LB # 4454

AIR 15-805
NOC 939

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

August 5, 2015

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

Re: Approval of Radioactive Air Emissions License (RAEL), Emission Unit (EU) Specific for EU 498, Notice of Construction (NOC) 939, to be Incorporated in the Next Revision of the Hanford Site RAEL (FF-01)

Mr. Smith:

Pursuant to Chapter 246-247 of the Washington Administrative Code (WAC), your EU specific license was approved on July 29, 2015 (per your email acceptance) for:

296-P-47 Operation - Phase II Waste Retrieval and Closure (Replaces NOC 825) (EU 498, NOC 939)

Although the 28-day draft contained only one NOC associated with this EU, the final (enclosed) includes both approved NOCs (NOC 853 and 939) for EU 498.

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

If you have any questions regarding this approval, please contact Mr. Ernest McCormick at ernest.mccormick@doh.wa.gov or, by phone, at (509) 946-0624.

Sincerely,

John Martell, Manager
Radioactive Air Emissions Section

Enclosure: NOC 939 for EU 498: 296-P-44 Operation - Phase II Waste Retrieval and Closure (Replaces NOC 825)

cc: (see next page)

cc: Ruth Allen, WRPS
Matthew Barnett, PNNL
Shawna Berven, WDOH
Lucinda Borneman, WRPS
Lee Bostic, BNI
Dennis Bowser, USDOE-ORP
Cliff Clark, USDOE-RL
Jack Donnelly, WRPS
Rick Engelmann, CHPRC
Dennis Faulk, EPA
Eric Faust, USDOE-RL
Gary Fritz, MSA
Phil Gent, Ecology
Robert Haggard, BNI
Jessica Joyner, WRPS
Reed Kaldor, MSA
Paul Karschnia, CHPRC
Ed MacAlister, USDOE-RL
Ernest McCormick, WDOH
Valarie Peery, Ecology
Maria Skorska, Ecology
Bryan Trimberger, USDOE-ORP
Randy Utley, WDOH
Jeff Voogd, WRPS
Joan Woolard, MSA
Davis Zhen, EPA
Environmental Portal
RAES Tracking: Follow up to LB# 4441; RAES 850 and 15-53; NOC 853 and 939; EU 498

Emission Unit ID: 498

200 W-296P047-001

296-P-47

This is a MAJOR, ACTIVELY ventilated emission unit.

Tank Farms

Emission Unit Information

Stack Height: 40.00 ft. 12.19 m. Stack Diameter 0.50 ft. 0.15 m.

Average Stack Effluent Temperature: 90 degrees Fahrenheit. 32 degrees Celsius.

Average Stack ExhaustVelocity: 80.68 ft/second. 24.59 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
	Heater	1	
	Demister	1	
	Prefilter	1	
	HEPA Filter Stages/Banks	2	In series, one filter per stage/bank
	Fan	1	1000 cfm

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.	Sr-90, Cs-137, Am-241, Pu-239/240, Total Alpha, Total Beta	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 emission unit, also known as POR08, is a skid/mobile type portable exhauster used to support tank farm operations, such as but not limited to, waste characterization, waste retrieval, decommissioning, deactivation, maintenance, and construction and operation support activities. The emission unit is a portable exhauster that operates intermittently.

This Emission Unit has 2 active Notice(s) of Construction.

Project Title	Approval #	Date Approved	NOC_ID
244-CR Vault Isolation and Interim Stabilization (Replaced NOC ID 784)	AIR 12-332	2/23/2012	853

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 Filter Vacuume Truck excavations in contamination areas will be performed in accordance with the most current version of sitewide DOE Notice of construction application, Guzzler Excavation and Backfilling Activities in Support of the 200 East and West Area Tank Farm Complex (See DOE Letter 09-ESQ-542 Dated November 30, 2009) or the latest WDOH approved Site Wide Guzzler DOE application (See Doe Letter 99-SID-02, Dated February 1, 1999).

