SECTION

2 OF 3

Emission Unit ID: 277

200E P-241B109-001

241-B-109

This is a MINOR, PASSIVELY ventilated emission unit.

241-B TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 0.33 ft. 0.10 m.

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

Average Stack ExhaustVelocity: 1.91 ft/second. 0.58 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 278

200E P-241B110-001

241-B-110

This is a MINOR, PASSIVELY ventilated emission unit.

241-B TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 1.00 ft. 0.30 m.

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

Average Stack ExhaustVelocity: 0.17 ft/second. 0.05 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 279

200E P-241B103-001

241-B-103

This is a MINOR, PASSIVELY ventilated emission unit.

241-B TANK FARM

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 ExhaustVelocity: 0.25 ft/second. 0.08 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 280

200E P-241B202-001

241-B-202

This is a MINOR, PASSIVELY ventilated emission unit.

241-B TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 0.33 ft. 0.10 m.

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

Average Stack ExhaustVelocity: 1.91 ft/second. 0.58 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 281

200E P-241B106-001

241-B-106

This is a MINOR, PASSIVELY ventilated emission unit.

241-B TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 0.33 ft. 0.10 m.

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

Average Stack ExhaustVelocity: 1.91 ft/second. 0.58 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 282

200E P-241B203-001

241-B-203

This is a MINOR, PASSIVELY ventilated emission unit.

241-B TANK FARM

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 ExhaustVelocity: 0.25 ft/second. 0.08 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 283

200E P-241BY101-001

241-BY-101

This is a MINOR, PASSIVELY ventilated emission unit.

241-BY TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 0.33 ft. 0.10 m.

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

Average Stack ExhaustVelocity: 1.91 ft/second. 0.58 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 284

200E P-241BY105-001

241-BY-105

This is a MINOR, PASSIVELY ventilated emission unit.

241-BY TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 1.00 ft. 0.30 m.

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

Average Stack ExhaustVelocity: 0.17 ft/second. 0.05 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 285

200E P-241BY106-001

241-BY-106

This is a MINOR, PASSIVELY ventilated emission unit.

241-BY TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 1.00 ft. 0.30 m.

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

Average Stack ExhaustVelocity: 0.17 ft/second. 0.05 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 286

200E P-241BY102-001

241-BY-102

This is a MINOR, PASSIVELY ventilated emission unit.

241-BY TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 1.00 ft. 0.30 m.

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

Average Stack ExhaustVelocity: 0.17 ft/second. 0.05 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 287

200E P-241BY112-001

241-BY-112

This is a MINOR, PASSIVELY ventilated emission unit.

241-BY TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 0.33 ft. 0.10 m.

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

Average Stack ExhaustVelocity: 1.91 ft/second. 0.58 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 288

200E P-241BY103-001

241-BY-103

This is a MINOR, PASSIVELY ventilated emission unit.

241-BY TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 1.00 ft. 0.30 m.

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

Average Stack ExhaustVelocity: 0.17 ft/second. 0.05 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 289

200E P-241BY104-001

241-BY-104

This is a MINOR, PASSIVELY ventilated emission unit.

241-BY TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 0.33 ft. 0.10 m.

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

Average Stack ExhaustVelocity: 1.91 ft/second. 0.58 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 290

200E P-241BY109-001

241-BY-109

This is a MINOR, PASSIVELY ventilated emission unit.

241-BY TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 0.33 ft. 0.10 m.

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

Average Stack ExhaustVelocity: 1.91 ft/second. 0.58 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 291

200E P-241BY108-001

241-BY-108

This is a MINOR, PASSIVELY ventilated emission unit.

241-BY TANK FARM

Emission Unit Information

Stack Height 15.00 ft. 4.57 m. Stack Diameter 0.33 ft. 0.10 m.

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

Average Stack ExhaustVelocity: 1.91 ft/second. 0.58 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

Contamination surveys of breather filters with stack extensions will be performed on the downstream side of the filter or on the outside of the screen covering the outlet of vent (if one exists) or by removing the test port cap downstream of the HEPA filter, surveying the cap and inserting smear media (e.g. swab, masslin) in the opening and smearing the interior ducting surface on the opposite side of the test port cap opening.

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 292

200E P-241BY111-001

241-BY-111

This is a MINOR, PASSIVELY ventilated emission unit.

241-BY TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 0.33 ft. 0.10 m.

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

Average Stack ExhaustVelocity: 1.91 ft/second. 0.58 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 293

200E P-241BY110-001

241-BY-110

This is a MINOR, PASSIVELY ventilated emission unit.

241-BY TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 0.33 ft. 0.10 m.

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

Average Stack ExhaustVelocity: 1.91 ft/second. 0.58 m/second.

Abatement Technology ALARACT WAC 246-247-040(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 HEPA 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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 294

200E P-241BY107-001

241-BY-107

This is a MINOR, PASSIVELY ventilated emission unit.

241-BY TANK FARM

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 ExhaustVelocity: 0.25 ft/second. 0.08 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 301

200E P-2025E ETF

296-E-1

This is a MINOR, ACTIVELY ventilated emission unit.

Effluent Treatment Facility(ETF)

Emission Unit Information

Stack Height: 51.00 ft. 15.54 m. Stack Diameter 6.00 ft. 1.83 m.

Average Stack Effluent Temperature: 85 degrees Fahrenheit. 29 degrees Celsius.

Average Stack ExhaustVelocity: 33.30 ft/second. 10.15 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
Vessel Off-Gas System	HEPA	3	1 heater and 2 filters in series, with 2 parallel fans (minimum of 1 in operations). VOG discharges into Building Ventilation
Vessel Off-Gas System	Fan	1	
Building Ventilation System	HEPA	2	3 parallel flowpaths each with 1 filter and 1 fan; minimum 2 in operation.
Building Ventilation System	Fan	2	Serves both areas

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	4 week sample/ year

Sampling Requirements Monitoring stations N498, N499, N972, and N999

Additional Requirements

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

Operational Status Operations at the 200 Area Effluent Treatment Facility (ETF) receive and treat liquid effluents at the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Operation of the Liquid Effluent Retention Facility and the 200 Area Effluent Treatment Facility	AIR 06-1045	10/5/2006	690

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 4.59E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 operation of the Liquid Effluent Retention Facility/200 Area Effluent Treatment Facility (LERF/ETF), which includes the load-in station and load-in station filter skid.

Incoming wastewater can be added directly to the ETF process or received at the LERF or the load-in station.

The LERF is allowed to receive wastewaters via underground pipelines from generator facilities, via pipeline from the load-in station, or directly through a series of access ports located at each basin. The load-in station accommodates wastewater receipt via container (e.g., drums, carboys, tankers, etc.).

The ETF wastewater treatment process shall be comprised of a main treatment train and a secondary treatment train. The main treatment train shall provide for the removal or destruction of dangerous and radioactive contaminants from incoming wastewater. After treatment, the effluent shall be transferred to the verification tanks where it is sampled then discharged. Treated effluent is comparable to deionized water and contains tritium, which cannot be economically removed. Contaminants removed in the main treatment train are concentrated in the secondary treatment train. The contaminants shall be heated and dried to a powder form or removed as sludge and dried by the addition of absorbents. These residues shall be containerized and disposed onsite as radioactive waste.

Additional approval of the process for this activity is contained in the following Conditions/Limitations.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 8.48E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Alpha release rate is assumed to be Pu-239/240. ETF release rates are based on ETF operating capacity + 5 million gallon storage capacity (54.3 million gallons/yr plus 5.0 million gallons = 59.3 million gallons/yr). In addition to the isotopes specifically listed as approved under this NOC, other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta-gamma constituents.		
Am - 241	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
B/G - 0	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Beta/gamma release rate is assumed to be Sr-90/Cs-137. ETF release rates are based on ETF operating capacity + 5 million gallon storage capacity (54.3 million gallons/yr plus 5.0 million gallons = 59.3 million gallons/yr). In addition to the isotopes specifically listed as approved under this NOC, other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta-gamma constituents.		
C - 14	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Ce - 144	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Cm - 244	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Co - 60	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Cs - 134	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Eu - 154	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Eu - 155	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
H - 3	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
I - 129	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
K - 40	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		

Mn - 54	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Na - 22	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Nb - 94	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Np - 237	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pu - 238	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pu - 241	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Ra - 226	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Ru - 106	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Sb - 125	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Se - 79	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Tc - 99	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

U - 233	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

U - 234	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

U - 235	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

U - 236	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

U - 238	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Zn - 65	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Zr - 95	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

The radioactive isotopes identified for this emission unit are (no quantities specified):

Am - 241	C - 14	Ce - 144	Cm - 244	Co - 60
Cs - 134	Cs - 137	Eu - 154	Eu - 155	H - 3
I - 129	K - 40	Mn - 54	Na - 22	Nb - 94
Np - 237	Pu - 238	Pu - 239/240	Pu - 241	Ra - 226
Ru - 106	Sb - 125	Se - 79	Sr - 90	Tc - 99
U - 233	U - 234	U - 235	U - 236	U - 238
Zn - 65	Zr - 95			

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) The emissions for this activity from the 296-E-1 stack are limited to 3.89E-02 mrem/year unabated and 1.95E-05 mrem/year abated.

5) The following activities are approved for the 296-E-1 Emission Unit Point-Source Emissions:

- ETF operations and maintenance.
- Containerized wastewater additions to the ETF process.
- Leaks into the ETF secondary containment.
- Secondary waste packaging and storage.

Emission Unit ID: 302

200E P-241AX104-001

241-AX-104

This is a MINOR, PASSIVELY ventilated emission unit.

241-AX TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 1.00 ft. 0.30 m.

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

Average Stack ExhaustVelocity: 0.17 ft/second. 0.05 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 303

200E P-241AX102-001

241-AX-102

This is a MINOR, PASSIVELY ventilated emission unit.

241-AX TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 1.00 ft. 0.30 m.

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

Average Stack ExhaustVelocity: 0.17 ft/second. 0.05 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 304

200E P-241AX103-001

241-AX-103

This is a MINOR, PASSIVELY ventilated emission unit.

241-AX TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 1.00 ft. 0.30 m.

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

Average Stack ExhaustVelocity: 0.17 ft/second. 0.05 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 305

200E P-241AX101-001

241-AX-101

This is a MINOR, PASSIVELY ventilated emission unit.

241-AX TANK FARM

Emission Unit Information

Stack Height 3.00 ft. 0.91 m. Stack Diameter 1.00 ft. 0.30 m.

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

Average Stack ExhaustVelocity: 0.17 ft/second. 0.05 m/second.

Abatement Technology ALARACT WAC 246-247-040(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)		Levels below 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha will verify low emissions.	1 per year

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

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 passive breather filter that allows a SST to vent to the atmosphere under tank farm storage, maintenance, and operation. The tank stores the radioactive waste awaiting retrieval, treatment, and proper disposal under the applicable federal and state regulations and/or permits. The SST scheduled activities of waste retrieval, decommissioning, and eventual closure will be completed under applicable federal and state regulations and/or permits. Any activity other than storage, maintenance, and normal operation conducted at the tank will obtain the appropriate permits for the activity and the emission units associated with the activity as required by the regulations applicable to the activity. The emission unit is a passive breather filter and is part of the tank's ventilation system that operates continuously.

Emission Unit ID: 308

200W P-213W-001

296-W-3

This is a MINOR, ACTIVELY ventilated emission unit.

213-W

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	HEPA	Non-Operational	This emission unit is inactive and will require an NOC to resume operation or a report of closure to de-register.
	Fan	Non-Operational	This emission unit is inactive and will require an NOC to resume operation or a report of closure to de-register.
	Prefilter	Non-Operational	This emission unit is inactive and will require an NOC to resume operation or a report of closure to de-register.
	Heater	Non-Operational	This emission unit is inactive and will require an NOC to resume operation or a report of closure to de-register.
	Deentrainer	Non-Operational	This emission unit is inactive and will require an NOC to resume operation or a report of closure to de-register.

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
	Non-Operational		

Sampling Requirements Non-Operational

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 emission unit is non-operational, removed from service and will not be utilized for future tank farm operations. If the emission unit is required for tank farm operations, the proper regulatory requirements and permits will be obtained prior to returning the emission unit to service. Closure is pending submittal of closure form and final inspection and approval by WDOH.

Emission Unit ID: 314

200W P-291T001-001

291-T-1

This is a MAJOR, ACTIVELY ventilated emission unit.

T PLANT COMPLEX

Emission Unit Information

Stack Height: 200.00 ft. 60.96 m. Stack Diameter 6.50 ft. 1.98 m.

Average Stack Effluent Temperature: 78 degrees Fahrenheit. 26 degrees Celsius.

Average Stack ExhaustVelocity: 20.10 ft/second. 6.13 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
	Prefilter	1	
	HEPA	2	In series
	Fan	2	2 in parallel (with one as a backup)

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(2)	40 CFR 61, Appendix B, Method 114 NDA as detailed in conditions below.	All radionuclides that contribute greater than 10 percent of the potential-to-emit TEDE to the MEI, greater than 0.1 mrem/yr potential-to-emit TEDE to the MEI, and greater than 25 percent of the TEDE to the MEI after controls	Particulates shall be continuously sampled and analyzed every two weeks for gross alpha and gross beta/gamma, composited quarterly, and analyzed isotopically.

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 Activities at the T Plant Complex involve waste management operations in support of decontamination and decomissioning operations at the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Consolidated T Plant Operations	AIR 07-306	3/23/2007	711

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 5.60E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

This consolidated T-Plant license supersedes all radioactive air licenses for 291-T-1.

a. This approval subsumes those activities approved in three previous license approvals, retains/revises the specific conditions and limitations of those approvals, and replaces them as the radioactive air license for T-Plant:

i. AIR 03-1208 (NOC ID # 445, "Storage in T-Plant Complex of Sludge from K-Basins")
ii. AIR 01-1010 (NOC ID # 499, "T-Plant Complex Fuel Removal Project")
iii. AIR 02-704 (NOC ID # 500, "Entering and Characterizing of the 224-T Facility Process Cells")

b. With additional conditions and limitations provided herein, this approval also extends to new activities discussed in the NOC application "Radioactive Air Emissions Notice of Construction for Consolidated T Plant Operations", DOE/RL-2004-50, Rev. 0, September, 2004, described briefly:
i. Receipt, Storage, Treatment, and Load out of Contact-Handled and Remote-Handled Transuranic (TRU) and Transuranic Mixed Waste (M-91Initiative)
ii. Treatment (in addition to storage) of K-Basin Sludge from the North Load out Pit (NLOP)
iii. Such activities considered routine at T Plant as are described in succeeding conditions.

Activities a)i through a)iii may emit radioactive air through 291-T-1. Additionally, activity a)iii may emit to the 200 Areas Diffuse & Fugitive emission unit and to Portable Temporary Radioactive Air Emission Units.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 1.20E+02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Am - 241	1.38E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
isotopic distribution based on destrutive analysis of pre-filter four			
Cs - 137	1.46E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 239/240	1.38E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sr - 90	1.94E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

The radioactive isotopes identified for this emission unit are (no quantities specified):
Am - 241 Cs - 137 Pu - 239/240 Sr - 90
The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) **Obsolete on 2/23/2007.**

5) **Obsolete on 2/23/2007.**

6) All activities involving radioactive materials shall be conducted in accordance with radiation control procedures approved per applicable QA program. (WAC 246-247-040(5))

7) Calibrate all differential pressure gauges associated with 291-T-1 HEPA filters annually. (WAC 246-247-040(5))

8) **Obsolete on 2/23/2007.**

9) **Obsolete on 2/23/2007.**

10) Receipt, Storage, Treatment, and Load out of Contact-handled and Remote-handled transuranic (TRU) and transuranic mixed (TRUM) (M-91 Initiative):

A. M91 project activities shall be conducted in T-Plant within the head end, the railroad tunnel, and/or the T-Plant

Canyon. M-91 waste shall be received at the head end or at the railroad tunnel. M91 waste is remote or contact handled transuranic, transuranic mixed, mixed, or mixed low level waste.

B. M-91 waste containers shall be opened and their contents treated in the head end of T-Plant only under containment, containment being defined here as either vented and HEPA-filtered glove box/bag, sealed glove box/bag, ventilated and HEPA-filtered containment tent or ventilated and HEPA-filtered solid-structure temporary containment, or PTRAEU. Where active ventilation is provided, that ventilation shall discharge into the T-Plant canyon so that radioactive air emissions originating in this process are further controlled by the 291-T-1 ventilation system controls. Procedures (approved in accord with applicable QA program) to ensure the initial integrity of the containment and to ensure the continued integrity of the containment structures shall be followed, shall include periodic radiological surveys, and shall be kept available for WDOH review. The head end will be posted based on radiological conditions in accordance with radiation control procedures approved per applicable QA program.

C. M-91 waste containers shall be opened and their contents treated in the railroad tunnel and/or canyon of T-Plant, in accord with radiological control procedures (approved in accord with applicable QA program).

D. Lower risk M-91 containers may be received at the head end of T-Plant, and higher risk M-91 containers shall be received at the railroad tunnel. Risk criteria, including radiological risk considerations, governing receipt location shall be developed and documented.

E. Surface contamination and dose rate limits on M-91 waste containers received at T-Plant shall be governed by approved solid waste acceptance procedures. Deviations from approved solid waste acceptance procedures are allowed under a controlled waiver process. Stand-alone solid waste acceptance documents specifying surface contamination and dose rate limits shall be developed and approved for any M-91 containers received under the waiver process. These procedures shall be kept readily available for WDOH review. Documentation shall be sufficient to allow ready identification of the criteria under which each waste container is accepted, and shall note definite compliance with the applicable criteria on receipt.

F. Applicable surface contamination/dose rate criteria shall be documented for each container of M-91 waste repackaged at T-Plant for transshipment. Documentation of applicable criteria and compliance thereto shall be maintained for M-91 waste containers shipped from T-Plant.

G. Receipt, Storage, Treatment, and Load out of Contact-Handled and Remote-Handled Transuranic (TRU) and Transuranic Mixed Waste (M-91Initiative) includes the following activities:
G1) Receiving.
G2) Sorting.
G3) Storing.
G4) Size Reduction.
G5) Repackaging.
G6) Containerizing.
G7) Load out.
G8) Treatment. (WAC 246-247-040(5)).

11) Routine T-Plant Activities:

A1) Packaging and Repackaging Waste - Packaging and repackaging activities are performed for waste generated at T-Plant as well as for onsite and offsite generators. Packaging and repackaging activities are:
A1a) Sorting.
A1b) Segregation.
A1c) Removing prohibited items.
A1d) Compositing/aggregating solids or liquids.
A1e) Adding absorbent.
A1f) Size reduction [e.g., cutting (jaws, saws, torches)], bending, folding, crushing (e.g., drum crusher), shredding, compacting, or similar methods that do not have a higher extent of disruption].
A1g) Void filling.
A1h) Pressure relief/release (e.g., aerosol cans, gas cylinders, drums, or other similar containers).
A1i) Aerosol can/drum puncturing.

A2) Verification Activities - Verification support activities are provided for waste and other materials that are generated on or off the Hanford Site. Verification activities are:
A2a) Physical observation.
A2b) Nondestructive examination (NDE).
A2c) Nondestructive assay (NDA).
A2d) Chemical field screening.
A2e) Radiological surveys.
A2f) Radiological samples.
A2g) Headspace gas analysis.
A2h) Chemical sampling.
A3) Sampling Activities - Sampling of waste generated by operations or by other onsite or offsite generators is performed. The purpose of sampling is to confirm process knowledge, characterize waste, support verification, and determine land disposal requirements as applicable. Sampling activities are:
A3a) Field screening [e.g., pH paper, oxidizer, volatile organic analyses (VOAs), polychlorinated biphenyls (PCBs), or similar screening parameters].
A3b) Obtaining a sample for analysis [e.g., grab, composite, composite liquid waste sampler (COLIWASA), or other similar sampling techniques].
A3c) Shipping/transferring the samples to an approved laboratory for analysis.
A3d) Disposition of sample returns (e.g., placement back into the parent container or another approved container/tank).
A3e) Headspace gas analysis [typically in support of the Waste Isolation Pilot Plant (WIPP) Project].
A3f) Tank sampling (liquid, sludge, salt cake, composites).
A4) Decontamination/Refurbishment Activities - Materials, equipment, and waste can be decontaminated (e.g., free release, reduce the radiological levels, or other similar criteria) using a variety of methods. T-Plant also performs decontamination of T- Plant structural components (e.g., 221-T Building walls, cells, or other similar surfaces). Decontamination activities at T-Plant are:
A4a) Water (fog, high or low-pressure spraying).
A4b) Steam.
A4c) Ice blasting.
A4d) Vacuum blasting.
A4e) Brushing.
A4f) Abrasive tools.
A4g) Scraping.
A4h) Washing (e.g., chemicals/detergents).
A4i) Immersion.
A4j) Electro-polishing.
A4k) Cutting (e.g., removal by sawing, torch cutting more highly radioactive components or other similar methods).
A4l) Rust/paint removal.
A5) Maintenance Activities - A variety of preventative and/or repair maintenance activities are performed at T-Plant. Some maintenance activities involve the temporary shut down of the 291-T-1 exhaust stack. Maintenance activities are:
A5a) Painting.
A5b) Crane maintenance.
A5c) Electronic systems functional checks and repairs [CAMs, personnel contamination monitors (PCMs)].
A5d) Calibrations.
And may be performed on:
A5e) Rollup doors.
A5f) Heat pumps.
A5g) Exhaust fans.
A5h) Transformers.
A5i) Scale systems.
A5j) Wire rope.
A5k) Stack systems fan lubes.
A5l) Forklifts.
A6) Waste Treatment Activities - T-Plant is a treatment facility permitted by the Washington State Department of Ecology (Ecology). Treatment activities are:

A6a) Macroencapsulation.
A6b) Absorption.
A6c) Neutralization.
A6d) Immobilization.
A6e) Encapsulation.
A6f) Stabilization (solidification, cementation, grouting).
A6g) Compaction.
A6h) Amalgamation.
A6i) Segregation.
A6j) Shredding.
A6k) Venting.
A6l) Size Reduction.
A7) Recycling Activities - Materials are recycled whenever possible. Recycled materials are collected in accumulation containers in approved locations and transferred to the Recycling Center. Only nonradioactive materials are sent to the Recycling Center. Some radioactive materials (ferrous and nonferrous metals) can be recycled. Recycled materials are: ferrous and non-ferrous metal, light bulbs, aerosol cans, oils, and batteries.
A8) Storage Activities - T-Plant is permitted for waste storage by Ecology. Plant also stores other materials (chemicals, or equipment, or similar materials) to support operations. Radioactive wastes may be stored uncontainerized or in:
A8a) Containers (boxes, drums, tanker trucks/railcars, or large diameter containers).
A8b) Tanks.
A8c) Sumps and pipes.
A9) Equipment, Materials, and Waste Movement Activities - The movement of materials, equipment, waste, chemicals, or similar items involves the receipt and/or transferring/shipping, and movement and/or relocation within the T-Plant TSD unit boundary. Movement activities (using a forklift, crane, truck, dolly, personnel) are:
A9a) Receiving waste (liquid, solid, semi-solid) for storage and/or treatment.
A9b) Movement of waste (liquid, solid, semi-solid) and equipment in or out of process cells, canyon deck craneway, or tunnel in the 221-T Building.
A9c) Movement of liquids, sludges, or other waste from containers and/or tanks via transfer lines.
A9d) Waste container transfers (among outdoor storage pads, within buildings, process cells, canyon deck, or other approved locations).
A9e) Placing and storing chemical products in flammable cabinets or other approved storage locations.
A9f) Transloading from the 221-T tunnel to canyon deck and/or process cells.
A10) Housekeeping Activities - Housekeeping activities involve maintaining T-Plant in a clean and orderly condition. Housekeeping activities are:
A10a) Sweeping (brooms).
A10b) Mopping (squeegees or mops).
A10c) Vacuuming.
A10d) Dusting.
A10e) Wiping (sponges, towels).
A10f) Picking up debris.
A10g) Removal of trash.
A11) Surveillance Activities - Surveillance activities involve walking down and inspecting various areas, systems, and components. Surveillances typically consist of daily, weekly, and monthly inspections of waste containers, tanks, buildings, or similar locations. Surveillances are subject to change (adding, deleting and/or modifying) as operations, maintenance, engineering, and radiological control dictates. Surveillances, inspections, and maintenance activities that do not have the potential to create airborne contamination can occur within the 221-T Building when the 291-T-1 exhaust stack emission system is shutdown. The following surveillances are performed at T-Plant:
A11a) Container storage areas treatment and storage tanks and ancillary equipment.
A11b) General condition of building structures.
A11c) Safety Cold weather surveillances (typically, between October 1 and March 31).
A11d) Inspection of equipment.
A11e) Inspection of HEPA filtered vacuums.
A11f) Radiological surveys.
A12) Contamination Within the Canyon - The operational activities described inherently involve the spread of contamination within the canyon. The canyon is designed to provide containment for these operational activities. Job

specific contamination controls are used (spreading paper to facilitate easy decontamination, fogging, fixing contamination, covering, performing operations remotely or other similar methods that cover, seal, or remove smearable contamination). (WAC 246-247-040(5))

12) The abated and unabated emissions for this license have been estimated using particulate 241-Am, 239/240-Pu, 137-Cs, and 90-Sr, based on the isotopic distribution measured in destructive analysis of a T-Plant pre-filter, a Dose Equivalent-Curie limit of 15,000 DE-Ci, and also include a small contribution from gaseous radionuclides that may be encountered. The amounts of radioactive gases included are: (3-H, 25 Ci), (85-Kr, 3000 Ci), (129-I, 0.05 Ci), (219-Rn, 0.2 Ci), (220-Rn, 30 Ci), (222-Rn, 2 Ci). Radionuclides that may be encountered as particulates are: 242-Cm, 243-Am, 244-Cm, 60-Co, 134-Cs, 154-Eu, 40-K, 94-Nb, 237-Np, 238-Pu, 241-Pu, 242-Pu, 244-Pu, 226-Ra, 106-Ru, 125-Sb, 228-Th, 234-Th, 232-U, 233-U, 234-U, 235-U, 236-U, 238-U. Other particulate radionuclides are permitted, the total to remain within the DE-Ci limit of 15,000 DE-Ci and the abated emission limit of the license. Gaseous radionuclides are permitted, the sum of doses from radioactive gases to remain less than 6% of the total abated emission limit for this license.

This condition does not apply to naturally occurring Radon.

13) **Obsolete on 2/23/2007.**

14) The alternative flow measurement method proposed for the 291-T-1 stack by USDOE letter 03-RCA-0210, dated April 9, 2003, is approved for use (WAC 246-247-075(3)).

15) The annual inspection and maintenance of the HEPAs must include visual inspection of the filter housing. Documentation of these activities must be made available to DOH upon request. (WAC 246-247-040(5))

16) **Obsolete on 2/23/2007.**

17) The emission unit monitoring system shall have the following activities performed:
A1) By December 31, 2005 and annually thereafter:
A1a) A visual check of nozzle position and orientation as well as measurements of nozzle openings;
A1b) Checks to ensure the tightness of all fittings and connections as well as a leak test of the entire sampling system.
A1c) Visual inspections for corrosion, physical damage, or dust loading of the probe, sample lines, and monitoring system equipment.
A2) Annually, from December 31, 2003:
A2a) A functional/calibration check of monitoring system instrumentation shall be performed.
A2b) USDOE shall provide to WDOH for review copies of the procedures used to perform the above activities. (WAC 246-247-060(5)).

18) The PTE at T-Plant shall be tracked in DE curies. A running total of DE curies present at the beginning of the calendar year plus DE curies introduced into T-Plant during that year shall be maintained and kept available for WDOH review. This record shall be made current at no greater than weekly intervals. That the total does not exceed license limits shall be routinely verified, and documentation of that verification shall be maintained. (WAC 246-247-040(5)) (WAC 246-247-060(5))

19) The Quality Assurance Standards for the sampling of emissions and subsequent analysis must remain in compliance with HNF-0528 NESHAPS Quality Assurance Project Plan for Radioactive Airborne (all of sections 2.0, 3.0, 5.0). (WAC 246-247-060(5))

20) **Obsolete on 2/23/2007.**

21) **Obsolete on 2/23/2007.**

22) **Obsolete on 2/23/2007.**

23) T-Plant must continue to demonstrate that the adequacy of their system design and operation is equivalent to the intent of ASME/ANSI N 510. Both stages of HEPA filtration must be individually aerosol tested in place, a minimum of annually (at a minimum control efficiency of 99.95 percent). (WAC 246-247-040(5))

24) **Obsolete on 2/23/2007.**

25) Receipt and Storage of K-Basins Sludge:

A. Receipt, Treatment, Storage and Load out of north load out pit (NLOP) Sludge:

A1) Sludge treatment consists of mixing the sludge with grout via the following major process steps:
A1a) Transferring sludge from Large Diameter Container into the grout system.
A1b) Sampling to ensure grouted containers meet waste isolation project plant (WIPP) acceptance requirements.

A1c) Transferring aliquots into WIPP certified 55 gallon drums.
A1d) Grouting to meet WIPP waste acceptance criteria.
A2) Prior to treatment, NLOP sludge shall be stored in T-Plant process cells 3L, 10L, 13L, 15L, 8R, 9L, 14R, and/or 16R.
A3) Containerized and grouted sludge shall be stored for not longer than 23 years from the date of issue of this license within the T-Plant complex.
A4) Containerized and grouted sludge shall be stored within the TSD unit boundary, and disposed according to assay of individual containers.
A5) The potential-to-emit of NLOP sludge received at T-Plant shall not exceed 0.9 mrem/year, corresponding to 120 DE Ci.

B. Receipt and Storage of K-Basins Sludge:

B1) Preparation of cells to receive sludge containers, which shall be limited to the following activities:
B1a) Intrusive cell operations to relocate items within cells and to transfer items between cells.
B1b) Removal of cell contents, which shall be limited to the following operations.
B1b1) Remote crane operations using lifting bails and clamshells.
B1b2) Pumping of liquids.
B1b3) Vacuum suction.
B1b4) Storage, repackaging, and treatment of containerized and uncontainerized radioactive waste.
B1b5) Waste characterization, verification, repackaging, size reduction, segregation, immobilization, and consolidation.
B1b6) Preparation of waste shipments in accordance with acceptance criteria for other facilities.
B1b7) Treatment and storage of liquid mixed waste.
B1c) Storage of contaminated process equipment and debris in the 221-T Canyon Building cells and deck shall be limited to:
B1c1) Tanks, pulsers, precipitators, centrifuges, and jumpers/connectors.
B1c2) Decontamination equipment, immersion tanks, sprayers, and blasters.
B1c3) Equipment racks, pumps, mixers, and motors.
B1c4) Original equipment (prior to decontamination mission).
B1c5) Condensers, chillers, filter assemblies, and columns.
B1c6) Open and closed boxes, drums, and containers, filled with debris.
B1c7) Tools, concrete blocks, and loose debris.
B1d) Refurbishing, recycling, and maintenance of contaminated equipment shall be limited to the items of equipment listed above.
B1e) Decontamination of equipment and materials, which shall be limited to the following operations:
B1e1) Hand, spray, and abrasive methods.
B1e2) Steam cleaning.
B1e3) High pressure hot water.
B1e4) High pressure cold water
B1e5) Ice blasting.
B1e6) Abrasive tools.
B2) The chemical and physical processes associated with the sludge storage shall consist of the following:
B2b) Radioactive waste shall be managed in accordance with written facility and Hanford Site waste management procedures and acceptance criteria. Criteria for moving containers from the canyon into the tunnel include the requirements that smearable contamination on the outside of the container must be less than 400 dpm/100 cm2 alpha and less than 20,000 dpm/100 cm2 beta/gamma for low risk evolutions. For medium risk evolutions the criteria for moving containers from the canyon into the tunnel shall include the requirements that smearable contamination on the outside of the container must be less than 2,000 dpm/100 cm2 alpha and less than 100,000 dpm/100 cm2 beta/gamma.
B2c) New liner systems shall be installed in the pool if storage under water is required and in four to twelve of the process cells. Existing water conditioning systems (coolers, filtration system, ion exchange columns, and piping) shall be used, modified, replaced or removed if storage under water is required.
B2d) Spent nuclear fuel (SNF) sludge retrieved from the 105-KE and 105-KW Basins shall be managed as two separate waste streams. Sludge containers configured for dry storage shall be used for less reactive floor and pit sludge components, including windblown sand and rocks, spalled concrete from the basin walls, iron and aluminum

corrosion products, ion exchange resin beads, uranium oxides, and uranium fuel particles. More reactive sludge collected in the knockout pots and settler tank during SNF retrieval and processing at K-Basins shall be stored in a container configured for storage under water or for dry storage if allowed by criticality and thermal analyses.
B2e) Physical upgrades to the 221-T Canyon, as determined in final design, shall include installation of new cell containment, liner bracing systems, sump pumps, leak detectors, and instrumentation and controls in the 221-T Canyon.
B2g) Canyon radiation detectors, alarms, and cameras will be upgraded to provide surveillance.
B2h) Sludge containers shall be designed to ensure a safe storage configuration, based on final design results determined in criticality and heat rejection requirements analysis. Final design shall analyze maximum sludge loading and container sizing to minimize the number of transfers and number of containers.
B2i) Contents of filled sludge containers shall consist of a layer of sludge below a layer of water and a layer of air to provide a void space in each container. Sludge containers shall be capable of maintaining sludge in a wet state during transport and storage.
B2j) Sludge containers shall be received and placed into interim storage in the 221-T Canyon, configured for dry cell storage or storage under water. All sludge container handling and placement within the 221-T Building shall be performed remotely via crane operations.
B2k) The containers shall be transported from K- Basins to the 221-T Building via tractor and trailer. Each transfer shall consist of one transport cask which shall be inspected upon receipt according to approved receipt methods.
B2l) Sludge container unloading operations shall be done remotely using the canyon crane system. T-Plant Complex personnel shall vent and purge the transport cask with non-radioactive inert gas within the controlled airspace. The purge/venting system shall include a radiation detection method to verify that the storage container does not leak during transport and shall purge all hydrogen from the transport cask.
B2m) As a sludge container is moved from the tunnel into the canyon, operations personnel shall verify remotely the identification number and record the container number, via existing camera systems. After the container is removed from the cask, an empty container will be placed in the cask and the lid shall be replaced. The transport system shall be surveyed for possible contamination on exiting the Radiological Area and will return to K- Basins.
B2n) After the sludge containers are placed in the 221-T Canyon interim dry storage location, surveillance shall be performed to ensure that safety, regulatory, and safeguards and security requirements are met. Water levels within the dry storage containers shall be monitored (weight differential), and water additions shall be made remotely.
B2o) After sludge containers are placed in the interim underwater pool storage location, surveillance shall be performed to ensure that safety, regulatory, and safeguards and security requirements are met. Pool storage conditions (water quality, water temperature, water level, and ion exchange column status) shall be monitored, and water shall be added as needed to the pool to maintain the necessary water depth.
(WAC 246-247-040(5))

Emission Unit ID: 315

200W P-296T007-001

296-T-7

This is a MINOR, ACTIVELY ventilated emission unit.

T PLANT COMPLEX

Emission Unit Information

Stack Height: 28.00 ft. 8.53 m. Stack Diameter 2.30 ft. 0.70 m.

Average Stack Effluent Temperature: 78 degrees Fahrenheit. 26 degrees Celsius.

Average Stack ExhaustVelocity: 81.00 ft/second. 24.69 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Demister	1	To operate per Conditions and Limitations of the license.
	Heater	1	To operate per Conditions and Limitations of the license.
	Prefilter	1	
	HEPA	1	
	Fan	1	To operate per Conditions and Limitations of the license.

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(c)(4)(e) & WAC 246-247-075(3)	40 CFR 61, Appendix B, Method 114(3)	TOTAL ALPHA TOTAL BETA	See special conditions.

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 Activities at the 2706-T Facility involve waste management operations in support of decontamination and decomissioning operations at the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Operation of the 2706-T Building	AIR 06-1013	10/5/2006	648

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 7.50E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 approved activities are limited to:

A1) Packaging and Repackaging Waste - Packaging and repackaging activities are performed for waste generated at 2706-T as well as for onsite and offsite generators. The repackaging of waste supports waste acceptance criteria for other TSD facilities. For example, prohibited items from waste packages are removed and either staged for later handling or repackaging using remote or manual methods.

Packaging and repackaging activities are:

A1a) Sorting.
A1b) Segregation.
A1c) Removing prohibited items.
A1d) Compositing/aggregating solids or liquids.
A1e) Adding absorbent.
A1f) Size reduction [e.g., cutting (jaws, saws, torches)], bending, folding, crushing (e.g., drum crusher), shredding, compacting, or similar methods that do not have a higher extent of disruption].
A1g) Void filling.
A1h) Pressure relief/release (e.g., aerosol cans, gas cylinders, drums, or other similar containers).

A2) Verification Activities - Verification support activities are provided for waste and other materials that are generated on or off the Hanford Site.

Verification activities are:

A2a) Physical observation.
A2b) Nondestructive examination (NDE).
A2c) Nondestructive assay (NDA).
A2d) Chemical field screening.
A2e) Radiological surveys.
A2f) Radiological samples.
A2g) Headspace gas sampling.
A2h) Chemical sampling.

A3) Sampling Activities - Sampling of waste generated by operations or by other onsite or offsite generators is performed. The purpose of sampling is to confirm process knowledge, characterize waste, support verification, and determine land disposal requirements as applicable.

Sampling activities are:

A3a) Field screening [e.g., pH paper, oxidizer, volatile organic analyses (VOAs), polychlorinated biphenyls (PCBs), or similar screening parameters].
A3b) Obtaining a sample for analysis [e.g., grab, composite, composite liquid waste sampler (COLIWASA), or other similar sampling techniques].
A3c) Shipping/transferring the samples to an approved laboratory for analysis.
A3d) Disposition of sample returns (e.g., placement back into the parent container or another approved container/tank).
A3e) Headspace gas analysis [typically in support of the Waste Isolation Pilot Plant (WIPP) Project].

A4) Decontamination/Refurbishment Activities - Materials, equipment, and waste can be decontaminated (e.g., free release, reduce the radiological levels, or other similar criteria) using a variety of methods. Equipment can also be repaired and refurbished within the 2706-T facility. Within 2706-T, decontamination of 2706-T structural components may be performed.

Decontamination and refurbishment activities at 2706-T are:

A4a) Water (fog, high or low-pressure spraying).
A4b) Steam.
A4c) Ice blasting.
A4d) Vacuum blasting.
A4e) Brushing.
A4f) Abrasive tools.
A4g) Scraping.
A4h) Washing (e.g., chemicals/detergents).
A4i) Immersion.
A4j) Electro-polishing.

A4k) Cutting (e.g., removal by sawing, torch cutting more highly radioactive components or other similar methods).
A4l) Rust/paint removal.
A4m) Sand blasting.
A4n) Vacuuming.

A5) Maintenance Activities - A variety of preventative and/or repair maintenance activities are performed at 2706-T. Some maintenance activities involve the temporary shut down of the 296-T-7 exhaust stack.

Maintenance activities are:

A5a) Painting.
A5b) Crane maintenance.
A5c) Electronic systems functional checks and repairs [CAMs, personnel contamination monitors (PCMs)].
A5d) Calibrations.
A5e) Mechanical overhaul and rebuild.
A5f) Bearing replacement.
A5g) Pump and motor alignment.
Maintenance may be performed on:
A5h) Rollup doors.
A5i) Heat pumps.
A5j) Exhaust fans.
A5k) Transformers.
A5l) Scale systems.
A5m) Wire rope.
A5n) Stack systems.
A5o) Forklifts.

A6) Waste Treatment Activities - 2706-T is a RCRA treatment and Storage facility permitted by the Washington State Department of Ecology (Ecology).

Treatment activities are:

A6a) Macroencapsulation.
A6b) Absorption.
A6c) Neutralization.
A6d) Immobilization.
A6e) Encapsulation.
A6f) Stabilization (solidification, cementation, grouting).
A6g) Compaction.
A6h) Amalgamation.
A6i) Segregation.
A6j) Shredding.
A6k) Venting and drilling.
A6l) Size Reduction.

A7) Recycling Activities - Materials are recycled whenever possible. Recycled materials are: ferrous and non-ferrous metal, light bulbs, aerosol cans, oils, and batteries.

A8) Storage Activities – 2706-T stores materials (chemicals, or equipment, or similar materials) to support operations. Radioactive wastes may be stored uncontainerized or in:
A8a) Containers (boxes, drums, tanker trucks/railcars, or large diameter containers).
A8b) Tanks.
A8c) Sumps and pipes.

A9) Equipment, Materials, and Waste Movement Activities - The movement of materials, equipment and waste is

necessary to support operations and maintenance. Movement activities (using a forklift, crane, truck, dolly, personnel) are:
A9a) Receiving waste (liquid, solid, semi-solid) for storage and/or treatment.
A9b) Movement of waste (liquid, solid, semi-solid) and equipment.
A9c) Movement of liquids, sludges, or other waste from containers and/or tanks via transfer lines.
A9d) Waste container transfers.
A9e) Placing and storing chemical products in flammable cabinets or other approved storage locations.
A9f) Movement of contaminated material.

A10) Housekeeping Activities - Housekeeping activities involve maintaining 2706-T in a clean and orderly condition.

Housekeeping activities are:

A10a) Sweeping (brooms).
A10b) Mopping (squeegees or mops).
A10c) Vacuuming.
A10d) Dusting.
A10e) Wiping (sponges, towels).
A10f) Picking up debris.
A10g) Removal of trash.

A11) Surveillance Activities - Surveillance activities involve walking down and inspecting various areas, systems, and components. Surveillances typically consist of daily, weekly, and monthly inspections of waste containers, tanks, buildings, or similar locations. Surveillances are subject to change (adding, deleting and/or modifying) as operations, maintenance, engineering, and radiological control dictates. Surveillances, inspections, and maintenance activities that do not have the potential to create airborne contamination can occur within the 2706-T Building when the 296-T-7 exhaust stack emission system is shutdown.

The following surveillances are performed at 2706-T:

A11a) Container storage areas treatment and storage tanks and ancillary equipment.
A11b) General condition of building structures.
A11c) Cold weather surveillances (typically, between October 1 and March 31).
A11d) Inspection of equipment.
A11e) Inspection of HEPA filtered vacuums.
A11f) Radiological surveys.

2706-T: The 2706-T facility includes the 2706-T building and the 2706-TA Building. The 2706-T Building and the 2706-TA Building make up a single structure and are described briefly here. The 2706-T facility handles low-level waste, mixed low level waste, and transuranic (TRU) waste.

The 2706-T Building was built in 1959 as a low-level radiological decontamination building. The original building was 66 feet long and 50 ft wide. The 2706-TA Building was added in 1994/1995 over the concrete pad on the west side of the 2706-T. One rollup-door and one man-door provide access between 2706-T and 2706-TA Building. Three heat pumps provide heating, ventilation, and air conditioning for the 2706-T Building operations area. Waste handling and decontamination operational areas of the 2706-T Building are open and unobstructed. The 2706-T building is a pre-engineered metal building. The foundation is concrete slab on grade throughout. The 2706-T Building includes two pits, one for decontamination and treatment of motor vehicles and other large equipment, and one for rail car decontamination and treatment. These pits can also be used to support collection of liquids from waste handling activities.

Current operations in 2706-T Building include waste sampling, packaging and repackaging, head-gas sampling, managing waste containers, decontamination/refurbishment, maintenance, recycling, storage, housekeeping, surveillance, and movement activities. One egress door leads directly to the exterior of 2706-T Building. Other doors lead directly to the non-ventilated lean-to on the north side, and an air lock provides access to the 2706-TA

Building operations area. The railway and auto pits have metal grating and some wooden covers to prevent falls into the pits. An epoxy floor sealant had been applied to all operational area floors. To support these operations, greenhouses are used as necessary in 2706-T. Greenhouses are temporary or semi-permanent radioactive material confinement structures, and can be used for contamination control. If used, greenhouses shall exhaust to the areas ventilated by the 296-T-7 ventilation system.

The atmosphere clean-up train (ACT-1) system, sprinkler system riser room, and electrical room are located in the south lean-to (non-ventilated).

2706-TA: The 2706-TA Building is an addition to the 2706-T Building installed in the 1990s as an add-on over the concrete storage pad located west of the building. The 2706-TA Building is approximately 54 feet long, 45 ft wide, and 23 feet high. There are two rollup doors located at the west end of the building. The 2706-TA Building has steel primary and secondary structural elements and corrugated sheet metal exterior siding and roofing panels. Three heat pumps provide heating, ventilation, and air conditioning for the 2706-TA Building operations area. The floor is concrete slab on grade. An epoxy floor sealant had been applied to all operational area floors. Waste handling and decontamination operational areas of the 2706-TA Building are open and unobstructed.

Current operations in 2706-TA Building include waste sampling, packaging and repackaging, head-gas sampling, managing waste containers, decontamination/refurbishment, maintenance, recycling, storage, housekeeping, surveillance, and movement activities. To support waste activities, greenhouses are used if necessary. Greenhouses are temporary or semi-permanent radioactive material confinement structures, and can be used for contamination control. When used, greenhouses shall exhaust to the areas ventilated by the 296-T-7 ventilation system.

Attached to the south side of 2706-TA Building is a lean-to made up of two rooms. The larger room houses the new ACT-2 HEPA filter system, which serves the operational areas. The ACT-1 and ACT-2 systems exhaust through the 296-T-7 stack. The second room houses electronic controllers and electrical switchgear supporting operations.

Emissions from these activities are exhausted through 296-T-7, except for emissions resulting from vented TRU containers stored within the facility, which may be released to the 200 Area diffuse and fugitive emission unit when the ventilation system is not in operation.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 7.50E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

DE - 0	1.90E-05	Contained	WAC 246-247-030(21)(a)

Any radionuclide on the chart of the nuclides could be encountered. A small contribution from the gaseous radionuclides may be encountered. The radionuclides within the facility are controlled by the licensee in terms of dose-equivalent (DE) Curies. A conservative PTE tracking method for the demonstration of compliance to the licensed PTE limits is provided in the conditions of the license. "Contained" means "within typical TRU waste containers for which a release fraction of 2E-09 has been determined to be appropriate."

DE - 0	2.90E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Any radionuclide on the chart of the nuclides could be encountered. A small contribution from the gaseous radionuclides may be encountered. The radionuclides within the facility are known to and controlled by the licensee in terms of dose-equivalent (DE) Curies. A conservative PTE tracking method for the demonstration of compliance to the licensed PTE limits is provided in the conditions of the license. This amount of DE curies is permitted within the facility uncontained in TRU waste containers as liquid/particulate for which a release fraction of 1E-03 is appropriate.

H - 3	1.50E+01	Gas	WAC 246-247-030(21)(a)
Rn - 219	2.00E-01	Gas	WAC 246-247-030(21)(a)
Rn - 220	2.80E+01	Gas	WAC 246-247-030(21)(a)
Rn - 222	1.47E+00	Gas	WAC 246-247-030(21)(a)

The radioactive isotopes identified for this emission unit are (no quantities specified):

H - 3 Rn - 219 Rn - 220 Rn - 222

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) All activities involving potentially airborne radioactive materials in 2706-T shall be conducted in accordance with the ALARA principle. (WAC 246-247-040(5))

5) The PTE in the space ventilated by 296-T-7 shall be tracked for compliance to the license limit as described in this condition.

Waste Contained in Typical TRU Waste Containers: PTE < 9490 DE Ci/year * 2E-09. Compliance: maintain annual total of DE Ci * 2E-09 below limit. [Dose contribution of this activity to license limit estimated assuming each DE Ci is 241-Am].

Venting of Waste Contained in Typical TRU waste Containers: PTE < 9490 DE Ci/year * 1E-03 * 5.7E-05. Compliance: maintain annual total of DE Ci * 1E-03 * 5.7E-05 vented below limit. [Dose contribution of this activity to license limit estimated assuming each DE Ci is 241-Am].

Torch cutting: PTE< 9E-04 mrem/year. Compliance: Maintain the product of inches cut and contamination level to: < 8.8 E+09 in-dpm/100 sq.cm beta/gamma and < 8.8E+6 dpm/100 sq.cm alpha.
(Note: The release at the cut is assumed gaseous due to high cutting temperature, but it is also assumed that any gases thus formed will recondense into a particulate form by the time they reach the filters, and be subject to the standard removal efficiency of the HEPA filter.) [Dose contribution of this activity to license limit estimated assuming all alpha is 241-Am, all beta/gamma is 137-Cs.]

Gases in Waste Contained in Typical TRU Waste Containers: PTE < 7E-04 mrem/year. Compliance - maintain: tritium PTE below 15 Ci/yr; 219-Rn PTE below 0.2 Ci/yr; 220-Rn PTE below 28 Ci/yr; 222-Rn PTE below 1.47 Ci/year. These limits apply to process-enhanced radionuclides only, per (WAC 246-247-020(4)). [Dose contribution of this activity to license limit estimated using isotope-specific dose conversions factors.]

Other Processes: PTE < 4.9 E-02 mrem/year. Compliance: maintain total facility DE Ci/year (exclusive of TRU included above) * 1E-03 below 2.9 * 1E-03, or maintain the sum Ci(alpha) * 1E-03 * 17 + Ci(beta/gamma) * 1E-03 * 0.31 below 4.9 E-02 mrem/year. [Dose contribution of this activity's PTE to license limit estimated assuming DE Curies are 241-Am].

Residual Contamination: PTE < 7.1E-03 mrem/year. Accounts for residual contamination present in facility if posting is Contamination Area or below. Greater contamination levels result from other processes, and are accounted for in the PTE(s) associated with them. No specific compliance demonstration is necessary beyond the compliance with posting requirements. [Dose contribution of this activity to license limit estimated assuming all alpha is 241-Am, all beta/gamma is 137-Cs.]

The facility shall document and implement a program of inspection and maintenance to ensure the continuous integrity of contamination fixative used within the facility.

That the total PTE does not exceed licensed limits shall be routinely verified, and documentation of that verification shall be maintained. (WAC 246-247-040(5)) (WAC 246-247-060(5))

6) The ventilation system shall be in operation when activities involving radioactive or contaminated materials are performed within the ventilated space. The ventilation system shall be in operation if any part of the 2706-T Facility is posted as a high contamination area, or higher. Storage/movement of ventilated (NucFil or vent clip) TRU

containers is permitted when the ventilation system is not operating (WAC 246-247-040(5)).

7) Record sampling shall be continuous whenever the ventilation system is operating. Samples shall be collected monthly, for periods in which the ventilation system has operated. Samples shall be composited and analyzed quarterly, if a sample was collected during that quarter. Licensee shall document minimum detectable concentrations for the stack emissions measurements (WAC 246-247-075 (3, 8, 9))

8) The demisters and heaters in the 296-T-7 ventilation system shall operate when: The ventilation system is operating and processes capable of elevating the ventilation system air humidity or capable of mechanical aerosolization of liquids are performed. Licensee shall develop and document specific and auditable process criteria governing heater and demister operation, sufficient to ensure continued effectiveness of the HEPA filters. (WAC 246-247-040(5))

Emission Unit ID: 332

200W P-291S001-001

291-S-1

This is a MINOR, ACTIVELY ventilated emission unit.

S PLANT (REDOX)

Emission Unit Information

Stack Height: 200.00 ft. 60.96 m. Stack Diameter 6.50 ft. 1.98 m.

Average Stack Effluent Temperature: 78 degrees Fahrenheit. 26 degrees Celsius.

Average Stack ExhaustVelocity: 11.30 ft/second. 3.44 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Sandfilter	1	
	Fan	2	In parallel, only 1 operates at a time

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	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 Activities at the 202-S Facility involve surveillance and maintenance at the Hanford Site.

Emission Unit ID: 337

200W P-296S016-001

296-S-16

This is a MINOR, ACTIVELY ventilated emission unit.

219-S Building

Emission Unit Information

Stack Height: 12.50 ft. 3.81 m. Stack Diameter 0.33 ft. 0.10 m.

Average Stack Effluent Temperature: 78 degrees Fahrenheit. 26 degrees Celsius.

Average Stack ExhaustVelocity: 29.41 ft/second. 8.96 m/second.

Abatement Technology ALARACT WAC 246-247-040(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	
	Fan	1	

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	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 This emission unit is a waste handling building/facility exhauster that is used to ventilate building and facility operations such as but not limited to liquid waste tanks that support tank farm waste characterization activities, research and development, environmental sample analysis, and Hanford operation and remediation projects. This emission unit operates continuously.

Emission Unit ID: 340

200E P-296B010-001

296-B-10, WESF

This is a MAJOR, ACTIVELY ventilated emission unit.

Waste Encapsulation and Storage Facility (WESF)

Emission Unit Information

Stack Height: 75.00 ft. 22.86 m. Stack Diameter 3.50 ft. 1.07 m.

Average Stack Effluent Temperature: 68 degrees Fahrenheit. 20 degrees Celsius.

Average Stack ExhaustVelocity: 42.20 ft/second. 12.86 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
K-1 Filter Bldg.	Prefilter	2	In series
K-1 Filter Bldg.	HEPA	2	In series
K-1 Filter Bldg.	Fan	1	2 in parallel
K-3 Filter Pit	Demister	1	Not operable
K-3 Filter Pit	Heater	1	Not operable
K-3 Filter Pit	Impingement Vanes	1	
K-3 Filter Pit	HEPA	2	2 parallel flow paths, in-series
K-3 Filter Pit	Fan	1	2 parallel paths (1 in-use, 1 backup)

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(2)	40 CFR 60, Appendix A, Method 2; 40 CFR 61, Appendix B, Method 114; 61.93(b)(2)(ii) ANSI N13.1	Each radionuclide that could contribute greater than 10% of the potential TEDE	Continuous

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 Activities for WESF involve surveillance, maintenance and storage of radioactive capsules on the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Waste Encapsulation and Storage Facility (WESF) Liquid Low Level Radioactive Liquid Removal from Tank 100.	AIR 06-1014	10/5/2006	649

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 1.75E-05 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

Modification and continuous operations of the Waste Encapsulation and Storage Facility (WESF) liquid low level radioactive (LLLW) stream piping. The tank TK-100 serves as a catch tank for liquid low level radioactive waste streams originating from WESF, condensate from the K-1 and K-3 filter pits, and the 296-B-10 stack. TK-

100 is ventilated through the WESF K-3 ventilation system and out of the 296-B-10 Stack.

The contents of TK-100 are emptied by pumping the LLLW to a tanker truck at the Truck Load-Out Port. In the event that additional storage capacity is needed, a new portable aboveground storage tank (nominal capacity of 4,000 gallons) will be installed at the Truck Load-Out Port and vented to TK-100 during filling operations. After filling the portable aboveground storage tank, the tank will be disconnected from the Truck Load-Out Port, a HEPA or NucFil filter shall be installed, and then the tank will be moved outside for storage until arrangements are made to dispose of the excess LLLW.

During normal operations the LLLW streams to TK-100 are less than 0.001 curie/liter of Sr-90 and Cs-137. In the event that the TK-100 contents are greater than or equal to 0.001 curie/liter of Sr-90 and Cs-137 during routine operations, a WESF Ion Exchange Module will be installed at the Truck Load-Out Port and the contents of TK-100 will be recirculated through the WESF Ion Exchange Module until the concentration is less than 0.001 curie/liter of Sr-90 and Cs-137. The WESF Ion Exchange Module will be vented to TK-100 during recirculation. Storage of the WESF Ion Exchange Module will normally be outdoors and will vent to atmosphere through a HEPA or NucFil filter. Use of the WESF Ion Exchange Module will continue up to a maximum loading of 20,000 curies of Sr-90 or 25,000 curies of Cs-137.

In addition, certain piping modifications will be made to the current WESF LLLW system. They are as follows:

A. TK-50 Vault
- Remove existing Tank 50 Vault Piping.
- Remove remaining equipment (e.g., Tank 50, Heat Exchanger, Pumps) if possible, and all other equipment and debris in the vault.
- Install new pipe.

B. Valve Pit 225B-VP-05
- Remove 3-way valve.
- Blank off line to B-Plant.
- Install new pipe elbow.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 3.51E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Release rates are not listed; emission release rates are controlled by special conditions.

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

Emission Unit ID: 355

300 EP-320-02-S

EP-320-02-S

This is a MINOR, ACTIVELY ventilated emission unit.

320 Building

Emission Unit Information

Stack Height: 32.00 ft. 9.75 m. Stack Diameter 0.83 ft. 0.25 m.

Average Stack Effluent Temperature: 78 degrees Fahrenheit. 26 degrees Celsius.

Average Stack ExhaustVelocity: 14.80 ft/second. 4.51 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	HEPA	2	In series
	Fan	1	

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	2 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 Operations at the 320 Building support operations. This 32 foot tall stack emissions from a filtered chemistry hood. Particulate emissions are sampled. The building contains environmental radiochemistry laboratories.

Emission Unit ID: 357

300 EP-320-04-S

EP-320-04-S

This is a MINOR, ACTIVELY ventilated emission unit.

320 Building

Emission Unit Information

Stack Height: 26.00 ft. 7.92 m. Stack Diameter 0.59 ft. 0.18 m.

Average Stack Effluent Temperature: 76 degrees Fahrenheit. 24 degrees Celsius.

Average Stack ExhaustVelocity: 28.00 ft/second. 8.53 m/second.

Abatement Technology ALARACT WAC 246-247-040(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	
	Fan	1	

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	2 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 Operations at the 320 Building support operations. This 26 foot tall stack emissions from filtered chemistry hoods. Particulate emissions are sampled. The building contains environmental radiochemistry laboratories.

Emission Unit ID: 358

300 EP-320-01-S

EP-320-01-S

This is a MINOR, ACTIVELY ventilated emission unit.

320 Building

Emission Unit Information

Stack Height: 40.00 ft. 12.19 m. Stack Diameter 5.00 ft. 1.52 m.

Average Stack Effluent Temperature: 76 degrees Fahrenheit. 24 degrees Celsius.

Average Stack ExhaustVelocity: 25.20 ft/second. 7.68 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	HEPA	2	In series
	Fan	2	1 operational, 1 backup

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	2 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 Activities at the 320 Building support operations. This 40 foot tall stack exhausts filtered building ventilation air. Particulate emissions are sampled. The building contains environmental radiochemistry laboratories.

Emission Unit ID: 361

300 EP-325-01-S

EP-325-01-S

This is a MAJOR, ACTIVELY ventilated emission unit.

325 Building Radiological Processing Laboratory

Emission Unit Information

Stack Height: 89.00 ft. 27.13 m. Stack Diameter 8.00 ft. 2.44 m.

Average Stack Effluent Temperature: 72 degrees Fahrenheit. 22 degrees Celsius.

Average Stack ExhaustVelocity: 47.10 ft/second. 14.36 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	HEPA	2	2 in series
	Fan	3	4 in parallel (3 operational, 1 backup)

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(2)	40 CFR 60 Appendix A, Method 2; 40 CFR 61, Appendix B, Method 114	Each radionuclide that could contribute greater than 10% of the potential TEDE	Particulates are continuously sampled and collected every two-weeks for gross alpha and gross beta analysis, and composited on a semi-annual basis and analyzed isotopically. Tritium samples are collected on a monthly basis for analysis.

Sampling Requirements Record Sample; tritium by silica gel

Additional Requirements

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

Operational Status This 89 foot tall stack exhausts filtered building air. Emissions were sampled using a record particulate sampler and a tritium sampler. The building contains radiochemistry laboratories and hot cells used for research process development, mixed waste treatment activities, and radioanalytical services.

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

Project Title	Approval #	Date Approved	NOC_ID
Conducting General Laboratory Processes Research Activities in the 325 Building	AIR 06-1042	10/5/2006	687

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 3.19E+00 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

Approved are the following laboratory activities conducted in the RPL:

- Characterizing chemical, radiochemical, and physical properties of samples (e.g., tank wastes, spent fuel, contaminated soils and water), as well as other gaseous materials, glass, ceramic, carbonaceous, or metallic waste forms.
- Performing research using high-level and low-level mixed tank wastes and their stimulants to test radiochemical process systems such as leaching, solvent extraction, ion exchange, vitrification, fuel dissolution, decontamination, evaporation, grouting, solid waste packaging/shipment, and high-level liquid waste shipping/receiving/transportation.
- Performing research and development for processing and immobilization support including waste separation, ion exchange, sludge washing/leaching, ultrafiltration, and oxidation/precipitation. Separated species are then immobilized into vitreous and other waste forms, which are subsequently characterized for product acceptability.
- Using a full suite of analytical capabilities for radiochemical and inorganic chemical analyses in support of process development, specializing in the analysis of highly radioactive materials and very complex sample matrices.
- Pretreatment of materials in preparation for analytical processing, waste treatment, and characterization.
- Developing methods for the separation of radioisotopes.
- Developing and testing radioisotope generators.
- Conducting Non-destructive assay (NDA).
- Characterizing and testing equipment for determining chemical and physical properties of spent nuclear fuels and associated materials to support processing and disposal pathways.
- Performing reactor dosimetry and hydrogen and helium measurements to characterize radiation damage in materials.
- Using instrumentation to conduct physical property measurement for rheological and chemical characterization of radiological and hazardous materials in support of process development.
- Measuring material particle size and density, zeta potential and rheology in support of general research as well as process development.
- Providing chemical and physical separations in support of radiological and hazardous material processing and disposal requirements. These technologies include: removal and concentration of hazardous and/or radioactive components for environmental remediation; separation of hazardous and/or radioactive materials, including solid/liquid phase separations; and, recovery of specific components for recycle and reuse.
- Characterizing complex reactor environments, including neutron fluence and spectral measurements, hydrogen and helium gas measurements, and extensive computer simulations of radiation damage effects.
- Developing thermal and vitrification processes to immobilize hazardous and radioactive materials into acceptable waste forms. Waste processing technology development includes design, process development, remote operations, and numerical and computational modeling.
- Performing nuclear magnetic resonance methods designed for investigation of radioactive materials in the environment, radioactive tank waste, plutonium bearing materials, and other DOE mission active areas as well as fundamental studies of actinide metal salts.
- Designing, installing, and testing radiochemical process systems (leaching, solvent extraction, ion exchange, vitrification, fuel dissolution, decontamination, evaporation, grouting, solid waste packaging and shipment, and high-level liquid waste shipping, receiving, and transportation).
- Using thermoanalytical instrumentation to measure reaction enthalpies, reaction kinetics and mass changes resulting from reactions, and determining the thermal sensitivity of the reaction.
- Perform analysis of reaction off-gases on a real-time or end-of-reaction basis to identify and quantify the gaseous reaction products, and investigate the thermal stabilities of candidate radioisotope waste forms, volatile radioisotope trapping materials and the potentially hazardous reactions between radioactive waste constituents.
- Separations and analyses of radionuclides for environmental measurements.
- Performing research with supercritical fluids to understand chemistry mechanisms and processes.
- Conducting wet chemistry techniques and the operation of specialized analytical instrumentation such as mass spectrometers, organic mass spectrometers, and the Inductively Coupled Plasma Spectrometers.
- Studies to decontaminate radioactive materials where metals may be hydrided or tritated and decontaminated in small electric furnaces in gloveboxes or fumehoods resulting in products (e.g., oxide materials) submitted for disposal.
- Research and development in processing and method to harden radioactive sources.
- Development of standards and testing methodologies for hardened radioactive sources.
- Analysis of samples for impurities and analysis of samples for purity.

The RPL also is approved to maintain two hot cell complexes for conducting work with highly radioactive materials. The High Level Radiochemistry Facility (HLRF) and Shielded Analytical Laboratory (SAL) hot cell complexes, and the stand alone mini-cells, provide unique, complimentary capabilities for conducting bench-scale to pilot-scale work with wide varieties and forms of radioactive materials. These capabilities include: radiochemical separation and purification; irradiated fuel/target sectioning and processing; metallography and ceramography; activated metals physical properties testing; thermal processing; materials physical properties testing (solid/liquid separation, centrifugation, settling behavior); radioanalytical and preparatory chemistry operations (acid dissolution, aqueous/solvent extraction or leaching, distillation, ion exchange, caustic fusion).

