



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

0071253

06-ESD-0156

SEP 15 2006

Mr. A. W. Conklin, Supervisor  
Air Emissions and Defense Waste Section  
Washington State Department of Health (WDOH)  
Post Office Box 47827  
Olympia, Washington 98504-7827

RECEIVED  
OCT 20 2006  
EDMC

Dear Mr. Conklin:

TRANSMITTAL OF RADIOACTIVE AIR EMISSIONS NOTICE OF CONSTRUCTION  
(NOC) REVISION FORMS

Enclosed are the Hanford Facility NOC revision forms for your approval. The revision forms identify discrepancies in the approval conditions and limitations (C/Ls) for three NOCs, involving four emission units. Specifically addressed are emission unit numbers 193 (Waste Receiving and Processing Facility), 314 (T Plant Complex), 448 (Sitewide Vented Containers), and 486 (200 Area Diffuse/Fugitive).

This letter responds to compliance issues identified from our reviews in regards to WDOH's December 2004 Assurance of Discontinuance on the 209-E Facility stack, Calendar Year 2005 concerns WDOH expressed on records retrievability, and WDOH's November 2005 222-S Laboratory Notice of Violation and Compliance Order. These WDOH letters and voiced concerns prompted a thorough assessment of the contractor's radioactive air emissions compliance program. One of the things looked at were individual Radioactive Air Notices of Construction approvals, looking specifically for inaccurate or inapplicable (out-of-date) C/Ls (termed "problem" C/Ls). The assessment resulted in the need to revise some of the NOCs and request changes in the NOC approvals. This letter transmits the last of the revisions needed to address "problem" C/Ls.

Please return copies of the approved revision forms via letter. If you have any questions, you may contact me, or your staff may contact Doug S. Shoop, Assistant Manager for Safety and Engineering, on (509) 376-0108.

Sincerely,

  
Keith A. Klein  
Manager

ESD:MFJ

Enclosures

cc w/encls: See page 2

Mr. A. W. Conklin  
06-ESD-0156

-2-

SEP 15 2006

cc w/encls:

Administrative Record (file: 209-E Facility Assurance of Discontinuance/222-S Laboratory  
Notice of Violation)

Environmental Portal, LMSI, A3-95

J. A. Bates, FHI

G. Bohnee, NPT

R. H. Engelmann, DFSH

L. L. Fritz, FHI

S. Harris, CTUIR

M. T. Jansky, FHI

R. Jim, YN

K. A. Peterson, FHI

ENCLOSURE 1

Radioactive Air Emissions Notice of Construction Revision Form  
for Waste Receiving and Processing Facility

Consisting of 5 pages, including cover page

# NOC Application/Permit Revision/AOP Off-Permit Change Notification

NOTE: Any increase to abated or unabated PTE requires a full NOC modification

## REASON FOR CHANGE

Submittal Date: \_\_\_\_\_

Submittal Type:

**NOC Application Revision**

**Condition Change/ Clarification**

WDOH Condition Number: 2

AOP Condition Number: \_\_\_\_\_

**ALARACT Revision**

New ALARACT Rev Number: \_\_\_\_\_

## PROJECT IDENTIFICATION

Project Title: Waste Receiving and Processing Facility

Current NOC Application Number: DOE/RL-2000-34, Rev. 1A

AEI ID Number (AOP Emission Unit Number(s): 193, 486

Current WDOH Approval Letter Number(s): AIR-06-610

WDOH NOC ID Number: 638

## DESCRIPTION OF CHANGE

Number of Attachments 0

*WDOH will provide a new approval letter containing any new or modified conditions that result from the following proposed change.*

Proposed Change (provide original and proposed wording):

**Emission Unit Name: Waste Receiving and Storage Facility**

Clarification is proposed to address the processing and storage of remote-handled containers at WRAP.

### **NOC Application Revision**

Section 5.0, "Chemical and Physical Processes," 1<sup>st</sup> paragraph, 4<sup>th</sup> sentence:

Original: "The WRAP Facility normally only accepts contact-handled (CH) containers. CH containers are a category where the external surface dose rate does not exceed 200 millirem per hour. Remote-handled (RH) containers are received on a case-by-case basis with additional administrative controls."