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	9.90E-01	Am - 241	5.00E+01	Am - 243	7.83E-03
Ba - 137 m	2.98E+04	C - 14	1.71E-01	Cd - 113 m	1.18E+01
Cm - 242	9.68E-01	Cm - 243	1.15E-01	Cm - 244	2.63E+00
Co - 60	8.23E+01	Cs - 134	1.06E-01	Cs - 137	3.15E+04
Eu - 152	2.73E+00	Eu - 154	3.56E+02	Eu - 155	3.22E+02
H - 3	2.20E+00	I - 129	4.71E-03	Nb - 93 m	6.88E+00
Ni - 59	4.41E+00	Ni - 63	4.33E+02	Np - 237	1.13E+01
Pa - 231	7.67E-04	Pu - 238	5.03E+00	Pu - 239	4.97E+02
Pu - 240	8.95E+01				

		Pu - 241	6.26E+02	Pu - 242	7.82E+02
Ra - 226	3.41E-04	Ra - 228	1.85E+00	Ru - 106	1.57E-02
Sb - 125	4.41E+01	Se - 79	1.64E+00	Sm - 151	6.06E+03
Sn - 126	2.59E+00	Sr - 90	3.04E+05	Tc - 99	2.02E+01
Th - 229	1.63E-02	Th - 232	3.10E+00	U - 232	3.97E-01
U - 233	1.52E+00	U - 234	9.99E-01	U - 235	4.20E-02
U - 236	2.53E-02	U - 238	3.58E-01	Y - 90	3.04E+05
Zr - 93	6.00E+00				

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 1.31E+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 1.61E+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 operation of the waste retrieval system(s) for the removal of radioactive wastes from tanks at the Hanford Site.

SALTCAKE DISSOLUTION WASTE RETRIEVAL SYSTEM

The saltcake dissolution waste retrieval system may be used to retrieve soluble saltcake waste. This method retrieves the soluble portion of the waste only, resulting in very few of the solids being pumped from the tank. The saltcake dissolution waste retrieval system deployed is for water, chemical agent, or catalyst liquid to be added to the tank using a variety of spray nozzles or "sprinklers". The approach is to sprinkle the waste surface with water, chemical agent, or catalyst liquid. The added water, chemical agent, or catalyst liquid must stay in contact with the saltcake for a long enough period of time for the brine to become saturated. Once the brine is saturated, it is pumped to a receiver tank, staging tank, storage double shell tank (DST), or other staging/storage vessel associated with the supplemental treatment, packaging, or disposal. Salt solution will be removed using the existing saltwell pump or other pump placed into the tank.

A tank not equipped with a saltwell pump, a transfer pump (progressive cavity, vertical turbine) can be installed and operated.

Remotely directable water distribution devices will be located in risers spaced as far apart as practical. A combination of spraying waster, chemical agent, or catalyst liquid to dissolve the saltcake can be used in conjunction with directing a flow of water or recirculating water at the waste to move it to the pump suction to allow the pumping of waste from the tank. Recirculated waste from the pump may be sent back to the tank as an alternative to using water to direct dissolution waste to the pump suction.

MODIFIED SLUICING WASTE RETRIEVAL SYSTEM

Modified sluicing can be used for some waste retrieval. Modified sluicing is the introduction of liquid at low to moderate pressures and volumes into the waste. The liquid dissolves and breaks apart solid materials and suspends them in the waste slurry. A transfer pump installed in the tank provides the motive force to transfer the liquid slurry to a receiver tank.

Modified sluicing introduces sluice liquid in a controlled fashion using multiple sluicing nozzles at varying pressures and flows, then pumps out the resultant waste slurry. This maintains minimal liquid inventories within the tank at all times. The liquids that could be used in modified sluicing include water, recirculated supernatant/water from the receiving DST, recirculated supernatant/water, chemical agent, or catalyst liquid.

VACUUM WASTE RETRIEVAL SYSTEM

A vacuum waste retrieval system can be used for waste retrieval activities. The vacuum waste retrieval system is introduced into the tanks by means of an articulating mast system (AMS). The AMS has a horizontal reach and rotational capabilities of 360 degrees. The AMS has a retracted position and can be extended vertically. Air is mixed at the suction end of the AMS enabling the required vertical lift for the waste to a topside receiver tank, batch vessel, or a staging single shell tank (SST), storage DST, or other staging/storage vessels associated with

supplemental treatment, packaging, or disposal.

The AMS will be deployed through and attached to standard riser flanges that are available on the tanks. Cameras can also be installed in other risers for in-tank viewing and control of the AMS.