Additional approval of the process for this activity is contained in the following Conditions/Limitations.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 2.09E+04 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Ac - 225		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ac - 227		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ac - 228		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ag - 108		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ag - 108 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ag - 109 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ag - 110		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ag - 110 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ag - 111		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Al - 26		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Al - 28		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Am - 241	3.50E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Am - 242		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Am - 242 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Am - 243	5.40E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Am - 245		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			

Ar - 37		Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ar - 39		Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ar - 41		Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ar - 42		Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
As - 74		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
As - 76		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
At - 217		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Au - 195		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Au - 198		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ba - 131		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ba - 133		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ba - 133 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ba - 137 m	4.60E+04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ba - 139		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ba - 140		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ba - 141		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ba - 142		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Be - 10		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Be - 7		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Bi - 207		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Bi - 210		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			

Bi - 211	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Bi - 212	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Bi - 213	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Bi - 214	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Bk - 249	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Bk - 250	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Br - 82	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Br - 83	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Br - 84	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Br - 85	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
C - 11	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
C - 14	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
C - 14	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
C - 15	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Ca - 41	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Ca - 45	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Ca - 47	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Cd - 109	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Cd - 113 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Cd - 113	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Cd - 115	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		

Cd - 115 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ce - 139		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ce - 141		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ce - 142		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ce - 143		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ce - 144		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cf - 249		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cf - 250		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cf - 251		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cf - 252	1.20E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cl - 36		Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cm - 241		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cm - 242		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cm - 243		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cm - 244	1.00E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cm - 245		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cm - 246		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cm - 247		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cm - 248		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Co - 56		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Co - 57		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			

Co - 58		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Co - 60	1.60E+02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cr - 51		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cr - 55		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cs - 131		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cs - 134		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cs - 134 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cs - 135		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cs - 136		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cs - 137	1.70E+02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cs - 138		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cs - 139		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cu - 64		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Es - 254		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Eu - 150		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Eu - 152		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Eu - 152 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Eu - 154	2.00E+02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Eu - 155	4.90E+03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Eu - 156		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Eu - 157		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
F - 18		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			

Fe - 55		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Fe - 59		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Fr - 221		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Fr - 223		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ga - 67		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ga - 72		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Gd - 148		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Gd - 149		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Gd - 151		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Gd - 152		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Gd - 153		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ge - 68		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
H - 3	3.00E+03	Gas	WAC 246-247-030(21)(a)
H - 3	1.30E+05	Gas	WAC 246-247-030(21)(a)
H - 3		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Hf - 175		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Hf - 178		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Hf - 178 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Hf - 181		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Hf - 182		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Hg - 203		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			

Ho - 166	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Ho - 166 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
I - 122	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
I - 123	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
I - 125	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
I - 129	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
I - 130	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
I - 131	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
I - 132	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
I - 133	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
I - 134	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
I - 135	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
In - 106	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
In - 113 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
In - 114	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
In - 114 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
In - 115	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
In - 115 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Ir - 192	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
K - 40	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
K - 42	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		

Kr - 81	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Kr - 83 m	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Kr - 85	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Kr - 85 m	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Kr - 87	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Kr - 88	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Kr - 89	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Kr - 90	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
La - 138	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
La - 140	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
La - 141	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
La - 142	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Lu - 177	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Mg - 27	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Mn - 52	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Mn - 54	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Mn - 56	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Mo - 93	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Mo - 99	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
N - 13	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Na - 22	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		

Na - 24		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Nb - 91		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Nb - 91 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Nb - 92		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Nb - 93 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Nb - 94		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Nb - 95		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Nb - 95 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Nb - 97		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Nb - 97 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Nd - 144		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Nd - 147		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ni - 56		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ni - 59		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ni - 63		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ni - 65		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Np - 235		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Np - 236		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Np - 237	3.60E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Np - 238		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Np - 239		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			

Np - 240	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Np - 240 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

O - 15	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

P - 32	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

P - 33	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pa - 231	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pa - 233	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pa - 234	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pa - 234 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pb - 209	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pb - 210	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pb - 211	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pb - 212	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pb - 214	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pd - 107	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pd - 109	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pm - 145	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pm - 146	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pm - 147	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pm - 148	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pm - 148 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pm - 149		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Pm - 151		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Po - 208		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Po - 209		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Po - 210		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Po - 211		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Po - 212		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Po - 213		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Po - 214		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Po - 215		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Po - 216		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Po - 218		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Pr - 143		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Pr - 144		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Pr - 144 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Pu - 234		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Pu - 236		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Pu - 237		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Pu - 238	5.70E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 239	5.50E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 240	3.40E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 241	3.20E+02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Pu - 242	5.20E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Pu - 243	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pu - 244	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Ra - 223	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Ra - 224	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Ra - 225	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Ra - 226	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Ra - 228	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Rb - 86	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Rb - 87	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Rb - 88	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Rb - 89	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Rb - 90	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Rb - 90 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Re - 186	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Re - 187	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Re - 188	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Rh - 102	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Rh - 103 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Rh - 105	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Rh - 105 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Rh - 106	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Rn - 219	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Rn - 220	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Rn - 222	Gas	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Ru - 103	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Ru - 105	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Ru - 106	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Ru - 97	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
S - 35	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Sb - 124	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Sb - 125	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Sb - 126	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Sb - 126 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Sb - 127	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Sc - 46	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Sc - 47	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Se - 75	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Se - 79	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Si - 31	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Sm - 145	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		
Sm - 146	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		

Sm - 147		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Sm - 151	5.40E+04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sm - 153		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Sm - 157		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Sn - 113		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Sn - 117 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Sn - 119 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Sn - 121 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Sn - 123		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Sn - 125		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Sn - 126		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Sr - 85		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Sr - 89		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Sr - 90	3.60E+02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sr - 91		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Sr - 92		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ta - 179		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ta - 182		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ta - 183	1.70E+02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Tb - 160		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Tc - 101		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			

Tc - 95 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Tc - 97		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Tc - 97 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Tc - 98		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Tc - 99	1.80E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Tc - 99 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 121		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 121 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 123		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 123 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 125 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 127		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 127 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 129		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 129 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 131		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 131 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 132		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 133		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 133 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Te - 134		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			

Th - 227		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Th - 228	7.40E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Th - 229		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Th - 230		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Th - 231		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Th - 232	4.40E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Th - 233		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Th - 234		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ti - 44		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Ti - 51		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Tl - 204		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Tl - 207		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Tl - 208		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Tl - 209		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Tm - 170		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Tm - 171		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
U - 232	5.50E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 233	1.30E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 234	1.40E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 235	3.10E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 236	1.40E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 237		Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			

U - 238	6.10E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

U - 239	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

U - 240	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

V - 48	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

V - 49	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

W - 181	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

W - 185	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

W - 187	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

W - 188	1.70E+02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Xe - 122	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Xe - 123	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Xe - 125	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Xe - 127	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Xe - 131 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Xe - 133	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Xe - 133 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Xe - 135	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Xe - 135 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Xe - 137	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Xe - 138	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Y - 88	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Y - 90	1.20E+05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Y - 90 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Y - 91	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Y - 91 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Y - 92	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Y - 93	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Yb - 164	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Yb - 175	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Yb - 177	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Zn - 65	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Zn - 69	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Zn - 69 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Zr - 88	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Zr - 89	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Zr - 93	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Zr - 95	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

The radioactive isotopes identified for this emission unit are (no quantities specified):

Ac - 225	Ac - 227	Ac - 228	Ag - 108 m	Ag - 108
Ag - 109 m	Ag - 110 m	Ag - 110	Ag - 111	Al - 26
Al - 28	Am - 241	Am - 242 m	Am - 242	Am - 243
Am - 245	Ar - 37	Ar - 39	Ar - 41	Ar - 42
As - 74	As - 76	At - 217	Au - 195	Au - 198
Ba - 131	Ba - 133	Ba - 133 m	Ba - 137 m	Ba - 139
Ba - 140	Ba - 141	Ba - 142	Be - 10	Be - 7
Bi - 207	Bi - 210	Bi - 211	Bi - 212	Bi - 213
Bi - 214	Bk - 249	Bk - 250	Br - 82	Br - 83
Br - 84	Br - 85	C - 11	C - 14	C - 15
Ca - 41	Ca - 45	Ca - 47	Cd - 109	Cd - 113 m
Cd - 113	Cd - 115 m	Cd - 115	Ce - 139	Ce - 141
Ce - 142	Ce - 143	Ce - 144	Cf - 249	Cf - 250

Cf - 251	Cf - 252	Cl - 36	Cm - 241	Cm - 242
Cm - 243	Cm - 244	Cm - 245	Cm - 246	Cm - 247
Cm - 248	Co - 56	Co - 57	Co - 58	Co - 60
Cr - 51	Cr - 55	Cs - 131	Cs - 134	Cs - 134 m
Cs - 135	Cs - 136	Cs - 137	Cs - 138	Cs - 139
Cu - 64	Es - 254	Eu - 150	Eu - 152	Eu - 152 m
Eu - 154	Eu - 155	Eu - 156	Eu - 157	F - 18
Fe - 55	Fe - 59	Fr - 221	Fr - 223	Ga - 67
Ga - 72	Gd - 148	Gd - 149	Gd - 151	Gd - 152
Gd - 153	Ge - 68	H - 3	Hf - 175	Hf - 178
Hf - 178 m	Hf - 181	Hf - 182	Hg - 203	Ho - 166
Ho - 166 m	I - 122	I - 123	I - 125	I - 129
I - 130	I - 131	I - 132	I - 133	I - 134
I - 135	In - 106	In - 113 m	In - 114 m	In - 114
In - 115	In - 115 m	Ir - 192	K - 40	K - 42
Kr - 81	Kr - 83 m	Kr - 85	Kr - 85 m	Kr - 87
Kr - 88	Kr - 89	Kr - 90	La - 138	La - 140
La - 141	La - 142	Lu - 177	Mg - 27	Mn - 52
Mn - 54	Mn - 56	Mo - 93	Mo - 99	N - 13
Na - 22	Na - 24	Nb - 91	Nb - 91 m	Nb - 92
Nb - 93 m	Nb - 94	Nb - 95	Nb - 95 m	Nb - 97
Nb - 97 m	Nd - 144	Nd - 147	Ni - 56	Ni - 59
Ni - 63	Ni - 65	Np - 235	Np - 236	Np - 237
Np - 238	Np - 239	Np - 240	Np - 240 m	O - 15
P - 32	P - 33	Pa - 231	Pa - 233	Pa - 234
Pa - 234 m	Pb - 209	Pb - 210	Pb - 211	Pb - 212
Pb - 214	Pd - 107	Pd - 109	Pm - 145	Pm - 146
Pm - 147	Pm - 148 m	Pm - 148	Pm - 149	Pm - 151
Po - 208	Po - 209	Po - 210	Po - 211	Po - 212
Po - 213	Po - 214	Po - 215	Po - 216	Po - 218
Pr - 143	Pr - 144	Pr - 144 m	Pu - 234	Pu - 236
Pu - 237	Pu - 238	Pu - 239	Pu - 240	Pu - 241
Pu - 242	Pu - 243	Pu - 244	Ra - 223	Ra - 224
Ra - 225	Ra - 226	Ra - 228	Rb - 86	Rb - 87
Rb - 88	Rb - 89	Rb - 90	Rb - 90 m	Re - 186
Re - 187	Re - 188	Rh - 102	Rh - 103 m	Rh - 105
Rh - 105 m	Rh - 106	Rn - 219	Rn - 220	Rn - 222
Ru - 103	Ru - 105	Ru - 106	Ru - 97	S - 35
Sb - 124	Sb - 125	Sb - 126	Sb - 126 m	Sb - 127
Sc - 46	Sc - 47	Se - 75	Se - 79	Si - 31
Sm - 145	Sm - 146	Sm - 147	Sm - 151	Sm - 153
Sm - 157	Sn - 113	Sn - 117 m	Sn - 119 m	Sn - 121 m
Sn - 123	Sn - 125	Sn - 126	Sr - 85	Sr - 89
Sr - 90	Sr - 91	Sr - 92	Ta - 179	Ta - 182
Ta - 183	Tb - 160	Tc - 101	Tc - 95 m	Tc - 97
Tc - 97 m	Tc - 98	Tc - 99	Tc - 99 m	Te - 121 m
Te - 121	Te - 123	Te - 123 m	Te - 125 m	Te - 127 m
Te - 127	Te - 129 m	Te - 129	Te - 131	Te - 131 m
Te - 132	Te - 133	Te - 133 m	Te - 134	Th - 227
Th - 228	Th - 229	Th - 230	Th - 231	Th - 232
Th - 233	Th - 234	Ti - 44	Ti - 51	Tl - 204
Tl - 207	Tl - 208	Tl - 209	Tm - 170	Tm - 171
U - 232	U - 233	U - 234	U - 235	U - 236
U - 237	U - 238	U - 239	U - 240	V - 48
V - 49	W - 181	W - 185	W - 187	W - 188
Xe - 122	Xe - 123	Xe - 125	Xe - 127	Xe - 131 m
Xe - 133	Xe - 133 m	Xe - 135	Xe - 135 m	Xe - 137
Xe - 138	Y - 88	Y - 90	Y - 90 m	Y - 91

Y - 91 m	Y - 92	Y - 93	Yb - 164	Yb - 175
Yb - 177	Zn - 65	Zn - 69	Zn - 69 m	Zr - 88
Zr - 89	Zr - 93	Zr - 95		

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) For the I-131 Medical Isotope Project

The charcoal bed shall be rated at a minimum of 1,000 cubic feet per minute (cfm) and be 2" thick.

5) For the I-131 Medical Isotope Project:

Iodine samples shall be collected using a two-stage sample collection system. The sampling system shall consist of a 47mm in-line filter holder that contains either a removable activated carbon canister or filter paper coated with activated carbon. Two samplers shall be placed in series to evaluate potential breakthrough of the first sampling stage. The iodine samplers shall be installed on the current stack sampling system for RPL, downstream of the record particulate sampler. The iodine samples shall be analyzed using EPA Method G-1 (40 CFR 61, Appendix B).

6) For the I-131 Medical Isotope Project:

The exhaust from the hot cell shall be routed through an activated charcoal bed. A charcoal bed shall be procured and installed upstream of the HEPA filters. The filter assembly shall be a two-stage filter, containing a charcoal bed and a post-filter inside of the same outer housing. The post-filter shall be a particulate filter designed to remove any carbon particles that may dislodge from the bed from normal use, preventing these particles from reaching the primary and secondary stages of HEPA filtration downstream.

7) For the I-131 Medical Isotope Project:

The iodine sampling system shall be in continuous operation when the I-131 material for this project enters the RPL facility through completion of the project (when all iodine has been processed and shipped for offsite use).

8) For the I-131 Medical Isotope Project:

The removal efficiency for radio-iodine of the charcoal bed filter unit shall be a minimum of 90% and shall be installed and tested per ANSI 510. These procedures shall be developed in accordance with the guidance provided in ANSI N510. These procedures shall be provided to the department for review prior to starting the I-131 project.

9) For the Th-232 medical isotope project:

Before initiation of processing, the Rn-220 monitor shall be operational. The exhaust sample will be measured by a Rn-220 monitor collected using the same isokinetic probe that is used to collect the record particulate sample. The radon monitor shall be installed downstream of the record particulate sample, measuring the sample stream that has already been pre-filtered by the record particulate sample.

10) For the Th-232 Medical Isotope Project:

Procedures for Rn-220 monitoring shall be forwarded to the department for review.

11) For the Th-232 Medical Isotope:

The Rn-220 gas that is generated during the process will be routed through a recovery system that is located inside of a hood in Room 510. As the Rn-220 (gaseous form) decays (55 second half-life), the resulting daughter products shall be collected in the recovery system. The recovery system shall be capable of collecting in excess of 80% of the Rn-220 that is generated.

12) For the Tritium Target Qualification Project (TTQP)

Sectioning of the TPBAR rods shall be performed in the hot cells in HLRF. Sectioning must be done inside Plexiglas containment.

13) For the Tritium Target Qualification Project (TTQP):

Project activities are limited to High Level Radiochemical Facility (HLRF), Shielded Analytical Laboratory (SAL), and Rooms 420, 418, and Room 48 in the basement.

14) For the Tritium Target Qualification Project (TTQP):

The "Mandatory Use Procedures" require that each step be read prior to performing the activity.

These procedures are those that involve the following:

* Operation of the furnace and gas clean-up system used to extract tritium from the Tritium Producing Burnable Absorber Rods
and;
* The transfer of the extracted tritium to hydride transport vessels.

15) For the Tritium Target Qualification Project (TTQP):

The tritium permeation testing shall be conducted in Room 48 of the basement in the laboratory hood or glovebox.

16) For the Waste Sludge Solidification Demonstration:

The objective is to demonstrate methods of solidification of waste sludge from the 105 K East Basin. The purpose for rendering the sludge as a solid is to allow for permanent storage at the Waste Isolation Pilot Plant (WIPP).

Core samples are taken from sludge found in the K East Basin (up to 4 liters of solids) and transported to the 325 Building (RPL) for initial study. The samples are collected in 4-liter poly bottles and shipped to RPL in PAS-1 containers accompanied by a chain-of-custody. All containers shall be visually inspected upon receipt and dose measurements taken. After receipt, the sample bottles are placed into a glove box or hot cell and combined into one composite. The sludge is allowed to settle from the mixture, and the water is decanted. The decanted water and a sample of the settle sludge are characterized for major constituents (e.g. nucleotides, organics). The remaining sludge is split into different test samples and each processed with a different solidification method (grout, absorbent, drying, etc). Characterization of each test sample will occur at RPL, with the exception of one long term grout-solidified monolith prepared for long term and WIPP-specific testing at the Central Waste Center (CWC). Once testing is completed, a recommendation is made for the most effective solidification process.

Once the initial study is complete, large scale testing begins and will nominally include up to 6.3 m^3 (the Spent Nuclear Fuel (SNF) project bounding volume is 7.5 m^3) of sludge material. Material from the K East Basin is to be transported to the 325 Building using a Sludge Transport Systems (STS).

The STS consists of:

- Large Diameter Container (LDC). A vertical stainless steel cylindrical tank designed to contain material from K East Basin. The container is approximately 5 feet in diameter and 10 feet high.
- Sludge transportation cask. The LDC is placed into a cylindrical stainless steel and lead shell which is to provide shielding and to seal the LDC from the outside.
- Transportation trailer. The sludge transportation cask is anchored onto a trailer. The sludge transportation trailer complies with federal regulations and state standards.

Note: The following information is for completeness. Radioactive air emissions from these activities are covered by other permits/processes.

The STS is staged in the north transfer bay near the K East North Loading Operation Pit (NLOP). The LDC is connected to the K East Basin's Sludge Retrieval System (SRS), and is filled with material. Once a sufficient

volume of sludge is contained in the LDC, the excess water cover level is lowered so the tank holds approximately 2.5 m^3 of material. An inert gas (e.g., helium or argon) blanket is placed over the material inside the LDC and the tank's outlet and inlet ports are closed. A NucFil HEPA-type filter and rupture disk are placed on the tank's vent ports. The cask lid is then installed, sealing the LDC inside. Once the cask is sealed and secured, the STS is transported to the 325 Building loading dock by the High-Level Radiochemistry Facility (HLRF). Once the STS is staged in the desired location, the transportation cask is unsealed in an approved area.

Note: The following activities describe actions to be taken within the RPL.

Inside the building, the LDC inlet and outlet are opened and the material is sampled for analysis. After determining the acceptability of the material, it is pumped from the LDC into several shielded vessels. The materials in the vessels are then processed with the solidification method designated from the initial testing. Each vessel is covered with a lid vented with a NucFil HEPA-type filter. Each shield vessel is placed in an overpack container and stored inside the RPL until the material is ready for shipped to CWC. Once the LDC is emptied, it is rinsed. It is then placed back onto the STS in preparation for resealing in the transportation cask and for transport back to K Basin. Overall, three shipments of K East Basin sludge in the STS are planned at this time.

17) 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.

MEDICAL ISOTOPE RESEARCH (I-131 Project)

I-131 solution will be procured from an offsite vendor and shipped to the Pacific Northwest National Laboratory (PNNL). It is expected that multiple shipments of I-131 will be required throughout the project, due to storage concerns that are the result of the short half-life of I-131 (approximately eight days). The objective of these experiments is to combine the I-131 solution with an antibody solution (supplied by the customer). The test apparatus is a closed system that shall be set up inside of a hot cell located in Room 203 of the RPL.

One containment vessel (medical grade - intravenous type bag) shall be used for the I-131 solution, and the second vessel shall be used to contain the vendor-supplied antibody solution. Both solutions shall be transported to the mixing vessel by means of a peristaltic pump. The mixed solution will then be routed through an in-line purification system and dispensed into a medical grade product bag. Once processing is complete, the I-131 antibody shall be transferred from the product bag into small glass vials (inside the hot cell). The final product can then be shipped to the customer or a destination designated by the customer. Shipment from RPL must occur fairly quickly, due to the short half-life of I-131.

Processing will be performed using variable amounts of I-131 and will be conducted as separate batches. Current project is allowed to conduct multiple processing runs, with each run using from four to 100 curies (Ci) of I-131. The processing of the material will not alter the physical form of the I-131 liquid. No more than 300 Ci of I-131 per year is allowed.

18) 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.

MEDICAL ISOTOPE RESEARCH (Th-232 Project)

Th-232 parent material is approved to be present in the facility as either an oxide [ThO2] or a nitrate [Th(NO3)4]. The parent material shall be maintained in shipping containers, with sub-samples being periodically removed for performing laboratory testing. During the tests, the parent material may be subjected to processes (e.g., grinding or suspension in solution) to maximize the recovery of the desired isotopes. The preparation of the parent material and the capture process shall be performed in Room 510. The amount of parent material allowed to be processed annually under this NOC is estimated to be 30,000 kilograms. Parent material may be transported to RPL from off-site suppliers in multiple shipments throughout the year. The parent material shall be in the form of a granular oxide or nitrate (powder) that will be stored inside shipping containers at RPL until it is to be used. The shipping containers will be opened periodically to retrieve parent material for processing.

The prepared materials will then be loaded into a containment vessel and the vessel sealed. A transport line has been tapped into the lid of the containment vessel. The Rn-220 gas that is generated during batch processing exits the vessel through this transport line to a radon recovery system that is located inside of a laboratory hood in Room 510. The daughter products that result from the decay of Rn-220 are captured by the recovery system, and this system exhausts to a laboratory fume hood that is part of the RPL radiological exhaust system. The exhaust exits the facility through the RPL main stack (EP-325-01-S).

The radionuclides associated with this project are the Th-232 in the parent material, and the daughter products resulting from the decay of Th-232 (in order): Ra-228, Ac-228, Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Po-212, Tl-208, and Pb-208 (stable isotope).

19) 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.

Tritium Target Qualification Project (TTQP)

Tritium Target Qualification Project (TTQP) it is approved to perform the analysis of ten tritium-producing, burnable absorber rods (target rods) that were shipped to the RPL from the Idaho National Engineering Laboratory and eight additional target rods shipped from the Argonne National Laboratory West (ANL-W) to the RPL.

The processes approved under this activity includes the following:

Target Rod Sectioning (Activity 1) - Sections are cut from the tritium target rods for quantitative analysis using a diamond saw within a Plexiglas containment. Each section is disassembled, and the components are analyzed to determine gas-species concentrations. Selected sections are further analyzed for lithium burn-up, as well as tritium and helium content. The rods are then subjected to protium, metallography, and microprobe studies. During the sectioning of the rods, emissions from the hot cells of the High-Level Radiochemistry Facility (HLRF) are vented to the existing radiological exhaust system and eventually to the main exhaust stack.

Tritium Extraction and Analysis (Activity 2) - Tritium is extracted by heating either a 4-foot target rod, or components from the target rod sections. Following tritium extraction, the 4-foot target rod is sectioned and analyzed as described in Activity 1. Tritium extraction and analysis is performed at two separate locations within the Radiochemical Processing Laboratory (RPL). Small-scale tritium extraction tests are performed in Room 416, while full tritium-rod extraction tests are conducted in the hot cells of the HLRF. Radionuclide emissions not captured during the tritium extraction tests pass through a laboratory hood or glovebox to the existing ventilation system, and eventually through the main exhaust stack.

Ex-reactor Tritium Permeation Tests (Activity 3) - Measurements are taken to determine the cladding material permeability used in the target rods. The test is conducted in an enclosed test loop, of which a section is constructed from TARGET ROD cladding material. Tritium absorption/release kinetics validation, correlation development and hydrogen ingress characterization, safety testing, and mechanical testing are then conducted. The tritium permeation tests are performed in Laboratory 48 in the RPL basement. Preparation of lithium aluminate (LiAlO2) samples for lithium isotopic ratio analysis is conducted in Laboratory 419. Radionculide emissions not captured during the permeation tests are allowed to pass through a laboratory hood or glovebox, to the existing ventilation system, and eventually through the main exhaust stack.

Other activities that will continue with the "ramp down" of the TTQP include clean-up of the furnace and other portions of the extraction system and subsequent waste disposal. During these activities, minor tritium releases are expected from hold-up within the system.

20) 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.

WASTE OPERATIONS

The approved activities in the Radiochemical Processing Laboratory (RPL) include waste treatment operations that

occur in various areas of the facility. In the HWTU, hazardous materials and radioactive mixed waste shall be stored, dispensed, used, handled, packaged in drums, and treated using various small bench-scale treatment processes. Treatment processes used at the HWTU is limited to include pH adjustment, ion exchange, venting of gas cylinders, carbon absorption using polymer beads or mineral absorbents such as clays, chemical oxidation, chemical precipitation, chemical reduction, waste concentration by evaporation, neutralization, filtration, solvent extraction, solids washing, catalytic destruction, and grout encapsulation (cementation).

The compaction unit is allowed to reduce volumes of low-level radioactive and radioactive-mixed dry materials (such as gloves, wipes, and step-off pad waste). During each compaction event, radiological smear samples shall be collected to verify containment of radiological contamination.

Radioactive waste boxes and drums are allowed to be stored in a controlled, fenced area (outside of the RPL) at the northeast corner of the facility. If any intrusive work (i.e., sampling, etc.) is required that may have the potential to emit radionuclides, the container shall be moved inside the facility.

21) TTQP Project Specific Emission Control Systems

Molecular Sieve

A molecular sieve will be used to control emissions during the full-rod tritium extraction process to be performed in the HRLF.

The molecular sieve will be used until the exhaust gas concentration, as measured with an ion chamber, indicates that the sieve is approaching the point of breakthrough. At this point, a fresh molecular sieve bed will replace the spent bed.

Two-Stage Bubbler Trap

The tritium emission control system for the small-scale extraction activities in Laboratory 416 consists of a two-stage bubbler-type trapping system. The bubbler-type trapping system includes a glass tube that contains either water or oil. An inert sweep gas carries the tritium from the heated tritium target rod components to the bubbler where tritium is removed from the gas stream.

Uranium Getter

Cladding material permeability measurements during Activity 3 will use a uranium getter material as a part of the commercial tritium storage system.

Emission Unit ID: 362

300 EP-326-01-S

EP-326-01-S

This is a MINOR, ACTIVELY ventilated emission unit.

326 MATERIAL SCIENCE LAB

Emission Unit Information

Stack Height: 47.60 ft. 14.51 m. Stack Diameter 6.00 ft. 1.83 m.

Average Stack Effluent Temperature: 77 degrees Fahrenheit. 25 degrees Celsius.

Average Stack ExhaustVelocity: 32.40 ft/second. 9.88 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Fan	3	In parallel, common to both areas
Hoods, SEM	HEPA	2	In series
Hot cells and hoods	HEPA	1	

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	2 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 Activities at the 326 Building support operations. This 47.6 foot tall stack exhausts both filtered and unfiltered air. Particulate emissions are sampled. The building contains laboratories and equipment for studies of metallurgical, chemical, and physical behavior of reactor components, fuel materials, mixed fission products mixed activation products, and ceramic composite materials.

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

Project Title	Approval #	Date Approved	NOC_ID
Research at the 326 Facility	AIR 06-1036	10/5/2006	677

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 8.52E-05 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

   Included are the following type of research activities within the 326 Facility.

   Development and calibration of fiber optic chemical sensors, electrical and mechanical engineering support for nuclear instrumentation development and fabrication, design and engineering of special purpose radiation detectors and sampling systems, and operation of a continuous glass fiber draw capability to produce neutron sensitive scintillating glass fiber which is a new class of solid state radiation detectors.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 8.15E-03 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	1.76E-06	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Alpha release rate based on AM-241			
Beta - 0	1.33E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Beta release rate based on Co-60			

The radioactive isotopes identified for this emission unit are (no quantities specified):

Ag - 110 m	Am - 241	Am - 243	Ar - 37	Ar - 39
Ar - 41	Ba - 133	Bi - 207	C - 14	Ca - 45
Cd - 109	Ce - 144	Cf - 252	Cm - 244	Co - 56
Co - 57	Co - 58	Co - 60	Cr - 51	Cs - 134
Cs - 137	Cu - 64	Eu - 152	Eu - 154	Eu - 155
Eu - 156	Fe - 55	Gd - 149	Gd - 151	H - 3
I - 125	I - 129	I - 131	Kr - 83 m	Kr - 85
Kr - 85 m	Kr - 87	Kr - 88	Mn - 54	Mo - 93
Na - 22	Nb - 93 m	Nb - 94	Ni - 59	Ni - 63
Np - 237	Pu - 238	Pu - 239	Pu - 240	Pu - 242
Ra - 226	Rn - 222	Ru - 106	Sb - 124	Sb - 125
Sc - 46	Sn - 113	Sn - 119 m	Sn - 123	Sr - 85
Sr - 89	Sr - 90	Ta - 179	Ta - 182	Tc - 99
Te - 123	Th - 230	Th - 232	U - 234	U - 235
U - 236	U - 238	V - 49	W - 181	W - 185
Xe - 131 m	Xe - 133	Xe - 133 m	Xe - 135	Xe - 135 m
Xe - 137	Xe - 138	Zn - 65	Zr - 95	

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

Emission Unit ID: 366

300 EP-329-01-S

EP-329-01-S

This is a MINOR, ACTIVELY ventilated emission unit.

329 BUILDING

Emission Unit Information

Stack Height: 62.50 ft. 19.05 m. Stack Diameter 5.00 ft. 1.52 m.

Average Stack Effluent Temperature: 77 degrees Fahrenheit. 25 degrees Celsius.

Average Stack ExhaustVelocity: 40.00 ft/second. 12.19 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	HEPA	2	In series, (System includes up to 5 banks of 2 stages of HEPA filters in series, minimum of 1 bank of 2 testable filters in use)
	Fan	2	2 in parallel, 1 Standby (3 total)

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	2 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 Activities at the 329 Building support operations. This 62.5 foot tall stack exhausts filtered building air. Particulate emissions are sampled. The building contains laboratories for radioanalytical studies, environmental radionuclide studies, and radiation detection instrumentation development.

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

Project Title	Approval #	Date Approved	NOC_ID
Operation of Research Activities Conducted in the Chemical Sciences Laboratory (329 Building)	AIR 06-1055	10/5/2006	701

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 9.40E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

Research activities conducted in the 329 Building support the Hanford environmental mission and other key DOE missions of national and international importance. Research activities are performed on both radioactive and non-radioactive samples. The following processes are allowed to be performed in the 329 Building:

- Development of special purpose radiation detection and sampling/analysis systems.
- Development of electronics and software to enhance radiation detector performance.
- Radiation detection equipment used for radioisotope quantification that may involve chemical separations.

- Solid, liquid, and gas sample (both radioactive and non-radioactive) analysis in specialized laboratories.
- Wet chemistry techniques and the operation of specialized analytical instrumentation such as mass spectrometers, organic mass spectrometers, and inductively coupled plasma spectrometers.
- Separations and analyses of radionuclides and samples containing radionuclides.
- Preparation of radioactive standards (solid, liquid, and gas).
- Characterizing chemical, radiochemical, and physical properties of samples (e.g., tank wastes, spent fuel, contaminated soils and water), as well as other gaseous materials, glass, ceramic, carbonaceous, or metallic waste forms.
- Performing research using high-level and low-level mixed tank wastes and their simulants to test radiochemical process systems such as leaching, solvent extraction, ion exchange, vitrification, fuel dissolution, decontamination, evaporation, grouting, solid waste packaging/shipment, and high-level liquid waste shipping/receiving/transportation.
- Performing research and development for processing and immobilization support including waste separation, ion exchange, sludge washing/leaching, ultra filtration, oxidation/precipitation, species separation, immobilization, and characterization.
- Using a full suite of analytical capabilities for radiochemical and inorganic chemical analyses in support of process development, specializing in the analysis of highly radioactive materials and very complex sample matrices.
- Developing methods for the separation of radioisotopes.
- Glove box work and storage of higher activity materials in shielded storage areas.
- Developing and testing radioisotope generators.
- Conducting Non-Destructive Analysis (NDA).
- Processes involving the creation of mixed activation products (MAP) and mixed fission products (MFP), separation, analysis and research.
- Developing thermal and vitrification processes to immobilize hazardous and radioactive materials into acceptable waste forms. Waste processing technology development includes design, process development, remote operations, and numerical and computational modeling.
- Providing chemical and physical separations in support of radiological and hazardous material processing and disposal requirements. These technologies include: removal and concentration of hazardous and/or radioactive components for environmental remediation; separation of hazardous and/or radioactive materials, including solid/liquid phase separations; and, recovery of specific components for recycle and reuse.
- Separations and analyses of radionuclides for environmental measurements.
- Sampling and analysis of environmental samples including soils, vegetation and water/liquids; decommissioning materials; and tank wastes.
- Performing research with supercritical fluids to understand chemistry mechanisms and processes.
- Lab setup projects involving fume hood removals/upgrades and ductwork tie-in.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 4.34E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	5.60E-06	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Alpha release rate based on Am-241.			
B/G - 0	9.20E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Beta/Gamma release rate based on Sr-90 and Cs-137.			

The radioactive isotopes identified for this emission unit are (no quantities specified):

Ac - 225	Ac - 227	Ac - 228	Ag - 108 m	Ag - 108
Ag - 109 m	Ag - 110 m	Ag - 110	Ag - 111	Al - 26
Am - 241	Am - 242 m	Am - 242	Am - 243	Am - 245
Ar - 37	Ar - 39	Ar - 41	Ar - 42	As - 74
As - 76	At - 217	Au - 195	Au - 198	Ba - 131
Ba - 133	Ba - 133 m	Ba - 137 m	Ba - 139	Ba - 140
Ba - 141	Ba - 142	Be - 10	Be - 7	Bi - 207
Bi - 210	Bi - 211	Bi - 212	Bi - 213	Bi - 214

Bk - 249
Bk - 250
Br - 82
Br - 83
Br - 84
Br - 85
C - 11
C - 14
C - 15
Ca - 41
Ca - 45
Ca - 47
Cd - 109
Cd - 113 m
Cd - 113
Cd - 115 m
Cd - 115
Ce - 139
Ce - 141
Ce - 142
Ce - 143
Ce - 144
Cf - 249
Cf - 250
Cf - 251
Cf - 252
Cl - 36
Cm - 241
Cm - 242
Cm - 243
Cm - 244
Cm - 245
Cm - 246
Cm - 247
Cm - 248
Co - 56
Co - 57
Co - 58
Co - 60
Cr - 51
Cs - 131
Cs - 134
Cs - 134 m
Cs - 135
Cs - 136
Cs - 137
Cs - 138
Cs - 139
Cu - 64
Es - 254
Eu - 150
Eu - 152
Eu - 152 m
Eu - 154
Eu - 155
Eu - 156
Eu - 157
F - 18
Fe - 55
Fe - 59
Fr - 221
Fr - 223
Ga - 67
Ga - 72
Gd - 148
Gd - 149
Gd - 151
Gd - 152
Gd - 153
Ge - 68
H - 3
Hf - 175
Hf - 178
Hf - 178 m
Hf - 181
Hf - 182
Hg - 203
Ho - 166
Ho - 166 m
I - 122
I - 123
I - 125
I - 129
I - 130
I - 131
I - 132
I - 133
I - 134
I - 135
In - 106
In - 113 m
In - 114 m
In - 114
In - 115
In - 115 m
Ir - 192
K - 40
K - 42
Kr - 81
Kr - 83 m
Kr - 85
Kr - 85 m
Kr - 87
Kr - 88
Kr - 89
Kr - 90
La - 138
La - 140
La - 141
La - 142
Lu - 177
Mn - 52
Mn - 54
Mn - 56
Mo - 93
Mo - 99
N - 13
Na - 22
Na - 24
Nb - 91
Nb - 91 m
Nb - 92
Nb - 93 m
Nb - 94
Nb - 95
Nb - 95 m
Nb - 97
Nb - 97 m
Nd - 144
Nd - 147
Ni - 56
Ni - 59
Ni - 63
Ni - 65
Np - 235
Np - 236
Np - 237
Np - 238
Np - 239
Np - 240
Np - 240 m
O - 15
P - 32
P - 33
Pa - 231
Pa - 233
Pa - 234
Pa - 234 m
Pb - 209
Pb - 210
Pb - 211
Pb - 212
Pb - 214
Pd - 107
Pd - 109
Pm - 145
Pm - 146
Pm - 147
Pm - 148 m
Pm - 148
Pm - 149
Pm - 151
Po - 208
Po - 209
Po - 210
Po - 211
Po - 212
Po - 213
Po - 214
Po - 215
Po - 216
Po - 218
Pr - 143
Pr - 144
Pr - 144 m
Pu - 234
Pu - 236
Pu - 237
Pu - 238
Pu - 239
Pu - 240
Pu - 241
Pu - 242
Pu - 243
Pu - 244
Ra - 223
Ra - 224
Ra - 225
Ra - 226
Ra - 228
Rb - 86
Rb - 87
Rb - 88
Rb - 89
Rb - 90
Rb - 90 m
Re - 186
Re - 187
Re - 188
Rh - 102
Rh - 103 m
Rh - 105
Rh - 105 m
Rh - 106
Rn - 219
Rn - 220
Rn - 222
Ru - 103
Ru - 105
Ru - 106
Ru - 97
S - 35
Sb - 124
Sb - 125
Sb - 126
Sb - 126 m
Sb - 127
Sc - 46
Sc - 47
Se - 75
Se - 79
Sm - 145
Sm - 146
Sm - 147
Sm - 151
Sm - 153
Sm - 157
Sn - 113
Sn - 119 m
Sn - 121 m
Sn - 123
Sn - 125
Sn - 126
Sr - 85
Sr - 89
Sr - 90
Sr - 91
Sr - 92
Ta - 179
Ta - 182
Ta - 183
Tb - 160
Tc - 101
Tc - 95 m
Tc - 97
Tc - 97 m
Tc - 98
Tc - 99
Tc - 99 m
Te - 121 m
Te - 121
Te - 123
Te - 123 m
Te - 125 m
Te - 127 m
Te - 127
Te - 129 m
Te - 129
Te - 131
Te - 131 m
Te - 132
Te - 133
Te - 133 m
Te - 134
Th - 227
Th - 228
Th - 229
Th - 230
Th - 231
Th - 232
Th - 233
Th - 234
Ti - 44
Tl - 204
Tl - 207
Tl - 208
Tl - 209
Tm - 170
Tm - 171
U - 232
U - 233
U - 234
U - 235
U - 236
U - 237
U - 238
U - 239
U - 240
V - 48
V - 49

W - 181	W - 185	W - 187	W - 188	Xe - 122
Xe - 123	Xe - 125	Xe - 127	Xe - 131 m	Xe - 133
Xe - 133 m	Xe - 135	Xe - 135 m	Xe - 137	Xe - 138
Y - 88	Y - 90	Y - 90 m	Y - 91	Y - 91 m
Y - 92	Y - 93	Yb - 164	Yb - 175	Yb - 177
Zn - 65	Zn - 69	Zn - 69 m	Zr - 88	Zr - 89
Zr - 93	Zr - 95			

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) The emission unit monitoring system shall have the following activities performed:

   a. A functional/calibration check of monitoring system instrumentation shall be performed annually.

Emission Unit ID: 369

200E P-291A001-001

291-A-1

This is a MAJOR, ACTIVELY ventilated emission unit.

PUREX

Emission Unit Information

Stack Height: 200.00 ft. 60.96 m. Stack Diameter 7.00 ft. 2.13 m.

Average Stack Effluent Temperature: 68 degrees Fahrenheit. 20 degrees Celsius.

Average Stack ExhaustVelocity: 17.00 ft/second. 5.18 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Fiberglass Filter	1	(Deep Bed Fiberglass filter)
	HEPA	2	In series
	Fan	2	In parallel, one operating, one back-up

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(2)	40 CFR 60, Appendix A, Method 2; 40 CFR 61, Appendix B, Method 114 61.93(b)(2)(ii) ANSI N13.1	239/240Pu, 241Am	Continuous

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 Activities at PUREX involve surveillance and maintenance operations at the Hanford Site.

Emission Unit ID: 384

200E P-296A010-001

296-A-10

This is a MINOR, ACTIVELY ventilated emission unit.

PUREX

Emission Unit Information

Stack Height: 15.00 ft. 4.57 m. Stack Diameter ft. m.

Average Stack Effluent Temperature: degrees Fahrenheit. degrees Celsius.

Average Stack ExhaustVelocity: ft/second. m/second.

Abatement Technology ALARACT WAC 246-247-040(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	1 bank
	Fan	1	Intermittent, as needed. Prior approval of operation is required.

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	1 week sample / year (when operating)

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 Activites at the PUREX tunnels involve surveillance and maintenance operations including equipment storage at the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Reactivation of PUREX Storage Tunnel Number 2	AIR 06-1026	10/5/2006	665

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 3.90E-07 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

Receiving up to 3.5 Mci of radioactive waste loaded into 22-ton steel waste disposal boxes (SWDBs). The SWDBs will be transferred by truck, transferred onto railcars, and placed into the PUREX Tunnel.

Steel Waste Disposal Boxes

Waste placed in the PUREX Tunnel will be received in SWDBs. The inner container will be a rectangular grout container, which is an open, carbon steel box. Dispersible waste will be contained in engineered containers placed (maximum of eight) in the rectangular grout container. A filled rectangular grout container could hold engineered containers as well as nondispersible waste materials. Nondispersible waste (e.g., filters, ion exchange columns, cut-up metal tanks and racks, etc.) will be held directly inside the rectangular grout container. The rectangular overpack disposal container will be placed into a SWDB. This package configuration will be placed into the PUREX Tunnel.

The filled SWDB will be held by a SWDB overpack, which is inside the lower impact limiter. The SWDB overpack has a gasketed lid that is secured by bolts. The SWDB overpack is the containment boundary for the package, which is considered a closed container for transfer purposes. The upper impact limiter is bolted to the lower impact limiter, forming an additional seal. (The SWDB overpack and the impact limiter could be reused for subsequent transfers.)

Alternate packaging for receipt/storage, which will provide equivalent or greater degree of airborne control, would be presented to WDOH before use.

Transporting to PUREX

The upper and lower impact limiters form a seal for the SWDB. The package meets transportation requirements to move the material by truck to the PUREX Tunnel rail cut. As a closed container, there are no expected emissions during the transported phase.

Transfer to Railcars

The truck will be parked in the rail cut just outside the PUREX Tunnel. The upper impact limiter and SWDB overpack lid will be removed and set aside. A mobile crane will be used to transfer the SWDB from the truck to the railcar. (The impact limiter and overpack could be reused for subsequent transfers.) The railcar could remain in the rail cut, with appropriate postings, or could be moved just inside the exterior door into the outer area of the PUREX Tunnel while waiting the next transfer.

Placement of Waste Into PUREX Tunnel

At least two SWDBs will fit onto a single railcar. When the railcar is ready for placement into the PUREX Tunnel, the water-fillable door to the storage tunnel will be opened after closing the exterior door. The railcar will be placed into the storage tunnel and allowed to roll slowly to its storage position. Once the railcar is in position, the water-fillable door will be closed. The initial transfer could involve more than one railcar, and could include the majority of the total inventory to be transferred.

Storage of Waste in Tunnel

The PUREX Tunnel has been used for storage of radioactive and mixed waste from the PUREX Plant and from other onsite sources. Material selected for storage in the PUREX Tunnel is loaded on railcars modified to serve as both transport and storage platforms. The railcar storage positions are numbered sequentially, commencing with Position 1 that abuts the railstop bumper at the south end of the tunnel. Position 2 is the location of the railcar that abuts the railcar in position 1 and so forth. Each railcar is retrievable; however, because the railcars are stored on a single, dead-end railroad track, the railcars can be removed only in reverse order (i.e., last in, first out). Currently, 28 railcars are placed in the PUREX Tunnel. Additional waste could be placed into the remaining (approximately 12) railcar positions over the next 10 years.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 7.80E-04 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Release rates are not listed; emission release rates are controlled by special conditions.

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) All transfers of additional radioactive materials from various onsite facilities to the PUREX Tunnel must take place during the period in fiscal years 2000 through 2010.

5) Each SWDB container must be equipped with a minimum of two NucFil filters in series. If the container has dispersible material, it must have three NucFil filters. A maximum of twelve rail cars containing waste may be added to the tunnel.

6) If the stack is opened for any three-month period between transfers an NDA analysis of the filters is required. Environmental air samplers N158, N985, N970, N957, N969, N977 and N978 may not be removed without WDOH approval.

7) If the tunnel is opened for more than three months between transfers an NDA of the filters is required.

8) Periodic confirmatory measurements to confirm low emissions from the 296-A-10 stack will be performed by NDA. NDA provides detection of cesium-137 loaded on HEPA filters. The loading of strontium-90, plutonium-239/240 and americium-241 on the HEPA filters will be calculated from ratios with cesium-137 from reported 1995 actual emissions. NDA methodology for the 296-A-10 stack is provided in 97-EAP-225

9) Periodically smears will be taken of the SWDBs during transfer operations prior to insertion into the tunnel. Records of smears, HEPA tests and NDA analysis must be made available to DOH upon request.

10) Stack 296-A-10 HEPAs must be tested and determined to be operational prior to transfer of waste. This includes testing and nondestructive analysis/assay (NDA) of the testing of the high-efficiency particulate air (HEPA) filters on the tunnel exhauster as a baseline for determination of filter loading after the placement was completed.

11) The flow sampling system will be upgraded to include the installation of test ports that will conform to 40 CFR 60, Appendix A.

12) The processes will consist of receiving up to 3.5 million curries of radioactive waste loaded into 22-ton steel waste disposal boxes (SWDBs). The SWDBs will be transferred by truck, transferred onto rail cars, and placed into the PUREX Tunnel.

13) The required average stack flow rate is 2.0 cubic meters per second. The stack must have a single stage of HEPA filters (3x3) with a particulate removal efficiency of at least 99.95 percent.

14) The stack will operate during waste placement. Depending on the length of time before the next transfer, the stack should be shutdown and capped between transfers, especially if the next transfer is not expected for a year or more. If the next transfer is expected within the same year, the stack can be operated between transfers. Testing of the HEPA filters will be performed annually. NDA would be required each year when a rail car is placed in the tunnel, or when the stack is uncapped and used for powered ventilation. During years in which no waste is placed in the PUREX Tunnel and the 296-A-10 stack is capped (weather tight), testing of the HEPAs and NDA analysis would not be required until the stack is reactivated for the next transfer.

15) The steel waste disposal boxes (SWDBs) are engineered to minimize emissions during the loading, transportation, and transfer processes. Only waste received in SWDBs will be placed in the PUREX Tunnel. Dispersible waste must be contained in engineered containers placed (maximum of eight) in the rectangular grout container. Nondispersible waste (e.g., filters, ion exchange columns, cut-up metal tanks and racks, etc.) must be held directly inside the rectangular grout container.
Alternate packaging for receipt/storage, must provide equivalent or greater degree of airborne control, and be approved by WDOH before use.

16) Up to 3.5 million curries of radioactive waste can be placed into the remaining 12 rail car positions of the PUREX Tunnel over the next ten years. Up to one percent (35 thousand curies) of the additional waste can be transuranic.

Emission Unit ID: 385

400 P-437MN&ST-001

437-MN&ST

This is a MINOR, ACTIVELY ventilated emission unit.

437 Maintenance and Storage (MASF)

Emission Unit Information

Stack Height 30.00 ft. 9.14 m. Stack Diameter 8.00 ft. 2.44 m.

Average Stack Effluent Temperature: 68 degrees Fahrenheit. 20 degrees Celsius.

Average Stack ExhaustVelocity: 4.90 ft/second. 1.49 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Fan	2	In parallel, serves all MN&ST, intermittent use
Decon 1 & 2 Activities	HEPA	1	2 parallel flow paths, minimum of one HEPA operational
Liquid Radioactive Waste Loadout Facility Ventilation	Prefilter	1	
Liquid Radioactive Waste Loadout Facility Ventilation	HEPA	1	
Radiological Waste Tank Room Ventilation	Prefilter	1	
Radiological Waste Tank Room Ventilation	HEPA	1	
Waste Tank 1 & 2 Vents	HEPA	1	1 stage with 2 parallel flowpaths
Contaminated Equipment Repair Area	Prefilter	1	
Contaminated Equipment Repair Area	HEPA	1	2 in parallel

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	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 Activities at the MASF support FFTF deactivation activities, and surveillance and maintenance operations at the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Sodium Residuals Reaction/Removal and other Deactivation Work Activities at the Fast Flux Test Facility	AIR 08-1021	10/31/2008	646

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 5.70E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 activity will involve reaction of sodium residuals associated with the Fast Flux Test Facility Project systems and equipment. This activity could be conducted in place or at designated cleaning locations. Typically, the sodium residuals would be reacted with superheated steam. The primary advantages of the superheated steam process (SSP) are that it does not allow condensation to occur and component cleaning can be performed in a shorter time period. Prior to steam injection into the system to be cleaned the steam is heated to ~ 204 C (400 F). The equipment to be cleaned is heated to a minimum of 100 C (212 F) and higher if possible. Most systems will require multiple injection points. As the superheated steam reacts with the metallic sodium, the temperature increases. The temperature is controlled such that the maximum reaction temperature is no greater than ~538 C (1,000 F).

Because of the high initial temperature and the increase of the temperature caused by the reaction, no condensation occurs. The caustic formed is a liquid at the processing temperatures and because it is denser than the liquid sodium, it settles to the bottom of any pools leaving the sodium on top where it is always exposed to the superheated steam. Due to the continued exposure of the molten sodium to the superheated steam, the reaction continues at a constant rate. Superheated steam injection is continued until hydrogen is no longer being generated. The system is then cooled and rinsed and the fluid is drained from the system.

PERFORM IN PLACE CLEANING OF VESSELS, COMPONENTS, AND LARGE BORE PIPE
A PTRAEU would be used to clean, in place, large bore sodium pipe [greater than or equal to ~20 centimeter (8 inch) diameter], components and vessels in the primary and secondary sodium cooling systems. The PTRAEU also would be used to clean the Interim Decay Storage (IDS) and Fuel Storage Facility (FSF) vessels [Note: Select components in the primary sodium system, and large diameter piping and components in the secondary sodium system may be removed and cleaned in FSF or the Maintenance and Storage Facility (MASF), as described below].

Typically, penetrations into the piping/vessels would be made at appropriate locations using a low speed drill. Existing sodium heating systems would be energized, and piping/vessels heated to liquefy the existing sodium residuals. A PTRAEU would be connected to the penetration points, and used at various locations to inject the superheated steam into plant systems.

The superheated steam would be injected. Hydrogen generation would be monitored to follow the reaction. Sulfuric acid would be added to the resultant process liquid (i.e., sodium hydroxide solution) to reduce the pH to <13. This solution would be routed for offloading to tanker transport for overland transfer to Liquid Effluent Treatment Facility (LERF) and subsequent treatment at 200 Area Effluent Treatment Facility (ETF). If needed or chosen for use during these activities, the categorical NOC for sitewide use of tanker loading for wastewater could be used.

REMOVE SMALL BORE PIPE AND COMPONENTS FOR REACTION IN A CLEANING STATION
Small bore piping [<20 centimeter (8 inch) diameter], valves and other components [e.g., core component pots from IDS, fuel storage tubes from FSF, and dump heat exchangers (DHX) tube bundles] may be removed and processed in a proposed stationary cleaning station that would be located in FSF. Mechanical means (e.g., portable saws, pipe cutters) would be used to cut the pipe, valves, and components into manageable size. All heat exchanger tube bundles, which contain multiple parallel flow paths, would be dismantled to ensure effective cleaning.

The proposed FSF stationary cleaning station would consist of a chamber with removable rack for loading piping and components. The piping would be loaded at an angle, allowing the residual sodium to drain to a catch basin when heated before the injection of inert gas and/or reaction medium. The process in the cleaning station would be consistent with the in place process where the resultant waste sodium hydroxide solution is

collected, the pH reduced to <13, and transported to the 200 Areas. The FSF is considered an appropriate location due to availability of sufficient floor space, existing overhead crane, available utilities, and proximity to proposed operations. If needed or chosen for use during these activities, the categorical NOC for sitewide use of tanker loading for wastewater could be used.

Cleaned piping and components would be disposed of in a Hanford Site solid waste management facility.

REMOVE LARGE COMPONENTS FOR CLEANING
The large diameter cleaning vessel (LDCV) located in the existing MASF could be used for cleaning large components following removal (e.g., primary sodium pumps, intermediate heat exchanger (IHX) tube bundles, and instrument trees). The LDCV could be retrofitted with a new super heated steam supply and associated control system for use in cleaning the aforementioned components. The IHX tube bundles, which contain multiple parallel sodium flow paths, may be dismantled to ensure effective cleaning. Small bore pipe and components also could be cleaned in MASF, if necessary.

OTHER DEACTIVATION ACTIVITIES
Other related routine, continued deactivation activities that could occur as part of the proposed action are: remove/dispose of asbestos; remove/stabilize existing hazards in conjunction with systems and equipment deactivation associated with sodium residuals; remove/recycle/dispose excess deactivated equipment and components; and remove depleted uranium and/or lead shielding.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 5.70E-03 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	2.00E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(e)
Alpha release rate based on Pu-239.			
B/G - 0	3.30E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(e)
Beta/Gamma release rate based on Cs-137.			

The radioactive isotopes identified for this emission unit are (no quantities specified):

Ba - 137 m	Co - 60	Cs - 134	Cs - 137	H - 3
Mn - 54	Na - 22	Pu - 239	Ru - 106	Zn - 65

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) Operations shall be performed in accordance with the controls specified in radiation work planning documents and/or operating procedures and shall be available for inspection upon request.

5) All activities shall be conducted under the auspices of radiological or health physics control technicians or personnel. Routine field surveys, including swipes/smears, shall be conducted. Fixatives, covers, or other standard measures shall be used, as necessary to contain contamination.

6) Appropriate spill prevention procedures shall be in place to minimize the release of radioactive liquid waste to the environment, and to provide immediate cleanup of any liquid spills.

7) The total amount of sodium reacted from all emission units shall not exceed 4,000 gallons per year with no more than 2,000 gallons challenging a single emission unit.

8) Other radioisotopes may be present due to activation products, fission products, decay products, and tracer gases. These other isotopes are approved for this emission unit and will not contribute significantly to the calculated potential-to-emit.

9) Emissions would be routed through the existing MASF ventilation system; for conservatism no filtration is assumed.

Emission Unit ID: 395

400 P-FFTFRESB-001

FFTF-RE-SB

This is a MINOR, ACTIVELY ventilated emission unit.

FAST FLUX TEST FACILITY COMPLEX

Emission Unit Information

Stack Height: 20.00 ft. 6.10 m. Stack Diameter 4.40 ft. 1.34 m.

Average Stack Effluent Temperature: 68 degrees Fahrenheit. 20 degrees Celsius.

Average Stack ExhaustVelocity: 13.10 ft/second. 3.99 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Fan	1	Intermettent use No other controls

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	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 Activities at the FFTF support surveillance and maintenance operations for decontamination and deactivation at the Hanford Site. This 20 foot tall stack, located in the Lower Reactor Service Building (RSB), exhausts unfiltered air from the lower level of the RSB. Particulate emissions are sampled. This facility is a 400 megawatt thermal, sodium cooled, low pressure, high temperature reactor plant, had been used for irradiation testing of breeder reactor fuels and materials. It has not has not operated since 1993.

Emission Unit ID: 396

400 P-FFTFHTTR-001

FFTF-HT-TR

This is a MINOR, ACTIVELY ventilated emission unit.

FAST FLUX TEST FACILITY COMPLEX

Emission Unit Information

Stack Height 29.00 ft. 8.84 m. Stack Diameter 2.20 ft. 0.67 m.

Average Stack Effluent Temperature: 68 degrees Fahrenheit. 20 degrees Celsius.

Average Stack ExhaustVelocity: 17.40 ft/second. 5.30 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Fan	1	Intermittent use

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	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 undergoing deactivation.

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

Project Title	Approval #	Date Approved	NOC_ID
Sodium Residuals Reaction/Removal and other Deactivation Work Activities at the Fast Flux Test Facility	AIR 08-1021	10/31/2008	646

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 5.70E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 activity will involve reaction of sodium residuals associated with the Fast Flux Test Facility Project systems and equipment. This activity could be conducted in place or at designated cleaning locations. Typically, the sodium residuals would be reacted with superheated steam. The primary advantages of the superheated steam process (SSP) are that it does not allow condensation to occur and component cleaning can be performed in a shorter time period. Prior to steam injection into the system to be cleaned the steam is heated to ~ 204 C (400 F). The equipment to be cleaned is heated to a minimum of 100 C (212 F) and higher if possible. Most systems will require multiple injection points. As the superheated steam reacts with the metallic sodium, the temperature increases. The temperature is controlled such that the maximum reaction temperature is no greater than ~538 C (1,000 F).

Because of the high initial temperature and the increase of the temperature caused by the reaction, no condensation occurs. The caustic formed is a liquid at the processing temperatures and because it is denser than the liquid sodium, it settles to the bottom of any pools leaving the sodium on top where it is always exposed to the superheated steam. Due to the continued exposure of the molten sodium to the superheated steam, the reaction continues at a constant rate. Superheated steam injection is continued until hydrogen is no

longer being generated. The system is then cooled and rinsed and the fluid is drained from the system.

PERFORM IN PLACE CLEANING OF VESSELS, COMPONENTS, AND LARGE BORE PIPE
A PTRAEU would be used to clean, in place, large bore sodium pipe [greater than or equal to ~20 centimeter (8 inch) diameter], components and vessels in the primary and secondary sodium cooling systems. The PTRAEU also would be used to clean the Interim Decay Storage (IDS) and Fuel Storage Facility (FSF) vessels [Note: Select components in the primary sodium system, and large diameter piping and components in the secondary sodium system may be removed and cleaned in FSF or the Maintenance and Storage Facility (MASF), as described below].

Typically, penetrations into the piping/vessels would be made at appropriate locations using a low speed drill. Existing sodium heating systems would be energized, and piping/vessels heated to liquefy the existing sodium residuals. A PTRAEU would be connected to the penetration points, and used at various locations to inject the superheated steam into plant systems.

The superheated steam would be injected. Hydrogen generation would be monitored to follow the reaction. Sulfuric acid would be added to the resultant process liquid (i.e., sodium hydroxide solution) to reduce the pH to <13. This solution would be routed for offloading to tanker transport for overland transfer to Liquid Effluent Treatment Facility (LERF) and subsequent treatment at 200 Area Effluent Treatment Facility (ETF). If needed or chosen for use during these activities, the categorical NOC for sitewide use of tanker loading for wastewater could be used.

REMOVE SMALL BORE PIPE AND COMPONENTS FOR REACTION IN A CLEANING STATION
Small bore piping [<20 centimeter (8 inch) diameter], valves and other components [e.g., core component pots from IDS, fuel storage tubes from FSF, and dump heat exchangers (DHX) tube bundles] may be removed and processed in a proposed stationary cleaning station that would be located in FSF. Mechanical means (e.g., portable saws, pipe cutters) would be used to cut the pipe, valves, and components into manageable size. All heat exchanger tube bundles, which contain multiple parallel flow paths, would be dismantled to ensure effective cleaning.

The proposed FSF stationary cleaning station would consist of a chamber with removable rack for loading piping and components. The piping would be loaded at an angle, allowing the residual sodium to drain to a catch basin when heated before the injection of inert gas and/or reaction medium. The process in the cleaning station would be consistent with the in place process where the resultant waste sodium hydroxide solution is collected, the pH reduced to <13, and transported to the 200 Areas. The FSF is considered an appropriate location due to availability of sufficient floor space, existing overhead crane, available utilities, and proximity to proposed operations. If needed or chosen for use during these activities, the categorical NOC for sitewide use of tanker loading for wastewater could be used.

Cleaned piping and components would be disposed of in a Hanford Site solid waste management facility.

REMOVE LARGE COMPONENTS FOR CLEANING
The large diameter cleaning vessel (LDCV) located in the existing MASF could be used for cleaning large components following removal (e.g., primary sodium pumps, intermediate heat exchanger (IHX) tube bundles, and instrument trees). The LDCV could be retrofitted with a new super heated steam supply and associated control system for use in cleaning the aforementioned components. The IHX tube bundles, which contain multiple parallel sodium flow paths, may be dismantled to ensure effective cleaning. Small bore pipe and components also could be cleaned in MASF, if necessary.

OTHER DEACTIVATION ACTIVITIES
Other related routine, continued deactivation activities that could occur as part of the proposed action are: remove/dispose of asbestos; remove/stabilize existing hazards in conjunction with systems and equipment deactivation associated with sodium residuals; remove/recycle/dispose excess deactivated equipment and components; and remove depleted uranium and/or lead shielding.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 5.70E-03 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	4.90E-09	Liquid/Particulate Solid	WAC 246-247-030(21)(e)
Alpha release rate based on Pu-239.			
B/G - 0	1.30E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(e)
Beta/Gamma release rate based on Cs-137.			

The radioactive isotopes identified for this emission unit are (no quantities specified):

Ba - 137 m	Co - 60	Cs - 134	Cs - 137	H - 3
Mn - 54	Na - 22	Pu - 239	Ru - 106	Zn - 65

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) Operations shall be performed in accordance with the controls specified in radiation work planning documents and/or operating procedures and shall be available for inspection upon request.

5) All activities shall be conducted under the auspices of radiological or health physics control technicians or personnel. Routine field surveys, including swipes/smears, shall be conducted. Fixatives, covers, or other standard measures shall be used, as necessary to contain contamination.

6) Appropriate spill prevention procedures shall be in place to minimize release of radioactive liquid waste to the environment, and to provide immediate cleanup of any liquid spills.

7) The total amount of sodium reacted from all emission units shall not exceed 4,000 gallons per year with no more than 2,000 gallons challenging a single emission unit.

8) Other radioisotopes may be present due to activation products, fission products, decay products, and tracer gases. These other isotopes are approved for this emission unit and will not contribute significantly to the calculated potential-to-emit.

Emission Unit ID: 397

400 P-FFTFCBEX-001

FFTF-CB-EX

This is a MINOR, ACTIVELY ventilated emission unit.

FAST FLUX TEST FACILITY COMPLEX

Emission Unit Information

Stack Height 47.00 ft. 14.33 m. Stack Diameter 4.90 ft. 1.49 m.

Average Stack Effluent Temperature: 70 degrees Fahrenheit. 21 degrees Celsius.

Average Stack ExhaustVelocity: 19.80 ft/second. 6.04 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
Bldg 405 Process Operations	Fan	2	In parallel (intermittent use)
Access Control Area Process	Fan	1	Intermittent use

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 undergoing deactivation.

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

Project Title	Approval #	Date Approved	NOC_ID
Sodium Residuals Reaction/Removal and other Deactivation Work Activities at the Fast Flux Test Facility	AIR 08-1021	10/31/2008	646

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 5.70E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 activity will involve reaction of sodium residuals associated with the Fast Flux Test Facility Project systems and equipment. This activity could be conducted in place or at designated cleaning locations. Typically, the sodium residuals would be reacted with superheated steam. The primary advantages of the superheated steam process (SSP) are that it does not allow condensation to occur and component cleaning can be performed in a shorter time period. Prior to steam injection into the system to be cleaned the steam is heated to ~ 204 C (400 F). The equipment to be cleaned is heated to a minimum of 100 C (212 F) and higher if possible. Most systems will require multiple injection points. As the superheated steam reacts with the metallic sodium, the temperature increases. The temperature is controlled such that the maximum reaction temperature is no greater than ~538 C (1,000 F).

Because of the high initial temperature and the increase of the temperature caused by the reaction, no condensation occurs. The caustic formed is a liquid at the processing temperatures and because it is denser

than the liquid sodium, it settles to the bottom of any pools leaving the sodium on top where it is always exposed to the superheated steam. Due to the continued exposure of the molten sodium to the superheated steam, the reaction continues at a constant rate. Superheated steam injection is continued until hydrogen is no longer being generated. The system is then cooled and rinsed and the fluid is drained from the system.

