



LB# 3753

AIR 13-1003  
NOC 825, 899, & 908

STATE OF WASHINGTON  
DEPARTMENT OF HEALTH  
OFFICE OF RADIATION PROTECTION  
309 Bradley Blvd., Suite 201 • Richland, Washington 99352  
TDD Relay Service: 1-800-833-6388

October 17, 2013

**CERTIFIED MAIL**

7008 1300 0001 5989 9772

Mr. Kevin W. Smith, Manager  
United States Department of Energy  
Office of River Protection  
P.O. Box 450, MSIN: H6-60  
Richland, Washington 99352

Dear Mr. Smith:

Pursuant to Chapter 246-247 of the Washington Administrative Code (WAC), your modified application to include two new emission units (EUs) for the activity described in Notice of Construction (NOC) 825 will be approved according to the enclosed licenses for:

**Operation of 200 W-MARS-003 (NOC 899; EU 1371)**  
**Operation of 200 W-MARS-004 (NOC 908; EU 1384)**

The Washington State Department of Health (DOH) considers the conditions, controls, monitoring requirements, and limitations of the licenses integral to approval of your application.

This approval shall take effect, and a final approval letter issued, twenty-eight (28) days after you receive this letter unless you apply for an adjudicative proceeding, as described below.

If you accept the conditions and limitations of this approval and do not wish to apply for an adjudicative proceeding, but wish to proceed under this approval before the 28 days have elapsed, please notify us in writing and the DOH will issue the final approval letter. Your notice should be mailed or faxed to:

DOH – Office of Radiation Protection  
Radioactive Air Emissions Section  
309 Bradley Blvd., Suite 201  
Richland, Washington 99352  
FAX: (509) 946-0876

If there are concerns with the conditions and limitations of the approval, please notify the DOH. If attempts to resolve the concerns fail, the DOH will deny your application and you may contest



the conditions and limitations of this approval, within 28 days of receipt, by filing the enclosed Request for Adjudicative Proceeding or a document providing substantially the same information with the DOH, Adjudicative Service Unit (ASU), in a manner that shows proof of service on the ASU. The ASU's address is:

DOH - Adjudicative Service Unit  
310 Israel Road SE  
P.O. Box 47879  
Olympia, Washington 98504-7879

You must include a copy of this approval with your application. FILING SHALL NOT BE DEEMED COMPLETE UNTIL THE ADJUDICATIVE SERVICE UNIT ACTUALLY RECEIVES YOUR APPLICATION.

If you have any questions regarding this approval, please contact Ernest McCormick at (509) 946-0624.

Sincerely,



John Martell, Manager  
Radioactive Air Emissions Section

Enclosures: (1) Conditions and Limitations for NOC 899 & 908 (EU 1384 & 1371)  
(2) Request for Adjudicative Proceedings

cc: Ruth Allen, WRPS  
Robert Anderson, MSA  
Matthew Barnett, PNNL  
Tom Beam, MSA  
Lee Bostic, BNI  
Dennis Bowser, USDOE-ORP  
Cliff Clark, USDOE-RL  
Jack Donnelly, WRPS  
Rick Engelmann, CHPRC  
Dennis Faulk, EPA  
Phil Gent, Ecology  
Robert Haggard, BNI  
Dale Jackson, USDOE-RL  
Steven Killooy, WRPS  
Ernest McCormick, WDOH  
Valarie Peery, Ecology  
Lucinda Penn, WRPS  
Crystal Rau, Ecology  
John Schmidt, WDOH  
Maria Skorska, Ecology  
Jeff Voogd, WRPS  
Davis Zhen, EPA  
Environmental Portal  
RAES Tracking: RAES 771; Resp. to IM 7,823; NOC 825, 899, & 908; EU 1371 & 1384

Emission Unit ID: 1371

200 W-MARS-003

W-MARS-003

This is a MINOR, PASSIVELY ventilated emission unit.

Tank Farms

Emission Unit Information

Stack Height: 14.00 ft. 4.27 m. Stack Diameter: 1.13 ft. 0.34 m.

Average Stack Effluent Temperature: 55 degrees Fahrenheit. 13 degrees Celsius.

Average Stack Exhaust Velocity: 0.25 ft/second. 0.08 m/second.

Abatement Technology BARCT WAC 246-247-040(3), 040(4)

state only enforceable: WAC 246-247-010(4), 040(5), 060(5)

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	HEPA Filter	1	Passive breather filters

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	Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	Every 365 days

Smear survey on the inside surface of the ducting and downstream of the HEPA filter or on the outside of the screen covering the outlet of the vent.

