



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

10-EMD-0027

JAN 27 2010

Mr. J. P. Martell, Manager
Radioactive Air Emissions Section
Washington State Department of Health
Office of Radiation Protection
309 Bradley Blvd., Suite 201
Richland, Washington 99352

Dr. O. S. Wang
Nuclear Waste Program
State of Washington
Department of Ecology
3100 Port of Benton Blvd.
Richland, Washington 99354

Dear Msrs. Martell and Wang:

TRANSMITTAL OF NOTICE OF CONSTRUCTION APPLICATION/PERMIT REVISION/AIR OPERATING PERMIT OFF-PERMIT CHANGE NOTIFICATION FOR 400 P-FFTF CBEX-001 SAMPLING REQUIREMENTS, FAST FLUX TEST FACILITY (FFTF)

This letter transmits for approval a Radioactive Air Notice of Construction Application Revision (Attachment 1) for a change to the sampling requirement condition for minor stack number 400 P-FFTF CBEX-001 (CBEX), Emission Unit 397, located at the FFTF, in accordance with the Washington Administrative Code (WAC) 246-247, and a Notification of Off-Permit Change Request (Attachment 2) in accordance with WAC 173-401.

Attachment 1 is submitted for approval to the State of Washington, Department of Health (WDOH), and a copy to the State of Washington, Department of Ecology (Ecology), consistent with the agency's authority to administer and enforce the State radioactive air emissions regulations, including licensing.

Attachment 2 is submitted to Ecology, consistent with the agency's role as lead for the Hanford Site Air Operating Permit.

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Mr. J. P. Martell and Dr. O. S. Wang
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The U.S. Department of Energy Richland Operations Office (RL) appreciates WDOH staff's time on November 12, 2009, to discuss the change in the license for the CBEX stack and the resulting "Interim Allowance" granting RL to calculate emissions in calendar year 2009. We are happy to submit the attached documentation requesting permission to make this a permanent adjustment to the license.

If you have any questions regarding this matter, please contact Stephen R. Weil, Director, of Environmental Management Division on (509) 372-0879.

Sincerely,

for 
Ray J. Corey, Assistant Manager
for Safety and Environment

EMD:MFJ

Attachments

cc w/attachs:

R. H. Anderson, MSA
K. Attebery, WDOH
J. A. Bates, CHPRC
T. G. Beam, MSA
R. W. Bloom, CHPRC
F. W. Bond, Ecology
S. D. Breven, WDOH
L. E. Harville, CHPRC
M. T. Jansky, CHPRC
J. Schmidt, WDOH
D. Zhen, EPA, Region 10
Administrative Record
Environmental Portal

ATTACHMENT 1

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

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: 12/22/2009

Submittal Type: Letter

NOC Application Revision

Condition Change/ Clarification

WDOH Condition Number: Monitoring Requirements

AOP Condition Number: _____

ALARACT Revision

New ALARACT Rev Number: _____

PROJECT IDENTIFICATION

Project Title: Radioactive Air Emissions Notice of Construction for Sodium Residual Reaction/Removal and Other Deactivation Work Activities at the Fast Flux Test Facility

Current NOC Application Number: AOP Permit 00-05-006/ License Number FF-01 DOE/RL-2006-49, Revision 0

AEI ID Number (AOP Emission Unit Number(s)): 400 P-FFTF CBEX-001 (EU ID: 397)

Current WDOH Approval Letter Number(s): AIR 08-1021

WDOH NOC ID Number: NOC ID 646

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):

Original wording:

Monitoring Requirements

State enforceable: WAC 246-247-040(5), 060(5), and federally enforceable: 40 CFR 61 subpart H

Federal and State Regulatory	Monitoring and Testing Requirements	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4)(i) & WAC 246-247-075(3)	40 CFR 61, Appendix B, Method 114(3)	TOTAL ALPHA TOTAL BETA Tritium	4 week sample/ year

Sampling Requirements Record Sample

Additional Requirements

Additional monitoring or sampling requirements established by this License will be listed in the Conditions and Limitations section, if applicable.

Operational Status : The FFTF is currently in Surveillance and Maintenance mode, which began June 1, 2009.

Proposed wording:

Monitoring Requirements

State enforceable: WAC 246-247-040(5), 060(5), and federally enforceable: 40 CFR 61 subpart H

Federal and State Regulatory	Monitoring and Testing Requirements	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4)(i) & WAC 246-247-075(3)	Engineering calculations based on WAC 246-247-030(21)(a)	TOTAL ALPHA, TOTAL BETA, Tritium	Annual (calculation)

Sampling Requirements Radionuclide emissions will be estimated annually using WAC 246-247-030(21)(a) calculation in lieu of monitoring.

Additional Requirements

Additional monitoring or sampling requirements established by this License will be listed in the Conditions and Limitations section, if applicable.

Operational Status: The FFTF is currently in Surveillance and Maintenance Mode, which began June 1, 2009.

Supplemental information supporting the change in compliance method for emission unit.