PERFORM IN PLACE CLEANING OF VESSELS, COMPONENTS, AND LARGE BORE PIPE
A PTRAEU would be used to clean, in place, large bore sodium pipe [greater than or equal to ~20 centimeter (8 inch) diameter], components and vessels in the primary and secondary sodium cooling systems. The PTRAEU also would be used to clean the Interim Decay Storage (IDS) and Fuel Storage Facility (FSF) vessels [Note: Select components in the primary sodium system, and large diameter piping and components in the secondary sodium system may be removed and cleaned in FSF or the Maintenance and Storage Facility (MASF), as described below].

Typically, penetrations into the piping/vessels would be made at appropriate locations using a low speed drill. Existing sodium heating systems would be energized, and piping/vessels heated to liquefy the existing sodium residuals. A PTRAEU would be connected to the penetration points, and used at various locations to inject the superheated steam into plant systems.

The superheated steam would be injected. Hydrogen generation would be monitored to follow the reaction. Sulfuric acid would be added to the resultant process liquid (i.e., sodium hydroxide solution) to reduce the pH to <13. This solution would be routed for offloading to tanker transport for overland transfer to Liquid Effluent Treatment Facility (LERF) and subsequent treatment at 200 Area Effluent Treatment Facility (ETF). If needed or chosen for use during these activities, the categorical NOC for sitewide use of tanker loading for wastewater could be used.

REMOVE SMALL BORE PIPE AND COMPONENTS FOR REACTION IN A CLEANING STATION
Small bore piping [<20 centimeter (8 inch) diameter], valves and other components [e.g., core component pots from IDS, fuel storage tubes from FSF, and dump heat exchangers (DHX) tube bundles] may be removed and processed in a proposed stationary cleaning station that would be located in FSF. Mechanical means (e.g., portable saws, pipe cutters) would be used to cut the pipe, valves, and components into manageable size. All heat exchanger tube bundles, which contain multiple parallel flow paths, would be dismantled to ensure effective cleaning.

The proposed FSF stationary cleaning station would consist of a chamber with removable rack for loading piping and components. The piping would be loaded at an angle, allowing the residual sodium to drain to a catch basin when heated before the injection of inert gas and/or reaction medium. The process in the cleaning station would be consistent with the in place process where the resultant waste sodium hydroxide solution is collected, the pH reduced to <13, and transported to the 200 Areas. The FSF is considered an appropriate location due to availability of sufficient floor space, existing overhead crane, available utilities, and proximity to proposed operations. If needed or chosen for use during these activities, the categorical NOC for sitewide use of tanker loading for wastewater could be used.

Cleaned piping and components would be disposed of in a Hanford Site solid waste management facility.

REMOVE LARGE COMPONENTS FOR CLEANING
The large diameter cleaning vessel (LDCV) located in the existing MASF could be used for cleaning large components following removal (e.g., primary sodium pumps, intermediate heat exchanger (IHX) tube bundles, and instrument trees). The LDCV could be retrofitted with a new super heated steam supply and associated control system for use in cleaning the aforementioned components. The IHX tube bundles, which contain multiple parallel sodium flow paths, may be dismantled to ensure effective cleaning. Small bore pipe and components also could be cleaned in MASF, if necessary.

OTHER DEACTIVATION ACTIVITIES
Other related routine, continued deactivation activities that could occur as part of the proposed action are: remove/dispose of asbestos; remove/stabilize existing hazards in conjunction with systems and equipment

deactivation associated with sodium residuals; remove/recycle/dispose excess deactivated equipment and components; and remove depleted uranium and/or lead shielding.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 5.70E-03 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	3.10E-08	Liquid/Particulate Solid	WAC 246-247-030(21)(e)
Alpha release rate based on Pu-239.			
B/G - 0	3.70E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(e)
Beta/Gamma release rate based on Cs-137.			

The radioactive isotopes identified for this emission unit are (no quantities specified):

Ba - 137 m	Co - 60	Cs - 134	Cs - 137	H - 3
Mn - 54	Na - 22	Pu - 239	Ru - 106	Zn - 65

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) Operations shall be performed in accordance with the controls specified in radiation work planning documents and/or operating procedures and shall be available for inspection upon request.

5) All activities shall be conducted under the auspices of radiological or health physics control technicians or personnel. Routine field surveys, including swipes/smears, shall be conducted. Fixatives, covers, or other standard measures shall be used, as necessary to contain contamination.

6) Appropriate spill prevention procedures shall be in place to minimize release of radioactive liquid waste to the environment, and to provide immediate cleanup of any liquid spills.

7) The total amount of sodium reacted from all emission units shall not exceed 4,000 gallons per year with no more than 2,000 gallons challenging a single emission unit.

8) Other radioisotopes may be present due to activation products, fission products, decay products, and tracer gases. These other isotopes are approved for this emission unit and will not contribute significantly to the calculated potential-to-emit.

Emission Unit ID: 398

400 Sodium Storage Facility

FFTF-402-1

This is a MINOR, ACTIVELY ventilated emission unit.

FAST FLUX TEST FACILITY COMPLEX

Emission Unit Information

Stack Height: ft. m. Stack Diameter ft. m.

Average Stack Effluent Temperature: degrees Fahrenheit. degrees Celsius.

Average Stack ExhaustVelocity: ft/second. m/second.

Abatement Technology NONE 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

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)		TOTAL ALPHA TOTAL BETA	

Sampling Requirements None

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 mission of the Sodium Storage Facility (SSF) is to receive molten sodium coolant from the Fast Flux Test Facility (FFTF) and store the sodium in a solid state for an extended period. Approximately 984,100 liters of sodium from the FFTF will be offloaded to tank storage in SSF. Unused, carbon steel sodium tanks (three 302,800 liter tanks and one 196,800 liter tank) originally built for the Clinch River Breeder Reactor Plant have been installed adjacent to the FFTF complex.

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

Project Title	Approval #	Date Approved	NOC_ID
Construction and Operation of Sodium Storage Facility	AIR 06-1007	10/5/2006	639

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 1.60E-06 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

Offloading approximately 984,100 liters of sodium from the FFTF to tank storage in the Sodium Storage Facility (SSF). Unused, carbon steel sodium tanks (three 302,800-liter tanks and one 196,800-liter tank) originally built for the Clinch River Breeder Reactor Plant shall be transported from their current location in the 300 Area and installed adjacent to the FFTF complex. Once the storage tanks are in place, a concrete building will be constructed around and over them to provide shielding and weather protection for the tanks and associated equipment. The sodium will be stored in a solid state, under an inert nitrogen or argon gas blanket.

Sodium shall be transferred to the SSF in batches from several different sodium storage/drain vessels within the FFTF. Following the transfer, the sodium shall be allowed to solidify.

Sodium transfers shall be accomplished in the following manner:

1. The receiving tank and interconnecting piping shall be preheated to between 150øC and

200øC by electric heaters.

2. When the proper temperatures have been established, the sodium shall be transferred from the supply tank to the receiving tank by establishing a differential pressure between the supply tank and receiving tank as needed to facilitate the transfer of sodium between the tanks.

The supply tank shall be pressurized using the existing FFTF argon piping. The receiving tank in the SSF will be evacuated using a vacuum pump and a high-efficiency particulate air (HEPA) type process filter connected to the tanks at the tank vent line.

3. The gas system valves shall be operated as needed to maintain the covergas differential pressure and the sodium valves opened, allowing the sodium to flow from one tank to the other. The transfers will occur in batches, with more than one cycle needed to completely fill one SSF storage tank. The inert gas displaced from the tanks during the filling evolution shall be directed out the HEPA or HEPA type filtered exhaust paths.

4. After all the transfers for a tank are complete, the inert gas system shall be used to establish the desired cover gas pressure and the tank shall be allowed to cool to ambient temperature, allowing the sodium to solidify.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 1.60E-06 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Cs - 137	1.70E-11	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Any radionuclide on the chart of nuclides could be encountered during Sodium Storage Facility loading operations. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate or gaseous form. Although any radionuclide could be present, for conservatism all beta-gamma is assumed to be Cs-137 and all alpha is assumed to be Pu-239 for dose

H - 3	4.60E-02	Gas	WAC 246-247-030(21)(a)

Any radionuclide on the chart of nuclides could be encountered during Sodium Storage Facility loading operations. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate or gaseous form. Although any radionuclide could be present, for conservatism all beta-gamma is assumed to be Cs-137 and all alpha is assumed to be Pu-239 for dose

Na - 22	3.50E-08	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Any radionuclide on the chart of nuclides could be encountered during Sodium Storage Facility loading operations. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate or gaseous form. Although any radionuclide could be present, for conservatism all beta-gamma is assumed to be Cs-137 and all alpha is assumed to be Pu-239 for dose calculation estimates. Other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta-gamma constituents.

Pu - 239	2.30E-13	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Any radionuclide on the chart of nuclides could be encountered during Sodium Storage Facility loading operations. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate or gaseous form. Although any radionuclide could be present, for conservatism all beta-gamma is assumed to be Cs-137 and all alpha is assumed to be Pu-239 for dose

The radioactive isotopes identified for this emission unit are (no quantities specified):

Cs - 137 H - 3 Na - 22 Pu - 239

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) During the periods when sodium transfers are performed, the estimated emissions from the SSF shall be calculated using the following method.

Assumptions:
The equivalent of one tank volume at standard temperature and pressure is evacuated after the initial contamination-free pump down.

If the uncontaminated receiving tank is initially evacuated, it may provide a sufficient pressure drop to complete the sodium transfer with no release of contaminated gas; however, for purposes of providing a conservative estimate of potential emissions it is assumed an entire tank volume of contaminated cover gas is released to the atmosphere.

The concentration of tritium in the primary sodium, conservatively assumed to fill three of the 302,800-liter tanks, is the same as historical concentrations of tritium in the reactor cover gas in 1992 (about 5 x 10-5 uCi/ml).

The concentration of tritium in the secondary sodium (assumed to fill the 196,800 liter tank) is equal to the historical concentration of the secondary sodium cover gas in 1992 (about 4E-6 uCi/ml). The remaining 52,996 liters of secondary sodium will go to a 302,800 liter tank.

The amount of tritium released during the fill of one tank with primary sodium would be:

(Volume of sodium transferred in liters) (103 ml/liter) (5 E-5 uCi/ml) = Amount in uCi

This shall be tracked via an approved log.

5) During the storage periods when no new sources are added to the SSF, the sodium shall be in a solid form after cooling. Radiological smear surveys of the facility and monitoring described in section 5 of the general condition in this license shall provide periodic confirmatory measurement.

Emission Unit ID: 399

400 P-437-002

437-1-61

This is a MINOR, ACTIVELY ventilated emission unit.

437 Maintenance and Storage (MASF)

Emission Unit Information

Stack Height 38.40 ft. 11.70 m. Stack Diameter 1.10 ft. 0.34 m.

Average Stack Effluent Temperature: 72 degrees Fahrenheit. 22 degrees Celsius.

Average Stack ExhaustVelocity: 18.75 ft/second. 5.72 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Prefilter	1	16 Parallel flow paths, each path provides 1 prefilter minimum of 1 in operation intermittent operation
	HEPA	1	16 Parallel flow paths, each path provides 1 prefilter minimum of 1 in operation; intermittent operation
	Fan	1	Intermittent operation

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	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 Activities at the MASF support FFTF deactivation activities, and surveillance and maintenance operations at the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Sodium Residuals Reaction/Removal and other Deactivation Work Activities at the Fast Flux Test Facility	AIR 08-1021	10/31/2008	646

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 5.70E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 activity will involve reaction of sodium residuals associated with the Fast Flux Test Facility Project systems and equipment. This activity could be conducted in place or at designated cleaning locations. Typically, the sodium residuals would be reacted with superheated steam. The primary advantages of the superheated steam process (SSP) are that it does not allow condensation to occur and component cleaning can be performed in a shorter time period. Prior to steam injection into the system to be cleaned the steam is heated to ~ 204 C (400 F). The equipment to be cleaned is heated to a minimum of 100 C (212 F) and higher if possible. Most systems will require multiple injection points. As the superheated steam reacts with the metallic

sodium, the temperature increases. The temperature is controlled such that the maximum reaction temperature is no greater than ~538 C (1,000 F).

Because of the high initial temperature and the increase of the temperature caused by the reaction, no condensation occurs. The caustic formed is a liquid at the processing temperatures and because it is denser than the liquid sodium, it settles to the bottom of any pools leaving the sodium on top where it is always exposed to the superheated steam. Due to the continued exposure of the molten sodium to the superheated steam, the reaction continues at a constant rate. Superheated steam injection is continued until hydrogen is no longer being generated. The system is then cooled and rinsed and the fluid is drained from the system.

PERFORM IN PLACE CLEANING OF VESSELS, COMPONENTS, AND LARGE BORE PIPE
A PTRAEU would be used to clean, in place, large bore sodium pipe [greater than or equal to ~20 centimeter (8 inch) diameter], components and vessels in the primary and secondary sodium cooling systems. The PTRAEU also would be used to clean the Interim Decay Storage (IDS) and Fuel Storage Facility (FSF) vessels [Note: Select components in the primary sodium system, and large diameter piping and components in the secondary sodium system may be removed and cleaned in FSF or the Maintenance and Storage Facility (MASF), as described below].

Typically, penetrations into the piping/vessels would be made at appropriate locations using a low speed drill. Existing sodium heating systems would be energized, and piping/vessels heated to liquefy the existing sodium residuals. A PTRAEU would be connected to the penetration points, and used at various locations to inject the superheated steam into plant systems.

The superheated steam would be injected. Hydrogen generation would be monitored to follow the reaction. Sulfuric acid would be added to the resultant process liquid (i.e., sodium hydroxide solution) to reduce the pH to <13. This solution would be routed for offloading to tanker transport for overland transfer to Liquid Effluent Treatment Facility (LERF) and subsequent treatment at 200 Area Effluent Treatment Facility (ETF). If needed or chosen for use during these activities, the categorical NOC for sitewide use of tanker loading for wastewater could be used.

REMOVE SMALL BORE PIPE AND COMPONENTS FOR REACTION IN A CLEANING STATION
Small bore piping [<20 centimeter (8 inch) diameter], valves and other components [e.g., core component pots from IDS, fuel storage tubes from FSF, and dump heat exchangers (DHX) tube bundles] may be removed and processed in a proposed stationary cleaning station that would be located in FSF. Mechanical means (e.g., portable saws, pipe cutters) would be used to cut the pipe, valves, and components into manageable size. All heat exchanger tube bundles, which contain multiple parallel flow paths, would be dismantled to ensure effective cleaning.

The proposed FSF stationary cleaning station would consist of a chamber with removable rack for loading piping and components. The piping would be loaded at an angle, allowing the residual sodium to drain to a catch basin when heated before the injection of inert gas and/or reaction medium. The process in the cleaning station would be consistent with the in place process where the resultant waste sodium hydroxide solution is collected, the pH reduced to <13, and transported to the 200 Areas. The FSF is considered an appropriate location due to availability of sufficient floor space, existing overhead crane, available utilities, and proximity to proposed operations. If needed or chosen for use during these activities, the categorical NOC for sitewide use of tanker loading for wastewater could be used.

Cleaned piping and components would be disposed of in a Hanford Site solid waste management facility.

REMOVE LARGE COMPONENTS FOR CLEANING
The large diameter cleaning vessel (LDCV) located in the existing MASF could be used for cleaning large components following removal (e.g., primary sodium pumps, intermediate heat exchanger (IHX) tube bundles, and instrument trees). The LDCV could be retrofitted with a new super heated steam supply and associated control system for use in cleaning the aforementioned components. The IHX tube bundles, which contain multiple parallel sodium flow paths, may be dismantled to ensure effective cleaning. Small bore pipe and

components also could be cleaned in MASF, if necessary.

OTHER DEACTIVATION ACTIVITIES
Other related routine, continued deactivation activities that could occur as part of the proposed action are: remove/dispose of asbestos; remove/stabilize existing hazards in conjunction with systems and equipment deactivation associated with sodium residuals; remove/recycle/dispose excess deactivated equipment and components; and remove depleted uranium and/or lead shielding.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 5.70E-03 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	9.00E-15	Liquid/Particulate Solid	WAC 246-247-030(21)(e)

Alpha release rate based on Pu-239.

B/G - 0	1.30E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(e)

Beta/Gamma release rate based on Cs-137.

The radioactive isotopes identified for this emission unit are (no quantities specified):

Ba - 137 m	Co - 56	Cs - 134	Cs - 137	H - 3
Mn - 52	Na - 22	Pu - 239	Ru - 106	Zn - 65

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) Operations shall be performed in accordance with the controls specified in radiation work planning documents and/or operating procedures and shall be available for inspection upon request.

5) All activities shall be conducted under the auspices of radiological or health physics control technicians or personnel. Routine field surveys, including swipes/smears, shall be conducted. Fixatives, covers, or other standard measures shall be used, as necessary to contain contamination.

6) Appropriate spill prevention procedures shall be in place to minimize release of radioactive liquid waste to the environment, and to provide immediate cleanup of any liquid spills.

7) The total amount of sodium reacted from all emission units shall not exceed 4,000 gallons per year with no more than 2,000 gallons challenging a single emission unit.

8) Other radioisotopes may be present due to activation products, fission products, decay products, and tracer gases. These other isotopes are approved for this emission unit and will not contribute significantly to the calculated potential-to-emit.

9) Emissions would be routed through the existing MASF ventilation system; for conservatism no filtration is assumed.

Emission Unit ID: 402

200E P-296B001-001

296-B-1

This is a MAJOR, ACTIVELY ventilated emission unit.

B- PLANT

Emission Unit Information

Stack Height: 90.00 ft. 27.43 m. Stack Diameter 2.67 ft. 0.81 m.

Average Stack Effluent Temperature: degrees Fahrenheit. degrees Celsius.

Average Stack ExhaustVelocity: ft/second. 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
	Prefilter	2	Two trains, one bank in each train
	HEPA	4	Two trains, 2 banks in each train
	Fan	2	Only one fan operates at a time.

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(2)	40 CFR 61, Appendix B Method 114	137Cs, 90Sr	Continuous

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 Activities at B Plant involve surveillance and maintenance operations at the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
B Plant Modification of the Ventilation System (Emission Point: 296-B-1)	AIR 06-1010	10/5/2006	645

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 4.52E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

   Operate the installed ventilation systems and conduct S&M activities.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 7.87E+01 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Am - 241	2.56E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(b)
Cs - 137	8.40E+02	Liquid/Particulate Solid	WAC 246-247-030(21)(b)
Pu - 238	3.60E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(b)

Pu - 239/240	3.84E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(b)
Sb - 125		Liquid/Particulate Solid	WAC 246-247-030(21)(b)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% fo the abated dose.			
Sr - 90	3.48E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(b)
Y - 90		Liquid/Particulate Solid	WAC 246-247-030(21)(b)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% fo the abated dose.			

The radioactive isotopes identified for this emission unit are (no quantities specified):

Am - 241	Cs - 137	Pu - 238	Pu - 239/240	Sb - 125
Sr - 90	Y - 90			

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) The new HEPA filters must be fully compatable with ANSI 509/510 standards.

Emission Unit ID: 412

300 EP-331-01-V

EP-331-01-V

This is a MAJOR, ACTIVELY ventilated emission unit.

331 LIFE SCI LAB

Emission Unit Information

Stack Height: 62.00 ft. 18.90 m. Stack Diameter 6.50 ft. 1.98 m.

Average Stack Effluent Temperature: 77 degrees Fahrenheit. 25 degrees Celsius.

Average Stack ExhaustVelocity: 31.60 ft/second. 9.63 m/second.

Abatement Technology ALARACT WAC 246-247-040(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	Third Floor labs and hoods.
	Fan	1	1 of 3 fans operating
	HEPA	1	Labs and Hoods and Glove Boxes

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(2)	40 CFR 61, Appendix B, Method 114	Each radionuclide that could contribute greater than 10 percent of the potential-to-emit TEDE	Continuous

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 This 62 foot tall stack exhausts filtered building ventilation air. Particulate emissions are sampled. The mission of the 331 Building is to conduct fundamental science and to develop environmental technology. Research activities conducted in the 331 Building support the Hanford Site environmental mission and other key DOE missions of national and international importance. Research activities performed within the 331 Building include the use of radioactive materials. Laboratory processes are conducted "continuously" (i.e., year round, during normal business, swing shift, night shift, and weekend hours). The 331 Building provides research capabilities to study the interactions of chemicals and radionuclides with plants, animals, and microorganisms and the fate of chemicals and radionuclides in the environment. The building also has research capabilities for conducting studies on the uptake and transformation effects of radioactive material and chemicals in soils, plants, animals, and microorganisms.

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

Project Title	Approval #	Date Approved	NOC_ID
Life Sciences Laboratory-1 (331 Building)	AIR 08-607	6/26/2008	712

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 6.07E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 mission of the 331 Building is to conduct fundamental science and to develop environmental technology. Research activities conducted in the 331 Building support the Hanford Site environmental mission and other key DOE missions of national and international importance. Research activities performed within the 331

Building include the use of radioactive materials. Laboratory processes are conducted "continuously" (i.e., year-round, during normal business, swing-shift, night-shift, and weekend hours). The 331 Building provides research capabilities to study the interactions of chemicals and radionuclides with plants, animals, and microorganisms and the fate of chemicals and radionuclides in the environment. The building also has research capabilities for conducting studies on the uptake and transformation effects of radioactive material and chemicals in soils, plants, animals, and microorganisms.

The inventory of radioactive material in the building can include gram quantities of fissionable materials and up to curie quantities of other radionuclides. The laboratory activities conducted in the 331 Building include:
·Experimental studies with molecular and cellular processes.
·Studies to determine precise cross-species and low-dose extrapolation of health risks and to understand disease mechanisms.
·Basic and applied research concerning microorganisms and/or their processes in various environments.
·Subsurface microbiology including the physiology and ecology of subsurface microorganisms, degradation of organic contaminants and bioremediation, enzymatic reductions of metals, and biogeochemical cycling of nutrients.
·Studies investigating macromolecular structure and dynamics and consequences of observables on molecular function.
·Development of instrumentation and analytical methods.
·Development of comprehensive environmental monitoring programs.
·Development of advanced scientific and technological solutions for long-term stewardship of waste sites.
·Waste management activities including satellite accumulation areas and <90 day storage areas.
·Characterizing and monitoring aquatic and terrestrial ecosystems including the development and monitoring of new technologies and methods.
·Studies of impacts of water use practices on fisheries and wildlife and the response of the ecosystems to engineered structures and natural and man-induced stresses.
·Activities involving nuclear process engineering, radiomaterials characterization, and radiochemical separations and processing.
·Studies of the health effects of chemical and radiation exposure on animals (rodents) and in cells grown in culture.
·Examining the uptake and transformation effects of radionuclides in soils, plants, animals and microorganisms.
·Studies with radioactive tracer materials in biological and non-biologic systems.
·Research to promote the understanding of the chemical, biological, and biogeochemical processes that govern the mobility, transportation, and degradation of a range of inorganic, radionuclide, and organic contaminants in soils, sediments, and ground water systems.
·Measurements of exposures to physical, radiological, and chemical agents.
·Developing technology for the separation, purification, production, and delivery of radioisotopes (e.g., for medical purposes, and standards development).
·Research and laboratory activities that may include processes where the temperature may be equal to or exceed 100°C.
·Research activities involving mixed activation products (MAP) and mixed fission products (MFP).
·Laboratory setup projects involving fume hood removals/upgrades and ductwork tie-in.
· Microscopic and spectroscopic characterization of the mass transfer of radioactive material in soils and sediments under the influence of biogeochemical reactions.
· Investigate the sorption and desorption processes of radioactive material in soils and sediments.
· Develop models to predict the geochemical retardation of radioactive material in sediments.
· Activities involving corrosion and stress-corrosion cracking studies of irradiated specimens of metals and other materials.
·Studies investigating structural properties, such as tensile and compression strengths, of irradiated materials.
·Activities involving corrosion and stress-corrosion studies of autoclaved materials.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 3.69E+00 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Ac - 225		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Ac - 227		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Ac - 228		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ag - 108		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ag - 108 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ag - 109 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Ag - 110		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Ag - 110 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Ag - 111		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Al - 26		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Al - 28		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Am - 241		Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Alpha emitting representative for activities where the temperature may exceed 100 degrees C.

Am - 241		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Curie inventory includes alpha emitting MAP and MFP not otherwise listed.

Am - 242		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Am - 242 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Am - 243	3.50E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Am - 245		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ar - 37		Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ar - 39		Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ar - 41		Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ar - 42		Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

As - 74	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

As - 76	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

At - 217	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Au - 195	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Au - 198	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ba - 131	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ba - 133	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ba - 133 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ba - 137 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ba - 139	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ba - 140	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ba - 141	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ba - 142	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Be - 10	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Be - 7	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Bi - 207	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Bi - 210	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Bi - 211	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Bi - 212	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Bi - 213	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Bi - 214	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Bk - 249	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Bk - 250	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Br - 82	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Br - 82 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Br - 83	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Br - 84	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Br - 84 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Br - 85	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

C - 11	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

C - 14	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

C - 14	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

C - 15	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ca - 41	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ca - 45	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ca - 47	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Cd - 109	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Cd - 113	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cd - 113 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cd - 115	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cd - 115 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ce - 139	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ce - 141	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ce - 142	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ce - 143	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ce - 144	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cf - 249	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Am-241 unit dose factor used as a worst case assumption.

Cf - 250	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Am-241 unit dose factor used as a worst case assumption.

Cf - 251	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Am-241 unit dose factor used as a worst case assumption.

Cf - 252	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cl - 36	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Cm - 241	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Am-241 unit dose factor used as a worst case assumption.

Cm - 242	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cm - 243	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cm - 244	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cm - 245	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cm - 246	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cm - 247	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cm - 248	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Co - 56	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Co - 57	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Co - 58	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Co - 60	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cr - 51	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cr - 55	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Cs - 131	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Cs - 132	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Cs - 134	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cs - 134 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cs - 135	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cs - 136	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cs - 137	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Beta emitting representative for activities where the temperature may exceed 100 degree C.

Cs - 137	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Curie inventory includes beta/gamma emitting MAP and MFP not otherwise listed.

Cs - 138	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cs - 139	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Cu - 64	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Es - 254	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Am-241 unit dose factor used as a worst case assumption.

Eu - 150	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Eu - 152	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Eu - 152 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Eu - 154	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Eu - 155	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Eu - 156	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Eu - 157	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

F - 18	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Fe - 55	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Fe - 59	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Fr - 221	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Fr - 223	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ga - 67	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ga - 72	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Gd - 148	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Am-241 unit dose factor used as a worst case assumption.

Gd - 149	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Gd - 151	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Gd - 152	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Gd - 153	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ge - 68	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

H - 3	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

H - 3	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Hf - 175	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Hf - 178	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Hf - 178 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Hf - 181	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Hf - 182	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Hg - 203	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ho - 166	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ho - 166 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

I - 122	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

I - 123	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

I - 125	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

I - 129	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

I - 130	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

I - 130 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

I - 131	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

I - 131	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

I - 132	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

I - 132 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

I - 133	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

I - 133 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

I - 134	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

I - 134 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

I - 135	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

In - 106	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

In - 113 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

In - 114	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

In - 114 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

In - 115	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

In - 115 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ir - 192	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

K - 40	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

K - 42	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Kr - 81	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Kr - 81 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Kr - 83 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Kr - 85	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Kr - 85 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Kr - 87	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Kr - 88	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Kr - 89	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Kr - 90	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

La - 138	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

La - 140	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

La - 141	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

La - 142	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Lu - 177	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Mg - 27	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Mn - 52	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Mn - 54	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Mn - 56	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Mo - 93	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Mo - 99	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

N - 13	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Na - 22	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Na - 24	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Nb - 91	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Nb - 91 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Nb - 92	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Nb - 93 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Nb - 94	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Nb - 95	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Nb - 95 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Nb - 97	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Nb - 97 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Nd - 144	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Am-241 unit dose factor used as a worst case assumption.

Nd - 147	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ni - 56	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ni - 59	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ni - 63	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ni - 65		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Np - 235		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Np - 236		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Np - 237	1.20E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Np - 238		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Np - 239		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Np - 240		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Np - 240 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

O - 15		Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Os - 191		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

P - 32		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

P - 33		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Pa - 231		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pa - 233		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pa - 234		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pa - 234 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pb - 209		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pb - 210		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pb - 211		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pb - 212		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pb - 214		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pd - 107	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pd - 109	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pm - 145	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Pm - 146	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Pm - 147	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pm - 148	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pm - 148 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pm - 149	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pm - 151	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Po - 208	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Am-241 unit dose factor used as a worst case assumption.

Po - 209	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Am-241 unit dose factor used as a worst case assumption.

Po - 210	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Po - 211	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Po - 212	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Po - 213	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Po - 214	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Po - 215	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Po - 216	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Po - 218	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pr - 143	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pr - 144	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pr - 144 m		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pu - 234		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Pu - 236		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pu - 237		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Pu - 238	4.10E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pu - 239	7.10E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pu - 240	4.30E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pu - 241		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pu - 242		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pu - 243		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Pu - 244		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ra - 223		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ra - 224		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ra - 225		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ra - 226		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ra - 228		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Rb - 83		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Rb - 84		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Rb - 86		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Rb - 87		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Rb - 88		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Rb - 89	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Rb - 90	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Rb - 90 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Re - 186	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Re - 187	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Re - 188	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Rh - 102	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Rh - 103 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Rh - 105	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Rh - 105 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Rh - 106	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Rn - 219	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Rn - 220	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Rn - 222	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Rn - 224	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ru - 103	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ru - 105	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ru - 106	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ru - 97	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

S - 35	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sb - 122	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Sb - 124	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sb - 125	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sb - 126	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sb - 126 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sb - 127	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sc - 46	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sc - 47	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Se - 75	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Se - 79	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Se - 79 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Si - 31	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Sm - 145	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Sm - 146	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Am-241 unit dose factor used as a worst case assumption.

Sm - 147	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sm - 151	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sm - 153	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sm - 157	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Sn - 113	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sn - 117 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Sn - 119 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Sn - 121	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Sn - 121 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Sn - 123	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sn - 125	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sn - 126	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sr - 85	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Sr - 87 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Sr - 89	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sr - 90	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sr - 91	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Sr - 92	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ta - 179	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ta - 182	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ta - 183	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Tb - 160	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Tc - 101	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Tc - 95 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Tc - 97	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Tc - 97 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Tc - 98	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Tc - 99	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Tc - 99 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Te - 121	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Te - 121 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Te - 123	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Te - 123 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Te - 125 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Te - 127	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Te - 127 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Te - 129	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Te - 129 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Te - 131	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Te - 131 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Te - 132	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Te - 133	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Te - 133 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Te - 134	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Th - 227	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Th - 228	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Th - 229	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Th - 230	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Th - 231	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Th - 232	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Th - 233	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Th - 234	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Ti - 44	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Ti - 51	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Tl - 204	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Tl - 206	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Tl - 207	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Tl - 208	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Tl - 209	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Tm - 170	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Tm - 171	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

U - 232	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

U - 233	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

U - 234	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

U - 235	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

U - 236	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

U - 237	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

U - 238	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

U - 239	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

U - 240	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

V - 48	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

V - 49	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

W - 181	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

W - 185	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

W - 187	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

W - 188	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Xe - 122	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Xe - 123	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Xe - 125	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Xe - 127	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Xe - 127 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Xe - 129 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Xe - 131 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Xe - 133 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Xe - 133	Gas	

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Xe - 135	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Xe - 135 m	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Xe - 137	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Xe - 138	Gas	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Y - 88	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Y - 90	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Y - 90 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Y - 91	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Y - 91 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Y - 92	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Y - 93	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Yb - 164	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Yb - 169	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Yb - 175	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Yb - 177	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Zn - 65	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Zn - 69	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Zn - 69 m	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Zr - 88	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Zr - 89	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

Zr - 93	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Zr - 95	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose.

Zr - 97	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and Represents less than 25% of the abated dose. Cs-137 unit dose factor used as a worst case assumption.

The radioactive isotopes identified for this emission unit are (no quantities specified):

Ac - 225	Ac - 227	Ac - 228	Ag - 108 m	Ag - 108
Ag - 109 m	Ag - 110 m	Ag - 110	Ag - 111	Al - 26
Al - 28	Am - 241	Am - 242 m	Am - 242	Am - 243
Am - 245	Ar - 37	Ar - 39	Ar - 41	Ar - 42
As - 74	As - 76	At - 217	Au - 195	Au - 198
Ba - 131	Ba - 133	Ba - 133 m	Ba - 137 m	Ba - 139
Ba - 140	Ba - 141	Ba - 142	Be - 10	Be - 7
Bi - 207	Bi - 210	Bi - 211	Bi - 212	Bi - 213

Bi - 214	Bk - 249	Bk - 250	Br - 82	Br - 82 m
Br - 83	Br - 84	Br - 84 m	Br - 85	C - 11
C - 14	C - 15	Ca - 41	Ca - 45	Ca - 47
Cd - 109	Cd - 113 m	Cd - 113	Cd - 115 m	Cd - 115
Ce - 139	Ce - 141	Ce - 142	Ce - 143	Ce - 144
Cf - 249	Cf - 250	Cf - 251	Cf - 252	Cl - 36
Cm - 241	Cm - 242	Cm - 243	Cm - 244	Cm - 245
Cm - 246	Cm - 247	Cm - 248	Co - 56	Co - 57
Co - 58	Co - 60	Cr - 51	Cr - 55	Cs - 131
Cs - 132	Cs - 134	Cs - 134 m	Cs - 135	Cs - 136
Cs - 137	Cs - 138	Cs - 139	Cu - 64	Es - 254
Eu - 150	Eu - 152	Eu - 152 m	Eu - 154	Eu - 155
Eu - 156	Eu - 157	F - 18	Fe - 55	Fe - 59
Fr - 221	Fr - 223	Ga - 67	Ga - 72	Gd - 148
Gd - 149	Gd - 151	Gd - 152	Gd - 153	Ge - 68
H - 3	Hf - 175	Hf - 178	Hf - 178 m	Hf - 181
Hf - 182	Hg - 203	Ho - 166	Ho - 166 m	I - 122
I - 123	I - 125	I - 129	I - 130	I - 130 m
I - 131	I - 132	I - 132 m	I - 133	I - 133 m
I - 134	I - 134 m	I - 135	In - 106	In - 113 m
In - 114 m	In - 114	In - 115	In - 115 m	Ir - 192
K - 40	K - 42	Kr - 81	Kr - 81 m	Kr - 83 m
Kr - 85	Kr - 85 m	Kr - 87	Kr - 88	Kr - 89
Kr - 90	La - 138	La - 140	La - 141	La - 142
Lu - 177	Mg - 27	Mn - 52	Mn - 54	Mn - 56
Mo - 93	Mo - 99	N - 13	Na - 22	Na - 24
Nb - 91	Nb - 91 m	Nb - 92	Nb - 93 m	Nb - 94
Nb - 95	Nb - 95 m	Nb - 97	Nb - 97 m	Nd - 144
Nd - 147	Ni - 56	Ni - 59	Ni - 63	Ni - 65
Np - 235	Np - 236	Np - 237	Np - 238	Np - 239
Np - 240	Np - 240 m	O - 15	Os - 191	P - 32
P - 33	Pa - 231	Pa - 233	Pa - 234	Pa - 234 m
Pb - 209	Pb - 210	Pb - 211	Pb - 212	Pb - 214
Pd - 107	Pd - 109	Pm - 145	Pm - 146	Pm - 147
Pm - 148 m	Pm - 148	Pm - 149	Pm - 151	Po - 208
Po - 209	Po - 210	Po - 211	Po - 212	Po - 213
Po - 214	Po - 215	Po - 216	Po - 218	Pr - 143
Pr - 144	Pr - 144 m	Pu - 234	Pu - 236	Pu - 237
Pu - 238	Pu - 239	Pu - 240	Pu - 241	Pu - 242
Pu - 243	Pu - 244	Ra - 223	Ra - 224	Ra - 225
Ra - 226	Ra - 228	Rb - 83	Rb - 84	Rb - 86

Rb - 87	Rb - 88	Rb - 89	Rb - 90	Rb - 90 m
Re - 186	Re - 187	Re - 188	Rh - 102	Rh - 103 m
Rh - 105	Rh - 105 m	Rh - 106	Rn - 219	Rn - 220
Rn - 222	Rn - 224	Ru - 103	Ru - 105	Ru - 106
Ru - 97	S - 35	Sb - 122	Sb - 124	Sb - 125
Sb - 126	Sb - 126 m	Sb - 127	Sc - 46	Sc - 47
Se - 75	Se - 79	Se - 79 m	Si - 31	Sm - 145
Sm - 146	Sm - 147	Sm - 151	Sm - 153	Sm - 157
Sn - 113	Sn - 117 m	Sn - 119 m	Sn - 121 m	Sn - 121
Sn - 123	Sn - 125	Sn - 126	Sr - 85	Sr - 87 m
Sr - 89	Sr - 90	Sr - 91	Sr - 92	Ta - 179
Ta - 182	Ta - 183	Tb - 160	Tc - 101	Tc - 95 m
Tc - 97	Tc - 97 m	Tc - 98	Tc - 99	Tc - 99 m
Te - 121 m	Te - 121	Te - 123	Te - 123 m	Te - 125 m
Te - 127 m	Te - 127	Te - 129 m	Te - 129	Te - 131
Te - 131 m	Te - 132	Te - 133	Te - 133 m	Te - 134
Th - 227	Th - 228	Th - 229	Th - 230	Th - 231
Th - 232	Th - 233	Th - 234	Ti - 44	Ti - 51
Tl - 204	Tl - 206	Tl - 207	Tl - 208	Tl - 209
Tm - 170	Tm - 171	U - 232	U - 233	U - 234
U - 235	U - 236	U - 237	U - 238	U - 239
U - 240	V - 48	V - 49	W - 181	W - 185
W - 187	W - 188	Xe - 122	Xe - 123	Xe - 125
Xe - 127	Xe - 127 m	Xe - 129 m	Xe - 131 m	Xe - 133
Xe - 133 m	Xe - 135	Xe - 135 m	Xe - 137	Xe - 138
Y - 88	Y - 90	Y - 90 m	Y - 91	Y - 91 m
Y - 92	Y - 93	Yb - 164	Yb - 169	Yb - 175
Yb - 177	Zn - 65	Zn - 69	Zn - 69 m	Zr - 88
Zr - 89	Zr - 93	Zr - 95	Zr - 97	

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) To account for all the radioisotopes that may be affected by a process in which the temperature may be equal to or exceed 100 degrees Celsius, a release factor of one is applied to a gaseous form of Am-241 and Cs-137.

5) Total design flow through each HEPA filter bank shall not exceed the maximum rated flow rate for the individual HEPA filters multiplied by the number of filters. This does not limit the design flow rate of the stack, just that of the filters.

Emission Unit ID: 422

300 P-340DECON-001

340 Decon

This is a MINOR, ACTIVELY ventilated emission unit.

340 BUILDING

Emission Unit Information

Stack Height: 27.00 ft. 8.23 m. Stack Diameter 2.50 ft. 0.76 m.

Average Stack Effluent Temperature: 68 degrees Fahrenheit. 20 degrees Celsius.

Average Stack ExhaustVelocity: ft/second. m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Prefilter	1	3 in parallel, Change Room doesn't pass through prefilter
	HEPA	2	In series, both HEPA filters are tested as a single unit
	Fan	1	
	Moisture separator	1	Serves the decon sump

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	4 weeks/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 Activities at the 340 Building support surveillance and maintenance deactivation operations at the Hanford Site. This 27 foot tall stack exhausts filtered air from the 340 Building Decontamination Room. Within the 340 Complex is the 340 A Building, which contains six aboveground tanks that had been used to store temporarily liquid mixed waste. Those tanks have been flushed and are currently empty. The 340 B Building was used for the railcar loadout of liquid mixed waste, and was shut down in 1998. The 340 B Building is currently used to store nonradioactive and radioactive solid waste. The 340 Vault houses two tanks, which have been emptied to the maximum extent practical. Operations within the vaults have permanently ceased.

Emission Unit ID: 423

300 P-340NTEX-001

340-NT-EX

This is a MINOR, ACTIVELY ventilated emission unit.

340 BUILDING

Emission Unit Information

Stack Height: 18.00 ft. 5.49 m. Stack Diameter 1.60 ft. 0.49 m.

Average Stack Effluent Temperature: 68 degrees Fahrenheit. 20 degrees Celsius.

Average Stack ExhaustVelocity: 16.60 ft/second. 5.06 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Prefilter	1	3 parallel flow paths, (Minimum of 2 active flow paths providing 1 stage prefiltration and 2 stages HEPA filtration)
	HEPA	2	In series. 3 parallel flow paths, (Minimum of 2 active flow paths providing 1 stage prefiltration and 2 stages HEPA filtration)
	Fan	2	In parallel, (only one fan operates at a time, one is a backup)
	Moisture separator	1	Serves the vessel off-gas portion of the treatment system

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)	Actions to assure quality of periodic confirmatory measurement as described in section 4.0 of the Standard Conditions.	Total Alpha and Total Beta.	The sample requirements is to take 4 one week duration samples each year (utilizing the stack record sampling system).

Sampling Requirements Record Sampling

Additional Requirements

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

Operational Status Activities at the 340 A Building support surveillance and maintenance deactivation operations at the Hanford Site. This 20 foot tall stack exhausts filtered air from the 340 Building vault, the 340 Building vault tanks, the 340 A Building aboveground storage tanks, and the associated piping system. Particulate emissions are sampled. The 340 NT EX Emission unit is in surveillance and maintenance mode for ongoing current activities. These include activities like entries into the vault area to calibrate equipment in the sump, perform inspections currently required by Ecology, or corrective maintenance to remove precipitation, which might accumulate via leakage through the vault roof or doorways. Maintenance and surveillance activities do not increase the potential to emit.

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

Project Title	Approval #	Date Approved	NOC_ID
Operation of the 340 Waste Storage	AIR 06-1058	10/5/2006	704

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 4.00E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 340-NT-EX Emission unit is in surveillance and maintenance mode for ongoing current activities. These include activities like entries into the vault area to calibrate equipment in the sump, perform inspections currently required by Ecology, or corrective maintenance to remove precipitation which might accumulate via leakage through the vault roof or doorways.

Per the approved release fraction calculation based on effluent stream samples collected upstream of all abatement controls, no activities may be performed upstream of the abatement controls. The only activities allowed are maintenance and surveillance that will not disturb the source term and will not increase the potential-to-emit.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 4.00E-03 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	2.90E-06	Liquid/Particulate Solid	WAC 246-247-030(21)(d)
Alpha release rate based on Am-241. See condition 24 for approval of alternative release fraction and basis.			
Am - 241	1.90E-06	Liquid/Particulate Solid	WAC 246-247-030(21)(d)
See condition 24 for approval of alternative release fraction and basis.			
B/G - 0	2.50E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(d)
Beta/Gamma release rate based on Sr-90. See condition 24 for approval of alternative release fraction and basis.			
Co - 57		Liquid/Particulate Solid	WAC 246-247-030(21)(d)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Co - 60	4.40E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(d)
See condition 24 for approval of alternative release fraction and basis.			
Cs - 134		Liquid/Particulate Solid	WAC 246-247-030(21)(d)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Cs - 137	1.30E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(d)
See condition 24 for approval of alternative release fraction and basis.			
Eu - 152		Liquid/Particulate Solid	WAC 246-247-030(21)(d)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Eu - 154		Liquid/Particulate Solid	WAC 246-247-030(21)(d)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Eu - 155		Liquid/Particulate Solid	WAC 246-247-030(21)(d)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			
Sb - 125		Liquid/Particulate Solid	WAC 246-247-030(21)(d)
Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.			

The radioactive isotopes identified for this emission unit are (no quantities specified):

Am - 241	Co - 57	Co - 60	Cs - 134	Cs - 137
Eu - 152	Eu - 154	Eu - 155	Sb - 125	

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) The current abatement controls must be maintained and be operational until the source term is removed or as approved by the department.

5) The department approves the release fractions as demonstrated by the upstream air sampling and doses calculated and reported via letter 03-RCA-0231, dated May 8, 2003. The basis of this approval is the assurance that any increase in potential-to-emit will be determined prior to commencement of any source term disturbing activity. This determination shall be maintained as part of the air emissions record and will be available for inspection upon request.

Emission Unit ID: 435

200E P-296H212 001

296-H-212 (CSB)

This is a MAJOR, ACTIVELY ventilated emission unit.

CANISTER STORAGE BLDG (CSB)

Emission Unit Information

Stack Height: 75.00 ft. 22.86 m. Stack Diameter 2.30 ft. 0.70 m.

Average Stack Effluent Temperature: degrees Fahrenheit. degrees Celsius.

Average Stack ExhaustVelocity: 34.50 ft/second. 10.52 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	2	double stage, operates in parallel, one HEPA at a time and one in backup mode
	Fan	2	operates in parallel, one fan at a time and one in backup mode

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(2)	40 CFR 61, Appendix B, Method 114	Each radionuclide that could contribute greater than 10 percent of the potential-to-emit TEDE	Continuous

Sampling Requirements The record filter is replaced monthly and analyzed quarterly (either destructive or non-destructive technique) using a gamma spectrometer calibrated to Cs-137.

Additional Requirements

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

Operational Status Activities at CSB involve surveillance and maintenance operations for the safe storage of radioactive containers holding SNF at the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Canister Storage Building, Building 212-H	AIR 09-106	1/26/2009	652

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 1.64E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 use of the Canister Storage Building (CSB) for storage of spent nuclear fuel (SNF). The CSB shall consist of load-in/load-out areas, mechanical and electrical support areas, a multi-canister overpack (MCO) weld/sample station, and a subgrade vault storage area. The SNF shall be received in MCOs that shall be shipped in a cask.

The subgrade reinforced concrete vault area shall accommodate three equal-sized, below grade compartments with each compartment cooled by natural convection and having separate air inlet and exhaust plenums. Because there is physical separation from the SNF source term to the air space in this below grade vault, there is no control technology or emission monitoring of the exhaust from this area. The physical separation shall

consist of the following barriers: MCO and storage tube.

Over the vault shall be a structural steel and metal sided building with heating and ventilation systems, and a material handling machine for use in the handling and movement of MCOs. The air space above the operating deck shall be at a negative pressure with respect to atmosphere during all MCO handling, storage, and monitoring operations. The exhaust from this portion of the building ventilation system shall be filtered by testable high-efficiency particulate air (HEPA) filters and sampled before exhausting through a separate building operating area stack. An operating deck shall separate the subgrade vault from the above grade level working area.

A continuous air emission monitoring system (CAEMS) shall be installed in the process exhaust stack.

There shall be no more than 226 penetration holes in the operating deck in each of the three compartments in the vaulted area. MCOs containing the SNF shall be stored in the 226 vertical steel storage tubes in the north vault (also know as vault 1). Vaults 2 and 3 shall be used for the storage of sealed/immobilized high-level waste.

The steel storage tubes shall prevent migration of radiological contamination and shall be inserted through existing penetrations and extend from the operating deck to the floor of the vault. Access to the interior of the tubes shall be through penetrations in the operating deck. Each tube shall contain no more than two MCOs and be equipped with a shield plug that shall be vented to the operating deck but which can also be isolated.

The function of the MCO shall be to confine, contain, and maintain the SNF in a critically safe array to ensure safe operations and to support processing the 105 K Basins SNF at the Cold Vacuum Drying Facility, processing the Shippingport PWR SNF at the T Plant, and transport to the CSB.

A cover cap shall be welded on top of the MCO covering the MCO shield plug. This shall be performed at the sample and weld station located in the CSB, thus hermetically sealing the SNF contained in the MCO.

The sampling and weld station shall be located at the south end of the CSB operating area. This area shall consist of seven process pits, four feet in diameter and 19 feet 8 inches deep. Two of the pits shall be equipped for MCO gas sampling and for welding the cover caps on the MCOs. Weld inspection and helium leak checking of the seal weld shall also be accomplished here.

An exhaust enclosure shall be provided for confinement around the top of the MCO during sampling and welding. The function of the enclosure shall be to capture any potential airborne contamination. Airflow shall be into the enclosure. An exhaust duct shall run from the enclosure to a fan and through a testable HEPA filter that shall exhaust into the building ventilation exhaust system for the CSB operating area upstream of the building exhaust testable HEPA filters.

The tube vent and purge cart will house the storage tube purge system, which shall monitor and maintain an inert gas environment around any MCO placed in the overpack storage tubes and to monitor the atmosphere in any of the other storage tubes as required. The vent and purge cart may be driven to any of the 226 storage tubes.

The vent and purge cart equipment shall include inert gas supply cylinders, flexible steel hoses, an airtight sampling connection, a radioactive gas monitor, a hydrogen gas monitor and associated interlocks and alarms, a vacuum pump and its cooling unit, a HEPA filter, and an oxygen monitor and associated alarms.

The heating, ventilation, and air conditioning (HVAC) system shall provide contamination confinement and contamination control within the CSB. The HVAC system shall provide a controlled pressure gradient flow of air from outside the CSB inward through uncontaminated areas to potentially contaminated areas of the building and out through HEPA filters and a monitored exhaust.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 3.64E+01 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Ag - 110	1.42E-09	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ag - 110 m	1.07E-07	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Am - 241	1.87E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Am - 242	9.74E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Am - 242 m	9.79E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Am - 243	6.00E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ba - 137 m	6.25E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
C - 14	8.66E-01	gas	WAC 246-247-030(21)(a)
C - 14	6.90E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cd - 113 m	1.77E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ce - 144	4.57E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cm - 242	8.09E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cm - 244	7.19E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Co - 60	1.98E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cs - 134	7.94E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cs - 135	3.87E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cs - 137	6.59E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Eu - 152	4.72E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Eu - 154	5.35E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Eu - 155	1.10E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Fe - 55	1.83E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Gd - 153	6.39E-10	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
H - 3	3.65E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
H - 3	4.58E+01	gas	WAC 246-247-030(21)(a)
I - 129	6.34E-06	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
I - 129	7.96E-03	gas	WAC 246-247-030(21)(a)
In - 113 m	1.07E-12	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Kr - 85	7.38E+02	gas	WAC 246-247-030(21)(a)
Kr - 85	5.88E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Nb - 93 m	1.23E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Nb - 95	1.87E-17	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Nb - 95 m	6.25E-20	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ni - 59	2.05E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ni - 63	2.24E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Np - 237	2.86E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pd - 107	8.14E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pm - 147	2.31E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pr - 144	4.51E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pr - 144 m	5.50E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 238	5.55E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 239	1.09E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 240	5.95E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 241	3.34E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 242	2.74E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Rh - 106	9.09E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ru - 106	9.09E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sb - 124	1.51E-23	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sb - 125	1.67E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sb - 126	1.09E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sb - 126 m	7.79E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Se - 79	4.31E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sm - 151	8.79E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sn - 113	1.07E-12	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sn - 119 m	1.48E-06	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Sn - 121 m	3.98E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sn - 123	8.69E-11	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sn - 126	7.79E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sr - 90	5.05E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Tb - 160	1.38E-20	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Tc - 99	1.44E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Te - 123 m	1.38E-16	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Te - 125 m	4.09E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Te - 127	4.74E-12	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Te - 127 m	4.84E-12	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 234	4.37E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 235	1.68E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 236	6.34E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 238	3.48E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Y - 90	5.05E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Y - 91	1.11E-19	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Zr - 93	2.00E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Zr - 95	8.44E-18	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

The radioactive isotopes identified for this emission unit are (no quantities specified):

Ag - 110 m	Ag - 110	Am - 241	Am - 242 m	Am - 242
Am - 243	Ba - 137 m	C - 14	Cd - 113 m	Ce - 144
Cm - 242	Cm - 244	Co - 60	Cs - 134	Cs - 135
Cs - 137	Eu - 152	Eu - 154	Eu - 155	Fe - 55
Gd - 153	H - 3	I - 129	In - 113 m	Kr - 85
Nb - 93 m	Nb - 95	Nb - 95 m	Ni - 59	Ni - 63
Np - 237	Pd - 107	Pm - 147	Pr - 144	Pr - 144 m
Pu - 238	Pu - 239	Pu - 240	Pu - 241	Pu - 242
Rh - 106	Ru - 106	Sb - 124	Sb - 125	Sb - 126
Sb - 126 m	Se - 79	Sm - 151	Sn - 113	Sn - 119 m
Sn - 121 m	Sn - 123	Sn - 126	Sr - 90	Tb - 160
Tc - 99	Te - 123 m	Te - 125 m	Te - 127 m	Te - 127
U - 234	U - 235	U - 236	U - 238	Y - 90

Y - 91 Zr - 93 Zr - 95

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) Continuous monitoring must be in place prior to operating. This will include continuous ambient air sampling for this project. The ambient air monitors shall be checked for operability at least once per week, and if an ambient air monitor is found not operating, the ambient air monitor shall be returned to service within seven working days from when it was found not operating. Notification to DOH per (WAC 246-247-080(5)) is required when an ambient air monitor is shut down for more than seven consecutive working days from time of discovery. At that time, i.e. when the ambient air monitor is shut down for more than seven consecutive days from time of discovery, operations involving the handling of spent nuclear fuel shall be suspended until the ambient air monitor is returned to service.

5) The differential pressure shall be monitored and recorded daily during operational rounds to determine impacts due to moisture. If the differential pressures are outside of the designed operating range, the cause will be determined and the department will be notified within 24 hours.

6) The process for validating the process parameters with respect to storing the MCOs in a sealed configuration is approved, however, the total number of representative samples was not given to us. By telephone, it was indicated that the total number of MCOs tested should not exceed twelve. Twelve is the limit, unless a more specific number is negotiated with the department.

7) Total system flow shall not exceed 9,000 CFM (allowing for the tolerances of the measuring devices).

8) Ventilation systems used to control the release of particulate airborne radiological contamination from individual processes must include:

1. MHM cask extract ventilation and HEPA exhaust system.
2. Sampling/weld station ventilation and HEPA exhaust system.
3. Overpack storage tube purge system.
4. Temporary containment enclosure with HEPA exhaust system for contamination control.
5. The building HEPA filters are still required.
6. All controls must be ANSI N509/510 compliant

Emission Unit ID: 436

100K P-296K142 001

296-K-142

This is a MAJOR, ACTIVELY ventilated emission unit.

COLD VACUUM DRY FACILITY (CVD)

Emission Unit Information

Stack Height: 48.00 ft. 14.63 m. Stack Diameter 2.50 ft. 0.76 m.

Average Stack Effluent Temperature: degrees Fahrenheit. degrees Celsius.

Average Stack ExhaustVelocity: 54.90 ft/second. 16.73 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
Process Bay Local Exhaust	Isolation Damper	2	
Process Bay Local Exhaust	Backdraft Damper	2	
Process Bay Recerculation	HEPA	4	
Process Bay Recerculation	Fan	4	
Process Bay General Exhaust	HEPA	1	Two Stage HEPA.
Process Bay General Exhaust	Prefilter	1	
Process Bay General Exhaust	Backdraft Damper	2	
Process Bay General Exhaust	Isolation Damper	2	
Process Bay General Exhaust	Fan	2	
Process Bay Local Exhaust	HEPA	1	Two stage HEPA.
Process Bay Local Exhaust	Fan	2	

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(2)	40 CFR 61, Appendix B, Method 114	Each radionuclide that could contribute greater than 10 percent of the potential-to-emit TEDE	Monthly Sample

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 Activities at the CVDF building involve operations in support of irradiated fuel management at the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Construction and Operation of the Cold Vacuum Drying Facility (CVDF)	AIR 06-1009	10/5/2006	643

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 4.95E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 CVDF located to the west of the K Basins in the 100 K Area of the Hanford Site. The CVDF is limited to the following three adjoining radiological areas: the process bay area, the process support area, and the process water tank room. The process bay area shall contain four process bays and one bay used to off load water. Immediately adjacent and contiguous to the process bay area is the process support area, a steel-framed, two-story metal building that encloses the traffic corridor, process bay support rooms, and the second floor mechanical equipment room. Immediately adjacent to the process bay area on the north side is a single-story concrete and structural steel building that encloses the process water tank room.

Each operational process bay shall contain a process equipment skid, a safety-class helium system, a process hood, and a process bay recirculation heating, ventilation, and air conditioning (HVAC) system. Each process equipment skid shall contain a vacuum and purge system and a tempered water (annulus) system.

The CVDF interfaces with the 100 K Area, Hanford Site infrastructure services, and the Canister Storage Basin (CSB). The CVDF operation interfaces with K Basins operations by receiving cask- MCO packages for processing. Water removed from the MCO and water used for system flushes shall be cleaned and transported by tanker truck for appropriate dispositioning. The CVDF also interfaces with the CSB operation when the cask-MCO packages are shipped to the CSB after the cold vacuum drying process has been completed.

The stack sample line shall be reconfigured in a manner to facilitate inspections and testing as required by ANSI N13.1-1999 (i.e. removable spool piece(s) and tees for installation of pressure gauges). During reconfiguration, there will be no stack sampling and no MCO processing within the facility.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 1.27E+01 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Ag - 110	2.57E-10	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ag - 110 m	1.94E-08	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Am - 241	3.39E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Am - 242	1.76E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Am - 242 m	1.77E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Am - 243	1.09E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ba - 137 m	1.13E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
C - 14	1.35E-01	gas	WAC 246-247-030(21)(a)
C - 14	3.46E-04	solid	WAC 246-247-030(21)(a)
Cd - 113 m	3.21E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cd - 115 m	0.00E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Ce - 141	0.00E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ce - 144	8.27E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cm - 242	1.47E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cm - 244	1.30E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Co - 60	3.58E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cs - 134	1.44E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cs - 135	7.01E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cs - 137	1.19E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Eu - 152	8.55E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Eu - 154	9.68E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Eu - 155	2.00E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Fe - 55	1.66E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Gd - 153	1.16E-10	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
H - 3	7.13E+00	gas	WAC 246-247-030(21)(a)
H - 3	1.83E-02	solid	WAC 246-247-030(21)(a)
I - 129	1.24E-03	gas	WAC 246-247-030(21)(a)
I - 129	3.18E-06	solid	WAC 246-247-030(21)(a)
In - 113 m	1.94E-13	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Kr - 85	1.15E+02	gas	WAC 246-247-030(21)(a)
Kr - 85	2.95E-01	solid	WAC 246-247-030(21)(a)
Nb - 93 m	2.23E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Nb - 95	3.38E-18	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Nb - 95 m	1.13E-20	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ni - 59	3.71E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ni - 63	4.06E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Np - 237	5.17E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pd - 107	1.47E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Pm - 147	4.18E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pm - 148	0.00E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pm - 148 m	0.00E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pr - 143	0.00E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pr - 144	8.17E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pr - 144 m	9.95E-06	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 238	1.00E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 239	1.97E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 240	1.08E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 241	6.04E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 242	4.97E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Rh - 103 m	0.00E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Rh - 106	1.65E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ru - 103	0.00E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ru - 106	1.65E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sb - 124	2.74E-24	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sb - 125	3.03E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sb - 126	1.97E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sb - 126 m	1.41E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Se - 79	7.80E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sm - 151	1.59E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sn - 113	1.94E-13	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sn - 119 m	2.69E-07	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sn - 121 m	7.20E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sn - 123	1.57E-11	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sn - 126	1.41E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sr - 89	0.00E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Sr - 90	9.14E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Tb - 160	2.51E-21	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Tc - 99	2.61E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Te - 123 m	2.50E-17	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Te - 125 m	7.40E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Te - 127	8.85E-13	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Te - 127 m	8.77E-13	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Te - 129	0.00E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Te - 129 m	0.00E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 234	7.91E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 235	3.05E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 236	1.15E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 238	6.30E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Y - 90	9.14E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Y - 91	2.02E-20	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Zr - 93	3.62E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Zr - 95	1.53E-18	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

The radioactive isotopes identified for this emission unit are (no quantities specified):

Ag - 110 m	Ag - 110	Am - 241	Am - 242 m	Am - 242
Am - 243	Ba - 137 m	C - 14	Cd - 113 m	Cd - 115 m
Ce - 141	Ce - 144	Cm - 242	Cm - 244	Co - 60
Cs - 134	Cs - 135	Cs - 137	Eu - 152	Eu - 154
Eu - 155	Fe - 55	Gd - 153	H - 3	I - 129
In - 113 m	Kr - 85	Nb - 93 m	Nb - 95	Nb - 95 m
Ni - 59	Ni - 63	Np - 237	Pd - 107	Pm - 147
Pm - 148 m	Pm - 148	Pr - 143	Pr - 144	Pr - 144 m
Pu - 238	Pu - 239	Pu - 240	Pu - 241	Pu - 242
Rh - 103 m	Rh - 106	Ru - 103	Ru - 106	Sb - 124
Sb - 125	Sb - 126	Sb - 126 m	Se - 79	Sm - 151
Sn - 113	Sn - 119 m	Sn - 121 m	Sn - 123	Sn - 126
Sr - 89	Sr - 90	Tb - 160	Tc - 99	Te - 123 m
Te - 125 m	Te - 127 m	Te - 127	Te - 129 m	Te - 129
U - 234	U - 235	U - 236	U - 238	Y - 90
Y - 91	Zr - 93	Zr - 95		

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) The following shut down of the CVDF emission control systems under circumstances specified are allowed and are excluded from the 24 hour reporting requirements:

   a) Shutdown of the process bay recirculation system when there is no MCO processing within that bay.
   b) Shutdown of the process bay local exhaust system when there is no MCO processing within that bay.
   c) Shutdown of the general exhaust system for no more than eight hours during which time there will be no MCO within the CVDF nor transfer of water from process water conditioning tank PWC-TK-4001 to a tanker truck for disposal nor opening of the process bay roll up doors.

5) The first annual leak testing of the stack emissions sample line is allowed to be deferred until January 2002 to allow installation of an access port in the stack. Future annual leak test shall be based on this new test date.

Emission Unit ID: 438

200W S-296S023-001

296-S-23

This is a MINOR, ACTIVELY ventilated emission unit.

219-S Building

Emission Unit Information

Stack Height: 21.50 ft. 6.55 m. Stack Diameter 1.00 ft. 0.30 m.

Average Stack Effluent Temperature: 78 degrees Fahrenheit. 26 degrees Celsius.

Average Stack ExhaustVelocity: 42.46 ft/second. 12.94 m/second.

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Prefilter	1	
	HEPA	2	In series
	Fan	1	

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	1 every 2 years

Sampling Requirements NDA

Additional Requirements

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 an exhauster that is used to ventilate a hood located in the 219-S Sample Gallery. The hood is used to collect samples from two of the waste tanks located in the 219-S Waste Handling Facility. The emission unit is a hood exhauster ventilation system that operates intermittently.

Emission Unit ID: 439

200W J-CWC 001

Central Waste Complex

This is a MINOR, ACTIVELY ventilated emission unit.

Central Waste Complex

Abatement Technology NONE 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

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)		Near field ambient monitoring program as specified in the Conditions and Limitations.

Sampling Requirements Environment Sampling; Ambient air monitors N-449, N-457, N-964, and N-433.

Additional Requirements

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

Operational Status Activities at the CWC building involve operations in support of waste management at the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Central Waste Complex (CWC) Operations	AIR 08-801	8/5/2008	654

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 2.40E-05 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 following types of waste are managed at CWC: low-level (LLW), low-level mixed (LLMW), transuranic (TRU), TRU-mixed waste and Toxic Substance Control Act (TSCA) regulated waste. The LLW typically contains rags, paper, rubber gloves, disposal supplies, tools, industrial waste (e.g., failed equipment), solidified wastes that are contaminated with radioactive material. This waste is considered LLW if it contains radioactive material and is not classified as TRU waste, high-level waste, or spent nuclear fuel.

TRU and TRU-mixed waste typically contains rags, paper, rubber gloves, disposable supplies, tools, industrial waste (e.g., failed equipment), solidified process byproducts, and laboratory wastes that are contaminated with TRU material. This waste must contain at least 100 nCi of TRU material per gram of waste or it is considered LLW. The TRU waste accepted by CWC may contain varying concentrations of TRU radionuclides and limited amounts of non-TRU radionuclides. With some exceptions allowed based on safety analysis, the TRU content of waste containers is generally limited to 53 239/240 Pu dose equivalent curies (DE-Ci), where the DE Ci is derived by multiplying the isotopic composition (i.e., weight fractions of the various TRU isotopes) by the specific activities of each isotope, and then converting that number with corrections factors taken from the Hanford Site Solid Waste Acceptance Criteria. The DE-Ci unit is designed to control inhalation dose impacts independent of radionuclide type. The radionuclides Pu-39 and Pu-240 are considered equivalent and are combined for calculation purposes.