Additional Requirements

Radial breather filters shall be replaced every 365 days. Additional monitoring or sampling requirements established by this License will be listed in the Conditions and Limitation section, if applicable.

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

Operational Status The containment box which encloses the MARS will be ventilated by two parallel installed radial filters. The purpose of these filters is to minimize contamination migrating up from the tank into the containment box via the open space on the large riser during retrieval operations. Minimization of contamination inside the containment box is desired should entry into the box ever be required for repairs. Inflow through these filters during retrieval is estimated to reach up to 60 cubic feet per minute (cfm). A valve will be installed between the filters and the containment box so filters can be isolated from the box. The valve will be left open at all times until retrieval of the tank is complete. Once retrieval is complete the valve will be closed.

This Emission Unit has 1 active Notice(s) of Construction.

Project Title	Approval #	Date Approved	NOC_ID
Operation of 200 W-MARS-003		Not Approved	899

Conditions (state only enforceable: WAC 246-247-040(5), 060(5) if not specified)

- The total abated emission limit for this Notice of Construction is limited to 7.73E-06 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 1.55E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).
- 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.

MOBILE ARM RETRIEVAL SYSTEM

The Mobile Arm Retrieval System (MARS) is a waste retrieval system used to retrieve waste from single-shell tanks (SSTs) and move the waste to the double-shell tanks (DSTs). The MARS employs two design options

similar to currently permitted systems: 1) a sluicing retrieval option is intended for retrieval of non-leaker tanks and 2) a vacuum retrieval option which is intended for retrieval of assumed leaker tanks. Both options use an arm and sluicing jets and/or a high pressure water scarifier to break up the waste. The sluicer uses waste supernatant recycled from the DST to form a liquid jet using a nozzle. The scarifier uses filtered, pressurized water that comes from a high pressure water skid.

The equipment portion of the MARS includes a vertical, carbon steel mast (square cross section) as the main structural member. Attached to the vertical mast is a carbon fiber robotic arm. The arm is attached to a traveler that raises and lowers the arm relative to the vertical mast. The arm rotates 360 degrees - 380 degrees on a turntable located in the containment box. The arm also pivots up and down from an elbow at the traveler (hydraulic system) and extends and retracts (hydraulic system). The end of the arm articulates. The arm thus provides for a large range of motion such that the sluicing devices (recycle sluicer, vacuum, water scarifier) located at the end of the arm can aim at most portions of the tank and from varying (e.g., short) distances.

3) **The Annual Possession Quantity is limited to the following radionuclides (Curies/year):**

Ac - 227	Alpha - 0	8.68E+03	Am - 241
	All Alpha radioactivity was attributed to Am-241		
Am - 243	Ba - 137 m		Beta - 0
			2.91E+06
	All Beta radioactivity was attributed to Sr 90		
C - 14	Cd - 113 m		Cm - 242
Cm - 243	Cm - 244		Co - 60
Cs - 134	Cs - 137		Eu - 152
Eu - 154	Eu - 155		H - 3
I - 129	Nb - 93 m		Ni - 59
Ni - 63	Np - 237		Pa - 231
Pu - 238	Pu - 239		Pu - 240
Pu - 241	Pu - 242		Ra - 226
Ra - 228	Ru - 106		Sb - 125
Se - 79	Sm - 151		Sn - 126
Sr - 90	Tc - 99		Th - 229
Th - 232	U - 232		U - 233
U - 234	U - 235		U - 236
U - 238	Y - 90		Zr - 93

4) **ALTERNATIVE APPROVAL-Annual Replacement**

Approval is given to replace the filter on an annual basis with the manufacturer tested and certification of HEPA filter with a tested rating of 99.97% efficiency. Records of this testing shall be maintained on file. (WAC 246-247-040(5), WAC 246-247-060(5), WAC 246-247-075(4))

5) **EMISSION UNITS IDENTIFIED**

The emission unit will be clearly identified. (WAC 246-247-040(5))

6) **ALTERNATE APPROVAL-Confirmatory Measurements**

Confirmatory measurements of stack emissions shall be in accordance with Hanford's Near-facility Environmental Monitoring Program and augmented by smear surveys of the filter unit during annual replacement. See Monitoring Requirements above. (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

7) **WDOH NOTIFICATION-Retrieval Under Passive Ventilation Conditions**

Retrieval activities shall occur under passive ventilation only when an exhauster can no longer be operated on a single shell tank due to structural concerns. The justification for structural concerns with the single shell tank shall be documented and provided to WDOH upon request. WAC 246-247-040(5)) and (WAC 246-247-060(5)).

