



LBA 3705

AIR 13-824  
NOC 882-889

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

August 27, 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 modification of Emission Units (EUs) 738, 740, 742, 744, 912, 922, 959, and 969 were approved as of August 20, 2013, according to the enclosed Licenses for:

- AIR 13-809: Operation of 244-A Primary HEPA Breather Filter (Replaced NOC 859) (NOC 882, EU 738)**
- AIR 13-810: Operation of 244-BX Primary HEPA Breather Filter (Replaced NOC 859) (NOC 883, EU 740)**
- AIR 13-811: Operation of 244-S Primary HEPA Breather Filter (Replaced NOC 859) (NOC 884, EU 742)**
- AIR 13-812: Operation of 244-TX Primary HEPA Breather Filter (Replaced NOC 859) (NOC 885, EU 744)**
- AIR 13-813: Operation of 244-A Annulus HEPA Breather Filter (Replaced NOC 859) (NOC 886, EU 912)**
- AIR 13-814: Operation of 244-BX Annulus HEPA Breather Filter (Replaced NOC 859) (NOC 887, EU 922)**
- AIR 13-815: Operation of 244-S Annulus HEPA Breather Filter (Replaced NOC 859) (NOC 888, EU 959)**
- AIR 13-816: Operation of 244-TX Annulus HEPA Breather Filter (Replaced NOC 859) (NOC 889, EU 969)**



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

These license approvals replace and obsolete:

**Isolation and Closure of Exhaust Stacks 296-A-25, 296-B-28, 296-S-22 and 296-T-18  
(Replaces NOC 796) (Replaced by NOC 885)**

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 Portions of License

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  
Richard 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 694; Resp. to IM 7,822; NOC 882-889; EU 738, 740, 742, 744, 912, 922, 959, & 969

Emission Unit ID: 738

**200E P-244A-002**

**244-A Primary HEPA**

This is a MINOR, PASSIVELY ventilated emission unit.

244-A DCRT

**Emission Unit Information**

Stack Height: 5.00 ft. 1.52 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	1	Passive Breather Filter

**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 Limitations section, if applicable.

**Operational Status** This emission unit is a double contained receiver tank (DCRT) passive breather filter ventilation system used to support tank farm operations, such as waste retrieval and operation support activities for the 241-A Tank Farm. The tank stored radioactive waste during transfer operations. Any activity other than temporary storage and normal operation support will be regulated and/or permitted under the appropriate regulations and/or permits for the activity being performed and the emission units associated with the activity. The emission unit has a passive breather filter ventilation system that operates continuously.

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

Project Title	Approval #	Date Approved	NOC_ID
Operation of 244-A Primary HEPA Breather Filter (Replaced NOC 859)	AIR 13-809	8/20/2013	882

**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 2.81E-04 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 2.81E-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.

The 244-A DCRT is located west of the 241-AN tank farm in the 200 east area. The DCRT catch tank is a steel vessel with a volume capacity of 19,000 gallons. The catch tank and the concrete pit containing the tank define the annulus space.

The tank has been fitted with ventilation breather filters which serve as static vents for instrument air injected for operating of liquid measuring devices called weight-factor dip tubes. The breather filters also allow flammable gases and other vapors to escape.

There is currently less than 10,000 gallons of waste stored in the tank. Current operational activities in this tank include level monitoring for leaks and intrusion by a variety of methods including dip tubes, manual tapes, zip cords, and ENRAFs; sampling tank contents, pumping tank contents, adding flush water used pursuant to ALARACT practices.

The breather filter system will, at a minimum, consist of an isolation valve (normally open during operation), filter housing, and HEPA filter. The isolation valve will isolate the HEPA filter from the tank to facilitate testing of the filter.

