. Other Environmental Permits (see instructions)

A. Permit Type	B. Permit Number												C. Description
E	A	O	P	0	0	-	0	5	-	0	0	6	Title V Air Operating Permit (AOP) Incorporation of current non-radiological Notice of Construction permits and FF-01 radiological licenses into the AOP may be delayed up to 2 years.
E	S	T	0	0	0	4	5	1	1				WAC 173-216 State Waste Discharge Permit Program, Sitewide Permit for Miscellaneous Streams

XI. Nature of Business (provide a brief description that includes both dangerous waste and non-dangerous waste areas and activities)

The Waste Encapsulation and Storage Facility (WESF) was constructed on the west end of B Plant between 1971 and 1973 to encapsulate and store radioactive cesium and strontium salts that had been separated from the Hanford Facility radioactive tank waste. The radioactive cesium is stored as cesium chloride, and the strontium is stored as strontium fluoride. Due to impurities in the salts, the waste was designated as mixed waste. WESF has stored the encapsulated salts since operations began in 1974, and mixed waste management activities were initiated on July 14, 1997.

WESF is a two-story building ~47.5 by 28 by 11.7 m (156 by 91 by 38.5 ft) constructed of steel reinforced concrete. WESF is partitioned into seven hot cells, the hot cell service area, operating areas, building service areas, truckport, and the pool cell area. There are four dangerous waste management units (DWMUs) at WESF: three are operating and one is closing. The three operating DWMUs consist of the Hot Cell G DWMU, the Pool Cells DWMU, and the Truckport DWMU. The closing DWMU consists of Hot Cells A through F, which have been filled with grout as part of initial closure activities to stabilize legacy contamination. The hot cell service area is located on the south side of the hot cells and was used for access into Hot Cells A and G. The operating areas and other building service areas associated with the hot cells provide areas for instrumentation monitoring, utility support, or manipulator repair, as required.

The mixed waste being managed at WESF is the cesium and strontium capsules stored in the Pool Cells. The mixed waste is stored in stainless steel and Hastelloy® C-276 capsules with a maximum outer height of ~55.4 cm (~21.8 in.) and maximum diameter of ~8.26 cm (~3.25 in.).

The WESF DWMUs have been classified as X99 storage units. Classification of the WESF DWMUs as miscellaneous units is necessary because of the unique radiological characteristics of the cesium and strontium capsules which requires specialized management systems and requirements, other than those applicable to container storage units. Miscellaneous units do not clearly fit into a regulatory category, such as a container storage unit, containment building, or tank system. WAC 173-303-680, “Dangerous Waste Regulations,” “Miscellaneous Units,” require that miscellaneous units be located, designed, constructed, and operated in a way that protects human health and the environment according to those provisions most appropriate to the unit being permitted. Terms and provisions most appropriate to WESF are those applicable requirements of WAC 173-303-630, “Use and Management of Containers.”

WESF DWMUs will store the cesium and strontium capsules until they are transitioned to dry storage at the Capsule Interim Storage (CIS) Operating Unit Group. Major Milestone M-092 addresses the disposition path for the cesium and strontium capsules, with a milestone due date of August 31, 2025, to complete the transfer of the cesium and strontium capsules from WESF to a new permitted interim safe storage facility. Until the CIS is completed, WESF DWMUs will continue to store and manage the cesium and strontium capsules.

In addition to capsule storage, WESF also generates waste from routine maintenance and processing operations. Waste can include batteries, oils, solvents, paints, miscellaneous debris, and discarded chemicals. Mixed waste generated from routine maintenance and processing operations is accumulated in a satellite or central accumulation area in accordance with WAC 173-303-174, “Satellite Accumulation Area Regulations for Medium Quantity Generators and Large Quantity Generators” and WAC 173-303-200, “Conditions for Exemption for a Large Quantity Generator that Accumulates Dangerous Waste.” Universal waste is managed at WESF in accordance with WAC 173-303-573, “Standards for Universal Waste Management.”

NAICS Code 562910, Remediation Services, does not apply to the WESF Operating Unit Group.