The unabated emissions shall be tracked by DE curies.

The CWC stores low-level (LLW), low-level mixed (LLMW), transuranic (TRU), TRU-mixed and TSCA regulated waste.

The CWC is designed for the receipt and storage of contact-handled waste packages, which are defined as packages having surface dose rate of less than 2 mSv/h (200 mrem/h), but can store packages above this limit in accordance with the approved safety analysis. Each waste package is characterized before receipt and based on this information; incompatible forms of waste are physically segregated.

CWC personnel receive and inspect waste packages at the Waste Receiving and Staging Area. Transport off-load operations are performed by hand truck, forklift, or crane by qualified personnel. Packages are transported, generally by forklift to the assigned facility/area. Alternatively, waste packages may be received, inspected and unloaded at the specific facility/area where the waste will be stored.

Waste containers are not opened during normal operations at the CWC buildings. Under normal operating conditions there is no airborne release of radioactive material expected from opening waste containers.

Inventories of TRU content, non-TRU radionuclides, and hazardous waste constituents are controlled at all waste storage facilities at the CWC. The inventory control system ensures that each building, building quadrant, or module will comply with its established inventory limit.

TRU waste containers are generally equipped with a pressure relief vent device, such as the NucFil filter. This filter allows the release of any gases that may be produced as a result of radiolysis inside the container, while preventing release of any particulate matter.

Waste shipments are transported to the Waste Receiving and Staging Area where the waste containers are radiologically surveyed and the exterior visually inspected for physical integrity. Waste records are checked for completeness and accuracy in accordance with procedures that provide instructions for performing detailed entry-by-entry reviews of waste records. To the extent practicable, this work is performed before unloading. However, partial unloading of a shipment may be necessary to complete a thorough survey and inspection. Verification of container contents, which may involve the opening of containers and sampling of waste contents is performed at a facility separate from the CWC (e.g., T-Plant).

Waste packages meeting all acceptance criteria are accepted for storage. Non-compliant waste packages (e.g., with paperwork errors or omissions and damaged containers) are held until the non-compliant condition is corrected to the satisfaction of the responsible Solid Waste Manager or designee.

To detect leaking or deteriorating containers, or deterioration of the containment system, all waste containers are inspected in accordance with regulatory requirements.

PermaCon unit:

This license allows the placement of a PermaCon modular containment unit in the existing CWC buildings for the purpose of sampling the head space gas within solid waste storage containers. The ventilation system for the 2404-W series Storage Buildings consists of two roof mounted exhausters, each rated at a minimum of 16, 775 cubic feet per minute. CWC storage building of similar dimensions and venting as the 2404-W series must be selected for the PermaCon Unit.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 4.80E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

DE - 0	9.38E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(e)

The radioactive isotopes identified for this emission unit are (no quantities specified):

Ac - 228	Am - 241	Am - 243	Ar - 41	Ba - 137

Bi - 212	Bi - 214	C - 14	Ce - 141	Ce - 144
Cf - 252	Cm - 242	Cm - 243	Cm - 244	Co - 58
Co - 60	Cr - 51	Cs - 134	Cs - 137	Eu - 152
Eu - 154	Eu - 155	Fe - 59	H - 3	I - 129
I - 131	K - 40	Kr - 85	Mn - 54	Nb - 95
Np - 237	Pb - 212	Pb - 214	Pm - 147	Po - 210
Po - 212	Po - 216	Pu - 238	Pu - 239	Pu - 240
Pu - 241	Pu - 242	Ra - 224	Ra - 226	Rn - 220
Ru - 103	Ru - 106	Sb - 124	Sb - 125	Sn - 113
Sr - 89	Sr - 90	Tc - 99	Th - 228	Th - 232
Th - 234	Tl - 208	U - 232	U - 233	U - 234
U - 235	U - 236	U - 238	Y - 90	Zn - 65
Zr - 95				

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) Container inventory shall be tracked (logged) using the SWITS database.

5) Periodic confirmatory sampling is required. It must consist of: sampling quarterly using a portable sampler for a two-week interval inside the CWC building (excluding outdoor pads) containing vented containers with the highest cumulative inventory of DE curies during the quarter sampled. (Samples will be handled following the applicable sections of 40 CFR 61, Appendix B, Method 114.)

6) The facility must maintain a log in an approved format (SWITS database) for this activity or emission unit.

7) The required controls are:

Emissions control for vented containers within the CWC will consist of NucFil {tm} filters. (Under normal operating conditions, non-vented containers are not expected to produce radioactive emissions.)

A NucFil {tm} filter consists of a porous carbon/carbon composite of non-activated carbon fibers housed in stainless steel that as a minimum, restricts the release of 99.95% of particles with a mean 0.3 microns in size.

In addition, housekeeping (e.g., decontamination and replacing leaking containers as needed) and frequent smears throughout the CWC will be used to ensure that the emission control equipment is working properly. Smears that exceed 20 dpm/100 sqcm for alpha and 1,000 dpm/100 sqcm for beta/gamma contamination will be investigated to determine the cause of the contamination and appropriate corrective actions will be implemented.

8) The radioactive isotopes identified in condition 3 represent all of the significant radionuclides historically present at the Central Waste Complex (CWC), including some that are not significant. Any radionuclide on the chart of the nuclides could be present or received at CWC in the future. Periodic confirmatory measurements to verify low emissions are preformed by taking a two-week air sample on a quarterly basis and analyzing for total alpha and total beta. Although any radionuclide could be present for conservatism all alpha is assumed to be Am-241 and all beta is assumed to be Cs-137 for dose calculation estimates.

Emission Unit ID: 443

300 Area Emissions

300 Area Diffuse/Fugitive

This is a MINOR, FUGITIVE, non-point source emission unit.

300 Diffuse/Fugitive Emissions

Abatement Technology ALARACT WAC 246-247-040(4)

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

Zone or Area	Abatement Technology	Required # of Units	Additional Description
	Administrative Controls		Abatement controls as required in the following Conditions and Limitations.

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
WAC 246-247-075(3)	40 CFR 61, Appendix B, Method 114(3)	Each radionuclide that could contribute greater than 10 percent of the potential-to-emit TEDE	Per the sitewide ambient monitoring program

Sampling Requirements Per the sitewide ambient monitoring program samples will be collected from the existing near-facility monitoring stations

Additional Requirements

See Section 5 of the general conditions in this license for additional information.

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

Operational Status Associated with emissions from operations, deactivation, surveillance and maintenance in the 300 Area from sources not actively ventilated.

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

Project Title	Approval #	Date Approved	NOC_ID
300 Area Excavation Activities	AIR 08-1020	10/31/2008	684

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 1.70E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

   This license is limited to the excavation in the vicinity of 300 Area structures and facilities in support of site stabilization, site infrastructure, and removing/isolating/blanking/routing/re-routing utilities; obtaining samples during 300 Area deactivation activities; and activities related to access for surveillance and maintenance, replacement-in-kind, and non-radiological equipment. Excavation may be conducted with mechanical methods such as an excavator or by drilling. Manual digging methods with shovels, picks, and rakes may also be used. Samples may be obtained by excavation or other coring or drilling methods. Backfill shall be made with the original material removed or brought in 'clean' soil.

   This license does not incorporate specific large remediation actions or final cleanup in the context of Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 1.70E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	1.00E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Beta - 0	4.30E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

The radioactive isotopes identified for this emission unit are (no quantities specified):

Sr - 90 U - 234

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) The radionuclide's of concern are strontium-90 (representing beta/gamma contamination during excavation, and uranium-234 (representing alpha contamination). Any fission product may be present, though all are conservatively represented by the isotopes specifically identified.

5) When a Portable/Temporary Radioactive Air Emission Unit (PTRAEU) is used during 300 excavation activities, the conditions, controls, monitoring requirements and limitations of the PTRAEU NOC, latest approved version, shall be required.

6) When the sitewide Guzzler is used during 300 excavation activities, the conditions, controls, monitoring requirement and limitations of the sitewide Guzzler NOC, latest approved version, shall be required.

7) The following controls are approved as low as reasonably achievable control technology (ALARACT) for excavatior activities in the 300 Area:

a) Health physics coverage shall be provided during all excavation activities;

b) Appropriate controls such as water, fixatives, covers, containment tents, or windscreens shall be applied, if needed, as determined by the health physics personnel;

c) After leveling, the soil surface radiological contamination levels shall be verified less than 5,000 dpm/100 cm^2 beta/gamma and less than 100 dpm/100 cm^2 alpha. If contamination is present above these levels, soil shall be removed and containerized for disposal or covered or fixed to provide containment of the contamination;

d) As appropriate, before starting work on isolating utilities and piping, removable contamination in the affected area(s) shall be reduced to ALARA. Measures such as expandable foam, fixatives, or glovebags shall also be used as necessary to help reduce contamination;

e) If field surveys during excavation identify localized areas of contamination greater than 5,000 dpm/100 cm^2 beta/gamma and 100 dpm/100 cm^2 alpha, additional surveys shall be conducted on the perimeter of the 'hot spot' to verify the localized nature, ensuring that the overall average contamination limits are not exceeded;

f) Excavated soils will be stockpiled in appropriately posted area(s) adjacent to excavation locations;

g) Soil stockpiles that are inactive for greater than 24 hours shall require positive dust control measures be applied;

h) All soil excavation activities operating under this NOC must cease operations when sustained wind conditions reach or exceed 20 miles per hour.

8) The periodic confirmatory measurements for 300 Area excavation activities shall consist of radiological surveys

(smear samples). To confirm that the actual emissions remain below the estimated emissions the surveys shall be performed to demonstrate that contamination levels are below 5,000 dpm/100 cm^2 beta/gamma and 100 dpm/100 cm^2 alpha.

Clarification:

The estimated emissions are based on the amount of curies present if all the soil excavated was contaminated to 5,000 dpm/100 cm^2 beta/gamma and 100 dpm/100 cm^2 alpha (based on smear surveys). It is expected that the entire inventory of soil during excavation will not be contaminated to the levels used in the estimated emissions calculation, and there may be localized "hot spots" above these levels. The radiological surveys will be used to calculate and track that the estimated release rates of 1.00 E-04 curies of alpha and 4.3 E-03 curies of beta are not exceeded. Transferable contamination surveys are the functional equivalent of smear surveys.

9) When a HEPA Filtered Vacuum Radioactive Air Emission Unit (HEPA VAC) is used during 300 excavation activities, the conditions, controls, monitoring requirements and limitations of the HEPA VAC NOC, latest approved version, shall be required.

Emission Unit ID: 447

Hanford Sitewide type-1, type-2, type-3

type-1, type-2, type-3

This is a MINOR, ACTIVELY ventilated emission unit.

PTRAEU

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	Type-1
	HEPA	1	Type-2 and Type-3
	Charcoal filter	1	Type-2 and Type-3

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	GROSS ALPHA/BETA	Annual, unless specified by the NOC.

Sampling Requirements One of the following methods may be chosen for actual emissions reporting: nondestructive assay, record sampler, or continuous air monitoring, whichever is more appropriate.

Additional Requirements

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

Operational Status Operations using PTRAEUs involve mobile filtration, sample preparation, screening and analysis units, and ventilation of operations at the Hanford Site.

This Emission Unit has 6 active Notice(s) of Construction.

Project Title	Approval #	Date Approved	NOC_ID
Portable/Temporary Radionuclide Airborne Emissions Units (PTRAEU)	AIR 06-1025	10/5/2006	664

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 1.91E-05 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

Type I PTRAEUs are portable ventilation-filter units. Type II PTRAEUs are mobile sample preparation units. Type III PTRAEUs are mobile screening and analysis units. Each type of PTRAEU is described in the following paragraphs.

Most of the PTRAEUs are portable ventilation-filterunits (Type I) with a capacity from approximately 50 to 2,000+ cubic feet per minute exhaust flow rate. The portable ventilation-filter units control radionuclide emissions by providing filtered ventilation on sites where work activities potentially could disturb areas with radioactive contamination. Type I units that are vacuums are listed to be used as ventilation units. If the vacuum is used in any other manner/process, the WDOH must approve its use under separate application before the activity commences.

Mobile sample preparation units (Type II) decrease the chance of unintentional cross-contamination of samples and enhance personnel radiological safety. The sample preparation units enable technicians to remove material from core barrels, homogenize the material, and fill prescribed sample containers for onsite and offsite analysis. In enclosed, self-contained sample preparation units, radiological exposure and interference from environmental conditions (i.e. wind, precipitation, and exhaust fumes) are minimized.

Mobile sample screening and analysis units (Type III) provide preliminary screening of samples to determine potential problem areas at a site. The units also screen samples to identify those samples requiring further in-depth analysis. Screening samples decreases the number of samples transported for analysis. The fast turnaround analysis time can provide results for a field situation requiring expeditious response.

The source of radionuclides handled by the mobile sample preparation facilities and mobile screening and analysis facilities is contaminated soils and/or liquids extracted from cribs, ditches, ponds, burial sites, and other such areas with surficial soil contamination. An additional source of radionuclides is preparation of radioactive standards to be used for instrument calibration.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 8.90E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Release rates are not listed; emission release rates are controlled by special conditions.

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) Department of Health reserves the right to request an nondestructive analysis/assay (NDA) after each exhaust job assignment (WAC 246-247-075(3)). The monitoring includes: emission estimates to include the methodology, all monitoring measurement results taken during the operation, copy of all logs submitted to the department on June 30th. One of the following methods may be chosen for actual emissions reporting, nondestructive assay, record sampler, or continuous air monitoring, whichever is more appropriate.

5) Ductwork, seams, and potential release locations on the portable exhausters are to be monitored on a routine basis for potential radionuclide releases and noted on the log sheets (e.g., post survey results negative). These routine checks should be kept as retrievable records.

6) The required possession quantity is RHL's calculated for a daily use because many of the activities are of short duration. In calculating the RHL's, 0.1 mrem per year criteria will be used as a beginning point and the source term, which can be handled each day, is back calculate.

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 9.80E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

Management of radioactive contamination during roof replacement activities.

All work shall be performed in accordance with written contractor radiological control requirements (associated with posting and downposting requirements for doing work in outdoor contamination areas and fixed contamination areas) and the as low as reasonably achievable (ALARA) program requirements. These requirements are to be carried out through activity work packages/procedures and associated radiological work permits.

Types of facilities allowed to use this NOC are active and operational, currently in surveillance and maintenance (S&M) mode, or in transition to S&M mode.

Activities are non-routine activities that have a potential to create a new temporary emission source and/or a modification of a source(s) of diffuse and fugitive emissions at facilities on the Central Plateau.

Screening Surveys

Roof replacement activities include radiological surveys to determine if radioactive contamination is present and the extent of such contamination. Spot contamination (e.g., bird droppings) managed before commencement of roof replacement work is handled per existing methods and is considered a routine housekeeping activity (similar to spot contamination found at ground levels).

Managing Radioactive Contamination

Contaminated roofing materials may be removed by manual or powered methods, including saws or other cutting devices, shovels, wheelbarrows, conveyors, chutes, or other similar equipment (conveyors or chutes may be used only for packaged radioactive waste or for non-contaminated roofing material). Radioactive waste shall be managed in accordance with existing onsite requirements and waste acceptance criteria. Radioactive waste either shall be containerized in drums, skiffs, boxes, or other containers, or handled as bulk waste (e.g., dump truck) and transferred to the appropriate disposal facility. Management of radioactive contamination is allowed to include removal and subsequent size reduction of contaminated equipment from a roof as well as isolation and blanking of utilities, vents, and ductwork.

Accumulated rainwater that has contacted contamination areas shall be allowed to evaporate in place or is characterized, collected, and managed in accordance with stormwater discharge requirements or transferred to an appropriate disposal facility.

A graded approach is allowed to be used to match controls with expected contamination levels per radiological control manuals and methods. Radiological contamination that is encountered will either be managed as a fixed contamination area (i.e., less than 20 dpm/100 cm2 smearable alpha and less than 1,000 dpm/100 cm2 smearable beta) or will be managed as a contamination area (radiological contamination levels are between 20 and 2,000 dpm/100 cm2 alpha or between 1,000 and 100,000 dpm/100 cm2 beta) using appropriate controls to minimize worker exposure. These controls include water for dust suppression, fixatives, covers, windscreens, or greenhouses (with PTRAEU exhausters) that will be applied, if needed, as determined by the Health Physics organization, and consist of ALARA techniques.

Process descriptions and abatement controls, as described in the latest approved revisions of the Guzzler NOC

(99-SID-021), the PTRAEU NOC (DOE/RL-96-75), or the HEPA Vacuum NOC (DOE/RL-97-50) shall be used; however, the activity-specific operational controls and tracking requirements shall follow these approval conditions. The Guzzler, PTRAEU, and HEPA vacuum units shall have a removal efficiency of 99.95% for radioactive airborne particles.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 4.80E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	1.50E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

License PTE limit bounds 1.5E-04 Ci/yr 241Am and release fraction of 0.001. Any radionuclide on the chart of the nuclides could be encountered during roof replacement activities. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate form. A small contribution from the gaseous radionuclides may be encountered. Although any radionuclide could be present, for conservatism all alpha is assumed to be 241Am and all beta/gamma is assumed to be 137Cs for dose calculation estimates. Other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta/gamma constituents

B/G - 0	7.50E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

License PTE limit bounds 7.5E-03 Ci/yr 137Cs and release fraction of 0.001. Any radionuclide on the chart of the nuclides could be encountered during roof replacement activities. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate form. A small contribution from the gaseous radionuclides may be encountered. Although any radionuclide could be present, for conservatism all alpha is assumed to be 241Am and all beta/gamma is assumed to be 137Cs for dose calculation estimates. Other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta/gamma constituents.

The radioactive isotopes identified for this emission unit are (no quantities specified):

Am - 241 Cs - 137

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) For dose modeling, the radionuclides of concern shall use cesium-137 (representing beta/gamma emitters) and americium-241 (representing alpha emitters).

5) The total radionuclide content of the material removed shall be tracked on a WDOH approved log.

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 4.90E-02 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 4.90E-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.

Categorical approval for facility entry and surveillance. The facilities covered under this NOC will be entered through a door or other existing access location to perform the activities as described below:

Accessing Facilities:
Accessing facilities shall be performed in accordance using the controls determined by the containment matrix from RPP Administration, HNF-IP-0842, Volume VII, Section 3.1, "Radiological Control".

Inspection/Surveillance:

-Visual inspections will be conducted to evaluate facilities integrity for future decommissioning work, to assure that utilities have been shut off, and/or identification of any environmental, radiological, or safety concerns.

Photographing/Videotaping:

-Photographing and videotaping are performed to assist personnel in recording a facility contents and to obtain knowledge of a facility and its contents. Photography/videotaping also assists personnel in planning future decommissioning work.

Sampling/Surveys:

-Swipes, smears, air sampling, and other surveys may be performed to characterize contamination levels present in a facility. These activities may be performed on containers, other equipment and interior surfaces associated with a facility.

-Removal of access port shield plugs may be performed to allow installation of video equipment and/or to perform radiological surveys.

-Electrical equipment inspections may be performed to assure that power has been shut off from facilities or to assure that equipment is in safe operation.

Housekeeping:

-Housekeeping will be performed to assure that a facility is in a safe condition that would not threaten workers safety or the environment. Housekeeping may include collecting containers, or miscellaneous debris for proper disposal.

Fixative Application

-Application of fixative materials serves to reduce the spread of contamination. The process of applying fixative materials varies depending on the type of material being applied. Fixative application may include using a glycerin-based substance followed by a permanent polymer urea based material or the glycerin-based substance alone, or other such process, which do not cause resuspension of smearable contamination.

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

Alpha - 0	2.80E-04

Beta - 0	4.00E-01	Gamma - 0	4.50E-02

4) Activities to this NOC are limited to no more than 2,160 hours/calendar year. This shall be documented on an approved log.

5) The annual possession quantity must be tracked for each entry.

6) The following radionuclides are allowed under this NOC: 3H, 14C, 59Ni, 60Co, 63Ni, 79Sc, 90Sr, 90Y, 93Zr, 93mNb, 99Tc, 106Ru, 113mCd, 125Sb, 126Sn, 129I, 134Cs, 137Cs, 137mBa, 151Sm, 152Eu, 154Eu, 155Eu, 227Ac, 228Ra, 229Th, 231Pa, 232Th, 232U, 233U, 234U, 235U, 236U, 237Np, 238Pu, 238U, 239Pu, 240Pu, 241Am, 241Pu, 242Cm, 243Cm, and 244Cm

7) The radiological control technology for all entries conducted under this NOC must follow the containment matrix HNF-IP-0842, Volume VII, Radiological Control.

8) The U.S. DOE shall monitor this emission unit as detailed in the most current PTRAEU Notice of Construction.

9) This NOC does not allow any decontaminating and decommissioning work to commence.

10) This NOC is only applicable to tank farm facilities.

11) Whenever active ventilation is in operation, a PTRAEU emission unit must be used as approved by the current PTRAEU NOC. All of the applicable Conditions and Limitations stated for the PTRAEU NOC approval must be adhered to and clearly documented. This includes the emission limits and controls. Emissions from these activities shall be subtracted from the overall handling limit of the PTRAEU NOC and reported under the Categorical Tank Farm Facility Entry and Surveillance NOC.

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 1.38E-02 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 1.38E-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.

Work shall be performed outside of some tank farm fence boundaries such as the 241-AN, 241-AP, 241-AW, 241-AZ, and 241-SY tank farms; between the 241-AP tank farm and the 244-A double contained receiver tank as well as between the 244-S double-contained receiver tank and the 241-SY tank farm; the 219-S Waste Handling Facility located at the 222-S Laboratory; and near the 241-A-A valve pit (241-A Single-Shell Tank Farm).

EXCAVATION

Excavation within a tank farm, or in a known radioactive contamination area outside of a tank farm, shall be performed in accordance with As Low As Reasonably Achievable Control Technology (ALARACT) Demonstration 5, TWRS ALARACT Demonstration for Soil Excavation (Using Hand Tools), or non-mechanical methods such as vacuum excavation (Guzzler) in accordance with the latest WDOH approved Notice of Construction. Outside of a tank farm, in non-contaminated areas, excavation (or berm construction) may be performed using mechanical methods such as: trenchers, backhoes, and scrapers, in addition to hand tools or non-mechanical methods. Areas may be encountered during excavation where components are covered by very hard soil or controlled density fill (low-strength concrete). Mechanical impact tools, such as jackhammer/rototool, would be used to break up such areas before excavation. Removal of excavated material is normally done by mechanical methods such as a crane with skip bucket, powered skip, or front-end loader. Excavated material is placed in spoil piles. (NOTE: Industrial safety requirements may require use of intermediate transfer piles.) Contaminated soil (>100,000 dpm/100 cm2 beta/gamma) is segregated from other soil. Excavated areas shall be backfilled with the excavated soil or soil containing less contamination than the soil that was excavated. Backfilling of excavated areas is accomplished by first placing controlled density fill material when used, then soil in layers, into the excavated area. The distance from the skip bucket, powered skip, and front-end loader to the top of the excavation area is minimized. Contaminated soil is the first soil placed in the excavated areas, then covered with other excavated soil. To meet density requirements, soil compaction is done using hand-guided mechanical compaction equipment. Outside of a tank farm, in a non-contamination area, vibratory roller compactors may be used.

Excavation shall also be conducted to allow for the pouring of concrete pads for future placement of equipment within the tank farms.

PIT WORK

Frequently performed activities shall be done in accordance with activity descriptions found in ALARACT Demonstrations (HNF-4327):

- ALARACT 4 "Packaging and Transportation of Waste"
- ALARACT 6 "Pit Access"
- ALARACT 12 "Packaging and Transportation of Equipment & Vehicles"
- ALARACT 13 "Installation, Operation, and Removal of Tank Equipment"
- ALARACT 14 "Pit Work" and, if required,
- ALARACT 15 "Size Reduction of Waste Equipment for Disposal."

The process is establishment of controls to prevent the spread of radioactive contamination, removal of pit cover blocks by heavy rigging methods, decontamination of pit by water washing (pressure and non-pressure methods), application of fixative material on contamination, disconnection of equipment, equipment removal by manual or

mechanical methods, package equipment for disposal (size reduction if necessary), pit surface preparation by manual abrasion (scrapping, sanding, chipping; on a surface that is damp or has fixative) of existing pit coating, application of pit coating material by manual methods or pressure spray methods, installation of new or replacement equipment, installation of pit cover blocks by heavy rigging, packaging of waste, and transportation of waste and removed equipment.

Project pit activities will include preparation of pit surfaces and coring of walls or cover blocks. Project pit surface preparation is accomplished by mechanical abrasion of the existing pit coating, concrete substrate, and steel surfaces as needed. Needle guns, sanders, wet blasting, and grinders are typical tools used. In addition, surface preparation also may include repair of cracked concrete/concrete coatings. Repair will require removal of cracked material to allow application of grouting material. Removal of cracked material may be performed using manual and power tools, and may also include using a HEPA vacuum to assist in the removal of loose debris. Coring of pit walls and/or cover blocks for new nozzles or equipment installation comprised of replacing wall nozzles, leak detectors, cover blocks, pipe snub-outs, and jumpers will also be performed. A new AZ valve pit will be constructed and connected to the AZ tanks.

PIPE CUTS

The cutting of waste transfer lines, tank risers, or contaminated piping shall be made using a low or high speed reciprocating or cut-off saw (sawzall, bandsaw) or other mechanical methods, such as a tri-tool. Surveys of the exterior and/or interior of the pipe/riser shall be used to determine containment selection in accordance with Radiological Containment Selection, Design, & Specification Guide RPP-7933. Continuous health physic technician coverage shall be present during all pipe work activities. Abrasive methods, such as grinders or sanders, may be used to prepare the cut area for connection to the new section of transfer line. Mating of the new piping to the existing transfer lines or tank riser, and other similar connections if necessary, will be performed using mechanical connection methods or welded flange connections.

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

Am - 241	8.93E-04	Co - 60	1.06E-03	Cs - 137	7.11E+00
Eu - 152	1.95E-02	Eu - 154	3.32E-02	Pu - 238	6.98E-04
Pu - 239	6.39E-03	Pu - 240	2.31E-03	Pu - 241	5.08E-02
Pu - 242	6.90E-08	Sr - 90	3.97E+01	U - 233	1.46E+00
Y - 90	3.96E+02				

4) The Annual Possession Quantity and Potential-to-Emit to the MEI shall be tracked on a WDOH approved log.

5) The Radiological Containment Selection, Design & Specifications Guide, RPP-7933, Revision 0 shall be used. Changes made to RPP-7933, Revision 0 shall be provided to WDOH. The Department retains the right to change or add approval conditions and limitations based on the changes to RPP-7933.

6) To determine the potential-to-emit and calculate the annual dose to the Maximally Exposed Individual all gross alpha contamination shall be assumed to be Am-241 and all gross beta contamination shall be assumed to be Sr-90.

7) When HEPA vacuums are used they shall follow all the requirements of the latest revision of the Radioactive Air Emissions Notice of Construction for HEPA Vacuums.

8) When Portable Temporary Radioactive Air Emission Units are used they shall follow all the requirements of the latest revision of the Radioactive Air Emissions Notice of Construction for Portable Temporary Radioactive Air Emission Units (DOE/RL-96-75).

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 3.28E+00 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 5.75E+03 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 241-AY-101, 241-AY-102, 241-AZ-101, and 241-AZ-102 tanks are double shell tanks. The inner shell is constructed from heat treated, stress-relieved steel. The outer shell is constructed of non stress relieved steel. The two shells are separated by a 2.5 ft annulus and contained inside a concrete shell. The tanks have a usable waste volume of approximately 1,001,000 gal.

The 241 AY and 241 AZ tanks are part of a Resource Conservation and Recovery Act treatment, storage, and/or disposal unit. The tanks contain mixed waste in the form of liquids or contained solids (suspended or settled). The contents in each of the four tanks may be mixed periodically to control gas entrapment in the settled solids, to control temperature, for chemical treatment to control corrosion, or for waste retrieval. Contained solids will be mobilized, as required, as part of this process by hydraulic action of the mixer pumps or by use of air-lift circulators in each of the tanks. During such activities, as well as during storage, the ventilation system maintains the vapor space in each tank below atmospheric pressure.

Airflow is from the tank to a glycol-cooled recirculation system and to a common header. The common header is the point in the overall system at which ventilation flow is provided to the emissions control system. Also, a portion of each tank's exhaust can be recirculated to assist in maintaining temperature.

The recirculation system cools, condenses, removes vapor and some entrained particulates, further removes moisture via a separator, and returns a portion of the cooled vapor to the tank. This provides cooling for the tank while reducing air emissions. Nominal flow rates in the recirculation system vary from zero m3/sec (bypassed) to 0.25 m3/sec per tank, at standard temperature and pressure conditions. At the higher flow rate, approximately 0.05 m3/sec is provided to the emission control system with the remainder to the tank. Similar airflow from the other three tanks is combined in the common ventilation header connecting the discharges of the other recirculation coolant systems. The combined flow is discharged to the emissions control system. The recirculation system is considered part of the process because the collected material is returned to the tank.

When mixer pumps are operating in a tank, the 0.25 m^3/sec drawn from this tank may not be recirculated but may be combined with the flow from the other tanks for a total discharge to the emissions control system flow range of 0.4 to 0.5 m^3/sec. Numerous other combinations of discharge flow rates are possible but the combined annual average discharge flow rate to the emissions control system will not be greater than 0.5 m^3/sec. During system upset conditions, such as an automatic shutdown of one exhaust train and start of the opposite train, discharge flow rates could reach 0.6 m^3/sec for several seconds.

The portion of the stream discharged to atmosphere will flow through a condenser, high-efficiency mist eliminator, heater, and two high-efficiency particulate air (HEPA) filters in series. For purposes of calculating abated emissions, only the HEPA filter control efficiencies are used.

The central pump pits on the 241-AY and 241-AZ Tank Farm tanks are approximately 14 ft long x 10 ft wide x 10 ft depth (outside dimensions). Sluice pits and annulus pump pits are somewhat smaller with outside dimensions of 7 ft x 7 ft x 10 ft deep and 5 ft x 5 ft x 10 ft deep.

With the previous NOC revision, modifications to all four tanks and associated equipment were permitted to allow for installation of waste retrieval systems and equipment, through issuance of letter AIR-05-708, including the following major components.

New In Tank Equipment
•Two mixer pumps each in tanks 241-AZ-102, 241-AY-101, and 241-AY-102 for mobilizing the settled solids. Two mixer pumps were installed in tank 241-AZ-101 and permitted previously by WDOH through issuance of AIR-98-708. All of the pumps will be capable of pumping waste through each of two horizontally opposed discharge nozzles.

•A riser extension/spray wash system on top of each of the risers used for mixer pumps. The spray wash system will be used for future decontamination of the mixer pumps if they are removed from the tank.

•One transfer pump in each tank for the transfer of waste.

•New temperature probes for each tank.

•New decant pumps in the AY tanks and associated transfer piping; to include a one-time use hose-in-hose transfer line approximately 40 ft in length.

Ancillary Equipment and Buildings
•Electrical power and instrument cables and other utility tie ins and/or upgrades (e.g., sanitary and raw water, and telecommunications).
•Tie-in to the existing dilution and caustic supply system to bring waste properties into compliance with the feed specifications and to flush and preheat transfer lines. The dilution system will have the capacity of providing approximately 140 gal/minute of pH adjusted water.
•Pit cover blocks.
•Water/diluent piping to and from the process pits.
•Process jumpers.
•Miscellaneous concrete pads for electrical and mechanical equipment.
•Chain link fencing and gates.

Removal, Repair, Decontamination, and Demolition of Existing Equipment
•Removal/repair of transfer and/or mixer pumps, as necessary, during the life of the facility.
•Removal and disposal of several thermocouple probes/instrument trees.
•Removal and disposal of several existing pumps and other miscellaneous equipment (e.g., slurry distributers and process jumpers).
•Additionally, this revision includes removal of HEGA filters.

CONSTRUCTION ACTIVITIES
Construction activities with the PTE could include soil excavation, work in pump pits, pipe cutting, and removal and installation of in tank equipment. Some of these activities are described in, and will be done in accordance with, an applicable tank farm as low as reasonably achievable control technology (ALARACT) demonstration (HNF 4327, Control of Airborne Radioactive Emissions for Frequently Performed TWRS Work Activities (ALARACT Demonstrations). The specific activities and corresponding ALARACT demonstration are called out as applicable in the following sections.

If needed or chosen for use during these activities, the regulated guzzler, a portable/temporary radioactive air emission unit, and a HEPA filtered vacuum radioactive air emission unit may be used in accordance with the latest revisions of the NOC [EPA 1998 letter, "Approval of Short Form Radioactive Air Emissions Notice of Construction (NOC) for Guzzler Excavation and Backfilling Activities in Support of 200 East Area A Farm Complex"; DOE/RL-96-75, "Radioactive Air Emissions Notice of Construction Portable/Temporary Radioactive Air Emission Units"; and DOE/RL-97-50, "Radioactive Air Emissions Notice of Construction for HEPA Filtered Vacuum Radioactive Air Emission Units," respectively].

Because of the possibility of encountering previously undetected subsurface contamination, all work will be performed in accordance with appropriate radiological controls and the River Protection Project (RPP) as low as reasonably achievable (ALARA) program. These requirements are carried out through work packages and associated Radiological Work Permits (RWP).

Soil Excavation

Soil will be excavated inside and outside the 241-AZ and 241-AY Tank Farms for the dilution piping that will tie-in to the existing AN Tank Farm caustic supply system and to remove soil in preparation for mixer pump foundations and miscellaneous equipment support structures, to remove soil around pits in preparation of core drilling, and for placement of control building foundations (as required). A total of approximately 6000 yd^3 per farm could be excavated. Backfill will be made with the original removed soil or noncontaminated controlled density fill (sand, water, and a small amount of cement).

Soil excavation activities inside the tank farm fence will be performed in accordance with ALARACT Demonstration 5, TWRS ALARACT Demonstration for Soil Excavation (Using Hand Tools). If contamination is discovered outside the tank farm fence, ALARACT 5 will be followed. Clean soil piles could be moved from one place to another within the tank farm with heavy equipment (backhoe, front-end loader, etc.). Soil excavation outside the tank farm fence in noncontaminated soil also could be performed with heavy equipment. The regulated guzzler also could be used as described in the NOC for use in the 241-A Tank Farm Complex (EPA 1998 letter).

Pipe Cutting and Welding
Any required cuts of contaminated piping will be made inside a glove bag using appropriate equipment such as a sawzall or tri tool. To perform a cut without a glove bag, the piping will be surveyed/smeared to verify removable contamination levels are equal to or less than 10,000 disintegrations per minute (dpm) per 100 cm^2 beta gamma and 200 dpm/100 cm^2 alpha.

Welding may be necessary to join various pieces of equipment. If this is necessary, welding will commence once removable contamination levels in the weld area are reduced to ALARA. The goal will be to achieve 1000 dpm/100 cm2 beta gamma and 20 dpm/100 cm^2 alpha or less, but might not always be attainable.

If needed or chosen for use during these activities, a portable/temporary radioactive air emission unit and a HEPA filtered vacuum radioactive air emission unit could be used in accordance with the latest revisions of the NOCs (DOE/RL-96-75 and DOE/RL-97-50, respectively).

Pit Work
Work to be performed in pits may include replacing existing sets of cover blocks with newly designed cover blocks, core drilling (equivalent of one hundred 14-in. diameter holes for AZ Farm and ten 14 in. diameter holes for AY Farm), installing new nozzles, and removing existing jumpers.

Pit access and work will be performed in accordance with ALARACT Demonstrations 6 and 14, TWRS ALARACT Demonstration for Pit Access, and TWRS ALARACT Demonstration for Pit Work. Activities not covered in these ALARACTs are described in the following.

If needed or chosen for use during these activities, a portable/temporary radioactive air emission unit and HEPA filtered vacuum radioactive air emission unit could be used in accordance with the latest revisions of their NOCs (DOE/RL-96-75 and DOE/RL-97-50, respectively).

At the start of the pit work, the cover blocks will be lifted off and radiologically surveyed to determine an appropriate disposal method. New cover blocks will be installed when all work in the pits is completed.

Core drilling may be performed and will occur below grade level on the outside of the pit. The hole will be drilled from the outside to the inside, with the temporary pit cover in place. Nozzle installation generally will proceed immediately after the hole is completed. If immediate nozzle installation is not possible, the hole will be temporarily sealed with a plug, tape, or equivalent device until the nozzle can be installed.

Installation of new nozzles in existing pits will take place in an open pit. All parts of the nozzle will be assembled ahead of time and will be lowered into position as a single unit. The piping in the back of the nozzle will be threaded through the hole (from the inside of the pit to the outside) and pulled tight into place from the outside of the pit. Grout will be used to secure and seal the nozzle into place. The front opening of the nozzle, inside the pit, will be fitted with a temporary cap/seal until a jumper is connected to the nozzle. Once the nozzle(s) is/are installed, the temporary pit cover will be replaced until other work inside the pit requires pit cover removal.

Removal of In Tank Equipment
Various in-tank equipment will be removed from the tanks to make room for the waste retrieval equipment, or to be replaced with equivalent equipment built to withstand the mixer pump jet forces. Removed long-length equipment will either be packaged in long-length contaminated equipment disposal containers or size reduced for disposal in accordance with ALARACT Demonstration 15, Tank Farm ALARACT Demonstration for Size Reduction of Waste Equipment for Disposal. Equipment removal will be performed in accordance with ALARACT Demonstration 13, TWRS ALARACT Demonstration for Installation, Operation, and Removal of Tank Equipment. Activities not covered in this ALARACT are described in the following.

If needed or chosen for use during these activities, a portable/temporary radioactive air emission unit, and a HEPA filtered vacuum radioactive air emission unit may be used in accordance with the latest revisions of their NOCs (DOE/RL-96-75 and DOE/RL-97-50, respectively).

Decontamination of removed equipment is not anticipated. The fewer decontamination activities undertaken, the less exposure possibilities there are to the worker and the environment. Contingency decontamination plans, however, are in place if needed. The most likely equipment to be decontaminated would be sections of the flexible receiver. Equipment removal will be performed in accordance with TWRS ALARACT Demonstration 13, Installation, Operation, and Removal of Tank Equipment.

In Tank Equipment Installation
Equipment installation will be performed in accordance with TWRS ALARACT Demonstration 13, Installation, Operation, and Removal of Tank Equipment.

WASTE STAGING AND RETRIEVAL PROCESS OVERVIEW
Mixer pumps will be operated to maintain waste uniformity during staging and to mix the waste for a period before and during transfer. As required by operational directives, mixer pumps will be operated until waste samples verify that adequate mixing has been achieved. Waste samples will be collected in accordance with TWRS ALARACT Demonstration 7, Tank Waste Grab Sampling. If dilution/conditioning is needed, the pH and temperature of the diluents will be adjusted by means of a caustic supply system. Once the waste is verified acceptable, the transfer lines will be preheated/flushed with water, and the waste transfer to the treatment facility will follow. After the transfer, the lines will be flushed again with water.

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

Alpha - 0	B/G - 0
See quantities listed under emission unit 486 for this NOC.	See quantities listed under emission unit 486 for this NOC.

4) If a portable/temporary radioactive air emission unit is used during the removal or installation of in tank equipment activities, controls as described in the NOC DOE/RL-96-75 wiill be followed. Descriptions of the emissions control technology for those units are provided in the NOC.

5) If a portable/temporary radioactive air emission unit is used during the pit work activities, controls as described in the NOC DOE/RL 96-75 will be followed. Descriptions of the emissions control technology for these units are provided in the NOC.

6) If a portable/temporary radioactive air emission unit is used during the pipe cutting activities, controls as described in the NOC DOE/RL 96-75 will be followed. Descriptions of the emissions control technology for these units are provided in the NOC.

7) MONITORING DURING CONSTRUCTION ACTIVITIES

During pipe cutting activities surface contamination surveys will constitute the PCM to verify low emissions. If a portable/temporary radioactive air emission unit is used, PCM will be performed as required by these NOC.

During pit work activities, PCM as described in ALARACT 14 will verify low emissions. If a portable/temporary radioactive air emission unit is used, PCM will be performed as required by these NOCs.

During in tank equipment removal and installation activities surface contamination surveys, as described in ALARACT Demonstration 13, TWRS ALARACT Demonstration for Installation, Operation and Removal of Tank Equipment (HNF-4327) will constitute the PCM to verify low emissions. If a portable/temporary radioactive air

emission unit is used, PCM will be performed as required by these NOC.

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 5.60E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

This consolidated T-Plant license supersedes all radioactive air licenses for 291-T-1.

a. This approval subsumes those activities approved in three previous license approvals, retains/revises the specific conditions and limitations of those approvals, and replaces them as the radioactive air license for T-Plant:

   i. AIR 03-1208 (NOC ID # 445, "Storage in T-Plant Complex of Sludge from K-Basins")
   ii. AIR 01-1010 (NOC ID # 499, "T-Plant Complex Fuel Removal Project")
   iii. AIR 02-704 (NOC ID # 500, "Entering and Characterizing of the 224-T Facility Process Cells")

b. With additional conditions and limitations provided herein, this approval also extends to new activities discussed in the NOC application "Radioactive Air Emissions Notice of Construction for Consolidated T Plant Operations", DOE/RL-2004-50, Rev. 0, September, 2004, described briefly:
   i. Receipt, Storage, Treatment, and Load out of Contact-Handled and Remote-Handled Transuranic (TRU) and Transuranic Mixed Waste (M-91Initiative)
   ii. Treatment (in addition to storage) of K-Basin Sludge from the North Load out Pit (NLOP)
   iii. Such activities considered routine at T Plant as are described in succeeding conditions.

Activities a)i through a)iii may emit radioactive air through 291-T-1. Additionally, activity a)iii may emit to the 200 Areas Diffuse & Fugitive emission unit and to Portable Temporary Radioactive Air Emission Units.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 1.20E+02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	9.86E-05
Beta - 0	5.11E-03

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) All activities involving radioactive materials shall be conducted in accordance with radiation control procedures approved in accord with applicable QA program. (WAC 246-247-040(5))

5) Characterization activities shall be stopped if general surface contamination levels in the containment tent reach 40,000 dpm/100 cm^2 alpha or 2,000,000 dpm/100 cm^2 beta/gamma or if general air concentration levels in the containment tent reach 2.0 E-9 microcuries/milliliter alpha or 2.0 E-6 microcuries/milliliter beta/gamma. In this event the Department of Health shall be notified of existing conditions and work stoppage. Following such a work stoppage, activities in the process cells shall not continue until a review of the work and encountered conditions has been performed and a determination made, in concurrence with the Department of Health, that no threat to the environment exists, or proper controls have been put in place to mitigate any further threat. (WAC 246-247-040(5))

6) If a Portable/Temporary Radioactive Air Emission Unit (PTRAEU) is used, the conditions, controls, monitoring requirements and limitations of the latest approved version of the PTRAEU Notice of Construction shall be required. (WAC 246-247-060(5)) (WAC 246-247-080(7))

7) Periodic confirmatory measurements (PCM) for emissions from the containment tent shall be performed and shall consist of the radiological surveys and CAM readings/log papers from the containment tent. Compliance shall be demonstrated by showing that actual emissions are inherently less than the estimated emissions, which are based and calculated from the same contamination levels. (WAC 246-247-040(5))

8) The dose to the maximally exposed member of the public from unabated emissions associated with this NOC and exhausted by the PTREAU shall not exceed 1.12E-03 mrem/year. For the purposes of dose estimation, gross beta air concentrations associated with this emission point shall be conservatively assumed to consist entirely of Sr-90. Gross alpha air concentrations associated with this emission point shall be conservatively assumed to consist entirely of Pu-239. (WAC 246-247-040(5))

9) When a HEPA Filtered Vacuum Radioactive Air Emission Unit (HEPA VAC) is used, the conditions, controls, monitoring requirements and limitations of the latest approved revision of the HEPA VAC Notice of Construction shall be required. (WAC 246-247-060(5)) (WAC 246-247-080(7))

Emission Unit ID: 448

Hanford Sitewide Vented Containers

Vented Containers

This is a MINOR, PASSIVELY ventilated emission unit.

PTRAEU

Abatement Technology NONE 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

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	Air - every 2 weeks continuous/deposition - annually

Sampling Requirements Environment Sampling

Additional Requirements

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

Operational Status Activities for vented containers involve storing, surveillance and monitoring operations on the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Sitewide Vented Container Storage	AIR 07-701	7/2/2007	641

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 3.40E-05 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

   Containers are used to store mixed and/or radioactive waste generated on and off the Hanford Site. Venting devices are installed when there is the potential for non-radioactive gases (i.e., hydrogen) to be generated as a result of radiolysis.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 1.00E-01 mrem/year. Approved are the associated potential release rates (Curies/year) of:

   Release rates are not listed; emission release rates are controlled by special conditions.

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) Containers other than drums are also approved if they meet the conditions of this NOC.

5) Establishes a categorical As Low As Reasonably Achievable Control Technology (ALARACT) demonstration for existing Hanford Site vented containers.

6) Establishes a categorical Best Available Radionuclide Control Technology (BARCT) demonstration for all future Hanford Site vented containers (i.e., up to 6667 vented container units (UVC) based on a total abated emissions offering less than 3.4E-05 mrem/year to the MEI). (WAC 246-247-040 (5))

7) NucFil(TM) filter or an equivalent filter shall be BARCT and ALARACT. Vent clips are accepted as ALARACT for existing systems to date, however, when conditions require repackaging vent clips shall be replaced by NucFil(TM) or equivalent filters.

8) Pu239/240 equivalent curies (PE-Ci) represents the radionuclide of concern as discussed in the Hanford Site Solid Waste Acceptance Criteria, HNF-EP-0063.

9) The vented container Latitude and Longitude coordinates (46 degrees 22' 13.8", 119 degrees 16' 12.3") refer to the location resulting in the highest impact to the MEI.

10) These containers are used for storing mixed and or radioactive waste generated on or off Hanford Site.

11) WDOH accepts vent clips as ALARACT since they are no longer installed.

Emission Unit ID: 454

200 200 Area ISA

200 Area Interim Storage Area (ISA)

This is a MINOR, ACTIVELY ventilated emission unit.

200 diffuse/fugitive emissions

Abatement Technology NONE 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

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
WAC 246-247-075(3)			Annual

Sampling Requirements Smear Survey

Additional Requirements

See Section 5 of the general conditions in this license for additional information.

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

Operational Status Operations at the 200 Area ISA are for interim dry storage of SNF materials on the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Construction and Operation of the 200 Area Interim Storage Area (ISA)	AIR 06-1015	10/5/2006	650

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 1.92E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 construction and operation of the 200 Area ISA. The 200 Area ISA will be constructed and operated for the interim storage of non-defense production reactor SNF in dry cask storage systems (DCSSs). [Note: Dry cask storage system is a generic term referring to the various storage systems employed for SNF storage at the 200 Area ISA and does not refer to a specific storage system.]

Dry Cask Storage System Interim Storage

Once the DCSSs are prepared for interim storage the systems can be transferred to the 200 Area ISA for interim storage. Up to sixty Interim Storage Casks (ISCs) storing FFTF SNF, 7 NAC-1 casks storing LWR SNF, and 12 NRF TRIGA casks and 2 DOT-6M containers storing TRIGA<tm> SNF will be required for storage at the 200 Area ISA. Each of the dry cask storage systems will be transported via road to the 200 Area ISA and unloaded using a mobile crane. Each DCSS will be placed at a specific location within the 200 Area ISA.

Dry Cask Storage System Equipment

Different DCSSs are utilized for the different SNF types to be stored at the 200 Area ISA to accommodate the particular characteristics of the SNF. The FFTF SNF DCSS, the NRF TRIGA SNF DCSS, and the LWR SNF DCSS.

200 Area ISA Design and Construction

The 200 Area ISA consists of concrete pads, perimeter fencing and lighting, access for transporters and mobile cranes, and conduit for potential future electrical service and instrumentation. This construction will not involve contaminated items. The 200 Area ISA will be situated within the current CSB construction site. This site is currently not a radiological area nor does it contain an underground radioactive material area. No contaminated excavation will be involved.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 1.92E-03 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Am - 241	2.65E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Am - 242	1.11E-06	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Am - 242 m	1.12E-06	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ba - 137 m	1.18E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
C - 14	5.75E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ce - 144	1.92E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cm - 242	1.21E-06	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Co - 60	1.07E+03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cs - 134	1.56E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Cs - 137	1.25E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Eu - 154	3.30E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Eu - 155	1.21E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Fe - 55	1.01E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
H - 3	3.62E+00	gas	WAC 246-247-030(21)(a)
I - 129	3.07E-04	gas	WAC 246-247-030(21)(a)
Kr - 85	3.07E+01	gas	WAC 246-247-030(21)(a)
Mn - 54	9.55E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ni - 63	9.18E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Np - 237	1.15E-09	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pm - 147	9.64E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pr - 144	1.92E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 238	1.30E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 239	5.56E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Pu - 240	4.81E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 241	1.79E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Rh - 106	5.51E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Ru - 106	5.51E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sb - 125	1.21E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sm - 151	5.15E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sr - 90	4.55E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Tc - 99	1.83E-07	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Te - 125 m	2.95E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 235	9.70E-12	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
U - 238	1.01E-09	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Y - 90	4.55E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

The radioactive isotopes identified for this emission unit are (no quantities specified):

Am - 241	Am - 242 m	Am - 242	Ba - 137 m	C - 14
Ce - 144	Cm - 242	Co - 60	Cs - 134	Cs - 137
Eu - 154	Eu - 155	Fe - 55	H - 3	I - 129
Kr - 85	Mn - 54	Ni - 63	Np - 237	Pm - 147
Pr - 144	Pu - 238	Pu - 239	Pu - 240	Pu - 241
Rh - 106	Ru - 106	Sb - 125	Sm - 151	Sr - 90
Tc - 99	Te - 125 m	U - 235	U - 238	Y - 90

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) Any detectable contamination above 2200 dpm/100 cm ^2 Beta-Gamma or 220 dpm/100 cm^2 Alpha as a result of the ISA specific monitoring shall be reported to the department.

5) Periodic confirmatory monitoring shall consist of annual smears or swipes of the outer surfaces of the containers using hand held survey instruments capable of detecting contamination above 2200 dpm/100 cm ^2 Beta-Gamma or 220 dpm/100 cm^2 Alpha.

6) The emission limit for this emission unit is no smearable contamination above 2200 dpm/100 cm ^2 Beta-Gamma or 220 dpm/100 cm^2 Alpha using standard portable instruments used, and survey methods followed at Hanford (WAC 246-247-040(5)).

Emission Unit ID: 455

Hanford Sitewide W-PORTEX 007

HEPA vacuums

This is a MINOR, ACTIVELY ventilated emission unit.

PTRAEU

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

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)			

Sampling Requirements None

Additional Requirements

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

Operational Status Operation of HEPA vacuums involve reduction of smearable and fixed contamination and evacuation of enclosures at the Hanford Site.

This Emission Unit has 4 active Notice(s) of Construction.

Project Title	Approval #	Date Approved	NOC_ID
HEPA Filtered Vacuum Radioactive Air Emission Units (HVU)	AIR 06-1024	10/5/2006	663

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 2.50E-05 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 use of specified HVUs located and operated on the Hanford Site, and represents establishment of unregistered, portable and temporary, insignificant emission units.

For the purposes of estimating (modeling) offsite exposures for this application, all applicable HVU emissions at an individual facility (e.g., B Plant Complex, C Tank Farm, SX Tank Farm, T Plant Complex, 100-K East Basin, 100-K West Basin, 324 Building, 340 Complex, etc.) or activity (e.g., D&D of a building) will be considered as a single emission point for that facility.

HVUs are portable cleaners with exhaust flow rates ranging from 50 to 300 cubic feet per minute. The units control radionuclide emissions by providing filtered vacuuming for surfaces that radioactively are contaminated.

HVUs fall into two categories of use, those used for the reduction of smearable contamination and those used to reduce fixed contamination. For smearable contamination, the use of HVUs is limited to reduction of contamination on hard surfaces (e.g., concrete, permanently installed metal equipment such as risers, ventilation system components, piping, etc.). Soil matrices are excluded from this NOC. Smearable contamination on these hard surfaces will not exceed limits established in DOE/RL-96-109. These limits, if exceeded, require the affected are to be posted as a high contamination area. The limits are 2,000 disintegrations per minute per 100 square centimeters (dpm/100 cm2) alpha contamination and 100,000 dpm/100 cm2 beta/gamma contamination.

An exception to these limits is restricted to spot surface contamination areas found during outdoor radiological field surveys, and to clean up localized, radiologically contaminated material (e.g., dust, dirt, bird droppings, animal feces, insects, spider webs, tumbleweed fragments, etc.). These types of materials could have beta/gamma contamination levels exceeding 1 million dpm/100 cm2, but are very localized (i.e., a few square meters, rather than hundreds of square meters) and could occur in contamination areas, buffer zones, and clean zones. This exception does not apply to areas normally posted as high contamination areas.

The second category of use is for reduction of fixed contamination, involving the removal and/or penetration of contaminated surfaces. This category of use includes using HVUs and associated shrouded tools for sanding, stripping, spalling, drilling, and cutting operations. Limits in areas of fixed contamination to ensure compliance will be established before these tools are used.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 4.97E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	3.09E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Alpha release rate for 100 Areas, emission calculations will assume Pu-239/240			
Alpha - 0	2.29E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Alpha release rate for 300 Area, emission calculation will assume Pu-239/240.			
Alpha - 0	3.44E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Alpha release rate for 400 Area, emission calculation will assume Pu-239/240.			
Alpha - 0	4.57E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Alpha release rate for 200 East Area, emission calculation will assume Pu-239/240			
Alpha - 0	7.70E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Alpha release rate for 200 West Area, emission calculation will assume Pu-239/240.			
B/G - 0	3.88E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
B/G release rate for 200 West Area, emission calculations will assume Sr-90.			
B/G - 0	1.16E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
B/G release rate for 300 Area, emission calculations will assume Sr-90.			
B/G - 0	1.74E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
B/G release rate for 400 Area, emission calculations will assume Sr-90.			
B/G - 0	1.56E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
B/G release rate for 100 Areas, emission calculations will assume Sr-90.			
B/G - 0	2.30E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
B/G release rate for 200 East Area, emission calculations will assume Sr-90.			

The radioactive isotopes identified for this emission unit are (no quantities specified):
Pu - 239/240 Sr - 90

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) All HEPA vacuum logs shall be submitted to the department on a quarterly basis (beginning with the first quarter of 2002). This submittal shall be to the department 30 days after the end of each quarter.

5) Monitoring requirements are as follows: In the event that the exhauster is used on different emission units, the Department of Health reserves the right to request a nondestructive analysis/assay (NDA) after each exhaust job assignment (WAC 246-247-075(3)). The monitoring includes: emission estimates to include the methodology, all monitoring measurement results taken during the operation, copy of all logs kept on site and the summary submitted to the department on June 30th.

Log sheets will include the following information:

Results of smears on the exhaust ports;
Maximum contamination level encountered or analysis results,
area cleaned,
and air emission source constituents if other than plutonium 239 and strontium 90 potential radionuclide releases.

6) The approved process is as follows: The HVU's fall into two categories. The firse category is the use if the HVU's for the reduction of smearable contamination (including the special cases listed in Appendix C) and the other is to reduce fixed contamination. Soil matrices are excluded from this NOC.

7) The required controls are described as follows: The HVU's must be field tested annually requiring an aerosol test/efficiency test or equivalent pass/fail criteria of 95.95% using an aerosol defined in ASME N510 or approved equivalent. In addition, the HVU's filtration systems are to be tested whenever the configuration is modified and/or the filtration system is opened. A smear of the exhaust port shall be conducted before and after each use of HVU's. If the exhaust port smear is positive, the unit shall be tagged and removed from service.

8) This NOC shall be revised no later than September 1, 2002. Revision 2 was received in September, 2002. The NOC application was determined to be incomplete, a new NOC application shall be submitted.

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 9.80E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

Management of radioactive contamination during roof replacement activities.

All work shall be performed in accordance with written contractor radiological control requirements (associated with posting and downposting requirements for doing work in outdoor contamination areas and fixed contamination areas) and the as low as reasonably achievable (ALARA) program requirements. These requirements are to be carried out through activity work packages/procedures and associated radiological work permits.

Types of facilities allowed to use this NOC are active and operational, currently in surveillance and maintenance (S&M) mode, or in transition to S&M mode.

Activities are non-routine activities that have a potential to create a new temporary emission source and/or a modification of a source(s) of diffuse and fugitive emissions at facilities on the Central Plateau.

Screening Surveys

Roof replacement activities include radiological surveys to determine if radioactive contamination is present and the extent of such contamination. Spot contamination (e.g., bird droppings) managed before commencement of roof replacement work is handled per existing methods and is considered a routine housekeeping activity (similar to spot contamination found at ground levels).

Managing Radioactive Contamination

Contaminated roofing materials may be removed by manual or powered methods, including saws or other cutting devices, shovels, wheelbarrows, conveyors, chutes, or other similar equipment (conveyors or chutes may be used only for packaged radioactive waste or for non-contaminated roofing material). Radioactive waste shall be managed in accordance with existing onsite requirements and waste acceptance criteria. Radioactive waste either shall be containerized in drums, skiffs, boxes, or other containers, or handled as bulk waste (e.g., dump truck) and transferred to the appropriate disposal facility. Management of radioactive contamination is allowed to include removal and subsequent size reduction of contaminated equipment from a roof as well as isolation and blanking of utilities, vents, and ductwork.

Accumulated rainwater that has contacted contamination areas shall be allowed to evaporate in place or is characterized, collected, and managed in accordance with stormwater discharge requirements or transferred to an appropriate disposal facility.

A graded approach is allowed to be used to match controls with expected contamination levels per radiological control manuals and methods. Radiological contamination that is encountered will either be managed as a fixed contamination area (i.e., less than 20 dpm/100 cm2 smearable alpha and less than 1,000 dpm/100 cm2 smearable beta) or will be managed as a contamination area (radiological contamination levels are between 20 and 2,000 dpm/100 cm2 alpha or between 1,000 and 100,000 dpm/100 cm2 beta) using appropriate controls to minimize worker exposure. These controls include water for dust suppression, fixatives, covers, windscreens, or greenhouses (with PTRAEU exhausters) that will be applied, if needed, as determined by the Health Physics organization, and consist of ALARA techniques.

Process descriptions and abatement controls, as described in the latest approved revisions of the Guzzler NOC

(99-SID-021), the PTRAEU NOC (DOE/RL-96-75), or the HEPA Vacuum NOC (DOE/RL-97-50) shall be used; however, the activity-specific operational controls and tracking requirements shall follow these approval conditions. The Guzzler, PTRAEU, and HEPA vacuum units shall have a removal efficiency of 99.95% for radioactive airborne particles.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 4.80E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	1.00E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

License PTE limit bounds 1.0E-03 Ci/yr 241Am and release fraction of 1.0. Any radionuclide on the chart of the nuclides could be encountered during roof replacement activities. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate form. A small contribution from the gaseous radionuclides may be encountered. Although any radionuclide could be present, for conservatism all alpha is assumed to be 241Am and all beta/gamma is assumed to be 137Cs for dose calculation estimates. Other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta/gamma constituents.

B/G - 0	5.00E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

License PTE limit bounds 5.0E-02 Ci/yr 137Cs and release fraction of 1.0. Any radionuclide on the chart of the nuclides could be encountered during roof replacement activities. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate form. A small contribution from the gaseous radionuclides may be encountered. Although any radionuclide could be present, for conservatism all alpha is assumed to be 241Am and all beta/gamma is assumed to be 137Cs for dose calculation estimates. Other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta/gamma constituents.

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) For dose modeling, the radionuclides of concern shall use cesium-137 (representing beta/gamma emitters) and americium-241 (representing alpha emitters).

5) The total radionuclide content of the material removed shall be tracked on a WDOH approved log.

6) Total sum of the potential release rates of the Guzzler and HEPA Vacuums shall not exceed 1.0 E-3 Ci/Year Alpha and 5.0 E-2 Ci/Year Beta/Gamma.

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 3.28E+00 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 5.75E+03 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 241-AY-101, 241-AY-102, 241-AZ-101, and 241-AZ-102 tanks are double shell tanks. The inner shell is constructed from heat treated, stress-relieved steel. The outer shell is constructed of non stress relieved steel. The two shells are separated by a 2.5 ft annulus and contained inside a concrete shell. The tanks have a usable waste volume of approximately 1,001,000 gal.

The 241 AY and 241 AZ tanks are part of a Resource Conservation and Recovery Act treatment, storage, and/or disposal unit. The tanks contain mixed waste in the form of liquids or contained solids (suspended or settled). The contents in each of the four tanks may be mixed periodically to control gas entrapment in the settled solids, to control temperature, for chemical treatment to control corrosion, or for waste retrieval. Contained solids will be mobilized, as required, as part of this process by hydraulic action of the mixer pumps or by use of air-lift circulators in each of the tanks. During such activities, as well as during storage, the ventilation system maintains the vapor space in each tank below atmospheric pressure.

Airflow is from the tank to a glycol-cooled recirculation system and to a common header. The common header is the point in the overall system at which ventilation flow is provided to the emissions control system. Also, a portion of each tank's exhaust can be recirculated to assist in maintaining temperature.

The recirculation system cools, condenses, removes vapor and some entrained particulates, further removes moisture via a separator, and returns a portion of the cooled vapor to the tank. This provides cooling for the tank while reducing air emissions. Nominal flow rates in the recirculation system vary from zero m3/sec (bypassed) to 0.25 m3/sec per tank, at standard temperature and pressure conditions. At the higher flow rate, approximately 0.05 m3/sec is provided to the emission control system with the remainder to the tank. Similar airflow from the other three tanks is combined in the common ventilation header connecting the discharges of the other recirculation coolant systems. The combined flow is discharged to the emissions control system. The recirculation system is considered part of the process because the collected material is returned to the tank.

When mixer pumps are operating in a tank, the 0.25 m^3/sec drawn from this tank may not be recirculated but may be combined with the flow from the other tanks for a total discharge to the emissions control system flow range of 0.4 to 0.5 m^3/sec. Numerous other combinations of discharge flow rates are possible but the combined annual average discharge flow rate to the emissions control system will not be greater than 0.5 m^3/sec. During system upset conditions, such as an automatic shutdown of one exhaust train and start of the opposite train, discharge flow rates could reach 0.6 m^3/sec for several seconds.

The portion of the stream discharged to atmosphere will flow through a condenser, high-efficiency mist eliminator, heater, and two high-efficiency particulate air (HEPA) filters in series. For purposes of calculating abated emissions, only the HEPA filter control efficiencies are used.

The central pump pits on the 241-AY and 241-AZ Tank Farm tanks are approximately 14 ft long x 10 ft wide x 10 ft depth (outside dimensions). Sluice pits and annulus pump pits are somewhat smaller with outside dimensions of 7 ft x 7 ft x 10 ft deep and 5 ft x 5 ft x 10 ft deep.

With the previous NOC revision, modifications to all four tanks and associated equipment were permitted to allow for installation of waste retrieval systems and equipment, through issuance of letter AIR-05-708, including the following major components.

New In Tank Equipment
•Two mixer pumps each in tanks 241-AZ-102, 241-AY-101, and 241-AY-102 for mobilizing the settled solids. Two mixer pumps were installed in tank 241-AZ-101 and permitted previously by WDOH through issuance of AIR-98-708. All of the pumps will be capable of pumping waste through each of two horizontally opposed discharge nozzles.

•A riser extension/spray wash system on top of each of the risers used for mixer pumps. The spray wash system will be used for future decontamination of the mixer pumps if they are removed from the tank.

•One transfer pump in each tank for the transfer of waste.

•New temperature probes for each tank.

•New decant pumps in the AY tanks and associated transfer piping; to include a one-time use hose-in-hose transfer line approximately 40 ft in length.