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

Ac - 227	Alpha - 0	1.17E+01	Am - 241
	All Alpha radioactivity was attributed to Am-241 Identified as contributing GREATER than 10% of the potential TEDE to the MEI		
Am - 243	Ba - 137 m		Beta - 0
			5.31E+03
			All Beta radioactivity was attributed to Sr-90 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
C - 14	Cd - 113 m		Cm - 242
Cm - 243	Cm - 244		Co - 60
Cs - 134	Cs - 137		Eu - 152
Eu - 154	Eu - 155		Gamma - 0
			2.84E+03
			All Gamma radioactivity was attributed to Cs-137 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
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 m
Zr - 93			

**4) ALTERNATE APPROVAL-Annual Replacement**

Radial breather filters shall be replaced every 365 days. (WAC 246-247-040(5) and WAC 246-247-075(4)).

Emission Unit ID: 740

**200E P-244BX-002**

**244-BX Primary HEPA**

This is a MINOR, PASSIVELY ventilated emission unit.

244-BX-DCRT

**Emission Unit Information**

Stack Height: 5.00 ft. 1.52 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	1	Passive Breather Filter

**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 Limitations section, if applicable.

**Operational Status** This emission unit is a double container receiver tank (DCRT) passive breather filter ventilation system used to support tank farm operations, such as but not limited to waste retrieval and operation support activities for 241 BX Tank Farm. The tanks stored radioactive waste during transfer operations. Any activity other than temporary storage and normal operation support will be regulated and/or permitted under the appropriate regulations and/or permits for the activity being performed and the emission units associated with the activity. The emission unit has a passive breather filter ventilation system that operates continuously.

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

Project Title	Approval #	Date Approved	NOC_ID
Operation of 244-BX Primary HEPA Breather Filter (Replaced NOC 859)	AIR 13-810	8/20/2013	883

**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 2.81E-04 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 2.81E-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.

The 244-BX DCRT is located east of the 241-BX Tank Farm in the 200 east area. This DCRT is a steel vessel with a volume capacity of 31,000 gallons. The catch tank and the concrete pit containing the tank define the annulus space.

The tank and annulus have been fitted with ventilation breather filters which serve as static vents for instrument air injected for operating of liquid measuring devices called weight-factor dip tubes. The breather filters also allow flammable gases and other vapors to escape.

There is currently less than 15,000 gallons of waste stored in the tank. Current operational activities in this tank include level monitoring for leaks and intrusion by a variety of methods including dip tubes, manual tapes, zip cords, and ENRAFs; sampling tank contents, pumping tank contents, adding flush water used pursuant to ALARACT practices.

The breather filter system will, at a minimum, consist of an isolation valve (normally open during operation), filter housing, and HEPA filter. The isolation valve will isolate the HEPA filter from the tank to facilitate testing of the filter.

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

Ac - 227	Alpha - 0 All Alpha radioactivity was attributed to Am-241 Identified as contributing GREATER than 10% of the potential TEDE to the MEI	2.37E+01	Am - 241
Am - 243	Ba - 137 m		Beta - 0 All Beta radioactivity was attributed to Sr-90 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
C - 14	Cd - 113 m		Cm - 242
Cm - 243	Cm - 244		Co - 60
Cs - 134	Cs - 137		Eu - 152
Eu - 154	Eu - 155		Gamma - 0 All Gamma radioactivity was attributed to Cs-137 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
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 m
Zr - 93			

**4) ALTERNATE APPROVAL-Annual Replacement**

Radial breather filters shall be replaced every 365 days. (WAC 246-247-040(5) and WAC 246-247-075(4)).

Emission Unit ID: 742

200W P-244S-002

244-S Primary HEPA

This is a MINOR, PASSIVELY ventilated emission unit.

244 S-DCRT

Emission Unit Information

Stack Height: 5.00 ft. 1.52 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	1	Passive Breather Filter

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

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

Operational Status This emission unit is a double container receiver tank (DCRT) passive breather filter ventilation system used to support tank farm operations, such as but not limited to waste retrieval and operation support activities for 241 S Tank Farm. The tanks stored radioactive waste during transfer operations. Any activity other than temporary storage and normal operation support will be regulated and/or permitted under the appropriate regulations and/or permits for the activity being performed and the emission units associated with the activity. The emission unit has a passive breather filter ventilation system that operates continuously.