The Fast Flux Test Facility (FFTF) is a DOE-owned, formerly operating, 400 megawatt (thermal) liquid-metal (sodium) –cooled research test reactor located in the 400 Area of the U.S. Department of Energy’s Hanford Site. Since June 1, 2009, the FFTF has been in Surveillance and Maintenance mode.

The total abated emission limit established for FFTF minor stack number 400 P-FFTFCBEX-001 (CBEX-001), is limited to 5.70E-03 mrem/year to the Maximally Exposed Individual (MEI). This limit is documented in the current license approval (AIR 08-1021, Notice of Construction [NOC] ID 646).

Potential emissions from CBEX-001 originally were based on FFTF operations, which considered an inventory of ~980,000 liters of radioactively contaminated bulk sodium coolant. Reactor operations permanently have ceased and this sodium volume has been drained to the extent practicable to the 400 Area Sodium Storage Facility (SSF) for storage. It is estimated that approximately 10,000 liters of radioactively contaminated sodium residuals remain in the main portions of FFTF plant systems (i.e., piping, valves, equipment); this represents the maximum source term for radiological releases from CBEX-001. Releases through the CBEX-001 stack would be expected to be only a fraction of those estimated for the SSF (i.e., ~10,000 liters of the bulk sodium residuals versus ~980,000 liters in SSF).

The potential annual unabated offsite dose from the SSF, which stores approximately 980,000 liters of sodium, is 1.6E-06 mrem/year (FFTF-402-1). The potential-to-emit calculations are based on release of that facility’s entire Annual Possession Quantity (APQ). The most recent sodium samples and analyses were performed in February 1993; the reactor has not operated since those samples were taken (i.e., no additional radioactive isotopes have been produced or received since 1993). Since 1993,

an additional 17-years of radionuclide decay has occurred, further increasing the conservatism (environmental protectiveness) of the release calculations.

Comparatively, the maximum annual unabated offsite dose from CBEX-001 (based on the ~10,000 liters of sodium residuals it ventilates) could not exceed $1.6E-06$ mrem/year (i.e., the SSF dose calculated based on ~980,000 liters). For this reason, the use of engineering calculations to provide periodic confirmatory measurement for the CBEX-001 stack is considered a compliant and reasonable replacement for record sampling.

The aforementioned engineering calculation will be based on the WAC 246-247-075(3) allowance for WDOH to approve the estimation of emissions in lieu of monitoring, in accordance with 40 CFR 61 Appendix D, or other procedure approved by the WDOH. The estimate of actual emissions would be based upon the conservative calculation for potential emissions founded in the WAC 246-247-030(21)(a), whereby a $1E-03$ fraction of the entire annual possession quantity for the Emission Unit 397 (for all isotopes except tritium, which would be based on a release fraction of 1 [tritium being considered a gas]) will be reported as being released annually. This would fulfill periodic confirmatory measurement requirements and verify low emissions from this minor emission unit.

FOR WDOH USE ONLY

Data Entry Completed By: _____ Date: _____

ATTACHMENT 2

**HANFORD SITE AIR OPERATING PERMIT NOTIFICATION
OF OFF-PERMIT CHANGE PERMIT NUMBER: 00-05-006**

HANFORD SITE AIR OPERATING PERMIT

Notification of Off-Permit Change

Permit Number: 00-05-006

This notification is provided to State of Washington, Department of Ecology, State of Washington, Department of Health, and the U.S. Environmental Protection Agency as notice of an off-permit change described as follows.

This change is allowed pursuant to WAC 173-401-724(1) as:

1. Change is not specifically addressed or prohibited by the permit terms and conditions
2. Change does not weaken the enforceability of the existing permit conditions
3. Change is not a Title I modification or a change subject to the acid rain requirements under Title IV of the FCAA
4. Change meets all applicable requirements and does not violate an existing permit term or condition
5. Change has complied with applicable preconstruction review requirements established pursuant to RCW 70.94.152.

Provide the following information pursuant to WAC-173-401-724(3):

Description of the change:

A Radioactive Air Emissions Notice of Construction (NOC) permit revision based on DOE/RL-2006-49, *Radioactive Air Emissions Notice of Construction for Sodium Residual Reaction/Removal and Other Deactivation Work Activities at the Fast Flux Test Facility*, Revision 0, is being submitted to the State of Washington, Department of Health (WDOH) for approval and the U.S. Environmental Protection Agency for information. The change would allow the use of engineering calculations to provide periodic confirmatory measurement for the minor stack (emission unit) 400 P-FFTCBEX-001 as a compliant replacement for record sampling.

Date of Change:

Effective date will be the approval by WDOH of the NOC permit revision.

Describe the emissions resulting from the change:

No change to emissions would result from the proposed change.

Describe the new applicable requirements that will apply as a result of the change:

The use of engineering calculations to provide periodic confirmatory measurement for the minor stack 400 P-FFTCBEX-001 is considered a compliant replacement for record sampling. Applicable requirements will be identified in approval notification by WDOH.

For Hanford Use Only:

AOP Change Control Number:

Date Submitted: