



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

1243345  
[00719684]

17-AMRP-0112

MAR 09 2017

Ms. Alexandra K. Smith, Program Manager  
Nuclear Waste Program  
Washington State Department of Ecology  
3100 Port of Benton Boulevard  
Richland, Washington 99354

Dear Ms. Smith:

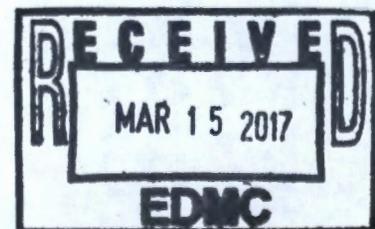
**CLOSURE EXTENSION REQUEST FOR WASTE ENCAPSULATION AND STORAGE FACILITY (WESF) DANGEROUS WASTE MANAGEMENT UNITS (DWMU)**

This letter requests an extension in the date of expected closure in accordance with WAC 173-303-400(3). The WAC includes reference to 40 CFR 265.112(d)(2), which states the date when closure is expected to begin must be:

- Within 30 days after the date on which any hazardous waste management unit receives the known final volume of hazardous wastes, or, if there is a reasonable possibility that the hazardous waste management unit will receive additional hazardous wastes, no later than one year after the date on which the unit received the most recent volume of hazardous waste. If the owner or operator of a hazardous waste management unit or facility has the capacity to receive additional hazardous wastes and he has taken, and will continue to take, all steps to prevent threats to human health and the environment, including compliance with all interim status requirements, the Regional Administrator (Department) may approve an extension to this one-year limit.

In order to ensure compliance with WAC 173-303-400(3)(a), the U.S. Department of Energy Richland Operations Office (RL) has identified that the WESF DWMUs listed below are affected by this requirement:

- Pool Cells DWMU
- Hot Cell G DWMU



Ms. Alexandra K. Smith  
17-AMRP-0112

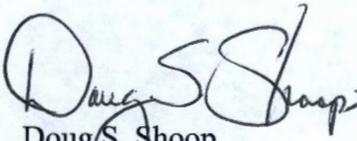
-2-

MAR 09 2017

RL is requesting that the expected date to begin closure of these DWMUs be extended for one year to support safe storage of the Cesium and Strontium Capsules prior to transfer to the planned Capsule Interim Storage area.

If you have any questions, please contact me, or your staff may contact Ray Corey, Assistant Manager for the River and Plateau, on (509) 373-9971.

Sincerely,

  
Doug S. Shoop  
Manager

AMRP:DBC

Attachment (Closure Extension Request)

cc w/attach:

D. J. Alexander, Ecology  
D. B. Bartus, EPA  
G. Bohnee, NPT  
J. L. Boller, EPA  
J. W. Cammann, MSA  
L. J. Cusack, CHPRC  
S. L. Dahl-Crumpler, Ecology  
D. A. Faulk, EPA  
M. N. Jaraysi, CHPRC  
R. Jim, YN  
S. K. Johansen, CHPRC  
S. Luttrell, Ecology  
J. B. Price, Ecology  
K. Schanilec, EPA  
C. J. Simiele, CHPRC  
R. Skeen, CTUIR  
E. R. Skinnarland, Ecology  
**Administrative Record, TSD: S-2-10 (Hard Copy)**  
Ecology NWP Library  
Environmental Portal,  
HF Operating Record (J. K. Perry, MSA, A3-02)

cc w/o attach: See page 3

MAR 09 2017

Ms. Alexandra K. Smith  
17-AMRP-0112

-3-

cc w/o attach:

G. Bohnee, NPT

R. Buck, Wanapum

E. G. Damberg, PNNL

M. N. Jaraysi, CHPRC

R. Jim, YN

J. A. Lerch, CHPRC

R. Skeen, CTUIR

M. B. Wilson, MSA

## CLOSURE EXTENSION REQUEST

The current Waste Encapsulation and Storage Facility (WESF) mission is continued safe storage of 1,936 cesium and strontium capsules (1,936 L) until final disposition. Accomplishment of this mission requires longer than the one-year limitation.

Historically, the WESF Operating Unit Group was built to process, encapsulate, store, and maintain radioactive cesium-137 and strontium-90 that had been separated from plutonium production waste and placed in sealed stainless steel capsules. Encapsulation operations were supported via the hot cells, galleries, and service areas. Once encapsulated, the cesium and strontium salts in the capsules were then transferred from the hot cells to the pool cell area for storage. Processing was complete by September 1985 and WESF had transitioned into a standby and surveillance mode. In this mode of operation, only equipment and instruments required for continued safe storage of the capsules remained operational. This included the operation and maintenance of the pool cells and support systems for Hot Cell G (9L max. capacity).

Currently, the capsules remain in the Pool Cells Dangerous Waste Management Unit (DWMU). No additional wastes are planned to be placed in the cells. With the completion of the Capsule Interim Storage Project, the capsules will be transferred to dry storage. Hot Cell G remains active to support WESF contingency operations in the event of a capsule failure and will facilitate transfer operations. The transfer of capsules to dry storage is expected to be completed by end of 2023. The U.S. Department of Energy Richland Operations Office (RL) is requesting that the expected date to begin closure of the two WESF DWMUs be extended until such a time that the Capsule Interim Storage Project and transfer of capsules to the dry storage casks has been completed.