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

Project Title	Approval #	Date Approved	NOC_ID
Operation of 244-S Primary HEPA Breather Filter (Replaced NOC 859)	AIR 13-811	8/20/2013	884

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 3.18E-04 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 3.18E-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.

The 244-S DCRT is located south of the 241-SY Tank Farms in the 200 west area. This DCRT is a steel vessel with a volume capacity of 19,000 gallons. The catch tank and the concrete pit containing the tank define the annulus space. The tank and annulus have been fitted with ventilation breather filters which serve as static vents for instrument air injected for operating of liquid measuring devices called weight-factor dip tubes. The breather filters also allow flammable gases and other vapors to escape.

There is currently less than 10,000 gallons of waste stored in the tank. Current operational activities in this tank

include level monitoring for leaks and intrusion by a variety of methods including dip tubes, manual tapes, zip cords, and ENRAFs; sampling tank contents, pumping tank contents, adding flush water used pursuant to ALARACT practices.

The breather filter system will, at a minimum, consist of an isolation valve (normally open during operation), filter housing, and HEPA filter. The isolation valve will isolate the HEPA filter from the tank to facilitate testing of the filter.

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

Ac - 227	Alpha - 0 All Alpha radioactivity was attributed to Am-241 Identified as contributing GREATER than 10% of the potential TEDE to the MEI	1.17E+01	Am - 241
Am - 243	Ba - 137 m		Beta - 0 All Beta radioactivity was attributed to Sr-90 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
C - 14	Cd - 113 m		Cm - 242
Cm - 243	Cm - 244		Co - 60
Cs - 134	Cs - 137		Eu - 152
Eu - 154	Eu - 155		Gamma - 0 All Gamma radioactivity was attributed to Cs-137 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
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 m
Zr - 93			

- 4) **ALTERNATE APPROVAL-Annual Replacement**  
Radial breather filters shall be replaced every 365 days. (WAC 246-247-040(5) and WAC 246-247-075(4)).



Emission Unit ID: 744

200W P-244TX-002

244-TX Primary HEPA

This is a MINOR, PASSIVELY ventilated emission unit.

244-TX DCRT

### Emission Unit Information

Stack Height: 5.00 ft. 1.52 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	1	Passive Breather Filter

### 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/100cm <sup>2</sup> beta/gamma and 200 dpm/100cm <sup>2</sup> 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 Limitations section, if applicable.

**Operational Status** This emission unit is a double container receiver tank (DCRT) passive breather filter ventilation system used to support tank farm operations, such as but not limited to waste retrieval and operation support activities for 241 TX Tank Farm. The tanks stored radioactive waste during transfer operations. Any activity other than temporary storage and normal operation support will be regulated and/or permitted under the appropriate regulations and/or permits for the activity being performed and the emission units associated with the activity. The emission unit has a passive breather filter ventilation system that operates continuously.

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

Project Title	Approval #	Date Approved	NOC_ID
Operation of 244-TX Primary HEPA Breather Filter (Replaced NOC 859)	AIR 13-812	8/20/2013	885

### 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 3.18E-04 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 3.18E-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.

The 244-TX DCRT is located north of the 241-TX Tank Farm in the 200 west area. This DCRT is a steel vessel with a volume capacity of 31,000 gallons. The catch tank and the concrete pit containing the tank define the annulus space. The tank and annulus have been fitted with ventilation breather filters which serve as static vents for instrument air injected for operating of liquid measuring devices called weight-factor dip tubes. The breather filters also allow flammable gases and other vapors to escape.

There is currently less than 15,000 gallons of waste stored in the tank. Current operational activities in this tank

include level monitoring for leaks and intrusion by a variety of methods including dip tubes, manual tapes, zip cords, and ENRAFs; sampling tank contents, pumping tank contents, adding flush water used pursuant to ALARACT practices.

The breather filter system will, at a minimum, consist of an isolation valve (normally open during operation), filter housing, and HEPA filter. The isolation valve will isolate the HEPA filter from the tank to facilitate testing of the filter.