For the 200-series tanks in the 241-C, 241-U, 241-B, and 241-T Tank Farms, a vacuum retrieval process tank, staging tank, staging SST, storage DST, or other staging/storage vessel will be deployed. The receiver tank will receive waste in batches from whichever tank is connected into the vacuum retrieval system. The vacuum pressure used to draw up the waste from the tank to the receiver tank is relieved back into the tank being retrieved.

MOBILE RETRIEVAL SYSTEM

A Mobile Retrieval System (MRS) can be used to retrieve waste from some tanks. The MRS consists of two in-tank systems. The first is a robotic crawler inserted through one riser the second is an AMS inserted through a second riser. The AMS retrieves the sludge from the tank using a vacuum with assisting pneumatic conveyance. The AMS vacuum tube has a horizontal reach and can be extended to the bottom of the tank. The arm rotates 360 degrees. The vacuum will be directed through the AMS in the tank to the end effector, which is in contact with the waste. The pneumatic conveyance-assisted vacuum retrieval system will draw the waste up through the vacuum to the waste vessel in the vessel skid in batches. The AMS is then valved out while the waste vessel is emptied and pumped out through the over ground transfer lines to a DST, a staging SST, or other treatment/disposal options. When the waste vessel is nearly empty, the transfer line will be valved out and the AMS will be valved back in and another batch of waste will be removed from the tank. This process will be repeated until waste near the center of the tank is removed. The robotic crawler will be remotely controlled to move and/or wash waste toward the center of the tank.

MOBILE ARM RETRIEVAL SYSTEM

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

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

The containment box which encloses the MARS will be ventilated by two parallel installed radial filters. The purpose of these filters is to minimize contamination from migrating up from the tank into the containment box via the open space on the large riser during retrieval operations. Minimization of contamination inside the containment box is desired should entry into the box ever be required for repairs. Inflow through these filters during retrieval is estimated to reach up to 60 cubic feet per minute (cfm). A valve will be installed between the filters and the containment box so filters can be isolated from the box. However, because the location of the valve will be approximately 12 feet above ground and difficult to reach without properly installed and inspected scaffolding, the valve will be left open at all times until retrieval of the tank is complete. Once retrieval is complete the valve will be closed.

REMOTE WATER LANCE

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 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 systems 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 from 6 to 15 gpm for the RWL. The operating controls will be located in a control trailer outside of the farm fence. The cables and hoses will connect hydraulically powered in-tank vehicle with the ex-tank controls and water skid via the umbilical. The HPM consists of an adjustable height pipe with two 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 vehicle will house one to four high pressure water nozzles. The RWL will be operated with the nozzle submerged to avoid aerosols in the tank. A rupture disc will be used to prevent reaching pressures above 37,000 psig.

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

Ac - 227 Contributes less than 0.1 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 2.30E+04 Contributes GREATER than 0.1 mrem/yr to the MEI and represents greater than 10% of the unabated PTE	Am - 243 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 2.10E+06 Contributes GREATER than 0.1 mrem/yr to the MEI and represents greater than 10% of the unabated PTE
Eu - 152 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 5.30E+03 Contributes GREATER than 0.1 mrem/yr to the MEI and represents greater than 10% of the unabated PTE
Pu - 240 1.20E+02 Contributes GREATER than 0.1 mrem/yr to the MEI and represents greater than 10% of the unabated PTE	Pu - 241 Contributes less than 0.1 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 Contributes less than 0.1 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		

Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 5.50E+06 Contributes GREATER than 0.1 mrem/yr to the MEI and represents greater than 10% of the unabated PTE	Tc - 99 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 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 Contributes less than 0.1 mrem/yr to the MEI, and represents less than 10% of the unabated PTE and represents less than 25% of the abated dose.		

4) RELEASE RATES-WDOH Log Approval
The annual possession quantity (APQ) shall be tracked on a WDOH approved log. WDOH authorizes approval of the Tank Waste Information Network System (TWINS) as the logging mechanism for APQs of radionuclide source terms (WAC 246-247-080(7)).

5) WDOH ALTERNATE APPROVAL-Release Fractions
WDOH accepts that the PTE calculation shall be based on the inventory of material to be managed (tank inventory and supernate) using the release fraction for the tank inventory of 1.0 E-3 for tank inventory and 8.0 E-5 for supernate (WAC 246-247-040(5) and WAC 246-247-060(5)).