In support of the request to extend the storage period RL is providing the information below. Further descriptions of measures to prevent threats to human health and the environment are also attached.

The predominant risk to human health and the environment presented by the cesium-137 and strontium-90 capsules is radiological rather than chemical. The sealed stainless steel capsules present no threat of chemical harm from toxicity, reactivity, ignitability, or corrosivity. However, each individual capsule emits a level of radiation which can transmit a lethal dose to any person who comes in close proximity to the single capsule. For this reason the capsules must be stored within media which prevent the release of radiation, such as the 13 foot deep pool of purified water that covers the capsules within WESF, or the dense containers in which they will be placed in the new dry storage facility. It is clear that measures which the U.S. Department of Energy (DOE) takes to protect human health and the environment from this radiation will inevitably ensure that there are no adverse effects from the chemical nature of the contents.

Consistent with Federal and State laws and regulations if a container at the Hanford Site holds a mixture of both radioactive waste and dangerous waste, the Washington State Department of Ecology (Ecology) regulates the dangerous waste in the container, while the radionuclides in the

## CLOSURE EXTENSION REQUEST

same container are regulated under the Atomic Energy Act (AEA), 42 USC 2011 et seq.) by DOE.

To assist Ecology in explaining why Ecology does not regulate the radionuclides RL is providing the following explanation. The Resource Conservation and Recovery Act (RCRA) (42 USC 6901 et seq.) defines "hazardous waste" as "solid waste" which either has specified hazardous characteristics, or which has been "listed" as hazardous based on the history of the waste in the container, and RCRA defines "solid waste" to exclude "source, special nuclear, or byproduct material" that is regulated under the AEA (RCRA 1004(27), 42 USC 6903(27)). The cesium-137 and strontium-90 in the WESF capsules is the product of the process conducted at the Hanford Site which created plutonium in nuclear reactors, and then separated the plutonium from other elements, including cesium-137 and strontium-90. These elements therefore fall within the exclusion from "solid waste" and "hazardous waste." Residual amounts of other elements are the basis for classifying the contents of the capsules as "mixed waste" that can be regulated for its hazardous waste content.

The one year time limit for continuing storage of hazardous waste in a particular Treatment, Storage, and Disposal (TSD) Unit is based on RCRA Section 3004(j) (42 USC 6924(j)), a provision in the Land Disposal Restrictions (LDR) requirements which limits the length of time that hazardous waste can remain in storage, a limit intended to force TSD Unit owners to move hazardous waste into treatment and disposal. However, Congress recognized in the Federal Facilities Compliance Act (FFCA) of 1992 (Pub.L. 102-386, Section 102(c), 42 USC 6961 Note) that the United States lacks the capacity to immediately treat and dispose of most of its radioactive waste, especially Transuranic (TRU) waste containing plutonium, and High Level Waste (HLW) created in the process of extracting plutonium from spent uranium fuel used in nuclear reactors. The Nuclear Waste Policy Act (NWPA) and the Waste Isolation Pilot Plant (WIPP) specify that TRU waste can only legally be disposed of into the WIPP facility outside Carlsbad, New Mexico, and HLW only in a national Spent Nuclear Fuel deep repository. However, the WIPP can only receive TRU waste at a limited rate, and it was shut down for three years due to an accident and has only recently reopened, while the sole candidate for the role of HLW deep repository was canceled by the Obama Administration. The FFCA allows radioactive mixed waste to continue to be stored in TSD Units for an extended time, because of these limits on disposal. The cesium-137 and strontium-90 capsules are HLW which must be safely stored until a deep repository can legally receive them, some years in the future.

The general provisions that strictly limit storage periods for hazardous waste in general, including RCRA 3004(j) (42 USC 6924(j), enacted in 1984), are preempted by the more specific, conflicting provisions of the FFCA (enacted later, in 1992), which authorize mixed waste to be stored for an extended period due to the current lack of adequate treatment and disposal capacity for mixed radioactive wastes, including zero present capacity for disposal of HLW like these capsules.

## CLOSURE EXTENSION REQUEST

Additionally, RCRA 1006 (42 USC 6905) specifies that, when there is a conflict between RCRA requirements and the requirements of the AEA, the AEA requirements take precedence over RCRA regulations. The AEA and the NWPA prohibit the cesium-137 and strontium-90 capsules from being disposed of at the present time, so there is a direct conflict with any RCRA requirement that would require the capsules to be removed from storage, including the normal requirement for closure of a hazardous waste storage facility within a year after receiving its last shipment of hazardous waste. The capsules must be allowed to remain in storage until they can be safely disposed of in an authorized HLW repository deep underground.

Thus, to resolve these conflicts between the statutory requirements of AEA for nuclear safety, and of RCRA, it is necessary to extend the permit for WESF operation until the capsules can be relocated into a new, safer dry-storage cask facility.

