LB# 3758

AIR 13-1104
NOC 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

November 7, 2013

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), the application for Emission Units (EU) 1371 and 1384 were approved effective October 31, 2013, according to the enclosed licenses for:

AIR 13-1106: Operation of 200 W-MARS-004 (NOC 908) (EU 1384)

AIR 13-1107: Operation of 200 W-MARS-003 (NOC 899) (EU 1371)

The conditions, controls, monitoring requirements, and limitations of these licenses must be observed in order for you to be in compliance with WAC 246-247. Failure to meet any provision of these licenses may result in the revocation of approval, the issuance of Notices of Violation, or other enforcement actions under WAC 246-247-100.

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

Sincerely,

for

John Martell, Manager
Radioactive Air Emissions Section

Enclosure: Applicable Portion of License

cc: (see next page)

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 Killoy, 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: Line 771; NOC 899 & 908; EU 1371& 1384

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 ExhaustVelocity: 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

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.

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-004	AIR 13-1106	10/31/2013	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)).

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.

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 All Alpha radioactivity was attributed to Am-241	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: 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 ExhaustVelocity: 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

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Federal and State Regulatory	Monitoring and Testing Requirements	Radionuclides Requiring Measurement	Sampling Frequency
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This Emission Unit has 1 active Notice(s) of Construction.

Project Title	Approval #	Date Approved	NOC_ID
Operation of 200 W-MARS-003	AIR 13-1107	10/31/2013	899

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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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
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