6) WDOH ALTERNATE APPROVAL-Non Destructive Analysis Method
A pre-operational Non Destructive Analysis (NDA) of the exhauster(s) HEPA filters and a post-operational NDA will be performed the first time each of the four waste retrieval methods (mobile retrieval system, vacuum retrieval, supernatant sluicing, and saltcake dissolution with supernatant) when placed into service. The post-operational NDA should occur after one cycle or phase of waste retrieval operation is completed, a method replaces another method during a cycle/phase or six months from the in-service date, whichever occurs first. The facility may opt to replace the exhauster's HEPA filters prior to placing a new waste retrieval method in service and eliminate the pre-operational NDA (WAC 246-247-040(5), WAC 246-247-060(5), and WAC 246-247-075(4)).

7) WDOH ALTERNATE APPROVAL-Standards
General WAC 246-247 technology standard exemptions justified and documented in RPP-19233, WAC 246-247 technology standard exemption justification for waste tank ventilation systems, may be applied to Phase II NOC retrieval exhauster operations. (WAC 246-247-040(5) and WAC 246-247-060(5)).

8) WDOH NOTIFICATION-Leak Testing Cannot be Performed
If new or altered section of ductwork cannot be tested due to tie-ins, WDOH will be notified (WAC 246-247-040(5) and WAC 246-247-060(5)).

9) WDOH NOTIFICATION-Change in PTE Calculations
The department will be notified if radionuclides other than Cs-137, Sr-90, Pu-239/240, and Am-241 are identified that contribute greater than 10% of the PTE or greater than 0.1 mrem/yr TEDE to the MEI when a unit is deployed

or redeployed (WAC 246-247-040(5) and WAC 246-247-110(8)).

10) WDOH NOTIFICATIONS-Differential Pressure Out of Range
The differential pressure readings for the pre-filters and both stages of HEPA filters shall be monitored recorded and trended a minimum of weekly. The exhaust system will be configured to automatically shut down at 5.9 inches of water (or less) pressure differential across the HEPA filter(s) for the first filter in series or multiple filters in series as indicated by the local readout. If the final HEPA filter in the system exceeds 5.9 inches of water pressure differential across the filter, the cause will be determined and WDOH will be notified through normal established channels (WAC 246-247-040(5) and WAC 246-247-060(5)).

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

12) WDOH NOTIFICATIONS-High Reading on Weekly Smear Surveys
Monitoring of breather filters during retrieval activities shall consist of weekly smear surveys 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. Levels above 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha shall be reported to WDOH. (WAC 246-247-040(5) and WAC 246-247-060(5))

13) STANDARDS-Startup Leak Testing
New or altered sections of ductwork shall be leak tested in accordance with the requirements of ASME AG-1 Section SA prior to use. Normal maintenance of the system (e.g., replacing gaskets, replacement of in kind components, flow profile analysis in the ductwork, air sampling from test ports in the duct, and demister flushing) are not considered to be alteration (WAC 246-247-040(5), WAC 246-247-060(5), and WAC 246-247-075(2)).

14) STANDARDS-Stack Monitoring Systems
The emission unit stack monitoring system shall meet the requirements of ANSI/HPS N13.1-1999 including the stack monitoring system inspection requirements also referenced in 40 CFR 61 App. B, Method 114, Table 2 - Maintenance, Calibration, and Field check requirements (WAC 246-247-040(5), WAC 246-247-060(5), and WAC 246-247-075(2)).

15) ABATEMENT TECHNOLOGY-HEPA Filter Testing
The HEPA filters are in-place leak tested annually in accordance with a written procedure that addresses testing and visual inspections based on ASME N510 and ASME N511, and shall have a minimum efficiency of 99.95% (WAC 246-247-040(5), WAC 246-247-060(5), and WAC 246-247-075(2)).
In addition, the following conditions require in-place leak testing of the HEPA filters (the filter system to be retested):
•HEPA filter replacement
•Relocating the ventilation system exhauster

16) ABATEMENT TECHNOLOGY-Filter Protection
The relative humidity shall be maintained below 70%. If the relative humidity cannot be directly measured, the ventilation system exhauster operating temperature will be monitored daily to ensure that the appropriate temperature is maintained, based on psychometric charts and engineering calculations, so that the relative humidity remains below 70%. Daily Monitoring is not required over weekends and holidays when no waste disturbing activities are occurring (WAC 246-247-040(5) and WAC 246-247-060(5)).

