DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: PORTABLE EXHAUSTER USE ON SINGLE SHELL (SST) TANKS DURING SALTWELL PUMPING

Date Approved: 25-Oct-02

Emission Unit Name: 200 AREA DIFFUSE/FUGITIVE **Emission Unit ID** 486

This is a MAJOR, FUGITIVE, non-point source emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **BARCT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
			Abatement controls as required in the following Conditions and Limitations.

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
WAC 246-247-075(3)	Appendix B, Method 114	All radionuclides which could contribute 10% of the potential EDE.	As listed in the following Conditions and Limitations.

Sampling Requirements: Existing near-facility monitoring stations.

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

07/21/1997 Original NOC submitted on July 21, 1997 and was initially rejected (AIR 97-710) due to lack of information.

02/04/1998 1st revision of NOC was rejected on February 4, 1998 (AIR 98-202) due to lack of information.

12/16/1998 2nd revision approved on December 16, 1998 (AIR 98-1207).

03/11/1999 A telecom clarification approved on March 11, 1999 adjusted the Table 13-1, "Emissions Control Equipment Compliance For Portable Exhausters" regarding a delay in performance of the 168 performance test as required in accordance with 40 CFR 52, Appendix E Test Methods. US DOE NOC ID 717. No documentation on file.

07/31/1999 4th revision added two tanks and increased the Abated PTE from 6.51E-07 mrem/yr to 6.78E-07 mrem/yr. Approval on July 31, 1999 (no approval letter, see revision form of the same date). No changes to conditions. US DOE NOC ID 761.

08/27/1999 3rd revision added two tanks and required ALARACT demonstration and required documentation to prove that no increase emissions occurred as a result of salt-well pumping in these two tanks. Approval on August 27, 1999 (AIR 99-809). No changes to conditions.

06/26/2000 5th revision clarified Section 6 per NOC Revision Form on June 26, 2000.

12/18/2000 6th revision added the last two paragraphs in the Project Description above. Revised Section 6.5 of the original NOC. Approval on December 18, 2000 (no approval letter, see revision form of the same date). No changes to conditions.

Printed on 28-Oct-02

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 4.51E-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 9.03E+00 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **This process is limited to:**
the use of portable exhausters on single shell tanks during saltwell pumping. Specific single shell tanks covered include: 241-A-101, 241-AX-101, 241-BY-105, 241-BY-106, 241-C-103, 241-S-101, 241-S-102, 241-S-103, 241-S-106, 241-S-107, 241-S-109, 241-S-111, 241-S-112, 241-T-104, 241-T-110, 241-U-102, 241-U-103, 241-U-105, 241-U-106, 241-U-107, 241-U-108, 241-U-109 and 241-U-111.

Saltwell pumping of drainable liquid waste includes the following activities:

- Initial planning including waste compatibility studies, criticality analysis, equipment specification, and tank material balance determinations;
- Installation of saltwell screen;
- Jet pump assembly installation;
- Transferring the liquid waste (via saltwell pumping);
- Occasionally, additions of limited amounts of water are made to prevent plugging of the saltwell screen and transfer line;
- Flushing and cleaning plugs from transfer lines.

INSTALLATION OF THE SALTWELL SCREEN

A saltwell screen is a mechanical device, approximately 11 inches in diameter, which normally extends from the top of the waste to within 2 inches of the tank bottom. The 400-mesh size holes in the screen allow liquid waste to pass through the screen (enter the pump cavity) while preventing solid waste from migrating to the jet pump.

Water lancing of the waste could be necessary to facilitate installation of the saltwell screen. Water lancing normally uses up to 1,895 liters of hot water at low pressure (1,034 kilopascals) to penetrate the crust on the waste and create a circular entry area large enough for the screen. Water lancing activities shall follow the requirements outline in ALARACT 10, TWRS ALARACT Demonstration for Water Lancing. The water lance is a long pipe, up to 7.62 centimeters in diameter with a nozzle at the end that is lowered into the tank, through a riser, via a mobile crane attached to a truck. A hose from a portable water tank is connected to the other end of the water lance. The flushing water to the water lance shall be turned on just before the lance reaches the waste surface to minimize water additions to the tank. The water lance withdrawal steps are essentially the reverse of the insertion sequence. The use of this water

lance requires that the lance be raised and lowered into the waste multiple times so that a large enough hole can be formed in the waste to accommodate the screen. Alternately, a newer water lance design to accomplish the same task could be used. The new lance has an 28-centimeter diameter and multiple nozzles on the bottom to facilitate waste penetration, and is designed to create a hole in the waste large enough to accommodate the saltwell screen with one insertion of the lance into the waste. This design requires less water volume and operates at a pressure limited to (20,685 kilopascals). During removal of a lance from a tank, portable water wands are used to wash waste residue from the outside of the water lance until radiation readings are within specified limits. The water lance is placed in a protective bag during the removal process.

The saltwell screen is connected to a source of flushing water by a hose at the top of the screen. The screen is rigged for lifting by a mobile crane. The saltwell screen assembly is lowered slowly into the pit and riser until the screen flange rests on the riser opening. The riser is capped until jet pump assembly is scheduled for installation.

The entire operation of installing a saltwell screen, including water lancing, generally takes less than eight hours. Radionuclide control is maintained mechanically by use of a spray ring that rests on top of the riser and allows the water lance to telescope through the ring. Although there is no physical contact between the lance outside diameter and the spray ring inside diameter, control of radionuclides is achieved by spraying water over this interface as the lance is lowered, which also helps to minimize the potential for sparking as well as controlling radionuclides. Additional radionuclide control is achieved by limiting the lowering of the lance to a maximum speed of approximately 1 foot per second. Also, this operation is performed in accordance with formal procedures and radiation surveys during the actual work activity to ensure containment of radionuclides. Pre-job and post-job surveys are performed to verify containment. The actual water lancing time usually takes approximately 30 minutes to 2 hours.

In tanks with passive ventilation water lancing activities shall not exceed 72 hours of actual water lancing.

JET PUMP INSTALLATION

Water lancing of the salt screen and waste inside the saltwell screen might be necessary to facilitate jet pump assembly installation within the screen. If water lancing is required, this shall be performed as described above. Following preoperational checks of the complete jet pump assembly, the pump assembly will be raised to a vertical position by a mobile crane and slowly lowered into the saltwell screen until the pump support plate rests on top of the saltwell screen flange. Jet pump installation activities shall follow the requirements of ALARACT 13, TWRS ALARACT Demonstration for Installation, Operation, and Removal of Tank Equipment. A small amount of water is passed through the dip tubes while the pump is lowered into the screen to prevent plugging of the dip tubes. The dip tubes are half-inch carbon steel tubes used as instrumentation to monitor waste level and specific gravity. Small amounts of water are also passed through the dilution tube to prevent plugging. The dilution tube allows water to be added to the tank to prevent plugging of the screen. In some cases, instrumentation lines are installed as part of the saltwell pump assembly; in other cases, instrumentation lines are installed after the assembly is installed. The entire operation of installing a jet pump assembly generally takes less than four hours.

TRANSFERRING THE WASTE (SALTWELL PUMPING)

The discharge of the jet pump assembly shall be connected to the tank farm transfer system by use of a

flexible jumper assembly located within the pit. The pump pits shall be equipped with leak detectors to help detect liquid waste leaks. If leaking is detected, pumping automatically is stopped. Occasionally water will be added to the tank via a pipe from an outside storage tank to prevent plugging of or to remove plugs from the saltwell screen and pump equipment. The water will be piped from a storage tank through a metering system and shall be at a rate of 280 liters per minute or less. Entry into the tank is made through the pump pit via an existing port on the pit cover and into the saltwell screen.

The concrete or steel cover block shall be reinstalled before starting the pumping operation. The cover contains penetrations for the various valve handles, electric cables, air, water, and sample lines. Following testing of the equipment, saltwell pumping begins and could continue for several months to several years depending on the initial volume of waste to be pumped and the rate liquid drains to the saltwell. Periodic surveillances and operational checks will occur during saltwell pumping. A portable exhauster will be available for saltwell pumping if and when needed and will operate in the event that flammable gas levels exceed 25 percent of the LFL during the pumping campaign or used in conjunction with industrial health and hygiene practices for worker comfort and safety. The portable exhauster shall be isolated from the tank by an isolation valve when the exhauster is not in use.

FLUSHING AND CLEANING PLUGS FROM TRANSFER LINES

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 affected components with hot water will be necessary. Other techniques to free blockages could include pressurization, use of heat tracing, temporary jumpers, and hydraulic scouring. The hot water will be introduced to the system to be flushed through a pressure manifold by piping connected directly to the jet pump, or bypassing the jet pump and connected directly to a jumper or nozzle. 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 1,034 kilopascals) is necessary to remove blockage, an engineering evaluation shall be performed to determine the maximum allowable pressure for operation. At a minimum, flushing will be performed when the system is shut down for any length of time and at the end of a saltwell pumping campaign.

Flushing of the transfer lines and/or plug removal will be performed in accordance with operating procedures and radiation surveys during the actual work activity to ensure containment of radionuclides. Pre-job and post-job surveys shall be performed to verify containment. This activity has been conducted previously without incident during and after waste transfers in actively and passively ventilated SSTs and actively ventilated DSTs. Flushing of transfer lines could be performed with or without an operating portable exhauster.

SALT CAKE DISSOLUTION

At Tank 241-U-107, water additions may be made to the top of the salt cake to determine how much of the salt cake can be dissolved and removed during saltwell pumping. After the supernate is saltwell pumped from this tank, a low flow of water (approximately 7 to 16 liters per minute) is planned to be sprinkled on top of a portion of the salt cake's surface to enhance dissolution. The water application system will consist of water supply tubing inserted through an existing riser and one or more low volume sprinklers that can apply water of varying temperatures. The water will be provided by the tank farms water system or supply truck.

Application of dissolution water is expected to last for approximately three months. Dissolution data and video obtained at Tank 241-U-107 will be utilized for planning future salt cake dissolution efforts. Salt cake dissolution activities at Tank 241-U-107 could be conducted with or without an operating portable exhauster.

When a portable exhauster is required for saltwell pumping or the performance of supporting activities, the exhauster will draw warm moist air from the tank, heat and filter the air, and release the air to the environment. During active ventilation, fresh air, drawn into the tank vapor space through a breather filter, will dilute and disperse any flammable gases present. In the event a portable exhauster is installed at a tank but is not running and the tank is being pumped under passive ventilation, the portable exhauster shall be valved off and air shall enter or exit the tank through the breather filter, depending on the tank's internal pressure relative to atmospheric pressure. Each breather filter shall consist of a housing that contains a HEPA filter, an outlet screen, and a small seal loop. During passive ventilation, an isolation valve normally will be open to allow air flow between the tank vapor space and the outside atmosphere through the filter. Air flowing to and from the tank will 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 a highly unlikely accident in which over pressurization occurs when the HEPA filter is isolated for occasional (infrequent) maintenance.

Air from the tank shall be heated to reduce the relative humidity before passing through the prefilter. The air shall pass through the prefilter, two HEPA filters in series, a fan and discharge through a stack. The stack shall contain a section that allows for the installation of air flow measuring and temporary sampling devices. Any moisture that might accumulate inside the exhauster shall be collected in a drain system, routed to a seal pot, and returned to the tank.

Flexible or rigid ductwork (depending on the design at each tank farm) shall be used to connect the exhauster inlet to the tank riser. Precautionary measures to protect the air pathway during connection of the ductwork to the tank riser shall include installation of an isolation valve in the riser to minimize the time tank contents are exposed to the air, and shall take into account abrasion, leakage, tear strength, tensile strength, air stream temperature, and outdoor exposure conditions.

The prefilter will increase the life of the HEPA filters by trapping the larger airborne particles allowing for a more economical operating system. As low as reasonably achievable (ALARA) concepts will be applied to allow less frequent change out of the HEPA filters, thereby reducing exposure of personnel to radiation sources.

The HEPA filters shall meet the requirements of ASME AG-1, Section FC, and the requirements outline in the December 1998, Routine Technical Assistance Meeting and shall be tested annually to requirements of ASME N510, Section 10. The HEPA filters shall be nuclear grade throw-away extend-media dry-type in a rigid frame having a minimum particle collection efficiency of 99.95 percent for 0.3 micrometer median diameter, thermally-generated dioctylphthalate particles or other specified challenge aerosols. Pressure drop of a clean filter shall be a maximum of 1 inch water gauge at rated flow. The frame shall be corrosion resistant for the air stream design conditions. Each filter shall have a gelatinous seal gasket material that will be on the air inlet gasket surface.

The HEPA filter housing will provide a sealed barrier for the confinement of airborne radionuclides and will serve to encapsulate and hold the HEPA filter. The filter housing will provide for the attachment of pressure differential measurement components. Each filter housing will meet the applicable sections of ASME N509 and the test requirements of ASME N510. The filter housings shall be leak tested using

the pressure decay method in accordance with ASME N510. Leakage shall not exceed 0.3 percent of the housing volume per hour.

The test sections shall provide a means for in place testing of the HEPA filters. Testing will confirm that any airborne radionuclide particles are captured to the level of efficiency of the installed HEPA filter. One test section shall be placed downstream of the prefilter section and upstream of the first HEPA filter section. The second test section shall be placed between the first stage HEPA filter housing and the second stage HEPA filter housing. For the 296-P-33 and 296-P-34 there is only one HEPA test section between the first stage HEPA and the second stage HEPA but the capability shall exist to individually test each HEPA filter.

The fan shall be a centrifugal type and be statically and dynamically balanced as an assembly. The exhaust stack houses the air velocity probe (for measurement of stack velocity) and the air sampling probe. Flexible ductwork will be used to connect the fan outlet to the stack.

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

Ac - 227	7.09E-02	Am - 241	6.55E+03	Am - 243	7.62E+01
Ba - 137 m	6.59E+06	C - 14	1.03E+03	Cd - 113 m	2.05E+03
Cm - 242	1.09E+01	Cm - 243	1.28E+00	Cm - 244	2.01E+01
Co - 60	1.60E+03	Cs - 134	8.15E+00	Cs - 137	6.96E+06
Eu - 152	1.27E+02	Eu - 154	1.49E+04	Eu - 155	1.02E+04
H - 3	4.02E+03	I - 129	1.34E+01	Nb - 93 m	4.98E+02
Ni - 59	1.51E+02	Ni - 63	1.40E+04	Np - 237	2.41E+01
Pa - 231	1.89E-01	Pu - 238	2.55E+02	Pu 239	1.10E+04
Pu - 240	1.72E+03	Pu - 241	1.18E+04	Pu - 242	7.99E-02
Ra - 226	9.55E-03	Ra - 228	5.73E+00	Ru - 106	2.11E-03
Sb - 125	9.67E+02	Se - 79	1.37E+01	Sm 151	4.50E+05
Sn - 123	8.14E+01	Sr - 90	5.90E+06	Tc 99	6.31E+03
Th - 229	2.53E-01	Th - 232	4.42E-01	U - 232	5.77E+00
U 233	2.96E+01	U - 234	4.02E+01	U - 235	1.48E+00
U 236	1.21E+00	U - 238	3.77E+01	Y - 90	5.90E+06
Zr - 93	6.35E+02				

5) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

6) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

7) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

8) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

9) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

10)

The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

11) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

12) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

13) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

14) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

15) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

16) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

17) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

    Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

    All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6))

18) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

19) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

20) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

21) Diffuse/Fugitive emissions shall be monitored using the 200 East and 200 West near-field ambient air monitors. Sample collection and analysis shall follow that of the near field monitoring program. Analytical results shall be reported in the Annual Air Emissions Report. Any change to this near-field ambient monitoring program must be approved by the department.

22) Water Lancing activities in passively ventilated tanks shall be limited to 72 hours of operation per tank. The hours of operation shall be tracked on a WDOH approved log.

23) Monitoring for single shell tank breather filters shall consist of annual smears of the ductwork downstream of the HEPA filter, or on the outside of the screen covering the outlet of the HEPA filter. Smearable contamination levels below 10,000 disintegrations per minute per 100 square centimeters beta/gamma and 200 disintegrations per minute per 100 square centimeters shall verify low emissions. Contamination levels above these values shall be reported to the WDOH.

24) HEPA filters shall be individually testing annually to the requirements of ASME N510, and shall have a minimum efficiency of 99.95%.

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
LICENSE AMENDMENT FOR

PROJECT TITLE: USE OF THE GUZZLER VACUUM EXCAVATION SYSTEM FOR RADIOLOGICALLY LIMITED ACTIVITIES ON THE HANFORD SITE.

Date Approved: 06-Mar-02

Emission Unit Name: GUZZLER

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **ALARACT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Collection Tank and Plate Separator	1	
	Cyclone Separator	1	Baghouse with 72 bags each.
	Micro-strainer Device	1	
	HEPA	3	Three in-place tested HEPA filters in parallel.

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Regulatory Requirements	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
WAC 246-247-075[3]	Appendix D, Method 114(3)	All radionuclides which 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 monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

01/24/02 NOC Revision approved January 24, 2002 to provide condition changes. Conditions and Limitations, AIR 02-302, mailed on March 6, 2002.

12/18/98 NOC, Use of the Guzzler Vacuum Excavation System for Radiologically Limited Activities on the Hanford Site, approved December 18, 1998 via AIR 98-1215.

Printed on 05-Mar-02

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 5.00E-02 mrem/year to the Maximally Exposed Individual. The total unabated emission limit for this Notice of Construction is limited to 5.00E-02 mrem/year to the Maximally Exposed Individual.

3) **This process is limited to:**
the utilization of the Guzzler Vacuum Excavation System (Guzzler) for potholing to support utility locations, soil removal/general excavations, and radiologically limited activities (i.e., <50,000 dpm beta-gamma and <140 dpm alpha contamination) involving roof or pit cleaning. For purposes of this notice of construction, "soil" will be defined as sand, dirt, gravel, gravel and tar mixtures and rock, or any combination of these items.

   In most cases, for excavations, the 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 the burial grounds within the Guzzler collection tank for noncontainerized disposal.

   Only radiologically contaminated or potentially contaminated soil will be removed or excavated using the regulated Guzzler system. All soil removed from the system will be handled as potentially contaminated, unless otherwise surveyed or analyzed.

   The regulated Guzzler will not be used for the decontamination of valve pits within the tank farms. The regulated Guzzler is also excluded from areas containing regulated chemical contamination and/or 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 adjustable length, flexible hose connected to an eight inch porthole with an overhead boom located at the rear of the equipment. An air lance attachment may also be connected to the end of the flexible hose to aid in the loosening of soil.

   The various cleaning and excavation activities will be completed using the Guzzler 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 Guzzler. 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.

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

Alpha 0	4.44E-03
Beta 0	1.49E-01

5) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

6) These Conditions and Limitations must be documented in an established procedure prior to starting

activities granted by this approval (WAC 246-247-040(5) and WAC 246-247-060(5)).

7) **This condition was obsoleted on 1/28/02.** This approval, with its Conditions and Limitations, constitutes and amendment to the Department's Radioactive Air Emission License. This amendment must be included in the next revision of the Hanford Air Operating Permit (WAC 246-247-060(1)(c) and (2)(c)

Obsoleted by issuance of the Air Operating Permit.

8) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

9) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

10) 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).

11) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

12) The facility must be able to demonstrate workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

13) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

14) The Department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

15) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

16) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H. (WAC 246-247-080(2)).

17) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

18) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

19) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with WAC 246-247-080 (8). (WAC 246-247-080 (6))

20) The facility must maintain a log in an approved format for this activity or emission unit (WAC 246-247-080(7))

21) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

22) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

23) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

24) 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.

25) The following are the annual emission limits for the NOC:

100 AREA:
For Guzzler 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 Guzzler 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 Guzzler 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 Guzzler 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.

26) All soil excavation activities operating under this NOC must cease operations when sustained wind conditions reach or exceed 20 miles per hour

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: STACK MONITORING SYSTEM UPGRADES (PROJECT W-420)

Date Approved: 31-Dec-02

Emission Unit Name: 296-S-22 **Emission Unit ID** 165

'his is a MAJOR, ACTIVELY ventilated emission unit.

'his emission unit requires the following Abatement Technology:

pplicable Requirements: **ALARACT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Heater	1	Annulus exhaust is not heated
	Prefilter	1	2 parallel flow paths
	HEPA	2	2 parallel flow paths
			* Technology Specific Requirements
	Fan	1	

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4) & WAC 246-247-75(2)	Method 2 appendix A Method 114 appendix B 61.93(b)(2)(ii) ANSI N13.1	All radionuclides which could contribute 10% of the potential EDE.	Continuous

Sampling Requirements: Continuous

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

01/29/1999 Original NOC approved via AIR 99-115 on January 29, 1999.

05/05/1999 RTAM Revision approved on May 5, 1999.

01/03/2003 AIR 02-1235, mailed on December 31, 2002 to update Conditions and Limitations to meet Department standards.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 2.14E-02 mrem/year to the

2) Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 2.14E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

Approval of this NOC allows for the replacement of stack and sampling and monitoring equipment with compliant equipment in accordance with the Federal Facility Compliance Agreement (FFCA).

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

Am - 241	2.21E-01	Sr 90	5.51E-03

5) The annual possession quantity is limited to:

For Excavation Activities: Sr-90, 5.51E-03 Ci; Am-241, 2.21E-01 Ci.
For Equipment Removal Activities: Sr, 4.61E-07 Ci; Am-241, 9.20E-09 Ci.

6) **This condition was obsoleted on 09/14/1999.** U.S. DOE shall monitor this project or emission unit as stated in the NOC.

7) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

8) The facility must maintain a log in an approved format for this activity or emission unit.

9) The radionuclides are limited to Sr-90 and Am-241:
For Excavation Activities: Sr-90, dose 2.41E-07 mrem/year to the MEI;
Am-241, dose 2.89E-03 mrem/yr to the MEI.
For Equipment Removal Activities: Sr-90, dose 9.47E-11 mrem/year to the MEI;
Am-241, dose 5.66E-10 to the MEI.

10) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

11) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer

applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6)).

12) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

13) The required controls are: Wind speed construction of 20 mph, HPT coverage, engineering and control.

14) Perform radiological field surveys during replacement of the stack and associated sampling and monitoring equipment. Provide HPT coverage during excavation with these activities stopping if evenly distributed (i.e., non-speck) contamination detection reading of 100,000 dpm/100cm2 beta-gamma, or 35 dpm/100cm2 above background alpha are encountered. For contamination levels in affected areas greater than 1,000 dpm/100cm2 beta gamma and 20 dpm/100cm2 alpha, use contamination controls including bagging and taping, applying fixatives, foaming, or glove bags. A 20 mph sustained wind speed restriction shall apply to all demolition and replacement work. Restore the stack emissions measurement system when ventilation is restored, between shutdown and completion of the upgrades.

15) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

16) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

17) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

18) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

19) The facility's modification activity shall consist of replacing the stack and its associated sampling and monitoring equipment. Portions of existing concrete pads will be removed and the soil excavated to accommodate the installation of utilities (power, signal lines, etc.) The existing ventilation and stack sampling systems will remain operational during the excavation activities but will be shut down during stack and equipment removal and the relocation of the equipment cabinet to a temporary near-by location.

20) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

21) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable

standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

22) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

23) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

24) The facility must be able to demonstrate the reliability and accuracy of emission data and other test results from this emission unit (WAC 246-247-075(13).

25) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

26) Use the APQ, in curies, as the governing requirement for compliance with the NOC.

27) Determine how much of APQ was reached due to contamination encounter thus far in the excavation work

28) Track any remaining contamination as it is encountered and subtract it from the NOC's APQ. Keep a running total of the actual field encountered APQ to show that the NOC APQ will not be exceeded.

29) The abated emission limit is 2.89E-03 mrem/year to the MEI.

30) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

31) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: STACK MONITORING SYSTEM UPGRADES (PROJECT W-420)

Date Approved: 31-Dec-02

Emission Unit Name: 296-T-18 **Emission Unit ID** 166

This is a MAJOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

pplicable Requirements: ALARACT

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Heater	1	Annulus exhaust is not heated
	Prefilter	1	3 parallel flow paths
	HEPA	2	3 parallel flow paths with 2 HEPAs in series
	Fan	1	

* Technology Specific Requirements

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
10 CFR 61.93(b)(4) & WAC 246-247-75(2)	Method 2 appendix A Method 114 appendix B 61.93(b)(2)(ii) ANSI N13.1	All radionuclides which could contribute 10% of the potential EDE.	Continuous

Sampling Requirements: Continuous

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

01/29/1999 Original NOC approved via AIR 99-115 on January 29, 1999.

05/05/1999 RTAM Revision approved on May 5, 1999.

01/03/2003 AIR 02-1235, mailed on December 31, 2002 to update Conditions and Limitations to meet Department standards.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 2.14E-02 mrem/year to the

2) Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 2.14E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

Approval of this NOC allows for the replacement of stack and sampling and monitoring equipment with compliant equipment in accordance with the Federal Facility Compliance Agreement (FFCA).

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

Am 241	2.21E-01	Sr 90	5.51E-03

5) The facility must be able to demonstrate the reliability and accuracy of emission data and other test results from this emission unit (WAC 246-247-075(13).

6) **This condition was obsoleted on 09/14/1999.** U.S. DOE shall monitor this project or emission unit as stated in the NOC.

7) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

8) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

9) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

10) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

11) The facility must maintain a log in an approved format for this activity or emission unit.

12) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

13) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

14) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or

completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6)).

15) The facility's modification activity shall consist of replacing the stack and its associated sampling and monitoring equipment. Portions of existing concrete pads will be removed and the soil excavated to accommodate the installation of utilities (power, signal lines, etc.) The existing ventilation and stack sampling systems will remain operational during the excavation activities but will be shut down during stack and equipment removal and the relocation of the equipment cabinet to a temporary near-by location.

16) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

17) The annual possession quantity is limited to:

For Excavation Activities: Sr-90, 5.51E-03 Ci; Am-241, 2.21E-01 Ci.
For Equipment Removal Activities: Sr, 4.61E-07 Ci; Am-241, 9.20E-09 Ci.

18) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

19) The abated emission limit is: 2.89E-3 mrem/year to the MEI.

20) The required controls are: Wind speed construction of 20 mph, HPT coverage, engineering and control.

21) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

22) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

23) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

24) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to

observe such tests (WAC 246-247-060(4)).

25) Perform radiological field surveys during replacement of the stack and associated sampling and monitoring equipment. Provide HPT coverage during excavation with these activities stopping if evenly distributed (i.e., non-speck) contamination detection reading of 100,000 dpm/100cm2 beta-gamma, or 35 dpm/100cm2 above background alpha are encountered. For contamination levels in affected areas greater than 1,000 dpm/100cm2 beta gamma and 20 dpm/100cm2 alpha, use contamination controls including bagging and taping, applying fixatives, foaming, or glove bags. A 20 mph sustained wind speed restriction shall apply to all demolition and replacement work. Restore the stack emissions measurement system when ventilation is restored, between shutdown and completion of the upgrades.

26) The radionuclides are limited to Sr-90 and Am-241:

For Excavation Activities: Sr-90, dose 2.41E-07 mrem/year to the MEI;
Am-241, dose 2.89E-03 mrem/yr to the MEI.
For Equipment Removal Activities: Sr-90, dose 9.47E-11 mrem/year to the MEI;
Am-241, dose 5.66E-10 to the MEI.

27) Use the APQ, in curies, as the governing requirement for compliance with the NOC.

28) Determine how much of APQ was reached due to contamination encounter thus far in the excavation work.

29) Track any remaining contamination as it is encountered and subtract it from the NOC's APQ. Keep a running total of the actual field encountered APQ to show that the NOC APQ will not be exceeded.

30) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and D(WAC 246-247-060(5)).

31) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: STACK MONITORING SYSTEM UPGRADES (PROJECT W-420)

Date Approved: 31-Dec-02

Emission Unit Name: 296-B-28 **Emission Unit ID** 208

his is a MAJOR, ACTIVELY ventilated emission unit.

his emission unit requires the following Abatement Technology:

pplicable Requirements: **ALARACT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Heater	1	Annulus exhaust is not heated
	Prefilter	1	3 parallel flow paths
	HEPA	2	3 parallel flow paths
	Fan	1	

* Technology Specific Requirements

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4) & WAC 246-247-75(2)	Method 2 appendix A Method 114 appendix B 61.93(b)(2)(ii) ANSI N13.1	All radionuclides which could contribute 10% of the potential EDE.	Continuous

Sampling Requirements: Continuous

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section

Change History

01/29/1999 Original NOC approved via AIR 99-115 on January 29, 1999.

05/05/1999 RTAM Revision approved on May 5, 1999.

01/03/2003 AIR 02-1235, mailed on December 31, 2002 to update Conditions and Limitations to meet Department standards.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 2.14E-02 mrem/year to the

2) Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 2.14E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

Approval of this NOC allows for the replacement of stack and sampling and monitoring equipment with compliant equipment in accordance with the Federal Facility Compliance Agreement (FFCA).

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

Am - 241	2.52E-01	Sr - 90	6.30E-03

5) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

6) **This condition was obsoleted on 09/14/1999.** U.S. DOE shall monitor this project or emission unit as stated in the NOC.

7) The facility must be able to demonstrate the reliability and accuracy of emission data and other test results from this emission unit (WAC 246-247-075(13).

8) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

9) The facility must maintain a log in an approved format for this activity or emission unit.

10) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

11) The radionuclides are limited to Sr-90 and Am-241:

For Excavation Activities: Sr-90, dose 2.76E-07 mrem/year to the MEI;
Am-241, dose 3.31E-03 mrem/yr to the MEI.
For Equipment Removal Activities: Sr-90, dose 9.30E-11 mrem/year to the MEI;
Am-241, dose 5.56E-10 to the MEI.

12) Perform radiological field surveys during replacement of the stack and associated sampling and monitoring equipment. Provide HPT coverage during excavation with these activities stopping if evenly distributed (i.e., non-speck) contamination detection reading of 100,000 dpm/100cm2 beta-gamma, or 35 dpm/100cm2 above background alpha are encountered. For contamination levels in affected areas greater than 1,000 dpm/100cm2 beta gamma and 20 dpm/100cm2 alpha, use contamination controls including bagging and taping, applying fixatives, foaming, or glove bags. A 20 mph sustained wind speed restriction shall apply to all demolition and replacement work. Restore the

stack emissions measurement system when ventilation is restored, between shutdown and completion of the upgrades.

13) The abated emission limit is: 3.31E-03 mrem/year to the MEI.

14) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

    Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

    All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6)).

15) The annual possession quantity is limited to:

    For Excavation Activities: Sr-90, 6.30E-03 Ci; Am-241, 2.52E-01 Ci.
    For Equipment Removal Activities: Sr, 4.50E-07 Ci; Am-241, 8.98E-09 Ci.

16) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

17) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

18) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

19) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

20) The required controls are: Wind speed construction of 20 mph, HPT coverage, engineering and control.

21) The facility's modification activity shall consist of replacing the stack and its associated sampling and monitoring equipment. Portions of existing concrete pads will be removed and the soil excavated to accommodate the installation of utilities (power, signal lines, etc.) The existing ventilation and stack sampling systems will remain operational during the excavation activities but will be shut down during stack and equipment removal and the relocation of the equipment cabinet to a temporary near-by location.

22) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

23) The department reserves the right to inspect and audit all construction activities, equipment, operations,

documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

24) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

25) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

26) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

27) Use the APQ, in curies, as the governing requirement for compliance with the NOC.

28) Determine how much of APQ was reached due to contamination encounter thus far in the excavation work.

29) Track any remaining contamination as it is encountered and subtract it from the NOC's APQ. Keep a running total of the actual field encountered APQ to show that the NOC APQ will not be exceeded.

30) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

31) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: STACK MONITORING SYSTEM UPGRADES (PROJECT W-420)

Date Approved: 31-Dec-02

Emission Unit Name: 296-C-5 **Emission Unit ID** 213

'his is a MAJOR, ACTIVELY ventilated emission unit.

'his emission unit requires the following Abatement Technology:

pplicable Requirements: **ALARACT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Prefilter	4	One bank of 4 prefilters(2X2)
	HEPA	8	2 banks of 4 filters(2X2)
	Fan	1	

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4) & WAC 246-247-75(2)	Method 2 appendix A Method 114 appendix B 61.93(b)(2)(ii) ANSI N13.1	All radionuclides which could contribute 10% of the potential EDE.	Continuous

Sampling Requirements: Continuous

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

01/29/1999 Original NOC approved via AIR 99-115 on January 29, 1999.

05/05/1999 RTAM Revision approved on May 5, 1999.

01/03/2003 AIR 02-1235, mailed on December 31, 2002 to update Conditions and Limitations to meet Department standards.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 2.14E-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 2.14E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

Approval of this NOC allows for the replacement of stack and sampling and monitoring equipment with compliant equipment in accordance with the Federal Facility Compliance Agreement (FFCA)

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

Am - 241	1.89E-01	Sr 90	4.72E-03

5) The annual possession quantity is limited to:

For Excavation Activities: Sr-90, 4.72E-03 Ci; Am-241, 1.89E-01 Ci.
For Equipment Removal Activities: Sr, 2.53E-07 Ci; Am-241, 3.94E-08 Ci.

6) The abated emission limit is: 4.48E-03 mrem/year to the MEI.

7) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

8) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6)).

9) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

10) The facility must be able to demonstrate the reliability and accuracy of emission data and other test results from this emission unit (WAC 246-247-075(13).

11) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

12) The department reserves the right to inspect and audit all construction activities, equipment, operations,

documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

13) The radionuclides are limited to Sr-90 and Am-241:

For Excavation Activities: Sr-90, dose 2.07E-07 mrem/year to the MEI;
Am-241, dose 2.48E-03 mrem/yr to the MEI.
For Equipment Removal Activities: Sr-90, dose 7.63E-10 mrem/year to the MEI;
Am-241, dose 3.55E-08 to the MEI.

14) **This condition was obsoleted on 09/14/1999.** U.S. DOE shall monitor this project or emission unit as stated in the NOC.