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

Ac - 227	Alpha - 0 All Alpha radioactivity was attributed to Am-241 Identified as contributing GREATER than 10% of the potential TEDE to the MEI	2.37E+01	Am - 241
Am - 243	Ba - 137 m		Beta - 0 All Beta radioactivity was attributed to Sr-90 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
C - 14	Cd - 113 m		Cm - 242
Cm - 243	Cm - 244		Co - 60
Cs - 134	Cs - 137		Eu - 152
Eu - 154	Eu - 155		Gamma - 0 All Gamma radioactivity was attributed to Cs-137 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
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 m
Zr - 93			

4) **ALTERNATE APPROVAL-Annual Replacement**

Radial breather filters shall be replaced every 365 days. (WAC 246-247-040(5) and WAC 246-247-075(4)).

Emission Unit ID: 912

200E P-244A-003

244-A Annulus HEPA

This is a MINOR, PASSIVELY ventilated emission unit.

244-A DCRT

Emission Unit Information

Stack Height: 5.00 ft. 1.52 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	1	Passive Breather Filter

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

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

Operational Status This emission unit is a double contained receiver tank (DCRT) passive breather filter ventilation system used to support tank farm operations, such as waste retrieval and operation support activities for the 241-A Tank Farm. The tank stored radioactive waste during transfer operations. Any activity other than temporary storage and normal operation support will be regulated and/or permitted under the appropriate regulations and/or permits for the activity being performed and the emission units associated with the activity. The emission unit has a passive breather filter ventilation system that operates continuously.

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

Project Title	Approval #	Date Approved	NOC_ID
Operation of 244-A Annulus HEPA Breather Filter (Replaced NOC 859)	AIR 13-813	8/20/2013	886

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 2.81E-04 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 2.81E-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.

The 244-A DCRT is located west of the 241-AN tank farm in the 200 east area. The DCRT catch tank is a steel vessel with volume capacity of 19,000 gallons. The catch tank and the concrete pit containing the tank define the annulus space.

The tank has been fitted with ventilation breather filters which serve as static vents for instrument air injected for operating of liquid measuring devices called weight-factor dip tubes. The breather filters also allow flammable gases and other vapors to escape.

There is currently less than 10,000 gallons of waste stored in the tank. Current operational activities in this tank include level monitoring for leaks and intrusion by a variety of methods including dip tubes, manual tapes, zip cords, and ENRAFs; sampling tank contents, pumping tank contents, adding flush water used pursuant to ALARACT practices.

The breather filter system will, at a minimum, consist of an isolation valve (normally open during operation), filter housing, and HEPA filter. The isolation valve will isolate the HEPA filter from the tank to facilitate testing of the filter.

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

Ac - 227	Alpha - 0 All Alpha radioactivity was attributed to Am-241 Identified as contributing GREATER than 10% of the potential TEDE to the MEI	1.17E+01	Am - 241
Am - 243	Ba - 137 m		Beta - 0 All Beta radioactivity was attributed to Sr-90 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
C - 14	Cd - 113 m		Cm - 242
Cm - 243	Cm - 244		Co - 60
Cs - 134	Cs - 137		Eu - 152
Eu - 154	Eu - 155		Gamma - 0 All Gamma radioactivity was attributed to Cs-137 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
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 m
Zr - 93			

**4) ALTERNATE APPROVAL-Annual Replacement**

Radial breather filters shall be replaced every 365 days. (WAC 246-247-040(5) and WAC 246-247-075(4)).

Emission Unit ID: 922

200E P-244BX-003

244-BX Annulus HEPA

This is a MINOR, PASSIVELY ventilated emission unit.

244-BX-DCRT

### Emission Unit Information

Stack Height: 5.00 ft. 1.52 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	1	Passive Breather Filter

### 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/100cm <sup>2</sup> beta/gamma and 200 dpm/100cm <sup>2</sup> 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 Limitations section, if applicable.