Ancillary Equipment and Buildings
•Electrical power and instrument cables and other utility tie ins and/or upgrades (e.g., sanitary and raw water, and telecommunications).
•Tie-in to the existing dilution and caustic supply system to bring waste properties into compliance with the feed specifications and to flush and preheat transfer lines. The dilution system will have the capacity of providing approximately 140 gal/minute of pH adjusted water.
•Pit cover blocks.
•Water/diluent piping to and from the process pits.
•Process jumpers.
•Miscellaneous concrete pads for electrical and mechanical equipment.
•Chain link fencing and gates.

Removal, Repair, Decontamination, and Demolition of Existing Equipment
•Removal/repair of transfer and/or mixer pumps, as necessary, during the life of the facility.
•Removal and disposal of several thermocouple probes/instrument trees.
•Removal and disposal of several existing pumps and other miscellaneous equipment (e.g., slurry distributers and process jumpers).
•Additionally, this revision includes removal of HEGA filters.

CONSTRUCTION ACTIVITIES
Construction activities with the PTE could include soil excavation, work in pump pits, pipe cutting, and removal and installation of in tank equipment. Some of these activities are described in, and will be done in accordance with, an applicable tank farm as low as reasonably achievable control technology (ALARACT) demonstration (HNF 4327, Control of Airborne Radioactive Emissions for Frequently Performed TWRS Work Activities (ALARACT Demonstrations). The specific activities and corresponding ALARACT demonstration are called out as applicable in the following sections.

If needed or chosen for use during these activities, the regulated guzzler, a portable/temporary radioactive air emission unit, and a HEPA filtered vacuum radioactive air emission unit may be used in accordance with the latest revisions of the NOC [EPA 1998 letter, "Approval of Short Form Radioactive Air Emissions Notice of Construction (NOC) for Guzzler Excavation and Backfilling Activities in Support of 200 East Area A Farm Complex"; DOE/RL-96-75, "Radioactive Air Emissions Notice of Construction Portable/Temporary Radioactive Air Emission Units"; and DOE/RL-97-50, "Radioactive Air Emissions Notice of Construction for HEPA Filtered Vacuum Radioactive Air Emission Units," respectively].

Because of the possibility of encountering previously undetected subsurface contamination, all work will be performed in accordance with appropriate radiological controls and the River Protection Project (RPP) as low as reasonably achievable (ALARA) program. These requirements are carried out through work packages and associated Radiological Work Permits (RWP).

Soil Excavation

Soil will be excavated inside and outside the 241-AZ and 241-AY Tank Farms for the dilution piping that will tie-in to the existing AN Tank Farm caustic supply system and to remove soil in preparation for mixer pump foundations and miscellaneous equipment support structures, to remove soil around pits in preparation of core drilling, and for placement of control building foundations (as required). A total of approximately 6000 yd^3 per farm could be excavated. Backfill will be made with the original removed soil or noncontaminated controlled density fill (sand, water, and a small amount of cement).

Soil excavation activities inside the tank farm fence will be performed in accordance with ALARACT Demonstration 5, TWRS ALARACT Demonstration for Soil Excavation (Using Hand Tools). If contamination is discovered outside the tank farm fence, ALARACT 5 will be followed. Clean soil piles could be moved from one place to another within the tank farm with heavy equipment (backhoe, front-end loader, etc.). Soil excavation outside the tank farm fence in noncontaminated soil also could be performed with heavy equipment. The regulated guzzler also could be used as described in the NOC for use in the 241-A Tank Farm Complex (EPA 1998 letter).

Pipe Cutting and Welding
Any required cuts of contaminated piping will be made inside a glove bag using appropriate equipment such as a sawzall or tri tool. To perform a cut without a glove bag, the piping will be surveyed/smeared to verify removable contamination levels are equal to or less than 10,000 disintegrations per minute (dpm) per 100 cm^2 beta gamma and 200 dpm/100 cm^2 alpha.

Welding may be necessary to join various pieces of equipment. If this is necessary, welding will commence once removable contamination levels in the weld area are reduced to ALARA. The goal will be to achieve 1000 dpm/100 cm2 beta gamma and 20 dpm/100 cm^2 alpha or less, but might not always be attainable.

If needed or chosen for use during these activities, a portable/temporary radioactive air emission unit and a HEPA filtered vacuum radioactive air emission unit could be used in accordance with the latest revisions of the NOCs (DOE/RL-96-75 and DOE/RL-97-50, respectively).

Pit Work
Work to be performed in pits may include replacing existing sets of cover blocks with newly designed cover blocks, core drilling (equivalent of one hundred 14-in. diameter holes for AZ Farm and ten 14 in. diameter holes for AY Farm), installing new nozzles, and removing existing jumpers.

Pit access and work will be performed in accordance with ALARACT Demonstrations 6 and 14, TWRS ALARACT Demonstration for Pit Access, and TWRS ALARACT Demonstration for Pit Work. Activities not covered in these ALARACTs are described in the following.

If needed or chosen for use during these activities, a portable/temporary radioactive air emission unit and HEPA filtered vacuum radioactive air emission unit could be used in accordance with the latest revisions of their NOCs (DOE/RL-96-75 and DOE/RL-97-50, respectively).

At the start of the pit work, the cover blocks will be lifted off and radiologically surveyed to determine an appropriate disposal method. New cover blocks will be installed when all work in the pits is completed.

Core drilling may be performed and will occur below grade level on the outside of the pit. The hole will be drilled from the outside to the inside, with the temporary pit cover in place. Nozzle installation generally will proceed immediately after the hole is completed. If immediate nozzle installation is not possible, the hole will be temporarily sealed with a plug, tape, or equivalent device until the nozzle can be installed.

Installation of new nozzles in existing pits will take place in an open pit. All parts of the nozzle will be assembled ahead of time and will be lowered into position as a single unit. The piping in the back of the nozzle will be threaded through the hole (from the inside of the pit to the outside) and pulled tight into place from the outside of the pit. Grout will be used to secure and seal the nozzle into place. The front opening of the nozzle, inside the pit, will be fitted with a temporary cap/seal until a jumper is connected to the nozzle. Once the nozzle(s) is/are installed, the temporary pit cover will be replaced until other work inside the pit requires pit cover removal.

Removal of In Tank Equipment
Various in-tank equipment will be removed from the tanks to make room for the waste retrieval equipment, or to be replaced with equivalent equipment built to withstand the mixer pump jet forces. Removed long-length equipment will either be packaged in long-length contaminated equipment disposal containers or size reduced for disposal in accordance with ALARACT Demonstration 15, Tank Farm ALARACT Demonstration for Size Reduction of Waste Equipment for Disposal. Equipment removal will be performed in accordance with ALARACT Demonstration 13, TWRS ALARACT Demonstration for Installation, Operation, and Removal of Tank Equipment. Activities not covered in this ALARACT are described in the following.

If needed or chosen for use during these activities, a portable/temporary radioactive air emission unit, and a HEPA filtered vacuum radioactive air emission unit may be used in accordance with the latest revisions of their NOCs (DOE/RL-96-75 and DOE/RL-97-50, respectively).

Decontamination of removed equipment is not anticipated. The fewer decontamination activities undertaken, the less exposure possibilities there are to the worker and the environment. Contingency decontamination plans, however, are in place if needed. The most likely equipment to be decontaminated would be sections of the flexible receiver. Equipment removal will be performed in accordance with TWRS ALARACT Demonstration 13, Installation, Operation, and Removal of Tank Equipment.

In Tank Equipment Installation
Equipment installation will be performed in accordance with TWRS ALARACT Demonstration 13, Installation, Operation, and Removal of Tank Equipment.

WASTE STAGING AND RETRIEVAL PROCESS OVERVIEW
Mixer pumps will be operated to maintain waste uniformity during staging and to mix the waste for a period before and during transfer. As required by operational directives, mixer pumps will be operated until waste samples verify that adequate mixing has been achieved. Waste samples will be collected in accordance with TWRS ALARACT Demonstration 7, Tank Waste Grab Sampling. If dilution/conditioning is needed, the pH and temperature of the diluents will be adjusted by means of a caustic supply system. Once the waste is verified acceptable, the transfer lines will be preheated/flushed with water, and the waste transfer to the treatment facility will follow. After the transfer, the lines will be flushed again with water.

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

Alpha - 0 See quantities listed under emission unit 486 for this NOC.	B/G - 0 See quantities listed under emission unit 486 for this NOC.

4) If a HEPA filtered vacuum radioactive air emission unit is used during the pipe cutting activities, controls as described in the NOC DOE/RL-97-50 will be followed.

5) If a HEPA filtered vacuum radioactive air emission unit is used during the pit work activities, controls as described in the NOC DOE/RL 97-50 will be followed. Descriptions of the emissions control technology for these units are provided in the NOC.

6) If a HEPA filtered vacuum radioactive air emission unit is used during the removal or installation of in tank equipment activities, controls as described in the NOC DOE/RL-97-50 will be followed. Descriptions of the emissions control technology for those units are provided in the NOC.

7) MONITORING DURING CONSTRUCTION ACTIVITIES

During pipe cutting activities surface contamination surveys will constitute the PCM to verify low emissions. If a HEPA filtered vacuum radioactive air emission unit is used, PCM will be performed as required by these NOC.

During pit work activities, PCM as described in ALARACT 14 will verify low emissions. If a HEPA filtered vacuum radioactive air emission unit is used, PCM will be performed as required by these NOC.

During in tank equipment removal and installation activities surface contamination surveys, as described in ALARACT Demonstration 13, TWRS ALARACT Demonstration for Installation, Operation and Removal of Tank Equipment (HNF-4327) will constitute the PCM to verify low emissions. If a HEPA filtered vacuum radioactive air emission unit is used, PCM will be performed as required by these NOC.

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 3.44E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

2) Excavation and Retrieval of Containers (drums or boxes)
Work will be performed in accordance with as low as reasonably achievable (ALARA).

The specific steps or approach to uncovering the containers will vary according to the configuration of the trench to be uncovered, the proximity of nearby trenches or fences, the designated location of the spoils pile, the planned extent of the soil removal, and other similar considerations.

Work to be performed within the V notched trenches is similar to the ongoing TRU retrieval project, but much of it may be performed within a weather resistant structure(s) that will be relocatable along the trench. Weather enclosures are effectively used for similar remediation activities at other U.S. Department of Energy (DOE) sites and in general industrial use. The use of a weather resistant enclosure could allow a more effective recovery from events involving degraded containers and potential contamination spreads.

The overburden soil will be removed to expose the waste containers. Excavation equipment will be chosen to effectively remove soil and retrieve the waste containers while minimizing damage to the containers. Excavation activities will be monitored to identify contamination that might be present and to minimize emissions.

The most efficient methodology for removing the uncontaminated overburden from the containers will include the maximum use of conventional methods such as backhoes, front end loaders, mechanical brooms (boom mounted), or manual digging with shovels and similar hand tools. Hand tools predominantly may be used to excavate contaminated soil. High efficiency particulate air (HEPA) filtered vacuums may be used for soil excavation, and spot contamination in accordance with the HEPA filtered vacuum unit (HVU) NOC (DOE/RL 97 50, as amended). Within the V Notched trenches, it is more likely that the use of a vacuum to remove larger quantities of soil from the top surface of buried containers and soil materials in the interstices surrounding containers will be employed. Any use of the sitewide Guzzler® will be performed under the NOC applicable to the unit.

Excavation activities will be controlled closely. When the quantity of soil removed with heavy equipment has reached the logical end, hand tools, light equipment, or HVUs may be used to complete the soil removal operations and to access and remove the plastic and plywood materials (to be set aside for reuse or disposal) covering the containers.

The exposed containers will be visually inspected and surveyed for contamination. Abnormal drum conditions will be managed as follows: Contaminated containers will be decontaminated or overpacked as needed. Bulging or potentially pressurized containers will be vented. Retrieval activities will include appropriate disposition of small amounts of incidental contaminated soil (e.g., containerized or fixed in place). Larger areas of contamination could be fixed and the area posted as required by the Radiological Control organization for later disposition. Bulk transfer of contaminated soils for disposal in another trench also could occur. All containers will be inspected to verify integrity. The container inspection will consist of a visual examination to determine if there are significant corrosion, holes, dents or other visual deformities. All containers could be moved, turned, or otherwise relocated (manually or with powered equipment, slings, clamps, or appropriate rigging) to facilitate an adequate visual inspection.

Overpacking containers with minor defects (pinholes, corrosion) is routinely performed at the LLBG and CWC. Precautions will be provided to safely retrieve containers of questionable integrity. It is expected that 10 to 100 percent of the newly retrieved containers will require overpacking or some other form of confinement. Breached and heavily corroded containers will usually be overpacked before being relocated. However, if a breached or heavily corroded container can provide adequate confinement, it may be relocated to an area for overpacking. The overpacked containers will be managed according to the LLW (including

mixed waste) or TRU waste designation (TRU containers are those with TRU content greater than 100 nCi/g), established by records or assay.

After a container is inspected visually and the structural integrity established, the container, if unvented, will be staged for venting, or moved to another TSD unit for venting. Retrieved TRU waste containers in their staged configuration at the LLBG will be inspected for outwardly visible signs of corrosion or degradation (overpacking as needed).

Venting of Containers
All work will be performed in accordance with the applicable operating procedures, radiological control procedures, radiological work permit (RWPs) and ALARA requirements.

Experience at other DOE sites has shown a potential for flammable gases to be present in some containers. Therefore all containers will be evaluated and vented if needed even if not specifically designated as TRU containers.

The vent filters will continue to be installed in designated containers via one of the drum venting systems that ensures personnel and environmental protection. The methodology will require penetrating the container and inserting a vent. Penetration of the lid will be accomplished by either drilling through the lid or puncturing the lid with a filter dart (using Dart System). Container venting systems are described in the following text. Designated drums slated for venting will be vented with the MDVS, Catagorical DVS, or other venting methods (with prior approval of WDOH).

MDVS (Mobile Drum Venting System)
The MDVS is enclosed in a trailer containing system equipment allowing an operator to sample and/or vent the drum and install a NucFil® filter or equivalent. Potential emissions from MDVS operations are point source emissions. Bulging or potentially pressurized drums may be overpacked, placed in restraints and then vented.

The MDVS trailer may be equipped with a HEPA vacuum system to prevent contamination from exiting through any incidental gaps and to clean room air in the event of airborne contamination. These emissions will be accounted for with the sitewide HEPA Vacuum NOC. The system could be automatically activated when the continuous air monitor (CAM) alarms or it could be manually activated. The CAM and/or air sample results will be used to verify the PTE is within the limits of the sitewide HEPA vacuum NOC.

Dart System
The Dart System is a portable unit that clamps directly onto a drum, using a pneumatic driver remotely activated by wire or radio transmitter. This system penetrates the drum lid with minimal risk of contamination release to install a NucFil® filter with an aluminum bronze housing to prevent the possibility of sparking. Potential emissions from these operations will be considered diffuse and fugitive.

Catagorical DVS2 (Drum Venting System 2)
The DVS2 vent system, utilizing a pneumatic drill, is remotely actuated to vent the drum. After the drum is vented, a filter is hand-installed; the headspace of the drum is sampled and analyzed in the DVS2 via a sample port on the filter. The analysis process involves withdrawing a sample directly from the container head space through flexible tubing to a gas chromatograph (GC) for analysis. During analysis, the sample is heated up to 212°F (100°C) within the GC and subsequently allowed to cool to 70°F (21°C) or below before it is emitted to the atmosphere. Up to 150 of these samples are planned to be done per week per GC. No more than 9,000 drums per year will be analyzed by the combined HSGS units. Upon completion of analysis, the drum is staged in a designated area for diffusion. Glove bags may be used to contain potential contamination. A portable HEPA vacuum with a variable speed is connected to the HEPA filter on the glovebag and will be used for exhausting the glovebag. The vacuum will be operated during venting and for a short time following venting at a low flow. The vacuum may or may not be operated during the headspace analyses activities. Glovebags will also have ports to check for contamination or hazardous gases. As many as three venting assemblies will be installed in a weather enclosure such as a Conex box. Connections for the third assembly may be used with the TRU Retrieval Drum Restraint in the event of a bulged or high DE-Ci drum.

The DVS2 unit will be installed within an enclosure such as a Conex box or trailer, and within the CWC complex, with side doors that will open to accommodate loading and unloading the drums.

The HSGS analysis unit in the DVS2 will exhaust through the HEPA vacuum, although the vacuum may or may not be operating when the analysis is performed. A small percentage (0.5%) of the sample stream will be released as diffuse and fugitive.

Other Venting Methods
The venting of other containers, the majority being fiberglass reinforced plywood (FRP) boxes but could also be metal containers - hereafter referred to collectively as boxes, located in CWC and the LLBG may be done. Two venting systems for the boxes will be used. Both systems will be capable of mating to various sized boxes and will be capable of installing a Nucfil® filter or equivalent into the box headspace.

One type of vent system uses a steel plate held in place against the side of a box by a forklift as a blast shield for personnel protection in the event the container is pressurized. A rubber gasket will provide a seal between the steel plate and the box. A glove bag will then be attached to the steel plate and the box to provide for contamination control during the drilling of the box. The glove bag contains a HEPA-type filter for passive control of contaminated particulates that may escape from the box during the drilling operation. In the event contamination is encountered during filter installation, a HEPA vacuum would be connected for use only after the filter is installed. The HEPA vacuum would be subject to the sitewide HEPA vacuum NOC.

After the steel plate and glove bag are in place personnel will drill a pilot hole in the box, monitor for the presence of contamination and hazardous gases, and install a Nucfil® filter or equivalent. A time weighted release of 60 minutes per box is allowed for drilling and filter installation. These activities will be conducted through glove ports that are an integral part of the glove bag. The drilling will be done with non-sparking and cold drilling techniques. A static dissipating cleaner manufactured by STATICO ™ or equivalent will be used to decay electrostatic build up in the fiberglass during drilling.

A second type of vent system for FRP boxes may be used that is similar to the portable DVS operating at T Plant. There could be several of these units in use within the LLBG. A glove bag with HEPA-type filter is used but without the steel plate and the drilling will be done remotely. The drill assembly and motor and bit type will remain the same. The system uses a pneumatic cold drilling technique that utilizes remote activation. The FRP venting system is placed on the top or side of the box and held in place with straps or clamps throughout the drilling and filter installation operation. A static dissipating cleaner manufactured by STATICO™ or an equivalent will be used to decay electrostatic build up in the fiberglass during drilling. A time weighted release of 60 minutes per box is allowed for drilling and filter installation. After holes are drilled, Nucfil® filters or equivalent will be hand installed in the box using glove ports in the glovebag.

In the event contamination is encountered during the installation of a Nucfil® a HEPA vacuum would be connected for use only after the Nucfil® is installed. The HEPA vacuum would be subject to the sitewide HEPA vacuum NOC.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 9.01E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	2.97E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(e)
Alpha release rate based on Am-241. Release rate for contaminated soil removal using HEPA Vacuum. See condition 4.			
B/G - 0	1.73E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(e)
Beta/Gamma release rate based on Cs-137. Release rate for contaminated soil removal using HEPA Vacuum. See condition 4.			

The radioactive isotopes identified for this emission unit are (no quantities specified):

Am - 241	Am - 243	Cf - 252	Cm - 244	Cs - 134
Cs - 137	Eu - 152	Eu - 154	Pu - 238	Pu - 239/240
Pu - 241	Sr - 90	U - 234	U - 235	U - 236
U - 238				

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) HVU potential unabated release rates of 2.97 E-3 Ci/yr alpha (based on americium-241) and 1.73 E-2 Ci/yr beta (based on cesium-137) is based on a release fraction of 1. This alternative release fraction is approved as being conservative for this emission unit.

5) HVUs shall be tested at 99.95% removal efficiency and shall be aerosol tested annually using ANSI N-510 as guidance for non-ANSI N-509 systems. Records of this testing shall be maintained on file.

6) It is recognized that other radionuclides may be present in very limited quantities.

7) Use of HVUs for control of localized spot contamination will be done in accordance with the HVU NOC (DOE-RL-97-50, as amended).

Emission Unit ID: 461

200 W-PORTEX 011

Permacon Unit

This is a MINOR, ACTIVELY ventilated emission unit.

Miscellaneous Support Facilities

Abatement Technology NONE 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	

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)		Quartery frequency revisited after a year for changes to annual.

Sampling Requirements Quarterly for 2 weeks of operations

Additional Requirements

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

Operational Status Operations at the PERMACON unit involve headspace gas sampling of waste containers at the CWC.

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

Project Title	Approval #	Date Approved	NOC_ID
Central Waste Complex (CWC) Operations	AIR 08-801	8/5/2008	654

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 2.40E-05 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 following types of waste are managed at CWC: low-level (LLW), low-level mixed (LLMW), transuranic (TRU), TRU-mixed waste and Toxic Substance Control Act (TSCA) regulated waste. The LLW typically contains rags, paper, rubber gloves, disposal supplies, tools, industrial waste (e.g., failed equipment), solidified wastes that are contaminated with radioactive material. This waste is considered LLW if it contains radioactive material and is not classified as TRU waste, high-level waste, or spent nuclear fuel.

TRU and TRU-mixed waste typically contains rags, paper, rubber gloves, disposable supplies, tools, industrial waste (e.g., failed equipment), solidified process byproducts, and laboratory wastes that are contaminated with TRU material. This waste must contain at least 100 nCi of TRU material per gram of waste or it is considered LLW. The TRU waste accepted by CWC may contain varying concentrations of TRU radionuclides and limited amounts of non-TRU radionuclides. With some exceptions allowed based on safety analysis, the TRU content of waste containers is generally limited to 53 239/240 Pu dose equivalent curies (DE-Ci), where the DE Ci is derived by multiplying the isotopic composition (i.e., weight fractions of the various TRU isotopes) by the specific activities of each isotope, and then converting that number with corrections factors taken from the Hanford Site Solid Waste Acceptance Criteria. The DE-Ci unit is designed to control inhalation dose impacts independent of radionuclide type. The radionuclides Pu-39 and Pu-240 are considered equivalent and are combined for calculation purposes.

The unabated emissions shall be tracked by DE curies.

The CWC stores low-level (LLW), low-level mixed (LLMW), transuranic (TRU), TRU-mixed and TSCA regulated waste.

The CWC is designed for the receipt and storage of contact-handled waste packages, which are defined as packages having surface dose rate of less than 2 mSv/h (200 mrem/h), but can store packages above this limit in accordance with the approved safety analysis. Each waste package is characterized before receipt and based on this information; incompatible forms of waste are physically segregated.

CWC personnel receive and inspect waste packages at the Waste Receiving and Staging Area. Transport off-load operations are performed by hand truck, forklift, or crane by qualified personnel. Packages are transported, generally by forklift to the assigned facility/area. Alternatively, waste packages may be received, inspected and unloaded at the specific facility/area where the waste will be stored.

Waste containers are not opened during normal operations at the CWC buildings. Under normal operating conditions there is no airborne release of radioactive material expected from opening waste containers.

Inventories of TRU content, non-TRU radionuclides, and hazardous waste constituents are controlled at all waste storage facilities at the CWC. The inventory control system ensures that each building, building quadrant, or module will comply with its established inventory limit.

TRU waste containers are generally equipped with a pressure relief vent device, such as the NucFil filter. This filter allows the release of any gases that may be produced as a result of radiolysis inside the container, while preventing release of any particulate matter.

Waste shipments are transported to the Waste Receiving and Staging Area where the waste containers are radiologically surveyed and the exterior visually inspected for physical integrity. Waste records are checked for completeness and accuracy in accordance with procedures that provide instructions for performing detailed entry-by-entry reviews of waste records. To the extent practicable, this work is performed before unloading. However, partial unloading of a shipment may be necessary to complete a thorough survey and inspection. Verification of container contents, which may involve the opening of containers and sampling of waste contents is performed at a facility separate from the CWC (e.g., T-Plant).

Waste packages meeting all acceptance criteria are accepted for storage. Non-compliant waste packages (e.g., with paperwork errors or omissions and damaged containers) are held until the non-compliant condition is corrected to the satisfaction of the responsible Solid Waste Manager or designee.

To detect leaking or deteriorating containers, or deterioration of the containment system, all waste containers are inspected in accordance with regulatory requirements.

PermaCon unit:

This license allows the placement of a PermaCon modular containment unit in the existing CWC buildings for the purpose of sampling the head space gas within solid waste storage containers. The ventilation system for the 2404-W series Storage Buildings consists of two roof mounted exhausters, each rated at a minimum of 16, 775 cubic feet per minute. CWC storage building of similar dimensions and venting as the 2404-W series must be selected for the PermaCon Unit.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 4.80E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	9.50E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(e)
Alpha release rate based on Am-241.			
Beta - 0	7.60E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(e)
Beta release rate based on Cs-137.			

The radioactive isotopes identified for this emission unit are (no quantities specified):

Ac - 228	Am - 241	Am - 243	Ar - 41	Ba - 137
Bi - 212	Bi - 214	C - 14	Ce - 141	Ce - 144
Cf - 252	Cm - 242	Cm - 243	Cm - 244	Co - 58
Co - 60	Cr - 51	Cs - 134	Cs - 137	Eu - 152
Eu - 154	Eu - 155	Fe - 59	H - 3	I - 129
I - 131	K - 40	Kr - 85	Mn - 54	Nb - 95
Np - 237	Pb - 212	Pb - 214	Pm - 147	Po - 210
Po - 212	Po - 216	Pu - 238	Pu - 239	Pu - 240
Pu - 241	Pu - 242	Ra - 224	Ra - 226	Rn - 220
Ru - 103	Ru - 106	Sb - 124	Sb - 125	Sn - 113
Sr - 89	Sr - 90	Tc - 99	Th - 228	Th - 232
Th - 234	Tl - 208	U - 232	U - 233	U - 234
U - 235	U - 236	U - 238	Y - 90	Zn - 65
Zr - 95				

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) A fixed head sampler, located inside the PermaCon near the exhaust stack, shall be used at least quarterly (for the period of operation or two weeks which ever is lower) to obtain samples of the airspace within the PermaCon unit during operation for each quarter that the PermaCon is operated.

5) Emissions from the PermaCon shall be vented through a 2,000 cfm or less testable HEPA filter exhauster.

6) The isotopes identified in Condition 3 represent all of the significant radionuclides historically present at the Central Waste Complex (CWC), including some that are not significant. Any radionuclide on the chart of the nuclides could be present or received at CWC in the future. Periodic confirmatory measurements to verify low emissions are preformed by taking a two-week air sample on a quarterly basis and analyzing for total alpha and total beta. Although any radionuclide could be present for conservatism all alpha is assumed to be Am-241 and all beta is assumed to be Cs-137 for dose calculation estimates.

7) In accordance with WAC 246-247-080 (7), a log shall be maintained for the Permacon Unit. This log will be used to record the dates, locations, and duration of operation. In accordance with WAC 246-247-080 (8), the Permacon log will be maintained in a readily retrievable storage area and be available for review in order to ensure compliance for at least five years.

Emission Unit ID: 465

200 J-NONPOINT 012

Purgewater Modutanks

This is a MINOR, FUGITIVE, non-point source emission unit.

Miscellaneous Support Facilities

Abatement Technology NONE 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

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
WAC 246-247-075(3)	40 CFR 61, Appendix B, Method 114(3)	TOTAL ALPHA TOTAL BETA	Air - every 2 weeks continuous/deposition - annually

Sampling Requirements Near Facility Ambient Air Sampling

Additional Requirements

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

Operational Status Operations at purgewater tanks involve solar evaporation of purgewater on the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Demolition of the Purgewater Storage and Treatment Facility Unit #1	AIR 09-804	8/11/2009	747

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 6.69E-06 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 proposed action is to discontinue use of the Unit #1 for further storage and treatment, then demolish Unit #1 at the Hanford Site Purgewater Storage and Treatment Facility. As such, the release potential will be increased, thereby representing a modification. In accordance with the definitions in the WAC 246 247, this demolition will not represent a significant modification. The anticipated emissions associated with this activity are minor.

There are no chemical processes associated with this emission unit. All emissions associated with the demolition, sediment and water removal activities will be diffuse/fugitive as described in the following sections.

The PSTF consists of two aboveground, open-containment vessels (modular storage tanks) located just east of the 200 Area Effluent Treatment Facility on the Hanford Site. The surrounding area is undeveloped desert. The modular storage tanks consist of Unit 1 and Unit 2. These units are free-standing units installed on the soil surface. The capacity of the units is 3,785,400 liters (L) [1,000,000 gallons (gal)] each. The units have steel sidewalls that support a double layer of flexible membrane liners (FMLs). The FMLs are 80 mil high-density polyethylene, separated by a geotextile layer. A leak detection system consisting of a standpipe with depth measurement and sampling capability is connected between the two liners. Unit 1 has been operational since 1990. Unit 2 was constructed but has never been placed into active service.

Water content in Unit 1 will be reduced using natural evaporation, mechanical methods (e.g., pumping),

and/or absorbent material additions until the sediments are dry enough to remove.

The sediments and structures for Unit 1 will be removed using standard industrial equipment used for demolition and/or excavation. This waste will be packaged to meet ERDF acceptance criteria and loaded into transport containers for shipment to the ERDF.

Any sediment material introduced to the underlying soil because of spills from the top and bottom liners will be removed and disposed at the ERDF under an approved waste profile. Materials generated during the removal action will be staged in a waste storage area established near the unit prior to shipment.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 6.69E-06 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	3.99E-07	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Based on Americium 241. While the potential release rates for all emissions are conservatively represented by the listed isotopes [Am-241 (alpha), Cs-137 + D (beta-gamma), and H-3], essentially any radionuclide may be present.

B/G - 0		Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Without Tritium. Based on Cesium 137. While the potential release rates for all emissions are conservatively represented by the listed isotopes [Am-241 (alpha), Cs-137 + D (beta-gamma), and H-3], essentially any radionuclide may be present.

H - 3	2.35E-03	Gas	WAC 246-247-030(21)(a)

While the potential release rates for all emissions are conservatively represented by the listed isotopes [Am-241 (alpha), Cs-137 + D (beta-gamma), and H-3], essentially any radionuclide may be present.

The radioactive isotopes identified for this emission unit are (no quantities specified):

Ac - 228	Bi - 212	Bi - 214	Co - 60	Cs - 134
Eu - 155	H - 3	Pb - 212	Pb - 214	Pu - 239/240
Ra - 226	Ra - 228	Sr - 90	Th - 234	Tl - 208

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) Health physics coverage will be provided during all excavation activities.

5) Appropriate controls such as water, fixatives, or covers will be applied, if needed, as determined by the health physics personnel.

6) The soil surface radiological contamination levels will be verified less than 5,000 dpm/100 cm^2 beta/gamma and less than 100 dpm/100 cm^2 alpha. If contamination is present above these levels, soil will be removed and containerized for disposal or covered or fixed to provide containment of the contamination until such removal.

7) As appropriate, before starting work on removing structural components, removable contamination in the affected area(s) will be reduced to ALARA. Measures such as fixatives or decontamination chemicals will also be used as necessary to help reduce contamination.

8) If field surveys during excavation identify localized areas of contamination greater than 5,000 dpm/100 cm^2 beta/gamma and 100 dpm/100 cm^2 alpha, additional surveys will be conducted to verify the extent, with appropriate added emphasis to minimize the potential for airborne material.

9) Excavated soils may be stockpiled in appropriately posted area(s) adjacent to excavation locations.

10) Contaminated soil stockpiles that are inactive for greater than 24 hours will require positive dust control measures be applied.

11) All soil excavation activities operating under this NOC will cease operations when sustained wind conditions reach or exceed 20 miles per hour.

Emission Unit ID: 472

200W P-Trench31 001

Leachate Collection Tank for Trench 31

This is a MINOR, FUGITIVE, non-point source emission unit.

200 West Burial Grounds

Abatement Technology NONE 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

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
WAC 246-247-075(3)			Before and after emptying the tank. When the tank is not empty, take a monthly smear (after commencement of bulk waste disposal).

Sampling Requirements Smear sample of overflow pipe

Additional Requirements

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

Operational Status Activities in Trench 31 and 34 involve receipt and disposal of TSCA wastes on the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Trench 31 and 34: Leachate Collection and Storage Tank (LLBG Mixed Waste Disposal)	AIR 06-1023	10/5/2006	662

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 3.03E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

Trenches 31 and 34 shall be used for the disposal of low-level waste, low-level mixed waste, and radioactive waste containing Toxic Substances Control Act regulated polychlorinated biphenyls resulting from current operations across the Hanford Site, cleanup activities across the Hanford Site and from other offsite facilities. Each trench shall provide disposal capacity for approximately 22,000 m3 (28,000 yd3) of waste. Waste to be disposed of in the trenches can consist of contaminated soil and debris (bulk waste), sealed containers, vented containers, and any other type of waste meeting Low Level Burial Grounds (LLBG) waste acceptance criteria.

The leachate collection systems for Trenches 31 and 34 share a common design. That design encompasses primary and secondary leachate collection systems. The primary and secondary leachate collection systems are comprised of alternating layers of soils, geomembrane liners, collection pipes, collection sumps, sump pumps, and a single collection tank for each trench. Liquid accumulates under the disposed material in the bottom of each trench in the primary liner of each trench (not exposed directly to atmosphere). When approximately one foot of precipitation of liquid is accumulated in the collection sumps, the pumps are activated to transfer the liquid to the tanks.

The leachate collection tanks at Trenches 31 and 34 are both above ground. Each tank has a capacity of approximately 10,000 gallons. Both tanks are cylindrical and approximately 8 feet (2.5 meters) in diameter and 24 feet (7.2 meters) long. Both tanks are passively vented via a liquid overflow pipe.

For disposal, the liquid will be transferred from the tanks to a tanker truck. Based on past operational experience, it is anticipated that up to approximately 415,000 gallons, per tank, per year could be transferred to the tanker trucks. More than one truck may be used at the same time. The tanker truck(s) shall be fitted with a three-quarter inch vent that will be opened during filling and emptying operations.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 6.10E-03 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Pu - 239/240	9.74E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(e)
U - 0 Isotopes of U-233/234/235/238	7.00E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(e)

The radioactive isotopes identified for this emission unit are (no quantities specified):

Am - 241	C - 14	Co - 60	Cs - 137	Eu - 152
Eu - 154	Eu - 155	Na - 22	Pu - 238	Pu - 239/240
Ra - 226	Sr - 90	Tc - 99	Th - 230	Th - 232
U - 0				

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) Upon commencement of placing non-containerized radioactively contaminated waste in Trench 31 and/or Trench 34, a periodic confirmatory measurement (PCM) activity shall be implemented. This PCM activity shall consist of smearing the orifice(s) of the liquid overflow pipe(s) before and after emptying the tank(s). During those months when the tank(s) is/are not emptied, a smear shall be taken monthly. After the accumulation of one year's worth of smear data, the frequency of this PCM activity shall be reassessed based on the results of the smear data.

5) The radioactive isotopes identified for this emission unit represent all of the significant radionuclides historically present for the leachate collection tank 31, including some that are not significant. Any radionuclide on the chart of nuclides could be present or received at leachate collection tank 31 in the future.

Emission Unit ID: 473

200W P-Trench34 001

Leachate Collection Tank for Trench 34

This is a MINOR, FUGITIVE, non-point source emission unit.

200 West Burial Grounds

Abatement Technology NONE 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

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
WAC 246-247-075(3)			Before and after emptying the tank. When the tank is not empty, take a monthly smear (after commencement of bulk waste disposal).

Sampling Requirements Smear sample of overflow pipe

Additional Requirements

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

Operational Status Activities in Trench 31 and 34 involve receipt and disposal of TSCA wastes on the Hanford Site.

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

Project Title	Approval #	Date Approved	NOC_ID
Trench 31 and 34: Leachate Collection and Storage Tank (LLBG Mixed Waste Disposal)	AIR 06-1023	10/5/2006	662

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 3.03E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

Trenches 31 and 34 shall be used for the disposal of low-level waste, low-level mixed waste, and radioactive waste containing Toxic Substances Control Act regulated polychlorinated biphenyls resulting from current operations across the Hanford Site, cleanup activities across the Hanford Site and from other offsite facilities. Each trench shall provide disposal capacity for approximately 22,000 m3 (28,000 yd3) of waste. Waste to be disposed of in the trenches can consist of contaminated soil and debris (bulk waste), sealed containers, vented containers, and any other type of waste meeting Low Level Burial Grounds (LLBG) waste acceptance criteria.

The leachate collection systems for Trenches 31 and 34 share a common design. That design encompasses primary and secondary leachate collection systems. The primary and secondary leachate collection systems are comprised of alternating layers of soils, geomembrane liners, collection pipes, collection sumps, sump pumps, and a single collection tank for each trench. Liquid accumulates under the disposed material in the bottom of each trench in the primary liner of each trench (not exposed directly to atmosphere). When approximately one foot of precipitation of liquid is accumulated in the collection sumps, the pumps are activated to transfer the liquid to the tanks.

The leachate collection tanks at Trenches 31 and 34 are both above ground. Each tank has a capacity of approximately 10,000 gallons. Both tanks are cylindrical and approximately 8 feet (2.5 meters) in diameter and 24 feet (7.2 meters) long. Both tanks are passively vented via a liquid overflow pipe.

For disposal, the liquid will be transferred from the tanks to a tanker truck. Based on past operational experience, it is anticipated that up to approximately 415,000 gallons, per tank, per year could be transferred to the tanker trucks. More than one truck may be used at the same time. The tanker truck(s) shall be fitted with a three-quarter inch vent that will be opened during filling and emptying operations.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 6.10E-03 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Pu - 239/240	9.70E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(e)
U - 0 Isotopes of U-233/234/235/238	7.00E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(e)

The radioactive isotopes identified for this emission unit are (no quantities specified):

Am - 241	C - 14	Co - 60	Cs - 137	Eu - 152
Eu - 154	Eu - 155	Na - 22	Pu - 238	Pu - 239/240
Ra - 226	Sr - 90	Tc - 99	Th - 230	Th - 232
U - 0				

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notifiy the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) Upon commencement of placing non-containerized radioactively contaminated waste in Trench 31 and/or Trench 34, a periodic confirmatory measurement (PCM) activity shall be implemented. This PCM activity shall consist of smearing the orifice(s) of the liquid overflow pipe(s) before and after emptying the tank(s). During those months when the tank(s) is/are not emptied, a smear shall be taken monthly. After the accumulation of one year's worth of smear data, the frequency of this PCM activity shall be reassessed based on the results of the smear data.

5) The radioactive isotopes identified for this emission unit represent all of the radionuclides historically present for the leachate collection tank 34, including some that are not significant. Any radionuclide on the chart of nuclides could be present or received at leachate collection tank 34 in the future.

Emission Unit ID: 476

Hanford Sitewide Guzzler-001

Guzzler

This is a MINOR, ACTIVELY ventilated emission unit.

GUZZLER

Emission Unit Information

Stack Height: 12.00 ft. 3.66 m. Stack Diameter 0.75 ft. 0.23 m.

Average Stack Effluent Temperature: 54 degrees Fahrenheit. 12 degrees Celsius.

Average Stack ExhaustVelocity: ft/second. 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
	Collection Tank and Plate Separator	1	
	Cyclone Separator	2	
	Micro-strainer Device	1	
	HEPA	3	Three in-place tested HEPA filters in parallel.
	Baghouse	2	Baghouse system with a total of 68 bags (i.e., 34 bags per baghouse).

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)	Each radionuclide that could contribute greater than 10% of the potential-to-emit TEDE to the MEI, greater than 0.1 mrem/yr potential-to-emit TEDE to the MEI, and greater than 25% of the TEDE to the MEI, after controls.	When the HEPA filters are replaced and annually screening the HEPA filtration system.

Sampling Requirements Radiation surveys and to include but not limited to NDA testing of the HEPA filters and screening the HEPA filtration system using gamma spectroscopy.

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 Guzzler ® portable emission unit is a completely self-contained vacuum used to support operations, such as but not limited to, waste characterization, waste retrieval, decommissioning, deactivation, maintenance, and construction and operation support activities. The emission unit operates intermittently.

This Emission Unit has 7 active Notice(s) of Construction.

Project Title	Approval #	Date Approved	NOC_ID
Guzzler Excavation and Backfilling Activities in Support of the 200 East Area A Farm Complex	AIR 06-1012	10/5/2006	647

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 5.00E-02 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 5.00E-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 utilization of the Guzzler for excavation of soil and gravel within the A Farm Complex. Activities shall include potholing for utility locations and general soil removal and excavation.

The soil used for backfilling activities shall be completed manually using shovels, backhoes, loaders, and packers.

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

Am - 241	1.49E-03	Sr - 90	2.24E-01

4) Aerosol testing and NDA of Guzzler HEPA filters shall be conducted annually.

5) HPT shall field surveys every vertical and linear foot of excavation.

Project Title	Approval #	Date Approved	NOC_ID
Use of the Guzzler™ (Filter Vacuum Truck) Vacuum Excavation System for Radiologically Limited Activities on the Hanford Site.	AIR 08-404	4/30/2008	658

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 5.00E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 utilization of the Guzzler™ Vacuum Excavation System (Guzzler™) for potholing to support utility locations, soil removal/general excavations, and radiologically limited activities involving roof or pit cleaning (note, radiologically limited activities means work locations where soil radiological contamination levels are not expected to exceed 50,000 dpm/probe size beta-gamma and/or 140 dpm/probe size alpha). For purposes of this license, "soil" will be defined as sand, dirt, gravel, gravel and tar mixtures and rock, or any combination of these items. Note, beta-gamma probe size is ~16.7 cm^2 and alpha probe size is ~50 cm^2. Note, the terms, "Guzzler™," and "Filtered Vacuum Truck (FVT)," may be used interchangeably.

In most cases, for excavations, the excavated soil will be used for backfilling of the excavated areas. The backfilling activities will be completed manually, using shovels, or using backhoes, loaders, or packers. For cleaning activities and some excavations, the soil will either be containerized for disposal or transported to an appropriate disposal facility (e.g., LLBGs, ERDF, etc.) within the FVT collection tank for noncontainerized disposal. In some cases, soil may be unloaded from the FVT and packaged at the disposal facility for containerized disposal.

Only radiologically contaminated or potentially contaminated soil will be removed or excavated using the regulated FVT system. All soil removed from the system will be handled as potentially contaminated, unless otherwise surveyed or analyzed.

The regulated FVT will not be used for the decontamination of valve pits within the tank farms. The regulated FVT is also excluded from areas containing radiological contamination above 50,000 dpm/probe size beta-gamma and/or 140 dpm/probe size alpha.

Soil can be slowly dumped from the collection tank by controlling the raising and lowering speed of the tank.

Soil from contaminated areas enters the unit through a hose. An air lance attachment may be used to aid in the loosening of soil.

The various cleaning and excavation activities will be completed using the FVT along with shovels, picks and/or the air lance attachment to loosen the soil, and backfilling activities will be completed using backhoes, loaders, compactors with plates, and picks and shovels, as appropriate. In some cases, however, an area may be physically inaccessible for the regulated FVT. In those instances, the cleaning or excavation, as well as any backfilling activities will be completed using backhoes, loaders, compactors with plates, and/or picks and shovels, as appropriate

Areas of the vacuum truck where condensate may accumulate such as the HEPA filter housing, silencer, and micro-strainer will be drained on an as needed basis to remove condensate buildup. The drained water will be containerized and properly dispositioned. If radiological contamination is present, the liquid may be solidified with absorbent materials, and the resulting matrix may be packaged and disposed of at a radioactive landfill (e.g., LLBG, ERDF, etc.). Alternatively, the liquids may be transferred to an approved container or tanker truck (see Emission Unit ID 888) for transport to the Effluent Treatment Facility (Emission Unit ID 301) or other facility licensed to receive radioactively contaminated liquids.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 5.00E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	1.79E-03	Gas	WAC 246-247-030(21)(a)

200 Area *gaseous physical state assumed for purposes of conservatism relative to assigned release fraction. Am-241 used as conservative alpha emitter.

Alpha - 0	1.30E-04	Gas	WAC 246-247-030(21)(a)

300 Area *gaseous physical state assumed for purposes of conservatism relative to assigned release fraction. U-234 used as conservative alpha emitter.

Alpha - 0	7.26E-04	Gas	WAC 246-247-030(21)(a)

400 Area *gaseous physical state assumed for purposes of conservatism relative to assigned release fraction. Pu-239 used as conservative alpha emitter.

Alpha - 0	1.79E-03	Gas	WAC 246-247-030(21)(a)

100 Area *gaseous physical state assumed for purposes of conservatism relative to assigned release fraction. Am-241 used as conservative alpha emitter.

B/G - 0	4.48E-02	Gas	WAC 246-247-030(21)(a)

200 Area *gaseous physical state assumed for purposes of conservatism relative to assigned release fraction. Sr-90 used as conservative beta emitter.

B/G - 0	4.48E-02	Gas	WAC 246-247-030(21)(a)

300 Area *gaseous physical state assumed for purposes of conservatism relative to assigned release fraction. Sr-90 used as conservative beta emitter.

B/G - 0	1.46E-02	Gas	WAC 246-247-030(21)(a)

400 Area *gaseous physical state assumed for purposes of conservatism relative to assigned release fraction. Sr-90 used as conservative beta emitter.

B/G - 0	4.48E-02	Gas	WAC 246-247-030(21)(a)

100 Area *gaseous physical state assumed for purposes of conservatism relative to assigned release fraction. Sr-90 used as conservative B/G emitter.

The radioactive isotopes identified for this emission unit are (no quantities specified):

Am - 241	Co - 60	Cs - 134	Cs - 137	Eu - 152
Eu - 154	Eu - 155	Pu - 238	Pu - 239	Pu - 240
Pu - 241	Ru - 106	Sb - 125	Sn - 113	Sr - 90
Th - 232	U - 234	U - 235	U - 238	

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) All soil excavation activities operating under this NOC must cease operations when sustained wind conditions reach or exceed 20 miles per hour.

5) The facility must maintain a log in an approved format for this activity or emission unit. (WAC 246-247-080(7)

6) The following are the allowable radionuclides: Co-60, Sr-90, Cs-137, Cs-134, Th-232, U-234, U-235, U-238, Eu-152, Eu-154, Eu-155, Ru-106, Sn-113, Sb-125, Am-241, Pu-238, Pu-239, Pu-240, and Pu-241. If any other radionuclides are suspected or verified through soil analysis the department must be notified.

7) The following are the annual emission limits for the NOC:

100 AREA:
For FVT Cleaning/Excavation: 2.88E-3 mrem Sr-90, 3.4E-2 mrem Am-241
For Backfilling: 2.88E-6 mrem Sr-90, 3.45E-5 mrem Am-241

200 AREA :
For FVT Cleaning/Excavation: 1.96E-3 mrem Sr-90, 2.34E-2 mrem Am-241

For Backfilling: 1.96E-6 mrem Sr-90, 2.34E-5 mrem Am-241

300 AREA:
For FVT Cleaning/Excavation: 3.9E-2 mrem Sr-90 8.3E-3 mrem U-234
For Backfilling: 3.9E-5 mrem Sr-90, 8.3E-6 mrem U-234

400 AREA:
For FVT Cleaning/Excavation: 8.5E-4 mrem Sr-90, 8.34E-3 mrem Pu-239
For Backfilling: 8.5E-7 mrem Sr-90, 8.34E-6 mrem Pu-239.

8) U.S. DOE shall monitor this project or emission unit as follows: In addition to the surveys described in this NOC periodic confirmatory measurements are required. This may include but is not limited to NDA testing of the HEPA filters when the HEPA filters are replaced and annually screening the HEPA filtration system using gamma spectroscopy. (WAC 246-247-075(8)

Project Title	Approval #	Date Approved	NOC_ID
Roof Replacement Activities Involving Radioactive Contamination at Facilities on the Central Plateau	AIR 06-1030	10/5/2006	670

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 9.80E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

Management of radioactive contamination during roof replacement activities.

All work shall be performed in accordance with written contractor radiological control requirements (associated with posting and downposting requirements for doing work in outdoor contamination areas and fixed contamination areas) and the as low as reasonably achievable (ALARA) program requirements. These requirements are to be carried out through activity work packages/procedures and associated radiological work permits.

Types of facilities allowed to use this NOC are active and operational, currently in surveillance and maintenance (S&M) mode, or in transition to S&M mode.

Activities are non-routine activities that have a potential to create a new temporary emission source and/or a modification of a source(s) of diffuse and fugitive emissions at facilities on the Central Plateau.

Screening Surveys

Roof replacement activities include radiological surveys to determine if radioactive contamination is present and the extent of such contamination. Spot contamination (e.g., bird droppings) managed before commencement of roof replacement work is handled per existing methods and is considered a routine housekeeping activity (similar to spot contamination found at ground levels).

Managing Radioactive Contamination

Contaminated roofing materials may be removed by manual or powered methods, including saws or other cutting devices, shovels, wheelbarrows, conveyors, chutes, or other similar equipment (conveyors or chutes may be used only for packaged radioactive waste or for non-contaminated roofing material). Radioactive waste shall be managed in accordance with existing onsite requirements and waste acceptance criteria. Radioactive waste either shall be containerized in drums, skiffs, boxes, or other containers, or handled as bulk waste (e.g., dump truck) and transferred to the appropriate disposal facility. Management of radioactive contamination is allowed to include removal and subsequent size reduction of contaminated equipment from a roof as well as isolation and blanking of utilities, vents, and ductwork.

Accumulated rainwater that has contacted contamination areas shall be allowed to evaporate in place or is characterized, collected, and managed in accordance with stormwater discharge requirements or transferred to an appropriate disposal facility.

A graded approach is allowed to be used to match controls with expected contamination levels per radiological control manuals and methods. Radiological contamination that is encountered will either be managed as a fixed contamination area (i.e., less than 20 dpm/100 cm2 smearable alpha and less than 1,000 dpm/100 cm2 smearable beta) or will be managed as a contamination area (radiological contamination levels are between 20 and 2,000 dpm/100 cm2 alpha or between 1,000 and 100,000 dpm/100 cm2 beta) using appropriate controls to minimize worker exposure. These controls include water for dust suppression, fixatives, covers, windscreens, or greenhouses (with PTRAEU exhausters) that will be applied, if needed, as determined by the Health Physics organization, and consist of ALARA techniques.

Process descriptions and abatement controls, as described in the latest approved revisions of the Guzzler NOC

(99-SID-021), the PTRAEU NOC (DOE/RL-96-75), or the HEPA Vacuum NOC (DOE/RL-97-50) shall be used; however, the activity-specific operational controls and tracking requirements shall follow these approval conditions. The Guzzler, PTRAEU, and HEPA vacuum units shall have a removal efficiency of 99.95% for radioactive airborne particles.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 4.80E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	1.00E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

License PTE limit bounds 1.0E-03 Ci/yr 241Am and release fraction of 1.0. Any radionuclide on the chart of the nuclides could be encountered during roof replacement activities. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate form. A small contribution from the gaseous radionuclides may be encountered. Although any radionuclide could be present, for conservatism all alpha is assumed to be 241Am and all beta/gamma is assumed to be 137Cs for dose calculation estimates. Other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta/gamma constituents.

B/G - 0	5.00E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

License PTE limit bounds 5.0E-02 Ci/yr 137Cs and release fraction of 1.0. Any radionuclide on the chart of the nuclides could be encountered during roof replacement activities. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate form. A small contribution from the gaseous radionuclides may be encountered. Although any radionuclide could be present, for conservatism all alpha is assumed to be 241Am and all beta/gamma is assumed to be 137Cs for dose calculation estimates. Other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta/gamma constituents.

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) For dose modeling, the radionuclides of concern shall use cesium-137 (representing beta/gamma emitters) and americium-241 (representing alpha emitters).

5) The total radionuclide content of the material removed shall be tracked on a WDOH approved log.

6) Total sum of the potential release rates of the Guzzler and HEPA Vacuums shall not exceed 1.0 E-3 Ci/Year Alpha and 5.0 E-2 Ci/Year Beta/Gamma.

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 5.10E-02 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 5.82E+01 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.

Sump Intrusion Mitigation:

Sump intrusion mitigation is limited to cells 001, 002, 003, and 011 only. From time to time if intrusion of precipitation and snow melt gets into the sumps, the sumps will need to be pumped. In order to accommodate this, submersible pump assemblies will be installed in each of the four CR Vault Cells. The pump assemblies will be installed on top of existing 6 inch riser extensions on cells 001, 002, 003, and 011. Riser extensions may be installed, or replaced if necessary. These extensions will be installed and/or removed as follows:

- the pit covers will be removed,

- above grade piping will be cut and capped,

- leak detectors and two zip cords will be removed,

- the riser extensions will be installed and/or removed remotely from a platform over the pit, and

- a new pit cover will be installed.

The sumps will be pumped by connecting a transfer line to a ventilated tank or to the Tanker Truck permitted under AOP Emission Unit Number 888 and licensed under WDOH NOC ID Number 696. The transfer line will be a hose-in sleeve line. The other end of the transfer line will be attached to the pump assembly on the first CR Vault cell to be pumped. After the first cell is pumped, flush water will be added and pumped to flush the system. Then the hose will be relocated to the next cell's pump assembly. The process will be repeated until all the cells are pumped. The CR Vault breather filter will not be modified and will be open during pumping. After the pumping is complete, the transfer line and pumps will be removed and disposed of as mixed waste. The pit foam covering will also be replaced to prevent, or at best minimize intrusion of precipitation and snow melt.

A fixative shall be applied with the pit covers on. The fixatives shall be applied to pit surfaces through a port in the pit cover using a 'whirly' or by fogging. A hand held sprayer is used to apply fixatives within the pit when the pit cover is off.

Temporary power installation will be limited to meet the needs to support the work described in this NOC. Temporary installations can be removed when no longer needed.

General Controls for Sump Intrusion Mitigation:

The general controls for sump intrusion mitigation is limited to cells 001, 002, 003, and 011 only. The required controls for each of the following actions are delineated by the specified ALARACT:

- ALARACT 1—Tank Farm ALARACT Demonstration for Riser Preparation/Opening.

- ALARACT 4—Tank Farm ALARACT Demonstration for Packaging and Transportation of Waste.

- ALARACT 5—Tank Farm ALARACT Demonstration for Soil Excavation (using hand tools).

- ALARACT 6—Tank Farm ALARACT Demonstration for Pit Access.

- ALARACT 7—Tank Farm ALARACT Demonstration for Tank Waste Grab Sampling.

- ALARACT 11—Tank Farm ALARACT Demonstration for Waste Transfers.

- ALARACT 12—Tank Farm ALARACT Demonstration for Packaging and Transportation of Equipment and Vehicles.

- ALARACT 13—Tank Farm ALARACT Demonstration for Installation, Operation, and Removal of Tank Equipment.

- ALARACT 14—Tank Farm ALARACT Demonstration for Pit Work.

- ALARACT 15—Tank Farm ALARACT Demonstration for Size Reduction of Waste Equipment for Disposal.

The activities performed at the 244-CR Vault Facility, ER-153 and/or 244-A Lift Station include:

Work Area Preparation:

- Miscellaneous work including equipment delivery, movement, set up and maintenance in the general work area around the 244-CR Vault Facility.

- Construction and take down of open top containment tents (bullpens) over the facility vault area.

- Installation of Portable/Temporary Radioactive Air Emission Unit(s) (PTRAEUs).

- Installation of portable 1,000 cubic feet per minute (cfm) exhauster.

- Removal and/or installation of vault foam covering.

- Application of fixative at pit interior.

- Temporary power installation.

Facility/Interim Stabilization Work:

- Operation of PTRAEU for bullpen ventilation.

- Removal and/or installation of pit covers.

- Inspection of pits, vaults, and tanks.

- Removal and disposition of excess equipment and waste in pits, risers, and tanks.

- Decontamination activities.

- Measurement of liquid level and sludge levels in tanks and sumps.

- Sampling activities in pits, vaults, and tanks including chemical addition and/or waste sampling to determine Double Shell Tank waste acceptance.

Facility Equipment Activities:

- Installation, disconnection, repair, replacement, and/or leak testing, of new and existing facility equipment (valves, jumpers, pumps, leak detectors, or other instrumentation/equipment).

- Modifications, maintenance, and/or isolation and sealing of existing risers, pits, vaults and incoming and/or outgoing piping (drain and transfer lines) from 244-CR Vault or connected facility.

Excavation:

- Installation of permanent power to 244-CR Vault Facility.

- Installation/Operation of Passive Breather Filter Assembly.

Waste Transfer and Support Activities:

- Operation of 1,000 cfm portable exhauster at 244-CR Vault.

- New waste transfer system, waste staging/consolidation.

Miscellaneous activities shall include:

- Construction and take down of open top contaminant tents over the facility vault area.

- Open top containment tents (bullpens) shall be constructed over the facility pit area to prevent potential airborne contamination from the effected work area to the environment. Two bullpens shall be erected around two instrumentation pits at the 244-CR Vault. Upon completion of the first pit's work, the bullpens shall be relocated to the other two pits and their work will be completed.

- Installation of Portable/Temporary Radioactive Air Emission Unit(s) (PTRAEUs)

- A Portable/Temporary Radioactive Air Emission Unit (2,000 cfm) or units (1,000 cfm each) shall be installed to ventilate the bullpens during activities that require work in the pits, cells and tank vault area prior to performing waste transfer activities. One thousand cfm PTRAEUs, if used, shall be directly connected to individual bullpens, while a 2,000 PTRAEU if used, shall be connected to two bullpens. Movement and installation of the PTRAEU can be performed to facilitate ventilation for the four vaults of the 244-CR Vault Facility. The PTRAEU shall operate intermittently (during work activities) and will be operated in accordance with the latest WDOH approval, AIR 99-1102, for the Portable/Temporary Radioactive Air Emission Unit (PTRAEU) NOC (DOE/RL-96-75).

A portable 1,000 cfm exhauster shall be installed to ventilate the 244-CR Facility vaults and tanks during waste transfer activities. This exhauster shall operate intermittently to support waste transfer and support activities and shall monitor air emissions. The exhauster shall be piped into the existing 244-CR facility ventilation system upstream of the existing (non-operating) exhauster, 296-C-05 and HEPA filters. The existing 244-CR Facility exhaust system shall be isolated and not used. Tie in of the 1,000 cfm exhauster to the existing exhaust system shall be in accordance with ALARACT 16, Tank Farm ALARACT Demonstration for Work on Potentially Contaminated Ventilation System Components. After the waste transfer is completed, the exhauster shall be removed in accordance to the requirements of ALARACT 16.

A foam covering has been placed over the 244-CR Vault area to prevent intrusion of precipitation and snowmelt. In order to gain access to the pit cover (metal) plates or concrete cover blocks, sections of the foam shall be removed, packaged, transported and disposed of. ALARACT 4, Tank Farm ALARACT Demonstration for Packaging and Transportation of Waste shall be used to properly disposition the removed foamed covering. Radiation control technicians (RCT) shall monitor the affected work area while the foam covering is being removed. The foam covering shall be replaced after work is complete, as part of intrusion prevention measures

completed by the project following waste transfer activities.

Operation of PTRAEU for Bullpen Ventilation.

Ventilation of the bullpens during pre waste transfer tank activities and prior to the installation of the 1,000 cfm portable exhauster shall be accomplished with the use of PTRAEU(s). The PTRAEU(s) shall be operated in accordance with the latest WDOH approval, AIR 99-1102, for the Portable/Temporary Radioactive Air Emission Unit (PTRAEU) NOC (DOE/RL-96-75).

Concrete cover key blocks are removed first, and only blocks necessary to perform intended work are removed. Consideration is given to sliding blocks to minimize the number of blocks to be removed. As discussed in the following, pit covers are decontaminated and/or covered with fixative before removal. Pit Covers are raised a minimum distance to safely allow a radiation protection technician to perform a dose rate and contamination survey. Pit covers are wrapped in plastic and set down in a specially prepared lay-down area. On completion of activities, the plastic wrap is removed from the pit covers and the pit covers are re-installed in their original position and orientation. Post-job surveys are performed.

Inspections, such as visual, video, or nondestructive inspections, shall be performed with pit covers in place (for pit with access ports) or removed. The pit cover design, historical inspection information, and ALARA information shall be used to determine whether the inspection shall be performed manually (with pit cover removed) or remotely with a camera and the pit covers in place.

Excess equipment and debris currently located in the 244-CR vault pits, and in-tank equipment shall be removed to accommodate new waste transfer equipment and piping. Excess equipment shall be replaced with replacement in kind equipment, as necessary.

To facilitate the removal and disposition of these items, size reduction and decontamination activities shall be utilized. Size reduction activities shall include cutting up unusable equipment (usually jumpers/blanks) remotely, using hydraulic shears or low revolutions per minute portable band saws. All size reduction activities shall be performed in accordance with ALARACT Demonstration 15, TWRS ALARACT Demonstration for Size Reduction of Waste Equipment for Disposal.

Disposition of excess equipment and waste shall be performed in accordance with ALARACT Demonstration 4, TWRS ALARACT Demonstration for packaging and transportation of waste.

Removable contamination in the accessible portions of the pit is reduced to less than 100,000 disintegrations per minute/100 square centimeters beta/gamma and 2,000 disintegrations per minute/100 square centimeters alpha by washing, or an approved fixative is applied to pit surfaces. Initial washing with a low pressure (125 pounds per square inch gauge), or high pressure (3,000 pounds per square inch gauge) 'whirly' is accomplished through a port in the pit cover blocks. Additional decontamination activities (with the cover block off) include the use of chemicals, peel and strip paints, water, or manual scrub brushes.

After a section of equipment has been washed it shall be pulled into plastic sleeving and sealed by horse tailing and taping.

Liquid and sludge levels are determined using zip cords or other appropriate means that shall not disturb the waste more than zip cords.

Sampling activities shall be performed in the tank and sump area of 244-CR Vault by way of risers in the riser pit in accordance with ALARACT 7, "Tank Farm ALARACT Demonstration For Tank Waste Grab Sampling." Radiological controls for riser preparation/opening listed in ALARACT 1, "Tank Farm ALARACT Demonstration for Riser Preparation/opening," shall be followed.

The waste transfer processes shall transfer waste from tanks CR-011, CR-001, CR-002 and CR-003 and sumps within 244-CR Vault Facility to a staging tank within the 244-CR Facility. The transfer system to consolidate the waste from individual tanks consists of above ground piping of a hose in hose with leak detection at each tank's pit being utilized to support the transfer line. Mixing and dilution of the waste may take place at the receiving tank or

within the transfer lines directly. The transfer system may include equipment pump skids and shall include appropriate connections to the transfer lines to accommodate chemical and water addition to the 244-CR Facility tanks and mixing prior to transfer to the designated Double Shell Tank (DST).

Before entry into a pit, an evaluation is made by engineering and/or operations personnel to determine the transfer routing configuration after pit work is complete. On removal of cover blocks, a visual inspection of pit contents is made to verify present configuration.

Tools such as impact wrenches, T-bars, and pike poles are used to repair or replace pit equipment. All equipment coming out of the pit is wrapped in plastic or otherwise contained or decontaminated for reuse or disposal. Removable contamination on the outer-most container shall not exceed 1,000 disintegrations per minute/100 square centimeters beta/gamma and 20 disintegrations per minute/100 square centimeters alpha before removal from the bullpen. Disposition of non reusable equipment waste shall be performed in accordance with ALARACT Demonstration 4, TWRS ALARACT Demonstration for packaging and transportation of waste.

Jumper work shall be preceded by flushing the appropriate transfer lines with water. Jumper work is accomplished remotely, using a crane to maneuver heavy equipment and parts. Installation, disconnection, and/or changing jumpers/blanks are accomplished by slowly loosening the jumper/blank at the connector head. The required jumper/blank is positioned and tightened to the new connector heads. If the process line or equipment being worked on is connected physically to other unnecessary transfer lines, or if the line is to be left unused, a cap, blank, or equivalent is installed on all open nozzles not connected to jumpers.

Leak testing of newly installed jumpers/blanks shall be performed with pressurized water before initiating waste transfers. Occasionally, a jumper leak test is performed during the initial stages of the transfer. In either case, cover blocks shall be in place before leak testing is performed.