15) Perform radiological field surveys during replacement of the stack and associated sampling and monitoring equipment. Provide HPT coverage during excavation with these activities stopping if evenly distributed (i.e., non-speck) contamination detection reading of 100,000 dpm/100cm2 beta-gamma, or 35 dpm/100cm2 above background alpha are encountered. For contamination levels in affected areas greater than 1,000 dpm/100cm2 beta gamma and 20 dpm/100cm2 alpha, use contamination controls including bagging and taping, applying fixatives, foaming, or glove bags. A 20 mph sustained wind speed restriction shall apply to all demolition and replacement work. Restore the stack emissions measurement system when ventilation is restored, between shutdown and completion of the upgrades.

16) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

17) The facility must maintain a log in an approved format for this activity or emission unit.

18) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

19) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

20) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

21) The facility's modification activity shall consist of replacing the stack and its associated sampling and monitoring equipment. Portions of existing concrete pads will be removed and the soil excavated to accommodate the installation of utilities (power, signal lines, etc.) The existing ventilation and stack sampling systems will remain operational during the excavation activities but will be shut down during stack and equipment removal and the relocation of the equipment cabinet to a temporary near-by

location.

22) The required controls are: Wind speed construction of 20 mph, HPT coverage, engineering and control.

23) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

24) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

25) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

26) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

27) Use the APQ, in curies, as the governing requirement for compliance with the NOC.

28) Determine how much of APQ was reached due to contamination encounter thus far in the excavation work.

29) Track any remaining contamination as it is encountered and subtract it from the NOC's APQ. Keep a running total of the actual field encountered APQ to show that the NOC APQ will not be exceeded.

30) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

31) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: STACK MONITORING SYSTEM UPGRADES (PROJECT W-420)

Date Approved: 31-Dec-02

Emission Unit Name: 296-A-25 **Emission Unit ID** 222

his is a MAJOR, ACTIVELY ventilated emission unit.

his emission unit requires the following Abatement Technology:

pplicable Requirements: **ALARACT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Heater	1	Both tank and annulus connect before going through the heater
	Prefilter	1	Two parallel flow paths.
	HEPA	2	2 in series 2 in parallel flowpaths
	Fan	1	

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4) & WAC 246-247-75(2)	Method 2 appendix A Method 114 appendix B 61.93(b)(2)(ii) ANSI N13.1	All radionuclides which could contribute 10% of the potential EDE.	Continuous

Sampling Requirements: Continuous

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

01/29/1999 Original NOC approved via AIR 99-115 on January 29, 1999.

06/05/1999 RTAM Revision approved on May 5, 1999.

01/03/2003 AIR 02-1235, mailed on December 31, 2002 to update Conditions and Limitations to meet Department standards.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 2.14E-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 2.14E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

   Approval of this NOC allows for the replacement of stack and sampling and monitoring equipment with compliant equipment in accordance with the Federal Facility Compliance Agreement (FFCA).

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

Am - 241	3.79E-01	Sr - 90	9.45E-06

5) The facility must be able to demonstrate the reliability and accuracy of emission data and other test results from this emission unit (WAC 246-247-075(13).

6) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

7) **This condition was obsoleted on 09/14/1999.** U.S. DOE shall monitor this project or emission unit as follows as stated in the NOC.

8) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department; prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

9) Perform radiological field surveys during replacement of the stack and associated sampling and monitoring equipment. Provide HPT coverage during excavation with these activities stopping if evenly distributed (i.e., non-speck) contamination detection reading of 100,000 dpm/100cm2 beta-gamma, or 35 dpm/100cm2 above background alpha are encountered. For contamination levels in affected areas greater than 1,000 dpm/100cm2 beta gamma and 20 dpm/100cm2 alpha, use contamination controls including bagging and taping, applying fixatives, foaming, or glove bags. A 20 mph sustained wind speed restriction shall apply to all demolition and replacement work. Restore the stack emissions measurement system when ventilation is restored, between shutdown and completion of the upgrades.

10) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

11) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

12) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC

246-247-080(1)).

13) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

14) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

15) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

    Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

    All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080((6)).

16) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

17) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

18) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

19) The facility's modification activity shall consist of replacing the stack and its associated sampling and monitoring equipment. Portions of existing concrete pads will be removed and the soil excavated to accommodate the installation of utilities (power, signal lines, etc.) The existing ventilation and stack sampling systems will remain operational during the excavation activities but will be shut down during stack and equipment removal and the relocation of the equipment cabinet to a temporary near-by location.

20) The required controls are: Wind speed construction of 20 mph, HPT coverage, engineering and controls.

21) The radionuclides are limited to Sr-90 and Am-241:

    For Excavation Activities: Sr-90, dose 4.14E-07 mrem/year to the MEI;
    Am-241, dose 4.96E-03 mrem/yr to the MEI.
    For Equipment Removal Activities: Sr-90, dose 5.86E-11 mrem/year to the MEI;

Am-241, dose 3.51E-10 to the MEI.

22) The annual possession quantity is limited to:

For Excavation Activities: Sr-90, 9.45E-03 Ci; Am-241, 3.79E-01 Ci.
For Equipment Removal Activities: Sr, 3.18E-07 Ci; Am-241, 6.35E-09 Ci.

23) The abated emission limit is: 4.96E-3 mrem/year to the MEI.

24) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

25) The facility must maintain a log in an approved format for this activity or emission unit.

26) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

27) Use the APQ, in curies, as the governing requirement for compliance with the NOC.

28) Determine how much of APQ was reached due to contamination encounter thus far in the excavation work.

29) Track any remaining contamination as it is encountered and subtract it from the NOC's APQ. Keep a running total of the actual field encountered APQ to show that the NOC APQ will not be exceeded.

30) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

31) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: STACK MONITORING SYSTEM UPGRADES (PROJECT W-420)

Date Approved: 31-Dec-02

Emission Unit Name: 296-P-16 **Emission Unit ID** 234

This is a MAJOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

pplicable Requirements: **ALARACT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Deentrainer	1	
	Heater	1	
	Prefilter	1	
	HEPA	2	In series
	Fan	1	

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4) & WAC 246-247-75(2)	Method 2 appendix A Method 114 appendix B 61.93(b)(2)(ii) ANSI N13.1	All radionuclides which could contribute 10% of the potential EDE.	Continuous

Sampling **Requirements:** Continuous

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

01/29/1999 Original NOC approved via AIR 99-115 on January 29, 1999.

05/05/1999 RTAM Revision approved on May 5, 1999.

01/03/2003 AIR 02-1235, mailed on December 31, 2002 to update Conditions and Limitations to meet Department standards.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 2.14E-02 mrem/year to the

2) Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 2.14E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

Approval of this NOC allows for the replacement of stack and sampling and monitoring equipment with compliant equipment in accordance with the Federal Facility Compliance Agreement (FFCA).

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

Am - 241	2.21E-01	Sr - 90	5.51E-03

5) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

6) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

7) **This condition was obsoleted on 09/14/1999.** U.S. DOE shall monitor this project or emission unit as stated in the NOC.

8) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

9) The abated emission limit is: 2.89E-3 mrem/year to the MEI.

10) The facility must maintain a log in an approved format for this activity or emission unit.

11) The required controls are: Wind speed construction of 20 mph, HPT coverage, engineering and control.

12) The facility's modification activity shall consist of replacing the stack and its associated sampling and monitoring equipment. Portions of existing concrete pads will be removed and the soil excavated to accommodate the installation of utilities (power, signal lines, etc.) The existing ventilation and stack sampling systems will remain operational during the excavation activities but will be shut down during stack and equipment removal and the relocation of the equipment cabinet to a temporary near-by location.

13) The annual possession quantity is limited to:

For Excavation Activities: Sr-90, 5.51E-03 Ci; Am-241, 2.21E-01 Ci.
For Equipment Removal Activities: Sr, 1.73E-06 Ci; Am-241, 2.69E-07 Ci.

14) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

15) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

16) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

17) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

18) The radionuclides are limited to Sr-90 and Am-241:

For Excavation Activities: Sr-90, dose 2.41E-07 mrem/year to the MEI;
Am-241, dose 2.89E-03 mrem/yr to the MEI.
For Equipment Removal Activities: Sr-90, dose 3.08E-10 mrem/year to the MEI;
Am-241, dose 1.43E-08 to the MEI.

19) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6)).

20) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

21) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

22) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

23) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

24) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test

results from this emission unit (WAC 246-247-075(13)).

25) Perform radiological field surveys during replacement of the stack and associated sampling and monitoring equipment. Provide HPT coverage during excavation with these activities stopping if evenly distributed (i.e., non-speck) contamination detection reading of 100,000 dpm/100cm2 beta-gamma, or 35 dpm/100cm2 above background alpha are encountered. For contamination levels in affected areas greater than 1,000 dpm/100cm2 beta gamma and 20 dpm/100cm2 alpha, use contamination controls including bagging and taping, applying fixatives, foaming, or glove bags. A 20 mph sustained wind speed restriction shall apply to all demolition and replacement work. Restore the stack emissions measurement system when ventilation is restored, between shutdown and completion of the upgrades.

26) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

27) Use the APQ, in curies, as the governing requirement for compliance with the NOC.

28) Determine how much of APQ was reached due to contamination encounter thus far in the excavation work.

29) Track any remaining contamination as it is encountered and subtract it from the NOC's APQ. Keep a running total of the actual field encountered APQ to show that the NOC APQ will not be exceeded.

30) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

31) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: TANK FARM WASTE TRANSFER PITS 241-ER-152 AND 244-A LIFT STATION

Emission Unit Name: 296-A-25 **Emission Unit ID** 222

This is a MAJOR, PASSIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **ALARACT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Heater	1	Both tank and annulus connect before going through the heater
	Prefilter	1	Two parallel flow paths.
	HEPA	2	2 in series 2 in parallel flowpaths
	Fan	1	

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4) & WAC 246-247-75(2)	Method 2 appendix A Method 114 appendix B 61.93(b)(2)(ii) ANSI N13.1	All radionuclides which could contribute 10% of the potential EDE.	Continuous

Sampling Requirements: Continuous

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

02/12/1999 NOC received February 1, 1999 and approved via AIR 99-204 on February 12, 1999.

12/31/2002 AIR 02-1240, mailed on December 31, 2002 to update Conditions and Limitations to meet Department standards.

04/09/2003 NOC Revision approved January 23, 2003 to provide Facility Description change and to add conditions. Conditions and Limitations, AIR 03-1104, mailed on November 14, 2003.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 2.45E-02 mrem/year to the

2) Maximally Exposed Individual (WAC 246-247-040(5)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 2.45E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**
work in the Tank Farm Waste Transfer Pits 241-ER-152 and 244-A Lift Station.

These activities include:
a) Remove or install cover blocks;
b) Perform inspections;
c) Install, disconnect, change and cut up jumpers/blanks or other pit equipment;
d) Repair/replace valves, jumpers, pumps, filters, leak detectors or other instrumentation/equipment;
e) Perform decontamination activities;
f) Apply fixative with cover blocks on or off;
g) Clear drains, and check flow of drains.

Waste transfer pits are located at transfer piping network intersections and provide access from the surface to process piping and tank risers. Pits are the points where jumpers, pumps and other equipment are installed to establish waste transfer routings. Leak detection is provided in pits used during transfers.

The 244-A Lift Station

A Double Contained Receiver Tank (DCRT) is a type of waste transfer pit which, together with its related equipment, constitutes a short term storage facility for liquid waste and a pump pit for waste transfer operations. This DCRT is passively ventilated and consists of an underground concrete structure that contains a filter pit, pump pit and a vault in which a receiver tank is installed. This station provides short term storage and waste routing for interstitial liquid wastes pumped from the 241-B, 241-BX, 241-BY Tank Farms and B plant in the 200 East Area, pumped cross-site, and as a pump pit by installing a jumper between connecting nozzles. Waste transferred out of the 244-A Lift Station can be routed to any of the 200 East Area double shell tanks (DSTs).

The receiver tank has a capacity of approximately 16,000 gallons and is constructed of carbon steel. It is surrounded by a tank vault that acts as a secondary containment vessel. The tank and vault are separated by an annular space. The floor is sloped to a sump for leak detection, collection and pump out.

The receiver tank and the tank vault annulus are vented through a single exhaust system. Remote instrument readout and alarm panels are located in the 242-A Evaporator control room and Computer Automated Surveillance System (CASS) room.

Outside air enters the double contained receiver tank (DCRT) annulus through an air intake equipped with an electric heater, prefilter, and a single stage high efficiency particulate air (HEPA) filter. The vault and receiver tank air streams flow through one of two parallel HEPA filter banks in the filter pit, and then join into a single line. The DCRT is currently passively ventilated through the atmosphere through stack 296-A-25. The only physical tie-in for ventilation to the pit is a small nozzle through which there is minimal flow. This stack also services the rest of 244-A Lift Station (this constitutes the majority of the flow).

This ventilation system is operating when pit activities are being conducted. However, emissions through the 296-A-25 stack are minimal during the performance of pit activities, since the unused nozzles are capped and there is one remaining nozzle that could allow ventilation in-flow to the stack.

241-ER-152 Pit is a diversion box which is covered, below grade, reinforced concrete structure that provides a flexible method of directing liquid waste from one point to another. Diversion boxes also provide confinement for leaks in waste transfer lines and leaks at jumper nozzle connections. Waste transfer lines are connected inside the diversion box.

Minimal controls are used for all activities. The following activities require only these minimal controls; (1) pre-job and post-job rad surveys are performed by HPTs. Radiation Work Permit (RWPs) specify permissible occupational radiological limits during activities. HPTs survey and release equipment, inspect and approve required containment and provide radiological surveys to verify compliance to RWP limits; (2) Pit work is shut down (or will not be initiated) when sustained wind speeds exceed 25 miles per hour (mph) or are predicted to do so by Hanford Meteorological Station during the period of planned pit work.

* Perform remote inspections with cover block on;
* Perform decontamination of pit surfaces or pit contents with cover bocks on;
* Apply fixative with cover blocks on;
* Flush drains and check flow of drains with cover blocks on.

In addition to the minimum controls a fall protection handrail draped in plastic forming a contamination barrier around the top of the pit is used for the following activities:

* Remove/replace cover blocks;
* Perform inspections with cover blocks off;
* Perform decontamination of pit surfaces or pit contents with cover blocks off;
* Apply fixative with a hand held (Hudson Type) sprayer with cover blocks off;
* Flush drains and check flow of drains with cover blocks off;
* Repair/replace/ move leak detectors or other pit instrumentation/equipment with cover blocks off.

In addition to the minimum controls a fall protection handrail draped in plastic forming a contamination barrier around the top of the open pit and a bull pen with an operating portable exhauster are required for the following activities:

* Removal of cover blocks and performing the following operations: install, disconnect, change or cut up jumpers/blanks/valves or nozzles.

While cover blocks are on, low pressure fogging or a low volume whirly shall apply a fixative through an open valve handle hole or port which is closed during fixative application. The fogging or whirly operation is initiated gradually to coat the pit surfaces and cover blocks with fixative which reduces the potential for dislodging any contamination. Continuous surveys are performed during the fixative application. Additional fixative shall be applied, using a low pressure wand at any time there is an additional need for contamination control.

Anytime jumper work will be done a bull pen shall be in place. Jumper work in a pit cannot be performed without the use of a crane, therefore the bull pen top cannot be closed during jumper work.

The portable exhauster shall be used anytime the pit is uncovered and the bull pen is in place.

Cutting up unusable pit equipment with hydraulic shears or a low revolutions per minute (RPM) portable band saw shall be done within the pit with the bull pen in place and the portable exhauster operating.

The cover blocks are replaced at the end of each work shift.

The bull pen is continuously occupied to assure that required pit controls remain in place any time the pit is uncovered. If a temporary pit cover is used, it will be put in place to fully cover the pit openings. If the temporary cover used is 3/4 inch plywood sheets, they are wrapped in plastic, placed over the pit, and weighted down by using lead filled blankets. If a tarp is used as a temporary cover, it is laid over the handrail surrounding the pit and extends to the ground on all four sides. This tarp is then secured around the outside perimeter near ground level using tape or an elastic strap. In this way, the tarp forms a cap over the pit and raised portion of the handrail structure.

During 244-A and 241-ER-152 pit work operations, primary air inflow shall be through the open top of the bull pen and out the operating portable exhauster.

Additional special controls shall be added based upon the removable contamination level, contamination stability, and the operation to be performed as outlined in Attachment A of the HNF-IP-0842, Vol. VII Section 3.1.

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

Am 241	8.48E+00	Cm - 244	4.83E+00	Co - 60	3.87E-01
Cs 137	3.01E+03	Eu - 154	2.05E+00	Np - 237	1.35E-02
Pu - 238	2.70E-01	Pu - 239	4.40E+00	Pu 241	1.05E+01
Sr - 90	3.61E+02	Y - 90	3.61E+02		

5) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

6) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060(2)(d)).

7) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

8) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

9) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

10) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

11) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

12) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

13) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

14) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

15) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

16) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

17) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

    Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

    All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6))

18) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

19) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for

inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

20) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

21) The transfer of waste into the 244-A Double Contained Receiver Tank shall not occur without the operation of the 296-A-25 Exhauster.

22) All facilities with licensed emission units, except for radioactive materials licensees, shall submit a request to the department for renewal of their radioactive air emissions license at least sixty days prior to expiration of the license or as required by the Air Operating Permit. All renewal requests shall include a summary of the operational status of all emission units, the status of facility compliance with the standards of WAC 246-247-040, and the status of any corrective actions necessary to achieve compliance with the requirements of this chapter. Facilities with licensed emission units that also hold a radioactive materials license issued by the department shall submit this information along with their radioactive material license renewal submittal. If the department is unable to renew a radioactive air emissions license before its expiration date, the existing license, with all of its requirements and limitations, remains in force until the department either renews or revokes the license (WAC 246-247-040(9)).

23) All radioactive air emissions licenses issued by the department, except those issued to radioactive materials licensees, shall have an expiration date of five years from date of issuance or as specified in the Air Operating Permit. For radioactive material licensees, the requirements and limitations for the operation of emission units shall be incorporated into their radioactive materials license, and shall expire when the radioactive materials license expires (WAC 246-247-060(6)).

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: TANK FARM WASTE TRANSFER PITS 241-ER-152 AND 244-A LIFT STATION

Emission Unit Name: 241-ER-152 PIT **Emission Unit ID** 477

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **None**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247 075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
Sampling Requirements:	NDA after each job; or maintain operating logs once per year if not used on different jobs		

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

02/12/1999 NOC received February 1, 1999 and approved via AIR 99-204 on February 12, 1999.

12/31/2002 AIR 02-1240, mailed on December 31, 2002 to update Conditions and Limitations to meet Department standards.

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CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 2.45E-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 2.45E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

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b) Perform inspections;
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e) Perform decontamination activities;
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The receiver tank has a capacity of approximately 16,000 gallons and is constructed of carbon steel. It is surrounded by a tank vault that acts as a secondary containment vessel. The tank and vault are separated by an annular space. The floor is sloped to a sump for leak detection, collection and pump out.

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This ventilation system is operating when pit activities are being conducted. However, emissions through the 296-A-25 stack are minimal during the performance of pit activities, since the unused nozzles are capped and there is one remaining nozzle that could allow ventilation in-flow to the stack.

241-ER-152 Pit is a diversion box which is covered, below grade, reinforced concrete structure that provides a flexible method of directing liquid waste from one point to another. Diversion boxes also provide confinement for leaks in waste transfer lines and leaks at jumper nozzle connections. Waste transfer lines are connected inside the diversion box.

Minimal controls are used for all activities. The following activities require only these minimal controls; (1) pre-job and post-job rad surveys are performed by HPTs. Radiation Work Permit (RWPs) specify permissible occupational radiological limits during activities. HPTs survey and release equipment, inspect and approve required containment and provide radiological surveys to verify compliance to RWP limits; (2) Pit work is shut down (or will not be initiated) when sustained wind speeds exceed 25 miles per hour (mph) or are predicted to do so by Hanford Meteorological Station during the period of planned pit work.

* Perform remote inspections with cover block on;
* Perform decontamination of pit surfaces or pit contents with cover bocks on;
* Apply fixative with cover blocks on;
* Flush drains and check flow of drains with cover blocks on.

In addition to the minimum controls a fall protection handrail draped in plastic forming a contamination barrier around the top of the pit is used for the following activities:

* Remove/replace cover blocks;
* Perform inspections with cover blocks off;
* Perform decontamination of pit surfaces or pit contents with cover blocks off;
* Apply fixative with a hand held (Hudson Type) sprayer with cover blocks off;
* Flush drains and check flow of drains with cover blocks off;
* Repair/replace/ move leak detectors or other pit instrumentation/equipment with cover blocks off.

In addition to the minimum controls a fall protection handrail draped in plastic forming a contamination barrier around the top of the open pit and a bull pen with an operating portable exhauster are required for the following activities:

* Removal of cover blocks and performing the following operations: install, disconnect, change or cut up jumpers/blanks/valves or nozzles.

While cover blocks are on, low pressure fogging or a low volume whirly shall apply a fixative through an open valve handle hole or port which is closed during fixative application. The fogging or whirly operation is initiated gradually to coat the pit surfaces and cover blocks with fixative which reduces the potential for dislodging any contamination. Continuous surveys are performed during the fixative application. Additional fixative shall be applied, using a low pressure wand at any time there is an additional need for contamination control.

Anytime jumper work will be done a bull pen shall be in place. Jumper work in a pit cannot be performed without the use of a crane, therefore the bull pen top cannot be closed during jumper work.

The portable exhauster shall be used anytime the pit is uncovered and the bull pen is in place.

Cutting up unusable pit equipment with hydraulic shears or a low revolutions per minute (RPM) portable band saw shall be done within the pit with the bull pen in place and the portable exhauster operating.

The cover blocks are replaced at the end of each work shift.

The bull pen is continuously occupied to assure that required pit controls remain in place any time the pit is uncovered. If a temporary pit cover is used, it will be put in place to fully cover the pit openings. If the temporary cover used is 3/4 inch plywood sheets, they are wrapped in plastic, placed over the pit, and weighted down by using lead filled blankets. If a tarp is used as a temporary cover, it is laid over the handrail surrounding the pit and extends to the ground on all four sides. This tarp is then secured around the outside perimeter near ground level using tape or an elastic strap. In this way, the tarp forms a cap over the pit and raised portion of the handrail structure.

During 244-A and 241-ER-152 pit work operations, primary air inflow shall be through the open top of the bull pen and out the operating portable exhauster.

Additional special controls shall be added based upon the removable contamination level, contamination stability, and the operation to be performed as outlined in Attachment A of the HNF-IP-0842, Vol. VII Section 3.1.

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

Am - 241	8.48E+00	Cm - 244	4.83E+00	Co 60	3.87E-01
Cs - 137	3.01E+03	Eu - 154	2.05E+00	Np - 237	1.35E-02
Pu 238	2.70E-01	Pu - 239	4.40E+00	Pu 241	1.05E+01
Sr - 90	3.61E+02	Y - 90	3.61E+02		

5) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

6) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

7) **This condition was obsoleted on 12/18/2002.** The emission limits for each pit may not cause an offsite dose to exceed 2.45E-02 mrem/year to the MEI.
Included in standard condition number 2.

8) If flushing pressure is expected to exceed 50 psig, the department must be notified and assured that proper hoses, couplings and fittings are appropriate for the pressure used. Between 50 and 120 psig, only a notification is required. Anything above 120 psig requires approval from the department

9) The annual possession quantity is limited to 3.92E103 curies per pit.

10) **This condition was obsoleted on 12/18/2002.** The approved process is limited to that described in the NOC and as clarified in the faxed response to department questions and comments dated February 10, 1999. No other processes are approved. Department inspectors will verify this condition.
Included as standard condition number 3.

11) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

12) **This condition was obsoleted on 12/20/2002.** The required controls are approved as clarified in the February 10, 1999 faxed response to department questions and comments. The pit must not be left unattended when the pit is open, without some cover (as described in the response to question 11 in the department's comments)

Included in the process description in condition number 3.

13) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

14) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

15) **This condition was obsoleted on 1/23/2003.** The facility must maintain a log in an approved format for this activity or emission unit if the NDA monitoring method is used (WAC 246-247-080(7)).

Obsoleted via revision form approved January 23, 2003.

16) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

17) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6))

18) **This condition was obsoleted on 12/18/2002.** This approval, with its Conditions and Limitations, constitutes and amendment to the Department's Radioactive Air Emission License. This amendment must be included in the next revision of the Hanford Air Operating Permit (WAC 246-247-060(1)(e) and (2)(c)

Hanford Air Operating Permit was issued in July 2001.

19) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

20) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

21) The facility shall make available, in timely manner, all documents requested by the department for

review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

22) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

23) The facility must be able to demonstrate that the workers associated with this emission unit are adequately trained in the use an maintenance of emission control and monitoring systems, and in the performance of associated test and emergency response procedures (WAC 246-247-075(12)).

24) **This condition was obsoleted on 12/20/2002.** All commitments made in the clarification fax of February 10, 1999 are required.
Included in the process description in condition number 3.

25) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

26) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

27) **This condition was obsoleted on 1/23/2003.** Periodic confirmatory sampling is required. It must consist of non-destructive analysis (NDA) after each work package. An acceptable alternative is the maintenance of logs and NDA once a year, unless the exhauster is used on another emission unit during that year. In the event the exhauster is used on different emission units, an NDA will be required after each job (WAC 246-247-075(3)).
Obsoleted via revision form approved January 23, 2003.

28) This NOC is valid until January 1, 2005, when it expires (only for the activities described in this NOC and the clarification fax of February 10, 1999).

29) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060(2)(d)).

30) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

31) All facilities with licensed emission units, except for radioactive materials licensees, shall submit a request to the department for renewal of their radioactive air emissions license at least sixty days prior to expiration of the license or as required by the Air Operating Permit. All renewal requests shall include a summary of the operational status of all emission units, the status of facility compliance with the standards of WAC 246-247-040, and the status of any corrective actions necessary to achieve compliance with the requirements of this chapter. Facilities with licensed emission units that also hold a radioactive materials license issued by the department shall submit this information along with their radioactive material license renewal submittal. If the department is unable to renew a radioactive air emissions license before its expiration date, the existing license, with all of its requirements and limitations, remains in force until the department either renews or revokes the license (WAC 246-247-040(9)).

32) All radioactive air emissions licenses issued by the department, except those issued to radioactive materials licensees, shall have an expiration date of five years from date of issuance or as specified in the Air Operating Permit. For radioactive material licensees, the requirements and limitations for the operation of emission units shall be incorporated into their radioactive materials license, and shall expire when the radioactive materials license expires (WAC 246-247-060(6)).

33) Diffuse/Fugitive emissions shall be monitored using the 200 Area near-field ambient air monitors. Sample collection and analysis shall follow that of the near field monitoring program. Analytical results shall be reported in the Annual Air Emissions Report. Any change to this near-field ambient monitoring program must be approved by the department.

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
LICENSE AMENDMENT FOR

PROJECT TITLE: CONSTRUCTION, INSTALLATION, OPERATION, AND REMOVAL OF A VERTICAL CALCINER TO STABILIZE PLUTONIUM AT PFP.

Date Approved: 18-Jul-01

Emission Unit Name: 291-Z-1

This is a MAJOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **ALARACT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
(234-5Z Operations)	HEPA	2	2 Stages for process operations
236-Z Operations)	HEPA	2	2 Stages for process operations
(242-Z Operations)	HEPA	2	2 Stages for process operations
(all operations)	Fan	4	3 standby (7 total)

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Regulatory Requirements	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4) & WAC 246-247-75(2)	Alternative effluent flow rate not to exceed 290,000 cfm. Method 114 appendix B 61.93(b)(2)(ii) ANSI N13.1	All radionuclides which could contribute 10% of the potential EDE.	Continuous

Sampling Requirements: Continuous

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

06/26/01 NOC Revision form to revise the process description approved June 26, 2001. Approval letter, AIR 01-710, mailed July 18, 2001.

06/20/99 Three NOC Revision Forms approved on June 20, 1999 to provide process description changes.

11/08/96 Original NOC, Vertical Calciner Operation at the Plutonium Finishing Plant (DOE/RL-96-62), approved on November 8, 1996 via AIR 96-1105.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license

(WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 3.48E-02 mrem/year to the Maximally Exposed Individual. The total unabated emission limit for this Notice of Construction is limited to 6.96E+01 mrem/year to the Maximally Exposed Individual.

3) **This process is limited to:**

the design and operation of both the newly constructed and test calciners, and removal of the newly constructed calciner.

The newly constructed calciner will be assembled in a glovebox in the 234-5Z Building. The equipment will be sized to process one to two liters per hour of solution for concentrated feeds and three to four liters per hour for dilute feeds. The feed rate is variable to ensure the plutonium introduced into the vertical calciner has sufficient residence time to produce a suitable oxide.

The plutonium solutions will be slowly introduced into a stirred bed of previously generated product solids. This feed material will be slowly metered into the bottom of the vertical calciner. The feed rate will depend on the concentration of plutonium in the solution being processed. The feed will be roughly one to two liters per hour for concentrated feeds (>25 grams plutonium per liter) and three to four liters per hour for dilute feeds (<25 grams plutonium per liter).

The vertical calciner is a combination calciner and a two-micron offgas filter. Plutonium solutions are calcined in the lower unit and the vapors are filtered in the upper unit.

The calcination unit can be described as two concentric pipes. Calcination takes place in the annular space between these two pipes. As the liquid feed is introduced into the calciner, the feed rapidly evaporates in the hot powder bed, subsequently undergoing drying, denitration, and final heat treatment to a stable impure plutonium oxide powder.

Heat is supplied to the calcination unit by heaters wrapped around the outer pipe wall and inside the inner pipe wall. The heaters maintain the calciner temperature between 900 to 1050 C. These temperatures are considerably higher than required for decomposition of nitrate (130 to 225 C). The higher temperature serves to greatly reduce the plutonium reactivity, to promote complete formation of plutonium dioxide, and to facilitate a packageable plutonium product.

During calcination, the hot plutonium powder bed is stirred continuously by a U-shaped agitator that fits over the inner, capped pipe. The agitator speed affects both the particle size of the plutonium dioxide powder and the rate of heat transfer between the powder and the calciner wall.

During the thermal denitration, solutions containing alkaline metal nitrates (i.e., potassium nitrate) tend to become increasingly viscous and pasty before decomposition. These mastic-phase formations are undesirable, as these formations can form hard deposits on equipment surfaces and on particulate material through the reaction zone. Mastic formation is avoided by converting the feed solution to dry oxide as quickly as possible, or by removing the impurities through the ion exchange pretreatment process. The slow feed rate into the calciner will facilitate a rapid transition to oxide and avoid problems with the mastic phase for those solutions which do not undergo the pretreatment ion exchange process. The plutonium oxide product is discharged into a product receiver as described in the following paragraphs.

The plutonium oxide is collected as it overflows through a slot in the inner pipe. The product powder consists of relatively large, uniform particles. The grinding action of the agitator prevents the oxide

particles from becoming too large. The oxide proceeds down an overflow tube and into a product bed-receiver vessel. The height of the overflow tube can be adjusted to control the bed volume within the calciner. When the product receiver vessel is full, the oxide will be bagged out of the glovebox. If the plutonium product does not meet requirements of the U.S. Department of Energy long-term storage standard 3013-94 (DOE 1994), it will be transferred to a muffle furnace capable of meeting the nominal 1,000 C firing temperature required by the standard. After thermal stabilization in the muffle furnace is completed, a sample of the oxide will be sent to the engineering laboratory to verify that the loss on ignition is <0.5 weight percent. Following this final verification, the plutonium product will be transferred to the PFP Complex vaults until a final plutonium disposition decision is made.

The calciner offgas stream consists of a mixture of air, water, nitric acid, oxides of nitrogen (NOx), and a small component of organic impurities. Aqueous hydrochloric solutions run through the calciner will yield chloride in the offgas, which will be scrubbed out as sodium chloride. In addition, fine plutonium oxide powder could be entrained in the offgas stream. The offgas stream is run through two micron filters to remove the entrained oxide powder. The filters periodically are blown back with compressed air to knock particles from the filter back into the base of the calciner. The filters are blown back alternately so that one filter is always in operation. A vacuum applied to the filters draws off vapors that are run through a combined condenser and scrubber. This removes the majority of water and nitric acid in the offgas and any plutonium that might pass the filters. A basic scrubbing solution removes acid gases such as hydrogen chloride as well as nitrogen oxides. The nonreacted, noncombustible offgases remaining after the scrubber/chiller processing proceed through two existing stages of high-efficiency particulate air (HEPA) filtration before being released out the 291-Z-1 main stack. The offgases consist of water and air, with only trace amounts of NOx. The resultant aqueous scrub solution consists of sodium hydroxide, water, sodium chloride, sodium nitrate, and sodium nitrite.

The newly constructed calciner will be dismantled and dispositioned at the end of its useful life. The newly constructed calciner shall be dismantled by unhooking and unbolting components of the prototype using standard industrial equipment (e.g., wrenches). As appropriate, sawing techniques would be used for disassembly and/or size reduction. Standard bag-out techniques would be used to remove the newly constructed calciner from the glovebox for disposition as waste.

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

Am	241	2.14E+03
Pu	238	5.73E+02
Pu	239	1.95E+04
Pu	240	4.58E+03
Pu	241	9.95E+04

5) This approval, with its Conditions and Limitations, constitutes an amendment to the Department's Radioactive Air Emission License, and must be included in the next revision of the Hanford Air Operating Permit (WAC 246-247-060(1)(e) and (2)).
Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

6) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).
Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

7) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

8) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10).
Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

9) The facility must be able to demonstrate workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).
Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

10) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).
Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

11) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter. The department may require a demonstration of ALARACT at any time (WAC 246-247-080(1)).
Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

12) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).
Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

13) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).
Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

14) Report all measured or calculated emissions annually (WAC 246-247-080(3)).
Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

15) Report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitations included in this approval (paragraph 5) (WAC 246-247-080(5)).
Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

16) When this project is complete, or operations cease, the facility must notify the department via a report of closure, including whether or not any potential for airborne releases occurred (WAC 246-247-080(6)).
Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

17) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstration of a need-to-know (WAC 246-247-080(10)).
Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

18) The facility shall ensure all emission units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restrictions or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements (WAC 246-247-080(9)).

Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

19) The facility shall maintain readily retrievable storage areas for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).
Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

20) The owner/operator must inform the Department of Health whenever the activity associated with this NOC or any of the Conditions or Limitations contained in this approval are completed, abandoned, or otherwise made obsolete.
Conditions and Limitations added by Revision Form approved June 26, 2001 via AIR 01-710.

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: TRENCH 31 AND 34: LEACHATE COLLECTION AND STORAGE TANK (LLBG MIXED WASTE DISPOSAL)

Date Approved: 13-Dec-02

Emission Unit Name: LEACHATE COLLECTION TANK FOR TRENCH 31 **Emission Unit ID** 472

This is a MINOR, FUGITIVE, non-point source emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: None

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4)(i) & WAC 246-247-075(3)			Before and after emptying the tank. When the tank is not empty, take a monthly smear.

Sampling Requirements: Smear sample of overflow pipe

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

07/20/1994 Original construction/operation notification approved for Trench 31 during July 20, 1994 RTAM.

08/08/1995 Original construction/operation notification approved for Trench 34 during August 8, 1995 RTAM

07/13/1999 Revised NOC submitted to cover operation of Trench 31 and 34, DOE/RL-99-48 approved July 13, 1999. Original approvals expired per WDOH.

08/03/1999 Condition for approval added via signed note, August 3, 1999.

05/03/2002 Changes made to reflect request of AOP Administrative Amendment, 02-RCA-0327, dated May 3, 2002 and include standard Conditions/Limitations, issued by AIR 02-1219 dated December 13, 2002.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) 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)) The total limit on the Potential-To-Emit for

this Notice of Construction is limited to 6.06E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

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

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

Am - 241	2.75E-01	C - 14	3.50E+00	Co - 60	2.78E+00
Cs - 137	7.90E+00	Eu 152	1.63E+01	Eu - 154	3.66E+00
Eu 155	3.17E-01	Na 22	9.50E-02	Pu - 238	5.10E-02
Ra - 226	9.40E-01	Sr 90	4.70E+00	Tc - 99	8.80E-03
Th - 230	1.94E 02	Th - 232	3.06E-02		

5) 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.

6) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

7) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance

(WAC 246-247-060-(2)(d)).

8) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

9) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

10) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

11) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

12) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

13) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

14) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

15) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

16) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

17) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

18) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)).

(WAC 246-247-080(6))

19) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

20) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

21) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: TRENCH 31 AND 34: LEACHATE COLLECTION AND STORAGE TANK (LLBG MIXED WASTE DISPOSAL)

Date Approved: 13-Dec-02

Emission Unit Name: LEACHATE COLLECTION TANK FOR TRENCH 34 **Emission Unit ID** 473

This is a MINOR, FUGITIVE, non-point source emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **None**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4)(i) & WAC 246-247-075(3)			Before and after emptying the tank. When the tank is not empty, take a monthly smear.

Sampling Requirements: Smear sample of overflow pipe

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section

Change History

07/20/1994 Original construction/operation notification approved for Trench 31 during July 20, 1994 RTAM.

08/08/1995 Original construction/operation notification approved for Trench 34 during August 8, 1995 RTAM.

07/13/1999 Revised NOC submitted to cover operation of Trench 31 and 34, DOE/RL-99-48 approved July 13, 1999. Original approvals expired per WDOH.

08/03/1999 Condition for approval added via signed note, August 3, 1999.

05/03/2002 Changes made to reflect request of AOP Administrative Amendment, 02-RCA-0327, dated May 3, 2002 and include standard Conditions/Limitations, issued by AIR 02-1219 dated December 13, 2002

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) 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)). The total limit on the Potential-To-Emit for

this Notice of Construction is limited to 6.06E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

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

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

Am - 241	2.75E-01	C 14	3.50E+00	Co - 60	2.78E+00
Cs - 137	7.90E+00	Eu - 152	1.63E+01	Eu - 154	3.66E+00
Eu 155	3.17E-01	Na - 22	9.50E-02	Pu - 238	5.10E-02
Ra - 226	9.40E-01	Sr - 90	4.70E+00	Tc - 99	8.80E-03
Th 230	1.94E-02	Th - 232	3.06E-02		

5) 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.

6) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

7) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance

(WAC 246-247-060-(2)(d)).

8) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

9) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

10) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

11) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

12) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

13) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

14) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

15) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2))

16) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

17) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

18) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

    Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required. after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

    All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)).

(WAC 246-247-080(6))

19) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

20) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

21) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: HEPA FILTERED VACUUM RADIOACTIVE AIR EMISSION UNITS (HVU)

Emission Unit Name: HEPA VACUUMS **Emission Unit ID** 455

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **ALARACT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
There are no sampling requirements.			

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

03/25/1998 Original NOC (DOE/RL 97-50, Rev. 0) approved on March 25, 1998 via AIR 98-312.

11/04/1999 NOC (DOE/RL 97-50, Rev. 1) approved on November 4, 1999 via AIR 99-1103.

02/15/2000 Clarification to four conditions reviewed and approved during RTAM on February 15, 2000.

01/23/2002 NOC Revision (DOE/RL-97-50, Rev 1A) approved on January 23, 2002 to add two new models to Appendix A. Conditions and Limitations, AIR 02-303, mailed on March 06, 2002.

04/18/2002 AOP Minor Modification, 02-RCA-0285, received April 18, 2002 to state that AIR 02-303 replaced all previous conditions. Revised AOP Minor Modification, 02-RCA-0308, received April 25, 2002. No new Conditions and Limitations mailed.

05/23/2002 AOP Administrative Amendment received May 23, 2002 to clarify HEPA filter testing requirements. DOH required submittal of AOP Administrative Amendment in the standard form.

12/31/2002 AOP Administrative Amendment approved on June 18, 2002 to clarify HEPA Filter testing requirements. Conditions and Limitations mailed on December 31, 2002 via AIR 02-1246.

09/12/2003 Conditions and Limitations, AIR 03-1217, mailed on December 23, 2003 to reflect current appeal language agreed upon on September 12, 2003.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) 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)).

3) **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.

4) 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	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.				
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				
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.				
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.				

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.

5) The facility shall notify the department at least seven calendar days prior to any planned preoperational tests of new or modified emission units that involve emissions control, monitoring, or containment systems of the emission unit(s). The department reserves the right to witness or require preoperational tests involving the emissions control, monitoring, or containment systems of the emissions unit(s) (WAC 246-247-060(4)).

6) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-040-(5) and WAC 246-247-060-(5)).

7) **This condition was obsoleted on 9/12/2003.** These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

   Added by AIR 99-110. Condition updated to reflect current standard condition via AIR 02-1246. Obsoleted by appeal language agreed upon on September 12, 2003.

8) **This condition was obsoleted on 3/4/2002.** This approval, with its Conditions and Limitations, must be included in the next revision of the Hanford Air Operating Permit (WAC 246-247-060(1)(e) and (2)(c)), and will at that time, constitute a revision of the Radioactive Air Emissions License.

   Added by AIR 99-1103 Obsoleted by issuance of the Hanford Site Air Operating Permit.

9) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

10) **This condition was obsoleted on 2/15/2000.** The approved process is as follows: The HVU's fall into two categories. The first category is the use if the HVU's for the reduction of smearable contamination and the other is to reduce fixed contamination. Soil matrices are excluded from this NOC.

Condition clarified during RTAM on February 15, 2000.

11) 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.

12) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2).

13) The facility shall make available in a timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know. (WAC 246-247-080(10)).

14) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restrictions or requirements for entry, the facility owner or operator shall inform he department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

15) **This condition was obsoleted on 2/15/2000.** The abated dose limit for this NOC shall not exceed 1.2E-03 mrem/year to the MEI as described in the NOC. The unabated dose calculated is 4.97E-02.

Condition clarified during RTAM on February 15, 2000.

16) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

17) The facility must be able to demonstrate that workers associated with this emission unit are adequately trained in the use and maintenance of emission control and monitoring systems, and in the performance of associated test and emergency response procedures (WAC 246-247-075(12)).

18) **This condition was obsoleted on 2/15/2000.** The required possession quantity is APQ's calculated for a daily use because many of the activities are of short duration. In calculating the APQ'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.

Condition clarified during RTAM on February 15, 2000.

19) The facility shall notify the department within twenty-four hours of any shutdown, or of any transient abnormal condition lasting more than four hours or other change in facility operations which, if allowed to persist, would result in emissions of radioactive material in excess of applicable standards or license requirements (WAC 246-247-080(5)).

20) **This condition was obsoleted on 2/15/2000.** Monitoring requirements are as follows: In the event that the exhauster is used on different emission units 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, results of smears on the exhaust ports, maximum contamination level encountered or analysis results, area cleaned, air emission source constituents if other than plutonium 239 and strontium 90 potential radionuclide releases.

Condition clarified during RTAM on February 15, 2000.

21) All facilities must be able to demonstrate the reliability and accuracy of the radioactive air emissions monitoring data (WAC 246-247-075(13)).

22) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

23) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

24) 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.

25) 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.

26) **This condition was obsoleted on 9/12/2003.** The required possession quantity is APQ's calculated for a maximum annual combined use of HVU's by an individual facility or activity. APQ's are based on hypothetical worst-case source terms that all HVU's at an individual facility combined could handle during a year and remain below 0.05 mrem per year unabated dose.

Condition clarified during February 15, 2000 RTAM. Obsoleted to reflect current appeal language agreed upon on September 12, 2003.

27) 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.

28) 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.

29) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

30) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

31) The facility shall file a report of closure with the department whenever operations producing emissions of radioactive material are permanently ceased at any emission unit (except temporary emission units) regulated under this chapter. The closure report shall indicate whether, despite cessation of operations, there is still a potential for radioactive air emissions and a need for an active or passive ventilation system with emission control and/or monitoring devices. If decommissioning is planned and will constitute a modification, a NOC is required, as applicable, in accordance with WAC 246-247-060. (WAC 246-247-080(6))

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: PORTABLE/TEMPORARY RADIONUCLIDE AIRBORNE EMISSIONS UNITS (PTRAEU)

Date Approved: 13-Dec-02

Emission Unit Name: TYPE-1, TYPE-2, TYPE-3 **Emission Unit ID** 447

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **BARCT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(5)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	HEPA	1	Type-1
	HEPA	1	Type-2 and Type-3
	Charcoal filter	1	Type-2 and Type-3

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
WAC 246-247-075[3]	Appendix B, Method 114	GROSS ALPHA/BETA	Annual, unless sspecified 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 monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

01/27/1995 Original NOC approved via AIR 95-109 dated January 27, 1995.

03/12/1996 Concurrence given during the March 12, 1996 RTAM to change the Portable/Temporary Radioactive Air Emission Units (PTRAEU) Bi-Annual Report to Annual.

01/15/1997 NOC (DOE/RL-96-75) approved via AIR 96-1103 on January 15, 1997.

12/15/1997 NOC revision (DOE/RL-96-75, Revision 1) approved via AIR 97-1207 dated December 15, 1997.

10/22/1998 NOC revision (DOE/RL-96-75, Revision 1A) approved via AIR 98-1008 dated October 22, 1998.

11/04/1999 NOC Revision (DOE/RL-96-75, Revision 2) approved via AIR 99-1102 dated November 4, 1999.

02/15/2000 Clarification of conditions approved via RTAM on February 15, 2000.

09/10/2002 AIR 02-1220, mailed on December 13, 2002 to update Conditions and Limitations to meet Department standards.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) 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)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 8.90E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

   the following PTRAEUs:

   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.

4) This NOC does not have "Annual Possession Quantity" limits.

5) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this

chapter (WAC 246-247-080(1)).

6) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

7) **This condition was obsoleted on 9/10/2002.** This approval, with its conditions and Limitations, must be included in the next revision of the Hanford Air Operating Permit (WAC 246-247-060(1)(e) and (2)(c)).

NOC condition of approval via AIR 99-1102 on November 4, 1999. Obsoleted by issuance of the Hanford Site Air Operating Permit.

8) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

9) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

10) 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.

11) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

12) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

13) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

14) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

15) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

16) **This condition was obsoleted on 12/9/2002.** The approved process is limited to the following:

1. Type I units that are vacuums and are to be used as ventilation units. If the vacuum is used in any other manner WDOH
must approve its use under a separate application before the activity commences.

2. Type II units decrease the chance of unintentional cross contamination and are sample preparation units. These units
enable the removal of material from core barrels, homogenize the material, and fill prescribed sample containers for onsite
and offsite analysis.

3. Type III units are used for sample screening and analysis and provide preliminary screening of samples to determine

potential problem areas. They also screen samples requiring further in depth analysis. 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 the preparation of radioactive standards to be used for instrument calibration.

NOC condition of approval via AIR 99-1102 on November 4, 1999. Obsoleted by standard process description December 9, 2002

17) **This condition was obsoleted on 2/15/2000.** Ductwork, seams, and potential release locations on the portable exhauster are to be monitored on a routine basis for potential radionuclide releases according to the NOC. These routine checks should be kept as retrievable records.

NOC condition of approval via AIR 99-1102 on November 4, 1999. Obsoleted by clarification of condition approved via RTAM on February 15, 2000.

18) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

19) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

20) 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.

21) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

22) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

23) **This condition was obsoleted on 12/9/2002.** The required controls are as described as follows:

Type I units shall be equipped with a HEPA Filter. Some also will be equipped with an additional HEPA Filter in series, charcoal absorbers, or moisture separators.

Type II and Type III have an exhaust system consisting of a single stage HEPA filter followed by an activated charcoal absorber.

NOC condition of approval via AIR 99-1102 on November 4, 1999. Replaced December 9, 2002 by standard Condition/Limitation contained in emission unit information.

24) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

25) 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.

26) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

27) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

Approval Number: AIR 02-1221 NOC ID: 417

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: REACTIVATION OF PUREX STORAGE TUNNEL NUMBER 2

Date Approved: 13-Dec-02

Emission Unit Name: 296-A-10 **Emission Unit ID** 384

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: ALARACT

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	HEPA	1	1 bank
	Fan	1	Inactive

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
	Appendix B, Method 114(3)	TOTAL ALPHA TOTAL BETA	1 week sample / year (when operating)

Sampling Requirements: Record Sample

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

09/10/2002 Original approval given via AIR 99-1205 dated December 20, 1999.

09/10/2002 AIR 02-1221, mailed on December 13, 2002 to update Conditions and Limitations to meet Department standards.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) 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)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 7.80E-04 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

   receiving up to 3.5 Mci of radioactive waste loaded into 22-ton steel waste disposal boxes (SWDBs).

without prior written approval. The approved activities are limited to:
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.

4) This NOC does not have "Annual Possession Quantity" limits.

5) 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.

6) **This condition was obsoleted on 12/9/2002.** The rail car may 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. Only two SWDBs are allowed on a single rail car. The rail cars must not have any dispersible contamination on them. If they do, they must be stored inside the tunnel doors and cannot be held outside.
Replaced by standard process description December 9, 2002.

7) 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.

8) 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.

9) 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.

10) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

11) **This condition was obsoleted on 9/9/2002.** This approval, with its Conditions and Limitations, must be included in the next revision of the Hanford Air Operating Permit (WAC 246-247-060(1)(e) and (2)(c))
Obsoleted by issuance of the Hanford Site Air Operating Permit.

12) **This condition was obsoleted on 12/9/2002.** The total unabated dose due to emissions from the 296-A-10 stack (including current inventory, placement of rail cars into the PUREX Tunnel, and proposed increase in inventory) cannot exceed 7.8E-04 mrem per year to the MEI.
Replaced by standard Condition/Limitation on December 9, 2002.

13) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

14) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

15) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6))

16) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

17) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

18) 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.

19) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

20) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

21) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

22) 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.

23) 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

24) 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.

25) 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.

26) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

27) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

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

29) **This condition was obsoleted on 11/5/2002.** All containers must meet transportation requirements to be moved by truck to the PUREX Tunnel rail cut. A mobile crane will be used to transfer the SWDB from the truck to the rail car. The impact liner and overpack must be free of loose contamination before it can be reused for subsequent transfers.
Replaced by process description via AIR 02-1221.

30) 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.

31) 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.

32) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

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

34) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

35) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

36) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

37) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

38) **This condition was obsoleted on 12/9/2002.** The total abated dose limit is 3.9 E-07 mrem per year to the MEI.

Replaced by standard Condition/Limitation on December 9, 2002.

39) **This condition was obsoleted on 12/9/2002.** When this project is completed, or operations cease, the facility shall notify the department via a report of closure, and indicate whether or not any potential for airborne release occurred (WAC-246-247-080(6)).

Replaced by standard Condition/Limitation on December 9, 2002.

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: INSTALLATION AND OPERATION OF WASTE RETRIEVAL SYSTEM IN TANKS 241-AP-102 AND 241-AP-104

Emission Unit Name: 296-A-40 **Emission Unit ID** 204

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **ALARACT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Deentrainer	1	2 parallel flow paths
	Heater	1	2 parallel flow paths
	Prefilter	1	2 parallel flow paths
	HEPA	2	2 parallel flow paths with 2 HEPAs in series
	Fan	1	2 parallel flow paths, 1 in operation at a time

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93[b][4][i] & WAC 246-247-075[3]	Appendix B, Method 114(3)	TOTAL ALPHA TOTAL BETA	2 week sample/quarter

Sampling Requirements: Record Sample

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

01/24/2000 Original NOC, Installation and Operation of a Waste Retrieval System in Tanks 241-AP-102 and 241-AP-104, Project W-211 (DOE/ORP-99-09), approved on January 24, 2000 via AIR 00-106.

06/09/2000 Eight conditions clarified on June 9, 2000 via AIR 00-601.

05/23/2002 AOP Administrative Amendment received May 23, 2002 to clarify HEPA filter testing requirements. DOH required submittal of AOP Administrative Amendment in the standard form.

12/31/2002 AOP Administrative Amendments approved on June 18, 2002 (to clarify HEPA filter testing requirements) and August 6, 2002 (to correct typographical errors). Conditions and Limitations mailed on December 31, 2002 via AIR 02-1247.

04/09/2003 NOC Revision approved February 19, 2003 to provide condition changes. Conditions and Limitations, AIR 03-1105, mailed on November 14, 2003.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 2.17E-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 4.50E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

   install and operate a waste retrieval system (one mixer pump and other required equipment) in the 241-AP-102 and the 241-AP-104 tanks. The pumps will operate in a batch mode as needed. The waste capacity of the tanks will not be altered, nor will the ventilation system.

   The 241-AP-102 and 241-AP-104 tanks are 75-foot diameter double-shell tanks (DST) constructed from the latest generation of tank designs, with a reinforced concrete shell and dome, and an insulating concrete base. A heat-treated, stress relieved, primary steel liner and a non-stress-relieved, outer steel liner are separated by a 2.5 foot annulus and contained inside the concrete shell. The tanks have a flat bottom with a usable waste depth of approximately 35 feet (1,160,000 gallons).

   Current design calls for modifications to the AP-102 and AP-105 tanks and associated equipment to allow installation and removal of waste retrieval system equipment, and shall be limited to the following major components.

   New In-Tank Equipment:

   Installation of one mixer pump in each tank for mobilizing the settled solids. The pumps will be equipped with an approximate 300-horse power motor with a variable speed drive to allow operation from approximately 60 percent speed to 100 percent speed. The pump will be capable of pumping waste at a flow rate of approximately 5,200 gallons per minute through each of two, horizontally opposed, discharge nozzles, located approximately 18 inches above the bottom of the tank.

   Installation of a high-pressure spray wash system on top of each of the 42-inch risers used for the mixer pumps. The spray wash system will be used for future decontamination of the mixer pumps as they are removed from the tank.

   Installation of one transfer pump in each tank for the transfer of waste. The pumps will be capable of maintaining a variable waste transfer at a top rate of up to 140 gallons per minute.

   Installation of one closed circuit television for each tank.

   New Ancillary Equipment and Buildings:

   Construction of an annex to the existing 241-AP-271 Instrument Building to house retrieval instrumentation/electrical equipment and operator stations.

   Installation of electrical power and instrument cables and other utility tie-ins and/or upgrades (e.g.,

sanitary and raw water, and telecommunications).

Upgrade of Existing Pits

Installation of new, double-contained waste transfer piping, water and diluent piping to and from the process pits, and 8-inch diameter annulus ventilation piping. A total of approximately 1,400 linear feet of piping will be installed approximately 5 feet underground.

Installation of jumpers inside existing AP02A, AP02D, and AP04A AP Farm pits.

Installation of three new sets of pit cover blocks for the AP02A, AP02D, AP04A pits.

Removal, Decontamination and Demolition of Existing Equipment:

Removal of one mixer pump from AP-102.

Removal of one transfer pump from AP-102 and one transfer pump from AP-104.

Removal of a slurry distributor from AP-104.

Removal of a drop-leg jumper from AP-102.

Relocation of a dip tube assembly to a different riser (AP-104).

Removal of jumpers form each of the three pits, central pump pit cover blocks, and pump pit cover blocks.

Removal of an existing 2-inch waste line, approximately 15 linear feet.

Use of equipment and containers for removal, cleaning, decontamination, transport, storage, and burial of in-tank components and soil.

Removal of existing 8-inch-diameter annulus ventilation piping, approximately 32 feet.

Construction Activities with the Potential to Emit are:

Construction activities with the potential to emit include soil excavation, work in pump pits, pipe cutting, removal of, and installation of in-tank equipment. Some of these activities are described in, and will be done in accordance with, an applicable Tank Farm ALARACT demonstration, HNF-4327 latest revision, Control of Airborne Radioactive Emissions for Frequently Performed TWRS Work Activities. The specific activities and corresponding ALARACT demonstration are called out as they apply in the following text.

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 their NOCs (98-EAP-037, DOE/RL-96-75, and DOE/RL-97-50 respectively).

The AP Tank Farm is posted and maintained as a radiological buffer area, free of surface contamination (entrance is made in street clothes). There are no recorded spills or leaks. Therefore, encountering contamination is not expected during soil excavation activities. Because of the possibility of encountering previously undetected subsurface contamination, all work is performed in accordance with the Hanford Site Radiological Control Manual and the RPP As Low As Reasonably Achievable (ALARA) Program requirements. These requirements are carried out through the activity work packages and associated radiological work permit (RWP).

Soil Excavation:

Soil will be excavated inside and outside the AP Tank Farm to install new piping and construct a new pump pit. A total of approximately 1,000 cubic yards shall be excavated, which includes approximately 600 cubic yards inside the tank farm. Backfill shall be made with the original removed soil or 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). Clean soil piles may 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 also may be performed with heavy equipment. The Regulated Guzzler may also be used as described in its NOC for use in the A Tank Farm Complex (98-EAP-037).

Pipe Cutting:

One existing 2-inch diameter waste transfer line will be cut and replaced with a new 3-inch diameter waste transfer line. The cuts will be made, inside a glove bag, using appropriate equipment such as a sawzall or tri-tool. The tie-ins will be made at the new pit nozzles. If any welding is required, the glove bag will be removed and the weld made.

One 12-inch diameter tank riser will be cut to fit into the new pit being constructed. The riser will be opened and an expandable plug will be installed in the riser to maintain containment of the vapor space and prevent material from falling into the tank while the work takes place. In order to perform the cut without a glove bag, the riser will be surveyed/smeared to verify removable contamination levels are equal to or less than 10,000 dpm/100 cm2 beta gamma and 200 dpm/100 cm2 alpha. The cut will be made above the plug with equipment such as a tri-tool or sawzall. If a glove bag is used, it will be removed. The plug will be removed and a flange welded in place. Then the top of the riser flange will be sealed with a temporary shield plug.

Approximately thirty-two feet of 8-inch diameter annulus ventilation pipe will be cut and rerouted. The cuts will be made, inside a glove bag, using appropriate equipment such as a sawzall or tri-tool. The glove bag will be removed and the tie-ins will be made by welding.

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).

Pit Work:

Work to be performed in pump pits includes replacing three existing sets of cover blocks with newly designed cover blocks, core drilling (core drills will be performed as necessary), installing new nozzles, removing existing jumpers, and installing riser extensions (total of two, 42-inch diameter).

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 below.

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).

At the start of the pit work, the cover blocks will be lifted off and radiologically surveyed to determine appropriate disposal protocol and packaged for disposal. A new cover block will be installed when all work in the pit has been completed.

Core drilling will be performed 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. The drilling bit will be water-cooled. Nozzle installation will generally 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 shall 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 it. Once the nozzle(s) is installed, the temporary pit cover will be replaced until other work inside the pit requires its removal.

Installation of the 42-inch diameter riser extensions will take place in an open pit. Only the risers that will house a mixer pump will have an extension installed. The depth-verification shield plug left in/on the riser from the previously removed mixer pump shall be removed and replaced with the riser extension that has a temporary shield plug inserted at the bottom end. The riser will be open during this step which takes approximately thirty minutes. The extension will be sealed to the cover block with metal bellows. The extensions shall be equipped with spray was rings that will provide a means of decontamination for future mixer pump removals. They will also provide confinement between the pump and the inside of the pit during future pump removals, which will be possible without removing the pit cover blocks.

Removal of In-Tank Equipment

Various in-tank equipment will be removed from both tanks to make room for the water retrieval equipment, or to be replaced with equivalent equipment built to withstand the mixer pump jet forces. The existing flexible receiver equipment will be used to remove and decontaminate, to acceptable levels, a mixer pump (from a 42-inch riser) and two transfer pumps (from 12-inch risers). The remaining equipment will be removed from 4-inch, 12-inch, and 42-inch risers using the general bag out process (sleeving equipment with plastic or piping as it is removed.

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 below.

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. If contingency decontamination is required a two-roomed decontamination tent will be set up within the tank farm fence. Decontamination work will take place in one room and the other will be maintained "clean".

Flexible Receiver Bagging Process

Use of the flexible receiver involves connecting to and disconnecting from a tank riser or pit; lifting/removing the equipment; washing down/decontaminating the equipment; and bagging the equipment. The flexible receiver can be used in a manual or a completely automated mode. Various flexible receiver equipment includes a washer assembly, a radiation monitoring and camera assembly, a bag cinch and cut assembly, a secondary bag seal assembly, and an appropriately sized receiving bag.

The connection process to risers in a concrete pit is different than that to risers outside at, or below, grade level. For risers in pits, the cover block is removed and replaced with the flex receiver platform. The gap between the pit and the platform is sealed with plastic and tape. There is one opening in the platform that is directly above the equipment/riser. The equipment is lifted off the riser, to slightly above the platform, long enough to position the split plates that will support the equipment when it is lowered back down the platform. Generally this step takes less than fifteen minutes and during this time the riser is open around the equipment as it is raised. The equipment is lowered to rest/seal on the split plates. In some instances a gasket may be used between the split plates an the equipment to enhance the seal. At this point confinement is considered restored and work can take place on the upper portion of the piece of equipment, if needed, to prepare it for removal. Once the preparatory work is complete, the equipment is raised slightly to remove the split plates and then lowered back down to rest/seal on the riser. An adapter spool piece assembly (includes the spool piece, the spray wash unit, and alignment bellows) is placed over and around the riser, and the equipment setting on top of the riser. The adapter spool piece is equipped with a rubber seal on the bottom, which provides a seal against the floor of the pit, and the alignment bellows are bolted to the platform providing a seal against the platform. An impact limiter is installed on top of the platform, around the opening, as a precaution if the equipment free falls during the remote bagging process. The piece of equipment is again raised to rest/seal on the impact limiter. Subsequent confinement is provided by the gaskets between equipment/assembly pieces and the rubber seal on the bottom of the adapter spool piece. The remainder of the flex receiver equipment is bolted into place above the impact liner.

For risers that cannot accommodate an adapter spool piece (outside risers), a split spool piece is used to bolt the flex receiver equipment to the riser flange. In this instance, a seal against a floor cannot be made, so a glove bag is used to confine contamination. A glove bag, with the spool piece in it, is sealed

around the riser, the riser is opened, the equipment is raised slightly to allow installation of the split spool piece onto the riser flange. Generally this step takes less than fifteen minutes and during this time the riser is open (within the glove bag) around the equipment as it's raised. The equipment is lowered back down to rest/seal on the split spool piece and the spray wash unit is bolted to the split spool piece. The remainder of the flex receiver equipment, in its entirety, is swung into position, the bottom component is slipped into the glove bag and then bolted to the spray wash unit within the glove bag.

After the riser connection process has been completed, the equipment is slowly lifted through the riser (approximately 1 foot per minute). The washing process takes place concurrently with lifting and uses preheated water pressurized up to 3,000 pounds per square inch. Washing takes place outside of the vapor space and the run-off is returned to the tank through the riser.

After a section of the equipment has been washed it is pulled through the radiation monitoring assembly. Here, spectrum analysis is performed on the equipment and it is viewed via the camera to determine if the washing process needs to be repeated. This process will be repeated until the equipment shows no visual signs of waste residue.

Once washed and dripped dry, the equipment is pulled into the flex receiver bag (herculite-type), which expands as the equipment is hoisted up into it. Once the equipment is completely in the bag, an absorbent mat is attached inside the bag. The mat can absorb up to 8 gallons of liquid, if needed. Next, a mechanical sealing device cinches the bag closed with wire rope and crimps the bottom of the bag in two places, one below the other. The bag is then cut between the two crimps, leaving a sealed top section containing the equipment, and a sealed bottom section sealing the riser opening. The bag is then hoisted into position for secondary bagging of the first seal. Secondary bagging involves lowering the bagged equipment, sealed end first, into another bag that fits around the bottom of the first bag. The secondary bag is also cinched closed with wire rope. The portion of the first bag that was cinched at the riser is then removed and disposed of and the riser is closed. From here the equipment is ready for waste packaging for storage and/or burial.

LLCE Waste Packaging Process

The waste packaging process takes place immediately after the equipment bagging process. It is called the Long Length Contaminated Equipment (LLCE) Disposal System and was designed specifically for application at Hanford Tank Farms. It packages non-contact, remote handled, radioactive waste, for storage or burial. In general, the process involves pushing the LLCE into a storage/burial container (polyethylene piping, various diameters and lengths) and filling the container with lightweight grout (perlite concrete) to attain a greater than or equal to 90 percent filled container. Cold testing has shown that it takes approximately two hours to fill the largest container and dissection of the container has demonstrated that the voids around the bagged LLCE are filled 100 percent.

The previously bagged equipment is placed into the skid assembly of the tilt trailer (vertical position). The skid assembly is lowered to the horizontal position and the equipment is slowly pushed into the container already in place on the transport trailer. The endcap is welded closed, using electrical current to fuse the polyethylene together, and leak tested in place. A vent penetration is installed at the top of the end cap for venting displaced air while filling. Another penetration is also put into the endcap for installation of the "trimmie tube" (distributes grout evenly into the container). The vent penetration is fitted with, or piped to, a high-efficiency particulate air (HEPA) filter to satisfy ALARA requirements. At the storage/burial area, the container is removed from the transport trailer and placed for storage or

burial.

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

The retrieval process at the AP-102 and AP-104 tanks will provide feed stock to a waste treatment facility. The low activity waste received from the source tanks may be conditioned and/or diluted to deliver compliant waste. Mixing and dilution may also take place at the source tanks to meet the waste specifications of AP-102 and -104, i.e., solids content must be within a predetermined amount. Incoming waste will be staged in the tank(s) until enough has been accumulated to send, and the treatment facility is ready to receive, a batch. The mixer pump will then be operated to maintain waste uniformity during staging and to mix the waste for a short period of time before transferring it. The mixer pump will be operated at full speed 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 diluent will be adjusted. Once the waste is verified acceptable, the transfer lines will be preheated/flushed with diluent, and a transfer to the treatment facility will follow. After the transfer, the lines will be flushed again with diluent.

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

Ac 227		5.65E-03	Am - 241	2.48E+04	Am - 243		3.11E-02
Ba - 137	m	2.20E+06	C 14	2.04E+02	Cd - 113	m	5.65E+02
Cm - 242		9.87E-01	Cm 243	4.85E+00	Cm - 244		1.54E+01
Co - 60		7.59E+02	Cs 134	2.65E+02	Cs - 137		2.32E+06
Eu - 152		4.07E+01	Eu - 154	3.73E+03	Eu 155		4.73E+03
H 3		1.41E+03	I - 129	1.10E+01	Nb - 93	m	7.76E+01
Ni - 59		1.30E+01	Ni - 63	1.28E+03	Np - 237		3.10E+01
Pa 231		2.50E-02	Pu 238	3.48E+02	Pu - 239		8.17E+02
Pu - 240		2.25E+02	Pu 241	8.33E+03	Pu - 242		3.19E-02
Ra - 226		4.81E+00	Ra 228	2.05E+00	Ru - 106		1.39E+01
Sb - 125		1.33E+03	Se - 79	2.19E+01	Sm - 151		7.72E+04
Sn - 126		3.32E+01	Sr 90	5.54E+05	Tc - 99		1.46E+04
Th - 229		4.74E-02	Th 232	2.32E-01	U - 232		6.32E+00
U - 233		2.42E+01	U - 234	1.01E+01	U 235		3.90E-01
U 236		7.00E-01	U - 238	8.79E+00	Y - 90		5.54E+05
Zr 93		1.06E+02					

5) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6))

6) All pit work must be performed in accordance with TWRS ALARACT Demonstrations 6 and 14 for Pit Access and, ALARACT Demonstrations for Pit Work.

7) If the wind speeds exceed 30 miles per hour the work in the glove bags will stop. If sustained wind speed exceeds 25 miles per hour pit work must stop. Records of wind speeds reading must be kept and made available to DOH, if requested.

8) **This condition was obsoleted on 6/9/2000.** If smeared surface shows removable contamination levels are equal to or greater than 10,000-dpm/100cm2 beta gamma and 200 dpm/100cm2 alpha it must be cut and prepared for welding inside of a glove bag. Expandable foam and fixatives may be used to fix contamination.
Voided by AIR 00-601, dated June 9, 2000. AIR 00-601 provided new condition and limitation.

9) All construction approved in this NOC must be completed by 2011.

10) **This condition was obsoleted on 12/20/2002.** Glove bags will be removed before all welds.
Included in process description condition.

11) **This condition was obsoleted on 6/9/2000.** An expandable plug must be placed when the riser is opened in order to maintain constant vapor space and material from falling into the tank.
Voided by AIR 00-601, dated June 9, 2000. AIR 00-601 provided new condition and limitation.