Proposed: *The WRAP Facility routinely accepts contact-handled (CH) containers. CH containers are defined as packages having surface dose rates of less than 200 millirem per hour. The WRAP Facility also receives remote-handled (RH) containers (i.e., containers having surface dose rates greater than or equal to 200 millirem per hour). RH containers are received on a case-by-case basis with*

*additional administrative controls; RH containers) also are processed and stored at WRAP in accordance with the approved safety analysis.*

## **Condition Change/Clarification**

### Current FF-01 License:

EU 193 (page 1 of 4; operational status and condition 2):

**Operational Status** Activities at the WRAP Facility involve operations supporting the Hanford TRU program mission. These operations include examining, assaying, characterizing, treating, verifying, and repackaging solid radioactive material and mixed waste to enable treatment, storage, or disposal of low level waste (LLW), TRU waste, TRU mixed waste, and low level mixed waste (LLMW) in contact handled (CH) containers where the external surface dose rate does not exceed 200 millirems per hour.

AND

- 2) This approval applies only to those activities described below. No additional activities or variations on the approved activities that constitute a "modification" to the emission unit, as defined in WAC 246-247-030(16), may be conducted.

At the WRAP FACILITY--

Examining, assaying, characterizing, treating, verifying, and repackaging solid radioactive material and mixed waste to enable treatment, storage, or disposal of low-level waste (LLW), transuranic (TRU) waste, TRU mixed waste, and low-level mixed waste (LLMW) in contact handled (CH) containers where the external surface dose rate does not exceed 200 millirem per hour.

At SHIPPING AND RECEIVING (200 Area Diffuse/Fugitive Emissions)--

Containers delivered to and transferred/shipped from the shipping and receiving shall be unloaded, visually inspected, bar code labeled, and radiologically surveyed with information pertaining to each container entered into the data management system. ...

EU 486 (page 6 of 87; condition 2):

- 2) This approval applies only to those activities described below. No additional activities or variations on the approved activities that constitute a "modification" to the emission unit, as defined in WAC 246-247-030(16), may be conducted.

At the WRAP FACILITY--

Examining, assaying, characterizing, treating, verifying, and repackaging solid radioactive material and mixed waste to enable treatment, storage, or disposal of low-level waste (LLW), transuranic (TRU) waste, TRU mixed waste, and low-level mixed waste (LLMW) in contact handled (CH) containers where the external surface dose rate does not exceed 200 millirem per hour.

At SHIPPING AND RECEIVING (200 Area Diffuse/Fugitive Emissions)--

Containers delivered to and transferred/shipped from the shipping and receiving shall be unloaded, visually inspected, bar code labeled, and radiologically surveyed with information pertaining to each container entered into the data management system. ...

Proposed:

The conditions should be changed to clarify that WRAP activities are not limited to handling packages with an external surface dose rate of 200 mrem/hr. Suggested change (shown in *italic*) to add text after 200 millirem per hour:

\* EU 193 (page 1 of 4; operational status and condition 2):

**Operational Status** Activities at the WRAP Facility involve operations supporting the Hanford TRU program mission. These operations include examining, assaying, characterizing, treating, verifying, and repackaging solid radioactive material and mixed waste to enable treatment, storage, or disposal of low level waste (LLW), TRU waste, TRU mixed waste, and low level mixed waste (LLMW) in contact handled (CH) containers where the external surface dose rate does not exceed 200 millirem per hour. *CH containers are defined as packages having surface dose rates of less than 200 millirem per hour. Remote-handled (RH) containers (i.e., containers where the external surface dose rate is equal to or greater than 200 millirem per hour) also are processed and stored at WRAP in accordance with the approved safety analysis.*

AND

- 2) This approval applies only to those activities described below. No additional activities or variations on the approved activities that constitute a "modification" to the emission unit, as defined in WAC 246-247-030(16), may be conducted.