Cutting up unusable pit equipment (usually jumpers/blanks) is accomplished remotely using hydraulic shears or low revolutions per minute portable band saws. Cutting activities shall be performed in the bullpen or in glovebags. The goal shall be to maintain a contamination level equal to or less than 1,000 dpm/100 cm2 beta gamma and 20 dpm/100 cm2 alpha, during cutting activities, but may not always be attainable. RCT coverage shall be provided. Should contamination levels exceed 1,000-dpm/100 cm2 additional sleeving, or use of a glove bag shall be used and/or decontamination activities performed to lower the levels in accordance with ALARA. Welding (if required) shall commence once removable contamination levels in the cut and weld area are reduced to ALARA. Size reduction (cutting) activities shall be performed in accordance with ALARACT Demonstration 15, TWRS ALARACT Demonstration for Size Reduction of Waste Equipment for Disposal. To ensure that water intrusions or potential residual waste in piping are eliminated from the facility, existing piping and transfer lines to and from the 244-CR Vault facility shall be blanked, grouted, or sealed. The isolation includes activities such as installing plugs, caps, blind flanges, or grouting. Isolations may occur at the 244-CR riser pit area or at the other end of the pipe in a diversion or valve box, at the ER153 or the 244A Lift Station.

Modifications to existing in-route pits, vaults and piping shall be required to establish the waste transfer route or to ensure the integrity of the system prior to waste transfer. These modifications can include but are not limited to, removal of existing parts and replacement with like parts, installation of new jumpers, or blanking off of equipment. When possible existing blanks shall be utilized. Pipe cutting shall be minimized in compliance with ALARA. If it is determined that the installation of a new above ground transfer line would be the best engineering method to establish a waste transfer route, a temporary transfer route shall be established following existing design and installation procedures. This temporary route will be either above ground or in a shallow trench. If a trench is required excavation shall be performed as described under that activity in this NOC.

Pit drains are checked using water from a tanker truck or another source. Water at a flow rate of approximately 20 gallons per minute is added to a pit drain line and subsequently monitored to verify the pit drains are free of restrictions. At times it might be necessary to pump the DCRT that receives the water after the water passes through the pit drain if the volume of test water approaches the capacity of the DCRT.

Either flushing with water and/or using a retrieval tool to remove debris from the drain are used to clear plugged drains. Water supply valves are opened slowly to minimize splashing. Pressures above 50 pounds per square inch gauge require approval from the engineering organization. Cover blocks shall remain in place and work is

accomplished through a penetration in the cover block.

The waste transfer operations involve the pumping of liquid waste that contains dissolved solids. These solids can precipitate out of solution anywhere in the transfer path and cause blockage. If blockage is detected in the system, flushing the lines with hot water is necessary. The hot water is introduced to the system to be flushed through a pressure manifold by piping connected directly to a jumper or nozzle. These operations shall be performed with the pit covers on.

To ensure that water intrusions are eliminated from the facility, a foam covering will be placed over the 244-CR Vault area after completion of isolation activities.

Other techniques to free blockages could include pressurization, temporary jumpers, and hydraulic scouring. All piping connections are designed to be leak tight and the pit cover block shall be installed before pressurization. If pressurization beyond that obtained from the tank farms water system or supply truck (i.e., approximately 150 pounds per square inch gauge) is necessary to remove blockage, an engineering evaluation shall be performed to determine the maximum allowable pressure for operation.

Excavation:

Excavation may be required to support installation of ventilation, electrical support and waste transfer equipment. Modifications to existing in route pits, vaults and piping and/or to support installation of new waste transfer lines from the 244-CR Facility to the identified DST may require excavation. Soil excavation activities will be performed in accordance with ALARACT Demonstration 5, TWRS ALARACT Demonstration for Soil Excavation (Using Hand Tools), and will follow the radiological controls specified in that ALARACT.

Any Guzzler excavations in contamination areas will be performed in accordance with the December 18, 1998, WDOH approved Site Wide Guzzler NOC (Air 98-1215), or the most current NOC approved for Guzzler use. Excavation of contaminated soils using heavy equipment shall follow the requirement of Site Wide Guzzler NOC.

Soil excavation outside the tank farm fence also may be performed with heavy equipment.

Soil will be excavated around the 244-CR vault facility to install new piping, equipment slabs, and new waste transfer system support equipment. It is expected that about 1,000 cubic yards may be excavated, with about 600 cubic yards from inside the tank farm. Backfill shall be from the original removed soil or non-contaminated controlled density fill (sand, water and a small amount of cement).

Current power within the 244-CR Vault Facility is limited. To provide power for new equipment installed under the project, the existing power distribution system shall be upgraded. Upgrades shall involve modification to the existing Motor Control Center (MCC), installation of equipment control panels, and installation of new conduits.

A compliant passive breather filter shall be installed to ventilate the 244-CR Facility vaults and tanks once waste transfer activities are completed. The passive breather filters shall be installed at two locations in the 244-CR facility. A 1,000 cfm HEPA filter shall be installed at the air inlet assembly (previously attached to the evaporative cooler) and a 200 cfm HEPA filter shall be installed upstream of the existing HEPA filter pit. Butterfly valves in the ventilation system just downstream of where the filters shall be installed can be shut to prevent any emission from the facility during filter installation. Installation of the filters shall be performed in accordance with ALARACT Demonstration 16, TWRS ALARACT Demonstration for Work on Potentially Contaminated Ventilation System Components.

During waste transfer and support activities the tank and vault air space shall be actively ventilated by a temporary ventilation system. The temporary ventilation system shall consist of a portable exhauster that shall be equipped with compliant monitoring and sampling equipment. The purpose of the exhauster is to ensure potential airborne contamination from the pits, cells, or process tanks, is not being released to the environment. Operation of the 1,000 cfm portable exhauster is considered an emissions control.

New waste transfer system, waste staging/consolidation.

The planned transfer system can utilize some existing equipment along with installation of new piping and equipment at 244-CR, ER-153 and/or 244-A Lift Station. Maintenance of the transfer system may be required during the waste staging/consolidation. Equipment, which may require on going maintenance includes but is not limited to leak detection and pump system equipment. The waste can be staged/consolidated in one or two of the 244-CR Facility tanks (CR-001, CR-002, CR-003 and CR-011) prior to transfer to a DST.

The following controls are used for the pit activities:

General Controls:

1. Pre-job and post-job radiation surveys are performed by radiation protection technicians. Radiation work permits specify permissible occupational radiological limits during activities. Radiation control technicians' survey and release equipment, inspect and approve required containment, and provide radiological surveys to verify compliance to radiation work permit limits.

2. Pit work is shut down (or not initiated) when sustained wind speeds exceed 25 miles per hour as measured in the field and/or reported by the Hanford Meteorological Station.

3. Fixatives shall be applied inside the pit (with cover blocks on or off) or accessible portions of the pit decontaminated to less than 100,000 disintegrations per minute/100 square centimeters beta-gamma and 2,000 disintegrations per minute/100 square centimeters alpha.

4. When cover blocks are removed, a fall protection handrail is installed. This handrail is draped in plastic forming a contamination barrier. The plastic extends to the top of the pit and is taped or sealed at the top of the pit. Decontamination of the containment barrier is conducted as required by the job specific radiation work permit.

5. Radiation control technicians monitor the affected work area when the vault foam covering is removed, when jumpers and equipment are being removed from risers and nozzles, and when risers are entered for sampling of tanks and sumps. Jumpers removed from the pit are drained of free liquid and decontaminated or contained before removal. The outer-most container shall not exceed 1,000 disintegrations per minute/100 square centimeters beta/gamma and 20 disintegrations per minute/100 square centimeters alpha. If these limits are exceeded, surfaces shall be decontaminated. Disposition of non reusable equipment waste shall be performed in accordance with ALARACT Demonstration 4, TWRS ALARACT Demonstration for packaging and transportation of waste.

6. A bullpen designed to minimize the top opening shall be used. Pit covers or cover blocks will be removed as necessary. If the bullpen is to be left unattended at any time, a temporary cover is placed over the pit or the pit covers or cover blocks are reinstalled. Two tents shall be erected over two pits. Upon completion of the work in the first two 244-CR Facility instrumentation pits, the tents will be relocated to the other 244-CR facility instrumentation pits.

7. PTRAEU(s) shall actively ventilate the bullpens during activities that require work in the pits (after removal of the cover blocks) to control radiological releases. The PTRAEU(s) shall operate intermittently and shall be operated in accordance with the latest revision to the WDOH approved. Portable/Temporary Radioactive Air Emission Unit (PTRAEU) NOC (DOE/RL-96-75).

8. A compliant exhauster skid shall ventilate the process cells and tanks during waste transfer activities. The exhauster shall maintain a negative pressure under the cover blocks and prevent contaminants from reaching the environment. The exhauster skid shall be connected to the existing exhaust ductwork with rigid or flexible ductwork.

9. The 1,000 cfm exhauster shall be equipped with a two-stage HEPA filter, which meets the requirements of ASME AG-1, Section FC and shall be tested annually to requirements of ASME AG-1. The HEPA filters shall have an efficiency of 99.95 percent for 0.3-micron median diameter. Each filter housing shall meet the applicable sections of ASME N509 and the test requirement of ASME N510. The exhaust stack houses a Generic Effluent Monitoring System (GEMS) that contains an air velocity probe and the air sampling probe.

10. The breather filter shall consist of a housing that contains a HEPA filter, an outlet screen, and a small seal loop. Air flowing to and from the 244-CR Facility shall pass horizontally through the filter and vertically through the downward-facing exit weather hood. Seal loops, installed in the exhaust lines, are designed as a safety feature to prevent unlikely accident in which an over pressurization occurs when the HEPA filter is isolated for occasional (infrequent) maintenance.

Specific Controls include:

-Installation of portable 1,000 cfm exhauster shall use ALARACT 16.

-Removal and/or installation of vault foam covering - ALARACT 4.

-Application of fixative at pit interior - see General Controls.

-Temporary power installation - ALARA.

-Operation of PTRAEU for bullpen ventilation - Latest WDOH approval, AIR 99-1102, for the Portable/Temporary Radioactive Air Emission Unit (PTRAEU) NOC (DOE/RL-96-75).

-Removal and/or installation of pit covers - General Controls.

-Inspection of pits, vaults, and tanks - General Controls.

-Removal and disposition of excess equipment and waste in pits, risers, and tanks - ALARACT 15, and ALARACT 4.

-Decontamination activities - General Controls.

-Measurement of liquid level and sludge levels in tanks and sumps - General Controls.

-Sampling activities in pits, vaults, and tanks including chemical addition and/or waste sampling to determine Double Shell Tank waste acceptance - ALARACT 7 and ALARACT 1.

-Facility Equipment Activities: installation, disconnection, repair, replacement, and/or leak testing, of new and existing facility equipment (valves, jumpers, pumps, leak detectors, or other instrumentation/equipment) - ALARACT 4, and ALARACT 15.

-Modifications, maintenance, and/or isolation and sealing of existing in route pits, vaults and piping (drain and transfer lines) to support and/or installation of new transfer lines - General Controls.

-Excavation - ALARACT 5, and/or WDOH approved Site Wide Guzzler NOC (Air 98-1215), or the most current NOC approved for Guzzler use.

-Installation of permanent power to 244-CR Vault Facility - ALARA.

-Installation of passive breather filter assembly - ALARACT 16.

-Operation of a portable exhauster at 244-CR vault for ventilation - ALARA.

-New waste transfer system, waste staging/consolidation - General Controls.

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

Am - 241	6.31E-03	Sr - 90	1.26E-02

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 1.38E-02 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 1.38E-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.

Work shall be performed outside of some tank farm fence boundaries such as the 241-AN, 241-AP, 241-AW, 241-AZ, and 241-SY tank farms; between the 241-AP tank farm and the 244-A double contained receiver tank as well as between the 244-S double-contained receiver tank and the 241-SY tank farm; the 219-S Waste Handling Facility located at the 222-S Laboratory; and near the 241-A-A valve pit (241-A Single-Shell Tank Farm).

EXCAVATION

Excavation within a tank farm, or in a known radioactive contamination area outside of a tank farm, shall be performed in accordance with As Low As Reasonably Achievable Control Technology (ALARACT) Demonstration 5, TWRS ALARACT Demonstration for Soil Excavation (Using Hand Tools), or non-mechanical methods such as vacuum excavation (Guzzler) in accordance with the latest WDOH approved Notice of Construction. Outside of a tank farm, in non-contaminated areas, excavation (or berm construction) may be performed using mechanical methods such as: trenchers, backhoes, and scrapers, in addition to hand tools or non-mechanical methods. Areas may be encountered during excavation where components are covered by very hard soil or controlled density fill (low-strength concrete). Mechanical impact tools, such as jackhammer/rototool, would be used to break up such areas before excavation. Removal of excavated material is normally done by mechanical methods such as a crane with skip bucket, powered skip, or front-end loader. Excavated material is placed in spoil piles. (NOTE: Industrial safety requirements may require use of intermediate transfer piles.) Contaminated soil (>100,000 dpm/100 cm2 beta/gamma) is segregated from other soil. Excavated areas shall be backfilled with the excavated soil or soil containing less contamination than the soil that was excavated. Backfilling of excavated areas is accomplished by first placing controlled density fill material when used, then soil in layers, into the excavated area. The distance from the skip bucket, powered skip, and front-end loader to the top of the excavation area is minimized. Contaminated soil is the first soil placed in the excavated areas, then covered with other excavated soil. To meet density requirements, soil compaction is done using hand-guided mechanical compaction equipment. Outside of a tank farm, in a non-contamination area, vibratory roller compactors may be used.

Excavation shall also be conducted to allow for the pouring of concrete pads for future placement of equipment within the tank farms.

PIT WORK

Frequently performed activities shall be done in accordance with activity descriptions found in ALARACT Demonstrations (HNF-4327):

- ALARACT 4 "Packaging and Transportation of Waste"
- ALARACT 6 "Pit Access"
- ALARACT 12 "Packaging and Transportation of Equipment & Vehicles"
- ALARACT 13 "Installation, Operation, and Removal of Tank Equipment"
- ALARACT 14 "Pit Work" and, if required,
- ALARACT 15 "Size Reduction of Waste Equipment for Disposal."

The process is establishment of controls to prevent the spread of radioactive contamination, removal of pit cover blocks by heavy rigging methods, decontamination of pit by water washing (pressure and non-pressure methods), application of fixative material on contamination, disconnection of equipment, equipment removal by manual or

mechanical methods, package equipment for disposal (size reduction if necessary), pit surface preparation by manual abrasion (scrapping, sanding, chipping; on a surface that is damp or has fixative) of existing pit coating, application of pit coating material by manual methods or pressure spray methods, installation of new or replacement equipment, installation of pit cover blocks by heavy rigging, packaging of waste, and transportation of waste and removed equipment.

Project pit activities will include preparation of pit surfaces and coring of walls or cover blocks. Project pit surface preparation is accomplished by mechanical abrasion of the existing pit coating, concrete substrate, and steel surfaces as needed. Needle guns, sanders, wet blasting, and grinders are typical tools used. In addition, surface preparation also may include repair of cracked concrete/concrete coatings. Repair will require removal of cracked material to allow application of grouting material. Removal of cracked material may be performed using manual and power tools, and may also include using a HEPA vacuum to assist in the removal of loose debris. Coring of pit walls and/or cover blocks for new nozzles or equipment installation comprised of replacing wall nozzles, leak detectors, cover blocks, pipe snub-outs, and jumpers will also be performed. A new AZ valve pit will be constructed and connected to the AZ tanks.

PIPE CUTS

The cutting of waste transfer lines, tank risers, or contaminated piping shall be made using a low or high speed reciprocating or cut-off saw (sawzall, bandsaw) or other mechanical methods, such as a tri-tool. Surveys of the exterior and/or interior of the pipe/riser shall be used to determine containment selection in accordance with Radiological Containment Selection, Design, & Specification Guide RPP-7933. Continuous health physic technician coverage shall be present during all pipe work activities. Abrasive methods, such as grinders or sanders, may be used to prepare the cut area for connection to the new section of transfer line. Mating of the new piping to the existing transfer lines or tank riser, and other similar connections if necessary, will be performed using mechanical connection methods or welded flange connections.

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

Am - 241	1.58E-01	Sr - 90	7.87E+00

4) All guzzler operations shall meet the requirements of latest approved Site-Wide Categorical Notice of Construction or Tank Farm A Complex Notice of Construction.

5) The Annual Possession Quantity and Potential-to-Emit to the MEI shall be tracked on a WDOH approved log. The total APQ and Potential to Emit to the MEI for the Guzzler and hand excavation of soil shall not exceed the total APQ and Potential-to-Emit values.

6) To determine the potential-to-emit and calculate the annual dose to the Maximally Exposed Individual all gross alpha contamination shall be assumed to be Am-241 and all gross beta contamination shall be assumed to be Sr-90.

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 3.32E+00 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 3.32E+00 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.

Site preparation for the retrieval of the waste from single-shell tanks. This covers the following activities as described below.

Installation of the following in-tank equipment

- Waste distribution devices
- Transfer pumps
- Enraf-Nonius Series 854 (ENRAF) stilling wells
- Video cameras
- Instrument manifolds
- Central fury device
- Drain lines back to tank
- AMS (Articulated Mast System)
- Sluicing nozzles
- Ventilation inlet filter assemblies
- Connection of hose-in-hose transfer lines (HIHTL)
- New pit cover-plates
- Electrical poser and instrument cables and other utility tie-ins and/or upgrades
- New above ground pits
- Jumpers
- Off riser sampling system
- Mobile Arm Retrieval System (MARS)

Removal, Decontamination and Disposal of Existing Equipment

- Remove/Replacement of Breather filters
- Removal of Sludge weights
- Removal of Liquid observation wells (LOW)
- Removal of Standard Hydrogen Monitoring System (SHMS) probe
- Removal of Thermocouple probes
- Removal of Sluicing nozzles
- Removal of Video cameras
- Removal of Liquid level reel
- Removal of Jumpers from pits
- Removal of Saltwell pumps
- Removal of Sluice pumps
- Removal of Corrosion probes
- Removal of Shield plugs
- Removal of Slurry distributors
- Removal of Air lift circulators
- Removal of Riser adapter cover plates
- Removal of Saltwell screens
- Removal of Dip tubes
- Removal of Protective foam coating on pits

Other similar equipment may be installed or removed provided all conditions and limitations outlined in this approval are met.

Pit Work

Pits will be accessed for installation of instrument manifolds, transfer pump installation, jumper removal, replacement of existing HIHTLs with new HIHTLs, connection of high efficiency particulate air (HEPA) filters, exhauster trunk for the portable exhausters, and removal of various jumpers, isolation of transfer lines, water lines, and drain lines.

Removal of In-Tank Equipment

Various in-tank equipment, such as those listed above, will be removed from the tanks to make room for the waste retrieval equipment, or to be replaced with equivalent equipment built to withstand the forces of waste retrieval.

In-Tank Equipment Installation

Motor controlled spray devices and sluicers will be inserted into risers on some tanks near the outside perimeter of the tank and an automatic indexing spray device also will be installed on a centrally located riser. In-tank closed circuit television cameras will be installed into risers and connected to a master camera control system skid. This equipment will be in the riser for the duration of the project and will not contact the waste. Each spray assembly is equipped with a spray washer to provide a decontamination rinse during removal. The spray devices and cameras will be sleeved out of the risers at completion of the project.

An AMS will be installed through risers of some tanks for use during retrieval. The AMS may be removed and reused. Pumps and In Tank Vehicles (ITVs) will be waste contacting and may be abandoned in place following the conclusion of retrieval operations.
Ventilation inlet filter assemblies (breather filters) will be installed on those tanks whose breather filters have been removed to accommodate portable exhausters and other retrieval equipment.

Installation of the Off-Riser Sample Collection System (ORSS). The ORSS consists of a sample collector sub-system and its deployment sub-system. The sample collector is capable of sampling the various types of waste expected in a post-retrieval single shell tank environment. The waste may be liquid in an extreme range of viscosities, or solids in various states of friability. The sample collector crawler will return the sample to sample containers staged below the riser, where it will be retrieved into the glove bag mounted on the sampling riser. Monitoring of the sample collector will be accomplished visually using the in-tank camera. All activities associated with the ORSS will be accomplished thru a sealed glove bag. The riser used for sampling will be open to the atmosphere for a very short period of time (typically less than one minute) while installing and removing the glove bag.

Installation of new risers. Riser will be installed by first removing soil down to the concrete tank dome surface using hand digging and/or using the guzzler. A steel caisson will be inserted into the hole for wall support. A small layer of grout will be added to the bottom of the hole to provide a level surface. A hole will be partially drilled into the concrete. After a cable is attached to the core, the drilling will be completed through the dome into the tank headspace. The new prefabricated riser will be lowered into the caisson until support brackets on the side are seated on the grout top.

The MARS will be installed through risers for use during retrieval. The MARS may be removed and reused after use.

Tank Preparation for Closure

Tank preparation for closure will include installation of equipment for introducing fill material, fill placement monitoring, and ventilation. In general, equipment residing in risers (e.g., pump, thermocouple tree, vacuum retrieval mast, etc.) will not be removed from the tank unless it obstructs a riser that is required to gain access for placing the fill material. Equipment obstructing a riser needed for access will be either removed, or cut and lowered into the tank. Equipment lowered into the tank during tank preparation will be completely covered when

the fill material is added to the tank.

Soil Excavation

Soil will be excavated inside and outside the farms for various reasons such as tie in of instrumentation and power systems for monitoring transfer progress. Intermittent trenches will be excavated for this purpose.

The volume of soil removed during excavation activities are volumes of disturbed soil that will not leave the respective farms. Clean soil piles may be moved from one place to another within the tank farm with heavy equipment (i.e. backhoe, front loader). The soil will be used to fill the trenches after the hose and the conduits are installed.

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

Alpha - 0	1.49E-03	Beta - 0	2.23E-01

4) The Annual Possession Quantity shall be tracked on a WDOH approved log.

5) The operation of the Guzzler shall meet all conditions and limitations of the latest Site Wide Guzzler NOC approval, with the exception of the annual emission limits which shall be tracked as part of this project. The total abated and unabated emission limit for the guzzler usage for this project shall not exceed 0.1 mrem/year.

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 3.28E+00 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 5.75E+03 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 241-AY-101, 241-AY-102, 241-AZ-101, and 241-AZ-102 tanks are double shell tanks. The inner shell is constructed from heat treated, stress-relieved steel. The outer shell is constructed of non stress relieved steel. The two shells are separated by a 2.5 ft annulus and contained inside a concrete shell. The tanks have a usable waste volume of approximately 1,001,000 gal.

The 241 AY and 241 AZ tanks are part of a Resource Conservation and Recovery Act treatment, storage, and/or disposal unit. The tanks contain mixed waste in the form of liquids or contained solids (suspended or settled). The contents in each of the four tanks may be mixed periodically to control gas entrapment in the settled solids, to control temperature, for chemical treatment to control corrosion, or for waste retrieval. Contained solids will be mobilized, as required, as part of this process by hydraulic action of the mixer pumps or by use of air-lift circulators in each of the tanks. During such activities, as well as during storage, the ventilation system maintains the vapor space in each tank below atmospheric pressure.

Airflow is from the tank to a glycol-cooled recirculation system and to a common header. The common header is the point in the overall system at which ventilation flow is provided to the emissions control system. Also, a portion of each tank's exhaust can be recirculated to assist in maintaining temperature.

The recirculation system cools, condenses, removes vapor and some entrained particulates, further removes moisture via a separator, and returns a portion of the cooled vapor to the tank. This provides cooling for the tank while reducing air emissions. Nominal flow rates in the recirculation system vary from zero m3/sec (bypassed) to 0.25 m3/sec per tank, at standard temperature and pressure conditions. At the higher flow rate, approximately 0.05 m3/sec is provided to the emission control system with the remainder to the tank. Similar airflow from the other three tanks is combined in the common ventilation header connecting the discharges of the other recirculation coolant systems. The combined flow is discharged to the emissions control system. The recirculation system is considered part of the process because the collected material is returned to the tank.

When mixer pumps are operating in a tank, the 0.25 m^3/sec drawn from this tank may not be recirculated but may be combined with the flow from the other tanks for a total discharge to the emissions control system flow range of 0.4 to 0.5 m^3/sec. Numerous other combinations of discharge flow rates are possible but the combined annual average discharge flow rate to the emissions control system will not be greater than 0.5 m^3/sec. During system upset conditions, such as an automatic shutdown of one exhaust train and start of the opposite train, discharge flow rates could reach 0.6 m^3/sec for several seconds.

The portion of the stream discharged to atmosphere will flow through a condenser, high-efficiency mist eliminator, heater, and two high-efficiency particulate air (HEPA) filters in series. For purposes of calculating abated emissions, only the HEPA filter control efficiencies are used.

The central pump pits on the 241-AY and 241-AZ Tank Farm tanks are approximately 14 ft long x 10 ft wide x 10 ft depth (outside dimensions). Sluice pits and annulus pump pits are somewhat smaller with outside dimensions of 7 ft x 7 ft x 10 ft deep and 5 ft x 5 ft x 10 ft deep.

With the previous NOC revision, modifications to all four tanks and associated equipment were permitted to allow for installation of waste retrieval systems and equipment, through issuance of letter AIR-05-708, including the following major components.

New In Tank Equipment
•Two mixer pumps each in tanks 241-AZ-102, 241-AY-101, and 241-AY-102 for mobilizing the settled solids. Two mixer pumps were installed in tank 241-AZ-101 and permitted previously by WDOH through issuance of AIR-98-708. All of the pumps will be capable of pumping waste through each of two horizontally opposed discharge nozzles.

•A riser extension/spray wash system on top of each of the risers used for mixer pumps. The spray wash system will be used for future decontamination of the mixer pumps if they are removed from the tank.

•One transfer pump in each tank for the transfer of waste.

•New temperature probes for each tank.

•New decant pumps in the AY tanks and associated transfer piping; to include a one-time use hose-in-hose transfer line approximately 40 ft in length.

Ancillary Equipment and Buildings
•Electrical power and instrument cables and other utility tie ins and/or upgrades (e.g., sanitary and raw water, and telecommunications).
•Tie-in to the existing dilution and caustic supply system to bring waste properties into compliance with the feed specifications and to flush and preheat transfer lines. The dilution system will have the capacity of providing approximately 140 gal/minute of pH adjusted water.
•Pit cover blocks.
•Water/diluent piping to and from the process pits.
•Process jumpers.
•Miscellaneous concrete pads for electrical and mechanical equipment.
•Chain link fencing and gates.

Removal, Repair, Decontamination, and Demolition of Existing Equipment
•Removal/repair of transfer and/or mixer pumps, as necessary, during the life of the facility.
•Removal and disposal of several thermocouple probes/instrument trees.
•Removal and disposal of several existing pumps and other miscellaneous equipment (e.g., slurry distributers and process jumpers).
•Additionally, this revision includes removal of HEGA filters.

CONSTRUCTION ACTIVITIES
Construction activities with the PTE could include soil excavation, work in pump pits, pipe cutting, and removal and installation of in tank equipment. Some of these activities are described in, and will be done in accordance with, an applicable tank farm as low as reasonably achievable control technology (ALARACT) demonstration (HNF 4327, Control of Airborne Radioactive Emissions for Frequently Performed TWRS Work Activities (ALARACT Demonstrations). The specific activities and corresponding ALARACT demonstration are called out as applicable in the following sections.

If needed or chosen for use during these activities, the regulated guzzler, a portable/temporary radioactive air emission unit, and a HEPA filtered vacuum radioactive air emission unit may be used in accordance with the latest revisions of the NOC [EPA 1998 letter, "Approval of Short Form Radioactive Air Emissions Notice of Construction (NOC) for Guzzler Excavation and Backfilling Activities in Support of 200 East Area A Farm Complex"; DOE/RL-96-75, "Radioactive Air Emissions Notice of Construction Portable/Temporary Radioactive Air Emission Units"; and DOE/RL-97-50, "Radioactive Air Emissions Notice of Construction for HEPA Filtered Vacuum Radioactive Air Emission Units," respectively].

Because of the possibility of encountering previously undetected subsurface contamination, all work will be performed in accordance with appropriate radiological controls and the River Protection Project (RPP) as low as reasonably achievable (ALARA) program. These requirements are carried out through work packages and associated Radiological Work Permits (RWP).

Soil Excavation

Soil will be excavated inside and outside the 241-AZ and 241-AY Tank Farms for the dilution piping that will tie-in to the existing AN Tank Farm caustic supply system and to remove soil in preparation for mixer pump foundations and miscellaneous equipment support structures, to remove soil around pits in preparation of core drilling, and for placement of control building foundations (as required). A total of approximately 6000 yd^3 per farm could be excavated. Backfill will be made with the original removed soil or noncontaminated controlled density fill (sand, water, and a small amount of cement).

Soil excavation activities inside the tank farm fence will be performed in accordance with ALARACT Demonstration 5, TWRS ALARACT Demonstration for Soil Excavation (Using Hand Tools). If contamination is discovered outside the tank farm fence, ALARACT 5 will be followed. Clean soil piles could be moved from one place to another within the tank farm with heavy equipment (backhoe, front-end loader, etc.). Soil excavation outside the tank farm fence in noncontaminated soil also could be performed with heavy equipment. The regulated guzzler also could be used as described in the NOC for use in the 241-A Tank Farm Complex (EPA 1998 letter).

Pipe Cutting and Welding
Any required cuts of contaminated piping will be made inside a glove bag using appropriate equipment such as a sawzall or tri tool. To perform a cut without a glove bag, the piping will be surveyed/smeared to verify removable contamination levels are equal to or less than 10,000 disintegrations per minute (dpm) per 100 cm^2 beta gamma and 200 dpm/100 cm^2 alpha.

Welding may be necessary to join various pieces of equipment. If this is necessary, welding will commence once removable contamination levels in the weld area are reduced to ALARA. The goal will be to achieve 1000 dpm/100 cm2 beta gamma and 20 dpm/100 cm^2 alpha or less, but might not always be attainable.

If needed or chosen for use during these activities, a portable/temporary radioactive air emission unit and a HEPA filtered vacuum radioactive air emission unit could be used in accordance with the latest revisions of the NOCs (DOE/RL-96-75 and DOE/RL-97-50, respectively).

Pit Work
Work to be performed in pits may include replacing existing sets of cover blocks with newly designed cover blocks, core drilling (equivalent of one hundred 14-in. diameter holes for AZ Farm and ten 14 in. diameter holes for AY Farm), installing new nozzles, and removing existing jumpers.

Pit access and work will be performed in accordance with ALARACT Demonstrations 6 and 14, TWRS ALARACT Demonstration for Pit Access, and TWRS ALARACT Demonstration for Pit Work. Activities not covered in these ALARACTs are described in the following.

If needed or chosen for use during these activities, a portable/temporary radioactive air emission unit and HEPA filtered vacuum radioactive air emission unit could be used in accordance with the latest revisions of their NOCs (DOE/RL-96-75 and DOE/RL-97-50, respectively).

At the start of the pit work, the cover blocks will be lifted off and radiologically surveyed to determine an appropriate disposal method. New cover blocks will be installed when all work in the pits is completed.

Core drilling may be performed and will occur below grade level on the outside of the pit. The hole will be drilled from the outside to the inside, with the temporary pit cover in place. Nozzle installation generally will proceed immediately after the hole is completed. If immediate nozzle installation is not possible, the hole will be temporarily sealed with a plug, tape, or equivalent device until the nozzle can be installed.

Installation of new nozzles in existing pits will take place in an open pit. All parts of the nozzle will be assembled ahead of time and will be lowered into position as a single unit. The piping in the back of the nozzle will be threaded through the hole (from the inside of the pit to the outside) and pulled tight into place from the outside of the pit. Grout will be used to secure and seal the nozzle into place. The front opening of the nozzle, inside the pit, will be fitted with a temporary cap/seal until a jumper is connected to the nozzle. Once the nozzle(s) is/are installed, the temporary pit cover will be replaced until other work inside the pit requires pit cover removal.

Removal of In Tank Equipment
Various in-tank equipment will be removed from the tanks to make room for the waste retrieval equipment, or to be replaced with equivalent equipment built to withstand the mixer pump jet forces. Removed long-length equipment will either be packaged in long-length contaminated equipment disposal containers or size reduced for disposal in accordance with ALARACT Demonstration 15, Tank Farm ALARACT Demonstration for Size Reduction of Waste Equipment for Disposal. Equipment removal will be performed in accordance with ALARACT Demonstration 13, TWRS ALARACT Demonstration for Installation, Operation, and Removal of Tank Equipment. Activities not covered in this ALARACT are described in the following.

If needed or chosen for use during these activities, a portable/temporary radioactive air emission unit, and a HEPA filtered vacuum radioactive air emission unit may be used in accordance with the latest revisions of their NOCs (DOE/RL-96-75 and DOE/RL-97-50, respectively).

Decontamination of removed equipment is not anticipated. The fewer decontamination activities undertaken, the less exposure possibilities there are to the worker and the environment. Contingency decontamination plans, however, are in place if needed. The most likely equipment to be decontaminated would be sections of the flexible receiver. Equipment removal will be performed in accordance with TWRS ALARACT Demonstration 13, Installation, Operation, and Removal of Tank Equipment.

In Tank Equipment Installation
Equipment installation will be performed in accordance with TWRS ALARACT Demonstration 13, Installation, Operation, and Removal of Tank Equipment.

WASTE STAGING AND RETRIEVAL PROCESS OVERVIEW
Mixer pumps will be operated to maintain waste uniformity during staging and to mix the waste for a period before and during transfer. As required by operational directives, mixer pumps will be operated until waste samples verify that adequate mixing has been achieved. Waste samples will be collected in accordance with TWRS ALARACT Demonstration 7, Tank Waste Grab Sampling. If dilution/conditioning is needed, the pH and temperature of the diluents will be adjusted by means of a caustic supply system. Once the waste is verified acceptable, the transfer lines will be preheated/flushed with water, and the waste transfer to the treatment facility will follow. After the transfer, the lines will be flushed again with water.

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

Alpha - 0	1.39E-01	B/G - 0	1.35E-01
Guzzler during soil excavations in AY/AZ Tank Farm. Assuming Am-241 as the conservative isotope.		Guzzler during soil excavations in AY/AZ Tank Farm. Assuming Sr-90 as the conservative isotope.	

4) MONITORING DURING CONSTRUCTION ACTIVITIES

During soil excavation activities, periodic confirmatory monitoring (PCM) as described in ALARACT 5, will verify low emissions. If the regulated guzzler is used, PCM will be performed as required by the guzzler NOC.

5) Soil Excavation

If the regulated guzzler is used to excavate soil, radiological and administrative controls as described in the NOC for use in the A Tank Farm Complex (EPA 1998 letter) will be followed. Description of the emissions control technology for the regulated guzzler is provided in that NOC.

Emission Unit ID: 486

200 Area Diffuse/Fugitive

200 Area Diffuse/Fugitive

This is a MAJOR, FUGITIVE, non-point source emission unit.

200 diffuse/fugitive emissions

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

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
WAC 246-247-075[2]	40 CFR 61, Appendix B, Method 114	Each radionuclide that could contribute greater than 10 percent of the potential-to-emit TEDE	Per the sitewide ambient monitoring program

Sampling Requirements Per the sitewide ambient monitoring program samples will be collected from the existing near-facility monitoring stations

Additional Requirements

See Section 5 of the general conditions in this license for additional information.

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

Operational Status Associated with emissions from operations, deactivation, surveillance and maintenance, and inactive sites in the 200 Area from sources not actively ventilated.

This Emission Unit has 31 active Notice(s) of Construction.

Project Title	Approval #	Date Approved	NOC_ID
Tank Waste Remediation System Vadose Zone Characterization	AIR 06-1003	10/5/2006	635

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 7.03E-02 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 7.03E-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 following methods of sampling and drilling techniques, including air rotary drilling, sonic drilling, closed-end probe, cable tool drilling, cone penetrometer, air rotary split spoon, and others. This approval applies only to the following tank farms: 241-A, 241-AX, 241-B, 241-BX, 241-BY, 241-C, 241-S, 241-SX, 241-T, 241-TX, 241-TY and 241-U.

Up to ten equivalent boreholes may be drilled or re-entered per year (consecutive 12-month period) by the methods described. An equivalent borehole shall have a nominal top diameter of no larger than ten inches for the first 50 feet, and a nominal bottom diameter of no larger than eight inches for the remaining 200 feet of pipe (average depth is 250 feet). Additionally, an equivalent borehole shall contain a contaminated layer no more than 20 feet long in the ten inch portion of the equivalent borehole. Individual methods shall be selected based on the likely level (concentration) of contaminants to be encountered. The most conservative drilling approach (lowest potential-to-emit) shall be applied first. Borehole logging shall be used to determine when it is appropriate to apply drilling techniques that may have a higher potential-to-emit. Zones not sampled during advancement of the borehole due to having a high potential to exceed exposure guidelines may be sampled by side-wall sampling techniques as the boreholes are decommissioned.

Samples from air rotary type drilling shall be obtained from the sampling sock located on the side of the cyclone and/or from the drums underneath the cyclone and torit. The material in the drums will be sampled by pulling a mini-core from the drum. Sampling and change-out of the drums shall be performed inside the containment structure with continuous health physics technician (HPT) coverage.

Borehole drilling techniques that may be used are limited to those described below:

Sonic drilling
Closed-end probe
Traditional cable tool drilling from top to bottom
Cone Penetrometer
Geo Probe
Auger drilling

Soil sampling techniques will include one or a combination of the following techniques:

Air Rotary Split Spoon
Cable Tool
Cable Tool and Auger with a Split Spoon Core Barrel
Sonic Core Barrel and Split Spoon
Rotary Coring
Sidewall Sampling
Drive Split-Spoon Sampler

Sidewall samples being brought to the surface will be bagged or sleeved into plastic or other suitable container (e.g. shielded container) after retrieval if decontamination or application of fixatives cannot reduce smearable contamination to less than 100,000 disintegrations per minute (dpm) per 100 cm^2 for beta/gamma or 2,000 dpm/100 cm^2 for alpha. The sampler will then be packaged in a container suitable for shipment to the laboratory for analysis. Other sidewall sampling techniques may involve a lever-action sampler (the sampler is driven into the formation through a cantilever action) or a rotating formation "shaving" device with the sample captured in an under-slung basket.

The brush, used to clean casings, shall be placed in plastic sleeving if decontamination or application of fixatives cannot reduce smearable contamination to less than 100,000 dpm/100 cm^2 for beta/gamma or 2,000 dpm/100 cm^2 for alpha when it is removed from the borehole. Pull the casing into plastic sleeving during removal if decontamination or application of fixatives cannot reduce smearable contamination to less than 100,000 dpm/100 cm^2 for beta/gamma or 2,000 dpm/100 cm^2 for alpha. Unthread the casing if possible, or cut using a wheel cutter, or disconnected from other segments into a nominal length of ten feet. A high-speed blade wheel cutter is not allowed. When necessary, either to accomplish casing removal for borehole decommissioning or to enable pull-back for sidewall sampling, the casing will be cut at depth using a Bowen casing cutter (or equivalent). If decontamination or application of fixatives cannot reduce smearable contamination to less than 100,000 dpm/100 cm^2 for beta/gamma or 2,000 dpm/100 cm^2 for alpha and the casing is sleeved in plastic, no more than one feet of casing shall be exposed to air during the cutting process. Capture cuttings in draped plastic. If decontamination or application of fixatives cannot reduce smearable contamination to less than 100,000 dpm/100 cm^2 for beta/gamma or 2,000 dpm/100 cm^2 for alpha, cap the pieces, cut with plastic or horsetail the sleeving and place sections in a burial box. The hole will be backfilled with clean (nonradioactive) materials (e.g., granular bentonite and/or grout). Casing removal activities are allowed to be performed outside of the containment structure. The closure of the equivalent boreholes may also be performed by backfilling the borehole using a tremie without pulling the casing.

Collect any perched water in the drum at the bottom of the cyclone. Approximately 1,000 gallons of purgewater is allowed to be removed from each equivalent borehole prior to inserting a screen below the water table. After installation of the screen, groundwater samples will be taken. An average of 2,000 gallons of water (which includes perched water, purgewater and groundwater sampling) is allowed to be removed from each equivalent borehole. Perched water and purgewater will be collected in passively ventilated open-top containers. Water shall be transferred from the passively ventilated containers into a tanker truck for treatment at the 200 Area Effluent Treatment Facility or other permitted storage/treatment facility. Water may be transferred directly from

the borehole to the tanker truck, bypassing the intermediate containers.

Approximately 3,500 ft^3 of soil may be excavated per year. Perform excavation using manual methods, backhoe, and/or the Guzzler.

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

Ac - 227	4.55E-04	Am - 241	3.48E+01	Am - 243	7.75E-04
C - 14	2.13E-01	Cm - 242	2.72E-01	Cm - 243	9.47E-03
Cm - 244	8.83E-02	Co - 60	9.66E-01	Cs - 134	1.48E-02
Cs - 137	1.85E+03	Eu - 152	4.13E-01	Eu - 154	8.67E+00
Eu - 155	2.61E+01	H - 3	7.68E-01	I - 129	1.72E-02
Ni - 59	5.13E-01	Ni - 63	4.99E+01	Np - 237	3.55E-03
Pa - 231	4.72E-04	Pu - 238	2.20E+00	Pu - 239	2.00E+02
Pu - 240	2.11E+01	Pu - 241	1.25E+02	Pu - 242	5.98E-04
Ra - 226	3.69E-05	Ra - 228	1.92E-03	Ru - 106	1.71E-03
Sb - 125	7.25E-01	Sm - 151	1.86E+02	Sn - 126	7.97E-02
Sr - 90	2.07E+04	Tc - 99	3.55E+00	Th - 229	7.76E-05
Th - 232	7.60E-05	U - 232	5.87E-03	U - 233	2.25E-02
U - 234	4.45E-01	U - 235	1.97E-02	U - 236	4.55E-03
U - 238	4.48E-01	Y - 90	2.07E+04	Zr - 93	2.41E-01

4) Approval is given as an alternative to transfer the perched water directly from borehole to the tanker.

5) Casing size reduction may also be by unthreading.

6) Drive Split Spoon Sampler will be included as a soil sampling technique.

7) Emission controls to be used during sonic drilling, cable tool drilling, during use of the cone penetrometer, use of the closed-end probe, and casing removal will be decontamination by nonaggressive manual methods such as wiping, sleeving into plastic or having fixatives applied to prevent the spread of contamination if the smearable contamination levels are greater than 100,000 dpm/100 cm2 for beta/gamma or 2,000 dpm/100 cm2 for alpha. As the core barrel is removed from the ground during cable tool drilling, a smear survey will be taken of the core barrel. Decontamination activities will be performed as needed to reduce smearable contamination.
a. At selected depths, samples will be taken and these samples will be removed from the core barrel prior to striking the exterior of the core barrel with a hammer or hard object to dislodge soil into a plastic lined drum. There will be minimal potential for emissions from striking the core barrel to dislodge the soil into the drum.
b. When the smearable contamination level is greater than 100,000 dpm/100 cm2 for beta/gamma or 2,000 dpm/100 cm2 for alpha, the core barrel will be sleeved in plastic. The core barrel will be removed from the drill string and placed in a suitable closed container for shipment to the laboratory or placed in a plastic-lined drum. Additionally, other sample containers may be wrapped in plastic after retrieval and the casing may be sleeved into plastic during the removal process to prevent the spread of contamination.

8) Emissions for these activities shall be tracked via a log approved by the department. This log shall track the hours of operation and location of use for each type of equipment, estimated and calculated curies encountered, and calculated emissions. Air samples used for periodic confirmatory measurement shall be collected no closer than three feet above ground level. These samples shall be composited for each three individual sites (total of three

samples) and analyzed at the completion of the borehole or re-entry activity and casing removal. All periodic confirmatory samples will be collected and analyzed following EPA Method 114.

9) Excavations using the Guzzler shall follow the Conditions and Limitations for approval for the Categorical NOC for use of the Guzzler on the Hanford Site. All source term work performed under this activity shall be tracked against this APQ.

10) For various characterization options covered under this NOC, the maximum TEDE to the hypothetical off site MEI shall not exceed 7.03 E-02 mrem/year. The maximum TEDE to the MEI shall not exceed 5.7 E-02 mrem/year at the Energy Northwest location as determined by CAP88PC, Version 2 supplied as supporting documentation.

11) No more than 3,500 cubic feet of soil may be excavated per year using manual methods, backhoe, and/or the guzzler. This shall be documented on an approved log.

12) No more than an average of 2,000 gallons of water (includes perched water, purge water and groundwater sampling) will be removed from each equivalent bore hole. Not to exceed 20,000 gal/year of water. Perched water and purge water will be collected in passively ventilated open top containers. When a sufficient volume of water has been collected or at the end of groundwater sampling activities, the water shall be transferred from the passively ventilated containers into a tanker truck for treatment at the 200 Area ETF or other permitted storage/treatment facility.

13) The APQ associated with perch water, purgewater and groundwater sampling shall not exceed 7.57 E-03 curies. The APQ associated with excavation shall not exceed 74.9 curies. These shall be tracked and documented on an approved log.

14) The facility must maintain a log in an approved format for this activity or emission unit (WAC 246-247-080(7)).

15) The following additional drilling techniques are approved for use: geoprobe and auger drilling. For casing removal or to enable pull back for sidewall sampling, the casing may be cut at depth using a Bowen Casing Cutter (or equivalent with prior DOH approval).

16) The following controls shall be mandatory when handling perched water, ground water and ground water sampling. All contaminated liquids shall be contained; all exterior surfaces of liquid holding devices shall be maintained at the current radiological free release limit; vented drums shall be maintained non-smearable; storage and handling of the vented drums shall be as described in the Site Wide Vented Drum Notice of Construction.

17) U.S. DOE shall monitor this project or emission unit as follows: fugitive emissions result from cable tool and sonic drilling, use of the closed end probe and the cone penetrometer, the plastic containment structure during air rotary drilling, and during dismantlement/assembly or relocating the ventilation equipment, plastic containment structure, or process equipment. To confirm low emissions, periodic confirmatory monitoring will be accomplished by operating three fixed head samplers around the location of where the drilling and sampling operations are occurring. The fixed head samplers will be located within 100 feet of where the drilling and sampling work activities are occurring and will be operated whenever the work activities have the potential-to-emit radionuclides. These samples shall be composited for each three individual sites (total of three samples) and analyzed at the end of each borehole. Packaging of equipment and samples for shipment, shall have surveys (swipes for removable contamination) performed in accordance with TWRS as low as reasonably achievable control technology (ALARACT) demonstration number 12 and subsequent revisions, TWRS ALARACT Demonstration for Packaging and Transportation of Equipment & Vehicles.

Fugitive emissions may also result from removing casing from the ground. To confirm low emissions, periodic confirmatory monitoring will be accomplished by operating three fixed head samplers around the location of the work activities. The fixed head samplers shall also be located with 100 feet of where the casing removal activities are occurring and shall be operated when the work activities have the potential-to-emit radionuclides. These samples shall be composited for each three individual sites (total of three samples) and analyzed at the end of each casing removal (WAC 246-247-075(8)).

18) U.S. DOE shall provide additional monitoring as follows: Fugitive emissions result from excavations using hand tools shall be described as described in TWRS ALARCT 5. Fugitive emissions that result from excavations using backhoe shall consist of the following:

a) HPT coverage will be performed as specified in the radiological permit.

b) A beta-gamma survey of the ground surface is required prior to excavation in Contamination Areas (CA's), High Contamination Areas (HCA's), Soil Contamination Areas (SCA's), and Underground Radioactive Materials Areas (URMA's). An alpha survey may be required prior to excavation per the "Justification for Dual Survey Exemption in Tank Farm Facilities" HNF-3391.

c) For excavations in CA's, HCA's, SCA's, and URMA's, if beta-gamma activity greater than 1000 dpm/probe area

(5000 dpm/100 cm^2) is identified, alpha surveys will also be performed.
d) Suppressants such as water, fixatives, covers, or windscreens will be used as necessary, including at the end of each shift or when sustained or predicted winds are >20 mph. Excavations are not allowed when sustained or predicted winds will be >20mph.
e) If the net alpha for the general area is greater than 140 dpm/probe area, OR if the net beta-gamma activity for the general area is greater than 500,000 dpm/probe area, work will be suspended and worker safety evaluated by radiological control. Direct contact will also be made to WDOH. After it is determined that there is no threat to worker safety, WDOH has been contacted, and the proper controls (e.g., water fixatives, covers, windscreens) have been put in place, excavation may continue. A contact of WDOH will not be needed if the contamination consists of a hot speck. If hot specks are detected during the radiological surveys, the speck will be removed and contained before the activity is allowed to continue unless located in the bottom of the trench after excavation has been completed. Specks found in the bottom of the completed trench may be covered with clean fill. A hot speck will be defined as a very small amount (i.e., less than or equal to 100 cm^2) of contamination reading greater than or equal to 1,000,000 dpm/probe size beta-gamma and/or greater than or equal to 490 dpm/probe size alpha.

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 5.63E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 mission of the WRAP Facility includes examining, assaying, characterizing, treating, verifying, and repackaging solid radioactive material and mixed waste to enable treatment, storage, or disposal. The WRAP Facility manages many categories of radioactive materials such as; 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 may be processed and stored at WRAP in accordance with the approved safety analysis.

The physical, chemical, and radiological attributes of the newly generated waste are expected to be well known before receipt at the WRAP Facility, while retrieved drums could contain less than fully characterized waste. Whether newly generated or retrieved, the radioactive material might not have been sampled before coming to the WRAP Facility. In every case, however, sufficient knowledge of the radioactive material is obtained by sampling or process knowledge to ensure proper management of the radioactive material.

SHIPPING AND RECEIVING
Containers delivered to and transferred/shipped from the shipping and receiving area by truck or forklift. In the shipping and receiving area, incoming boxes and drums are unloaded, visually inspected, labeled, and radiologically surveyed. The resulting information pertaining to each container is entered into the data management system.

Following visual inspection, containers are transferred to the lag storage area. From the lag storage area, incoming drums transferred to a weigh station and on to the NDE/NDA area for further characterization.

Once characterized, verified, and/or certified, the certified TRU waste must be loaded into a transuranic package transporter (TRUPACT-II) shipping cask for shipment to the Waste Isolation Pilot Plant (WIPP) in New Mexico. Verified LLW is transferred for disposal onsite. Mixed waste is moved to an offsite treatment or permitted storage facility, or to an onsite treatment, disposal, and/or storage unit. Radioactive material that fails verification shall be returned to the generator, processed to correct the problem, or sent to another facility for further reprocessing.

NONDESTRUCTIVE EXAMINATION/NONDESTRUCTIVE ASSAY SYSTEMS

The NDE/NDA shall used to examine and to certify LLW, LLMW, TRU, and TRU mixed waste container contents without opening the containers.

The primary function of NDE is to examine the physical contents of containers entering and leaving the WRAP Facility to determine whether there are unacceptable conditions in the containers. This examination of the containers is accomplished by the use of the real-time radiography (RTR) system. The RTR system consists of an x-ray imagine system used to identify noncompliant items, such as free or containerized liquids, compressed gas containers including aerosol cans, and other suspected dangerous waste/materials. Data from the x-ray examination are entered into the data management system for each container.

PROCESS AREA

The process area consists of four glovebox lines: a TRU waste process glovebox, a TRU waste restricted waste management (RWM) glovebox, a LLW/TRU process glovebox, and a LLW RWM glovebox.

The airborne radiological contaminants produced at the WRAP Facility are expected to be generated in these gloveboxes. Incoming drums generally are opened in gloveboxes. However, it might be necessary to loosen a lid or replace a damaged lid outside of a glovebox. For example, an 85-gallon drum lid is removed by placing the drum in an air exhauster cansister, which vents to the process area through a high-efficiency particulate air (HEPA)-like filter. No credit is taken for this HEPA-like filter. Emissions from the process area will exhaust through the 296-W-4 stack emission system.

TRANSURANIC WASTE PROCESS LINE

The TRU waste process glovebox line consists of stainless steel modular gloveboxes that are bolted together in a linear configuration. Glovebox ventilation is of the once-through type. Air is drawn from the process room, through a nontestable high-efficiency process filter, and into the glovebox. The air is exhausted from the glovebox through another nontestable high-efficiency process filter to the combined glovebox exhaust system.

Process operations are performed inside of the gloveboxes by using the gloves and/or remote controlled manipulators. Drums are loaded into the glovebox through airlock systems. Noncompliant items are labeled and transferred to the TRU RWM glovebox using a reusable transfer system. Compliant waste is repackaged into new containers.

TRANSURANIC WASTE RESTRICTED WASTE MANAGEMENT LINE

The TRU waste RWM glovebox line consists of a single stainless steel module. Glovebox ventilation is of the once-through type. Air is drawn from the process room, through a nontestable high-efficiency process filter, and into the glovebox. The air is exhausted from the glovebox through another nontestable high-efficiency process filter to the combined glovebox exhaust system. Noncompliant waste is received from the TRU waste process line in a reusable transfer system.

The treatment and repackaging operations that occur in the TRU waste RWM glovebox could include; deactivation (neutralization, cementing, absorption, and stabilization of metals), stabilization of non metals (cementing, adsorption, and encapsulation), sulfur reaction of liquid mercury (amalgamation) and repackaging of waste.

LOW-LEVEL WASTE PROCESS LINE

The LLW process glovebox line consists of stainless steel modular gloveboxes that are bolted together in a linear configuration. Glovebox ventilation is of the once-through type. Air is drawn from the process room, through a nontestable high-efficiency process filter, and into the glovebox. The air is exhausted from the glovebox through another nontestable high-efficiency process filter to the combined glovebox exhaust system.

Drums enter the glovebox through an airlock entry system. Noncompliant items are bar code labeled and transferred to the LLW RWM or TRU/RWM glovebox using a reusable transfer system. Compliant waste is compacted and repackaged into new drums.

LOW-LEVEL WASTE RESTRUCTED WASTE MANAGEMENT PROCESS LINE

The operations in the LLW RWM process line are identical to the operations to the operations in the TRU waste RWM line.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 1.13E+02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	3.41E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(e)

License PTE limit bounds 3.41E-05 Ci/yr 241Am and release fraction of 2E-09 (AIR 99-1006). Any radionuclide on the chart of the nuclides could be encountered during WRAP fugitive emissions activities. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate form. A small contribution from the gaseous radionuclides may be encountered. Although any radionuclide could be present, for conservatism all alpha is assumed to be 241Am and all beta/gamma is assumed to be 90Sr for dose calculation estimates. Other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta/gamma constituents.

B/G - 0	5.11E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(e)

License PTE limit bounds 5.11E-04 90Sr and release fraction of 2E-09 (AIR 99-1006). Any radionuclide on the chart of the nuclides could be encountered during WRAP fugitive emissions activities. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate form. A small contribution from the gaseous radionuclides may be encountered. Although any radionuclide could be present, for conservatism all alpha is assumed to be 241Am and all beta/gamma is assumed to be 90Sr for dose calculation estimates. Other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta/gamma constituents.

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

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 7.50E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 approved activities are limited to:

A1) Packaging and Repackaging Waste - Packaging and repackaging activities are performed for waste generated at 2706-T as well as for onsite and offsite generators. The repackaging of waste supports waste acceptance criteria for other TSD facilities. For example, prohibited items from waste packages are removed and either staged for later handling or repackaging using remote or manual methods.

Packaging and repackaging activities are:

A1a) Sorting.
A1b) Segregation.
A1c) Removing prohibited items.
A1d) Compositing/aggregating solids or liquids.
A1e) Adding absorbent.
A1f) Size reduction [e.g., cutting (jaws, saws, torches)], bending, folding, crushing (e.g., drum crusher), shredding, compacting, or similar methods that do not have a higher extent of disruption].
A1g) Void filling.
A1h) Pressure relief/release (e.g., aerosol cans, gas cylinders, drums, or other similar containers).

A2) Verification Activities - Verification support activities are provided for waste and other materials that are generated on or off the Hanford Site.

Verification activities are:

A2a) Physical observation.
A2b) Nondestructive examination (NDE).
A2c) Nondestructive assay (NDA).
A2d) Chemical field screening.
A2e) Radiological surveys.
A2f) Radiological samples.
A2g) Headspace gas sampling.
A2h) Chemical sampling.

A3) Sampling Activities - Sampling of waste generated by operations or by other onsite or offsite generators is performed. The purpose of sampling is to confirm process knowledge, characterize waste, support verification, and determine land disposal requirements as applicable.

Sampling activities are:

A3a) Field screening [e.g., pH paper, oxidizer, volatile organic analyses (VOAs), polychlorinated biphenyls (PCBs), or similar screening parameters].
A3b) Obtaining a sample for analysis [e.g., grab, composite, composite liquid waste sampler (COLIWASA), or other similar sampling techniques].
A3c) Shipping/transferring the samples to an approved laboratory for analysis.
A3d) Disposition of sample returns (e.g., placement back into the parent container or another approved container/tank).
A3e) Headspace gas analysis [typically in support of the Waste Isolation Pilot Plant (WIPP) Project].

A4) Decontamination/Refurbishment Activities - Materials, equipment, and waste can be decontaminated (e.g., free release, reduce the radiological levels, or other similar criteria) using a variety of methods. Equipment can also be repaired and refurbished within the 2706-T facility. Within 2706-T, decontamination of 2706-T structural components may be performed.

Decontamination and refurbishment activities at 2706-T are:

A4a) Water (fog, high or low-pressure spraying).
A4b) Steam.
A4c) Ice blasting.
A4d) Vacuum blasting.
A4e) Brushing.
A4f) Abrasive tools.
A4g) Scraping.
A4h) Washing (e.g., chemicals/detergents).
A4i) Immersion.
A4j) Electro-polishing.
A4k) Cutting (e.g., removal by sawing, torch cutting more highly radioactive components or other similar methods).
A4l) Rust/paint removal.
A4m) Sand blasting.
A4n) Vacuuming.

A5) Maintenance Activities - A variety of preventative and/or repair maintenance activities are performed at 2706-T. Some maintenance activities involve the temporary shut down of the 296-T-7 exhaust stack.

Maintenance activities are:

A5a) Painting.
A5b) Crane maintenance.
A5c) Electronic systems functional checks and repairs [CAMs, personnel contamination monitors (PCMs)].
A5d) Calibrations.
A5e) Mechanical overhaul and rebuild.
A5f) Bearing replacement.
A5g) Pump and motor alignment.
Maintenance may be performed on:
A5h) Rollup doors.
A5i) Heat pumps.
A5j) Exhaust fans.
A5k) Transformers.
A5l) Scale systems.
A5m) Wire rope.
A5n) Stack systems.
A5o) Forklifts.

A6) Waste Treatment Activities - 2706-T is a RCRA treatment and Storage facility permitted by the Washington State Department of Ecology (Ecology).

Treatment activities are:

A6a) Macroencapsulation.
A6b) Absorption.
A6c) Neutralization.
A6d) Immobilization.
A6e) Encapsulation.
A6f) Stabilization (solidification, cementation, grouting).
A6g) Compaction.

A6h) Amalgamation.
A6i) Segregation.
A6j) Shredding.
A6k) Venting and drilling.
A6l) Size Reduction.

A7) Recycling Activities - Materials are recycled whenever possible. Recycled materials are: ferrous and non-ferrous metal, light bulbs, aerosol cans, oils, and batteries.

A8) Storage Activities – 2706-T stores materials (chemicals, or equipment, or similar materials) to support operations. Radioactive wastes may be stored uncontainerized or in:
A8a) Containers (boxes, drums, tanker trucks/railcars, or large diameter containers).
A8b) Tanks.
A8c) Sumps and pipes.

A9) Equipment, Materials, and Waste Movement Activities - The movement of materials, equipment and waste is necessary to support operations and maintenance. Movement activities (using a forklift, crane, truck, dolly, personnel) are:
A9a) Receiving waste (liquid, solid, semi-solid) for storage and/or treatment.
A9b) Movement of waste (liquid, solid, semi-solid) and equipment.
A9c) Movement of liquids, sludges, or other waste from containers and/or tanks via transfer lines.
A9d) Waste container transfers.
A9e) Placing and storing chemical products in flammable cabinets or other approved storage locations.
A9f) Movement of contaminated material.

A10) Housekeeping Activities - Housekeeping activities involve maintaining 2706-T in a clean and orderly condition.

Housekeeping activities are:

A10a) Sweeping (brooms).
A10b) Mopping (squeegees or mops).
A10c) Vacuuming.
A10d) Dusting.
A10e) Wiping (sponges, towels).
A10f) Picking up debris.
A10g) Removal of trash.

A11) Surveillance Activities - Surveillance activities involve walking down and inspecting various areas, systems, and components. Surveillances typically consist of daily, weekly, and monthly inspections of waste containers, tanks, buildings, or similar locations. Surveillances are subject to change (adding, deleting and/or modifying) as operations, maintenance, engineering, and radiological control dictates. Surveillances, inspections, and maintenance activities that do not have the potential to create airborne contamination can occur within the 2706-T Building when the 296-T-7 exhaust stack emission system is shutdown.

The following surveillances are performed at 2706-T:

A11a) Container storage areas treatment and storage tanks and ancillary equipment.
A11b) General condition of building structures.
A11c) Cold weather surveillances (typically, between October 1 and March 31).
A11d) Inspection of equipment.
A11e) Inspection of HEPA filtered vacuums.
A11f) Radiological surveys.

2706-T: The 2706-T facility includes the 2706-T building and the 2706-TA Building. The 2706-T Building and the 2706-TA Building make up a single structure and are described briefly here. The 2706-T facility handles low-level waste, mixed low level waste, and transuranic (TRU) waste.

The 2706-T Building was built in 1959 as a low-level radiological decontamination building. The original building was 66 feet long and 50 ft wide. The 2706-TA Building was added in 1994/1995 over the concrete pad on the west side of the 2706-T. One rollup-door and one man-door provide access between 2706-T and 2706-TA Building. Three heat pumps provide heating, ventilation, and air conditioning for the 2706-T Building operations area. Waste handling and decontamination operational areas of the 2706-T Building are open and unobstructed. The 2706-T building is a pre-engineered metal building. The foundation is concrete slab on grade throughout. The 2706-T Building includes two pits, one for decontamination and treatment of motor vehicles and other large equipment, and one for rail car decontamination and treatment. These pits can also be used to support collection of liquids from waste handling activities.

Current operations in 2706-T Building include waste sampling, packaging and repackaging, head-gas sampling, managing waste containers, decontamination/refurbishment, maintenance, recycling, storage, housekeeping, surveillance, and movement activities. One egress door leads directly to the exterior of 2706-T Building. Other doors lead directly to the non-ventilated lean-to on the north side, and an air lock provides access to the 2706-TA Building operations area. The railway and auto pits have metal grating and some wooden covers to prevent falls into the pits. An epoxy floor sealant had been applied to all operational area floors. To support these operations, greenhouses are used as necessary in 2706-T. Greenhouses are temporary or semi-permanent radioactive material confinement structures, and can be used for contamination control. If used, greenhouses shall exhaust to the areas ventilated by the 296-T-7 ventilation system.

The atmosphere clean-up train (ACT-1) system, sprinkler system riser room, and electrical room are located in the south lean-to (non-ventilated).

2706-TA: The 2706-TA Building is an addition to the 2706-T Building installed in the 1990s as an add-on over the concrete storage pad located west of the building. The 2706-TA Building is approximately 54 feet long, 45 ft wide, and 23 feet high. There are two rollup doors located at the west end of the building. The 2706-TA Building has steel primary and secondary structural elements and corrugated sheet metal exterior siding and roofing panels. Three heat pumps provide heating, ventilation, and air conditioning for the 2706-TA Building operations area. The floor is concrete slab on grade. An epoxy floor sealant had been applied to all operational area floors. Waste handling and decontamination operational areas of the 2706-TA Building are open and unobstructed.

Current operations in 2706-TA Building include waste sampling, packaging and repackaging, head-gas sampling, managing waste containers, decontamination/refurbishment, maintenance, recycling, storage, housekeeping, surveillance, and movement activities. To support waste activities, greenhouses are used if necessary. Greenhouses are temporary or semi-permanent radioactive material confinement structures, and can be used for contamination control. When used, greenhouses shall exhaust to the areas ventilated by the 296-T-7 ventilation system.

Attached to the south side of 2706-TA Building is a lean-to made up of two rooms. The larger room houses the new ACT-2 HEPA filter system, which serves the operational areas. The ACT-1 and ACT-2 systems exhaust through the 296-T-7 stack. The second room houses electronic controllers and electrical switchgear supporting operations.

Emissions from these activities are exhausted through 296-T-7, except for emissions resulting from vented TRU containers stored within the facility, which may be released to the 200 Area diffuse and fugitive emission unit when the ventilation system is not in operation.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 7.50E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	2.20E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
conservatively assumed to be 241-Am in dose calculations			
B/G - 0	1.10E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
conservatively assumed to be 137-Cs in dose calculations			

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) All activities involving potentially airborne radioactive materials in 2706-T shall be conducted in accordance with the ALARA principle (WAC 246-247-040(5)).