**Operational Status** This emission unit is a double container receiver tank (DCRT) passive breather filter ventilation system used to support tank farm operations, such as but not limited to waste retrieval and operation support activities for 241-BX Tank Farm. The tanks stored radioactive waste during transfer operations. Any activity other than temporary storage and normal operation support will be regulated and/or permitted under the appropriate regulations and/or permits for the activity being performed and the emission units associated with the activity. The emission unit has a passive breather filter ventilation system that operates continuously.

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

Project Title	Approval #	Date Approved	NOC_ID
Operation of 244-BX Annulus HEPA, Breather Filter (Replaced NOC 859)	AIR 13-814	8/20/2013	887

### 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 2.81E-04 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 2.81E-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.

The 244-BX DCRT is located east of the 241-BX Tank Farm in the 200 east area. The DCRT catch tank is a steel vessel with a volume capacity of 31,000 gallons. The catch tank and the concrete pit containing the tank define the annulus space.

The tank has been fitted with ventilation breather filters which serve as static vents for instrument air injected for operating of liquid measuring devices called weight-factor dip tubes. The breather filters also allow flammable gases and other vapors to escape.

There is currently less than 15,000 gallons of waste stored in the tank. Current operational activities in this tank include level monitoring for leaks and intrusion by a variety of methods including dip tubes, manual tapes, zip cords, and ENRAFs; sampling tank contents, pumping tank contents, adding flush water used pursuant to ALARACT practices.

The breather filter system will, at a minimum, consist of an isolation valve (normally open during operation), filter housing, and HEPA filter. The isolation valve will isolate the HEPA filter from the tank to facilitate testing of the filter.

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

Ac - 227	Alpha - 0 All Alpha radioactivity was attributed to Am-241 Identified as contributing GREATER than 10% of the potential TEDE to the MEI	2.37E+01	Am - 241
Am - 243	Ba - 137 m		Beta - 0 All Beta radioactivity was attributed to Sr-90 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
C - 14	Cd - 113 m		Cm - 242
Cm - 243	Cm - 244		Co - 60
Cs - 134	Cs - 137		Eu - 152
Eu - 154	Eu - 155		Gamma - 0 All Gamma radioactivity was attributed to Cs-137 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
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 m
Zr - 93			

**4) ALTERNATE APPROVAL-Annual Replacement**

Radial breather filters shall be replaced every 365 days. (WAC 246-247-040(5) and WAC 246-247-075(4)).

Emission Unit ID: 959

200W P-244S-003

244-S Annulus HEPA

This is a MINOR, PASSIVELY ventilated emission unit.

244 S-DCRT

**Emission Unit Information**

Stack Height: 5.00 ft. 1.52 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	1	Passive Breather Filter

**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 Limitations section, if applicable.

**Operational Status** This emission unit is a double container receiver tank (DCRT) passive breather filter ventilation system used to support tank farm operations, such as but not limited to waste retrieval and operation support activities for 241-S Tank Farm. The tanks stored radioactive waste during transfer operations. Any activity other than temporary storage and normal operation support will be regulated and/or permitted under the appropriate regulations and/or permits for the activity being performed and the emission unit is associated with the activity. The emission unit has a passive breather filter ventilation system that operates continuously.

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

Project Title	Approval #	Date Approved	NOC_ID
Operation of 244-S Annulus HEPA Breather Filter (Replaced NOC 859)	AIR 13-815	8/20/2013	888

**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 3.18E-04 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 3.18E-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.

The 244-S DCRT is located south of the 241-SY Tank Farms in the 200 west area. The DCRT catch tank is a steel vessel with a volume capacity of 19,000 gallons. The catch tank and the concrete pit containing the tank define the annulus space. The tank and annulus have been fitted with ventilation breather filters which serve as static vents for instrument air injected for operating of liquid measuring devices called weight-factor dip tubes. The breather filters also allow flammable gases and other vapors to escape.

There is currently less than 10,000 gallons of waste stored in the tank. Current operational activities in this tank include level monitoring for leaks and intrusion by a variety of methods including dip tubes, manual tapes, zip cords, and ENRAFs; sampling tank contents, pumping tank contents, adding flush water used pursuant to ALARACT practices.