12) **This condition was obsoleted on 6/9/2000.** Soil excavation is limited to approximately 1,000 cubic yards total of which 600 cubic yards inside the tank farm backfill must be made with original soil or addition of controlled density fill composed of sand, water, and a small amount of cement. Cuts to transfer line must be done in a glove bag.
Voided by AIR 00-601, dated June 9, 2000. AIR 00-601 provided new condition and limitation.

13) The facility must be able to demonstrate the reliability and accuracy of emission data and other test results from this unit (WAC 246-247-075(13).

14) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

15) **This condition was obsoleted on 6/9/2000.** Equipment removed from the tank is not to be decontaminated in the tank farm. If decontamination is needed it must be performed inside a decontamination tent.
Voided by AIR 00-601, dated June 9, 2000. AIR 00-601 provided new condition and limiter.

16) **This condition was obsoleted on 12/20/2002.** Soil excavation emission controls during construction activities must be based on TWRS ALARACT Demonstration 5 for soil excavation (using hand tools), and must follow the radiological controls specified in that ALARACT.
Included in process description condition.

17) **This condition was obsoleted on 12/20/2002.** Use of equipment and containers for removal, cleaning, decontamination, transport, storage and burial of in-tank components and soil are approved.
Included in process description condition.

18) **This condition was obsoleted on 6/9/2000.** TEDE to the Maximally Exposed Individual (MEI) unabated dose from all construction activities is 0.042 millirem per year. The abated offsite dose from mixer pump operation is 2.17 E-05 millirem per year.
Voided by AIR 00-601, dated June 9, 2000. AIR 00-601 provided new condition and limitation.

19) Sample collection flow rate shall be approximately 120 +/- 12 cubic feet per hour.

20) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2).

21) Periodic confirmatory measurements for the AP Tank Farms existing 296-A-40 stack shall consist of a two-week sample collected four times a year.

22) The use of the regulated Guzzler, Portable/Temporary Radioactive Air Emission Unit and HEPA filtered vacuum radioactive emissions units may be used as needed as prescribed by DOH in their latest approved revision.

23) The facility shall make available in a timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know. (WAC 246-247-080(10)).

24) **This condition was obsoleted on 12/20/2002.** In tank emission controls for the installation and removal of equipment activities must be based on TWRS ALARACT Demonstration 13 for installation, Operation and Removal of Tank Equipment, and must follow the radiological controls specified in that ALARACT.
Included in process description condition.

25) **This condition was obsoleted on 6/9/2000.** Flexible bagging process of equipment shall be performed as outlined in the NOC. All equipment shall be double bagged. Disposal Long Length Contained Equipment (LLCE) Disposal System waste packaging process is used after the equipment is bagged. A vent penetration is made at the top of the end cap to the container. The vent must be fitted with or piped to a high-efficiency particulate air filter (HEPA).
Voided by AIR 00-601, dated June 9, 2000. AIR 00-601 provided new condition and limitation.

26) Performance of miscellaneous activities for support of construction and operation activities shall not increase emissions above those estimated in this NOC.

27) **This condition was obsoleted on 12/20/2002.** The following equipment is approved to be removed for AP-102: mixer pump, transfer pump, and drop-leg jumper.
Included in process description condition.

28) **This condition was obsoleted on 12/20/2002.** Approval is given to remove jumpers: the central pump pit cover blocks and pump pit cover blocks of these pits.
Included in process description condition.

29) **This condition was obsoleted on 12/20/2002.** The work approved is limited to the installation and operation of Waste Retrieval System Tanks 241-AP-102 and 241-AP-104. It includes removal of existing equipment, installation of new equipment and construction of an annex to the 241-AP-71

instrument building and construction of a new pump pit in the AP Tank Farm (241-AP-04D).
Included in process description as condition.

30) All HEPAs must be individually tested annually (per ASME 510) to a minimum efficiency of 99.95% for the removal of particulates using a DOP aerosol as defined in ASME N510 or approved equivalent.

31) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

32) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that , if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

33) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

34) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

35) **This condition was obsoleted on 6/9/2000.** Removals of about 32 feet of existing eight inch diameter annulus ventilation piping.
Voided by AIR 00-601, dated June 9, 2000. AIR 00-601 provided new condition and limitation.

36) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

37) **This condition was obsoleted on 12/20/2002.** Installation of jumpers inside existing AP02A, AP02D, and new AP04A, AP04D, and new pit covers in the AP tank farm pits.
Included in process description condition.

38) **This condition was obsoleted on 12/20/2002.** The following equipment is approved to be removed for AP-104: transfer pump, a slurry distributor, and relocation of a drip tube assembly to a different riser (AP04D).
Included in process description condition.

39) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restrictions or requirements for entry, the facility owner or operator shall inform he department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

40) **This condition was obsoleted on 6/9/2000.** Removal of approximately 15 linear feet of existing two-inch waste line.
Voided by AIR 00-601, dated June 9, 2000. AIR 00-601 provided new condition and limitation.

41) **This condition was obsoleted on 2/19/2003.** Construction of a Caustic Supply Dilution System to be constructed outside of the AP tank farm fence as described in the NOC. The Caustic Supply

Dilution System must be isolated to prevent any backflow or radioactive material of the caustic feed tank. This system will not handle radioactive waste outside the tank farm.

Obsoleted as the Caustic Supply Dilution System is no longer required. Obsoleted via revision form approved February 19, 2003.

42) The facility must be able to demonstrate that the workers associated with this emission unit are adequately trained in the use an maintenance of emission control and monitoring systems, and in the performance of associated test and emergency response procedures (WAC 246-247-075(12)).

43) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

44) **This condition was obsoleted on 12/20/2002.** Installation of double contained waste transfer piping and diluent piping to and from the process pits and installation of approximately 32 feet of eight-inch diameter annulus ventilation piping. These 1,400 linear feet of piping will be installed about five feet underground.

Included in process description condition.

45) **This condition was obsoleted on 12/20/2002.** The new equipment to be installed is to include: a 300-horse power motor, spray wash system on each riser, one decant/transfer pump and one closed circuit television system in each tank.

Included in process description condition.

46) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

47) **This condition was obsoleted on 12/20/2002.** This approval, with its Conditions and Limitations, must be included in the next revision of the Hanford Air Operating Permit (WAC 246-247-060(1)(e) and (2)(c)), and will at that time, constitute a revision of the Radioactive Air Emissions License.

Hanford Site Air Operating Permit was issued July 2001.

48) **This condition was obsoleted on 12/20/2002.** Approval is given to remove approximately 15 linear feet of existing two-inch waste line.

Added via AIR 00-601, dated June 9, 2000. Included in process description.

49) **This condition was obsoleted on 12/20/2002.** Approval is given to remove about 32 feet of the existing eight-inch diameter annulus ventilation piping.

Added via AIR 00-601, dated June 9, 2000. Included in process description.

50) **This condition was obsoleted on 12/20/2002.** Soil excavation is limited to approximately 1,000 cubic yards total of which approximately 600 cubic yards can be inside the tank farm fence. The disturbed areas must be backfilled. Backfill must be composed of the original solid and or additional clean, control density fill composed of sand, water and a small amount of cement.

Added via AIR 00-601, dated June 9, 2000. Included in process description.

51) Pipe cuts will be made using a sawzall or tri-tool. If removable contamination on only cutting surface is greater than or equal to 10,000 dpm/100cm2 beta/gamma and 200 dpm/100cm2 alpha it must be cut and prepared in a glove bag for welding. If contamination levels are below these levels cutting maybe done outside of a glove bag. Expandable foam and fixatives are approved to fix smearable contamination.

52) Prior to cutting an expandable plug must be in place when a riser is opened in order to maintain

constant vapor space and prevent material from falling into the tank during cutting.

53) **This condition was obsoleted on 12/20/2002.** Currently there are no plans to further decontaminate the equipment after it is removed from the tanks. If these activities are needed these activities may be performed in a decontamination test to be located inside of the tank farm.
Added via AIR 00-601, dated June 9, 2000. Included in process description condition.

54) **This condition was obsoleted on 12/20/2002.** The flexible bagging process for containing the equipment removed from the tanks shall be performed as outlined in the NOC. The bottom sealed portion of all bagged equipment shall be double bagged. The Long-Length Contaminated Equipment (LLCE) disposal system waste packaging process is used after the equipment is bagged. Details are found in the NOC.
Added via AIR 00-601, dated June 9, 2000. Included in process description condition.

55) **This condition was obsoleted on 12/20/2002.** TEDE to the Maximally Exposed Individual (MEI) unabated dose from all construction activities is 0.045 millirem per year. The abated offsite dose from mixer pump operations is 2.17E-05 millirem per year.
Added via AIR 00-601, dated June 9, 2000. Obsoleted emission limits included in automatic condition.

56) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission units control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-075(6)).

57) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

58) All facilities with licensed emission units, except for radioactive materials licensees, shall submit a request to the department for renewal of their radioactive air emissions license at least sixty days prior to expiration of the license or as required by the Air Operating Permit. All renewal requests shall include a summary of the operational status of all emission units; the status of facility compliance with the standards of WAC 246-247-040, and the status of any corrective actions necessary to achieve compliance with the requirements of this chapter. Facilities with licensed emission units that also hold a radioactive materials license issued by the department shall submit this information along with their radioactive material license renewal submittal. If the department is unable to renew a radioactive air emissions license before its expiration date, the existing license, with all of its requirements and limitations, remains in force until the department either renews or revokes the license (WAC 246-247-040(9)).

59) All radioactive air emissions licenses issued by the department, except those issued to radioactive materials licensees, shall have an expiration date of five years from date of issuance or as specified in the Air Operating Permit. For radioactive material licensees, the requirements and limitations for the operation of emission units shall be incorporated into their radioactive materials license, and shall expire when the radioactive materials license expires (WAC 246-247-060(6)).

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: SALTWELL PUMPING TANKS 241-SX-101, 241-SX-102, 241-SX-103, AND 241-SX-105

Date Approved: 31-Dec-02

Emission Unit Name: 296-S-15 **Emission Unit ID** 64

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

pplicable Requirements **ALARACT** ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Prefilter	1	1 flow path
	HEPA	2	1 flow path
	Fan	1	1 flow path

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93[b][4][i] & WAC 246-247-075[3]	Appendix B, Method 114(3)	TOTAL ALPHA TOTAL BETA	4 week sample/ year
Sampling Requirements:	Record Sample		

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

02/09/2000 Original NOC, Radioactive Notice of Construction for Saltwell Pumping in Tanks 241-SX-101, 241-SX-102, 241-SX-103, and 241-SX-105, approved via AIR 00-108.

12/31/2002 AIR 02-1248, mailed on December 31, 2002 to update Conditions and Limitations to meet Department standards.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 1.02E-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 2.03E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

Saltwell pumping the drainable liquid waste in tanks SX-101, -102, -103 and -105 includes the following activities:

-Installation of salt well screen;
-Jet pump installation;
-Transferring the liquid waste (via pumping process);
-Additions of limited amounts of water to prevent plugging of saltwell screen and transfer line;
-Flushing transfer lines;
-Miscellaneous activities that will not increase emission.

Note that after saltwell pumping is complete, the jet pump will remain in the pit and the screen will remain in the tank.

Saltwell pumping is a method used to interim stabilize single-shell tanks (SSTs). Interim stabilization starts once a saltwell screen is installed with its respective jet pump. Saltwell pumping removes the gravity drainable liquid from the interstitial space between the solids that drains to the saltwell screen. The liquid is transferred either directly to a double-shell tank (DST) or to a staging double-contained receiver tank (DCRT) and subsequently to a DST. In the case of this proposed action, the waste pumped from the tanks will be transferred directly to the SY-102 tank, a DST.

A saltwell screen is a cylindrical device that normally extends form the top of the waste to within several inches of the tank bottom. Holes in the screen allow liquid waste to pass through the screen (enter the pump cavity) while preventing solid waste form migrating to the jet pump. The saltwell screen is connected to a source of flushing water and is lowered into the pit and riser until the screen flange rests on the riser opening. The jet pump assembly is lowered into the saltwell screen until the pump support plate rests on top of the saltwell screen flange.

Water is added to the tanks to prevent plugging of the saltwell screens and the waste lines. The water is piped form a storage tank through a metering system at an average rate of 1 gallon per minute or less. Entry into the tanks is made through the pump pit via an existing port on the pit cover and into the saltwell screen.

Flushing of transfer lines is accomplished in accordance with standard operating methods. This activity has been conducted routinely after waste transfers in actively and passively ventilated SSTs and actively vented DSTs. No mechanism for increasing the concentration of aerosol radionuclides is foreseen as a result of this activity.

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

Alpha - 0	1.98E-03	Beta - 0	1.02E-02	Cs 137	1.60E-03

5) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

6) The facility shall make available, in timely manner, all documents requested by the department for

review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

7) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1))

8) **This condition was obsoleted on 12/20/2002.** The total unabated emissions are limited to 2.03E-02 mrem/year.
Replaced by standard condition and limitation via AIR 02-1248.

9) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

10) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

11) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

12) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

13) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

14) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

15) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

16) **This condition was obsoleted on 12/20/2002.** Approved saltwell pumping activities include the following: installation of the saltwell screen, installation of jet pump, flushing the transfer lines, transferring of the liquid waste (via the pumping process), addition of limited amounts of water to prevent plugging of the saltwell screen and transfer line, and miscellaneous activities that will not increase emissions
Replaced by standard condition and limitation via AIR 02-1248.

17) **This condition was obsoleted on 1/29/2001.** Unabated alpha emissions are limited to 1.04 E-04 Ci/year, beta emissions are limited to 6.33E-03 Ci/year, and Cs-137 emissions are limited to 8.68E-04 Ci/year.
Obsoleted via NOC Revision Form dated January 29, 2001

18) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

19) **This condition was obsoleted on 1/29/2001.** The average stack flow rate of 2.8 cubic meters per second. Testing of the HEPA filters will be performed annually.
Obsoleted via NOC Revision Form dated January 29, 2001.

20) **This condition was obsoleted on 12/20/2002.** The total abated emissions are limited to 1.02E-05 mrem/year.
Replaced by standard condition and limitation via AIR 02-1248.

21) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6))

22) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

23) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

24) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

25) **This condition was obsoleted on 12/20/2002.** This approval, with its Conditions and Limitations, must be included in the next revision of the Hanford Air Operating Permit (WAC 246-247-060(1)(e) and (2)(c)) and will at that time, constitute a revision of the Radioactive Air Emissions License
Hanford Site Air Operating Permit was issued July 2001.

26) **This condition was obsoleted on 12/20/2002.** The work approved in this NOC is limited to saltwell pumping in tanks 241-SX-101, 241-SX-102, 241-SX-103 and 241-SX-105 in the 241-SX-Tank Farm
Replaced by standard condition and limitation via AIR 02-1248.

27) Unabated alpha emissions are limited to 1.98E-03 Ci/year, beta emissions are limited to 1.02E-02 Ci/year, and Cs-137 emissions are limited to 1.60E-03 Ci/year.

28) An average tank flowrate of 2.8 cubic meters per minute. Testing of the HEPA filters will be

performed annually.

29) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: MAGNESIUM HYDROXIDE PRECIPITATION PROCESS AT THE PLUTONIUM FINISHING PLANT

Emission Unit Name: 291-Z-1 **Emission Unit ID** 393

This is a MAJOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **ALARACT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
(234-5Z Operations)	HEPA	2	2 Stages for process operations
236-Z Operations)	HEPA	2	2 Stages for process operations
(242-Z Operations)	HEPA	2	2 Stages for process operations
(all operations)	Fan	4	3 standby (7 total)

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93(b)(4) & WAC 246-247-75(2)	Alternative effluent flow rate not to exceed 290,000 cfm. Method 114 appendix B 61.93(b)(2)(ii) ANSI N13.1	All radionuclides which could contribute 10% of the potential EDE.	Continuous

Sampling Requirements: Continuous

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

03/23/2000 Revised NOC was approved via AIR 00-313 on March 23, 2000.

04/06/2000 Conditions and Limitations of AIR 00-313 were voided by AIR 00-402, April 6, 2000.

08/25/2000 Conditions and Limitations of AIR 00-402 were voided and replaced by AIR 00-801, August 25, 2000.

09/09/2000 NOC Revision Form approved on September 9, 2000 during RTAM to provide a minor description change.

09/29/2000 NOC Revision Form approved on September 29, 2000 during RTAM to provide a minor description change.

11/07/2000 Incorporation of supplemental information for ventilation system, approved via AIR 00-1017 dated November 7, 2000.

02/02/2001 NOC ID 442 combined into NOC ID 443.

03/06/2001 NOC Revision Form approved on March 6, 2001 during RTAM to provide a minor description change and a clarification.

05/03/2001 NOC Revision Form submitted via RTAM, approved on May 3, 2001 to provide a minor description change.

06/19/2001 NOC Revision Form submitted via RTAM, approved on June 19, 2001 to provide process description change.

07/11/2001 AIR 01-702 mailed July 11, 2001 to incorporate revision forms approved on March 6, 2001, May 3, 2001, and June 19, 2001.

07/25/2001 NOC Revision Form, DOE/RL-99-77, Rev. 0F, approved July 25, 2001 provided condition changes. Approval letter, AIR 01-802, mailed on August 15, 2001.

10/31/2001 NOC Revision Form, DOE/RL-99-77, Revision 0G, approved October 31, 2001 provided process description changes. Approval letter, AIR 01-1102, mailed on November 8, 2001.

12/14/2001 AOP Minor Modification, 02-RCA-085, received December 14, 2001 to state that AIR 01-802 replaced all previous Conditions and Limitations. No new Conditions and Limitations issued.

02/27/2002 AOP Minor Modifications, 02-RCA-0188 and 02-RCA-0128, received February 27, 2002 and February 22, 2002 to state that AIR 01-1102 replaced all previous conditions. No new Conditions and Limitations mailed.

05/23/2002 AOP Administrative Amendment received May 23, 2002 to clarify HEPA filter testing requirements. DOH required submittal of AOP Administrative Amendment in the standard form.

12/31/2002 AOP Administrative Amendment approved on June 18, 2002 to clarify HEPA Filter testing requirements. Conditions and Limitations mailed on December 31, 2002 via AIR 02-1249.

12/31/2002 Changed to update and obsolete conditions and limitations and add the APQs for end of year's Administrative Amendments. Approved via AIR 02-1249 dated December 31, 2002.

09/12/2003 Conditions and Limitations, AIR 03-1207, mailed on December 9, 2003 to reflect current appeal language agreed upon on September 12, 2003.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 1.10E-01 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

3) **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.**

   Processing, stabilizing, and packaging, for interim storage, liquid nitrate solution. Stabilization of the solution shall be accomplished by the combination of a magnesium hydroxide and/or oxalate precipitation process and the existing muffle furnaces.

   The magnesium hydroxide and/or oxalate precipitation process shall remove, by precipitation, plutonium contained in various nitric solutions. The nitric acid solutions shall be reacted by the addition of magnesium hydroxide and/or oxalic acid. A weak nitric acid stream shall dilute the existing solutions as necessary to optimize the plutonium recovery and generate feed solutions with an acid strength of approximately 3.0 Molar. The feed preparation activities will be performed in existing PFP facilities. The acid strength of the plutonium nitrate feed solutions, including those that do not require dilution will range from 0.3 Molar to 5.0 Molar.

   The diluted solution shall be fed to three precipitation vessels where the magnesium hydroxide powder and/or oxalate acid will be added manually. The vessels shall be agitated, after magnesium hydroxide and/or oxalate acid addition, by sparging air up through the vessels by pulling a vacuum on the precipitation vessels.

After the reaction is complete, the precipitators shall be drained by gravity to an open pan filter where the plutonium solids are collected. The filtrate will be vacuumed into a phase separator for collection. The filtrate will be filtered further in the polishing filters before being pumped to temporary storage in the filtrate tanks. Filtrate with less than 3 grams per liter of plutonium will be disposed using existing PFP facilities. Out-of-specification material would be subject to recycle for plutonium recovery.

Plutonium solids will be transferred to an open metal container and heated on a hot plate to further dry the material within the glove box. The plutonium will be cooled before being conveyed to the muffle furnaces. Dried plutonium solids may be placed in storage before subjecting to muffle furnace thermal stabilization. The dried solids would be placed manually into appropriate storage containers (e.g., poly jars or other similar sized closed containers) and transferred to existing glove boxes (i.e., HA-23S or HA-20MB) for potential interim storage. These glove boxes will tie into the existing ventilation system exhausting through the 291-Z-1 stack.

At a later date, the containers may be retrieved from storage and returned to the precipitation glove box for final stabilization. The materials then will be transferred into the vessels used for thermal stabilization (i.e., boats). The boats will be transferred to the muffle furnaces for final stabilization. The existing muffle furnaces shall be used to convert the dried plutonium hydroxide to plutonium powder.

Select solutions may be designated as waste. The equipment and enclosures for direct discard of waste plutonium solutions will be used in Room 185 of the 234-5Z building. Unique containers holding the dilute plutonium solutions will be brought from their storage location and analyzed for plutonium content using non-destructive analysis (NDA) equipment before bringing the containers into Room 185. The equipment in Room 185 will include a large tent to envelope plastic enclosures. The enclosures will be vented to the 234-5Z E3 ventilation system by connecting a vent hose from each plastic enclosure through a high-efficiency particulate air (HEPA)-type filter through a HEPA-type filtered vacuum cleaner that is exhausted to the existing E3 ventilation system. Airflow is provided through each plastic enclosure through HEPA-type filters. A large containment tent will be installed to enclose the plastic enclosure operation and provide occupational protection. The vacuum cleaner would maintain a negative pressure inside the enclosures with respect to the large tent. A blower connected to the tent would maintain a negative pressure inside the tent with respect to Room 185.

After pumping has been completed, the pump is turned off, and the transfer system appropriately isolated (e.g., the tubing could be cut just above each drum, and the tubing ends sealed; the drum lids would be bolted into place). In some cases, transferring the solution from two product containers into one receiving drum will be done. After pumping operations, the receiving drum is to be transferred to a storage area. The empty product containers are to be transferred for drum disposition (i.e., storage, reuse and/or discard). Each drum moved out of Room 185 will be analyzed for plutonium content using NDA equipment.

Direct discard also could be conducted in Room 227 in the 234-5Z Building. The process in Room 227 will be the same as that described in Room 185. Solution transfers would be conducted such that radiological contamination would be directed through the 227-T hood exhaust, which is routed to the atmosphere through the existing E-4 ventilation system (room air in Room 227 exhausts through the E-3 ventilation system).

4) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 2.20E+02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Am - 241	6.20E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 239	2.48E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

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

Am - 241	Am - 243	Pu - 238
Pu - 239	Pu - 240	Pu - 241
Pu - 242	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 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.

5) **This condition was obsoleted on 9/12/2003.** These conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

Conditions and Limitations added by AIR 00-801, August 25, 2000. Replaced with current standard condition via AIR 02-1249. Obsoleted by appeal language agreed upon on September 12, 2003.

6) **This condition was obsoleted on 12/17/2002.** This approval, with its Conditions and Limitations must be included in the next revision of the Hanford Air Operating Permit (WAC 246-247-060(1)(e) and (2)(c)), and will at that time, constitute a revision of the Radioactive Air Emissions License.

Conditions and Limitations added by AIR 00-801, August 25, 2000. Obsoleted by issuance of the Hanford Site Air Operating Permit

7) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-040(5) and WAC 246-247-060(5)).

8) The facility shall notify the department at least seven calendar days prior to any planned preoperational tests of new or modified emission units that involve emissions control, monitoring, or containment systems of the emission unit(s). The department reserves the right to witness or require preoperational tests involving the emissions control, monitoring, or containment systems of the emissions unit(s) (WAC 246-247-060(4)).

9) The department retains the right to conduct stack sampling, environmental monitoring or other testing

around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

10) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

11) All facilities must be able to demonstrate the reliability and accuracy of emissions monitoring data (WAC 246-247-075(13)).

12) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

13) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

14) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2).

15) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

16) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

17) The facility shall notify the department within twenty-four hours of any shutdown, or of any transient abnormal condition lasting more than four hours or other change in facility operations which, if allowed to persist, would result in emissions of radioactive material in excess of applicable standards or license requirements (WAC 246-247-080(5)).

18) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restrictions or requirements for entry, the facility owner or operator shall inform he department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(10)).

19) The facility shall make available in a timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know. (WAC 246-247-080(10)).

20) Prior to shutdown of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devises. An emission unit or activity will not be considered permanently shutdown or completed until a report of closure is received and approve by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shutdown emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(6)). (WAC 246-147-080(6))

21) **This condition was obsoleted on 7/25/2001.** The work approved in this NOC is limited to those described activities associated with the construction and operation activities involving the magnesium hydroxide precipitation process of plutonium solutions in nitric acid solutions within the Plutonium Finishing Plant (PFP).

Conditions and Limitations added by AIR 00-801, August 25, 2000. Condition obsoleted by NOC revision forms dated May 3, 2001, June 19, 2001 and July 25, 2001.

22) **This condition was obsoleted on 7/25/2001.** Approved activities included in the process are the following: Stabilization by precipitation and use of the muffle furnaces; drying of the precipitated plutonium oxide (PuO2); packaging of the dried PuO2 for interim storage and disposal of the filtrate from the liquid nitrate solution using existing PFP processes.

Conditions and Limitations added by AIR 00-801, August 25, 2000. Condition obsoleted by NOC revision forms dated June 19, 2001 and July 25, 2001.

23) **This condition was obsoleted on 7/25/2001.** The concentration of the nitric acid make up feed solution used in the magnesium hydroxide process cannot exceed 3.0 Molar.

Conditions and Limitations added by AIR 00-801, August 25, 2000. Condition obsoleted by NOC revision form dated September 29, 2000.

24) The concentration of the nitric acid diluting solution used in the magnesium hydroxide process will average 0.35 Molar and be maintained within the safe operating parameters established for the process.

25) All operating Conditions and Limitations imposed by DOH in the latest approved revision of DOE/RL-96-79 or stated in the latest approved revision of the Notice of Construction for the Muffle Furnaces must be observed.

26) **This condition was obsoleted on 7/25/2001.** Construction activities in Room 227 are limited to the installation of wall and ceiling mounts that will stabilize the glove box during seismic activities. Decontamination activities in Room 227 must be less than 0.1 mrem/year.

* The HEPA filtered vacuums used for decontamination activities in Room 227 must be approved in

the list included in the Radioactive Air Emissions Notice of Construction for HEPA Filtered Vacuum Radioactive Air Emissions Units DOE-RL-97-50. This document is to be used as a guide for the use of HEPA filtered vacuum, prior to the time the room is connected to the ventilation system. All records must be maintained as required in the HEPA Filtered Vacuum Radioactive Air Emissions Units (DOE-RL-97-50) NOC.

Conditions and Limitations added by AIR 00-801, August 25, 2000. Condition obsoleted July 25, 2001, activity completed.

27) **This condition was obsoleted on 7/5/2001.** Construction activities in Room 230C are limited to the following:

* Decontaminate and/or stabilize any contaminated areas as necessary.
* Install two new glove boxes to house the process equipment. These include precipitators, phase separator, polishing filters. Filtering tanks and hotplates.
* Anchor the two new glove boxes to the floor.
* Install wall and ceiling mounts, as necessary, to secure the glove boxes in case of seismic activity.
* Install drain lines from the new glove boxes to a clean section of an existing drain line.
* Connect the two new glove boxes to the existing E-4 ventilation header.
* Route feed returns and spare lines that originate in Room 227 to the new glove boxes.
* Install a new conveyor transport to connect to the new glove boxes.
* Cut a hole, with dimensions approximating a four foot diameter semicircle, into the wall between Rooms 230C and 230B to allow access to a glove box port.
* Remove and relocate the electrical power conditioner.
* Relocate the current safety shower and eye wash station.
* Install a new electrical control panel.
* Install a wash water tank and run lines to two new glove boxes

Conditions and Limitations added by AIR 00-801, August 25, 2000. Condition obsoleted July 5, 2001, activity completed.

28) The maximum stack flow rate cannot exceed 137 cubic meters per second.

29) Testing of all HEPA filters described in the NOC will be performed annually.

30) **This condition was obsoleted on 9/12/2003.** The annual possession quantity for Plutonium (Pu) in nitric acid solutions cannot exceed 0.4 metric tons of Plutonium.

Conditions and Limitations added by AIR 00-801, August 25, 2000. Obsoleted to reflect current appeal language agreed upon on September 12, 2003.

31) **This condition was obsoleted on 7/25/2001.** The air in rooms 227 and 230C will exhaust through the E-3 High Efficiency Particulate Air (HEPA) ventilation system. The E-3 ventilation system contains one stage of HEPA filtration which are leak tested using a DOP aerosol as defined in ASME N510 or approved equivalent , before connecting with the E-4 ventilation system and exhausting through the 291-Z-1 stack.

The off gases in Rooms 227 and 230C used in the work associated with the MHPP will exhaust through the E-4 ventilation system. The E-4 ventilation system has two stages of HEPA filtration

which are leak tested using a DOP aerosol as defined in ASME N510 or approved equivalent. The E-4 ventilation system then passes through two additional stages of HEPA filtration, before connecting with the E-3 ventilation system and exhausting through the 291-Z-1 stack.

Conditions and Limitations added by AIR 00-801, August 25, 2000.

32) The monitoring system for the 291-Z-1 stack must remain compliant with all applicable NESHAPs requirements.

33) The muffle furnaces must connect into the E-4 ventilation system and be configured as described in the Muffle Furnace Notice of Construction (DOE/RL-96-79).

34) The maximum furnace temperature must not exceed approximately 1,000 degrees C.

35) All work on this project must be completed on or before October 1, 2010.

36) **This condition was obsoleted on 12/17/2002.** The work approved in this NOC is limited to those described activities associated with the construction and operation activities involving the magnesium hydroxide precipitation process, the oxalate precipitation process and the discard of plutonium in nitric acid solutions within the Plutonium Finishing Plant (PFP).

Conditions and Limitation added by AIR 01-802, August 15, 2001.

Replaced by standard condition and limitation via AIR 02-1248.

37) Approved activities include the following: Stabilization by precipitation and use of the muffle furnaces; drying of the precipitated plutonium oxide (PuO2); packaging of the dried PuO2 for interim storage and disposal of the filtrate from the liquid nitrate solution using existing PFP processes and solidification.

38) **This condition was obsoleted on 12/17/2002.** The concentration of the nitric acid make up feed solution used in the magnesium hydroxide process cannot exceed 5.0 Molar.

Conditions and Limitations added by AIR 01-802, August 15, 2001. Replaced by standard condition and limitation via AIR 02-1248.

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: STORAGE IN T PLANT COMPLEX OF SLUDGE FROM K BASINS

Emission Unit Name: 291-T-1 **Emission Unit ID** 314

This is a MAJOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: ALARACT

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Prefilter	1	
	HEPA	2	In series
	Fan	3	2 in series, 2 parallel (two fans operate while the third fan is a backup)

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93[b][4][i] & WAC 246-247-075[3]	Appendix B, Method 114(3) and (4) 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, composited on a quarterly basis and analyzed isotopically.

Sampling Requirements: Record Sample

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

06/18/2001 Original NOC (DOE/RL-2001-28 Revision 0) submitted June 18, 2001.

10/02/2001 NOC Revision Form (DOE/RL-2001-28, Revision 0A) approved at RTAM on October 2, 2001 to provide changes to the Standards Section.

10/09/2001 NOC Revision (DOE/RL-2001-28, Revision 1) submitted October 9, 2001 to provide a change to the Monitoring Section.

10/30/2001 Conditions and Limitations, AIR 01-1016 mailed on October 30, 2001 to incorporate approval for original NOC and revisions dated October 2, 2001 and October 9, 2001.

06/11/2002 NOC Revision (DOE/RL-2001-28, Revision 1A) approved on June 4, 2002 to reflect final design changes and schedule revisions Conditions and Limitations, AIR 02-803, mailed on August 8, 2002.

Printed on 09-Dec-03

12/26/2002 Revision form, DOE/RL-2001-28, Revision 1B, "Radioactive Air Emissions Notice of Construction for Storage in T-Plant Complex of Sludge from K-Basin" approved with new Conditions/Limitations via AIR 03-101 dated January 9, 2003. This will be included as a minor modification to the AOP.

01/16/2003 Corrected letter, AIR 03-111, mailed on January 16, 2003 to void AIR 03-101 as conditions were inadvertently left off.

04/14/2003 Request for Approval of Alternative Stack Flow Measurement Method received April 9, 2003. New Conditions and Limitations, AIR 03-403, mailed April 14, 2003.

09/12/2003 Conditions and Limitations, AIR 03-1206, mailed on December 9, 2003 to reflect current appeal language agreed upon on September 12, 2003.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 7.97E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)).

3) **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.**

Preparation of cells to receive sludge containers, which shall be limited to the following activities:

*Intrusive cell operations to relocate items within cells and to transfer items between cells;
*Removal of cell contents, which shall be limited to the following operations:

+ Remote crane operations using lifting bails and clam-shells;
+ Pumping of liquids;
+ Vacuum suction Storage, repackaging, and treatment of containerized and uncontainerized radioactive waste;
+ Waste characterization, verification, repackaging, size reduction, segregation, immobilization, and consolidation;
+ Preparation of waste shipments in accordance with acceptance criteria for other facilities; and
+ Treatment and storage of liquid mixed waste.

*Storage of contaminated process equipment and debris in the 221-T canyon building cells and deck shall be limited to:

+ Tanks, pulsers, precipitators, centrifuges, and jumpers/connectors;
+ Decontamination equipment, immersion tanks, sprayers, and blasters;
+ Equipment racks, pumps, mixers, and motors;
+ Original equipment (prior to decontamination mission);
+ Condensers, chillers, filter assemblies, and columns;
+ Open and closed boxes, drums, and containers, filled with debris;
+ Tools, concrete blocks, and loose debris.

*Refurbishing, recycling, and maintenance of contaminated equipment shall be limited to the items of equipment listed above.

*Decontamination of equipment and materials, which shall be limited to the following operations:

+ Hand, spray, and abrasive methods;
+ Steam cleaning;
+ High pressure hot water;
+ High pressure cold water;
+ Ice blasting;
+ Abrasive tools.