5) Accidental releases with a probability of occurrence during the expected life of the emission unit of greater than 1% must be addressed. All such probable anticipated accidental releases shall be documented, and that documentation supplied to the department upon request (WAC 246-247-075(11)).

6) The PTE and abated emissions to the 200 Area diffuse and fugitive emission unit are limited to 7.5 E-03 mrem/year. The ventilation system shall be in operation when activities involving radioactive or contaminated materials are performed within the ventilated space. The ventilation system shall be in operation if any part of the 2706-T Facility is posted as a high contamination area or higher. Storage/movement of ventilated (NucFil or vent clip) TRU containers is permitted when the ventilation system is not operating. No specific compliance demonstration is necessary beyond the compliance with posting requirements (WAC 246-247-040(5)).

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 2.40E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 proposed activities involve transitioning the PFP Complex to a state of low-risk, low-cost, long-term surveillance and maintenance pending final disposition. All work would be performed in accordance with the approved radiological control procedures and as low as reasonably achievable (ALARA) program requirements as implemented by the project radiological control manual, as amended. These requirements would be carried out through the activity work packages and associated radiological work permits.

This activity includes deactivation of buildings and also includes deactivation of systems no longer necessary once stabilization and storage activities and planned legacy hold-up removal have been concluded; removal/disposition of equipment/components; contamination characterization and reduction/mitigation; packaging plutonium holdup material meeting waste acceptance criteria; maintaining and operating muffle furnaces, as needed, for removed plutonium holdup material; and demolition of radiologically contaminated, non-process ancillary buildings.

This activity also includes deactivation activities or activities to prepare and place a facility in a safe and stable condition to minimize the long-term cost of a surveillance and maintenance program while being protective of personnel, the public, and the environment until demolition of former processing and material storage buildings occurs. Deactivation activities would include those actions foreseeably necessary for implementation of the proposed action, such as associated transportation activities, waste removal and disposal, and award of grants and contracts. Specific actions could include the following work involving the potential for radioactive contamination:
- Draining and/or de-energizing systems as appropriate.
- Stabilizing contaminated areas (e.g., with fixatives, sealants, paint).
- Stabilizing or removing gloveboxes, process equipment, tanks, piping, fume hoods, and support equipment.
- Removing fencing and paved parking areas adjacent to facilities.
- Installing alternate environmental monitoring, surveillance, and safety components (e.g., lighting, fencing) if required.
- Removing/packaging radioactive (including equipment calibration sources and laboratory standards) and hazardous materials and waste, including stabilization and/or removal of asbestos, and removal, cleanup, and disposition of polychlorinated biphenyls and other regulated materials and transportation to existing waste management facilities.
- Removing equipment and system components.
- Size-reducing process equipment for disposal as waste.
- Performing physical or chemical treatment processes (e.g., neutralization, solidification, filtering) to render a material less hazardous or to reduce the volume (such processes will not increase the potential release rates)..
- Decontamination to support the excess of surplus equipment.
- Removing excess combustible material.
- Disconnecting utilities, piping, and communication service systems (if the systems are not necessary to maintain required environmental monitoring or building safety systems), including associated excavation.
- Ensuring adequate freeze and heat protection.
- Stabilizing, reducing, combining, or removing waste materials at outdoor locations within the PFP Complex (such processes will not increase the potential release rates provided in this NOC).
- Sealing cracks, gratings, and openings to the building exterior, and repairing roofs.
- Conducting general housekeeping activities (e.g., vacuuming, sweeping, dusting) in areas where radiological contamination is not anticipated (e.g., radiological buffer area) but could be encountered.
- Removing or reducing radioactive or hazardous contamination from facilities and equipment by washing, heating, chemical or electrochemical action, mechanical cleaning, or other similar techniques.

- Removing residual plutonium holdup material, which might remain throughout the PFP Complex after stabilization activities described in the PFP EIS have been completed; packaging residual plutonium holdup meeting waste acceptance criteria for shipment to an onsite waste management facility, or thermally stabilizing material in muffle furnace operations and packaging for storage in existing PFP Complex vaults.
- Designing and executing changes to utility service systems and/or utility structures necessary to place a facility in surveillance and maintenance, pending demolition.
- Conducting final process operations to stabilize or eliminate residual operational materials or effluents, such as final process runs; cleaning of vessels, valve pits and pipe trenches; installation and operation of small evaporators; flushing piping systems; removal or replacement of filters; and other similar closeout actions.
- Demolishing non-process ancillary buildings.
- Deactivation activities will require actions to provide for continued routine maintenance, repair, and replacement-in-kind of operating portions of PFP.

Other actions include:
- Remove residual plutonium from gloveboxes, filterboxes, equipment, piping, ductwork, and the building surfaces and package for disposition to onsite or offsite disposal facilities.
- Remove internal equipment from gloveboxes and building equipment/system components and package for disposition to onsite or offsite disposal facilities.
- Decontaminate gloveboxes, filterboxes, ductwork, and equipment to less than transuranic levels if possible.
- Remove gloveboxes, filterboxes, ductwork, and equipment and package for disposition to onsite or offsite disposal facilities.
- Decontaminate or fix contamination on building interior and exterior.
- Disconnect utilities and services not necessary for monitoring.
- Perform radiological and chemical characterization in preparation for dismantlement.

In preparation for the proposed transition activities, housekeeping, assays, preventive maintenance, minor decontamination, and reactivation of glovebox access ports would occur.

See additional process description in the following Conditions/Limitations.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 8.90E+02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Am - 241	1.74E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 238/239	1.90E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 240	5.20E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 241	1.50E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

The radioactive isotopes identified for this emission unit are (no quantities specified):

Am - 241	Co - 60	Cs - 137	Np - 237	Pu - 238/239
Pu - 240	Pu - 241	Pu - 242	Sr - 90	U - 233
U - 234	U - 235	U - 236	U - 237	U - 238

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) 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 proposed methods for removing residual contamination from equipment/systems and for removing equipment would be similar to methods in use today throughout the industry and the DOE complex. Both direct contact and remote technologies/techniques could be used. General technologies/techniques include heating, crushing, size reducing, and cutting. These could involve laboratory analyses and nondestructive assay; chemical cleaning, brushing, washing, scrubbing, vacuum cleaning, and abrasive jetting; using nibblers, shears, circular saws; potentially a remote-operated laser; and other similar methods. It is expected that should new technology become available, such technology would be evaluated for application in the PFP deactivation activities, and could be used if no increase in the potential-to-emit described in this NOC would result.

5) 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 PFP deactivation activities include the following:
- Size reduction of equipment will be by mechanical means and may be accomplished by compaction, disassembling by use of wrenches, nibblers, shears, cutters, grinders, saws, or other similar methods. This equipment may be manually, hydraulically, pneumatically or electrically powered.
- Decontamination methods include: Scraping, sweeping, chemical cleaning, brushing, washing, scrubbing, scabbling, grinding, vacuum cleaning, strippable coatings, washing using wet rags, spraying, abrasive jetting, low pressure and high pressure wash using water and/or chemicals cleaners, use of fixatives and/or physical removal of contamination by use of mechanical means such as chipping or cutting. The application of fixatives for contamination control would be accomplished via aerosol fogging, paint brush/roller, hand-held spray bottle, or an electric or pneumatic powered sprayer.
- Containment of waste may be accomplished by coating the material with a fixative or placing the material in containers, bags and/or wrapping in plastic sheeting, utilizing adhesive tape, heat sealing or mechanical closure to prevent release of radiological contamination.
- Miscellaneous mechanical processes that could be used to support the proposed activity could include threading of piping, use of hot taps on piping, capping and plugging piping using threaded pipe components and expanding/compressive plugs or caps, drilling of holes in metal and concrete, core drilling concrete surfaces, installation of anchor bolts, installation and removal of bolts, installation of hose and tubing connectors, compression fittings, installation and removal of pumps, agitators and process control filters.

6) 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.

Excavation will take place in the PFP Complex to support site stabilization, isolating/blanking utilities, fence removal/installation/relocation, and soil sampling/cleanup. Access to underground piping and cable would be gained by use of a bucket-type excavator. Manual digging methods with shovels, picks, and rakes also could be used. Contaminated soil removed and covered during excavation activities would remain covered until replaced into the excavation or otherwise dispositioned (backfill would consist of the original material removed or 'clean' soil).

If needed or chosen for use during these activities, the categorical NOCs for sitewide use of the guzzler, a portable temporary radioactive air emissions unit (PTRAEU) exhauster, or HEPA filtered vacuum radioactive air emission unit could be used.
Wastes generated during deactivation would be packaged appropriately. Waste would be generated/packaged throughout the PFP Complex (i.e., in structures with registered stacks, in non-HEPA filtered structures, or outdoors), resulting in filtered releases and/or diffuse and fugitive emissions. Wastes could be placed in various containers such as plastic bags, metal drums, and standard waste boxes. These wastes could be transferred to other locations within the PFP Complex for interim storage and/or repackaging before subsequent transport to approved locations/facilities pending final disposition.

If necessary, personnel decontamination activities would be conducted in the decontamination trailer (DOE/RL-2003-42).

7) The total abated emission limit for the diffuse/fugitive due to general activities is limited to 4.8E-04 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the potential-to-emit for this

emission unit is limited to 4.8E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

8) The total abated emission limit for the diffuse/fugitive due to the decontamination trailer is limited to 4.5E-06 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the Potential-to-Emit for this emission unit is limited to 4.5E-06 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

9) The total abated emission limit for the diffuse/fugitive due to fuel de-inventory is limited to 7.0E-05 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the potential-to-emit for this emission unit is limited to 7.0E-05 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

10) Decontamination Trailers

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.

This activity is approved to provide decontamination of personnel who have been contaminated with radioactive material. Initial decontamination activities would take place at the location of discovery. If additional decontamination is warranted, personnel would be transferred to the decontamination trailer.

Decontamination activities allowed to be performed at the decontamination trailer include the removal and packaging of contaminated clothing and isolation/removal of skin contamination.

- Before transport of personnel to the decontamination trailer, appropriate measures shall be taken to contain potentially dispersible contamination. To the extent practicable, contaminated clothing would be removed and disposed. Any remaining contamination would be isolated by bagging, taping, or other appropriate means.

- Inside the trailer, any additional contaminated coverings (e.g., coveralls, modesty clothing) would be removed, as appropriate, and packaged (e.g., plastic bags) for disposition. Various means to reduce/remove skin contamination would be used as appropriate. For small areas of contamination, scrubbing with soap and water or chemical cleaner would be used. For gross contamination, shower(s) would be used, followed by scrubbing(s).

All potentially radiological contaminated liquid shall be collected and contained in a catch tank located beneath the decontamination trailer.

The general chemical and physical processes associated with decontamination activities in the decontamination trailer consist of the following:

- On the identification of the need for additional decontamination of personnel, affected individuals would be escorted to the decontamination trailer.
- As appropriate, contaminated clothing, coverings, and/or articles would be removed, packaged, and dispositioned in accordance with the applicable facility waste handling procedures.
- Personnel decontamination processes might include various methods or combinations of cleaning agents and/or chemicals. For example: soap and water; premoistened toweletts, shaving cream-type foam decontamination agents for facial areas; removal of hair; and abrasive soaps for toughened skin surfaces (e.g., hands and feet).
- Spent decontamination solutions would be transferred from the decontaminated liquid holding tanks and containerized (e.g., packaged in absorbents in drums or placed in drums and carboys) and transported to existing facilities on the Hanford Site for disposal.
- Periodic maintenance inspections of the decontamination trailer are allowed to be performed without containment or portable exhausters.

The decontamination trailers vent directly to the atmosphere. As many as two additional decontamination trailers may be installed to support PFP deactivation.

11) Fuel De-Inventory

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.

PFP will repackage fuel assemblies and/or fuel pins into storage and/or transport containers for staging at PFP. These containers would be loaded via crane operations onto trucks for transport either to storage onsite or to appropriate offsite facilities pending final disposition. Fuel assemblies and/or fuel pins could be mechanically handled by transferring directly to containers (emissions would be considered as diffuse and fugitive if work conducted in locale providing potential for unfiltered emissions). Fuel pins could be transferred to glovebox(es) (emissions discharging through the 291-Z-1 or 296-Z-7 stacks) where they would be size reduced (using bolt cutters or equivalent means) and placed into a container. The pins/containers could be subjected to NDA at any point(s) during repackaging activities.

Minor alterations (e.g., removing interior walls, installation of temporary scaffolding) to the 234-5Z Building would be necessary to support fuel de-inventory operations.

12) Air movers fitted with HEPA-like filters or HEPA Vacs that are used in a manner where the effluent is exhausted to an approved filtered and monitored air space (existing stack or PTRAEU) are not considered as separate emissions units nor as contributing separate release factors so far as estimating PTE for the existing stack or PTRAEU .

13) Air movers fitted with HEPA filters (testable) or HEPA Vacs that are used in a manner where the effluent is exhausted to an occupied air space (1) within the same structure comprising a fugitive emission unit, (2) confined by an effectively closed structure, and (3) has air monitored for personnel protection to assure radioactive airborne contamination within the air space is maintained within standard air purifying respirator (APR) mask protection limits (per 8-hour shift), are not considered separate emission units. Work space air monitoring will withdraw samples as near to the workers as possible without interference with workforce.

14) The assumed PTE is based on a relatively large source term (i.e., assumes one percent of inventory available for diffuse and fugitive emissions). The factor of 100 is addressed for each category of abatement practices or devices as described below.

- Radiological control practices for highly contaminated items or equipment (e.g. glovebox) would involve either wrapping and/or the application of a fixative (e.g., spraying the internals of the glovebox).
- In the case of wrapped items, operational experience with bag-out of highly-contaminated equipment at PFP has demonstrated an abatement factor of well above 100.
- In the case of application of fixatives, particulate material at PFP has been demonstrated to become agglomerated; thus reducing the potential to be released. Operational experience at has shown that applying fixatives provides an abatement factor of well above 100.
- The application of air movers or vacuum devices not under existing NOCs (i.e., guzzler, PTRAEU, or HEPA filtered vacuum radioactive air emission units) would involve use of high-efficiency or HEPA-type filtration as a minimum. This assures the abatement factor of 100 is conservative for these devices.

15) 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.

STABILIZATION/DEACTIVATION/DEMOLITION ACTIVITIES

All work will be performed in accordance with the approved radiological control methods and as low as reasonably achievable (ALARA) program requirements. These requirements shall be carried out through the activity work packages and associated radiological work permits.

Roofs and walls of the permanent buildings and structures will be removed to slab with the foundation remaining. Utilities will be isolated where required and will involve a minimal amount of excavation. As appropriate, connex boxes and existing materials in lay down areas will be recycled, reused, or disposed.

Demolition methods will be selected based on the structural elements to be demolished, remaining radionuclide contamination, location, and integrity of the structures. Demolition methods could include use of an excavator with a hoe-ram, a hydraulic shear with steel shear jaws, concrete pulverizer/breaker jaws, cutters, or mechanical/power saws. Heavy equipment could be used to demolish permanent structures. Heavy equipment such as a track-mounted excavator with bucket and thumb attachment could be used to demolish the walls and roofs of the structures. As appropriate, dust suppressants shall be used.

Once the structure is brought completely to the ground, heavy equipment such as a front-end loader and the excavator can be used to load the debris into disposal transport trucks (e.g., roll on/roll off boxes or dump trucks). Potentially, disturbed areas would be leveled and stabilized.

If used during these activities, the sitewide Guzzler(tm), a portable temporary radioactive air emissions unit (PTRAEU) exhauster, or high-efficiency particulate air (HEPA) filtered vacuum radioactive air emission unit would be used in accordance with the latest revisions of the NOCs ["Categorical Notice of Construction for use of the Guzzler Vacuum Excavation System for Radiologically Limited Activities on the Hanford Site" or 'Guzzler NOC', DOE/RL-96-75 and DOE/RL-97-50 respectively].

Minor amounts of excavation might take place in the vicinity of the permanent structures to support site stabilization and isolating/blanking utilities. Access to underground piping and cable would be gained by use of an excavator. Manual digging methods with shovels, picks, and rakes also could be used. Contaminated soil removed during excavation activities will be covered until replaced into the hole or otherwise dispositioned.

Excavation activities will be monitored and evaluated. The sitewide Guzzler could be used when evidence of low levels of soil contamination is provided. Backfill will be made with the original material removed or brought in 'clean' soil.

16) The following controls shall be used during the stabilization/deactivation/demolition activities.

1. Health physics technician (HPT) coverage would be provided, as necessary, during all deactivation and excavation activities.

2. Ventilation systems, for the structures that exhaust through registered stacks with HEPA filtration, would be operational during transition activities as practicable. An exception includes shutting down a ventilation system for a short period of time to allow fogging operations or sampling.

3. The existing monitoring systems for the registered stacks would be operational during transition activities.

4. Appropriate controls such as water, fixatives, covers, containment tents, or windscreens would be applied, if needed, as determined by the Radiological Control organization. Soil removed and covered during excavation activities would remain covered until replaced into the excavation or otherwise dispositioned.

5. After leveling, the soil surface radiological contamination levels would be verified to be acceptable per Radiological Control organization guidelines. If contamination is present above identified levels, the soil would be removed and containerized for disposal or covered or fixed to provide containment of the contamination, consistent with radiological work procedures in effect at the time.

6. As appropriate, before starting deactivation activities (such as isolating utilities and piping or dismantling the exhaust system), removable contamination in the affected area(s) would be reduced to ALARA. Measures such as decontamination solutions, expandable foam, fixatives, or glovebags also could be used to help reduce the spread of contamination.

7. If a guzzler, PTRAEU, or HEPA filtered vacuum radioactive air emission unit is used, controls as described in the sitewide guzzler NOC, DOE/RL-96-75 or DOE/RL-97-50, as amended and licensed, would be followed.

8. Field surveys during excavation would identify localized areas of contamination. If contamination levels over 2,000 dpm alpha/100 cm2 [i.e., a 'hot spot' (of a few square meters or less) of high alpha surface contamination area] are exceeded, additional surveys would be conducted on the perimeter of the 'hot spot' to verify the localized nature. A separate evaluation of the activity against the assumptions of this NOC would be documented to file prior to the activity being performed to ensure overall approved contamination levels are not exceeded.

9. The controls specified in the applicable RWP for the decontamination operations will be considered ALARACT for the decontamination trailer activities.

17) The expected frequency of personnel contamination requiring the use of the decontamination trailer is estimated to be less than 10 times per year. DOH shall be notified if that number is exceeded in any calendar year.

18) All personnel decontamination operations activities shall be conducted under the auspices of radiological control

technicians.

19) Radiological surveys during personnel decontamination operations (e.g., smears and hand-held radiation monitoring measurements on the interior/exterior of the decontamination trailer) are also approved as periodic confirmatory measurement (PCM) for this activity. Survey data shall be maintained as part of the air emissions record and will be available for inspection upon request.

20) For purging activities, use of a stand alone vacuum pump fitted with a Nuc-Fil metal HEPA filter is allowed, with the control that the filter flow through the system is limited not to exceed the filter rating. Confirmatory measurement of low emissions will be based on radiological technician field survey of either the down stream side of the HEPA filter or at the outlet of the vacuum pump.

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.

Security enhancement program activities include those actions foreseeably necessary for implementation of the proposed action, such as associated transportation activities, waste removal and disposal, and award of grants and contracts. Specific actions include the following work involving the potential for radioactive contamination:

-Excavations, inside and outside the PFP protected area (PA) to support installation of utilities and security-related devices and structures (e.g., barricades, patrol offices) and relocation of displaced activities. Security enhancement program will require some excavation in areas of potential belowgrade or surface contamination. In addition to excavations for building and structure foundations, it is estimated that approximately 5,000 linear feet of belowgrade ducting will be installed, a portion of the water line will require replacement, and connections to sewer and water lines will be required.

-Modifications to existing structures (e.g., moving walls, doors, railing, security monitoring equipment, electrical equipment upgrades) and/or construction of new buildings (non-radioactive).

-Continued operations at 2736-Z/ZB Buildings for 3013-container packaging systems monitoring and maintenance.

No modifications to the existing abatement equipment associated with registered stacks are allowed.

22) The total abated emission limit for the Diffuse/Fugitive due to security enhancement program excavation activities is limited to 9.6E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the potential-to-emit for this emission unit is limited to 9.6E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

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 9.80E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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.

Management of radioactive contamination during roof replacement activities.

All work shall be performed in accordance with written contractor radiological control requirements (associated with posting and downposting requirements for doing work in outdoor contamination areas and fixed contamination areas) and the as low as reasonably achievable (ALARA) program requirements. These requirements are to be carried out through activity work packages/procedures and associated radiological work permits.

Types of facilities allowed to use this NOC are active and operational, currently in surveillance and maintenance (S&M) mode, or in transition to S&M mode.

Activities are non-routine activities that have a potential to create a new temporary emission source and/or a modification of a source(s) of diffuse and fugitive emissions at facilities on the Central Plateau.

Screening Surveys

Roof replacement activities include radiological surveys to determine if radioactive contamination is present and the extent of such contamination. Spot contamination (e.g., bird droppings) managed before commencement of roof replacement work is handled per existing methods and is considered a routine housekeeping activity (similar to spot contamination found at ground levels).

Managing Radioactive Contamination

Contaminated roofing materials may be removed by manual or powered methods, including saws or other cutting devices, shovels, wheelbarrows, conveyors, chutes, or other similar equipment (conveyors or chutes may be used only for packaged radioactive waste or for non-contaminated roofing material). Radioactive waste shall be managed in accordance with existing onsite requirements and waste acceptance criteria. Radioactive waste either shall be containerized in drums, skiffs, boxes, or other containers, or handled as bulk waste (e.g., dump truck) and transferred to the appropriate disposal facility. Management of radioactive contamination is allowed to include removal and subsequent size reduction of contaminated equipment from a roof as well as isolation and blanking of utilities, vents, and ductwork.

Accumulated rainwater that has contacted contamination areas shall be allowed to evaporate in place or is characterized, collected, and managed in accordance with stormwater discharge requirements or transferred to an appropriate disposal facility.

A graded approach is allowed to be used to match controls with expected contamination levels per radiological control manuals and methods. Radiological contamination that is encountered will either be managed as a fixed contamination area (i.e., less than 20 dpm/100 cm2 smearable alpha and less than 1,000 dpm/100 cm2 smearable beta) or will be managed as a contamination area (radiological contamination levels are between 20 and 2,000 dpm/100 cm2 alpha or between 1,000 and 100,000 dpm/100 cm2 beta) using appropriate controls to minimize worker exposure. These controls include water for dust suppression, fixatives, covers, windscreens, or greenhouses (with PTRAEU exhausters) that will be applied, if needed, as determined by the Health Physics organization, and consist of ALARA techniques.

Process descriptions and abatement controls, as described in the latest approved revisions of the Guzzler NOC

(99-SID-021), the PTRAEU NOC (DOE/RL-96-75), or the HEPA Vacuum NOC (DOE/RL-97-50) shall be used; however, the activity-specific operational controls and tracking requirements shall follow these approval conditions. The Guzzler, PTRAEU, and HEPA vacuum units shall have a removal efficiency of 99.95% for radioactive airborne particles.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 4.80E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	3.00E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

License PTE limit bounds 3.0E-04 Ci/yr 241Am and release fraction of 0.001. Any radionuclide on the chart of the nuclides could be encountered during roof replacement activities. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate form. A small contribution from the gaseous radionuclides may be encountered. Although any radionuclide could be present, for conservatism all alpha is assumed to be 241Am and all beta/gamma is assumed to be 137Cs for dose calculation estimates. Other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta/gamma constituents.

B/G - 0	1.50E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

License PTE limit bounds 1.5E-02 Ci/yr 137Cs and release fraction of 0.001. Any radionuclide on the chart of the nuclides could be encountered during roof replacement activities. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate form. A small contribution from the gaseous radionuclides may be encountered. Although any radionuclide could be present, for conservatism all alpha is assumed to be 241Am and all beta/gamma is assumed to be 137Cs for dose calculation estimates. Other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta/gamma constituents.

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) For dose modeling, the radionuclides of concern shall use cesium-137 (representing beta/gamma emitters) and americium-241 (representing alpha emitters).

5) The total radionuclide content of the material removed shall be tracked on a WDOH approved log.

Project Title	Approval #	Date Approved	NOC_ID
Categorical Tank Farm Facility Entry and Surveillance	AIR 06-1033	10/5/2006	673

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 4.90E-02 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 4.90E-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.

Categorical approval for facility entry and surveillance. The facilities covered under this NOC will be entered through a door or other existing access location to perform the activities as described below:

Accessing Facilities:
Accessing facilities shall be performed in accordance using the controls determined by the containment matrix from RPP Administration, HNF-IP-0842, Volume VII, Section 3.1, "Radiological Control".

Inspection/Surveillance:

-Visual inspections will be conducted to evaluate facilities integrity for future decommissioning work, to assure that utilities have been shut off, and/or identification of any environmental, radiological, or safety concerns.

Photographing/Videotaping:

-Photographing and videotaping are performed to assist personnel in recording a facility contents and to obtain knowledge of a facility and its contents. Photography/videotaping also assists personnel in planning future decommissioning work.

Sampling/Surveys:

-Swipes, smears, air sampling, and other surveys may be performed to characterize contamination levels present in a facility. These activities may be performed on containers, other equipment and interior surfaces associated with a facility.

-Removal of access port shield plugs may be performed to allow installation of video equipment and/or to perform radiological surveys.

-Electrical equipment inspections may be performed to assure that power has been shut off from facilities or to assure that equipment is in safe operation.

Housekeeping:

-Housekeeping will be performed to assure that a facility is in a safe condition that would not threaten workers safety or the environment. Housekeeping may include collecting containers, or miscellaneous debris for proper disposal.

Fixative Application

-Application of fixative materials serves to reduce the spread of contamination. The process of applying fixative materials varies depending on the type of material being applied. Fixative application may include using a glycerin-based substance followed by a permanent polymer urea based material or the glycerin-based substance alone, or other such process, which do not cause resuspension of smearable contamination.

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

Alpha - 0	2.80E-04

	Beta - 0	4.00E-01	Gamma - 0	4.50E-02	

4) Activities to this NOC are limited to no more than 2,160 hours/calendar year. This shall be documented on an approved log.

5) During facility entries when diffuse/fugitive emissions may occur, surveys/smears and air samples must be conducted and recorded on log sheets or survey reports. These reports and/or survey records must be readily retrievable.

6) If sample results after entry show that the APQ have been exceeded, WDOH is to be notified within 24 hours of receipt of the sample results.

7) The annual possession quantity must be tracked for each entry.

8) The facility will maintain a log of all work packages which are used for building access under this NOC (AIR 00-604).

9) The following radionuclides are allowed under this NOC: 3H, 14C, 59Ni, 60Co, 63Ni, 79Sc, 90Sr, 90Y, 93Zr, 93mNb, 99Tc, 106Ru, 113mCd, 125Sb, 126Sn, 129I, 134Cs, 137Cs, 137mBa, 151Sm, 152Eu, 154Eu, 155Eu, 227Ac, 228Ra, 229Th, 231Pa, 232Th, 232U, 233U, 234U, 235U, 236U, 237Np, 238Pu, 238U, 239Pu, 240Pu, 241Am, 241Pu, 242Cm, 243Cm, and 244Cm.

10) The radiological control technology for all entries conducted under this NOC must follow the containment matrix HNF-IP-0842, Volume VII, Radiological Control.

11) This NOC does not allow any decontaminating and decommissioning work to commence.

12) This NOC is only applicable to tank farm facilities.

Project Title	Approval #	Date Approved	NOC_ID
Vapor Sampling of Miscellaneous Underground Units	AIR 06-1034	10/5/2006	674

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 5.10E-02 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 5.10E-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.

Performing vapor sampling of miscellaneous underground units with no known path of ventilation. Miscellaneous underground units may include active and inactive underground tanks, wells, and other units with no known path of ventilation.

In addition to vapor sampling activities, this approval allows the possibility of installing temporary or permanent passive HEPA type filtration on any unit if vapor sampling results show combustible gas levels exceeding 25 percent of the lower Flammability Limit (LFL).

Active and Inactive Tanks

Tanks were designed to collect leaks, spills, condensation, and drainage that occurred during operation of tank farm diversion boxes, valve pits, and pipeline encasements. Tanks were also used for settling solids before disposal, neutralizing process wastes, receiving and processing of tank waste, and waste handling and process experimentation. Volumes of waste and constituent concentrations in each tank vary depending on the location in respect to surrounding single and double shell tank farm operations. Most of the tanks are expected to contain low levels of radioactivity.

The tanks are constructed of various materials, which include stainless steel, carbon steel, concrete, and concrete vaults with carbon steel liners. The tank volumes vary in maximum capacity between 50 gallons to 50,000 gallons.

Wells

Wells include structures that were used for the subsurface disposal of waste fluids. Wells that are connected to valve pits or floor drains in contaminated facilities may have received contaminated liquids. Volumes of liquid discharged to these structures and constituent concentrations are unknown.

Combustible gas concentrations in the headspace of miscellaneous units will be field-measured to determine if there are safety concerns associated with combustible gas concentrations. The radiological controls, monitoring, and documentation identified in Sections 2, 3, and 4 of ALARACT 1shall be implemented for access to each unit. Vapor sampling shall be performed in accordance with ALARACT 8, with the exception of bulleted item 5 in Section 2 of the ALARACT. Bulleted item 5 will not be performed because the units are assumed to not be ventilated.

If vapor-sampling results show a combustible gas level measurement exceeding 25 percent of the LFL, a temporary passive HEPA type breather filter may be installed. One of two types of temporary HEPA type filters shall be used. This first type of filter would be mounted onto a plastic bag that could be secured to an access port or riser using tape or some other technique such as banding. The second type of filter would be connected directly to an access port or, in cases where access is through a riser, mounted on a flange that could be bolted onto the riser. These methods allow flammable gases to escape to the atmosphere only through the filter.

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

Ac - 227	1.06E-02	Am - 241	6.92E+02	Am - 243	3.46E-02
Ba - 137 m	1.61E+05	C - 14	1.04E+01	Cd - 113 m	1.55E+02

Cm - 242	6.08E-01	Cm - 243	5.28E-02	Cm - 244	1.98E+00
Co - 60	8.66E+02	Cs - 134	3.08E+01	Cs - 137	1.70E+05
Eu - 152	1.69E+01	Eu - 154	7.23E+03	Eu - 155	1.04E+03
H - 3	6.46E+01	I - 129	5.16E-01	Nb - 93 m	6.32E+01
Ni - 59	3.06E+01	Ni - 63	3.01E+03	Np - 237	1.62E+00
Pa - 231	1.61E-02	Pu - 238	2.43E+01	Pu - 239	1.29E+03
Pu - 240	2.04E+02	Pu - 241	1.78E+03	Pu - 242	9.94E-03
Ra - 226	2.04E-03	Ra - 228	9.82E-02	Ru - 106	1.17E-01
Sb - 125	8.63E+02	Se - 79	1.70E+01	Sm - 151	6.36E+04
Sn - 126	2.73E+01	Sr - 90	5.23E+06	Tc - 99	5.20E+01
Th - 229	2.27E-03	Th - 232	1.11E-02	U - 232	4.38E+00
U - 233	1.68E+01	U - 234	2.67E+00	U - 235	1.06E-01
U - 236	8.66E-02	U - 238	2.38E+00	Y - 90	5.23E+06
Zr - 93	7.36E+01				

4) Approved activities included in the process are the following: Sampling of miscellaneous underground units with no known path of ventilation. Miscellaneous underground units may include active and inactive underground tanks, wells, and other units with no known path of ventilation. Installation of temporary or permanent passive HEPA type filtration on any unit if vapor sampling results show combustible gas levels exceeding 25 percent of the lower flammability limit is approved.

5) The following controls must be adhered to:
   * ALARACT 8 with the exception of bulleted Items 5 of Section 2

6) The total unabated dose TEDE to the hypothetical MEI cannot exceed 1.04 E-05 mrem/year per tank.

7) The total unabated emissions are limited to 2.02E-02 mrem/year per tank.

8) Vapor space sampling will follow the controls identified in ALARACT 8, with the exception of bulleted items 4 and 5 in Section 2 of the ALARACT. Bulleted item 4 will not be performed unless field evaluation determines that a riser adapter is necessary to minimize potential exposure to the environment. Installation of an adapter is normally not necessary due to the riser configuration and the short duration required for vapor sampling miscellaneous units. Bulleted item 5 will not be performed because the miscellaneous units are not ventilated.

Project Title	Approval #	Date Approved	NOC_ID
200/600 Areas Facilities Support Decontamination Trailer (Intermittent powered exhaust)	AIR 07-1102	11/15/2007	678

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 3.73E-04 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

2) The decontamination trailer will be comprised of two rooms; one for decontamination activities, and one for support equipment. The decontamination room will have overhead showers (one low flow and one higher flow) and washing and decontamination fixtures. A support equipment room will be adjacent to the decontamination room and contain support systems, e.g. generator, water storage, pumps. The decontamination trailer will be self contained to include a generator, heating, ventilation, air conditioning (HVAC), clean water storage and waste water collection systems. The decontamination trailer will be moved from job to job, within the 200 Area and the adjacent 600 Area(i.e., the area up to 70 meters south of the 200 E Area, as far west as B-pond, as far north as the 212-N, P, and R buildings, the area between the 200E and 200W Areas and as far south as the S-pond.)
Waste water from the collection system will be transferred to other licensed container(s).

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 3.73E-04 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	2.00E-05	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Alpha release rates based on Am-241. While the potential release rates for all emissions are conservatively represented by Am-241 (alpha) and Cs-137 + D (beta-gamma), essentially any radionuclide may be present.			
B/G - 0	1.00E-04	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Beta/Gamma release rates based on Cs-137 +D. While the potential release rates for all emissions are conservatively represented by Am-241 (alpha) and Cs-137 + D (beta-gamma), essentially any radionuclide may be present.			

4) Periodic Confirmatory Measurements (PCM) for the vented and diffuse and fugitive emissions will be provided by the established near facility monitoring and augmented by radiological surveys during personnel decontamination operations (e.g., smears and hand-held radiation monitoring measurements of the interior/exterior of the decontamination trailer). These methods are intended to demonstrate compliance by showing that while remaining under the contamination levels by which work is controlled, the actual emissions inherently will be below the emission estimates.

5) Emissions will be included in the overall fugitive and diffuse emission estimate for reporting purposes as part of the approved ambient air monitoring conducted at the Hanford Site perimeter.

Project Title	Approval #	Date Approved	NOC_ID
Liquid Pumping and Enhanced Sluicing on Tank 241-C-106	AIR 06-1038	10/5/2006	683

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 2.55E-03 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 4.67E+00 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 following actions:

Step 1:

- Fix and/or remove contamination and blown in soil/debris in the 241-C-06B heel pit in accordance with ALARACT 4, ALARACT 6, ALARACT 14, and ALARACT 15.
- If necessary, a HEPA vacuum will be used in accordance with the sitewide NOC.
- Remove a heel pit pump out of riser R-13 in the 241-C-06B heel pit in accordance with ALARACT 1, ALARACT 4, ALARACT 6, ALARACT 13, ALARACT 14, ALARACT 15, and ALARACT 16.
- Place conduit in a trench in accordance with ALARACT 5.
- Remove a thermoucouple out of riser R-14 in accordance with ALARACT 1, ALARACT 4, ALARACT 6, ALARACT 13, ALARACT 14, ALARACT 15, and ALARACT 16.
- Install slurry pump for the sluicing operation in riser R-9, R-13 or R-14 in accordance with ALARACT 1, ALARACT 4, ALARACT 6, ALARACT 13, ALARACT 14, ALARACT 15 and ALARACT 16.

Step 2:

- Fix and/or remove any contamination and blown in soil/debris in the 241-C-06C sluice pit in accordance with ALARACT 4, ALARACT 6, ALARACT 14 and ALARACT 15.
- If necessary, a HEPA vacuum will be used per the sitewide NOC.
- Remove the old sluicer and install new sluicer equipment in the R-3 riser, if needed, in accordance with ALARACT 1, ALARACT 4, ALARACT 6, ALARACT 13, ALARACT 14, ALARACT 15 and ALARACT 16.

Step 3:

- Fix and/or remove any contamination and blown in soil/debris in the 241-C-06A pump pit in accordance with ALARACT 4, ALRACT 6, ALARACT 14 and ALARACT 15.
- If necessary, a HEPA vacuum will be used per the sitewide NOC.
- Remove the failed pump equipment out of R-9 and R-6 riser used for prior sluicing operation. in accordance with ALARACT 1, ALARACT 4, ALARACT 6, ALARACT 13, ALARACT 14, ALARACT 15 and ALARACT 16.
- Install new sluicer equipment in the R-6, R-7, R-5 or R-9 riser, if needed, with ALARACT 1, ALARACT 4, ALARACT 6, ALARACT 13, ALARACT 14, ALARACT 15 and ALARACT 16, or use the existing project W-320 sluicing nozzle.
- Place an in-tank closed circuit television camera or television monitoring system in riser R-1, R-7, R-8 and R-14 in accordance with ALARACT 1, ALARACT 4, ALARACT 6, ALARACT 13, ALARACT 14, ALARACT 15 and ALARACT 16.
- Install a new sluicer nozzle in R-7 or R-8 and remove an additional thermocouple in accordance with ALARACT 1, ALARACT 4, ALARACT 6, ALARACT 13, ALARACT 14, ALARACT 15 and ALARACT 16.

Step 4:

- Pump out remaining free liquid in the tank to the DST system through a pump installed in either riser R-9, R-13 or R-14 under passive ventilation in accordance with ALARACT 11.

Step 5: (applies only to the 296-P-47 emission unit)

- Sluice and pump the solids that become a slurry into the DST system using raw water (or recirculated 241-C-106 water) as the sluicing agent. This activity shall only be performed during operation of the 296-P-47 portable exhauster. The emission unit shall be sampled continuously with a shrouded probe. The sample location, shrouded probe assembly, transport line and sample collection shall be qualified in accordance with the requirements of ANSI N13.1-1999.

Step 6:

- After sluicing an "in tank vehicle" (ITV) could be used, if necessary, to collect the remaining tank contents to be slurried through the sluicing pump to bring the tank contents down to <360 cubic feet in volume. This activity shall only be performed during operation of the 296-P-45 portable exhauster. The ITV shall be installed through a riser in accordance with ALARACT 1 and ALARACT 13. The ITV will be used to push the remaining tank material into the center of the tank to be pumped. The ITV shall not move faster than 2 mph. If big chunks of sludge need to be broken, the tracks or plow blade could be used to break up the material so it can be pumped. The "water cannon" on the ITV shall not be used in tank 241-C-106. Upon removal of the tank the ITV shall be decontaminated with in the tank using ultrasonic decontamination and then go through a spray ring.

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

Ac - 227	2.31E-03	Am - 241	2.25E+02	Am - 243	2.20E-03
Ba - 137 m	1.66E+04	C - 14	5.73E-02	Cd - 113 m	1.00E+00
Cm - 242	3.56E-01	Cm - 243	2.81E-02	Cm - 244	6.03E-01
Co - 60	1.40E+00	Cs - 134	7.07E-02	Cs - 137	1.75E+04
Eu - 152	3.28E+00	Eu - 154	2.67E+02	Eu - 155	1.89E+02
H - 3	1.55E+00	I - 129	1.70E-02	Nb - 93 m	1.28E+01
Ni - 59	6.53E+00	Ni - 63	6.08E+02	Np - 237	2.62E-01
Pa - 231	3.37E-03	Pu - 238	3.50E+00	Pu - 239	7.56E+01
Pu - 240	1.54E+01	Pu - 241	1.85E+02	Pu - 242	1.65E-03
Ra - 226	4.10E-04	Ra - 228	3.15E-05	Ru - 106	1.69E-05
Sb - 125	2.83E+00	Se - 79	2.88E-01	Sm - 151	1.19E+04
Sn - 126	2.14E+00	Sr - 90	2.82E+05	Tc - 99	3.14E+00
Th - 229	2.43E-05	Th - 232	2.54E-03	U - 232	5.30E-04
U - 233	2.18E-03	U - 234	4.31E-02	U - 235	1.84E-03
U - 236	7.66E-04	U - 238	4.40E-02	Y - 90	2.82E+05
Zr - 93	1.44E+01				

4) A WDOH approved log shall be used to track total days of liquid pumping under passive ventilation, and shall not exceed 60 days.

5) Periodic confirmatory measurements of the breather filter shall be a monthly smear taken on the downstream side of the breather filter, during sluicing operations. Any positive results above background shall be reported to the WDOH.

6) Prior to pump of liquid from 241-C-106 the breather filter shall be verified to be valved open.

7) The Breather Filter shall be tested annually in-place with a minimum efficiency of 99.95% in accordance with requirements ASME N510 Section 10.

8) Total soil excavated shall not exceed 5000 cubic feet.

9) WDOH approved logs shall be used to track the Annual Possession Quantities for Equipment Removal and the abated offsite dose shall not exceed 6.3E-03 mrem/year.

10) WDOH approved logs shall be used to track the Annual Possession Quantities for Pit Cover Removal and the abated offsite dose shall not exceed 5.96E-06 mrem/year.

11) WDOH approved logs shall be used to track the Annual Possession Quantities for Soil Excavation and the abated offsite dose shall not exceed 1.69E-03 mrem/year.

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 5.10E-02 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 5.82E+01 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.

Sump Intrusion Mitigation:

Sump intrusion mitigation is limited to cells 001, 002, 003, and 011 only. From time to time if intrusion of precipitation and snow melt gets into the sumps, the sumps will need to be pumped. In order to accommodate this, submersible pump assemblies will be installed in each of the four CR Vault Cells. The pump assemblies will be installed on top of existing 6 inch riser extensions on cells 001, 002, 003, and 011. Riser extensions may be installed, or replaced if necessary. These extensions will be installed and/or removed as follows:

- the pit covers will be removed,

- above grade piping will be cut and capped,

- leak detectors and two zip cords will be removed,

- the riser extensions will be installed and/or removed remotely from a platform over the pit, and

- a new pit cover will be installed.

The sumps will be pumped by connecting a transfer line to a ventilated tank or to the Tanker Truck permitted under AOP Emission Unit Number 888 and licensed under WDOH NOC ID Number 696. The transfer line will be a hose-in sleeve line. The other end of the transfer line will be attached to the pump assembly on the first CR Vault cell to be pumped. After the first cell is pumped, flush water will be added and pumped to flush the system. Then the hose will be relocated to the next cell's pump assembly. The process will be repeated until all the cells are pumped. The CR Vault breather filter will not be modified and will be open during pumping. After the pumping is complete, the transfer line and pumps will be removed and disposed of as mixed waste. The pit foam covering will also be replaced to prevent, or at best minimize intrusion of precipitation and snow melt.

A fixative shall be applied with the pit covers on. The fixatives shall be applied to pit surfaces through a port in the pit cover using a 'whirly' or by fogging. A hand held sprayer is used to apply fixatives within the pit when the pit cover is off.

Temporary power installation will be limited to meet the needs to support the work described in this NOC. Temporary installations can be removed when no longer needed.

General Controls for Sump Intrusion Mitigation:

The general controls for sump intrusion mitigation is limited to cells 001, 002, 003, and 011 only. The required controls for each of the following actions are delineated by the specified ALARACT:

- ALARACT 1—Tank Farm ALARACT Demonstration for Riser Preparation/Opening.

- ALARACT 4—Tank Farm ALARACT Demonstration for Packaging and Transportation of Waste.

- ALARACT 5—Tank Farm ALARACT Demonstration for Soil Excavation (using hand tools).

- ALARACT 6—Tank Farm ALARACT Demonstration for Pit Access.

- ALARACT 7—Tank Farm ALARACT Demonstration for Tank Waste Grab Sampling.

- ALARACT 11—Tank Farm ALARACT Demonstration for Waste Transfers.

- ALARACT 12—Tank Farm ALARACT Demonstration for Packaging and Transportation of Equipment and Vehicles.

- ALARACT 13—Tank Farm ALARACT Demonstration for Installation, Operation, and Removal of Tank Equipment.

- ALARACT 14—Tank Farm ALARACT Demonstration for Pit Work.

- ALARACT 15—Tank Farm ALARACT Demonstration for Size Reduction of Waste Equipment for Disposal.

The activities performed at the 244-CR Vault Facility, ER-153 and/or 244-A Lift Station include:

Work Area Preparation:

- Miscellaneous work including equipment delivery, movement, set up and maintenance in the general work area around the 244-CR Vault Facility.

- Construction and take down of open top containment tents (bullpens) over the facility vault area.

- Installation of Portable/Temporary Radioactive Air Emission Unit(s) (PTRAEUs).

- Installation of portable 1,000 cubic feet per minute (cfm) exhauster.

- Removal and/or installation of vault foam covering.

- Application of fixative at pit interior.

- Temporary power installation.

Facility/Interim Stabilization Work:

- Operation of PTRAEU for bullpen ventilation.

- Removal and/or installation of pit covers.

- Inspection of pits, vaults, and tanks.

- Removal and disposition of excess equipment and waste in pits, risers, and tanks.

- Decontamination activities.

- Measurement of liquid level and sludge levels in tanks and sumps.

- Sampling activities in pits, vaults, and tanks including chemical addition and/or waste sampling to determine Double Shell Tank waste acceptance.

Facility Equipment Activities:

- Installation, disconnection, repair, replacement, and/or leak testing, of new and existing facility equipment (valves, jumpers, pumps, leak detectors, or other instrumentation/equipment).

- Modifications, maintenance, and/or isolation and sealing of existing risers, pits, vaults and incoming and/or outgoing piping (drain and transfer lines) from 244-CR Vault or connected facility.

Excavation:

- Installation of permanent power to 244-CR Vault Facility.

- Installation/Operation of Passive Breather Filter Assembly.

Waste Transfer and Support Activities:

- Operation of 1,000 cfm portable exhauster at 244-CR Vault.

- New waste transfer system, waste staging/consolidation.

Miscellaneous activities shall include:

- Construction and take down of open top contaminant tents over the facility vault area.

- Open top containment tents (bullpens) shall be constructed over the facility pit area to prevent potential airborne contamination from the effected work area to the environment. Two bullpens shall be erected around two instrumentation pits at the 244-CR Vault. Upon completion of the first pit's work, the bullpens shall be relocated to the other two pits and their work will be completed.

- Installation of Portable/Temporary Radioactive Air Emission Unit(s) (PTRAEUs)

- A Portable/Temporary Radioactive Air Emission Unit (2,000 cfm) or units (1,000 cfm each) shall be installed to ventilate the bullpens during activities that require work in the pits, cells and tank vault area prior to performing waste transfer activities. One thousand cfm PTRAEUs, if used, shall be directly connected to individual bullpens, while a 2,000 PTRAEU if used, shall be connected to two bullpens. Movement and installation of the PTRAEU can be performed to facilitate ventilation for the four vaults of the 244-CR Vault Facility. The PTRAEU shall operate intermittently (during work activities) and will be operated in accordance with the latest WDOH approval, AIR 99-1102, for the Portable/Temporary Radioactive Air Emission Unit (PTRAEU) NOC (DOE/RL-96-75).

A portable 1,000 cfm exhauster shall be installed to ventilate the 244-CR Facility vaults and tanks during waste transfer activities. This exhauster shall operate intermittently to support waste transfer and support activities and shall monitor air emissions. The exhauster shall be piped into the existing 244-CR facility ventilation system upstream of the existing (non-operating) exhauster, 296-C-05 and HEPA filters. The existing 244-CR Facility exhaust system shall be isolated and not used. Tie in of the 1,000 cfm exhauster to the existing exhaust system shall be in accordance with ALARACT 16, Tank Farm ALARACT Demonstration for Work on Potentially Contaminated Ventilation System Components. After the waste transfer is completed, the exhauster shall be removed in accordance to the requirements of ALARACT 16.

A foam covering has been placed over the 244-CR Vault area to prevent intrusion of precipitation and snowmelt. In order to gain access to the pit cover (metal) plates or concrete cover blocks, sections of the foam shall be removed, packaged, transported and disposed of. ALARACT 4, Tank Farm ALARACT Demonstration for Packaging and Transportation of Waste shall be used to properly disposition the removed foamed covering. Radiation control technicians (RCT) shall monitor the affected work area while the foam covering is being removed. The foam covering shall be replaced after work is complete, as part of intrusion prevention measures

completed by the project following waste transfer activities.

Operation of PTRAEU for Bullpen Ventilation.

Ventilation of the bullpens during pre waste transfer tank activities and prior to the installation of the 1,000 cfm portable exhauster shall be accomplished with the use of PTRAEU(s). The PTRAEU(s) shall be operated in accordance with the latest WDOH approval, AIR 99-1102, for the Portable/Temporary Radioactive Air Emission Unit (PTRAEU) NOC (DOE/RL-96-75).

Concrete cover key blocks are removed first, and only blocks necessary to perform intended work are removed. Consideration is given to sliding blocks to minimize the number of blocks to be removed. As discussed in the following, pit covers are decontaminated and/or covered with fixative before removal. Pit Covers are raised a minimum distance to safely allow a radiation protection technician to perform a dose rate and contamination survey. Pit covers are wrapped in plastic and set down in a specially prepared lay-down area. On completion of activities, the plastic wrap is removed from the pit covers and the pit covers are re-installed in their original position and orientation. Post-job surveys are performed.

Inspections, such as visual, video, or nondestructive inspections, shall be performed with pit covers in place (for pit with access ports) or removed. The pit cover design, historical inspection information, and ALARA information shall be used to determine whether the inspection shall be performed manually (with pit cover removed) or remotely with a camera and the pit covers in place.

Excess equipment and debris currently located in the 244-CR vault pits, and in-tank equipment shall be removed to accommodate new waste transfer equipment and piping. Excess equipment shall be replaced with replacement in kind equipment, as necessary.

To facilitate the removal and disposition of these items, size reduction and decontamination activities shall be utilized. Size reduction activities shall include cutting up unusable equipment (usually jumpers/blanks) remotely, using hydraulic shears or low revolutions per minute portable band saws. All size reduction activities shall be performed in accordance with ALARACT Demonstration 15, TWRS ALARACT Demonstration for Size Reduction of Waste Equipment for Disposal.

Disposition of excess equipment and waste shall be performed in accordance with ALARACT Demonstration 4, TWRS ALARACT Demonstration for packaging and transportation of waste.

Removable contamination in the accessible portions of the pit is reduced to less than 100,000 disintegrations per minute/100 square centimeters beta/gamma and 2,000 disintegrations per minute/100 square centimeters alpha by washing, or an approved fixative is applied to pit surfaces. Initial washing with a low pressure (125 pounds per square inch gauge), or high pressure (3,000 pounds per square inch gauge) 'whirly' is accomplished through a port in the pit cover blocks. Additional decontamination activities (with the cover block off) include the use of chemicals, peel and strip paints, water, or manual scrub brushes.

After a section of equipment has been washed it shall be pulled into plastic sleeving and sealed by horse tailing and taping.

Liquid and sludge levels are determined using zip cords or other appropriate means that shall not disturb the waste more than zip cords.

Sampling activities shall be performed in the tank and sump area of 244-CR Vault by way of risers in the riser pit in accordance with ALARACT 7, "Tank Farm ALARACT Demonstration For Tank Waste Grab Sampling." Radiological controls for riser preparation/opening listed in ALARACT 1, "Tank Farm ALARACT Demonstration for Riser Preparation/opening," shall be followed.

The waste transfer processes shall transfer waste from tanks CR-011, CR-001, CR-002 and CR-003 and sumps within 244-CR Vault Facility to a staging tank within the 244-CR Facility. The transfer system to consolidate the waste from individual tanks consists of above ground piping of a hose in hose with leak detection at each tank's pit being utilized to support the transfer line. Mixing and dilution of the waste may take place at the receiving tank or

within the transfer lines directly. The transfer system may include equipment pump skids and shall include appropriate connections to the transfer lines to accommodate chemical and water addition to the 244-CR Facility tanks and mixing prior to transfer to the designated Double Shell Tank (DST).

Before entry into a pit, an evaluation is made by engineering and/or operations personnel to determine the transfer routing configuration after pit work is complete. On removal of cover blocks, a visual inspection of pit contents is made to verify present configuration.

Tools such as impact wrenches, T-bars, and pike poles are used to repair or replace pit equipment. All equipment coming out of the pit is wrapped in plastic or otherwise contained or decontaminated for reuse or disposal. Removable contamination on the outer-most container shall not exceed 1,000 disintegrations per minute/100 square centimeters beta/gamma and 20 disintegrations per minute/100 square centimeters alpha before removal from the bullpen. Disposition of non reusable equipment waste shall be performed in accordance with ALARACT Demonstration 4, TWRS ALARACT Demonstration for packaging and transportation of waste.

Jumper work shall be preceded by flushing the appropriate transfer lines with water. Jumper work is accomplished remotely, using a crane to maneuver heavy equipment and parts. Installation, disconnection, and/or changing jumpers/blanks are accomplished by slowly loosening the jumper/blank at the connector head. The required jumper/blank is positioned and tightened to the new connector heads. If the process line or equipment being worked on is connected physically to other unnecessary transfer lines, or if the line is to be left unused, a cap, blank, or equivalent is installed on all open nozzles not connected to jumpers.

Leak testing of newly installed jumpers/blanks shall be performed with pressurized water before initiating waste transfers. Occasionally, a jumper leak test is performed during the initial stages of the transfer. In either case, cover blocks shall be in place before leak testing is performed.

Cutting up unusable pit equipment (usually jumpers/blanks) is accomplished remotely using hydraulic shears or low revolutions per minute portable band saws. Cutting activities shall be performed in the bullpen or in glovebags. The goal shall be to maintain a contamination level equal to or less than 1,000 dpm/100 cm2 beta gamma and 20 dpm/100 cm2 alpha, during cutting activities, but may not always be attainable. RCT coverage shall be provided. Should contamination levels exceed 1,000-dpm/100 cm2 additional sleeving, or use of a glove bag shall be used and/or decontamination activities performed to lower the levels in accordance with ALARA. Welding (if required) shall commence once removable contamination levels in the cut and weld area are reduced to ALARA. Size reduction (cutting) activities shall be performed in accordance with ALARACT Demonstration 15, TWRS ALARACT Demonstration for Size Reduction of Waste Equipment for Disposal. To ensure that water intrusions or potential residual waste in piping are eliminated from the facility, existing piping and transfer lines to and from the 244-CR Vault facility shall be blanked, grouted, or sealed. The isolation includes activities such as installing plugs, caps, blind flanges, or grouting. Isolations may occur at the 244-CR riser pit area or at the other end of the pipe in a diversion or valve box, at the ER153 or the 244A Lift Station.

Modifications to existing in-route pits, vaults and piping shall be required to establish the waste transfer route or to ensure the integrity of the system prior to waste transfer. These modifications can include but are not limited to, removal of existing parts and replacement with like parts, installation of new jumpers, or blanking off of equipment. When possible existing blanks shall be utilized. Pipe cutting shall be minimized in compliance with ALARA. If it is determined that the installation of a new above ground transfer line would be the best engineering method to establish a waste transfer route, a temporary transfer route shall be established following existing design and installation procedures. This temporary route will be either above ground or in a shallow trench. If a trench is required excavation shall be performed as described under that activity in this NOC.

Pit drains are checked using water from a tanker truck or another source. Water at a flow rate of approximately 20 gallons per minute is added to a pit drain line and subsequently monitored to verify the pit drains are free of restrictions. At times it might be necessary to pump the DCRT that receives the water after the water passes through the pit drain if the volume of test water approaches the capacity of the DCRT.

Either flushing with water and/or using a retrieval tool to remove debris from the drain are used to clear plugged drains. Water supply valves are opened slowly to minimize splashing. Pressures above 50 pounds per square inch gauge require approval from the engineering organization. Cover blocks shall remain in place and work is

accomplished through a penetration in the cover block.

The waste transfer operations involve the pumping of liquid waste that contains dissolved solids. These solids can precipitate out of solution anywhere in the transfer path and cause blockage. If blockage is detected in the system, flushing the lines with hot water is necessary. The hot water is introduced to the system to be flushed through a pressure manifold by piping connected directly to a jumper or nozzle. These operations shall be performed with the pit covers on.

To ensure that water intrusions are eliminated from the facility, a foam covering will be placed over the 244-CR Vault area after completion of isolation activities.

Other techniques to free blockages could include pressurization, temporary jumpers, and hydraulic scouring. All piping connections are designed to be leak tight and the pit cover block shall be installed before pressurization. If pressurization beyond that obtained from the tank farms water system or supply truck (i.e., approximately 150 pounds per square inch gauge) is necessary to remove blockage, an engineering evaluation shall be performed to determine the maximum allowable pressure for operation.

Excavation:

Excavation may be required to support installation of ventilation, electrical support and waste transfer equipment. Modifications to existing in route pits, vaults and piping and/or to support installation of new waste transfer lines from the 244-CR Facility to the identified DST may require excavation. Soil excavation activities will be performed in accordance with ALARACT Demonstration 5, TWRS ALARACT Demonstration for Soil Excavation (Using Hand Tools), and will follow the radiological controls specified in that ALARACT.

Any Guzzler excavations in contamination areas will be performed in accordance with the December 18, 1998, WDOH approved Site Wide Guzzler NOC (Air 98-1215), or the most current NOC approved for Guzzler use. Excavation of contaminated soils using heavy equipment shall follow the requirement of Site Wide Guzzler NOC.

Soil excavation outside the tank farm fence also may be performed with heavy equipment.

Soil will be excavated around the 244-CR vault facility to install new piping, equipment slabs, and new waste transfer system support equipment. It is expected that about 1,000 cubic yards may be excavated, with about 600 cubic yards from inside the tank farm. Backfill shall be from the original removed soil or non-contaminated controlled density fill (sand, water and a small amount of cement).

Current power within the 244-CR Vault Facility is limited. To provide power for new equipment installed under the project, the existing power distribution system shall be upgraded. Upgrades shall involve modification to the existing Motor Control Center (MCC), installation of equipment control panels, and installation of new conduits.

A compliant passive breather filter shall be installed to ventilate the 244-CR Facility vaults and tanks once waste transfer activities are completed. The passive breather filters shall be installed at two locations in the 244-CR facility. A 1,000 cfm HEPA filter shall be installed at the air inlet assembly (previously attached to the evaporative cooler) and a 200 cfm HEPA filter shall be installed upstream of the existing HEPA filter pit. Butterfly valves in the ventilation system just downstream of where the filters shall be installed can be shut to prevent any emission from the facility during filter installation. Installation of the filters shall be performed in accordance with ALARACT Demonstration 16, TWRS ALARACT Demonstration for Work on Potentially Contaminated Ventilation System Components.

During waste transfer and support activities the tank and vault air space shall be actively ventilated by a temporary ventilation system. The temporary ventilation system shall consist of a portable exhauster that shall be equipped with compliant monitoring and sampling equipment. The purpose of the exhauster is to ensure potential airborne contamination from the pits, cells, or process tanks, is not being released to the environment. Operation of the 1,000 cfm portable exhauster is considered an emissions control.

New waste transfer system, waste staging/consolidation.

The planned transfer system can utilize some existing equipment along with installation of new piping and equipment at 244-CR, ER-153 and/or 244-A Lift Station. Maintenance of the transfer system may be required during the waste staging/consolidation. Equipment, which may require on going maintenance includes but is not limited to leak detection and pump system equipment. The waste can be staged/consolidated in one or two of the 244-CR Facility tanks (CR-001, CR-002, CR-003 and CR-011) prior to transfer to a DST.

The following controls are used for the pit activities:

General Controls:

1. Pre-job and post-job radiation surveys are performed by radiation protection technicians. Radiation work permits specify permissible occupational radiological limits during activities. Radiation control technicians' survey and release equipment, inspect and approve required containment, and provide radiological surveys to verify compliance to radiation work permit limits.

2. Pit work is shut down (or not initiated) when sustained wind speeds exceed 25 miles per hour as measured in the field and/or reported by the Hanford Meteorological Station.

3. Fixatives shall be applied inside the pit (with cover blocks on or off) or accessible portions of the pit decontaminated to less than 100,000 disintegrations per minute/100 square centimeters beta-gamma and 2,000 disintegrations per minute/100 square centimeters alpha.

4. When cover blocks are removed, a fall protection handrail is installed. This handrail is draped in plastic forming a contamination barrier. The plastic extends to the top of the pit and is taped or sealed at the top of the pit. Decontamination of the containment barrier is conducted as required by the job specific radiation work permit.

5. Radiation control technicians monitor the affected work area when the vault foam covering is removed, when jumpers and equipment are being removed from risers and nozzles, and when risers are entered for sampling of tanks and sumps. Jumpers removed from the pit are drained of free liquid and decontaminated or contained before removal. The outer-most container shall not exceed 1,000 disintegrations per minute/100 square centimeters beta/gamma and 20 disintegrations per minute/100 square centimeters alpha. If these limits are exceeded, surfaces shall be decontaminated. Disposition of non reusable equipment waste shall be performed in accordance with ALARACT Demonstration 4, TWRS ALARACT Demonstration for packaging and transportation of waste.

6. A bullpen designed to minimize the top opening shall be used. Pit covers or cover blocks will be removed as necessary. If the bullpen is to be left unattended at any time, a temporary cover is placed over the pit or the pit covers or cover blocks are reinstalled. Two tents shall be erected over two pits. Upon completion of the work in the first two 244-CR Facility instrumentation pits, the tents will be relocated to the other 244-CR facility instrumentation pits.

7. PTRAEU(s) shall actively ventilate the bullpens during activities that require work in the pits (after removal of the cover blocks) to control radiological releases. The PTRAEU(s) shall operate intermittently and shall be operated in accordance with the latest revision to the WDOH approved. Portable/Temporary Radioactive Air Emission Unit (PTRAEU) NOC (DOE/RL-96-75).

8. A compliant exhauster skid shall ventilate the process cells and tanks during waste transfer activities. The exhauster shall maintain a negative pressure under the cover blocks and prevent contaminants from reaching the environment. The exhauster skid shall be connected to the existing exhaust ductwork with rigid or flexible ductwork.

9. The 1,000 cfm exhauster shall be equipped with a two-stage HEPA filter, which meets the requirements of ASME AG-1, Section FC and shall be tested annually to requirements of ASME AG-1. The HEPA filters shall have an efficiency of 99.95 percent for 0.3-micron median diameter. Each filter housing shall meet the applicable sections of ASME N509 and the test requirement of ASME N510. The exhaust stack houses a Generic Effluent Monitoring System (GEMS) that contains an air velocity probe and the air sampling probe.

10. The breather filter shall consist of a housing that contains a HEPA filter, an outlet screen, and a small seal loop. Air flowing to and from the 244-CR Facility shall pass horizontally through the filter and vertically through the downward-facing exit weather hood. Seal loops, installed in the exhaust lines, are designed as a safety feature to prevent unlikely accident in which an over pressurization occurs when the HEPA filter is isolated for occasional (infrequent) maintenance.

Specific Controls include:

-Installation of portable 1,000 cfm exhauster shall use ALARACT 16.

-Removal and/or installation of vault foam covering - ALARACT 4.

-Application of fixative at pit interior - see General Controls.

-Temporary power installation - ALARA.

-Operation of PTRAEU for bullpen ventilation - Latest WDOH approval, AIR 99-1102, for the Portable/Temporary Radioactive Air Emission Unit (PTRAEU) NOC (DOE/RL-96-75).

-Removal and/or installation of pit covers - General Controls.

-Inspection of pits, vaults, and tanks - General Controls.

-Removal and disposition of excess equipment and waste in pits, risers, and tanks - ALARACT 15, and ALARACT 4.

-Decontamination activities - General Controls.

-Measurement of liquid level and sludge levels in tanks and sumps - General Controls.

-Sampling activities in pits, vaults, and tanks including chemical addition and/or waste sampling to determine Double Shell Tank waste acceptance - ALARACT 7 and ALARACT 1.

-Facility Equipment Activities: installation, disconnection, repair, replacement, and/or leak testing, of new and existing facility equipment (valves, jumpers, pumps, leak detectors, or other instrumentation/equipment) - ALARACT 4, and ALARACT 15.

-Modifications, maintenance, and/or isolation and sealing of existing in route pits, vaults and piping (drain and transfer lines) to support and/or installation of new transfer lines - General Controls.