Pool Cells

The WESF pool cell area consists of 12 pools lined with stainless steel. The Pool Cell DWMU consists of Pool Cells 1 through 8 and 12, which are used for capsule storage. A total of 1,936 capsules (601 strontium capsules and 1,335 cesium capsules) are stored within the pool cells. Each pool cell is filled with water to a depth of ~4 m (13 ft), and is equipped with a monitoring system to detect any leakage from capsules. The water cools the capsules and provides radiation shielding. Pool Cell 12 is used to move capsules from Hot Cell G and from pool cell to pool cell.

Pool Cells 9, 10, and 11 are not configured to store capsules; therefore, they are not part of the Pool Cell DWMU and are not subject to treatment, storage, and disposal (TSD) requirements under the permit.

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Hot Cell G

Hot Cell G was used to perform inspections of capsules. Historically, both Hot Cell F and Hot Cell G were available to support contingency operations in the event of a capsule failure. Due to closure of Hot Cell F, Hot Cell G currently supports such events. Upon discovery of a suspected failure, a capsule would be brought into Hot Cell G for inspection and testing; it would then be placed into shielded storage pending development of a full recovery plan. Hot Cell G continues to provide a location for welding, testing, and storage, should installation of overpacks onto capsules be required.

Furthermore, Hot Cell G supports loading of capsules into overpack containment, referred to as Universal Capsule Sleeves (UCS), to facilitate transport and eventual removal of the capsules from WESF. UCSs are stored in Hot Cell G prior to transporting and loading into the designated location within the Cask Storage System (CSS) located in the Truckport.

Truckport

The Truckport DWMU consists of the enclosed Truckport. The Truckport will be used to store mixed waste, and to support capsule transfer operations by providing necessary equipment used to transport, load, and store CSSs, while the Truckport Apron will be used to temporarily locate the vertical concrete casks (VCCs) prior to transport. The Truckport Apron is used for CSS transport and is not part of the DWMU.

Hot Cell A through Hot Cell F

Waste and drum load out was performed in Hot Cell A during production operations. Hot Cells B through E were used to convert strontium nitrate and cesium carbonate into strontium fluoride and cesium chloride salts. The hot cells were also used to place the salt into capsules along with welding and leak testing of the capsules. Hot Cell F remained operational to support contingency operations in the event of a capsule leak by providing storage of capsules to allow continued personnel access to Hot Cell G; however, Hot Cell G was never used for that purpose. With the addition of shielded storage to Hot Cell G, Hot Cell F was determined unnecessary for contingency operations. Initial closure activities to support clean closure of Hot Cell A through Cell F are detailed in the Closure Unit Group 6 portion of the Hanford Site-Wide Permit.

Storage Capacity Pool Cells

Capsules can be stored in Pool Cells 1, 3, 4, 5, 6, 7, and 12. Pool Cells 2 and 8 are part of the TSD boundary, but there is no capability to store capsules there. Pool Cells 1, 3, 4, 5, 6, and 7 contain engineered devices (capsule storage racks) to store the capsules.

The total storage capacity of the Pool Cells DWMU is 1,936 capsules. Since each capsule has a maximum volume of 1 L (0.264 gal), this equates to a total capacity of 1,936 L (511.4 gal). The total mass of cesium and strontium salts was calculated by subtracting the empty capsule weight from the gross weight of a loaded capsule. The total mass of the salts is 5,049 kg (11,131 lb).

Storage Capacity G Cell

During capsule loading operations, a single UCS holding six capsules will be in Hot Cell G at a time. The new shielded storage can hold one capsule. An additional two capsules have been included in the maximum capacity to account for any required preloading operations or capsule inspection of a potentially breached capsule. Therefore, Hot Cell G has a maximum capacity of nine capsules. Assuming 1 L(0.264 gal)/capsule, this equates to 9 L (2.38 gal).

Storage Capacity Truckport

The Truckport supports loading, transporting, staging, and storing of CSSs. The CSS consists of a VCC, which provides protection of the contents from external hazards. Within the VCC is the transportable storage canister (TSC) structure, which houses the TSC basket. The TSC basket houses up to two UCSs inside each of the 11 cell locations, and each UCS holds up to six cesium or strontium capsules. Therefore, the CSS holds up to 132 capsules. Since the Truckport can only support one VCC at a time, the maximum design capacity is 132 capsules. Assuming 1 L (0.264 gal)/capsule, this equates to 132 L (34.8 gal).