The chemical and physical processes associated with the sludge storage shall consist of the following:

*After all existing 72 fuel assemblies have been removed and the spent fuel pool water has been removed in accordance with the T Plant Complex Fuel Removal NOC (DOE/RL-2000-64, Revision 1), the 221-T canyon spent fuel pool shall be decontaminated by T Plant operation personnel. Following the activities covered in the fuel removal NOC (DOE/RL-2000-64, Revision 1), disposal of fuel assembly racks, the filtration system, ion exchange system, and any residual contamination on the pools walls and floor shall be accomplished using the following methods:

+ Hand, spray, and abrasive methods;
+ Steam cleaning;
+ High pressure hot water;
+ High pressure cold water;
+ Ice blasting;
+ Abrasive tools.

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 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.

*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.

*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.

*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.

*Fire protection alarms and automatic sprinkler systems shall be upgraded in 221-T before sludge containers configured for storage of waste from knockout pots and settler tanks is received.

*Canyon radiation detectors, alarms, and cameras will be upgraded to provide surveillance.

*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.

*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.

*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.

*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.

*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 helium within the controlled airspace. The helium 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.

*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.

*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.

*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.

4) The PTE for this project as determined under WAC 246-247-030(21)(a-e) [as specified in the application] is 1.55E+02 mrem/year. Approved are the associated potential release rates (Curies/year) of:

Am - 241	6.92E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

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.

Cs	- 137	1.37E+02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
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	154	1.15E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
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		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.

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	1.44E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu	- 239/240	7.38E+00	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu	- 241	1.34E+02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Sr	90	1.37E+02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
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	234	2.16E-01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
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.

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	H - 3	Kr - 85
Np 237	Pu 238	Pu - 239/240

Pu - 241	Sr - 90	Tc - 99
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 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.

5) **This condition was obsoleted on 9/12/2003.** These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

Conditions and Limitations, AIR 01-1016 mailed on October 30, 2001 to incorporate approval for original NOC and revisions dated October 2, 2001 and October 9, 2001. Obsoleted to reflect current appeal language agreed upon on September 12, 2003.

6) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-040(5) and WAC 246-247-060(5)).

7) The facility shall notify the department at least seven calendar days prior to any planned preoperational tests of new or modified emission units that involve emissions control, monitoring, or containment systems of the emission unit(s). The department reserves the right to witness or require preoperational tests involving the emissions control, monitoring, or containment systems of the emissions unit(s) (WAC 246-247-060(4)).

8) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

9) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

10) The facility must be able to demonstrate workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

11) All facilities must be able to demonstrate the reliability and accuracy of the radioactive air emissions monitoring data (WAC 246-247-075(13)).

12) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

13) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

14) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

15) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

16) The facility shall notify the department within twenty-four hours of any shutdown, or of any transient abnormal condition lasting more than four hours or other change in facility operations which, if allowed to persist, would result in emissions of radioactive material in excess of applicable standards or license requirements (WAC 246-247-080(5)).

17) The facility shall file a report of closure with the department whenever operations producing emissions of radioactive material are permanently ceased at any emission unit (except temporary emission units) regulated under this chapter. The closure report shall indicate whether, despite cessation of operations, there is still a potential for radioactive air emissions and a need for an active or passive ventilation system with emission control and/or monitoring devices. If decommissioning is planned and will constitute a modification, a NOC is required, as applicable, in accordance with WAC 246-247-060. (WAC 246-247-080(6))

18) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

19) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

20) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

21) The facility shall file a report of closure with the department whenever operations producing emissions of radioactive material are permanently ceased at any emission unit (except temporary emission units) regulated under this chapter. The closure report shall indicate whether, despite cessation of operations,

there is still a potential for radioactive air emissions and a need for an active or passive ventilation system with emission control and/or monitoring devices. If decommissioning is planned and will constitute a modification, a NOC is required, as applicable, in accordance with WAC 246-247-060. (WAC 246-247-080(6))

22) Prior to storing sludge in the T-Plant Complex, USDOE shall perform a complete engineering evaluation of the 291-T-1 Stack to ensure its structural integrity. USDOE shall provide to WDOH for review copies of the procedures used to perform this review, together with the results of the review. USDOE shall also provide to WDOH a written plan for remediation of any deficiencies, including a timeline for the remediation.

23) Until the requirements below for the emission unit monitoring system are met, non-destructive analysis (NDA) shall be performed annually on the final stage of the HEPA filters for the 291-T-1 Stack. The NDA method used for this measurement shall be capable of measuring a minimum detectable activity (MDA) of 1 uCi or less. USDOE shall provide to WDOH for review, copies of written procedures for conducting the NDA measurement and for determining the MDA. The MDA of the NDA measurement method shall be verified at each measurement, and the results of the verification shall be provided to WDOH.

24) Prior to performing the first NDA under this NOC approval, USDOE shall provide to WDOH for review, copies of written procedures for quality assurance and quality control for the NDA measurements. These procedures shall include adequate measures to insure proper instrument calibration, traceability to standard reference materials, intercomparisons with other NDA measurement systems in use on the Hanford site, calibration for appropriate measurement geometries, operational field checks to insure that instruments remain in calibration and proper operating condition in the field, and control charts to detect possible instrument calibration drift with time.

25) USDOE shall demonstrate that the emission unit monitoring system complies with the requirements of ANSI Standard N13.1 1969.

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

Within two years of this approval (or within one year of receipt of sludge), and annually thereafter:

a. A visual check of nozzle position and orientation as well as measurements of nozzle openings;
b. Checks to ensure the tightness of all fittings and connections as well as a leak test of the entire sampling system; and
c. Visual inspections for corrosion, physical damage, or dust loading of the probe, sample lines, and monitoring system equipment.

Annually starting within one year of this approval (or prior to receipt of sludge):

d. A functional/calibration check of monitoring system instrumentation shall be performed; and
e. USDOE shall provide to WDOH for review copies of the procedures used to perform the above activities.

27) **This condition was obsoleted on 9/12/2003.** If stored sludge is subjected to any type of processing other than storage, a new NOC must be submitted to cover this activity.

Conditions and Limitations, AIR 01-1016 mailed on October 30, 2001 to incorporate approval for original NOC and revisions dated October 2, 2001 and October 9, 2001. Obsoleted to reflect current appeal language agreed upon on September 12, 2003.

28) After removal of the fuel assemblies and the pool water, a hold point shall be placed on further spent fuel decontamination activities pending the establishment of acceptable levels for decontamination of the 221-T Canyon spent fuel pool. The USDOE shall propose a set of decontamination levels for review by WDOH, and decontamination work shall not continue until the WDOH has reviewed and accepted these levels.

29) A hold point shall be placed on sludge storage activities immediately prior to receipt of sludge in the T-Plant Complex. The USDOE shall notify the WDOH of readiness to receive waste, and the WDOH shall perform an inspection of T-Plant facilities to ensure acceptability of the 291-T-1 Stack for operation as a major emission unit.

30) Accidental releases with a probability of occurrence during the expected life of the emission unit of greater than one percent must be addressed. All such expected accidental releases shall be documented and supplied to the department upon request.

31) **This condition was obsoleted on 9/12/2003.** The USDOE shall provide an ALARACT demonstration, as authorized in WAC 246-247-080(1) and described in WAC 246-247-130. This ALARACT demonstration shall be provided to the Department by June 1, 2003.The ALARACT demonstration, as authorized in WAC 246-247-130 Appendix C, shall include the following:

a. The ALARACT demonstration shall describe in detail the physical form of the radionuclides and whether such is contained in jumpers, pumps, drums, cells, etc. The ALARACT demonstration shall also include information related to the condition or integrity of materials, equipment and containers which could affect the potential for airborne radioactivity. The ALARACT demonstration must account for the entire potential to emit for this emission unit.

b. The ALARACT demonstration shall include the release form and fractions of all radionuclides.

c. The ALARACT demonstration shall contain a listing of all current NOCs operational within this emission unit and a comparison of those activities with each other and with any activities considered routine. Also, specifically required is the inclusion of any activities, whether or not included in an NOC that USDOE considered covered because of discussions, meetings (including Routine Technical Assistance meetings), documents referenced in, but not discussed in, NOCs, or are considered approved by any other method in addition to NOCs. The ALARACT shall include all physical and chemical processes for all ongoing activities, with emphasis on those which are capable of releasing radioactivity into the vapor space ventilated by those emission units. This discussion shall give the department a full understanding of all such activities occurring within that emission unit.

d. The ALARACT demonstration shall include a listing of all existing controls.

Revision form, DOE/RL-2001 28, Rev. 1B, "Radioactive Air Emissions Notice of Construction for Storage in T-Plant Complex of Sludge from K-Basin" approved with new Conditions/Limitations via AIR 03-101 dated January 9, 2003. Obsoleted by agreement to provide ALARACT information per Settlement Agreement and Stipulation on Manner of

32) 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.

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: INSTALLATION AND OPERATION OF A WASTE RETRIEVAL SYSTEM IN TANKS 241-AN-101,102,103, 104, 105, 106 AND 107.

Emission Unit Name: 296-A-29 **Emission Unit ID** 227

This is a MAJOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **BARCT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Deentrainer	2	1 or 2 operating
	Heater	2	1/train, 2 trains
	Prefilter	2	1/train, 2 trains
	HEPA	8	2 banks of 2 HEPA filters/train, 2 trains
	Fan	2	1/train, 2 trains

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93 & WAC 246-247-075[2]	Appendix B, Method 114 (2), (3) and (4)	All radionuclides which 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.	Continuous

Sampling Requirements: Record Sample

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

07/09/2000 Original NOC (DOE/ORP-2000-15, Revision 0) approved on July 9, 2000 via AIR 00-701.

08/06/2002 AOP Administrative Amendment approved on August 6, 2002 to correct typographical errors. Conditions and Limitations mailed on December 31, 2002 via AIR 02-1250.

01/16/2004 NOC Revision received January 16, 2004 to add 241-AN-106 to the list of tanks. Conditions and Limitations, AIR 04-206, mailed on February 18, 2004.

Printed on 18-Feb-04

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 2.06E-05 mrem/year to the

3) **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.**

install and operate a waste retrieval system (up to two mixer pumps per tank and other required equipment) in the 241-AN-101, -AN-102, -AN-103, -AN-104, -AN-105, -AN-106 and the -AN-107 tanks. The pumps will operate in a batch mode as needed. The waste capacity of the tanks will not be altered, nor will the ventilation system.

The 241-AN-101, -102, -103, -104, -105, -106 and -107 tanks are 75-foot diameter double-shell tanks (DST) constructed from the latest generation of tank designs, with a reinforced concrete shell and dome, and an insulating concrete base. A heat-treated, stress relieved, primary steel liner and a non-stress-relieved, outer steel liner are separated by a 2.5-foot annulus and contained inside the concrete shell. The tanks have a flat bottom with a usable waste depth of approximately 35 feet (1,160,000 gallons).

Current design calls for modifications to the 241-AN-101, -102, -103, -104, -105, -106 and -107 tanks and associated equipment to allow installation and removal of waste retrieval system equipment, and shall be limited to the following major components.

New In-Tank Equipment:

Installation of up to two mixer pumps in each tank for mobilizing the settled solids. The pump will be capable of pumping waste through each of two, horizontally opposed, discharge nozzles, located approximately 18 inches above the bottom of the tank.

Installation of a high-pressure spray wash system on top of each of the risers used for the mixer pumps. The spray wash system will be used for future decontamination of the mixer pumps as they are removed from the tank.

Installation of one transfer pump in each tank for the transfer of waste.

Installation of one closed circuit television for each tank.

Installation of one thermocouple tree for each tank, as required.

New Ancillary Equipment and Buildings:

Installation of electrical power and instrument cables and other utility tie-ins and/or upgrades (e.g., sanitary and raw water, and telecommunications).

Construction of a dilution system, the Caustic Supply System, to bring waste properties into compliance with the feed specifications, to flush and preheat transfer lines. It will be capable of providing approximately 140 gallons per minute of the pH-adjusted water. It will consist of a package boiler, a

chemical injection pump, a diluent/flush pump, a diluent/flush tank (approximately 5,000 gallons), and a spill containment pad for caustic delivery trucks. The system will be located in an area central to and outside of the 241-AN, -AY, and -AZ tank farms.

New pit coverblocks for AN-01A, AN-02A, AN-03A, AN-04A, AN-05A, AN-06A and AN-07A.

Installation of new water and diluent piping to and from the process pits. A total of approximately 2,800 linear feet of piping will be installed at a dept of up to 5 feet underground.

Installation of new process jumpers inside existing central pits (AN01A, AN02A, AN03A, AN04A, AN05A, AN06A and AN07A) and the 241-AN-A/B Valve Pits.

Installation of miscellaneous concrete pads for electrical and mechanical equipment.

Installation of chain-link fencing and gates.

Removal, Decontamination and Demolition of Existing Equipment:

Removal of mixer pumps.

Removal of transfer pumps.

Removal of thermocouple probes.

Removal of camera/multi-port riser from tanks AN-103, AN-104 and AN-105. (Camera will be reused in another riser on the tank).

Removal of a slurry distributors.

Removal of jumpers form each of the central pump pits, and central pump pit cover blocks.

Removal of multi-function instrument trees or multi-purpose probes from Tanks 241-AN-101, -102, -103, -104, -105 and -107.

Use of equipment and containers for removal, cleaning, decontamination, transport, storage, and burial of in-tank components and soil.

Performance of miscellaneous activities in support of construction and operation activities that will not increase emissions above those estimated in this NOC:

Repair of road crossings (asphalt paving).

Construction activities with the potential-to-emit include soil excavation, work in pump pits, pipe cutting, removal of, and installation of in-tank equipment. Some of these activities are described in, and will be done in accordance with, an applicable Tank Farm ALARACT demonstration, HNF-4327 latest revision, Control of Airborne Radioactive Emissions for Frequently Performed TWRS Work Activities. The specific activities and corresponding ALARACT demonstration are called out as they apply in the following text.

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 their NOCs (98-EAP-037, DOE/RL-96-75, and DOE/RL-97-50 respectively).

The 241-AN Tank Farm is posted and maintained as a radiological buffer area, free of surface contamination (entrance is made in street clothes). There are no recorded spills or leaks. Therefore, encountering contamination is not expected during soil excavation activities. Because of the possibility of encountering previously undetected subsurface contamination, all work is performed in accordance with the Hanford Site Radiological Control Manual and the RPP As Low As Reasonably Achievable (ALARA) Program requirements. These requirements are carried out through the activity work packages and associated radiological work permit (RWP).

Soil Excavation:

Soil will be excavated inside and outside the 241-AN Tank Farm to install new piping and construct a new pump pit. A total of approximately 6,000 cubic yards will be excavated, which includes approximately 3,600 cubic yards inside the tank farm. Backfill will be made with the original removed soil or 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). Clean soil piles may 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 also may be performed with heavy equipment. The Regulated Guzzler may also be used as described in its NOC for use in the A Tank Farm Complex (98-EAP-037).

Pipe Cutting:

Any required cut of contaminated piping will be made, inside a glove bag, using appropriate equipment such as a sawzall or tri-tool. In order to perform the cut without a glove bag, the riser will be surveyed/smeared to verify removable contamination levels are equal to or less than 10,000 dpm/100cm2 beta gamma and 200 dpm/100cm2 alpha. The tie-ins will be made at the new pit nozzles. If any welding is required, the glove bag will be removed and the weld made.

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).

Pit Work:

Work to be performed in pump pits includes replacing three existing sets of cover blocks with newly designed cover blocks, core drilling (equivalent of one hundred, 14-inch diameter, holes), installing new nozzles, removing existing jumpers, and installing riser extensions (total of two, 42-inch diameter per pit).

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 below.

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).

At the start of the pit work, the cover blocks will be lifted off and radiologically surveyed to determine appropriate disposal protocol and packaged for disposal. A new cover block will be installed when all work in the pit has been completed.

Core drilling will be performed 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. The drilling bit will be water-cooled. Nozzle installation will generally 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 form 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 it. Once the nozzle(s) is installed, the temporary pit cover will be replaced until other work inside the pit requires its removal.

Installation of the 42-inch diameter riser extensions will take place in an open pit. Only the risers that will house a mixer pump will have an extension installed. The depth-verification shield plug left in/on the riser from the previously removed mixer pump will be removed and replaced with the riser extension that has a temporary shield plug inserted at the bottom end. The riser will be open during this step which takes approximately thirty minutes. The extension will be sealed to the cover block with metal bellows. The extensions will be equipped with spray was rings that will provide a means of decontamination for future mixer pump removals. They will also provide confinement between the pump and the inside of the pit during future pump removals, which will be possible without removing the pit cover blocks.

Removal of In-Tank Equipment:

Various in-tank equipment will be removed from both tanks to make room for the water retrieval equipment, or to be replaced with equivalent equipment built to withstand the mixer pump jet forces. The existing flexible receiver equipment will be used to remove long-length components to acceptable levels risers).

Equipment removal will be performed in accordance with ALARACT Demonstration 13, TWRS ALARACT Demonstration for Installation, Operation, and Removal of Tank Equipment, and TWRS ALARACT Demonstration 15, Size Reduction of Waste Equipment for Disposal. Activities not covered in this ALARACT are described below.

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. If contingency decontamination is required a two-roomed decontamination tent will be set up within the tank farm fence. Decontamination work will take place in one room and the other will be maintained clean.

Flexible Receiver Bagging Process:

Use of the flexible receiver involves connecting to and disconnecting from a tank riser or pit; lifting/removing the equipment; washing down/decontaminating the equipment; and bagging the equipment. The flexible receiver can be used in a manual or a completely automated mode. Various flexible receiver equipment includes a washer assembly, a radiation monitoring and camera assembly, a bag cinch and cut assembly, a secondary bag seal assembly, and an appropriately sized receiving bag.

The connection process to risers in a concrete pit is different than that to risers outside at, or below, grade level. For risers in pits, the cover block is removed and replaced with the flex receiver platform. The gap between the pit and the platform is sealed with plastic and tape. There is one opening in the platform that is directly above the equipment/riser. The equipment is lifted off the riser, to slightly above the platform, long enough to position the split plates that will support the equipment when it is lowered back down the platform. Generally this step takes less than fifteen minutes and during this time the riser is open around the equipment as it is raised. The equipment is lowered to rest/seal on the split plates. In some instances a gasket may be used between the split plates an the equipment to enhance the seal. At this point confinement is considered restored and work can take place on the upper portion of the piece of equipment, if needed, to prepare it for removal. Once the preparatory work is complete, the equipment is raised slightly to remove the split plates and then lowered back down to rest/seal on the riser. An adapter spool piece assembly (includes the spool piece, the spray wash unit, and alignment bellows) is placed over and around the riser, and the equipment setting on top of the riser. The adapter spool piece is equipped with a rubber seal on the bottom, which provides a seal against the floor of the pit, and the alignment bellows are bolted to the platform providing a seal against the platform. An impact limiter is installed on top of the platform, around the opening, as a precaution if the equipment free falls during the remote bagging process. The piece of equipment is again raised to rest/seal on the impact limiter. Subsequent confinement is provided by the gaskets between equipment/assembly pieces and the rubber seal on the bottom of the adapter spool piece. The remainder of the flex receiver equipment is bolted into place above the impact liner.

For risers that cannot accommodate an adapter spool piece (outside risers), a split spool piece is used to bolt the flex receiver equipment to the riser flange. In this instance, a seal against a floor cannot be made, so a glove bag is used to confine contamination. A glove bag, with the spool piece in it, is sealed around the riser, the riser is opened, the equipment is raised slightly to allow installation of the split spool piece onto the riser flange. Generally this step takes less than fifteen minutes and during this time the riser is open (within the glove bag) around the equipment as it's raised. The equipment is lowered back down to rest/seal on the split spool piece and the spray wash unit is bolted to the split spool piece. The remainder of the flex receiver equipment, in its entirety, is swung into position, the bottom component is slipped into the glove bag and then bolted to the spray wash unit within the glove bag.

After the riser connection process has been completed, the equipment is slowly lifted through the riser (approximately one foot per minute). The washing process takes place concurrently with lifting and uses preheated water pressurized up to 3,000 pounds per square inch. Washing takes place outside of the vapor space and the run-off is returned to the tank through the riser.

After a section of the equipment has been washed it is pulled through the radiation monitoring assembly. Here, spectrum analysis is performed on the equipment and it is viewed via the camera to determine if the washing process needs to be repeated.

Once washed and dripped dry, the equipment is pulled into the flex receiver bag. Once the equipment is completely in the bag, an absorbent mat is attached inside the bag. The mat can absorb up to 8 gallons of liquid, if needed. Next, a mechanical sealing device cinches the bag closed with wire rope and crimps the bottom of the bag in two places, one below the other. The bag is then cut between the two crimps, leaving a sealed top section containing the equipment, and a sealed bottom section sealing the riser opening. The bag is then hoisted into position for secondary bagging of the first seal. Secondary bagging involves lowering the bagged equipment, sealed end first, into another bag that fits around the bottom of the first bag. The secondary bag is also cinched closed with wire rope. The portion of the first bag that was cinched at the riser is then removed and disposed of and the riser is closed. From here the equipment is ready for waste packaging for storage and/or burial.

LLCE Waste Packaging Process:

The waste packaging process takes place immediately after the equipment bagging process. It is called the Long Length Contaminated Equipment (LLCE) Disposal System and was designed specifically for application at Hanford Tank Farms. It packages non-contact, remote handled, radioactive waste, for storage or burial. In general, the process involves pushing the LLCE into a storage/burial container and filling the container with lightweight grout to attain a greater than or equal to 90 percent filled container.

The previously bagged equipment is placed into the skid assembly of the tilt trailer (vertical position). The skid assembly is lowered to the horizontal position and the equipment is slowly pushed into the container already in place on the transport trailer. The endcap is welded closed, using electrical current to fuse the polyethylene together, and leak tested in place. A vent penetration is installed at the top of the end cap for venting displaced air while filling. Another penetration is also put into the endcap for installation of the "trimmie tube" (distributes grout evenly into the container). The vent penetration is fitted with, or piped to, a high-efficiency particulate air (HEPA) filter to satisfy ALARA requirements. At the storage/burial area, the container is removed from the transport trailer and placed for storage or burial.

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:

The retrieval process at the 241-AN-101, -102, -103, -104, -105, -106 and -107 tanks will provide feed stock to a waste treatment facility. The low activity waste received from the source tanks may be

conditioned and/or diluted to deliver compliant waste. Mixing and dilution may also take place at the source tanks to meet the waste specifications of 241-AN-101, -102, -103, -104, -105, -106 and -107, i.e., solids content must be within a predetermined amount. In-coming waste will be staged in the tank(s) until enough has been accumulated to send, and the treatment facility is ready to receive, a batch. The mixer pump will then be operated to maintain waste uniformity during staging and to mix the waste for a short period of time before transferring it. The mixer pump will be operated at full speed 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 diluent will be adjusted by means of the Caustic Supply System. Once the waste is verified acceptable, the transfer lines will be preheated/flushed with diluent, and a decant waste transfer to the treatment facility will follow. After the transfer, the lines will be flushed again with diluent.

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

Ac - 227	5.65E-03	Am - 241		3.65E+03	Am - 243	1.88E-02
C 14	1.98E+03	Cd - 113	m	5.65E+02	Cm - 242	9.87E-01
Cm - 243	4.85E+00	Cm - 244		1.54E+01	Co - 60	7.59E+02
Cs - 134	2.08E+02	Cs - 137		2.32E+06	Eu - 152	4.07E+01
Eu - 154	3.03E+03	Eu - 155		4.73E+03	H - 3	1.41E+03
I - 129	1.10E+01	Nb - 93	m	7.76E+01	Ni - 59	1.15E+01
Ni - 63	1.14E+03	Np - 237		3.10E+01	Pa - 231	2.49E-02
Pu - 238	1.26E+01	Pu - 239		9.11E+00	Pu - 240	1.85E+00
Pu - 241	1.06E+03	Pu - 242		4.97E-03	Ra - 226	9.14E-04
Ra - 228	2.05E+00	Ru - 106		5.60E-02	Sb - 125	1.33E+03
Se - 79	2.19E+01	Sm - 151		7.72E+04	Sn - 126	3.32E+01
Sr - 90	5.54E+05	Tc - 99		1.17E+03	Th - 229	4.74E-02
Th - 232	2.32E-01	U - 232		6.32E+00	U - 233	2.42E+01
U - 234	5.50E+00	U - 235		2.16E-01	U - 236	2.85E-01
U - 238	6.53E+00	Y - 90		5.54E+05	Zr - 93	1.06E+02

5) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

6) This approval to commence construction is valid for only two years from the date of approval. If construction is not commenced within two years of approval, the approval is void.

7) Any deviation from the description of the modification or new construction, without approval of the department, may result in enforcement action under WAC 246-247-100.

8) **This condition was obsoleted on 8/6/2002.** The facility must be able to demonstrate the reliability and accuracy of emission data and other test results from this unit (WAC 246-247-075(13) and (WAC 246-247(6)). The emission data, including periodic confirmatory monitoring, must be reported in the Hanford Site Annual Air Emission Report.

Updated to standard conditions via AIR 02-1250.

9) No radionuclides other than those listed in the NOC may be emitted in any detectable concentrations (WAC 246-247-110(10)(11)(12)).

10) **This condition was obsoleted on 8/6/2002.** The department reserves the right at any time to require the licensee to provide for split or co-located sampling of this project (WAC 246-247-075(10))

Updated to standard conditions via AIR 02-1250.

11) **This condition was obsoleted on 8/6/2002.** The department reserves the right to conduct an environmental surveillance program around this emission unit and to require the facility to conduct or modify its own environmental monitoring program (WAC 246-247-075(9)).
Updated to standard conditions via AIR 02-1250.

12) The facility shall notify the department at least seven days prior to any pre-operational testing (cold or hot) of the monitoring or containment system involved in this project. The department reserves the right to observe any such testing (WAC 246-247-060(4)). Notification may be by phone, electronic mail or written correspondence.

13) **This condition was obsoleted on 8/6/2002.** This project must be included in the next revision of the Air Operating Permit if active at the time (WAC 246-247-060(1)(e)).
Air Operating Permit was issued July 2001.

14) The NOC constitutes a contract between the department and the facility. Any changes must be approved by the department.

15) Any deviation from required or recommended monitoring standards must be approved by the department. The NOC makes a commitment on what standards (required or recommended) will be followed. At that point, the commitment is binding.

16) **This condition was obsoleted on 8/6/2002.** All records required by WAC 246-247 must be retrievable within 24 hours of the request, and must be stored onsite. All records shall be maintained for a minimum of five years (WAC 246-247-080(8)).
Updated to standard conditions via AIR 02-1250.

17) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

18) Nothing may be inferred that is not specifically described in this NOC (WAC 246-247-060 and 110).

19) **This condition was obsoleted on 8/6/2002.** When this project is completed, and ceases to be an emission unit, a report of closure must be filled with the department (WAC 246-247-080(6)).
Updated to standard conditions via AIR 02-1250.

20) **This condition was obsoleted on 8/6/2002.** The project shall be fully accessible to department inspectors (WAC 246-247-080(9)).
Updated to standard conditions via AIR 02-1250.

21) **This condition was obsoleted on 8/6/2002.** If there is an unexpected release of radioactivity or if there is a shutdown or other condition that, if allowed to persist, would result in emissions of radionuclides in excess of the standards or limitation in the license or that lasts more than four hours, it must be reported to the department within 24 hours. Applicable standards are included in WAC 246-247-040, unit specific emission limits, offsite dose standard, ALARACT or BARCT whichever is applicable, or any limitation included in this approval.
Updated to standard conditions via AIR 02-1250.

22) The unabated curies will not exceed the values for the radionuclides listed below:

Unabated curies for pipe cuts:
3H, 2.72E-04; 14C, 3.81E-05; 59Ni, 2.21E-06; 60Co, 1.46E-04; 63Ni, 2.20E-04; 79Se, 4.22E-06; 90Sr, 1.07E-01; 90Y, 1.07E-01; 93mNb, 1.49E-05; 93Zr, 2.04E-05; 99Tc, 2.25E-04; 106Ru, 1.08E-08;

113mCd, 1.09E-04; 125Sb, 2.56E-04; 126Sn, 6.39E-06; 129I, 2.12E-06; 134Cs, 4.01E-05; 137Cs, 4.47E-01; 151Sm, 1.49E-02; 152Eu, 7.84E-06; 154Eu, 5.83E-04; 155Eu, 9.11E-04; 226Ra, 1.76E-07; 227Ac, 1.09E-09; 228Ra, 3.95E-04; 229Th, 9.13E-09; 231Pa, 4.80E-09; 232Th, 4.47E-08; 232U, 1.22E-06; 233U, 4.66E-06; 234U, 1.06E-06; 235U, 4.16E-08; 236U, 5.49E-08; 237Np, 5.97E-06; 238Pu, 2.43E-06; 238U, 1.26E-06;
239Pu, 1.75E-06; 240Pu, 3.56E-07; 241Am, 7.03E-04; 241Pu, 2.04E-04; 242Cm, 1.90E-07; 242Pu, 9.57E-10; 243Am, 3.62E-09; 243Cm, 9.34E-07; 244Cm, 2.97E-06.

Unabated Curies for Pit Work/Equipment Installation and Removal:
3H, 2.31E-04; 14C, 3.24E-05; 59Ni, 1.88E-06; 60Co, 1.24E-04; 63Ni, 1.87E-04; 79Se, 3.59E-06; 90Sr, 9.08E-02; 90Y, 9.08E-02; 93mNb, 1.27E-05; 93Zr, 1.74E- 05; 99Tc, 1.92E-04; 106Ru, 9.17E-09; 113mCd, 9.26E-05; 125Sb, 2.18E-04; 126Sn, 5.44E-06; 129I, 1.80E-06; 134Cs, 3.41E-05; 137Cs, 3.80E-01; 151Sm, 1.26E-02; 152Eu, 6.67E-06; 154Eu, 4.96E-04; 155Eu, 7.75E-04; 226Ra, 1.50E-07; 227Ac, 9.26E-10; 228Ra, 3.36E-04; 229Th, 7.77E-09; 231Pa, 4.08E-09;
232Th, 3.80E-08; 232U, 1.04E-06; 233U, 3.96E-06; 234U, 9.01E-07; 235U, 3.54E-08; 236U, 4.67E-08; 237Np, 5.08E-06; 238Pu, 2.06E-06; 238U, 1.07E-06;
239Pu, 1.49E-06; 240Pu, 3.03E-07; 241Am, 5.98E-04; 241Pu, 1.74E-04;
242Cm, 1.62E-07; 242Pu, 8.14E-10; 243Am, 3.08E-09; 243Cm, 7.95E-07;
244Cm, 2.52E-06.

Unabated Curies for Soil Extraction (Guzzler):
90Sr, 1.01E-01; 90Y, 1.01E-01 and 241Am, 4.42 E-03.

Unabated Curies for Soil Extraction (Hand Digging):
90Sr, 2.55E-02; 90Y, 2.55E-02 and 241Am, 1.02 E-03.

23) The TEDE to the MEI from soil excavation by the Guzzler will not exceed 6.96E-02 mrem/year, and will be performed in accordance with the regulated Guzzler approval identified in (98-EAP-037). The APQ shall not exceed 1.15E-01 curies. The annual dose to the MEI and the APQ will be tracked on a WDOH approved log. Periodic confirmatory monitoring for soil excavation will consist of soil contamination surveys.

24) The TEDE to the MEI from pit work including equipment installation and removal will not exceed the calculated annual dose of 2.85E-02 mrem/year. The pit work will be performed in accordance with TWRS ALARACT Demonstration for Pit Access (6) and TWRS ALARACT Demonstration for Pit Work (14). When contamination levels inside the pit exceed those identified in the ALARACT Demonstrations a notification shall be made to the WDOH, identifying the additional controls to be added in accordance with the containment matrix guide from HNF-IP-0842. The APQ shall not exceed 5.77E+02 curies. The annual dose to the MEI and the APQ will be tracked on a WDOH approved log.

25) When a Portable/Temporary Radioactive Air Emission Unit (DOE/RL-96-75), or a HEPA Filtered Vacuum (DOE/RL-97-50) are used all Conditions and Limitations associated with those NOCs must be followed, all required logs must be maintained and emissions reported in the annual air emission report.

26) Total soil excavated during the project will not exceed 6,000 cubic yards, which includes approximately 3,600 cubic yards inside the tank farm.

27) Pipe cuts will be made with a sawzall/tri-tool or equivalent tool. If removable contamination levels are greater than 10,000 dpm/100 cm2 beta-gamma and 200 dpm/100 cm2 alpha, the cuts and welding

preparation must be performed inside a glovebag.

28) Work in glovebags will not be performed if sustained wind speeds are greater than 30 miles per hour. This criterion applies to sustained wind speed as determined by the Hanford Meteorological Station.

29) Removal of in-tank equipment will be performed in accordance with ALARACT Demonstration 13, TWRS ALARACT Demonstration for Installation, Operation, and Removal of Tank Equipment, and ALARACT 12 TWRS ALARACT Demonstration for Packaging and Transportation of Equipment and Vehicles.

30) To confirm low emissions during equipment removal and installation, periodic confirmatory monitoring will be as outlined in ALARACT 13; in addition, periodic confirmatory monitoring for the Flexible Receiver Bagging Process will consist of taking a smear survey of the cut bag. Documentation of the survey will be maintained in a WDOH approved log.

31) Monitoring of diffuse and fugitive emissions from this activity will be accomplished through the use of Ambient Near Field Monitors N984, N972, N999 and N158.

32) The HEPA filter on the endcap of the Long Length Contaminated Equipment Disposal System shall be installed and maintained in accordance with manufacturer's recommendations.

33) Periodic confirmatory monitoring for use of the regulated guzzler, portable/temporary radioactive air emissions unit or a HEPA filtered vacuum will be as required by the approved NOC for that equipment.

34) Periodic confirmatory monitoring for the 296-A-29 stack will consist of collecting a two-week sample four times a year, and will be representative of operation of the waste retrieval system. In addition, to ensure the potential-to-emit from these proposed activities remains less than 0.1 mrem/year, a non-destructive analysis (NDA) of the 296-A-29 HEPA filters will be performed annually during waste retrieval system operation. A baseline NDA will be performed prior to operation of the waste retrieval system.