The breather filter system will, at a minimum, consist of an isolation valve (normally open during operation), filter housing, and HEPA filter. The isolation valve will isolate the HEPA filter from the tank to facilitate testing of the filter.

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

Ac - 227	Alpha - 0 All Alpha radioactivity was attributed to Am-241 Identified as contributing GREATER than 10% of the potential TEDE to the MEI	1.17E+01	Am - 241
Am - 243	Ba - 137 m		Beta - 0 5.31E+03 All Beta radioactivity was attributed to Sr 90 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
C - 14	Cd - 113 m		Cm - 242
Cm - 243	Cm - 244		Co - 60
Cs - 134	Cs - 137		Eu - 152
Eu - 154	Eu - 155		Gamma - 0 2.84E+03 All Gamma radioactivity was attributed to Cs-137 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
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 m
Zr - 93			

- 4) **ALTERNATE APPROVAL-Annual Replacement**  
Radial breather filters shall be replaced every 365 days. (WAC 246-247-040(5) and WAC 246-247-075(4)).



Emission Unit ID: 969

200W P-244TX-003

244-TX Annulus HEPA

This is a MINOR, PASSIVELY ventilated emission unit.

244-TX DCRT

**Emission Unit Information**

Stack Height: 5.00 ft. 1.52 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	1	Passive Breather Filter

**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 Limitations section, if applicable.

**Operational Status** This emission unit is a double container receiver tank (DCRT) passive breather filter ventilation system used to support tank farm operations, such as but not limited to wasted retrieval and operation support activities for 241-TX Tank Farm. The tanks stored radioactive waste during transfer operations. Any activity other than temporary storage and normal operation support will be regulated and/or permitted under the appropriate regulations and/or permits for the activity being performed and the emission units associated with the activity. The emission unit has a passive breather filter ventilation system that operates continuously.

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

Project Title	Approval #	Date Approved	NOC_ID
Operation of 244-TX Annulus HEPA Breather Filter (Replaced NOC 859)	AIR 13-816	8/20/2013	889

**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 3.18E-04 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 3.18E-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.

The 244-TX DCRT is located north of the 241-TX Tank Farm in the 200 west area. The DCRT catch tank is a steel vessel with a volume capacity of 31,000 gallons. The catch tank and the concrete pit containing the tank define the annulus space. The tank and annulus have been fitted with ventilation breather filters which serve as static vents for instrument air injected for operating of liquid measuring devices called weight-factor dip tubes. The breather filters also allow flammable gases and other vapors to escape.

There is currently less than 15,000 gallons of waste stored in the tank. Current operational activities in this tank include level monitoring for leaks and intrusion by a variety of methods including dip tubes, manual tapes, zip cords, and ENRAFs; sampling tank contents, pumping tank contents, adding flush water used pursuant to ALARACT practices.

The breather filter system will, at a minimum, consist of an isolation valve (normally open during operation), filter housing, and HEPA filter. The isolation valve will isolate the HEPA filter from the tank to facilitate testing of the filter.

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

Ac - 227	Alpha - 0 All Alpha radioactivity was attributed to Am-241 Identified as contributing GREATER than 10% of the potential TEDE to the MEI	2.37E+01	Am - 241
Am - 243	Ba - 137 m		Beta - 0 All Beta radioactivity was attributed to Sr 90 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
C - 14	Cd - 113 m		Cm - 242
Cm - 243	Cm - 244		Co - 60
Cs - 134	Cs - 137		Eu - 152
Eu - 154	Eu - 155		Gamma - 0 All Gamma radioactivity was attributed to Cs-137 Identified as contributing GREATER than 10% of the potential TEDE to the MEI
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 m
Zr - 93			

4) **ALTERNATE APPROVAL-Annual Replacement**

Radial breather filters shall be replaced every 365 days. (WAC 246-247-040(5) and WAC 246-247-075(4)).