Emission Unit ID: 1384

**200 W-MARS-004**

**W-MARS-004**

This is a MINOR, PASSIVELY ventilated emission unit.

Tank Farms

**Emission Unit Information**

Stack Height: 14.00 ft. 4.27 m. Stack Diameter: 1.13 ft. 0.34 m.

Average Stack Effluent Temperature: 55 degrees Fahrenheit. 13 degrees Celsius.

Average Stack Exhaust Velocity: 0.25 ft/second. 0.08 m/second.

**Abatement Technology** BARCT WAC 246-247-040(3), 040(4)

state only enforceable: WAC 246-247-010(4), 040(5), 060(5)

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	HEPA Filter	1	Passive breather filters

**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
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**Sampling Requirements** Smear survey on the inside surface of the ducting and downstream of the HEPA filter or on the outside of the screen covering the outlet of the vent.

**Additional Requirements**

Radial breather filters shall be replaced every 365 days. Additional monitoring or sampling requirements established by this License will be listed in the Conditions and Limitation section, if applicable.

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**Operational Status** The containment box which encloses the MARS will be ventilated by two parallel installed radial filters. The purpose of these filters is to minimize contamination migrating up from the tank into the containment box via the open space on the large riser during retrieval operations. Minimization of contamination inside the containment box is desired should entry into the box ever be required for repairs. Inflow through these filters during retrieval is estimated to reach up to 60 cubic feet per minute (cfm). A valve will be installed between the filters and the containment box so filters can be isolated from the box. The valve will be left open at all times until retrieval of the tank is complete. Once retrieval is complete the valve will be closed.

**This Emission Unit has 1 active Notice(s) of Construction.**

Project Title	Approval #	Date Approved	NOC_ID
Operation of 200 W-MARS-004		Not Approved	908

**Conditions (state only enforceable: WAC 246-247-040(5), 060(5) if not specified)**

- 1) The total abated emission limit for this Notice of Construction is limited to 7.73E-06 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 1.55E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).
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The equipment portion of the MARS includes a vertical, carbon steel mast (square cross section) as the main structural member. Attached to the vertical mast is a carbon fiber robotic arm. The arm is attached to a traveler that raises and lowers the arm relative to the vertical mast. The arm rotates 360 degrees - 380 degrees on a turntable located in the containment box. The arm also pivots up and down from an elbow at the traveler (hydraulic system) and extends and retracts (hydraulic system). The end of the arm articulates. The arm thus provides for a large range of motion such that the sluicing devices (recycle sluicer, vacuum, water scarifier) located at the end of the arm can aim at most portions of the tank and from varying (e.g., short) distances.

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Cm - 243	Cm - 244		Co - 60
Cs - 134	Cs - 137		Eu - 152
Eu - 154	Eu - 155		H - 3
I - 129	Nb - 93 m		Ni - 59
Ni - 63	Np - 237		Pa - 231
Pu - 238	Pu - 239		Pu - 240
Pu - 241	Pu - 242		Ra - 226
Ra - 228	Ru - 106		Sb - 125
Se - 79	Sm - 151		Sn - 126
Sr - 90	Tc - 99		Th - 229
Th - 232	U - 232		U - 233
U - 234	U - 235		U - 236
U - 238	Y - 90		Zr - 93

4) **ALTERNATIVE APPROVAL-Annual Replacement**

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**STATE OF WASHINGTON  
DEPARTMENT OF HEALTH  
ENVIRONMENTAL HEALTH PROGRAMS  
OFFICE OF RADIATION PROTECTION**

Docket No:

**REQUEST FOR ADJUDICATIVE PROCEEDING**

In Re The Approval of:

**Operation of 200 W-MARS-003 (NOC 899; EU 1371)**

**Operation of 200 W-MARS-004 (NOC 908; EU 1384)**

Draft Approval No:   **AIR 13-1003**

THE STATE OF WASHINGTON TO:

**Mr. Kevin W. Smith, Manager  
United States Department of Energy  
Office of River Protection  
P.O. Box 450, MSIN: H6-60  
Richland, Washington 99352-0450**

If you wish to request an adjudicative proceeding, you or your attorney must COMPLETE AND FILE THIS FORM OR A DOCUMENT PROVIDING SUBSTANTIALLY THE SAME INFORMATION WITH THE DEPARTMENT OF HEALTH ADJUDICATIVE SERVICE UNIT WITHIN TWENTY-EIGHT (28) DAYS OF YOUR RECEIPT of this Request for Adjudicative Proceeding form and a copy of the Office of Radiation Protection's approval, **AIR 13-1003**.