At the WRAP FACILITY--

Examining, assaying, characterizing, treating, verifying, and repackaging solid radioactive material and mixed waste to enable treatment, storage, or disposal of low-level waste (LLW), transuranic (TRU) waste, TRU mixed waste, and low-level mixed waste (LLMW) in contact handled (CH) containers where the external surface dose rate does not exceed 200 millirem per hour. *CH containers are defined as packages having surface dose rates of less than 200 millirem per hour. Remote-handled (RH) containers (i.e., containers where the external surface dose rate is equal to or greater than 200 millirem per hour) also are processed and stored at WRAP in accordance with the approved safety analysis.*

At SHIPPING AND RECEIVING (200 Area Diffuse/Fugitive Emissions)--

Containers delivered to and transferred/shipped from the shipping and receiving shall be unloaded, visually inspected, bar code labeled, and radiologically surveyed with information pertaining to each container entered into the data management system. ...

\* EU 486 (page 6 of 87; condition 2):

- 2) This approval applies only to those activities described below. No additional activities or variations on the approved activities that constitute a "modification" to the emission unit, as defined in WAC 246-247-030(16), may be conducted.

At the WRAP FACILITY--

Examining, assaying, characterizing, treating, verifying, and repackaging solid radioactive material and mixed waste to enable treatment, storage, or disposal of low-level waste (LLW), transuranic (TRU) waste, TRU mixed waste, and low-level mixed waste (LLMW) in contact handled (CH) containers where the external surface dose rate does not exceed 200 millirem per hour. *CH containers are defined as packages having surface dose rates of less than 200 millirem per hour. Remote-handled (RH) containers (i.e., containers where the external surface dose rate is equal to or greater than 200 millirem per hour) also are processed and stored at WRAP in accordance with the approved safety analysis.*

At SHIPPING AND RECEIVING (200 Area Diffuse/Fugitive Emissions)--

Containers delivered to and transferred/shipped from the shipping and receiving shall be unloaded, visually inspected, bar code labeled, and radiologically surveyed with information pertaining to each container entered into the data management system. ...

ENCLOSURE 2

Radioactive Air Emissions Notice of Construction Revision Form  
for T Plant Complex

Consisting of 5 pages, including cover page

# NOC Application/Permit Revision/AOP Off-Permit Change Notification

NOTE: Any increase to abated or unabated PTE requires a full NOC modification

## REASON FOR CHANGE

Submittal Date: \_\_\_\_\_

Submittal Type:

NOC Application Revision

Condition Change/ Clarification

WDOH Condition Number: See Below

AOP Condition Number: \_\_\_\_\_

ALARACT Revision

New ALARACT Rev Number: \_\_\_\_\_

## PROJECT IDENTIFICATION

Project Title: Consolidated T Plant Operations

Current NOC Application Number: NA\*

AEI ID Number (AOP Emission Unit Number(s)): 314

Current WDOH Approval Letter Number(s): AIR-06-666

WDOH NOC ID Number: 711

\*NOC transmitted under cover letter AIR 05-408.

## DESCRIPTION OF CHANGE

Number of Attachments 0

*WDOH will provide a new approval letter containing any new or modified conditions that result from the following proposed change.*

Proposed Change (provide original and proposed wording):

**Emission Unit Name: Consolidated T Plant Operations**

Original:

Conditions 10B2a, 10B2p, and 23G discuss removal of the pool water and subsequent decontamination work following fuel removal.

10B2a) After all existing 72 fuel assemblies have been removed and the spent fuel pool water has been removed in accordance with the T-Plant Complex Fuel Removal NOC (DOE/RL-2000-64, Revision 1), the 221-T Canyon spent fuel pool shall be decontaminated by T-Plant operation personnel. Following the activities covered in the fuel removal NOC (DOE/RL-2000-64, Revision 1), disposal of fuel assembly racks, the filtration system, ion exchange system, and any residual contamination on the pools walls and floor shall be accomplished using the following methods: ...

10B2p) After removal of the fuel assemblies and the pool water, a hold point shall be placed on further spent fuel decontamination activities, pending the establishment of acceptable levels for decontamination of the 221-T Canyon spent fuel pool. The USDOE shall propose a

set of decontamination levels for review by WDOH, and decontamination work shall not continue until the WDOH has reviewed and accepted these levels. (WAC 246-247-040(5))

23G) Upon completion of the project, the pool water will be pumped out and transferred (e.g. tanker trucks or hard piping) to a permitted liquid waste treatment/disposal facility.

Condition 10B2f requires upgrading of the sprinkler system in 221-T prior to sludge storage.

10B2f) Fire protection alarms and automatic sprinkler systems shall be upgraded in 221-T before sludge containers configured for storage of waste from knockout pots and settler tanks is received. Licensee may submit additional information bearing on this condition at any time.

Conditions 23A through 23H2g discuss fuel removal.

23) T-Plant Fuel Removal Project:

A. The spent fuel pool filtration system must be reactivated and placed in service before removal of the fuel assemblies to increase water clarity. The pool water chemistry must be maintained and monitored while the PWR-2 fuel is removed.

B. Monitor at least monthly the water quality of the spent fuel pool for Cobalt-60 and Cesium-137. The low radionuclide concentrations are evidence that the integrity of the fuel cladding is intact. Notify DOH immediately if the activity levels of the water increase during fuel removal to a level greater than two times the established levels (0.01 microcuries per milliliter) for the pool; i.e., 0.02 microcuries per milliliter.

C. The radionuclides of concern for this fuel removal project are Iron-55, Cobalt-60, Nickel- 63, Strontium-90, and Plutonium-238 from the crud (external surface contamination on the fuel assemblies) Cobalt-60 and Cesium-137 in the pool water.

D. The scope of the T-Plant Complex Fuel Removal Project is limited to the activities required to prepare for, and perform fuel handling, canister loading, canister drying and creating an inert atmosphere inside the canister, and cask loading within the 221-T Canyon, and subsequent cask transportation to the Canister Storage Building (CSB).

E. The removal activities covered under this NOC are limited to the 72 PWR-2 fuel assemblies currently in the 221-T spent fuel pool.

F. The transport cask must be designed to preclude the potential release of radioactive emissions.

G. Upon completion of the project, the pool water will be pumped out and transferred (e.g. tanker trucks or hard piping) to a permitted liquid waste treatment/disposal facility.

H. Approved activities for the T-Plant Fuel Removal Project are:

H1) Remove all spent nuclear fuel assemblies from the spent fuel pool in the T-Plant Complex 221-T Canyon for interim storage in the Canister Storage Building. The activities required for fuel removal are limited to the following:

H1a) Retrieval of PWR-2 fuel assemblies from their current pool storage racks in the 221-T Building.

H1b) Insertion of PWR-2 fuel assemblies into Shippingport Spent Fuel Containers (SSFCs) and closure with shield plugs.

H1c) Fuel conditioning within the SSFCs. This includes the drying of the fuel, and replacing the air inside the SSFCs with an inert atmosphere.

H1d) Transfer of the SSFCs to the CSB.

H2) The chemical and physical processes associated with the T-Plant Complex Fuel Removal Project are limited to the following:

H2a) The SSFCs (with inserts installed), shield plugs, shield plug seals, and required tools will be staged at the TPlant Complex. The skid-mounted fuel conditioning system will be placed in the 221-T Tunnel.

H2b) The SSFCs/cask/transporter will be moved into the 221-T Tunnel and the loading guide will be installed into the SSFCs.

H2c) The hoist will be moved to the spent fuel pool using the canyon bridge crane to position. The fuel assembly will be grappled remotely, raised from the pool, and the fuel assembly identification number will be recorded.

H2d) The fuel assembly will be transferred over the cell partition and lowered into the SSFCs. After four fuel assemblies are placed into an SSFCs, the shield plug will be installed and the SSFCs will be sealed mechanically.

H2e) The SSFCs will remain on the transporter trailer during loading and conditioning operations within the fuel transport cask, and will be connected to the fuel conditioning system via the process port on the shield plug. The SSFCs will be conditioned by pulling a vacuum to dry the fuel, backfilling with helium, pulling a vacuum again, and refilling the SSFCs with helium to inert the atmosphere surrounding the fuel. The SSFCs will be leak tested to verify closure and the process port cover plate will be closed.