### **WAC 173-303-300 General Waste Analysis**

The WESF Operating Unit Group (OUG) does not receive or generate dangerous/mixed waste, therefore the waste analysis plan is not applicable.

### **WAC 173-303-310 Security**

Warning signs are posted stating "Danger-Unauthorized Personnel Keep Out" (or an equivalent legend) at each OUG. The signs have a font type and size written in English that ensures that it can be read from a distance of at least 25 feet. Requirements for a 24-hr surveillance (WAC 173-303-310(2)(b)) and an artificial or natural barrier system (WAC 173-303-310(2)(c)) are met at the Hanford Facility level as identified in Attachment 3, "Security" to the WA7890008967, Hanford Facility Resource Conservation and Recovery Act Permit.

All WESF dangerous/mixed waste management activities are performed within the main 225-B Building which is kept locked at all times. Visitors are required to sign in and are subject to escorting protocols.

### **WAC 173-303-330 Personnel Training**

The Dangerous Waste Training Plans for WESF meet the requirements of WAC 173-303-330 and contain the following:

- For each position related to the dangerous waste management of the facility, the job title, job description, and the name of the employee filling each job. The job description must include the requisite skills, education, other qualifications, and duties for each position.
- A written description of the type and amount of both introductory and continuing training required for each position.

## CLOSURE EXTENSION REQUEST

- Records documenting facility personnel have received and completed the training required by this section.

Introductory and continuing training programs are designed to prepare personnel to manage and maintain the facilities in a safe, effective, and environmentally sound manner. In addition to prepare personnel to manage and maintain the facilities under normal conditions, the training programs ensure that personnel are prepared to respond in a prompt and effective manner should abnormal or emergency conditions occur.

### WAC 173-303-320 General inspection

General inspections in accordance with WAC 173-303-320 are conducted according to the following table:

#### Inspection Requirements for WESF OUG

Requirement	Frequency	Inspection Description
Pool Cells Beta Monitoring System	Daily	Verify that beta monitors and associated alarms are functional.
Posted warning signs	Annually	Signs are present, legible, and visible.
Fire suppression systems	Monthly	Equipment is in good condition, valve seals are intact, and water pressure is available.
	Annually	Verify that valves and associated alarms are functional.
Fire extinguishers	Monthly	Equipment is present and in good physical condition, and seal is intact.
Emergency Lighting	Monthly	Verify that equipment is present and functional.
Communication Equipment	Annually	Equipment is present and operating.
Safety Shower	Monthly	Equipment is present and functional.
Portable eyewash stations	Semi Annually	Equipment is present and functional, and seal is intact and not past the expiration date.
Spill response kits	Monthly	Equipment is present, and seal is intact.
225-B Building Exterior Surfaces and Surrounding Area	Annually	Check for structural damage to the building. Check outside the building for liquid accumulation or signs of hazardous waste releases.

### WAC 173-303-340 Preparedness and Prevention

The purposes of preparedness and prevention are to minimize the damage caused by a fire or explosion and help avoid or mitigate any unplanned sudden or non-sudden release of dangerous waste constituents to air, soil, surface water, or groundwater. The requirements of WAC 173-303-340 can be found throughout various procedures and include:

- Internal/External communications

## CLOSURE EXTENSION REQUEST

- Emergency equipment
- Fire control
- Arrangements with local authorities

### **WAC 173-303-350 Contingency plan and emergency procedures**

#### **WAC 173-303-360 Emergencies**

The Building Emergency Plan for WESF (HNF-IP-0263-WESF) describe both the facility hazards and the basic responses to upset and/or emergency conditions within the facilities. These events may include spills or releases caused by processing, fires and explosions, transportation activities, movement of materials, packaging, storage of hazardous materials, and natural and security contingencies. When used in conjunction with Permit Attachment 4, Hanford Management Plan, the plans meets the requirements for contingency planning as required by WAC 173-303.

The Building Emergency Plans cover the following:

- Building emergency response organization
- Plan implementation
- Facility hazards (Hazardous Waste, Dangerous Waste, Industrial Hazards, Radioactive Materials, Criticality)
- Potential emergency conditions (facility operations emergencies, natural phenomena, security contingencies, unexpected/unidentified odors)
- Incident response (protective action, emergencies, prevention of recurrence, natural phenomena, security)
- Termination of event, incident recovery and restart of operations
- Emergency equipment
- Coordination agreements
- Required reports
- Plan location and amendments
- Facility/building emergency response organization

#### **WAC 173-303-610 Closure and post-closure**

A closure plan specific to each DWMU above was developed to comply with the requirements of WAC 173-303-610(2) through (6) and utilizing the U.S. Environmental Protection Agency (EPA) guidance document EPA/240/R-02/005, Guidance on Choosing a Sampling Design for Environmental Data Collection (QA/G-5S), and Ecology Publication #94-111, Guidance for Clean Closure of Dangerous Waste Units and Facilities. Closure plans for each DWMU above are available in the Operating Record in the WESF Part B Permit Application per Implementation of Project W-130 Modification (DOE/RL-2016-72).