You must file your application in a manner that shows proof of service on the Adjudicative Service Unit, at the following address:

Department of Health  
Adjudicative Service Unit  
310 Israel Road S.E.  
P.O. Box 47879  
Olympia, WA 98504-7879

With your application, you must include a copy of the Office of Radiation Protection's approval.

**FILING SHALL NOT BE DEEMED COMPLETE UNTIL THE ADJUDICATIVE SERVICE UNIT ACTUALLY RECEIVES YOUR APPLICATION.**

**YOU HAVE THE RIGHT TO** a formal hearing in this matter conducted pursuant to Revised Code of Washington (RCW) 43.70.115, Chapter 34.05 RCW, and Chapter 246-10 of the Washington Administrative Code (WAC). Alternatively, you may waive the formal hearing and submit a written statement and supporting documents setting out your position, your defenses, and any mitigating circumstances that you wish to bring to the Department's attention.

You have the right to be represented by an attorney at your own expense.

**I.**

I **WILL BE** represented by an attorney. His/her name, address, and phone number are:

Name:

Address:

Phone:

I **WILL NOT BE** represented by an attorney.

*If after submitting this request, you obtain attorney representation or change attorneys, you must notify the Adjudicative Service Unit.*

## II.

I **DO NOT** waive my right to a formal hearing.

I **DO** waive my right to a formal hearing. I understand that if I waive my right to a formal hearing, the Department may decide this matter solely with reference to information in the Department's possession and to such written statements and supporting documents as I may have submitted.

If you choose to waive your right to a formal hearing, please complete the following:

I **AM NOT** submitting documents to the Department in support of my position.

I **AM** submitting a sworn statement and/or other documents to the Department in support of my position. Instructions - Please indicate your responses below:

If you are submitting documents to the Department, please list and briefly identify all such documents in the space provided below and on any additional sheet that may be necessary.

III.

ADMISSION/DENIAL OF CONDITIONS OR LIMITATIONS

The Office of Radiation Protection's approval AIR 13-1003, dated October 17, 2013, contains conditions and limitations set out as numbered paragraphs. In the space below you must indicate, in good faith, whether you admit, or do not contest, or deny the conditions or limitations. Conditions or limitations denied or not contested may later be admitted. Conditions or limitations admitted or not contested shall be conclusively deemed true for further proceedings.

Instructions: I admit, deny, or do not contest the conditions or limitations as follows  
(fill in the appropriate paragraph number):

	<u>Admit</u>	<u>Deny</u>	<u>Do Not Contest</u>
Paragraph _____	[ ]	[ ]	[ ]
Paragraph _____	[ ]	[ ]	[ ]
Paragraph _____	[ ]	[ ]	[ ]
Paragraph _____	[ ]	[ ]	[ ]
Paragraph _____	[ ]	[ ]	[ ]
Paragraph _____	[ ]	[ ]	[ ]
Paragraph _____	[ ]	[ ]	[ ]
Paragraph _____	[ ]	[ ]	[ ]
Paragraph _____	[ ]	[ ]	[ ]

Please attach any additional sheets that may be necessary to respond to all allegations.

If you have chosen not to waive your rights to a formal hearing, please state all grounds for contesting this matter in the space provided below and on any additional sheets that may be necessary.

IV.

You have the right to an interpreter, appointed at no cost, if you are a hearing impaired person or limited English speaking person. If any witness for you is a hearing impaired person or a limited English speaking person, an interpreter will be appointed at your expense.

I **[DO]** / **[DO NOT]** (circle one) request an interpreter be appointed. If an interpreter is requested, please indicate the person or persons for whom an interpreter is required and their primary language, and/or whether they are hearing impaired.

IF YOU FAIL TO FILE YOUR APPLICATION IN A TIMELY MANNER, OR IF YOU FILE YOUR APPLICATION TIMELY BUT FAIL TO APPEAR AT ANY SCHEDULED SETTLEMENT CONFERENCE, PREHEARING CONFERENCE, OR HEARING WITHOUT LEAVE TO DO SO, THE DEPARTMENT MAY DECIDE THIS MATTER WITHOUT YOUR PARTICIPATION AND WITHOUT FURTHER NOTICE TO YOU.

DATED this \_\_\_\_\_ day of \_\_\_\_\_,

\_\_\_\_\_  
Party

\_\_\_\_\_  
Party's Representative (if any)

WSBA #: \_\_\_\_\_