H2f) The cask lid will be placed on the cask and bolted in place (airtight) and the cask will be transported to the CSB. After off-loading the SSFCs at the CSB, the cask and transporter will be returned to the 221-T Tunnel. It will take 18 trips to transfer the 72 fuel assemblies.

H2g) The transport cask must be designed to preclude the potential release of radioactive emissions.

Condition 23H2h discusses dismantling and removing the fuel conditioning skid from the canyon.

23H2h) The fuel conditioning system skid will be dismantled and removed from the 221-T Canyon. (WAC 246-247-040(5))

Condition 21 requires relative humidity measurements per Method 2.

21) The relative humidity must be measured with a calibrated hygrometer or with wet and dry bulb readings as allowed in Method 2. Methods 4, 5 and 17 are not applicable to radioactive airborne effluent stacks. (WAC 246-247-040(5))

Proposed:

Conditions 10B2a, 10B2p, and 23G

The decision has been made by WDOH and DOE RL to allow the pool water to evaporate to dryness rather than pump it out to a permitted facility. These conditions should be obsoleted as this activity will not occur.

Condition 10B2F

The reference to 221-T, the T Plant canyon, was a typographical error in the original application that has been carried forward. It should have been 271-T, the administrative building. 271-T is not part of the emission system and the latest Fire Hazard Analysis does not require the sprinkler system upgrade in 221-T. This condition should be obsoleted.

Condition 23A through H2g

All actions are complete except 23G (removal of fuel pool water) which is mentioned above. These conditions should be obsoleted.

Condition 23H2h

The facility has a need to use the fuel conditioning skid system for future operations; therefore it will not be dismantled and removed from the 221-T canyon. This condition should be obsoleted.

Condition 21

The relative humidity determination per Method 2 supported flow measurements based on the original application. Since that time, an alternative flow measurement method has been approved by EPA and WDOH, (see condition 5); therefore Method 2 is not required for measurement of the stack flow rate. Condition 21 should be obsoleted.

ENCLOSURE 3

Radioactive Air Emissions Notice of Construction Revision Form  
for Sitewide Vented Container Storage

Consisting of 3 pages, including cover page

# NOC Application/Permit Revision/AOP Off-Permit Change Notification

NOTE: Any increase to abated or unabated PTE requires a full NOC modification

## REASON FOR CHANGE

Submittal Date: \_\_\_\_\_

Submittal Type:

NOC Application Revision

Condition Change/ Clarification

WDOH Condition Number: 1, 3

AOP Condition Number: \_\_\_\_\_

ALARACT Revision

New ALARACT Rev Number: \_\_\_\_\_

## PROJECT IDENTIFICATION

Project Title: Sitewide Vented Container Storage

Current NOC Application Number: NA\*

AEI ID Number (AOP Emission Unit Number(s)): 448

Current WDOH Approval Letter Number(s): AIR-06-613

WDOH NOC ID Number: 641

\*As Low As Reasonably Achievable Control Technology Demonstration, and Notice of Construction and Best Available Radionuclide Control Technology Demonstration for Hanford Site Vented Containers (September 19, 1996).

## DESCRIPTION OF CHANGE

Number of Attachments 0

*WDOH will provide a new approval letter containing any new or modified conditions that result from the following proposed change.*

Proposed Change (provide original and proposed wording):

**Emission Unit Name: Sitewide Vented Container Storage**

### Discussion:

The current FF-01 license has the following conditions:

- 1) The total abated emission limit for this Notice of Construction is limited to 5.10E-09 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).
- 2) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 1.50E-05 mrem/year. Approved are the associated potential release rates (Curies/year) of: ....

Proposed:

The conditions should be changed to clarify that the abated and PTE limits are per container rather than totals. Suggested change:

1. *The abated emission limit for this Notice of Construction is limited to 5.10E-09 mrem/year per container to the Maximally Exposed Individual (WAC 246-247-040(5)).*
3. *The limit on the Potential-To-Emit for this Notice of Construction is limited to 1.50E-05 mrem/year per container to the Maximally Exposed Individual (WAC 246-247-030(21)).*  
*Approved are the associated potential release rates (Curies/year) of: ...*