35) The TEDE to the MEI from transfer pipe cuts will not exceed 3.34E-02 mrem/year. The annual possession quantity (APQ) shall not exceed 6.79E+02 curies. The annual dose to the MEI and APQ will be tracked on a WDOH approved log.

36) The TEDE to the MEI from soil excavation by hand digging will not exceed the calculated annual dose of 1.61E-02 mrem/year, and will be performed in accordance with ALARACT 5 TWRS ALARACT Demonstration for Soil Excavation (using hand tools). The APQ shall not exceed 2.65E+01 curies. The annual dose to the MEI and the APQ will be tracked on a WDOH approved log.

37) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

38) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

39) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

40) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

41) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6))

42) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

43) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

44) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

45) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

46) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

47) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

48) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

49) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

50) All facilities with licensed emission units, except for radioactive materials licensees, shall submit a request to the department for renewal of their radioactive air emissions license at least sixty days prior to expiration of the license or as required by the Air Operating Permit. All renewal requests shall include a summary of the operational status of all emission units, the status of facility compliance with the standards of WAC 246-247-040, and the status of any corrective actions necessary to achieve compliance with the requirements of this chapter. Facilities with licensed emission units that also hold a radioactive materials license issued by the department shall submit this information along with their radioactive material license renewal submittal. If the department is unable to renew a radioactive air emissions license before its expiration date, the existing license, with all of its requirements and limitations, remains in force until the department either renews or revokes the license (WAC 246-247-060(9)).

51) All radioactive air emissions licenses issued by the department, except those issued to radioactive materials licensees, shall have an expiration date of five years from date of issuance or as specified in the Air Operating Permit. For radioactive material licensees, the requirements and limitations for the operation of emission units shall be incorporated into their radioactive materials license, and shall expire when the radioactive materials license expires (WAC 246-247-060(6)).

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: PLUTONIUM FINISHING PLANT STABILIZATION AND PACKAGING EQUIPMENT

Emission Unit Name: 296-Z-5 **Emission Unit ID** 389

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: ALARACT

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	HEPA	2	2 parallel banks with each bank containing 4 sets of 2-stage HEPAs; one set per bank operational. Abatement credit given for one HEPA filter in each bank.
	Fan	1	Each bank has 2 fans in parallel. Only one fan in each bank required to be operating.

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93[b][4][i] & WAC 246-247-075[3]	Appendix B, Method 114(3)	TOTAL ALPHA TOTAL BETA	4 week sample/ year
Sampling Requirements:	Record Sample		

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

03/06/2000 NOC, DOE/RL-2000-23. Revision 0, was received March 6, 2000. USDOE provided a withdrawal to this NOC on May 11, 2000.

06/06/2000 NOC, DOE/RL-2000-42. Revision 0, received on June 6, 2000 was approved via AIR 00-709 on July 20, 2000.

10/03/2000 DOE/RL-2000-42, Revision 1, was received on October 3, 2000. Additional details regarding applicability of technology standards were requested. NOC was resubmitted on May 9, 2001.

05/09/2001 DOE/RL-2000-42. Revision 2, received on May 9, 2001 was approved via AIR 01-806 on August 21, 2001.

10/08/2001 DOE/RL-2000-42. Revision 2A, NOC Application/Permit Revision submitted and approved at the October 2, 2001 RTAM. Revised the process description to include thermogravimetric analysis (TGA). New Conditions/Limitations approved via AIR 01-1004 on October 8, 2001.

12/14/2001 AOP Minor Modification, 02-RCA-085, received December 14, 2001 to state that AIR 01-1004 replaced all previous Conditions and Limitations. No new Conditions and Limitations issued.

05/23/2002 AOP Administrative Amendment received May 23, 2002 to clarify HEPA filter testing requirements. Department of Health required submittal of AOP Administrative Amendment in the standard form.

06/21/2002 AOP Administrative Amendment approved on June 18, 2002 to clarify HEPA Filter testing requirements. NOC Revision Form, DOE/RL-2000-42 Revision 2B, approved October 1, 2002. Conditions and Limitations mailed on December 5, 2002 via AIR 02-1203.

12/09/2002 NOC Revision Form, DOE/RL-2000-42 revision 2C, received December 4, 2002 and approved via AIR 03-102 dated January 9, 2003. Clarified that supercritical fluid extraction is no longer considered.

11/17/2003 NOC administrative change received November 3, 2003 to confirm APO limit for stacks 296-Z-5 and 296-Z-7. New Conditions and Limitations mailed December 12, 2003 via AIR 03-1209.

12/22/2003 NOC revision, DOE/RL-2000-42, Revision 3, received December 22, 2003. Conditions and limitations, AIR 04-202, mailed on February 6, 2004.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) 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)).

3) **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.**

To stabilize and/or repackage plutonium, uranium, oxide, and metal for long term storage in the method described below. Within the 2736Z Building, existing vault storage cubicles are allowed to be modified to accommodate large, long term storage canisters as described below.

Activities associated with the 296-Z-7 Emission Unit:

Plutonium and uranium processed in the stabilization and repackaging process under Stabilization and Repackaging Equipment (SPE) will be in the form of oxides (including hold-up material) and metal. Americium, plutonium, and uranium oxides shall be stabilized by heating the material in an oven to meet th DOE Standard 3013. Plutonium oxides with metal chunks might be encountered. The material shall be sieved and the oxides thermally stabilized. The metal chunks shall be brushed and packaged, or thermally stabilized. Hold-up plutonium-bearing material removed from equipment and systems within PFP Complex might be in the form of powder, sweep (such as residue), and/or dried sludge (with small quantities of volitile organics). This material could be mechanically handled (e.g., sieved, brushed) before being thermally stabilized.

In-line monitoring equipment shall be provided for determining the moisture/volatile content of the material processed. The material shall be considered thermally stabilized when there is less than 0.5 percent loss on ignition (LOI). Gasious effluents from moisture determination operations are discharged directly into the glovebox, passed through glovebox HEPA-type filters, and then pass through two stages of HEPA filtration before discharge to the environment via the 296-Z-7 stack.

-Stabilization Module. The Stabilization Module consists of the material preparation area, furnace area, and the product fill area. In the material preparation area, canned items containing plutonium-bearing materials shall be received, measured for accountability, and placed into a furnace tray (or boat) for insertion into a furnace in the furnace area. The module may also provide a waste pathway to dispose of the waste cans and plastic. In the furnaces, the material in the boats shall be heated to greater than 950 degrees Centigrade (C) for at least 2 hours, as specified in U.S. Department of Energy Standard 3013

(DOE-STD-3013, Criteria for Safe Storage of Plutonium Metals and Oxides). The material shall be cooled, placed in a convenience can, sampled to verify dryness, and inserted into the Bagless Transfer System (BTS) Module.

-BTS Module. In the BTS Module, the filled convenience cans shall be received from the Stabilization Module and placed into an inner can. The inner can head space will then be backfilled with helium. A plug shall be welded to the inner wall of the container, and the middle of the weld shall be cut (maintaining glove box confinement at all times).

-Inner Can Leak Test Module. The Inner Can Leak Test Module will receive an inner welded container [bagless transfer container (BTC)]. Operations in this module will verify the BTC meets or exceeds the leak tightness requirements of DOE Standard 3013.

Activities associated with the 296-Z-5 Emission Unit:

-Outer Can Weld Module. The Outer Can Weld Module will receive a leak-checked BTC. The BTC shall be placed in an outer container. The outer can head space shall then be backfilled with helium, and an outer container lid shall be welded onto the container in accordance with the requirements of DOE Standard 3013.

-Outer Can Leak Test Module. The Outer Can Leak Test Module will receive an outer welded container (3013 package) and operations in this module will verify that the package meets or exceeds the leak tightness requirements of 3013.

-NDA Laboratory Modification Module. The Nondestructive Analysis (NDA) Laboratory will receive the 3013 package and will analyze the 3013 package for isotopic distribution, heat load, and container baseline.

Activities associated with the 296-Z-6 Emission Unit:

-Vault Modification Module. The secure vault storage locations in the 2736Z Building shall be modified to accommodate the 3013 packages. These packages shall be sealed, offering no additional potential-to-emit (PTE). No modifications to the existing 2736-Z Building ventilation system, exhausting through minor stack 296-Z-6, shall be made. A new chiller may be installed on the 2736Z Building roof to assist in cooling the current supply air temperature. The cooling coil may be placed in the current (exterior) air supply ductwork with no change in the supply air flow rate or route, or in the 296-Z-6 radioactive airborne emissions.

4) 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	5.00E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Using Pu-239 as a conservative alpha isotope.			
Beta - 0	1.20E-07	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Using Sr-90 as a conservative beta isotope.			

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

Am - 241	Am - 243	Np - 237

Pu -238	Pu 239	Pu -240
Pu - 241	Pu -242	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 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.

5) **This condition was obsoleted on 6/13/2001.** The annual possession quantities for all construction activities associated with the 296-Z-5 stack are limited to 1.2 E-5 curies for all radionuclides combined. The 296-Z-5 stack must remain operational during all construction activities.
Replaced with standard condition. Condition/Limitation obsoleted, construction completed.

6) The 2736-ZB Building will exhaust out of the existing 296-Z-5 stack through two stages of individually testable HEPA filters. They will have a minimum efficiency of 99.95% using a DOP aerosol as defined in ASME N510 or approved equivalent.

7) **This condition was obsoleted on 2/3/2004.** Functional test differential pressure magnehelic gauges associated with 296-Z-5 HEPA filters annually.
Condition added via AIR 01-806. Condition obsoleted via AIR 04-202.

8) **This condition was obsoleted on 1/22/2004.** These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).
Condition added via AIR 01-806. Obsoleted per Settlement Agreement, September 12, 2003.

9) The facility shall notify the department within twenty-four hours of any shutdown, or of any transient abnormal condition lasting more than four hours or other change in facility operations which, if allowed to persist, would result in emissions of radioactive material in excess of applicable standards or license requirements (WAC 246-247-080(5)).

10) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

11) The facility shall notify the department at least seven calendar days prior to any planned preoperational tests of new or modified emission units that involve emissions control, monitoring, or containment

systems of the emission unit(s). The department reserves the right to witness or require preoperational tests involving the emissions control, monitoring, or containment systems of the emissions unit(s) (WAC 246-247-060(4)).

12) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

13) **This condition was obsoleted on 2/3/2004.** The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10).
Condition added via AIR 01-806. Obsoleted via AIR 04-202. Replaced with new condition.

14) The facility must be able to demonstrate workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

15) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

16) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

17) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

18) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2)).

19) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

20) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-040(5)) and WAC 246-247-060(5)).

21) **This condition was obsoleted on 10/3/2001.** When this project is complete, or operations cease, the facility must notify the department via a report of closure, including an potential for airborne releases occurred (WAC 246-247-080(6)).
Condition added via AIR 01-806. Replaced by sunset condition issued in AIR 01-1004 on October 8, 2001.

22) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

23) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

24) The unabated TEDE to the hypothetical MEI is 5.5E-2 millirem/year from the 296-Z-5 emission unit. The abated TEDE to the hypothetical MEI is 2.8E-5 millirem/year from the 296-Z-5 emission unit (giving abatement credit for one HEPA filter).

25) The facility shall file a report of closure with the department whenever operations producing emissions of radioactive material are permanently ceased at any emission unit (except temporary emission units) regulated under this chapter. The closure report shall indicate whether, despite cessation of operations, there is still a potential for radioactive air emissions and a need for an active or passive ventilation system with emission control and/or monitoring devices. If decommissioning is planned and will constitute a modification, a NOC is required, as applicable, in accordance with WAC 246-247-060. (WAC 246-247-080(6))

26) **This condition was obsoleted on 2/3/2004.** It is allowed to disassemble the SFE equipment, located in the 234-5Z Building glovebox, to be package, and removed. It is allowed to install the existing can cutter in the glovebox. The can cutter shall be used to open a BTC in the event of a poor weld and/or not passing the leak detection test.

Added by NOC Revision Form received December 3, 2002, approved via AIR 03-102. Clarified that supercritical fluid extraction is no longer considered. Obsoleted via AIR 04-202 Activity has been completed

27) All radioactive air emissions licenses issued by the department, except those issued to radioactive materials licensees, shall have an expiration date of five years from date of issuance or as specified in the Air Operating Permit. For radioactive material licensees, the requirements and limitations for the operation of emission units shall be incorporated into their radioactive materials license, and shall expire when the radioactive materials license expires (WAC 246-247-060(6)).

28) All facilities with licensed emission units, except for radioactive materials licensees, shall submit a request to the department for renewal of their radioactive air emissions license at least sixty days prior to expiration of the license or as required by the Air Operating Permit. All renewal requests shall include a summary of the operational status of all emission units, the status of facility compliance with the standards of WAC 246-247-040, and the status of any corrective actions necessary to achieve compliance with the requirements of this chapter. Facilities with licensed emission units that also hold a radioactive materials license issued by the department shall submit this information along with their radioactive material license renewal submittal. If the department is unable to renew a radioactive air emissions license before its expiration date, the existing license, with all of its requirements and limitations, remains in force until the department either renews or revokes the license (WAC 246-247-060(9)).

29) As the required indication device for the Z-5 emission unit, the differential pressure magnehelic gauges associated with the final stage of HEPA filters will have a functional test conducted annually.

30) The department may conduct an environmental surveillance program to ensure that radiation doses to the public from emission units are in compliance with applicable standards. The department may require the operator of any emission unit to conduct stack sampling, ambient air monitoring, or other testing as necessary to demonstrate compliance with the standards in WAC 246-247-040. (WAC 246-247-075(9))

31) The department may require the owner or operator of an emission unit to make provision, at existing emission unit sampling stations, for the department to take split or collocated samples of the emissions. (WAC 246-247-075(10))

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: PLUTONIUM FINISHING PLANT STABILIZATION AND PACKAGING EQUIPMENT

Emission Unit Name: 296-Z-6 **Emission Unit ID** 390

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **ALARACT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	HEPA	1	2 parallel banks with each bank containing a 2-stage HEPA filter; one bank operational. Abatement credit given for one HEPA filter in the operating bank.
	Fan	1	2 fans in parallel. Only one fan required to be operating.

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93[b][4][i] & WAC 246-247-075[3]	Appendix B, Method 114(3)	TOTAL ALPHA TOTAL BETA	4 week sample/ year

Sampling Requirements: Record Sample

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

03/06/2000 NOC, DOE/RL-2000-23, Revision 0, was received March 6, 2000. USDOE provided a withdrawal to this NOC on May 11, 2000.

06/06/2000 NOC, DOE/RL-2000-42, Revision 0, received on June 6, 2000 was approved via AIR 00-709 on July 20, 2000.

10/03/2000 DOE/RL-2000-42, Revision 1, was received on October 3, 2000. Additional details regarding applicability of technology standards were requested. NOC was resubmitted on May 9, 2001.

05/09/2001 DOE/RL-2000-42, Revision 2, received on May 9, 2001 was approved via AIR 01-806 on August 21, 2001.

10/08/2001 DOE/RL-2000-42, Revision 2A, NOC Application/Permit Revision submitted and approved at the October 2, 2001 RTAM. Revised the process description to include thermogravimetric analysis (TGA). New Conditions/Limitations approved via AIR 01-1004 on October 8, 2001.

12/14/2001 AOP Minor Modification, 02-RCA-085, received December 14, 2001 to state that AIR 01-1004 replaced all previous Conditions and Limitations. No new Conditions and Limitations issued.

05/23/2002 AOP Administrative Amendment received May 23, 2002 to clarify HEPA filter testing requirements. Department of Health required submittal of AOP Administrative Amendment in the standard form.

06/21/2002 AOP Administrative Amendment approved on June 18, 2002 to clarify HEPA Filter testing requirements. NOC Revision Form, DOE/RL-2000-42 Revision 2B, approved October 1, 2002. Conditions and Limitations mailed on December 5, 2002 via AIR 02-1203.

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11/17/2003 NOC administrative change received November 3, 2003 to confirm APQ limit for stacks 296-Z-5 and 296-Z-7. New Conditions and Limitations mailed December 12, 2003 via AIR 03-1209

12/22/2003 NOC revision, DOE/RL-2000-42, Revision 3, received December 22, 2003. Conditions and limitations, AIR 04-202, mailed on February 6, 2004.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) 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)).

3) **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.**

To stabilize and/or repackage plutonium, uranium, oxide, and metal for long term storage in the method described below. Within the 2736Z Building, existing vault storage cubicles are allowed to be modified to accommodate large, long term storage canisters as described below.

Activities associated with the 296-Z-7 Emission Unit:

Plutonium and uranium processed in the stabilization and repackaging process under Stabilization and Repackaging Equipment (SPE) will be in the form of oxides (including hold-up material) and metal. Americium, plutonium, and uranium oxides shall be stabilized by heating the material in an oven to meet th DOE Standard 3013. Plutonium oxides with metal chunks might be encountered. The material shall be sieved and the oxides thermally stabilized. The metal chunks shall be brushed and packaged, or thermally stabilized. Hold-up plutonium-bearing material removed from equipment and systems within PFP Complex might be in the form of powder, sweep (such as residue), and/or dried sludge (with small quantities of volitile organics). This material could be mechanically handled (e.g., sieved, brushed) before being thermally stabilized.

In-line monitoring equipment shall be provided for determining the moisture/volatile content of the material processed. The material shall be considered thermally stabilized when there is less than 0.5 percent loss on ignition (LOI). Gasious effluents from moisture determination operations are discharged directly into the glovebox, passed through glovebox HEPA-type filters, and then pass through two stages of HEPA filtration before discharge to the environment via the 296-Z-7 stack.

-Stabilization Module. The Stabilization Module consists of the material preparation area, furnace area, and the product fill area. In the material preparation area, canned items containing plutonium-bearing materials shall be received, measured for accountability, and placed into a furnace tray (or boat) for insertion into a furnace in the furnace area. The module may also provide a waste pathway to dispose of the waste cans and plastic. In the furnaces, the material in the boats shall be heated to greater than 950 degrees Centigrade (C) for at least 2 hours, as specified in U.S. Department of Energy Standard 3013

(DOE-STD-3013, Criteria for Safe Storage of Plutonium Metals and Oxides). The material shall be cooled, placed in a convenience can, sampled to verify dryness, and inserted into the Bagless Transfer System (BTS) Module.

-BTS Module. In the BTS Module, the filled convenience cans shall be received from the Stabilization Module and placed into an inner can. The inner can head space will then be backfilled with helium. A plug shall be welded to the inner wall of the container, and the middle of the weld shall be cut (maintaining glove box confinement at all times).

-Inner Can Leak Test Module. The Inner Can Leak Test Module will receive an inner welded container [bagless transfer container (BTC)]. Operations in this module will verify the BTC meets or exceeds the leak tightness requirements of DOE Standard 3013.

Activities associated with the 296-Z-5 Emission Unit:

-Outer Can Weld Module. The Outer Can Weld Module will receive a leak-checked BTC. The BTC shall be placed in an outer container. The outer can head space shall then be backfilled with helium, and an outer container lid shall be welded onto the container in accordance with the requirements of DOE Standard 3013.

-Outer Can Leak Test Module. The Outer Can Leak Test Module will receive an outer welded container (3013 package) and operations in this module will verify that the package meets or exceeds the leak tightness requirements of 3013.

-NDA Laboratory Modification Module. The Nondestructive Analysis (NDA) Laboratory will receive the 3013 package and will analyze the 3013 package for isotopic distribution, heat load, and container baseline.

Activities associated with the 296-Z-6 Emission Unit:

-Vault Modification Module. The secure vault storage locations in the 2736Z Building shall be modified to accommodate the 3013 packages. These packages shall be sealed, offering no additional potential-to-emit (PTE). No modifications to the existing 2736-Z Building ventilation system, exhausting through minor stack 296-Z-6, shall be made. A new chiller may be installed on the 2736Z Building roof to assist in cooling the current supply air temperature. The cooling coil may be placed in the current (exterior) air supply ductwork with no change in the supply air flow rate or route, or in the 296-Z-6 radioactive airborne emissions.

4) 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	5.00E-03	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Using Pu-239 as a conservative alpha isotope.			
Beta - 0	1.20E-07	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Using Sr-90 as a conservative beta isotope.			

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

Am -241	Am -243	Np -237

Pu 238	Pu -239	Pu -240
Pu -241	Pu 242	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 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.

5) **This condition was obsoleted on 1/22/2004.** An approved modification for the 2736-Z Building is the replacement of the current shelving for new larger units to store the new 3013 compliant cans. The new 3013 cans (considered sealed sources) are approved for long-term storage in the 2736-Z Building. A new chiller will be installed on the 2736-Z Building roof to assist in cooling the current supply air temperature. The cooling coil will be placed in the current (exterior) air supply ductwork with no change in the supply air flow rate or route, or in the 296-Z-6 radioactive airborne emissions. Additionally, a vault HVAC supply isolation damper will be installed on the supply air to prevent unfiltered release of plutonium from the building via backflow out the HVAC supply system.
Condition added via AIR 01-806. Condition/Limitation obsolete, construction completed.

6) **This condition was obsoleted on 2/3/2004.** All differential pressure magnehelic gauges associated with 296-Z-6 HEPA filters must be functionally tested annually.
Condition added via AIR 01-806.

7) **This condition was obsoleted on 1/22/2004.** These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).
Condition added via AIR 01-806. Obsoleted per Settlement Agreement, September 12, 2003.

8) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-040(5)) and WAC 246-247-060(5)).

9) The facility shall notify the department at least seven calendar days prior to any planned preoperational tests of new or modified emission units that involve emissions control, monitoring, or containment systems of the emission unit(s). The department reserves the right to witness or require preoperational tests involving the emissions control, monitoring, or containment systems of the emissions unit(s) (WAC 246-247-060(4)).

10) The facility must be able to demonstrate that it has a quality assurance program compatible with

applicable national standards (WAC 246-247-075(6)).

11) **This condition was obsoleted on 2/3/2004.** The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10).
Condition added via AIR 01-806. Obsoleted via AIR 04-202. Replaced with new condition.

12) The facility must be able to demonstrate workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

13) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

14) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

15) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

16) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H (WAC 246-247-080(2))

17) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

18) The facility shall notify the department within twenty-four hours of any shutdown, or of any transient abnormal condition lasting more than four hours or other change in facility operations which, if allowed to persist, would result in emissions of radioactive material in excess of applicable standards or license requirements (WAC 246-247-080(5)).

19) **This condition was obsoleted on 10/3/2001.** When this project is complete, or operations cease, the facility must notify the department via a report of closure, including whether or not any potential for airborne releases occurred (WAC 246-247-080(6)).
Condition added via AIR 01-806. Replaced by sunset condition issued in AIR 01-1004 on October 8, 2001.

20) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

21) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts,

and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

22) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

23) The unabated TEDE to the hypothetical MEI is 5.5E-2 millirem/year from the 296-Z-6 emission unit. The abated TEDE to the hypothetical MEI is 2.8E-05 millirem/year from the 296-Z-6 emission unit (giving abatement credit for one HEPA filter).

24) The facility shall file a report of closure with the department whenever operations producing emissions of radioactive material are permanently ceased at any emission unit (except temporary emission units) regulated under this chapter. The closure report shall indicate whether, despite cessation of operations, there is still a potential for radioactive air emissions and a need for an active or passive ventilation system with emission control and/or monitoring devices. If decommissioning is planned and will constitute a modification, a NOC is required, as applicable, in accordance with WAC 246-247-060. (WAC 246-247-080(6))

25) All radioactive air emissions licenses issued by the department, except those issued to radioactive materials licensees, shall have an expiration date of five years from date of issuance or as specified in the Air Operating Permit. For radioactive material licensees, the requirements and limitations for the operation of emission units shall be incorporated into their radioactive materials license, and shall expire when the radioactive materials license expires (WAC 246-247-060(6)).

26) All facilities with licensed emission units, except for radioactive materials licensees, shall submit a request to the department for renewal of their radioactive air emissions license at least sixty days prior to expiration of the license or as required by the Air Operating Permit. All renewal requests shall include a summary of the operational status of all emission units, the status of facility compliance with the standards of WAC 246-247-040, and the status of any corrective actions necessary to achieve compliance with the requirements of this chapter. Facilities with licensed emission units that also hold a radioactive materials license issued by the department shall submit this information along with their radioactive material license renewal submittal. If the department is unable to renew a radioactive air emissions license before its expiration date, the existing license, with all of its requirements and limitations, remains in force until the department either renews or revokes the license (WAC 246-247-060(9)).

27) As the required indication device for the Z-6 emission unit, the differential pressure magnehelic gauges associated with the final stage of HEPA filters will have a functional test conducted annually.

28) The department may conduct an environmental surveillance program to ensure that radiation doses to the public from emission units are in compliance with applicable standards. The department may require the operator of any emission unit to conduct stack sampling, ambient air monitoring, or other testing as necessary to demonstrate compliance with the standards in WAC 246-247-040. (WAC 246-

247-075(9))

29) The department may require the owner or operator of an emission unit to make provision, at existing emission unit sampling stations, for the department to take split or collocated samples of the emissions. (WAC 246-247-075 (10))

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: PLUTONIUM FINISHING PLANT STABILIZATION AND PACKAGING EQUIPMENT

Emission Unit Name: 296-Z-7 **Emission Unit ID** 503

This is a MAJOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **None**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	HEPA	2	2 parallel banks with each bank containing a 2-stage HEPA filter; one bank operational. Abatement credit given for one 2-stage HEPA filter in the operating bank.
	Fan	1	2 fans in parallel. Only one fan required to be operating.

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
WAC 246-247-075[3]	Appendix B, Method 114	All radionuclides which could contribute 10% of the potential EDE.	Continuous, collect samples biweekly at a minimum

Sampling Requirements: Continuous

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

03/06/2000 NOC, DOE/RL-2000-23, Revision 0, was received March 6, 2000. USDOE provided a withdrawal to this NOC on May 11, 2000.

06/06/2000 NOC, DOE/RL-2000-42, Revision 0, received on June 6, 2000 was approved via AIR 00-709 on July 20, 2000.

10/03/2000 DOE/RL-2000-42, Revision 1, was received on October 3, 2000. Additional details regarding applicability of technology standards were requested. NOC was resubmitted on May 9, 2001.

05/09/2001 DOE/RL-2000-42, Revision 2, received on May 9, 2001 was approved via AIR 01-806 on August 21, 2001.

10/08/2001 DOE/RL-2000-42, Revision 2A, NOC Application/Permit Revision submitted and approved at the October 2, 2001 RTAM. Revised the process description to include thermogravimetric analysis (TGA). New Conditions/Limitations approved via AIR 01-1004 on October 8, 2001.

12/14/2001 AOP Minor Modification, 02-RCA-085, received December 14, 2001 to state that AIR 01-1004 replaced all previous Conditions and Limitations. No new Conditions and Limitations issued.

05/23/2002 AOP Administrative Amendment received May 23, 2002 to clarify HEPA filter testing requirements. Department of Health

required submittal of AOP Administrative Amendment in the standard form.

06/21/2002 AOP Administrative Amendment approved on June 18, 2002 to clarify HEPA Filter testing requirements. NOC Revision Form, DOE/RL 2000-42 Revision 2B, approved October 1, 2002. Conditions and Limitations mailed on December 5, 2002 via AIR 02-1203.

12/09/2002 NOC Revision Form, DOE/RL-2000-42 revision 2C, received December 4, 2002 and approved via AIR 03-102 dated January 9, 2003. Clarified that supercritical fluid extraction is no longer considered.

11/17/2003 NOC administrative change received November 3, 2003 to confirm APO limit for stacks 296-Z-5 and 296-Z-7. New Conditions and Limitations mailed December 12, 2003 via AIR 03-1209.

12/22/2003 NOC revision, DOE/RL-2000-42, Revision 3, received December 22, 2003. Conditions and limitations, AIR 04-202, mailed on February 6, 2004.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) 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)).

3) **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.**

   To stabilize and/or repackage plutonium, uranium, oxide, and metal for long term storage in the method described below. Within the 2736Z Building, existing vault storage cubicles are allowed to be modified to accommodate large, long term storage canisters as described below.

   Activities associated with the 296-Z-7 Emission Unit:

   Plutonium and uranium processed in the stabilization and repackaging process under Stabilization and Repackaging Equipment (SPE) will be in the form of oxides (including hold-up material) and metal. Americium, plutonium, and uranium oxides shall be stabilized by heating the material in an oven to meet th DOE Standard 3013. Plutonium oxides with metal chunks might be encountered. The material shall be sieved and the oxides thermally stabilized. The metal chunks shall be brushed and packaged, or thermally stabilized. Hold-up plutonium-bearing material removed from equipment and systems within PFP Complex might be in the form of powder, sweep (such as residue), and/or dried sludge (with small quantities of volitile organics). This material could be mechanically handled (e.g., sieved, brushed) before being thermally stabilized.

   In-line monitoring equipment shall be provided for determining the moisture/volatile content of the material processed. The material shall be considered thermally stabilized when there is less than 0.5 percent loss on ignition (LOI). Gasious effluents from moisture determination operations are discharged directly into the glovebox, passed through glovebox HEPA-type filters, and then pass through two stages of HEPA filtration before discharge to the environment via the 296-Z-7 stack.

   -Stabilization Module. The Stabilization Module consists of the material preparation area, furnace area, and the product fill area. In the material preparation area, canned items containing plutonium-bearing materials shall be received, measured for accountability, and placed into a furnace tray (or boat) for insertion into a furnace in the furnace area. The module may also provide a waste pathway to dispose of

the waste cans and plastic. In the furnaces, the material in the boats shall be heated to greater than 950 degrees Centigrade (C) for at least 2 hours, as specified in U.S. Department of Energy Standard 3013 (DOE-STD-3013, Criteria for Safe Storage of Plutonium Metals and Oxides). The material shall be cooled, placed in a convenience can, sampled to verify dryness, and inserted into the Bagless Transfer System (BTS) Module.

-BTS Module. In the BTS Module, the filled convenience cans shall be received from the Stabilization Module and placed into an inner can. The inner can head space will then be backfilled with helium. A plug shall be welded to the inner wall of the container, and the middle of the weld shall be cut (maintaining glove box confinement at all times).

-Inner Can Leak Test Module. The Inner Can Leak Test Module will receive an inner welded container [bagless transfer container (BTC)]. Operations in this module will verify the BTC meets or exceeds the leak tightness requirements of DOE Standard 3013.

Activities associated with the 296-Z-5 Emission Unit:

-Outer Can Weld Module. The Outer Can Weld Module will receive a leak-checked BTC. The BTC shall be placed in an outer container. The outer can head space shall then be backfilled with helium, and an outer container lid shall be welded onto the container in accordance with the requirements of DOE Standard 3013.

-Outer Can Leak Test Module. The Outer Can Leak Test Module will receive an outer welded container (3013 package) and operations in this module will verify that the package meets or exceeds the leak tightness requirements of 3013.

-NDA Laboratory Modification Module. The Nondestructive Analysis (NDA) Laboratory will receive the 3013 package and will analyze the 3013 package for isotopic distribution, heat load, and container baseline.

Activities associated with the 296-Z-6 Emission Unit:

-Vault Modification Module. The secure vault storage locations in the 2736Z Building shall be modified to accommodate the 3013 packages. These packages shall be sealed, offering no additional potential-to-emit (PTE). No modifications to the existing 2736-Z Building ventilation system, exhausting through minor stack 296-Z-6, shall be made. A new chiller may be installed on the 2736Z Building roof to assist in cooling the current supply air temperature. The cooling coil may be placed in the current (exterior) air supply ductwork with no change in the supply air flow rate or route, or in the 296-Z-6 radioactive airborne emissions.

4) 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:

Am - 241	1.70E+02	Liquid/Particulate Solid	WAC 246-247-030(21)(a)
Pu - 239	9.60E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

U - 233	1.10E+01	Liquid/Particulate Solid	WAC 246-247-030(21)(a)

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

Am - 241	Am - 243	Np - 237
Pu 238	Pu -239	Pu - 240
Pu - 241	Pu - 242	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.

5) **This condition was obsoleted on 1/22/2004.** These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

Condition added via AIR 01-806. Obsoleted per the Settlement Agreement, September 12, 2003.

6) **This condition was obsoleted on 6/13/2001.** This approval with its Conditions and Limitations must be included in the next revision of the Hanford Air Operating Permit (WAC 246-247-060(1)(e) and (2)(c)), and will at that time, constitute a revision of the Radioactive Air Emissions License.

Condition obsoleted by Air Operating Permit issuance.

7) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-040(5)) and WAC 246-247-060(5)).

8) The facility shall notify the department at least seven calendar days prior to any planned preoperational tests of new or modified emission units that involve emissions control, monitoring, or containment systems of the emission unit(s). The department reserves the right to witness or require preoperational tests involving the emissions control, monitoring, or containment systems of the emissions unit(s) (WAC 246-247-060(4)).

9) **This condition was obsoleted on 2/3/2004.** The department reserves the right to conduct its own stack sampling, environmental monitoring or other testing, as required around this unit to assure compliance. The facility must make provisions for such testing during construction. The department intends to split occasional stack samples on 296-Z-7 (WAC 246-247-075(10)).

Condition added via AIR 01-806. Obsoleted via AIR 04-202. Replaced with new conditions.

10) The facility must be able to demonstrate that the workers associated with this emission unit are adequately trained in the use and maintenance of emission control and monitoring systems, and in the performance of associated test and emergency response procedures (WAC 246-247-075(12)).

11) All facilities must be able to demonstrate the reliability and accuracy of the radioactive air emissions monitoring data (WAC 246-247-075(13)).

12) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

13) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

14) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H. (WAC 246-247-080(2)).

15) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

16) The facility shall notify the department within twenty-four hours of any shutdown, or of any transient abnormal condition lasting more than four hours or other change in facility operations which, if allowed to persist, would result in emissions of radioactive material in excess of applicable standards or license requirements (WAC 246-247-080(5)).

17) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

18) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

19) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

20) **This condition was obsoleted on 11/25/2002.** When this project is completed, or operations cease, the facility shall notify the department via a report of closure, and indicate whether or not any potential for airborne release occurred (WAC 246-247-080(6)).