Collectively, the total combined process design storage capacity for the WESF DWMUs is 1,936 L (511.4 gal; Pool Cells, Hot Cell G and Truckport combined).

EXAMPLE FOR COMPLETING ITEMS XII and XIII (shown in lines numbered X-1, X-2, and X-3 below):

Section XII. Process Codes and Design Capacities							Section XIII. Other Process Codes							
Line Number	A. Process Codes (enter code)			B. Process Design Capacity		C. Process Total Number of Units	Line Number	A. Process Codes (enter code)			B. Process Design Capacity		C. Process Total Number of Units	D. Process Description
	1.	2.	3.	1. Amount	2. Unit of Measure (enter code)			1.	2.	3.	1. Amount	2. Unit of Measure (enter code)		
X 1	S	0	2	1,600	G	002	X 1	T	0	4	700	C	001	In situ Vitrification
X 2	T	0	3	20	E	001								
X 3	T	0	4	700	C	001								
1	X	9	9	1,936	L	004	1	X	9	9	1,936	L	001	Pool Cells
2							2	X	9	9	9	L	001	Hot Cell G
3							3	X	9	9	0	L	001	Hot Cell A through Hot Cell F
4							4	X	9	9	132	L	001	Truckport
5							5							
6							6							
7							7							
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9							9							
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1 2							1 2							
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1 9							1 9							
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2 4							2 4							
2 5							2 5							

XIV. Description of Dangerous Wastes

Example for completing this section: A facility will receive three non-listed wastes, then store and treat them on-site. Two wastes are corrosive only, with the facility receiving and storing the wastes in containers. There will be about 200 pounds per year of each of these two wastes, which will be neutralized in a tank. The other waste is corrosive and ignitable and will be neutralized then blended into hazardous waste fuel. There will be about 100 pounds per year of that waste, which will be received in bulk and put into tanks.

Line Number	A. Dangerous Waste No.				B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Processes										
							(1) Process Codes						(2) Process Description [If a code is not entered in D (1)]				
							S	0	1	T	0	1					
X 1	D	0	0	2	400	P	S	0	1	T	0	1					
X 2	D	0	0	1	100	P	S	0	2	T	0	1					
X 3	D	0	0	2													Included with above
1	D	0	0	5	5,049	K	X	9	9								Storage
2	D	0	0	6													Included Above
3	D	0	0	7													Included Above
4	D	0	0	8													Included Above
5	D	0	1	1													Included Above
6																	
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XV. Map

Attach to this application a topographic map of the area extending to at least one (1) mile beyond property boundaries. The map must show the outline of the facility; the location of each of its existing and proposed intake and discharge structures; each of its dangerous waste treatment, storage, recycling, or disposal units; and each well where fluids are injected underground. Include all springs, rivers, and other surface water bodies in this map area, plus drinking water wells listed in public records or otherwise known to the applicant within ¼ mile of the facility property boundary. The instructions provide additional information on meeting these requirements.

XVI. Facility Drawing

All existing facilities must include a scale drawing of the facility (refer to Instructions for more detail).

XVII. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, recycling, and disposal areas; and sites of future storage, treatment, recycling, or disposal areas (refer to Instructions for more detail).

Photographs are included in Attachment A.

XVIII. Certifications

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Operator

Name and Official Title (type or print)

Brian Vance, Manager
U.S. Department of Energy
Richland Operations Office

Jose R. Franco Digitally signed by Jose R. Franco
Date: 2020.04.22 16:17:50 -07'00'

Date Signed**Co-Operator**

Name and Official Title (type or print)

L. Ty Blackford
President and Chief Executive Officer
CH2M HILL Plateau Remediation Company


Date Signed

4/9/2020

Co-Operator – Address and Telephone Number

P.O. Box 1600
Richland, WA 99352
(509) 376-0556

Facility-Property Owner

Name and Official Title (type or print)

Brian Vance, Manager
U.S. Department of Energy
Richland Operations Office

Signature

Jose R. Franco Digitally signed by Jose R. Franco
Date: 2020.04.22 16:20:00 -07'00'

Date Signed**XIX. Comments**

Attachment A contains pictures and topographic map of WESF. See Ecology Administrative Records for a topographic map of the Hanford Facility.

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