-Excavation - ALARACT 5, and/or WDOH approved Site Wide Guzzler NOC (Air 98-1215), or the most current NOC approved for Guzzler use.

-Installation of permanent power to 244-CR Vault Facility - ALARA.

-Installation of passive breather filter assembly - ALARACT 16.

-Operation of a portable exhauster at 244-CR vault for ventilation - ALARA.

-New waste transfer system, waste staging/consolidation - General Controls.

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

Ac - 227	1.60E-05	Am - 241	8.39E-04	Am - 243	1.26E-07
Ba - 137 m	4.81E-01				

		C - 14	2.76E-05	Cd - 113 m	1.90E-04
Cm - 242	1.56E-05	Cm - 243	1.85E-06	Cm - 244	4.24E-05
Co - 60	1.33E-03	Cs - 134	1.71E-06	Cs - 137	5.08E+01
Eu - 152	4.40E-05	Eu - 154	5.74E-03	Eu - 155	5.19E-03
H - 3	3.54E-05	I - 129	7.59E-08	Nb - 93 m	1.11E-04
Ni - 59	7.11E-05	Ni - 63	6.99E-03	Np - 237	1.82E-04
Pa - 231	1.24E-05	Pu - 238	8.11E-05	Pu - 239	7.99E-03
Pu - 240	1.44E-03	Pu - 241	1.01E-02	Pu - 242	1.26E-02
Ra - 226	5.50E-09	Ra - 228	2.99E-05	Ru - 106	2.54E-07
Sb - 125	7.12E-04	Se - 79	2.65E-05	Sm - 151	9.77E-02
Sn - 126	4.18E-05	Sr - 90	4.93E+00	Tc - 99	3.25E-04
Th - 229	2.63E-07	Th - 232	4.99E-05	U - 232	6.40E-06
U - 233	2.45E-05	U - 234	1.61E-05	U - 235	6.78E-07
U - 236	4.08E-07	U - 238	5.77E-06	Y - 90	4.91E+00
Zr - 93	9.68E-05				

4) All above ground transfer lines shall be double contained and leak tested.
5) All above ground transfers shall be double contained and the hose in hose connections leak tested.
6) Excavation of contaminated soils using heavy equipment shall follow the requirements of the Site Wide Guzzler NOC.
7) If pressures above 50 psi are used. WDOH shall be notified with the controls to be used.
8) When a Portable/Temporary Radioactive Air Emission Unit (PTRAEU) is used to ventilate the bullpens, the conditions, controls, monitoring requirements and limitations of the PTRAEU NOC, latest approved version, shall be required.

Project Title	Approval #	Date Approved	NOC_ID
Installation and Operation of Waste Retrieval Systems in Single-Shell Tank (SST) 241-S-112	AIR 08-1103	11/10/2008	686

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 3.90E-02 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 7.51E+01 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 Salt Cake Dissolution Retrieval Demonstration Project in SST 241-S-112 uses water that is introduced in a controlled fashion to dissolve and mobilize solids in the tank. The resulting solution is then pumped and transferred to the Double-Shell Tank (DST) system. A portable exhauster will provide active ventilation for some dissolution activities and all waste transfer activities until structural safety considerations force shutdown, at which time passive ventilation shall be used.

The following activities will be performed :

Pit

a. Opening the 241-S-112 Condenser Pit to remove the old cover plate and install a new cover plate to allow for the connection of a HEPA filter to the exhauster trunk for a portable exhauster.
b. Enter 241-S-C Valve Pit to disconnect the existing 241-S-112 HIHTL.
c. Enter the 241-S-109 Valve Pit to remove the existing HIHTL that is no longer needed.
d. Accessing the 241-S-112A Central Pump Pit to:
   - Install an instrument manifold,
   - Install a transfer pump, and
   - Replacement of the existing HIHTL that is not needed for this project with a new HIHTL.
e. Enter the 241-S-A Valve Pit to:
   - Connect the hose-in-hose transfer line (HIHTL) from the 241-S-112 Tank to the DST receiver tank, and
   - Install the leak detection hardware.

Pit work shall be performed in accordance with ALARACT 6 "TWRS ALARACT Demonstration for Pit Access" and ALARACT 14 "TWRS ALARACT Demonstration for Pit Work".

Soil Excavation

a. Excavation of soil inside the tank farm for the installation of an electrical and instrumentation conduit to monitor transfer progress.
b. Excavation of soil outside the tank farm for conduit and transformer installation.
c. Excavation of soil inside the tank farm for installation of a new raw water header installed between the 241-SY Tank Farm and the 241-S Tank Farm to the 241-S-112 Tank.
d. Installation of a HIHTL to convey waste from Tank 241-S-112 to the DST transfer system.

Soil excavation shall be performed in accordance with ALARACT 5 "TWRS ALARACT Demonstration for Soil Excavation (using hand tools)".

In-Tank Equipment

a: Installation of various motor controlled spray devices into (3) risers near the outside perimeter of the tank and an automatic indexing spray device will be installed on a centrally located riser.

b. Remove Liquid Observation Well (LOW).
c. Installation of Stilwell (Level Monitoring Device protection).

Work shall be performed in accordance with ALARACT 1 "TWRS ALARACT Demonstration for Riser Preparation/Opening" and ALARACT 13 "TWRS ALARACT Demonstration for Installation, Operation and Removal of Tank Equipment".

Water Addition/ Dilution

- Installation of a new heat traced and insulated raw water line installed between the 241-S Tank Farm and the 241-SY Tank Farm to the water distribution skid on top of Tank 241-S-112.

Water addition and dilution for salt-cake dissolution shall use portable exhausters for active ventilation when water addition flow rate is above 80 gallons per minute, at less than 80 gallons per minute salt cake dissolution shall use either a breather HEPA filter for passive ventilation, or active ventilation.

Waste Transfer

- Installation of a progressive cavity pump and supporting equipment to recover and transport waste from Tank 241-S-112 to the DST System.

Waste transfer activities shall use portable exhausters for active ventilation until structural safety considerations force shutdown, at which time passive ventilation shall be used.
The major components of the exhauster are; stack, glycol heaters, 1 pre-filter, 2 HEPA filters, 1 exhaust fan, sampling system and a demister which is determined to be optional.

Other

- Removal of the Standard Hydrogen Monitoring Probe.

The completion of tank retrieval may also be aided by a Remote Water Lance (RWL) that is a high pressure water device, or hydrolaser. The system will consist of both ex-tank and in-tank components. The ex-tank components will be comprised of; high pressure water skid, operating controls, cables and hoses. The in-tank components will be comprised of; umbilical, in-tank vehicle, high pressure nozzle(s).

The high pressure water skid will provide the water at the desired pressure, not to exceed 37,000 psig. A conditioning system will be used to filter the raw water entering the skid to ensure that no abrasive materials are entrained in the water. The water volumetric flow rate will be on the order of 6 to 15 gpm. The operating controls will be located in a control trailer outside of the farm fence. The cables and hoses will connect the hydraulically powered in-tank vehicle with the ex-tank controls and water skid via the umbilical. The in-tank vehicle will house one to four high pressure water nozzles. The RWL will be operated with the nozzle end submerged to avoid aerosols in the tank. A rupture disc will be used to prevent reaching pressures above 37,000 psig.

The in-tank vehicle, with umbilical, will be deployed through a 12 inch riser in tank 241-S-112 and will weigh on the order of 1,000 pounds plus the weight of the umbilical. A crane will be used to lower the vehicle and the full length of umbilical down into the tank. After the in-tank vehicle and umbilical are in the tank, a cover, with gasket, will be bolted to the riser flange to seal the riser opening. The equipment will be operated outside the tank farm fence.

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

Alpha - 0	2.68E-02	Beta - 0	2.60E-01	Cs - 139	1.45E-05

4) Equipment removal and monitoring (pre and post-job surveys) shall be performed in accordance with ALARACT 13; equipment disposition shall be performed in accordance with ALARACT 4 and 15.
5) Pit work and monitoring (pre and post-job surveys) shall be performed in accordance with ALARACT 6 and 14;

packaging and transportation of waste shall be performed in accordance with ALARACT 14.

6) Soil excavation activities and monitoring (pre and post-job surveys) shall be performed in accordance with ALARACT 5. Not more than 2000 cubic feet of soil shall be removed. The disturbed soil shall not leave the 241-S Tank Farm area.

7) The Annual Possession Quantity and potential-to-emit to the MEI shall be tracked on a WDOH approved log.

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 5.90E-03 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 5.90E-03 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.

Performing the following modifications to bring select portions of the DST system into conformance with regulatory, safety, and contractual requirements.

The modifications shall be accomplished by performing the following activities:

241-AZ-151 CATCH TANK BYPASS

A new RCRA-compliant condensate distribution system for condensate generated from the existing 241-AZ-702 ventilation system. This new system will consist of a 1200 gallon capacity catch tank (241-AZ-301), secondary containment, piping, pumps, and controls. The system is designed to collect condensate at a rate of 0.29 gallons per minute (154,424 gallons per year). The tank will be emptied every 2 to 3 days. At that time, condensate will be pumped back to one of the 241-AY or 241-AZ tanks at a rate of 4 to 5 gallons per minute.

The new 241-AZ-301 tank and system will be located outside the northeast corner of building 241-AZ-702. Most of the secondary containment structure will be located below grade (except for the cover that will be located above grade) to provide operator access. A HEPA filter will also be installed above grade. This filter will be connected to the 241-AZ-301 tank and will be used as the vent for the 241-AZ-301 tank.

The lower level of the fabricated tank system shall contain the receiver tank for the condensate coming from the AZ-PC-SP-1 seal pot via line AZ-503. Other components housed in the lower level shall include the sump, sump suction line, tank suction piping, tank return piping, tank vent lines, instrument access risers, leak detection, and freeze protection, as required.

The upper level of the fabricated tank system will contain the distribution piping, pumps, valves, instrumentation, and controls. Operator access shall be provided as required (e.g., access ladder, hatch or door in system cover, mid-level grating to support operator). Distribution valves shall be located to provide the ability to use remote valve actuators if required. Freeze protection for the piping, pumps, and valves shall be used as required.

The AZ-PC-SP-1 seal pot is located in the 241-AZ-702 Building and this seal pot serves as a collection point for condensate originating from the 241-AZ-702 ventilation system. The 241-AZ-702 ventilation system provides primary tank ventilation for the 241-AY and 241-AZ DSTs. The existing 241-AZ-151 catch tank would be isolated in a separate effort to support other commitments.

Currently there are two drain paths into the 241-AZ-151 catch tank that will remain active after June 30, 2005. Those two drain paths are the condensate from the 241-AZ-702 Facility and the 241-AZ-801A floor drain. The 241-AZ-702 condensate drain line shall be rerouted to the 241-AY tanks and also to the 241-AZ tanks. In addition, the 241-AZ-801A floor drain shall be isolated.

241-AN AND 241-AW CLEAN OUT BOX TRANSFER LINE MODIFICATIONS

Sixteen Clean Out Boxes (COBs) have been identified on transfer lines. These COBs shall have access ports cut into the non-contaminated 12 inch vertical stand pipe, the primary pipes and encasements shall be cut and caps welded in place; and the upper portion of the structure cut off, isolated, and disposed in accordance with ALARACT 15, "Demonstration for Size Reduction of Waste Equipment for Disposal" and ALARACT 4, "Demonstration for Packaging and Transportation of Waste". This modification will entail approximately 100

one-inch pipe cuts, 20 two-inch pipe cuts, and 10 three-inch pipe cuts. The primary transfer lines and encasement pipes shall be capped on the branch section and welded to the COB structure.

The COBs must either be modified to be regulatory compliant or deactivated/isolated and removed.

The AN and AW Farms COB design consists of a 24-inch diameter steel cylinder formed from a 1/4 inch thick rolled steel plate and mounted on a 12-inch vertical stand pipe. The vertical stand pipe extends about four feet below grade to the slurry transfer line. A concrete anchor block supports the COB, encasement, and transfer pipe.

The sixteen COBs to be deactivated and/or isolated by the E-525 Project are:

AN Farm:
COB-AN-7, COB-AN-8, COB-AN-9

AW Farm:
COB-AW-1, COB-AW-2, COB-AW-3, COB-AW-4, COB-AW-5, COB-AW-6, COB-AW-7, COB-AW-8, COB-AW-9, COB-AW-10, COB-AW-11, COB-AW-12

242-A Evaporator
COB-A-30

SY TRANSFER LINE MODIFICATIONS

The following transfer lines, SL-177, SN-277, SN-285, SL-180, SN-280, and SN-286 shall be removed, cut into sections, and disposed of in accordance with ALARACT 15 "TWRS ALARACT Demonstration for Size Reduction of Waste Equipment for Disposal", and ALARACT 4, "TWRS ALARACT Demonstration For Packaging and Transportation of Waste". Pit walls shall be core drilled as needed to accommodate the new pipe-in-pipe RCRA compliant configuration.

Pipe trenches shall be excavated to remove and install the new transfer lines. Excavation shall be accomplished with the guzzler and hand digging.

204-AR TRANSFER LINE MODIFICATION

Waste transfer line LIQW-702 shall be modified to extend the transfer line encasement through the pit wall. This pipe is buried approximately three and a half feet below grade, so the excavated area shall be approximately 10' x 10' x 6'. Demolition of a portion of the slab under an old laundry facility and a section of the asphalt surface adjacent to the doorstep of the facility will be required for access.

The new encasement section shall be open-ended, upstream of the exterior wall seal plate. The obsolete air purge connection to the existing encasement shall be removed.

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

Ac - 227	1.41E-07	Am - 241	1.82E-01	Am - 243	1.72E-06
Ba - 137 m	4.27E+01	C - 14	1.64E-04	Cd - 113 m	5.09E-03
Cm - 242	3.50E-03	Cm - 243	6.62E-06	Cm - 244	1.11E-04
Co - 60	2.52E-03	Cs - 134	1.30E-04	Cs - 137	4.53E+01
Eu - 152	2.36E-04	Eu - 154	1.02E-02	Eu - 155	1.20E-02
H - 3	1.07E-02	I - 129	3.05E-05	Nb - 93 m	9.15E-04
Ni - 59	5.45E-05	Ni - 63	5.30E-03	Np - 237	1.03E-03

Pa - 231	3.45E-07	Pu - 238	2.98E-04	Pu - 239	4.23E-03
Pu - 240	9.67E-04	Pu - 241	1.93E-02	Pu - 242	1.13E-07
Ra - 226	1.27E-08	Ra - 228	6.84E-06	Ru - 106	4.32E-09
Sb - 125	2.36E-03	Se - 79	1.23E-04	Sm - 151	9.39E-01
Sn - 126	1.70E-04	Sr - 90	1.43E+01	Tc - 99	3.49E-02
Th - 229	2.02E-07	Th - 232	9.02E-07	U - 232	2.18E-05
U - 233	8.95E-05	U - 234	8.06E-05	U - 235	3.11E-06
U - 236	5.81E-06	U - 238	5.92E-05	Y - 90	6.33E+00
Zr - 93	9.61E-04				

4) All pit work shall be performed in accordance with ALARACT 6 "TWRS ALARACT Demonstration for Pit Access", ALARACT 13 "TWRS ALARACT Demonstration for Installation, Operation, and Removal of Tank Equipment", and ALARACT 14 "TWRS ALARACT Demonstration for Pit Work".

5) All soil excavation, not using the Guzzler, shall be conducted in accordance with ALARACT 5 "TWRS ALARACT Demonstration for Soil Excavation (Using Hand Tools)".

6) Guzzler excavation shall be performed in accordance with the latest approved revision of the WDOH approved Guzzler NOC).

7) Required cuts of contaminated piping shall be made inside a glove bag. To perform pipe cuts of contaminated piping without a glove bag piping shall be surveyed/smeared to verify removable contamination levels are equal to or less than 10,000 dpm/100 square centimeters beta/gamma and 200 dpm/100 square centimeters alpha.

8) The Annual Possession Quantity shall be tracked on a WDOH approved log.

9) When performing work inside a glove bag and using a PTRAEU or HEPA filtered vacuum all conditions and limitations of site wide approvals for operation of the PTRAEU and HEPA filtered vacuums shall be followed.

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 1.38E-02 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 1.38E-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.

Work shall be performed outside of some tank farm fence boundaries such as the 241-AN, 241-AP, 241-AW, 241-AZ, and 241-SY tank farms; between the 241-AP tank farm and the 244-A double contained receiver tank as well as between the 244-S double-contained receiver tank and the 241-SY tank farm; the 219-S Waste Handling Facility located at the 222-S Laboratory; and near the 241-A-A valve pit (241-A Single-Shell Tank Farm).

EXCAVATION

Excavation within a tank farm, or in a known radioactive contamination area outside of a tank farm, shall be performed in accordance with As Low As Reasonably Achievable Control Technology (ALARACT) Demonstration 5, TWRS ALARACT Demonstration for Soil Excavation (Using Hand Tools), or non-mechanical methods such as vacuum excavation (Guzzler) in accordance with the latest WDOH approved Notice of Construction. Outside of a tank farm, in non-contaminated areas, excavation (or berm construction) may be performed using mechanical methods such as: trenchers, backhoes, and scrapers, in addition to hand tools or non-mechanical methods. Areas may be encountered during excavation where components are covered by very hard soil or controlled density fill (low-strength concrete). Mechanical impact tools, such as jackhammer/rototool, would be used to break up such areas before excavation. Removal of excavated material is normally done by mechanical methods such as a crane with skip bucket, powered skip, or front-end loader. Excavated material is placed in spoil piles. (NOTE: Industrial safety requirements may require use of intermediate transfer piles.) Contaminated soil (>100,000 dpm/100 cm2 beta/gamma) is segregated from other soil. Excavated areas shall be backfilled with the excavated soil or soil containing less contamination than the soil that was excavated. Backfilling of excavated areas is accomplished by first placing controlled density fill material when used, then soil in layers, into the excavated area. The distance from the skip bucket, powered skip, and front-end loader to the top of the excavation area is minimized. Contaminated soil is the first soil placed in the excavated areas, then covered with other excavated soil. To meet density requirements, soil compaction is done using hand-guided mechanical compaction equipment. Outside of a tank farm, in a non-contamination area, vibratory roller compactors may be used.

Excavation shall also be conducted to allow for the pouring of concrete pads for future placement of equipment within the tank farms.

PIT WORK

Frequently performed activities shall be done in accordance with activity descriptions found in ALARACT Demonstrations (HNF-4327):

- ALARACT 4 "Packaging and Transportation of Waste"
- ALARACT 6 "Pit Access"
- ALARACT 12 "Packaging and Transportation of Equipment & Vehicles"
- ALARACT 13 "Installation, Operation, and Removal of Tank Equipment"
- ALARACT 14 "Pit Work" and, if required,
- ALARACT 15 "Size Reduction of Waste Equipment for Disposal."

The process is establishment of controls to prevent the spread of radioactive contamination, removal of pit cover blocks by heavy rigging methods, decontamination of pit by water washing (pressure and non-pressure methods), application of fixative material on contamination, disconnection of equipment, equipment removal by manual or

mechanical methods, package equipment for disposal (size reduction if necessary), pit surface preparation by manual abrasion (scrapping, sanding, chipping; on a surface that is damp or has fixative) of existing pit coating, application of pit coating material by manual methods or pressure spray methods, installation of new or replacement equipment, installation of pit cover blocks by heavy rigging, packaging of waste, and transportation of waste and removed equipment.

Project pit activities will include preparation of pit surfaces and coring of walls or cover blocks. Project pit surface preparation is accomplished by mechanical abrasion of the existing pit coating, concrete substrate, and steel surfaces as needed. Needle guns, sanders, wet blasting, and grinders are typical tools used. In addition, surface preparation also may include repair of cracked concrete/concrete coatings. Repair will require removal of cracked material to allow application of grouting material. Removal of cracked material may be performed using manual and power tools, and may also include using a HEPA vacuum to assist in the removal of loose debris. Coring of pit walls and/or cover blocks for new nozzles or equipment installation comprised of replacing wall nozzles, leak detectors, cover blocks, pipe snub-outs, and jumpers will also be performed. A new AZ valve pit will be constructed and connected to the AZ tanks.

PIPE CUTS

The cutting of waste transfer lines, tank risers, or contaminated piping shall be made using a low or high speed reciprocating or cut-off saw (sawzall, bandsaw) or other mechanical methods, such as a tri-tool. Surveys of the exterior and/or interior of the pipe/riser shall be used to determine containment selection in accordance with Radiological Containment Selection, Design, & Specification Guide RPP-7933. Continuous health physic technician coverage shall be present during all pipe work activities. Abrasive methods, such as grinders or sanders, may be used to prepare the cut area for connection to the new section of transfer line. Mating of the new piping to the existing transfer lines or tank riser, and other similar connections if necessary, will be performed using mechanical connection methods or welded flange connections.

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

Am - 241	1.59E-01	Co - 60	1.06E-03	Cs - 137	7.11E+00
Eu - 152	1.95E-02	Eu - 154	3.32E-02	Pu - 238	6.98E-04
Pu - 239	6.39E-03	Pu - 240	2.31E-03	Pu - 241	5.08E-02
Pu - 242	6.90E-08	Sr - 90	4.75E+01	U - 233	1.46E+00
Y - 90	3.96E+01				

4) The Annual Possession Quantity and the Potential-to-Emit to the MEI shall be tracked on a WDOH approved log.

5) The Radiological Containment Selection, Design & Specifications Guide, RPP-7933, Revision 0 shall be used. Changes made to RPP-7933, Revision 0 shall be provided to WDOH. The Department retains the right to change or add approval conditions and limitations based on the changes to RPP-7933.

6) To determine the Potential-to-Emit and calculate the annual dose to the Maximally Exposed Individual all gross alpha contamination shall be assumed to be Am-241 and all gross beta contamination shall be assumed to be Sr-90.

7) When HEPA vacuums are used they shall follow all the requirements of the latest revision of the Radioactive Air Emissions Notice of Construction for HEPA Vacuums.

Project Title	Approval #	Date Approved	NOC_ID
Operation of the Liquid Effluent Retention Facility and the 200 Area Effluent Treatment Facility	AIR 06-1045	10/5/2006	690

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 4.59E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 operation of the Liquid Effluent Retention Facility/200 Area Effluent Treatment Facility (LERF/ETF), which includes the load-in station and load-in station filter skid.

Incoming wastewater can be added directly to the ETF process or received at the LERF or the load-in station. The LERF is allowed to receive wastewaters via underground pipelines from generator facilities, via pipeline from the load-in station, or directly through a series of access ports located at each basin. The load-in station accommodates wastewater receipt via container (e.g., drums, carboys, tankers, etc.).

The ETF wastewater treatment process shall be comprised of a main treatment train and a secondary treatment train. The main treatment train shall provide for the removal or destruction of dangerous and radioactive contaminants from incoming wastewater. After treatment, the effluent shall be transferred to the verification tanks where it is sampled then discharged. Treated effluent is comparable to deionized water and contains tritium, which cannot be economically removed. Contaminants removed in the main treatment train are concentrated in the secondary treatment train. The contaminants shall be heated and dried to a powder form or removed as sludge and dried by the addition of absorbents. These residues shall be containerized and disposed onsite as radioactive waste.

Additional approval of the process for this activity is contained in the following Conditions/Limitations.

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 8.48E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Alpha release rate is assumed to be Pu-239/240. The release rate is based on the maximum PTE for the load-in station. (diffuse/fugitive) is based on ETF operating capacity (54.3 million gallons/yr). In addition to the isotopes specifically listed as approved under this NOC, other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta-gamma constituents.

Am - 241	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Beta - 0	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Beta release rate is assumed to be Sr-90/Cs-137. The release rate is based on the maximum PTE for the load-in station. (diffuse/fugitive) is based on ETF operating capacity (54.3 million gallons/yr). In addition to the isotopes specifically listed as approved under this NOC, other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta-gamma constituents.

C - 14	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Cm - 244	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Co - 60	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Cs - 134	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Eu - 154	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Eu - 155	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

H - 3	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

I - 129	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

K - 40	Liquid/Particulate Solid	WAC 246-247-030(21)(b)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Mn - 54	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Na - 22	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Nb - 94	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Np - 237	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pu - 238	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Pu - 241	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Ra - 226	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Ru - 106	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Sb - 125	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Se - 79	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Tc - 99	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

U - 233	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

U - 234	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

U - 235	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

U - 236	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

U - 238	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Zn - 65	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

Zr - 95	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.

The radioactive isotopes identified for this emission unit are (no quantities specified):

Am - 241	C - 14	Ce - 144	Cm - 244	Co - 60
Cs - 134	Cs - 137	Eu - 154	Eu - 155	H - 3
I - 129	K - 40	Mn - 54	Na - 22	Nb - 94
Np - 237	Pu - 238	Pu - 239/240	Pu - 241	Ra - 226
Ru - 106	Sb - 125	Se - 79	Sr - 90	Tc - 99
U - 233	U - 234	U - 235	U - 236	U - 238
Zn - 65	Zr - 95			

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) The 200 Area Diffuse/Fugitive Emission Unit at LERF/ETF is limited to the following:

-- LERF wastewater receipt via pipeline and LERF access ports.
-- Minor leaks during transfers when using vented pipelines.
-- LERF operations and maintenance.
-- LERF leachate collection system sampling and sump pumping.
-- Load-in station wastewater receipts via container.
-- Load-in station filter skid operation and maintenance.
-- Load-in station tank operation, maintenance, and repair.
-- Wastewater tanker inspection, pressure testing, and repair.
-- Minor leaks and spills to secondary containment systems.
- Storage and transfer of treated effluent containing tritium.
-- Effluent sampling.
- Purgewater open-top settling tank operation.

5) The emissions for this activity from the all LERF basins and diffuse/fugitive emissions are limited to 4.59E-02 mrem/year unabated and abated.

6) 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 load-in station consists of two load-in tanks, a sump, transfer pumps, a skid-mounted filtration system, level instrumentation for tanker trucks, underground transfer lines that allow transfers to either the LERF or the ETF, and leak detection capabilities for the containment basin and transfer lines. Containerized wastewaters received at the load-in station are typically routed through the filter skid. When solids buildup causes differential pressure across a filter housing to become excessive, the filter elements are replaced. The filtration system is shut down, the system is vented to atmosphere by opening a quick release vent cap on top of each filter housing, and solution in the housing is drained to the load-in station sump. The housing is then opened and the spent filter elements are placed in a disposal container. After filter change-out, the sump is emptied to the load-in station, the LERF, or the ETF. The capability to filter sump discharges is also provided at the load-in station. Small shipments that cannot be pumped directly into the filter skid are first drained into the sump, then pumped through the filter skid using the sump pump.

Wastewater tanker inspection, pressure testing, and repair are also conducted at the load-in station as needed to meet annual U.S. Department of Transportation certification requirements. Tankers, which may contain a wastewater heel, are pressurized with compressed air, leak checked at 80 percent of service pressure, and integrity tested at 150 percent of service pressure. After the test is complete, the compressed air is gradually vented from the tanker to the atmosphere. Minor repairs (e.g., seal replacement) are performed as needed to successfully complete the certification test.

Hydrostatic testing is inherently safer and is preferred over pneumatic testing because it minimizes the volume of pressurized vapor space. When hydrostatic testing is performed, the tanker is filled with verification water or other clean water before pressurizing the tanker. At the conclusion of the test, the used water is treated as a new wastewater.

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 7.00E-05 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 7.00E-05 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.

Phase One activities described below.

At applicant request per WAC 246-247060 (1d), a phased approval process is implemented for this NOC, and this NOC is treated in review as a limited application. There are two phases. Phase One is installation of the new ventilation system. Conditional approval to construct is granted for the Phase One activities:

1. Placement of the new exhauster (previously granted by email permission)
2. Connection of the new exhauster, to include ductwork, electrical, and instrumentation connections necessary to place the new exhauster in an operable state
3. Cold testing of the new exhauster
4. Hot testing of the new exhauster and associated ductwork and systems.

These activities shall not preclude modification, construction or installation of any control or monitoring equipment required after review of the completed application. By accepting the conditional approval of the Phase One activities, the applicant agrees to make in a timely manner such modification, construction, or installation as is deemed necessary during review of Phase Two activities to ensure compliance with 40 CFR 61 Subpart H and WAC 246-247.

Phase Two is removal of the old ventilation system and operation of the new ventilation system.

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

Ac - 227	1.85E-02	Am - 241	4.79E+03	Am - 243	1.95E-01
Ba - 137 m	8.01E+06	C - 14	1.96E+02	Cd - 113 m	8.93E+02
Cm - 242	1.22E+01	Cm - 243	1.04E+00	Cm - 244	7.92E+00
Co - 60	9.88E+02	Cs - 134	7.27E+00	Cs - 137	8.48E+06
Eu - 152	4.64E+01	Eu - 154	6.96E+03	Eu - 155	4.39E+03
H - 3	1.38E+02	I - 129	4.15E+00	Nb - 93 m	1.80E+02
Ni - 59	2.00E+01	Ni - 63	1.90E+03	Np - 237	6.74E+00
Pa - 231	5.05E-02	Pu - 238	2.36E+01	Pu - 239	4.10E+02
Pu - 240	7.20E+01	Pu - 241	6.91E+02	Pu - 242	5.25E-03
Ra - 226	1.83E-03	Ra - 228	2.10E+00	Ru - 106	9.78E-04
Sb - 125	4.95E+02	Se - 79	1.11E+01	Sm - 151	1.52E+05
Sn - 126	7.54E+01				

		Sr - 90	1.05E+06	Tc - 99	3.70E+03
Th - 229	9.24E-02	Th - 232	3.41E-01	U - 232	1.32E+00
U - 233	5.42E+00	U - 234	1.64E+00	U - 235	6.64E-02
U - 236	5.32E-02	U - 238	1.50E+00	Y - 90	1.05E+06
Zr - 93	2.25E+02				

4) ALARACTs 4, 12, and 16 shall be applied as appropriate during the course of the installation (WAC 246-247-040(5)).

5) Before the new ventilation system is connected to the existing farm ductwork, a cold test shall be performed on the system. A test plan shall be provided to WDOH. Test results shall be reported to WDOH (WAC 246-247-040(5)).

6) Once the new ventilation system is connected to the existing farm ductwork, an operability/acceptance test shall be performed on the system. A test plan shall be provided to WDOH. Test results shall be reported to WDOH (WAC 246-247-040(5)).

7) The blind portable exhauster connection flange shall be removed in accord with ALARA principles (WAC 246-247-040(1)).

8) The existing AN farm exhauster will continue in operation until the approval of Phase Two, except for a passive ventilation period not to exceed 24 hours during which the existing AN farm exhauster shall remain in an operable state. During this passive ventilation period, there shall be no AN farm transfers, mixing operations, or other AN farm in-tank or in-piping activities that might elevate tank vapor space radionuclide concentrations. Until approval of Phase Two, the new ventilation system shall not be relied upon for active ventilation of the AN farm (WAC 246-247-040(5)).

9) The new ventilation system shall tie into the existing ductwork at the portable exhauster connection flange, where a valve and blind flange are located above ground (WAC 246-247-040(5)).

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 7.00E-05 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 7.00E-05 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.

Phase One activities described below.

At applicant request per WAC 246-247-060(1d), a phased approval process is implemented for this NOC, and this NOC is treated in review as a limited application. There are two phases. Phase One is installation of the new ventilation system. Conditional approval to construct is granted for the Phase One activities:

* Placement of the new exhauster;
* Connection of the new exhauster, to include ductwork, electrical, and instrumentation connections necessary to place the new exhauster in an operable state;
* Cold testing of the new exhauster;
* Hot testing of the new exhauster and associated ductwork and systems.

These activities shall not preclude modification, construction or installation of any control or monitoring equipment required after review of the completed application. By accepting the conditional approval of the Phase One activities, the applicant agrees to make in a timely manner such modification, construction, or installation as is deemed necessary during review of Phase Two activities to ensure compliance with 40 CFR 61 Subpart H and WAC 246-247.

Phase Two is removal of the old ventilation system and operation of the new ventilation system.

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

Ac - 227	1.09E+02	Am - 241	2.55E+04	Am - 243	5.61E+00
Ba - 137 m	5.67E+06	C - 14	8.34E+01	Cd - 113 m	2.26E+03
Cm - 242	2.30E+01	Cm - 243	3.36E+00	Cm - 244	7.53E+01
Co - 60	1.15E+03	Cs - 134	1.48E+04	Cs - 137	5.99E+06
Eu - 152	3.96E+02	Eu - 154	1.37E+04	Eu - 155	1.77E+04
H - 3	8.14E+02	I - 129	1.78E+00	Nb - 93 m	6.98E+02
Ni - 59	3.22E+02	Ni - 63	3.01E+04	Np - 237	1.81E+01
Pa - 231	2.39E+02	Pu - 238	1.81E+03	Pu - 239	9.36E+03
Pu - 240	1.52E+03	Pu - 241	1.48E+04	Pu - 242	2.05E-01
Ra - 226	2.16E-02	Ra - 228	2.26E+01	Ru - 106	6.21E+02
Sb - 125	1.02E+04	Se - 79	1.79E+01	Sm - 151	6.36E+05
Sn - 126	6.37E+01				

		Sr - 90	5.01E+06	Tc - 99	1.25E+03
Th - 229	9.41E-01	Th - 232	5.58E+00	U - 232	1.93E+01
U - 233	4.13E+02	U - 234	2.08E+01	U - 235	6.03E-01
U - 236	6.84E-01	U - 238	1.25E+01	Y - 90	5.01E+06
Zr - 93	7.75E+02				

4) ALARACTs 4, 12, and 16 shall be applied as appropriate during the course of the installation (WAC 246-247-040(5)).

5) Before the new ventilation system is connected to the existing farm ductwork, a cold test shall be performed on the system. A test plan shall be provided to WDOH. Test results shall be reported to WDOH (WAC 246-247-040(5)).

6) Once the new ventilation system is connected to the existing farm ductwork, an operability/acceptance test shall be performed on the system. A test plan shall be provided to WDOH. Test results shall be reported to WDOH (WAC 246-247-040(5)).

7) The blind portable exhauster connection flange shall be removed in accord with ALARA principles (WAC 246-247-040(1)).

8) The existing AW farm exhauster will continue in operation until the approval of Phase Two, except for a passive ventilation period not to exceed 24 hours during which the existing AW farm exhauster shall remain in an operable state. During this passive ventilation period, there shall be no AW farm transfers, mixing operations, or other AW farm in-tank or in-piping activities that might elevate tank vapor space radionuclide concentrations. Until approval of Phase Two, the new ventilation system shall not be relied upon for active ventilation of the AW farm (WAC 246-247-040(5)).

9) The new ventilation system shall tie into the existing ductwork at the portable exhauster connection flange, where a valve and blind flange are located above ground (WAC 246-247-040(5)).

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 1.80E-01 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 8.40E+01 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 salt cake dissolution activity associated with 241-S-102 shall include the following: pit work, soil excavation, in-tank equipment installation/removal, water dilution, and waste transfers.

Pit Work (Diffuse and Fugitive):

- Open the 241-S-102B Distributor pit and cut flange in riser with hold saw or plasma cutter, to install instrumentation manifold and new progressive cavity transfer pump (ALARACT 1, 6, 12, 13, 14);
- Open the two 241-S-102 Condenser pits to replace two existing cover plates with new cover plates. Connect the passive breather filter assembly and connect the trunk of the portable exhauster (ALARACT 4, 6, 14);
- Open the 241-S-A Valve pit, and connect the HIHTL from the 241-S-102 tank to the DST system (ALARACT 6, 14).

Soil Excavation (Diffuse and Fugitive):

- Excavate trenches for tie-in of instrumentation and power systems (ALARACT 5);
- Excavate for HIHTL placement from 241-S-102 to 241-S-A Valve pit (ALARACT 5).

Other Equipment Installation/Removal (Diffuse and Fugitive):

- Install motor controlled spray devices in three risers near the outside perimeter of tank 241-S-102 (ALARACT 1, 13);
- Install automatic spray indexing device in a central riser (ALARACT 1, 13);
- Remove motor controlled and automatic spray indexing devices if necessary (ALARACT 1, 13);
- Place water distribution skid and connect to the raw water header between 241-SY and 241-S tank farms. Connect water distribution skid to spray devices.
- Remove standard hydrogen monitoring system vapor probe (ALARACT 4, 15, 13);
- Place and hook up exhauster and exhauster system;
- Remove unused flammable gas cabinet (per Tank Farm Radcon Control Manual, HNF 5183);
- Place Field Instrument Electrical Skid and connect associated cabling;
- Install stilling well for Enraf Liquid Indicating Transmitter (ALARACT 1, 13);
- Install camera monitoring system (ALARACT 1,13);
- Remove Liquid Observation Well if necessary (ALARACT 1, 13).

Water Dilution and Waste Transfer:

- Water shall be sprayed onto the surface of the in-tank salt cake to dissolve the cake;
- A Remote Water Lance (RWL) may be used at pressures not to exceed 37,000 psig at a flow rate of 6 to 15 gallons per minute. The RWL will be operated with the nozzle submerged.
- A High Pressure Mixer (HPW) may be used at pressures not to exceed 37,000 psig at at flow rate of 4 to 18 gallons per minute.
- The new progressive cavity pump and HIHTL shall be used to transfer waste from tank

241-S-102 to the DST (ALARACT 11);
- Operation and maintenance of the portable exhauster(s).

Waste Transfer (S102):

- The new progressive cavity pump and HIHTL shall be used to transfer waste from tank 241-S-102 to the DST (ALARACT 11).

The completion of tank retrieval may also be aided by a Remote Water Lance (RWL) that is a high pressure water device, or hydro laser. Alternatively, a High Pressure Mixer (HPM) may be used in the same capacity. The systems will consist of both ex-tank and in-tank components. The ex-tank components will be comprised of; high pressure water systems, operating controls, cables and hoses. The in-tank components will be comprised of; umbilical, in-tank vehicle; high pressure nozzle(s), or the high pressure mixer.

The high pressure water system will provide the water at the desired pressure, not to exceed 37,000 psig. A conditioning system will be used to filter the raw water entering the skid to ensure that no abrasive materials are entrained in the water. The water volumetric flow rate will be on the order of 4 to 18 gpm for the HPM and the 6 to 15 gpm for the RWL. The operating controls will be located in a control trailer outside of the tank farm fence. The cables and hoses will connect hydraulically powered in-tank vehicles with ex-tank controls and water skid via the umbilical. The HPM consists of an adjustable height pipe with tow pairs of opposed, high pressure, low volume water orifices located on the bottom of the pipe. The mixer is capable of being rotated 360 degrees and has an adjustable height range of approximately 7 feet. The positioning of the mixer is performed remotely using a hydraulic system. Additionally, the mixer has a single orifice on the bottom of the unit that can be used as an operational or installation aid. The in-tank vebicle will house one to four high pressure water nozzles. The RWL will be operated with the nozzle and submerged to avoid aerosols in the tank. A rupture disc will be rised to prevent reaching pressures above 37,000 pig.

The exhauster will be operated occasionally during periods of non-retrieval in support of tank preparation activities and to aid in evaporation of residual flush water or sluicing liquids that remains in the tank.

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

Am - 241	2.53E-02	Sr - 90	2.51E-01

4) ALARACTs 1, 4, 5, 6, 11, 12, 13, 14, 15, and 16 shall be used. [WAC 246-247-040(5), -060(5)]

5) Containments shall be used in removing the hydrogen probe, the motor controlled spray devices, and the automatic spray indexing devices from the tank [WAC 246-247-040(5), -060(5)].

6) Radiological monitoring of all pit openings and pit work shall be performed and documented to ensure that maximum pit surface/pit contents contamination levels remain on average below those assumed in NOC release estimates for these activities:

1.0 E+05 dpm/100 sq. cm. Beta/Gamma
20 dpm/100 sq. cm. Alpha

No more than 10 pit openings shall occur. These shall be tracked and documented. The total surface area of pits opened plus the surface area of pit contents shall not exceed 5,000 square feet.

[WAC 246-247-040(5), -060(5)]

7) Radiological monitoring of all soil excavation work shall be performed and documented to ensure releases remain within releases estimated in the NOC. Soil volume excavated shall be tracked and documented and shall not exceed 1,000 cubic feet. Soil shall be monitored per ALARACT 5. Contamination levels for excavation shall remain on average equal to or less than:

8.0 E -04 dpm/100 sq. cm. Beta
2.0 E+02 dpm/100 sq. cm. Alpha

[WAC 246-247-040(5), -060(5)]

8) The total diffuse and fugitive abated emission limit for this Notice of Construction is limited to 4.32E-04 mrem/year to the Maximally Exposed Individual. The total unabated diffuse and fugitive emission limit for this Notice of Construction is limited to 4.32E-04 mrem/year to the Maximally Exposed Individual [WAC 246-247-040(5), -060(5)].

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 1.66E-05 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 1.66E-05 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.

   1. Upon identification of the need of additional decontamination activities in the individuals would be escorted to the nearest decontamination trailer.

   2. As appropriate, contaminated clothing, coverings, and/or articles would be removed and packaged for laboratory analysis and/or disposition, in accordance with As Low As Reasonably Achievable Control Technology (ALARACT) 4 and 12, Tank Farm ALARACT Demonstration for Packaging and Transportation of Waste and Tank Farm ALARACT Demonstration for Packaging and Transportation of Equipment and Vehicles, RPP HNF-4327.

   3. Personnel decontamination processes might include various methods or a combination of cleaning agents and /or chemicals. For example: soap and water, pre-moistened towelettes, removal of hair, abrasive soaps for toughened skin surfaces (e.g., hands and feet), and chelating agents.

   4. Spent decontamination solutions would be transferred from the holding tanks and/or bladder and containerized (e.g., packaged in absorbents in drums or placed in drums or carboys) and transported to existing facilities on the Hanford Site for disposal.

   5. Periodic maintenance inspection of the decontamination trailers will be performed without the use of containment or portable exhausters.

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

Pu - 239	1.40E-01	Sr - 90	1.40E-01

4) The proposed PCM for the diffuse and fugitive emissions shall consist of the radiological surveys during and at the completion of personnel decontamination operations (e.g., smears and direct readings on the interior of the decontamination trailers). The methods of PCM are not a direct measurement of effluent emissions. The methods are intended to demonstrate compliance by showing that the levels on the interior of the trailers, during a personnel decontamination operation, are controlled; and the levels on the interior of the trailers after a decontamination operation shall keep the trailers from being posted a radiological buffer area (RBA) for contamination control and/or a contamination area (CA). This shall make the actual emissions below the estimated emissions, which shall be based and calculated from the same contamination levels.

5) When Portable Temporary Radioactive Air Emission Units are used they shall follow all the requirements of the latest revision of the Radioactive Air Emissions Notice of Construction for Portable Temporary Radioactive Air Emission Units (DOE/RL-96-75).

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 1.20E-03 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 1.20E-01 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.

244-S DCRT (296-S-22 STACK)

Passive Ventilation Breather Filter System Installation:

A passive ventilation breather filter system will be installed on an existing above-grade riser on the primary receiver tank in accordance with ALARACT Demonstration 1 and 16. The primary tank breather filter will serve as the static vent for the instrument air injected (at a maximum of 9 cubic feet per hour) into the receiver tank through a set of three weight-factor dip tubes, which mixes with, and dilutes, any flammable gases. The primary tank breather filter will allow flammable gases to escape while collecting any airborne radioactive particulates.

A passive ventilation breather filter system will be installed above-grade on an existing riser or the existing annulus inlet filter riser in accordance with ALARACT 1 and 16. The annulus breather filter will provide for the exchange of ambient air with the annulus tank during atmospheric pressure fluctuations and will allow vapors to escape.

The breather filter system will, at a minimum, consist of an isolation valve (normally open during operation), filter housing, HEPA filter, and loop seal assembly. The isolation valve will isolate the HEPA filter from the tank to facilitate testing of the filter, and to isolate the system until the filter or housing can be replaced.

HEPA Filter Bank Isolation and Removal:

The isolation and removal of the HEPA filter bank located in the 244-S DCRT filter pit will require the deactivation of the HEPA filter bank instrumentation and alarms, the removal and disposal of the HEPA filter bank, and the installation of the filter pit duct jumper assembly, in accordance with ALARACT Demonstrations 6, 14, and 16. The 296-S-22 exhauster is equipped with a HEPA filter bank inside the filter pit. The HEPA filter bank is attached to three nozzles in the filter pit: one nozzle to the catch tank, one nozzle to the annulus, and one nozzle to the ventilation exhaust ductwork. The HEPA filter bank will be disconnected from the nozzles and removed for disposal. A filter pit duct jumper assembly (4" schedule 40 pipe) will be connected to the catch tank nozzle and ventilation exhaust ductwork nozzle to provide the ventilation path to the newly installed passive breather filters. The third nozzle to the annulus will be closed in the filter pit. The filter pit duct jumper assembly will be fabricated in accordance with ASME B31.3 and tested in accordance with ASME AG-1.

Electrical Equipment and Instrumentation Isolation:

The isolation of electrical equipment and instrumentation on the 244-S DCRT will require the disconnection of various power supplies (e.g., exhaust fan, motor operated valves, heat trace, sampler pumps, continuous air monitor, and alarms) and isolation of instrumentation (e.g., HEPA filter bank pressure indicators) that support operation and monitoring of the stack ventilation system in accordance with ALARACT 16. Disconnection is the physical disconnection and removal of wires from the power source. Pit entries are not required to disconnect power or isolate instrumentation.

296-S-22 Stack Isolation:

The 296-S-22 stack will be isolated via mechanical isolations. Blank flanges will be installed on the duct end and on the suction side of the exhaust fan. A closure cap will be installed on top of the exhaust stack. The exhaust

stack drain line will be cut and capped above grade. This work will be done in accordance with ALARACT Demonstration 16.

244-TX DCRT (296-T-18 STACK)

Passive Ventilation Breather Filter Installation:

A passive ventilation breather filter system will be installed on an existing above-grade riser on the primary receiver tank in accordance with ALARACT Demonstration 1 and 16. The primary tank breather filter will serve as the static vent for the instrument air injected (at a maximum of 9 cubic feet per hour) into the receiver tank through a set of three weight-factor dip tubes, which mixes with, and dilutes, any flammable gases. The primary tank breather filter will allow flammable gases to escape while collecting any airborne radioactive particulates.

A passive ventilation breather filter system will be installed above-grade on an existing riser or the existing annulus inlet filter riser in accordance with ALARACT 1 and 16. The annulus breather filter will provide for the exchange of ambient air with the annulus tank during atmospheric pressure fluctuations and will collect potential airborne radioactive particulates from the annulus space while allowing vapors to escape.

The breather filter system will, at a minimum, consist of an isolation valve (normally open during operation), filter housing, HEPA filter, and loop seal assembly. The isolation valve will isolate the HEPA filter from the tank to facilitate testing of the filter, and to isolate the system until the filter or housing can be replaced.

HEPA Filter Bank Isolation and Removal:

Removal of the HEPA filter bank in the 244-TX DCRT filter pit is not required. The HEPA filter bank will be isolated via closure of manual valves and the deactivation of motor-controlled valves. Above-grade duct/pipe will be capped. The associated HEPA filter bank instrumentation and alarms will be deactivated. This work will be done in accordance with ALARACT 16.

Electrical Equipment and Instrumentation Isolation:

The isolation of electrical equipment and instrumentation on the 244-TX DCRT will require the disconnection of various power supplies (e.g., exhaust fan, motor operated valves, heat trace, sampler pumps, continuous air monitor, and alarms) and isolation of instrumentation (e.g., HEPA filter bank pressure indicators) that support operation and monitoring of the stack ventilation system. Disconnection is the physical disconnection and removal of wires from the power source in accordance with ALARACT Demonstration 16. Pit entries are not required to disconnect power or isolate instrumentation.

296-T-18 Stack Isolation:

The 296-T-18 stack will be isolated via mechanical isolations. A blank flange will be installed at the suction side of the exhaust fan or at another suitable location near the filter pit outlet to the exhaust stack. A closure cap will be installed on top of the exhaust stack. The exhaust stack drain line will be cut and capped above grade. This work will be done in accordance with ALARACT Demonstration 16.

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

Alpha - 0	1.80E-06	Beta - 0	8.80E-02

4) The Annual Possession Quantity shall be tracked on a WDOH approved log.

5) The emission limit for all diffuse and fugitive emissions shall not exceed 1.0E-06 mrem/year.

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 1.72E-02 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 2.18E+00 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 activities listed below are approved for the C-200 Series Waste Retrieval effort:

Retrieval Activities (Stack):

i. Operation of the new portable exhauster and ventilation system.
ii. Retrieve wastes from C-201, C-202, C-203, and C-204 using the AMS to vacuum wastes to the central vessel skid.
iii. Pump waste from central vessel skid to the double shell tank system using OGT lines

Diffuse and Fugitive:

a. Proposed Actions for Tanks C-201 through C-204:

i. Remove the thermocouple trees from the top of the pump pit (no pit access is necessary) using ALARACTs 13, 14, and 15.
ii. Access pump pit to remove pump in C-204 (no removal of sluice eductors will be performed)(using ALARACTs 1, 4, 6, 13, 14 and 15) and gerneral access may be needed for the other pump pits and have been calculated in a pit access potential-to-emit.
iii. Remove the breather filters and reinstall with an inlet filter on each tank.
iv. Lift the ventilation hatchway cover (condenser pit hatchway) which is 1/4-inch steel thinkness and may be potentially attached to an old fiberglass filter assembly (using ALARACTs 1, 4, 6, 13, 14 and 15 as guidance for contamination level and controls) which will be withdrawn in a large sleeve (fully enclosed) from the pit, lifted, pig-tailed, and sealed. The filter will not be exposed to the environment while lifting. The filter will then be placed in a mixed waste disposal box and will not be left out in the environment. Smearable contamination levels on the outside of the bag will not exceed 50,000 dpm beta/gamma and 20 dpm alpha.
v. Remove condenser pit filter assembly and replace tank breather filter with a Y-duct assembly (ALARACTs 1, 4, 12, 15, and 16)
vi. Remove liquid level reels and thermocouple trees, 1 each per tank (ALARACTs 1, 4, 6, 12, 13, 14, and 15)
vii. Remove sluice eductor pump from Tank C-204, if necessary (ALARACTs 1, 4, 6, 12, 13, 14, and 15)

b. Tank Equipment Installations:

i. AMS with connected hydraulic power pack, one per tank (ALARACTs 1, 4, 6, 12, 13, and 14)
ii. Install ventilation inlet filter assembly to existing inlet filter on each tank. (using ALARACTs 13 and 16).
iii. Remove the ventilation hatchway (condenser pit) cover with the presumed attached fiberglass filter using a crane and lifting hook and placed immediately into a mixed waste disposal box. ALARACT 13 controls will be used for contamination guidance and controls (less than 50,000 dpm beta/gamma and 20 dpm alpha).
iv. The asbestos gasket for the ventilation hatchway (condenser pit) if present will be removed using fixative while a bag is in place over the ventilation hatchway (condenser pit). The plastic will be slowly removed to minimize hatchway access while concurrently a new ventilation hatchway cover (condenser pit) will be slid onto the pit access next to the plastic and rebolted to the pit. ALARACT 13 controls will be used for contamination guidance and controls (less than 50,000 dpm beta/gamma and 20 dpm alpha). The ventilation hatchway will have

a connection so that the 296-P-48 exhauster will be connected when active retrieval occurs.

v. A single set of return and suction lines shall be placed at each tank to the central skid vacuum vessel during retrieval. After each tank is retrieved a small amount of water will be flushed through the line and checked for smearable contamination and dose readings by a Health Physics Technician to ensure minimal contamination is in place in the line. A valve will be closed at the tank surface manifold box, the end of each hose wrapped in plastic, and then moved to the next tank for retrieval. Contamination remaining in the lines when moved has been accounted for by inlcuding all of the current tank contents in the total retrieval potential-to-emit calculations.

vi. Ventilation exhaust ducting, one per tank (ALARACTs 1, 4, 12, and 16)

vi. Closed circuit TV s, one per tank (ALARACT 1, 4, 12, 13, and 16)

vii. Master camera control system skid, and connects to in-tank cameras (ALARACT 6, 13, and 16)

viii. Central vessel skid, connect to individual AMS units, connect to the double shell tank via OGT lines (using hand digging or Guzzler, latest approved revision) (ALARACT 1, 4, 5, 6, 13, and 14)

ix. Pump skid with connected hydraulic power pack, and OGT lines (ALARACT 1, 4, 6, 12, 13, and 14)

x. Vacuum skid with connected hydraulic power pack (ALARACT 1, 4, 6, 12, 13, and 14)

xi. Portable exhauster skid, connect via HVAC ducting to individual tank ventilation exhaust ducts (ALARACTs 1, 4, 6, 12, 13, and 14)

xii. Electrical cable and electric supply to hydraulic power packs, vessel skid, pump skid, vacuum skid, portable exhauster skid, inlet filter, in-tank cameras, and generator, control instrumentation (ALARACT 5)

xiii. Air compressor and associated air supply lines to AMS, vessel skid, vacuum skid (ALARACT 5)

xiv. Instrumentation control room, water distribution sled, instrument electrical skid, diesel generator

c. Remove tank equipment installed under this NOC for maintenance, repair, disposal, or re-use for future tank retrievals. (ALARACTs 1, 4, 6, 12, 13, 14, 15 and 16)

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

Ac - 227	4.84E-06	Am - 241	4.17E-01	Am - 243	4.67E-06
Ba - 137 m	1.41E+00	C - 14	3.80E-05	Cd - 113 m	1.36E-03
Cm - 242	3.03E-04	Cm - 243	1.45E-05	Cm - 244	6.39E-06
Co - 60	1.59E-05	Cs - 134	1.41E-08	Cs - 137	1.49E+00
Eu - 152	7.67E-03	Eu - 154	3.62E-03	Eu - 155	2.69E-01
H - 3	1.86E-05	I - 129	5.19E-07	Nb - 93 m	6.53E-04
Ni - 59	1.42E-02	Ni - 63	1.33E+00	Np - 237	8.11E-07
Pa - 231	1.64E-07	Pu - 238	1.29E-02	Pu - 239	5.76E-01
Pu - 240	9.49E-02	Pu - 241	7.03E-01	Pu - 242	4.85E-06
Ra - 226	1.23E-06	Ra - 228	3.37E-12	Ru - 106	2.58E-09
Sb - 125	2.67E-05	Se - 79	1.67E-05	Sm - 151	5.91E-01
Sn - 126	1.06E-04	Sr - 90	3.50E+01	Tc - 99	2.67E-04
Th - 229	1.26E-09	Th - 232	9.06E-15	U - 232	1.98E-10

U - 233	7.54E-12	U - 234	7.15E-06	U - 235	3.15E-07
U - 236	8.27E-08	U - 238	7.20E-06	Y - 90	7.83E+00
Zr - 93	7.35E-04				

4) A health physics technician shall be present during all condenser pit filter removal activities. Any contamination levels or dose rate readings exceeding the radiation work permit limits shall be notified to WDOH.

5) A work place air sampler shall be in operation during all condenser pit filter removal activities. The air sampler shall be placed in the downwind direction.

6) ALARACTs 1, 4, 5, 6, 12, 13, 14, 15, and 16 shall be used.[WAC 246-247-040(5)].

7) One liquid level reel per tank, one thermocouple assembly per tank, one condenser pit filter per tank, and a sluice pump in 241-C-204, may be removed. If the total adherent waste volume basis used in the supporting calculations for equipment removal is not exceeded, other equipment removals may be performed as noted in Condition 3, Item c. [WAC 246-247-040(5)].

8) Prior to moving the HIHTL the lines shall be flushed and checked by a health physics technician to ensure minimal contamination. The valve on the tank manifold box shall be closed and the end of the line shall be wrapped in plastic, then removed from the manifold. The HIHTL will then be hooked up to the next tank.

9) Radiological monitoring of all pit openings and pit work shall be performed and documented to ensure that maximum pit surface/pit contents contamination levels remain on average below those assumed in NOC release estimates for these activities:

(a) 241-C-200 Series Tanks: 1 E+06 dpm Beta/Gamma, 1400 dpm alpha
(b) Tank 241-AY-101: 8.5 E+05 dpm Beta/Gamma, 20 dpm alpha

No more than 16 C-200 series pit openings shall occur, and no more than four AY-101 pit openings shall occur. These shall be tracked and documented. The total surface area of C-200 Series pits opened plus the surface area of pit contents shall not exceed that used in the NOC support calculations. The total surface area of double-shell tank pits opened plus the surface area of pit contents shall not exceed that used in the NOC support calculations [WAC 246-247-040(5)].

10) Radiological monitoring of all soil excavation work shall be performed and documented to ensure releases remain within releases estimated in the NOC. Soil volume excavated shall be tracked and documented and shall not exceed 8,500 cubic feet. Soil shall be monitored per ALARACT 5. Contamination levels for excavation shall remain on average equal to or less than 1 E+06 dpm beta and 20 dpm alpha [WAC 246-247-040(5)].

11) Soil excavation performed using the Guzzler shall conform to approval conditions and limitations of the latest approved revision to the Guzzler NOC [WAC 246-247-040(5)].

12) The Annual Possession Quantity shall be tracked on a WDOH approved log.

13) The condenser pit filter shall be withdrawn into a fully enclosed plastic sleeving. Once removed, the sleeve enclosing the filter shall be pigtailed, sealed, and disposed of within a mixed waste disposal box. The filter shall not be exposed to the environment. The condenser pit filter removal activities shall use ALARACTS 1, 4, 6, 13, 14, and 15 as guidance for contamination levels and controls.

14) The total diffuse and fugitive abated emission limit for this Notice of Construction is limited to 1.61E-02 mrem/year to the Maximally Exposed Individual, comprised of 6.76E-03 mrem/year offsite and 9.37E-03 mrem/year onsite. The total unabated diffuse and fugitive emission limit for this Notice of Construction is limited to 1.61E-02 mrem/yr to the Maximally Exposed Individual, comprised of 6.76E-03 mrem/year offsite and 9.37E-03 mrem/year onsite (WAC 246-247-040(5)).

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 5.00E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

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 approved activities are limited to:

The characterization and stabilization (as defined in other conditions) of emission units within 200 West and 200 East areas, and 212 N, 212 P, and 212 R. (WAC 246-247-040(5))

3) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 5.00E-02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Alpha - 0	3.50E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

License PTE limit bounds 3.5 Ci/yr 241Am and release fraction of 0.001. Any radionuclide on the chart of the nuclides could be encountered during characterization and stabilization operations. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate form. A small contribution from the gaseous radionuclides may be encountered. Although any radionuclide could be present, for conservatism all beta/gamma is assumed to be Cs-137 and all alpha is assumed to be Am-241 for dose calculation estimates. Other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta-gamma constituents.

B/G - 0	1.40E-02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

License PTE limit bounds 14.0 Ci/yr 137Cs and release fraction of 0.001. Any radionuclide on the chart of the nuclides could be encountered during characterization and stabilization operations. The radionuclides specifically listed in the NOC application were chosen to conservatively represent all radionuclide emissions that may occur in particulate form. A small contribution from the gaseous radionuclides may be encountered. Although any radionuclide could be present, for conservatism all beta/gamma is assumed to be Cs-137 and all alpha is assumed to be Am-241 for dose calculation estimates. Other radionuclides may be encountered and are approved so long as they are conservatively represented by the total alpha and total beta-gamma constituents.

The potential release rates described in this Condition were used to determine control technologies and monitoring requirements for this approval. DOE must notify the Department of a "modification" to the emission unit, as defined in WAC 246-247-030(16). DOE must notify the Department of any changes to a NESHAP major emission unit when a specific isotope is newly identified as contributing greater than 10% of the potential TEDE to the MEI, or greater than 25% of the TEDE to the MEI after controls. (WAC 246-247-110(9)) DOE must notify the Department of any changes to potential release rates as required by state or federal regulations including changes that would constitute a significant modification to the Air Operating Permit under WAC 173-401-725(4). Notice will be provided according to the particular regulation under which notification is required. If the applicable regulation(s) does not address manner and type of notification, DOE will provide the Department with advance written notice by letter or electronic mail but not solely by copies of documents.

4) The basis for selection of radioactive air controls/abatements for each emission unit shall be documented in sufficient detail to demonstrate compliance. DOH may audit the controls and determination of containment risk under this NOC, and independently judge the adequacy of controls, assigned risk and risk components for any activity. (WAC 246-247-040(5)) and WAC 246-247-080 (1, 8, 10))

5) Soil Excavation Associated with Characterization/Stabilization: Soil may be excavated to support characterization/stabilization of central plateau emission units. An initial survey shall be performed of the area to be excavated. Surveys shall be performed throughout the excavation to assure that environmental protection is maintained. Once the excavation begins, water or other fixative of equal or better effectiveness shall be used, as necessary, to prevent the spread of dust. To the extent practicable using hand held instrument field survey techniques, the clean soil shall be separated from the soil identified as contaminated. The contaminated soil shall have a fixative applied or shall be covered by plastic at the end of the shift, and as necessary, to stabilize the contaminated soil.

Radiological Controls for Soil Excavation:

A. Health Physics coverage shall be provided as specified in the radiological work permit. DOH does not approve work permits. DOH may independently judge the adequacy of the Health Physics coverage. Licensee shall maintain records of Health Physics coverage and survey results.
B. Beta-gamma surveys of the ground surface are required prior to excavation in Contamination Areas (CA's), High Contamination Areas (HCA's), Soil Contamination Areas (SCA's), and Underground Radioactive Material Areas (URMA's). If in an area of known or suspected alpha contamination, or if beta/gamma contamination is detected, alpha surveys shall be performed as well.
C. Suppressants such as water, fixatives, covers, or windscreens shall be used as necessary, including at the end of each shift or when sustained or predicted winds are >20 mph.
D. Excavation of radioactive material shall not commence if sustained winds are predicted to exceed 20 mph during the work shift.
E. Excavation of radioactive material shall cease if sustained winds exceed 20 mph. A local wind-speed measurement device may be utilized in lieu of Hanford Meteorological Station readings, provided the reading is taken in an unobstructed location that is representative of the work area. Use of a local device and the measured wind-speed readings taken from it must be documented, and the documentation retained.
F. If the contamination for the general area is greater than 2000 dpm/100 sq.cm. alpha or greater than 100,000 dpm/100 cm.sq. beta-gamma, place in a safe and stable condition and stop work, notify DOH, and implement the controls listed below. Once notifications have been made and the following controls implemented, excavation may continue:

a. Soil shall be wetted prior to excavation if not already damp.
b. General area workplace air monitoring shall be performed during excavation activities.
c. Excavation and contaminated soil piles shall be covered with plastic, or fixative shall be applied, at the end of each shift or as necessary to prevent the spread of airborne contamination.

G. Contaminated soil containing >100,000 dpm/100 sq.cm. beta-gamma or >2000 dpm/100 sq.cm. alpha shall be containerized or covered with clean fill if it is to be left for greater than 48 hours.
H. If soil contamination exceeds 20 mrad/hour (open window reading), work shall be stopped and placed in a safe and stable condition, and adequacy of controls will be reassessed. DOH shall be notified (e-mail notification is required). Work may continue when approved by DOH (e-mail concurrence is required).
I. If hot specks are detected during the radiological surveys, the specks shall be removed and contained before the activity is allowed to continue unless located in the bottom of the trench after excavation has been completed. Specks found in the bottom of the completed trench may be covered with clean fill. A hot speck is defined as a very small amount (i.e. less than or equal to 100 square centimeters) of contamination.

Monitoring for Soil Excavation:

J. At a minimum, pre-job and post-job surveys shall be made.
K. Radiological monitoring shall be in accordance with approved governing procedures. DOH may independently judge the adequacy of the monitoring.

Records for Soil Excavation:

L. Work instructions (written).
M. Radiological work permit.
N. Radiological survey report(s).
(WAC 246-247-040(5))

6) DOH reserves the right to require additional monitoring on a case-by-case basis (WAC 246-247-040(5)).

7) Monitoring: In addition to the monitoring required on page one of this license, total alpha, total beta/gamma shall be monitored periodically, the period to be consistent with the duration of the activity. The bases for the monitoring method and the period shall be documented. Monitoring records shall explicitly demonstrate compliance to the limit on TEDE to the MEI set down in this license. Monitoring may include air monitoring, or CAM records.

For soil excavation, compliance may be demonstrated via calculation based on a release fraction of 0.001, appropriate Hanford dose conversion factors, soil survey records, excavated volume, and estimated Ci content per