Condition added via AIR 01-806. Replaced with sunset condition added via AIR 01-1004.

21) **This condition was obsoleted on 11/25/2002.** The materials to be stabilized and or repackaged under Project W-460 are limited to the plutonium and uranium oxides and metals that are already stored in Plutonium Finishing Plant (PFP) complex.

Condition added via AIR 01-806. Replaced with standard condition via AIR 02-1203.

22) **This condition was obsoleted on 6/13/2001.** Activities approved under this NOC are those associated with the construction and operation of activities involving the stabilization and repackaging of plutonium in 2736-ZB Building and the construction of a new major exhaust stack to be built and operated in the 2736-ZB Building to handle the effluents associated with these processes.

Replaced with standard condition.

23) **This condition was obsoleted on 1/22/2004.** If the design of the ventilation system differs from that submitted in this NOC or the activities described in this project change, the project must obtain additional approval from Department of Health prior to commencement of construction.

Condition added via AIR 01-806 Condition/Limitation obsoleted, construction completed.

24) **This condition was obsoleted on 2/3/2004.** The new stack 296-Z-7 must be compliant to all the technology standards listed in (WAC 246-247-110(18)). This information must be made available to Department of Health upon request. Inspections will verify full compliance. If there are any deviations from these standards, prior approval must be obtained from the department.

Condition added via AIR 01-806. Condition obsoleted via AIR 04-202. Activity has been completed.

25) **This condition was obsoleted on 2/4/2004.** The new stack 296-Z-7 must be compliant to all the requirements of ANSI N13.1 (1999). Prior to installation, the department must approve the specific design if it deviates from the design submitted in this NOC. All required technical specifications shall be documented as required in the ANSI N13.1 and submitted to Department of Health upon request.

Condition added via AIR 01-806. Condition obsoleted via AIR 04-202. Activity has been completed.

26) The stack monitoring system shall consist of two shrouded probes located in the exhaust stream within the stack at an elevation of approximately 25 feet above grade. Each probe will have a sample line to deliver the sample stream to the stack monitoring equipment located at the base of the stack. One sample line will be connected to a continuous alpha monitor and the other line dedicated to the record air filter. The sample flow will be proportional to the stack flow. A stack mass flow sensor will be located near the shrouded probes. Inspection and test ports shall be provided. The design must include the ability for the department to split stack samples.

27) The alpha stack monitor shall have fail and high radiation alarms. These alarms are tied into an annunciator panel that will be used to notify operations of off normal conditions requiring immediate corrective actions. Sample pumps located downstream from the alpha monitor and the record sampler in the pump skid will draw representative samples from the stack stream. Exhausts from the pumps will return to the stack above the sample location.

28) **This condition was obsoleted on 2/3/2004.** Deposition losses in the sample lines must be evaluated. The results must be documented and issued in a report submitted to Department of Health

after 12 months of operation.

Condition added via AIR 01-806. Obsoleted via AIR 04-202. Document received February 26, 2003, letter number 03 RCA 0150, and verified.

29) **This condition was obsoleted on 2/3/2004.** Sampling for stack 296-Z-7 shall operate in a continuous mode.

Condition added via AIR 01-806. Obsoleted via AIR 04-202. Redundant to emission unit information.

30) **This condition was obsoleted on 1/22/2004.** Radioisotopes to be encountered during construction, stabilization and packaging activities include the following: uranium-235, uranium-238, plutonium-238, plutonium-239, plutonium-240, plutonium-241, plutonium-242, americium-241 and americium-243.

Condition added via AIR 01-806. Obsoleted by standard condition.

31) The unabated TEDE to the hypothetical MEI is 4.0 E+3 millirem/year from the 296-Z-7 emission unit. The abated TEDE to the hypothetical MEI is 1.1E-3 millirem/year from the 296-Z-7 emission unit.

32) **This condition was obsoleted on 2/3/2004.** The total amount of material to be processed are limited to the following: total plutonium isotopes - 1.6 metric tons/year, total uranium isotopes - 1.1 tons/year, and total americium isotopes - 0.01 metric tons/year.

Condition added via AIR 01-806. Obsoleted via AIR 04-202. Replaced with new condition

33) **This condition was obsoleted on 1/22/2004.** Soil excavation to support Project W-460 activities requires that a survey of the soil be performed every linear and vertical foot before and during excavation. Contaminated soil that is used as backfill must result in activity less that 50 cpm (counts per minutes) alpha or 500,000 cpm beta/gamma. These surveys must be recorded. These records must be made available to Department of Health upon request.

Condition added via AIR 01-806. Condition/Limitation obsoleted, construction is complete.

34) **This condition was obsoleted on 1/22/2004.** During soil excavation, if the contamination levels exceed 140 dpm alpha or 50,000 dpm beta/gamma, work must stop and DOH must be notified within twenty-four hours. Department of Health may request that an estimation of the dose due the excavation activities be calculated.

Condition added via AIR 01-806. Condition/Limitation obsoleted, construction complete.

35) **This condition was obsoleted on 1/22/2004.** Contaminated soils must be separated from the piles of clean soil during excavation. The movement of contaminated soil will be controlled using fixatives, water and covers.

Condition added via AIR 01-806. Condition/Limitation obsoleted, construction complete.

36) **This condition was obsoleted on 1/22/2004.** If contamination is more extensive than the prescribed limits, the spread of contamination must be controlled during the backfilling of soil. Minimal water shall be applied using a hand sprayer to control dust.

Condition added via AIR 01-806. Condition/Limitation obsoleted, construction complete.

37) **This condition was obsoleted on 1/22/2004.** If contamination is present on the soil surface, the soil will either be removed and containerized, or covered with clean fill soil. After backfilling of the

excavation site, where radiological contaminated soil is used as backfill, the surface soil will be surveyed to verify no contamination is on the soil surface.

Condition added via AIR 01-806. Condition/Limitation obsoleted, construction complete.

38) **This condition was obsoleted on 1/22/2004.** The area will be radiologically posted both during and after completion of the Project W-460, if appropriate.

Condition added via AIR 01-806. Condition/Limitation obsoleted, construction complete.

39) **This condition was obsoleted on 11/25/2002.** The loss on ignition (LOI) purge gas flow rate will be 1 cfm of air or inert gas. The off gas temperature will range from 1,150 C to 1,200 C. The off gas is discharged directly into the glovebox. There it will mix with the approximately 13 C nitrogen atmosphere in the LOI glovebox.

Condition added via AIR 01-806. Replaced with standard condition via AIR 02-1203.

40) **This condition was obsoleted on 11/25/2002.** Supercritical fluid extraction (SFE) is also approved for the testing of oxide purity. The measured fluid stream of CO2 and water are exhausted into the glovebox atmosphere.

Condition added via AIR 01-806. Replaced with standard condition via AIR 02-1203.

41) **This condition was obsoleted on 11/25/2002.** The temperature of the off gas must be below 80 C prior to passing through dual stage testable HEPA filters. After exiting the HEPA filters, the off gas exits through the new stack 296-Z-7. The temperatures of the off gas must be established during operation to insure they are not exceeded. The documentation of the temperature must be available to DOH upon request.

Condition added via AIR 01-806. Replaced with standard condition via AIR 02-1203.

42) **This condition was obsoleted on 2/3/2004.** The dual stage of HEPA filters shall be able to be individually tested with minimum efficiency of 99.95%.

Condition added via AIR 01-806. Condition obsoleted via AIR 04-202. Construction completed.

43) Procedures must be developed to leak test and to check for contamination on the outside of the welded containers prior to transporting them to various designated areas of the project. Appropriate staff must be trained on these procedures prior to the start of the project. These procedures will be available for Department of Health review upon request.

44) **This condition was obsoleted on 11/25/2002.** Operational activities in Room 642 are limited to equipment testing, routine maintenance, material bag-in and bag-out, sampling, heating of materials in the four muffle furnaces, packaging, inner can welding, leak testing, and decontamination . The containers may only be opened in that area and ventilated through the 296-Z-7 stack.

Condition added via AIR 01-806. Replaced with standard condition via AIR 02-1203.

45) **This condition was obsoleted on 6/13/2001.** The exhaust from the material bagout and preparation areas must each pass through a HEPA filter upon exiting the glove box. Prior to joining the main line, the exhaust must pass through to a HEPA filter prior to connecting with the Room 642 exhaust filter and then to the dual stage HEPA filter and exiting through stack 296-Z-7. All HEPA filters must be tested.

46) The product fill glove box located in Room 642 must be exhausted through a HEPA type filter before connecting to the Room 642 exhaust HEPA filter.

47) The maximum design life of this project is not to exceed 20 years. All work must be completed by October 1, 2021.

48) **This condition was obsoleted on 6/13/2001.** Gloveboxes must have two exhaust systems, including a normal and an emergency system. Inside of each glove box, the normal exhaust system must have a roughing filter and fire screen. Outside of the glovebox, the normal exhaust system must be connected to a testable high efficiency particulate air (HEPA) filter.

49) **This condition was obsoleted on 2/3/2004.** The Department of Health requires that a particle size distribution study be conducted for 296-Z-7 emission unit after 12 months of full operation.

Condition added via AIR 01-806. Obsoleted via AIR 04-202. Document received February 26, 2003, letter number 03-RCA-0150.

50) The emergency exhaust line does not have any fire screens or filters. The normal and emergency lines are combined and routed to the process exhaust HEPA filter system. Prior to passing through dual stage testable HEPA filters, the off gas temperature must be below 80 C.

51) **This condition was obsoleted on 2/3/2004.** All differential pressure magnehelic gauges associated with 296-Z-7 HEPA filters must be functionally tested annually.

Condition added via AIR 01-806. Condition obsoleted via AIR 04-202. Replaced with new condition.

52) In these Conditions and Limitations, all filters designated as HEPA filters must be testable to a minimum of 99.95% efficiency.

53) **This condition was obsoleted on 2/3/2004.** All HEPA filters must be tested annually for efficiency.

Condition added via AIR 01-806. Obsoleted via AIR 04-202. Replaced with new condition.

54) **This condition was obsoleted on 2/3/2004.** All filters (HEPA and HEPA-type) must have differential pressure gauges to demonstrate that they are operating as designed. Alternative methods to demonstrate efficiency must be approved by the department.

Condition added via AIR 01-806. Obsoleted via AIR 04-202. Replaced with new condition.

55) **This condition was obsoleted on 1/22/2004.** Unless otherwise indicated below, all sections of ANSI N509 are required for the controls associated with the new 296-Z-7 emission unit.

The following sections of N509 are considered to be not applicable to this emission unit because the systems covered are not included in the design or comply with the AG-1 Standard rather than N509:

- Section 3 (habitability systems).
- Section 4.1c (iodine controls), d (demisters), e (heaters), and f (postfilters).
- Section 4.2 c (reactor requirement for pressure-time transients).

- Section 4.2 f (entrained liquid mass flow rate).
- Section 4.2 k (structural loadings).
- Section 4.2 q (adsorbers).
- Section 4.2 r (heaters).
- Section 4.3 (adsorber requirement).
- Section 4.6.5.2 (reactor containment structures).
- Section 4.6.5.4a (de-energizing power to fans, which there is no provision for).
- Section 4.6.5.4b (de-energizing power to fans, which there is no provision for).
- Section 4.7.1c (HEPA housings in contaminated areas).
- Section 4.7.2a and b (habitability).
- Section 4.9.2b and c (local alarms and local controls, which are not present in system).
- Section 4.10 (adsorbers).
- Section 4.11.2 (adsorbers).
- Section 4.11.6, 8, and 9 (fire suppression systems, which are not installed).
- Section 4.12 (treatment system insulation).
- Section 4.13b (adsorbers).
- Section 4.14.3 (test pressures that are not equal to operating static pressure- this system has equal pressures).
- Section 5.2.1, 5.2.2, 5.2.3.1, 5.2.3.2, 5.2.3.3, 5.2.4, 5.2.5.1, and 5.2.5.2 (adsorbers).
- Section 5.4, 5.4.1 and 5.4.2 (moisture separators, which are not present).
- Section 5.5, 5.5.1, 5.5.2, 5.5.3, and 5.5.4 (heaters).
- Section 5.6.2 b (lighting, which is not present).
- Section 5.6.2 e (flanged connections).
- Section 5.6.2 f (flexible connections between filter housings).
- Section 5.6.4.5 (engineered safety feature systems built of galvanized steel).
- Section 5.6.5.1 (non-permanent sampling manifolds).
- Section 5.6.5.1 (for air cleaning systems with no inlet or outlet ducts).
- Section 5.8.2 (for engineered safety feature fan systems).
- Section 5.8.3 (for installing motors onsite).
- Section 5.9.3.1, 5.9.3.2, 5.9.5, 5.9.6, 5.9.7.1, 5.9.7.2, 5.9.8, 5.9.9, 5.9.10, and 5.9.11 (air cleaning unit dampers- this system uses butterfly valves).
- Section 5.10.7 (coatings on ductwork).

Condition added via AIR 01-806. Condition/Limitation obsolete, construction complete.

56) **This condition was obsoleted on 1/22/2004.** The butterfly dampers that are not applicable to ANSI N509 must meet the AG-1 Criteria:
- Section 5.9.5 .
- Section 5.9.6 .
- Section 5.9.7.1.
- Section 5.9.8.
- Section 5.9.9.
- Section 5.9.10.
- Section 5.9.11.

Condition added via AIR 01-806. Condition/Limitation obsolete, construction complete.

57) **This condition was obsoleted on 1/22/2004.** The following requirements, listed as "open" in the Notice of Construction, must be fully compliant before the 296-Z-7 system becomes operational and

before any processing may begin. Documentation of compliance must be provided to Department of Health prior to startup.

- Section 4.6.5.4a. Backdraft dampers must meet positive pressure requirements.
- Section 4.9.3a, b and c . Instrumentation and mountings must be qualified to this standard.
- Section 5.3.3. Report on pre and post filter dimensions, compliance with UL900 and ASHRAE 52, materials of construction etc. must be provided.
- Section 5.6.3. Drawings of clamping devices for HEPA filters must be submitted to DOE.
- Section 5.6.5.2. Documentation of visual inspections of HEPA filter housings must be provided.
- Section 5.6.5.3. HEPA filter housing welds must be shop tested with magnetic particles or liquid penetrates.
- Section 5.6.5.4. All filter housings must be shop tested before shipment to Hanford. Documentation must be provided.
- Section 5.6.5.5. Airflow distribution testing must be performed prior to shipment on filter housings HEP-14,-15,-16, and-17.
- Section 5.6.5.6. Air-aerosol mixing uniformity tests must be performed in the shop as required by N510 for HEP-14, 15,-16,-17.
- Section 5.7.5. Calculations and descriptions of fan qualification tests must be furnished.
- Section 5.10.8.1 and 5.10.8.2. All ductwork must be pressure tested.
- Section 7.3. All documentation of welds must be completed.
- Section 7.4 As-builts must confirm installation requirements are met and documentation provided.
- Section 8.1. ALL components must be demonstrated to have been procured through a NQA-1 program.
- Section 8.2. Vendor drawings and approval data must be provided.

Condition added via AIR 01-806. Condition/Limitation obsoleted, construction complete.

58) **This condition was obsoleted on 2/3/2004.** The following requirements, listed as OPEN in the Notice of Construction, are test-dependent. That is, system testing requires drawing outside air into Room 642 (in the 2736-ZB Building) and through the 296-Z-7 exhaust train to complete the testing and close these items. A small potential for in-leakage from the remainder of the 2736-ZB into Room 642 exists.

Section 5.10.9. Balancing must be completed of the air treatment system.

Balancing the ventilation system requires simultaneous operation of all components upstream of the exhaust fans. The components include the nitrogen generator, the supply fan system, and the exhaust system to establish the correct differential pressures for the airlock, the 642 Room, and each of the gloveboxes.

Section 7.2. Installation must be performed in strict adherence to the layout drawings.

Installation of equipment has been performed in strict adherence to the layout drawings, and any deviations have been approved by the responsible engineer. As Section 7.2 requires, the "As-Built" drawings will reflect those design changes. The "As-Built" drawings will be documented upon completion of testing.

Section 9. Documentation of acceptance tests must be provided.

Acceptance testing includes HEPA filter efficiency testing, glovebox balancing, and room/building ventilation balancing. Upon completion of these tests, the documentation shall be made available to the department.

The following limitations must be implemented during testing activities conducted to close the items listed above and will not result in an increased potential-to-emit or airborne releases from the 296-Z-5 system to the environment. These shall be documented and be made available for department review.

1. The 296-Z-5 stack must be operational during all 296-Z-7 system testing. All 296-Z-7 system testing will cease immediately
upon loss of 296-Z-5 operation and the department notified within 24 hours.

2. 2736-ZB Building constant air monitors will operate per approved procedures during 296-Z-7 system testing.

3. The new 296-Z-7 HEPA filters will be in place and efficiency-tested as part of acceptance testing.

Condition added via AIR 01-806. Condition/Limitation obsoleted via AIR 04-202, construction complete.

59) The facility shall file a report of closure with the department whenever operations producing emissions of radioactive material are permanently ceased at any emission unit (except temporary emission units) regulated under this chapter. The closure report shall indicate whether, despite cessation of operations, there is still a potential for radioactive air emissions and a need for an active or passive ventilation system with emission control and/or monitoring devices. If decommissioning is planned and will constitute a modification, a NOC is required, as applicable, in accordance with WAC 246-247-060. (WAC 246-247-080(6))

60) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

61) All radioactive air emissions licenses issued by the department, except those issued to radioactive materials licensees, shall have an expiration date of five years from date of issuance or as specified in the Air Operating Permit. For radioactive material licensees, the requirements and limitations for the operation of emission units shall be incorporated into their radioactive materials license, and shall expire when the radioactive materials license expires (WAC 246-247-060(6)).

62) All facilities with licensed emission units, except for radioactive materials licensees, shall submit a request to the department for renewal of their radioactive air emissions license at least sixty days prior to expiration of the license or as required by the Air Operating Permit. All renewal requests shall include a summary of the operational status of all emission units, the status of facility compliance with the standards of WAC 246-247-040, and the status of any corrective actions necessary to achieve compliance with the requirements of this chapter. Facilities with licensed emission units that also hold a radioactive materials license issued by the department shall submit this information along with their radioactive material license renewal submittal. If the department is unable to renew a radioactive air emissions license before its expiration date, the existing license, with all of its requirements and limitations, remains in force until the department either renews or revokes the license (WAC 246-247-060(9)).

63) The total amount of material to be processed are limited to the following: total plutonium isotopes - 1.6 metric tons/year, total uranium isotopes - 1.1 tons/year, and total americium isotopes - 0.05 metric tons/year.

64) As the required indication device for the Z-7 emission unit, the differential pressure magnehelic gauges associated with the final stage of HEPA filters will have a functional test conducted annually.

65) All HEPA filters for which abatement credit is given must be tested annually for efficiency.

66) All required stages of HEPA filtration must have differential pressure indicating devices to demonstrate that they are operating as designed.

67) The department may conduct an environmental surveillance program to ensure that radiation doses to the public from emission units are in compliance with applicable standards. The department may require the operator of any emission unit to conduct stack sampling, ambient air monitoring, or other testing as necessary to demonstrate compliance with the standards in WAC 246-247-040. (WAC 246-247-075(9))

68) The department may require the owner or operator of an emission unit to make provision, at existing emission unit sampling stations, for the department to take split or collocated samples of the emissions. (WAC 246-247-075 (10))

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: USE OF PORTABLE TANKS AND REVISED SOURCE TERM DESCRIPTION AT WASTE SAMPLING AND CHARACTERIZATION FACILITY (WSCF)

Date Approved: 25-Nov-02

Emission Unit Name: 696-W-1 **Emission Unit ID** 62

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

.pplicable Requirements: **BARCT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Prefilter	2	In parallel
	HEPA	2	In parallel
	Fan	2	In parallel

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93[b][4][i] & WAC 246-247-075[3]	Appendix B, Method 114(3)	TOTAL ALPHA TOTAL BETA	2 week sample/quarter

Sampling Requirements: Record Sample

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

06/11/1990 Original NOC approved on June 11, 1990 via EPS 90-275.

01/19/1999 Six NOC Revision Forms approved on January 19, 1999, to revise various process descriptions.

03/11/1999 NOC Revision Form approved on March 11, 1999 to eliminate sample acceptance criterion.

08/10/2000 NOC (DOE/RL-2000-04, Revision 0) received June 12, 2000 to update the description of the WSCF facilities and provide more flexible emissions limits. Approved on August 10, 2000 via AIR 00-802.

11/08/2001 Inspection on December 4, 2000 resulted in issuance of new Conditions and Limitations, on November 8, 2001 via AIR 01-1103 to reflect new format and standard Conditions and Limitations, and to specify certification requirements.

12/19/2001 Corrected letter, AIR 01-1201, mailed on December 20, 2001 to provide an approval number and date approved.

02/27/2002 AOP Minor Modifications, 02-RCA-0188 and 02-RCA-0128, received February 27, 2002 and February 22, 2002 to state that AIR 01-1103 replaced all previous conditions. No new Conditions and Limitations mailed.

03/11/2002 AOP Minor Modification, 02-RCA-0214, received March 11, 2002 to state that AIR 01-1201 replaced all previous conditions No new Conditions and Limitations mailed.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 2.80E-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 1.40E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

* Analytical Laboratory Building (696-W-1) - Solid, liquid, and vapor samples contaminated with low levels of radioactive material are processed, on a bench-scale basis, in fume hoods or other controlled air spaces in the building. Evaporation and wet chemistry also are used to prepare samples for analysis. Low-level waste drums are filled inside the laboratory building and transferred either to the Solid Waste Storage Building (described as follows) or other approved facilities on the Hanford Site, or the low-level waste drums are moved to various locations with WSCF.

* Radiochemistry Laboratory (696-W-2) - This is a below grade counting room in the Analytical Laboratory Building with a separately controlled airspace within the building.

* Environmental Data/Computer Center (6270) - This is a non-radiological building and will not be addressed further.

* Environmental Sample Archive Building (6267) - This building provides for controlled storage, indexing, categorizing and retrieval of low-level contaminated samples. Storage is provided for up to 2,500 samples requiring refrigerated storage and up to 11,500 samples requiring ambient storage. This building also provides for temporary storage of unvented drums or other low-level waste, packaged in accordance with applicable laboratory procedures. Less than 100 low-level waste packages are stored at any one time.

* Mobile Laboratory Storage Facility (6269) - This structure houses up to five mobile laboratories and provides protection from adverse weather conditions for the instrumentation and computers inside the mobile laboratories. This area contains calibration laboratory instrumentation used in the mobile laboratories, and a sample preparation area for adding chemical buffers and preservatives to sample containers. This building provides temporary storage of drums, or other waste packages contained with low-levels of radioactive material. Less than 100 low-level waste packages are stored at any one time.

* Solid Waste Storage Building (6265A) - This open-sided building shall provide for temporary storage of drums or other low-level waste packages. Less than 100 low-level waste packages are stored at any one time and will not be addressed further in this license, as these are unvented drums.

* Contaminated Liquid Waste Retention Vault (6266A) - Consists of two 3,785 liter polyethylene tanks contained in a common concrete vault. The tanks are designed to receive low-level inorganic and radiologically contaminated liquid waste or sample excess from the analytical laboratory. The liquid

routinely is transferred to an approved disposal facility on the Hanford Site using the portable tanker described as follows. This building also provides temporary storage of drums, or other waste packages contaminated with low-levels of radioactive material. Less than 100 low-level waste packages are stored at any one time.

* Sample Equipment Cleaning Facility - This is a non-radiological building and will not be addressed further.

* Portable Tanker(s) used for Wastewater Transport - Wastewater drums containing liquid waste contaminated with low-levels of radioactive material are stored temporarily at various locations within WSCF. In some cases, the contents of these drums are pumped into a portable tanker at the various locations for transport to other facilities. To accomplish the pumping, a small pump has its drop leg inserted into each drum through the bunghole or other opening, and flexible hose transfers the liquid to the tanker.

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

Alpha - 0	3.30E-01	B/G - 0	6.80E+00

5) These Conditions and Limitations must be proceduralized and these procedures maintained for the lifetime of the facility.

6) If the department finds that the emission unit described in this NOC is not in compliance with the standards in WAC 246-247-040 during operation (as described in the NOC) it reserves the right to require modifications to bring it into compliance (WAC 246-247-060(2)(d).

7) The facility shall notify the department at least seven days prior to any planned preoperational testing of the emission unit's emissions control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

8) The U.S. DOE shall monitor this emission unit as follows: 696-W-1 emission units shall be monitored periodically. The periodic sampling shall consist of a sample of stack effluent being withdrawn a minimum of two weeks per quarter.

9) The department reserves the right to conduct its own environmental monitoring or other testing, as required around this unit to assure compliance. If the department so decides, the facility must make provision for such testing (WAC 246-247-075(10)).

10) The facility must be able to demonstrate that the workers associated with these emission units are adequately trained in the use and maintenance of emission control and monitoring systems, and in the performance of associated test and emergency response procedures (WAC 246-247-075(12)).

11) The facility must be able to demonstrate the reliability and accuracy of emission data and other test results from these units (WAC 246-247-075(13)) and (WAC 246-247-075(6)). The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards listed in, or equivalent to, those listed in the above-cited regulation.

12) The department reserves the right to inspect and audit this unit during construction and operation including all activities, equipment, operations, documents, data, and other records related to compliance with the regulations (WAC 246-247-080(1)). Periodic inspections will occur.

13) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

14) All reports and records must be kept and reported according to 40 CFR 61, Subpart H (WAC 246-247-

080(2)).

15) All measured or calculated emissions must be reported annually (WAC 246-247-080(3)).

16) If there is an unexpected release of radioactivity or if there is a shutdown or other condition that, if it were allowed to persist, would result in emissions of radionuclides in excess of any standards or limitations in the license or that lasts more than four hours, it must be reported to the department within 24 hours. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitations included in this approval (paragraph 5).

17) **This condition was obsoleted on 10/29/2002.** When this project is completed, or operations cease, the facility shall notify the department via a report of closure, and indicate whether or not any potential for airborne release occurred (WAC 246-247-080(6)).
Replaced with new Sunset Condition via AIR 02-1102

18) Records must be readily (promptly) available for these units. These records must be maintained onsite, and must be retained for at least five years (WAC 246-247-080(8)).

19) This unit must be fully accessible to Department of Health inspectors. If there are any specific training requirements or restrictions or special requirements for entry, they must be given to the department when they are known to allow for unannounced inspections, as required by EPA (WAC 246-247-080(9)). At a minimum, for unannounced inspections, such requirements or restrictions must be told to inspectors that morning, with the opportunity for the inspectors to meet those requirements. For prior announced inspections, such notification must occur far enough in advance for the inspectors to have reasonable time to meet the requirements.

20) The facility shall make requested documents available in a timely manner for review (WAC 246-247-080(10)).

21) The annual possession quantity of plutonium and strontium are considered conservative and noted that these radionuclides representative types of alpha and beta radiation that this facility expects to handle. The facility needs to verify annually that plutonium and strontium are the most conservative radionuclides this facility handles.

22) The radiological control technology requirements are as follows:

* 696-W-1 stack operates a pre-filter and a HEPA filter before entering the exhaust stack. When the ventilation system exits the Analytical Laboratory Building and divides into two legs, each leg shall consist of a damper, a pre-filter, a HEPA filter bank (4x3), a damper, and a fan. The pre-filter housing is designed for ease of filter change without increased dust loading on the HEPA filters. Two exhaust fans are installed and operate in parallel under normal power.

23) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or

completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6))

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: USE OF PORTABLE TANKS AND REVISED SOURCE TERM DESCRIPTION AT WASTE SAMPLING AND CHARACTERIZATION FACILITY (WSCF)

Date Approved: 25-Nov-02

Emission Unit Name: 696-W-2 **Emission Unit ID** 63

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **BARCT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Prefilter	2	In parallel
	HEPA	2	In parallel
	Fan	1	An additional standby fan recirculates the air flow back to Bldg. 6266 or can vent it to the atmosphere.

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93[b][4][i] & WAC 246-247-075[3]	Appendix B, Method 114(3)	TOTAL ALPHA TOTAL BETA	2 week sample/quarter
Sampling Requirements:	Record Sample		

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

06/11/1990 Original NOC approved on June 11, 1990 via EPS 90-275.

01/19/1999 Six NOC Revision Forms approved on January 19, 1999, to revise various process descriptions.

03/11/1999 NOC Revision Form approved on March 11, 1999 to eliminate sample acceptance criterion.

08/10/2000 NOC (DOE/RL-2000-04, Revision 0) received June 12, 2000 to update the description of the WSCF facilities and provide more flexible emissions limits. Approved on August 10, 2000 via AIR 00-802.

11/08/2001 Inspection on December 4, 2000 resulted in issuance of new Conditions and Limitations, on November 8, 2001 via AIR 01-1103 to reflect new format and standard Conditions and Limitations, and to specify certification requirements.

12/19/2001 Corrected letter, AIR 01-1201, mailed on December 20, 2001 to provide an approval number and date approved.

02/27/2002 AOP Minor Modifications, 02-RCA-0188 and 02-RCA-0128, received February 27, 2002 and February 22, 2002 to state that AIR 01-1103 replaced all previous conditions. No new Conditions and Limitations mailed.

03/11/2002 AOP Minor Modification, 02-RCA-0214, received March 11, 2002 to state that AIR 01-1201 replaced all previous conditions.

No new Conditions and Limitations mailed.

07/23/2002 Administrative Amendment to correct emission unit control equipment typographical errors approved on July 23, 2002. Approval letter, AIR 02-1102, mailed on November 25, 2002.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 2.80E-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 1.40E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

* Analytical Laboratory Building (696-W-1) - Solid, liquid, and vapor samples contaminated with low levels of radioactive material are processed, on a bench-scale basis, in fume hoods or other controlled air spaces in the building. Evaporation and wet chemistry also are used to prepare samples for analysis. Low-level waste drums are filled inside the laboratory building and transferred either to the Solid Waste Storage Building (described as follows) or other approved facilities on the Hanford Site, or the low-level waste drums are moved to various locations with WSCF.

* Radiochemistry Laboratory (696-W-2) - This is a below grade counting room in the Analytical Laboratory Building with a separately controlled airspace within the building.

* Environmental Data/Computer Center (6270) - This is a non-radiological building and will not be addressed further.

* Environmental Sample Archive Building (6267) - This building provides for controlled storage, indexing, categorizing and retrieval of low-level contaminated samples. Storage is provided for up to 2,500 samples requiring refrigerated storage and up to 11,500 samples requiring ambient storage. This building also provides for temporary storage of unvented drums or other low-level waste, packaged in accordance with applicable laboratory procedures. Less than 100 low-level waste packages are stored at any one time.

* Mobile Laboratory Storage Facility (6269) - This structure houses up to five mobile laboratories and provides protection from adverse weather conditions for the instrumentation and computers inside the mobile laboratories. This area contains calibration laboratory instrumentation used in the mobile laboratories, and a sample preparation area for adding chemical buffers and preservatives to sample containers. This building provides temporary storage of drums, or other waste packages contained with low-levels of radioactive material. Less than 100 low-level waste packages are stored at any one time.

* Solid Waste Storage Building (6265A) - This open-sided building shall provide for temporary storage of drums or other low-level waste packages. Less than 100 low-level waste packages are stored at any one time and will not be addressed further in this license, as these are unvented drums.

* Contaminated Liquid Waste Retention Vault (6266A) - Consists of two 3,785 liter polyethylene tanks contained in a common concrete vault. The tanks are designed to receive low-level inorganic and

radiologically contaminated liquid waste or sample excess from the analytical laboratory. The liquid routinely is transferred to an approved disposal facility on the Hanford Site using the portable tanker described as follows. This building also provides temporary storage of drums, or other waste packages contaminated with low-levels of radioactive material. Less than 100 low-level waste packages are stored at any one time.

* Sample Equipment Cleaning Facility - This is a non-radiological building and will not be addressed further.

* Portable Tanker(s) used for Wastewater Transport - Wastewater drums containing liquid waste contaminated with low-levels of radioactive material are stored temporarily at various locations within WSCF. In some cases, the contents of these drums are pumped into a portable tanker at the various locations for transport to other facilities. To accomplish the pumping, a small pump has its drop leg inserted into each drum through the bunghole or other opening, and flexible hose transfers the liquid to the tanker.

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

Alpha - 0	3.30E-01	B/G - 0	6.80E+00

5) If the department finds that the emission unit described in this NOC is not in compliance with the standards in WAC 246-247-040 during operation (as described in the NOC) it reserves the right to require modifications to bring it into compliance (WAC 246-247-060(2)(d).

6) The facility shall notify the department at least seven days prior to any planned preoperational testing of the emission unit's emissions control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

7) The USDOE shall monitor this emission unit as follows: 696-W-2 emission units shall be monitored periodically. The periodic sampling shall consist of a sample being drawn a minimum of two weeks per quarter.

8) The department reserves the right to conduct its own environmental monitoring or other testing, as required around this unit to assure compliance. If the department so decides, the facility must make provision for such testing (WAC 246-247-075(10)).

9) The facility must be able to demonstrate that the workers associated with these emission units are adequately trained in the use and maintenance of emission control and monitoring systems, and in the performance of associated test and emergency response procedures (WAC 246-247-075(12)).

10) The facility must be able to demonstrate the reliability and accuracy of emission data and other test results from these units (WAC 246-247-075(13)) and (WAC 246-247-075(6)). The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards listed in, or equivalent to, those listed in the above-cited regulation.

11) The department reserves the right to inspect and audit this unit during construction and operation including all activities, equipment, operations, documents, data, and other records related to compliance with the regulations (WAC 246-247-080(1)). Periodic inspections will occur.

12) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

13) All reports and records must be kept and reported according to 40 CFR 61, Subpart H (WAC 246-247-080(2)).

14) All measured or calculated emissions must be reported annually (WAC 246-247-080(3)).

15) If there is an unexpected release of radioactivity or if there is a shutdown or other condition that, if it were allowed to persist, would result in emissions of radionuclides in excess of any standards or limitations in the license or that lasts more than four hours, it must be reported to the department within 24 hours. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitations included in this approval (paragraph 5).