17) ABATEMENT TECHNOLOGY-Temperature Values in the Airstream
The airstream temperature is also monitored to verify that it is below the 200°F limit established for continuous operation and 250°F limits established for periodic operation to protect the HEPA filters (WAC 246-247-040(5)).

18) ABATEMENT TECHNOLOGY-Ductwork Insulation
All ventilation ductwork from the exit of the tank to the inlet of the exhauster filter housing, shall be insulated (WAC 246-247-040(5) and WAC 246-247-060(5)).

19) ABATEMENT TECHNOLOGY- Ventilation System Exhauster Suspension from Active Service
The following will be implemented when a ventilation system exhauster that has been connected to a radioactive source is shut down and placed in suspension from active service. The following items will be completed 90 days after suspension from active service. Suspension from active service begins when the permit required preventative maintenance tasks are suspended or 365 days from the last day of operation, whichever is sooner.
•Isolate (e.g., valve or blank off) the ventilation system exhauster unit from the source of radioactivity.
•Isolate (e.g., valve or blank off) the source of radioactivity (e.g., tank) or establish an alternative flow path through a registered emission point (e.g., passive filter or powered exhauster).

•Isolate the flow path downstream of the last stage of HEPA filtration by capping the stack or alternative location if the stack has been removed.
•Provide written notification to WDOH documenting completion of the above.
During suspension from active service, the monitoring and associated recordkeeping are not required to be conducted. In addition, the abatement and monitoring system testing (e.g., aerosol testing of the HEPA filters), maintenance, calibration, field checks, and the associated recordkeeping are not required to be conducted (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

20) ABATEMENT TECHNOLOGY-Ventilation System Exhauster Return to Active Service
The ventilation system exhauster will be evaluated for its ability to meet the regulatory requirements to operate prior to placing the exhauster back in service:
•Verify that parts removed during suspension from active service have been replaced-in-kind and the unit has been returned to full function.
•Conduct abatement and monitoring system inspections and field checks.
•Verify that the abatement and monitoring system testing, maintenance, and calibration have been completed. (Note: some testing, maintenance, and calibration can only be completed when the exhauster is running.) The CAM and sampling system are to be operated during aerosol testing.
WDOH will be notified at least seven calendar days prior to conducting operational testing of the ventilation system exhauster (WAC 246-247-040(5) and WAC 246-247-060(5)).

21) CONTAMINATION CONTROL-Max Operating Pressure
During waste retrieval operations, the maximum pressure for any waste retrieval method shall not exceed 37,000 psig (WAC 246-247-040(5) and WAC 246-247-060(5)).

22) CONTAMINATION CONTROL-Monthly Radiological Survey
While the exhauster is operating, and/or tank waste retrieval is underway, all ductwork connections shall have a radiological survey performed monthly to ensure ductwork connections are not degrading (WAC 246-247-040(5) and WAC 246-247-060(5)).

23) CONTAMINATION CONTROL-Exhauster Alternate Usages
The exhauster will be operated occasionally during periods of non-retrieval in support of tank waste retrieval preparation activities and to aid in evaporation of residual flush water or sluicing liquid that remains in the tank (WAC 246-247-040(5) and WAC 246-247-060(5)).

24) CONTAMINATION CONTROL-Active ventilation
All receiver tanks (including waste retrieval process tanks for tank TRU retrieval (staging) SSTs, storage DSTs, or other staging/storage vessels, but not including batch vessel supporting vacuum retrieval) shall have active ventilation during waste receipt, unless alternative controls are documented and approved by WDOH. If the exhauster goes down due to off-normal conditions while retrieval is occurring, the system should be placed into a safe configuration, minimizing dose to personnel and the environment. These steps may include: flushing the lines, pumps, and the waste transfer system of slurry solution using DST supernatant or water; pumping down the tank liquid to minimize remaining liquids; and halting waste retrieval. (WAC 246-247-040(5) and WAC 246-247-060(5))