16) **This condition was obsoleted on 10/29/2002.** When this project is completed, or operations cease, the facility shall notify the department via a report of closure, and indicate whether or not any potential for airborne release occurred (WAC 246-247-080(6)).
Replaced with new Sunset Condition via AIR 02-1102.

17) Records must be readily (promptly) available for these units. These records must be maintained onsite, and must be retained for at least five years (WAC 246-247-080(8)).

18) This unit must be fully accessible to Department of Health inspectors. If there are any specific training requirements or have restrictions or special requirements for entry, they must be given to the department when they are known to allow for unannounced inspections, as required by EPA (WAC 246-247-080(9)). At a minimum, for unannounced inspections, such requirements or restrictions must be told to inspectors that morning, with the opportunity for the inspectors to meet those requirements. For prior announced inspections, such notification must occur far enough in advance for the inspectors to have reasonable time to meet the requirements.

19) The facility shall make requested documents available in a timely manner for review (WAC 246-247-080(10)).

20) The radiological control technology requirements are as follows:

* 696-W-2 stack operates a ventilation system that splits into two legs. Each leg of the parallel system must consist of a damper, a pre-filter, a HEPA filter bank (4x3), and a damper. The installed filtration system provides a minimum of 99.95% collection efficiency. After the air passes through the parallel system, the legs join together and pass through the fan. The airflow is divided into two paths, with approximately 10% of the airflow exhausting directly to the stack, and the other approximately 90% of flow recycling back into the building. The damper and fan regulate the flow.

21) The annual possession quantity of plutonium and strontium are considered conservative and noted that these radionuclides representative types of alpha and beta radiation that this facility expects to handle. The facility needs to verify annually that plutonium and strontium are the most conservative radionuclides this facility handles.

22) These Conditions and Limitations must be proceduralized and these procedures maintained for the lifetime of the facility.

23) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6))

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: USE OF PORTABLE TANKS AND REVISED SOURCE TERM DESCRIPTION AT WASTE SAMPLING AND CHARACTERIZATION FACILITY (WSCF)

Date Approved: 25-Nov-02

Emission Unit Name: 600 AREA DIFFUSE EMISSIONS **Emission Unit ID** 504

This is a MINOR, FUGITIVE, non-point source emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **BARCT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
			Abatement controls as required in the following Conditions and Limitations.

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
WAC 246-247-075[3]	Appendix B, Method 114	All radionuclides which could contribute 10% of the potential EDE.	As listed in the following Conditions and Limitations.

Sampling Requirements: Existing near-facility monitoring stations.

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

06/11/1990 Original NOC approved on June 11, 1990 via EPS 90-275.

01/19/1999 Six NOC Revision Forms approved on January 19, 1999, to revise various process descriptions.

03/11/1999 NOC Revision Form approved on March 11, 1999 to eliminate sample acceptance criterion.

08/10/2000 NOC (DOE/RL-2000-04, Revision 0) received June 12, 2000 to update the description of the WSCF facilities and provide more flexible emissions limits. Approved on August 10, 2000 via AIR 00-802.

11/08/2001 Inspection on December 4, 2000 resulted in issuance of new Conditions and Limitations, on November 8, 2001 via AIR 01-1103 to reflect new format and standard Conditions and Limitations, and to specify certification requirements.

12/19/2001 Corrected letter, AIR 01-1201, mailed on December 20, 2001 to provide an approval number and date approved.

02/27/2002 AOP Minor Modifications, 02-RCA-0188 and 02-RCA-0128, received February 27, 2002 and February 22, 2002 to state that AIR 01-1103 replaced all previous conditions. No new Conditions and Limitations mailed.

03/11/2002 AOP Minor Modification, 02-RCA-0214, received March 11, 2002 to state that AIR 01-1201 replaced all previous conditions. No new Conditions and Limitations mailed.

07/23/2002 Administrative Amendment to correct emission unit control equipment typographical errors approved on July 23, 2002. Approval letter, AIR 02-1102, mailed on November 25, 2002.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 2.80E-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 1.40E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**

* Analytical Laboratory Building (696-W-1) - Solid, liquid, and vapor samples contaminated with low levels of radioactive material are processed, on a bench-scale basis, in fume hoods or other controlled air spaces in the building. Evaporation and wet chemistry also are used to prepare samples for analysis. Low-level waste drums are filled inside the laboratory building and transferred either to the Solid Waste Storage Building (described as follows) or other approved facilities on the Hanford Site, or the low-level waste drums are moved to various locations with WSCF.

* Radiochemistry Laboratory (696-W-2) - This is a below grade counting room in the Analytical Laboratory Building with a separately controlled airspace within the building.

* Environmental Data/Computer Center (6270) - This is a non-radiological building and will not be addressed further.

* Environmental Sample Archive Building (6267) - This building provides for controlled storage, indexing, categorizing and retrieval of low-level contaminated samples. Storage is provided for up to 2,500 samples requiring refrigerated storage and up to 11,500 samples requiring ambient storage. This building also provides for temporary storage of unvented drums or other low-level waste, packaged in accordance with applicable laboratory procedures. Less than 100 low-level waste packages are stored at any one time.

* Mobile Laboratory Storage Facility (6269) - This structure houses up to five mobile laboratories and provides protection from adverse weather conditions for the instrumentation and computers inside the mobile laboratories. This area contains calibration laboratory instrumentation used in the mobile laboratories, and a sample preparation area for adding chemical buffers and preservatives to sample containers. This building provides temporary storage of drums, or other waste packages contained with low-levels of radioactive material. Less than 100 low-level waste packages are stored at any one time.

* Solid Waste Storage Building (6265A) - This open-sided building shall provide for temporary storage of drums or other low-level waste packages. Less than 100 low-level waste packages are stored at any one time and will not be addressed further in this license, as these are unvented drums.

* Contaminated Liquid Waste Retention Vault (6266A) - Consists of two 3,785 liter polyethylene tanks contained in a common concrete vault. The tanks are designed to receive low-level inorganic and radiologically contaminated liquid waste or sample excess from the analytical laboratory. The liquid routinely is transferred to an approved disposal facility on the Hanford Site using the portable tanker described as follows. This building also provides temporary storage of drums, or other waste packages

contaminated with low-levels of radioactive material. Less than 100 low-level waste packages are stored at any one time.

* Sample Equipment Cleaning Facility - This is a non-radiological building and will not be addressed further.

* Portable Tanker(s) used for Wastewater Transport - Wastewater drums containing liquid waste contaminated with low-levels of radioactive material are stored temporarily at various locations within WSCF. In some cases, the contents of these drums are pumped into a portable tanker at the various locations for transport to other facilities. To accomplish the pumping, a small pump has its drop leg inserted into each drum through the bunghole or other opening, and flexible hose transfers the liquid to the tanker.

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

Alpha - 0	1.02E+00	B/G - 0	2.11E+01

5) These Conditions and Limitations must be proceduralized and these procedures maintained for the lifetime of the facility.

6) If the department finds that the emission unit described in this NOC is not in compliance with the standards in WAC 246-247-040 during operation (as described in the NOC) it reserves the right to require modifications to bring it into compliance (WAC 246-247-060(2)(d)).

7) The facility shall notify the department at least seven days prior to any planned preoperational testing of the emission unit's emissions control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

8) The U.S. DOE shall monitor this emission units as follows:

   Periodic radiological surveys of swipes or surfaces associated with 6265A, 6269, 6267, and 6266A must be conducted to verify compliance.

9) The department reserves the right to conduct its own environmental monitoring or other testing, as required around this unit to assure compliance. If the department so decides, the facility must make provision for such testing (WAC 246-247-075(10)).

10) The facility must be able to demonstrate that the workers associated with these emission units are adequately trained in the use and maintenance of emission control and monitoring systems, and in the performance of associated test and emergency response procedures (WAC 246-247-075(12)).

11) The facility must be able to demonstrate the reliability and accuracy of emission data and other test results from these units (WAC 246-247-075(13)) and (WAC 246-247-075(6)). The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards listed in, or equivalent to, those listed in the above-cited regulation.

12) The department reserves the right to inspect and audit this unit during construction and operation including all activities, equipment, operations, documents, data, and other records related to compliance with the regulations (WAC 246-247-080(1)). Periodic inspections will occur.

13) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

14) All reports and records must be kept and reported according to 40 CFR 61, Subpart H (WAC 246-247-080(2)).

15) All measured or calculated emissions must be reported annually (WAC 246-247-080(3)).

16) If there is an unexpected release of radioactivity or if there is a shutdown or other condition that, if it were allowed to persist, would result in emissions of radionuclides in excess of any standards or limitations in the license or that lasts more than four hours, it must be reported to the department within 24 hours. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitations included in this approval (paragraph 5).

17) **This condition was obsoleted on 10/29/2002.** When this project is completed, or operations cease, the facility shall notify the department via a report of closure, and indicate whether or not any potential for airborne release occurred (WAC 246-247-080(6)).
Replaced with new Sunset Condition via AIR 02-1102.

18) The facility must maintain a log, in a format approved by the department, for the surveys and smears.

19) Records must be readily (promptly) available for these units. These records must be maintained onsite, and must be retained for at least five years (WAC 246-247-080(8)).

20) This unit must be fully accessible to Department of Health inspectors. If there are any specific training requirements or have restrictions or special requirements for entry, they must be given to the department when they are known to allow for unannounced inspections, as required by EPA (WAC 246-247-080(9)). At a minimum, for unannounced inspections, such requirements or restrictions must be told to inspectors that morning, with the opportunity for the inspectors to meet those requirements. For prior announced inspections, such notification must occur far enough in advance for the inspectors to have reasonable time to meet the requirements.

21) The facility shall make requested documents available in a timely manner for review (WAC 246-247-080(10)).

22) The radiological control technology requirements are as follows:

* 6267 will control emissions by the structure itself, with no containment efficiency provided by the ventilation system. Packaging of the archived samples and monitored storage of closed (unvented) drums and approved low-level waste packages, combined with minimization of any indoor contamination in accordance with established radiation control procedures, provides for effective control of potential fugitive emissions.

* 6269 will control emissions based on the design of the mobile laboratories, combined with minimization of any indoor contamination, in accordance with established radiation control procedures.

* 6265A will control emissions by controlling the waste packages. Minimize the external contamination in accordance with established radiation control procedures.

* 6266A will control emissions by having a passive vent HEPA type high efficiency filter on each tank.

* Portable tanker used for wastewater transport will control emissions by passively venting.

23) The Annual Possession Quantity (APQ) shall not exceed the following limits for the associated facilities:

* Environmental sample archive building (6267) APQ is limited to 0.33 Ci/yr total Alpha and 6.8 Ci/yr total Beta/Gamma.

* Mobile Laboratory Storage Facility (6269) APQ is limited to 0.03 Ci/yr total Alpha and 0 .68 Ci/yr total Beta/Gamma.

* Contaminated liquid waste retention vault (6266A) APQ is limited to 0.33 Ci/yr total Alpha and 6.8 Ci/yr total Beta/Gamma.

* Portable tanker used for wastewater transport APQ is limited to 0.33 Ci/yr total Alpha and 6.8 Ci/yr total Beta/Gamma.

24) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with WAC 246-247-080 (8). (WAC 246-247-080 (6))

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: ROOF REPLACEMENT ACTIVITIES INVOLVING RADIOACTIVE CONTAMINATION AT FACILITIES ON THE CENTRAL PLATEAU

Date Approved: 31-May-02
Emission Unit Name: TYPE-1, TYPE-2, TYPE-3

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **BARCT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	HEPA	1	Type-2 and Type-3
	Charcoal filter	1	Type-2 and Type-3
	HEPA	1	Type-1

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Regulatory Requirements	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
WAC 246-247-075[3]	Appendix B, Method 114	GROSS ALPHA/BETA	Annual, unless sspecified 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 monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

04/22/2002 NOC Revision 1 (DOE/RL-2001-69, Revision 1) received April 22, 2002 to incorporate comments from a 30 day completeness review of Revision 0 from the Washington State Department of Health. Conditions and Limitations, AIR 02-514, mailed on June 3, 2002.

02/20/2002 Original NOC Application DOE/RL-2001-69, Rev. 0, received December 21, 2001. Requested rewrite of NOC on January 20, 2002.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) 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)). The total limit on the Potential-To-Emit for

this Notice of Construction is limited to 4.80E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **This process is limited to:**
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-STD-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.

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

Alpha 0	1.50E-01
B/G 0	7.50E+00

5) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and WAC 246-247-060(5)).

6) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

7) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

8) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

9) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

10) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

11) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H. (WAC 246-247-080(2)).

12) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

13) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

14) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing

permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6))

15) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

16) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

17) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

18) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

19) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

20) The facility must be able to demonstrate workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

21) For dose modeling, the radionuclides of concern shall use cesium-137 (representing beta/gamma emitters) and americium-241 (representing alpha emitters).

22) The total radionuclide content of the material removed shall not exceed the total Annual Possession Quantity, and shall be tracked on a WDOH approved log.

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: ROOF REPLACEMENT ACTIVITIES INVOLVING RADIOACTIVE CONTAMINATION AT FACILITIES ON THE CENTRAL PLATEAU

Date Approved: 31-May-02
Emission Unit Name: HEPA VACUUMS

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: None

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Regulatory Requirements	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
There are no sampling requirements.			

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

04/22/2002 NOC Revision 1 (DOE/RL-2001-69, Revision 1) received April 22, 2002 to incorporate comments from a 30 day completeness review of Revision 0 from the Washington State Department of Health. Conditions and Limitations, AIR 02-514, mailed on June 3, 2002.

02/20/2002 Original NOC Application DOE/RL-2001-69, Rev. 0, received December 21, 2001. Requested rewrite of NOC on January 20, 2002.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) 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)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 4.80E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **This process is limited to:**
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.

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

Alpha	0	1.00E-03
B/G	0	5.00E-02

5) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

6) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

7) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

8) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

9) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

10) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

11) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H. (WAC 246-247-080(2)).

12) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

13) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

14) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

    Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

    All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)).

(WAC 246-247-080(6))

15) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

16) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

17) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

18) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

19) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

20) The facility must be able to demonstrate workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

21) For dose modeling, the radionuclides of concern shall use cesium-137 (representing beta/gamma emitters) and americium-241 (representing alpha emitters).

22) The total radionuclide content of the material removed shall not exceed the total Annual Possession Quantity, and shall be tracked on a WDOH approved log.

23) Total sum of the APQ 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.

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: ROOF REPLACEMENT ACTIVITIES INVOLVING RADIOACTIVE CONTAMINATION AT FACILITIES ON THE CENTRAL PLATEAU

Date Approved: 31-May-02
Emission Unit Name: GUZZLER

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **ALARACT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Collection Tank and Plate Separator	1	
	Cyclone Separator	1	Baghouse with 72 bags each.
	Micro-strainer Device	1	
	HEPA	3	Three in-place tested HEPA filters in parallel.

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Regulatory Requirements	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
WAC 246-247-075[3]	Appendix D, Method 114(3)	All radionuclides which 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 monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

04/22/2002 NOC Revision 1 (DOE/RL-2001-69, Revision 1) received April 22, 2002 to incorporate comments from a 30 day completeness review of Revision 0 from the Washington State Department of Health. Conditions and Limitations, AIR 02-514, mailed on June 3, 2002.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) 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)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 4.80E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **This process is limited to:**
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.

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

Alpha 0	1.00E-03
B/G 0	5.00E-02

5) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

6) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

7) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

8) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

9) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

10) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

11) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H. (WAC 246-247-080(2)).

12) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

13) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or

any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

14) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

    Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer applicable for that emission unit or activity.

    All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6))

15) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

16) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

17) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

18) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

19) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

20) The facility must be able to demonstrate workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

21) For dose modeling, the radionuclides of concern shall use cesium-137 (representing beta/gamma emitters) and americium-241 (representing alpha emitters).

22) The total radionuclide content of the material removed shall not exceed the total Annual Possession Quantity, and shall be tracked on a WDOH approved log.

23) Total sum of the APQ 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.

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: ROOF REPLACEMENT ACTIVITIES INVOLVING RADIOACTIVE CONTAMINATION AT FACILITIES ON THE CENTRAL PLATEAU

Date Approved: 31-May-02
Emission Unit Name: 200 AREA DIFFUSE/FUGITIVE

This is a MAJOR, FUGITIVE, non-point source emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **BARCT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
			Abatement controls as required in the following Conditions and Limitations.

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Regulatory Requirements	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
WAC 246-247-075[3]	Appendix B, Method 114	All radionuclides which could contribute 10% of the potential EDE.	As listed in the following Conditions and Limitations.

Sampling Requirements: Existing near-facility monitoring stations.

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

04/22/2002 NOC Revision 1 (DOE/RL-2001-69, Revision 1) received April 22, 2002 to incorporate comments from a 30 day completeness review of Revision 0 from the Washington State Department of Health. Conditions and Limitations, AIR 02-514, mailed on June 3, 2002.

02/20/2002 Original NOC Application DOE/RL-2001-69, Rev. 0, received December 21, 2001. Requested rewrite of NOC on January 20, 2002.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) 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)). The total limit on the Potential-To-Emit for this Notice of Construction is limited to 4.80E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

Printed on 03-Jun-02

3) **This process is limited to:**
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.

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

Alpha 0	3.00E-01
B/G 0	1.50E+01

5) These Conditions and Limitations must be documented in an established procedure prior to starting activities granted by this approval (WAC 246-247-040(5)) and (WAC 246-247-060(5)).

6) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

7) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10)).

8) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

9) The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

10) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

11) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H. (WAC 246-247-080(2)).

12) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

13) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

14) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

    Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting, requirements which are no longer

applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6)).

15) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

16) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

17) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

18) Diffuse/Fugitive emissions shall be monitored using the 200 Area near-field ambient air monitors. Sample collection and analysis shall follow that of the near field monitoring program. Analytical results shall be reported in the Annual Air Emissions Report. Any change to this near-field ambient monitoring program must be approved by the department.

19) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

20) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

21) The facility must be able to demonstrate workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

22) For dose modeling, the radionuclides of concern shall use cesium-137 (representing beta/gamma emitters) and americium-241 (representing alpha emitters).

23) The total radionuclide content of the material removed shall not exceed the total Annual Possession Quantity, and shall be tracked on a WDOH approved log.

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
LICENSE AMENDMENT FOR

PROJECT TITLE: 241-AZ TANK FARM ANNULUS EXHAUSTER OPERATION
Date Approved: 22-Aug-01
Emission Unit Name: 296-A-20

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **ALARACT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
Tank 241-AZ-101	HEPA	1	2 HEPA's in series
Tank 241-AZ-102	HEPA	1	2 HEPA's in series
241-AZ	Fan	1	
241-AZ	Radial Damper	1	Set to allow only 2,000 CFM (1,000 CFM per annulus)

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Regulatory Requirements	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
40 CFR 61.93[b][4][i] & WAC 246-247-075[3]	Appendix B, Method 114(3)	TOTAL ALPHA TOTAL BETA	4 week sample/ year

Sampling Requirements: Record Sample

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

08/22/01 NOC, 241-AZ-101 Annulus Exhauster, approved via AIR 01-805 on August 22, 2001.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 1.56E-09 mrem/year to the Maximally Exposed Individual. The total unabated emission limit for this Notice of Construction is limited to 3.12E-06 mrem/year to the Maximally Exposed Individual.

3) **This process is limited to:**
exhausting the annulus of the 241-AZ-101 and 241-AZ-102 double-shell tanks (DSTs). 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 foot annulus and are contained inside a concrete shell. The tanks have a usable waste volume of approximately 1,000,000 gallons each. The 296-A-20 stack exhauster ventilates the annular space of both 241-AZ-101and 241-AZ-102. The 241-AZ annulus exhaust fan draws outside air into a common inlet filter assembly. The inlet filter assembly shall consists of two filter stages, a pre-filter bank, and an inlet filter. The air will pass through a distribution manifold and flow control valves into the annular space of both the 241-AZ-101 and 241-AZ-102 tanks, via underground ductwork. The flow control butterfly dampers can be adjusted to distribute air between the sides of the annuli and the air slots below the primary tanks. Exhaust air shall be drawn out of each annulus through underground ducting to individual aboveground exhaust HEPA filter banks (one for each tank), associated heaters, and isolation dampers. To allow for balancing flow between annuli or to allow isolation of an individual exhaust HEPA filter bank, dampers shall be installed upstream of each exhaust HEPA filter bank.

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

Alpha 0	7.00E-05
Beta 0	2.99E-02

5) These Conditions and Limitations must be proceduralized prior to starting activities granted by this approval.

6) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

7) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. The department reserves the right to observe such tests (WAC 246-247-060(4)).

8) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

9) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(9) and (10).

10) The facility must be able to demonstrate workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

11) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)).

12) The Department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter (WAC 246-247-080(1)).

13) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

14) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H. (WAC 246-247-080(2)).

15) The facility shall report all measured or calculated emissions annually (WAC 246-247-080(3)).

16) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards

(WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5) (WAC 246-247-080(5)).

17) When this project is complete, or operations cease, the facility must notify the department via a report of closure, including whether or not any potential for airborne releases occurred (WAC 246-247-080(6)).

18) The facility shall maintain readily (promptly) retrievable storage areas (on site) for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years (WAC 246-247-080(8)).

19) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection (WAC 246-247-080(9)).

20) The facility shall make available, in timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know (WAC 246-247-080(10)).

21) The current sampling probe must be qualified to show that it collects an adequate sample or be replaced with an acceptable system within one year of this approval.

22) Flow rate through the HEPA filters shall not exceed the manufactures rating of those HEPA filters.

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: EXCAVATION ACTIVITIES FOR THE BUILDING OF TEMPORARY CONSTRUCTION FACILITIES AND THE MAIN FACILITIES FOR THE RIVER PROTECTION PROJECT-WASTE TREATMENT PLANT (RPP-WTP)

Date Approved: 24-Oct-02

Emission Unit Name: GUZZLER **Emission Unit ID** 476

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **ALARACT** ALARACT [WAC 246-247-040(4)] BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	Collection Tank and Plate Separator	1	
	Cyclone Separator	1	Baghouse with 72 bags each.
	Micro-strainer Device	1	
	HEPA	3	Three in-place tested HEPA filters in parallel.

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
WAC 246-247-075[3]	Appendix D, Method 114(3)	All radionuclides which 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 monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

07/16/2001 Original NOC, Waste Treatment and Immobilization Plant (WTP) Project Notices of Construction for Excavation Activities (RPT-W375-EN00030, Revision 0), approved on July 17, 2001 via AIR 01-709.

09/11/2002 NOC Revision received September 11, 2002 to provide a condition change. Conditions and Limitations, AIR 02-1014, mailed on October 24, 2002.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 3.80E-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 3.80E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **This process is limited to:**
the excavation activities associated with the building of temporary construction facilities and the main facilities for the River Protection Project-Waste Treatment Plant (RPP-WTP).

Excavation and general grading will be performed for the WTP site, including excavation for the mat foundations, for the four main process facilities: Pretreatment (PT), high-level waste (HLW), low-activity waste (LAW), and LAW pretreatment plant (LPP) areas, including installation of sheet piles, where applicable.

The excavation is limited to the removal of the dune sand, subsurface soil, and excavation to the desired elevation for the founding of structures and slope of the finished site layout. Over excavation is allowed to remove the dune sand if it is found at the exposed subgrade elevation. Excavated soil removed beyond the required footing elevation will be replaced with compacted structural fill, to the required footing elevation.

Conventional methods such as the use of large excavators, scrapers, dozers, backhoes, front-end loaders, or manual digging with shovels or the "clean" guzzler will be used.

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

Alpha	0	Beta - 0	5.32E-02

5) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

6) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(10) and (11).

7) The facility must be able to demonstrate workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

8) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)) and (WAC 246-247-075(6)).

9) Prior to hot start-up, restart or operation of a new or existing emission unit, the owner/operator must notify and provide the department the access to inspect and audit all construction activities, equipment, operations, documents, data, and other records related to compliance with the requirements of WAC 246-247 (WAC 246-247-080(1)).

10) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

11) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

12) The facility shall maintain and report all records and reports according to 40 CFR 61, Subpart H (WAC 246-247-080(2)).

13) All measured or calculated emissions shall be reported annually (WAC 246-247-080(3)).

14) The USDOE shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitations included in this approval (paragraph 5) (WAC 246-247-080(5)).

15) **This condition was obsoleted on 10/15/2002.** When this project is complete, or operations cease, the facility must notify the department via a report of closure, including whether or not any potential for airborne releases occurred (WAC 246-247-080(6)).
Obsoleted and replaced by new Sunset Condition via AIR 02-1014.

16) The facility shall make requested documents available in a timely manner for review (WAC 246-247-080(10)).

17) This unit must be fully accessible to Department of Health inspectors. Any specific training requirements, restrictions or special entry requirements must be given to the department when known to allow for unannounced inspections, as required by EPA (WAC 246-247-080(9)). At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors that morning, to provide an opportunity for inspectors to meet those requirements. For prior announced inspections, such notification must occur far enough in advance for the inspectors to have reasonable time to meet the requirements.

18) Records must be readily (promptly) available for this unit. Those records must be maintained onsite, and must be retained for at least five years (WAC 246-247-080(8)).

19) The owner/operator must inform the Department of Health whenever the activity associated with this NOC or any of the Conditions or Limitations contained in this approval are completed, abandoned, or otherwise made obsolete.

20) These Conditions and Limitations must be proceduralized prior to starting the radiological activities by including these requirements within the appropriate activity work packages and associated radiological work permits.

21) No more than 250 cubic yards of contaminated soils shall be excavated using the radiologically controlled guzzler.

22) If the radiologically controlled guzzler is used to excavate soil, these activities shall meet the conditions, controls, monitoring requirements and limitations of the latest approved version of the guzzler NOC. All source term work performed under this activity shall be tracked against the Annual Possession Quantity for this NOC.

23) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive

air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)).

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: EXCAVATION ACTIVITIES FOR THE BUILDING OF TEMPORARY CONSTRUCTION FACILITIES AND THE MAIN FACILITIES FOR THE RIVER PROTECTION PROJECT-WASTE TREATMENT PLANT (RPP-WTP)

Date Approved: 24-Oct-02

Emission Unit Name: 200 AREA DIFFUSE/FUGITIVE **Emission Unit ID** 486

This is a MAJOR, FUGITIVE, non-point source emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: BARCT

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
			Abatement controls as required in the following Conditions and Limitations.

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
WAC 246-247-075[3]	Appendix B, Method 114	All radionuclides which could contribute 10% of the potential EDE.	As listed in the following Conditions and Limitations.

Sampling Requirements: Existing near-facility monitoring stations.

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

07/16/2001 Original NOC, Waste Treatment and Immobilization Plant (WTP) Project Notices of Construction for Excavation Activities (RPT-W375-EN00030, Revision 0), approved on July 17, 2001 via AIR 01-709.

09/11/2002 NOC Revision received September 11, 2002 to provide a condition change. Conditions and Limitations, AIR 02-1014, mailed on October 24, 2002.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).

2) The total abated emission limit for this Notice of Construction is limited to 3.80E-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 3.80E-02 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).

3) **This process is limited to:**

the excavation activities associated with the building of temporary construction facilities and the main facilities for the River Protection Project-Waste Treatment Plant (RPP-WTP).

Excavation and general grading will be performed for the WTP site, including excavation for the mat foundations, for the four main process facilities: Pretreatment (PT), high-level waste (HLW), low-activity waste (LAW), and LAW pretreatment plant (LPP) areas, including installation of sheet piles, where applicable.

The excavation is limited to the removal of the dune sand, subsurface soil, and excavation to the desired elevation for the founding of structures and slope of the finished site layout. Over excavation is allowed to remove the dune sand if it is found at the exposed subgrade elevation. Excavated soil removed beyond the required footing elevation will be replaced with compacted structural fill, to the required footing elevation.

Conventional methods such as the use of large excavators, scrapers, dozers, backhoes, front-end loaders, or manual digging with shovels or the "clean" guzzler will be used.

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

Alpha - 0	2.19E+00	Beta 0	9.44E+01

5) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance (WAC 246-247-060-(2)(d)).

6) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing (WAC 246-247-075(10) and (11).

7) The facility must be able to demonstrate workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures (WAC 246-247-075(12)).

8) The facility must be able to demonstrate the reliability and accuracy of emissions data and other test results from this emission unit (WAC 246-247-075(13)) and (WAC 246-247-075(6)).

9) Prior to hot start-up, restart or operation of a new or existing emission unit, the owner/operator must notify and provide the department the access to inspect and audit all construction activities, equipment, operations, documents, data, and other records related to compliance with the requirements of WAC 246-247 (WAC 246-247-080(1)).

10) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards (WAC 246-247-075(6)).

11) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).

12) The facility shall maintain and report all records and reports according to 40 CFR 61, Subpart H (WAC 246-247-080(2)).

13) All measured or calculated emissions shall be reported annually (WAC 246-247-080(3)).

14) The USDOE shall report to the department within 24 hours, any unexpected release of radioactivity,

shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitations included in this approval (paragraph 5) (WAC 246-247-080(5)).

15) **This condition was obsoleted on 10/15/2002.** When this project is complete, or operations cease, the facility must notify the department via a report of closure, including whether or not any potential for airborne releases occurred (WAC 246-247-080(6)).
Obsoleted and replaced by new Sunset Condition via AIR 02-1014.

16) The facility shall make requested documents available in a timely manner for review (WAC 246-247-080(10)).

17) This unit must be fully accessible to Department of Health inspectors. Any specific training requirements, restrictions or special entry requirements must be given to the department when known to allow for unannounced inspections, as required by EPA (WAC 246-247-080(9)). At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors that morning, to provide an opportunity for inspectors to meet those requirements. For prior announced inspections, such notification must occur far enough in advance for the inspectors to have reasonable time to meet the requirements.

18) Records must be readily (promptly) available for this unit. Those records must be maintained onsite, and must be retained for at least five years (WAC 246-247-080(8)).

19) The owner/operator must inform the Department of Health whenever the activity associated with this NOC or any of the Conditions or Limitations contained in this approval are completed, abandoned, or otherwise made obsolete.

20) These Conditions and Limitations must be proceduralized prior to starting the radiological activities by including these requirements within the appropriate activity work packages and associated radiological work permits.

21) The facility must maintain a log in an approved format for this activity to track the total volume of contaminated soil (to ensure that the contaminated soil volumes in conjunction with their respective contamination levels do not exceed the approved estimated potential-to-emit). 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. The emissions log format approval is required prior to startup.

22) If contaminated soil is detected during routine surveys, controls such as water, fixatives, covers, or windscreens will then be applied, as determined by the Health Physics organization. Spoil piles containing contaminated soil will be segregated from the clean soil. Containerizing spoils for disposal may also be performed. A general radiological work permit shall implement these controls.

23) Excavation activities will be stopped if evenly distributed contamination with detection readings greater than 500,000 dpm/100 cm2 beta-gamma, or greater than 200 dpm/100 cm2 above background alpha is encountered. Excavation will not continue until:

   a. A review of the work and encountered conditions has been performed and a plan for managing equipment and personnel in these "contaminated areas" has been addressed.
   b. It has been determined that no threat to worker safety or the environment exists.
   c. Proper controls (i.e., removal and disposal, water, fixatives, covers, and so on) have been put in place to mitigate any further threat.
   d. The sustained wind speed is predicted to be less than 20 miles per hour.

e. The extent of soil contaminated has been fully identified by stakes or other markings and the estimated soil volume contaminated has been logged into the field log book.
f. And the WDOH has been contacted and briefed of the situation.

24) Excavation activities are allowed to continue if hot specks or "specky" contamination is encountered as long as:

a. The specky contamination estimate is included in the approved emissions log; and
b. The emissions contribution from the specky contamination does not put the total logged emissions estimate over the allowed Annual Possession Quantity. It shall be assumed that hot specks are very small volumes of contamination. The specks shall be removed as they are encountered and containerized for disposal.

25) Excavation activities will cease and WDOH shall be contacted if the total soil volume estimated to be contaminated from the field log reaches 4,000 cubic yards. A modification will then be made to the NOC to account for the increased contamination prior to restarting the excavation activities. WDOH shall be notified if more than 443,700 cubic yards of surface dune sand and soil need to be excavated for the WTP facilities using conventional excavation equipment.

26) After the excavation, containerizing, and removal, of any contaminated soil, the area will be backfilled with clean soil. After backfilling, the area shall be surveyed to verify that radiological contamination levels on the soil surface are less than 5,000 dpm/100 cm2 beta-gamma and less than 100 dpm/100 cm2 alpha. If contamination is present on the surface above these levels, it will be removed and containerized for disposal or covered or fixed to provide containment of the contamination.

Dust shall be controlled by water spraying or other approved methods. The active excavation faces that are exposed for periods of less than 24 hours shall receive dust control measures during excavation operations such as spray applications of water. Excavated areas, and/or stockpiles that will be inactive for periods of greater than 24 hours shall receive dust control measures other than water alone, such as surficial suppressants, or penetrating crusting agents.

27) **This condition was obsoleted on 10/15/2002.** Periodic Confirmatory Measurements. As the potential unabated offsite dose associated with this activity is calculated to be less than 0.1 mrem/year, in accordance with 40 CFR 61, Subpart H, periodic confirmatory measurements (PCM) shall be made to verify emissions. For this activity the estimated emission levels are too low to measure using conventional stack sampling methods so the PCM shall consist of two measurement methods:

* Radiological soil contamination surveys shall be used to verify compliance administratively, as the performed surveys shall limit activities to those with a potential-to-emit below the maximum threshold contamination work levels. As the emission estimates are based and calculated from the maximum threshold contamination levels and the maximum volume of contaminated soil, the true emissions shall inherently be below the estimated emissions.

* The use of a near field monitoring grid and shall consist of the existing 200 East Area near field monitors; an existing PNNL 200 east area ambient monitor (east of WTP construction area); and one additional new ambient monitor (near an existing power pole north of WTP construction area).

* Any change to the location of the ambient air monitors must be approved by WDOH.

* Operation of the two ambient air monitors shall be required during grading and excavation activities. The air monitor north of the WTP excavation is not required during periods in

which excavation and grading activities are not occurring. When permanent power is established for the north air monitor both WTP ambient air monitors shall run on a 24-hour basis. WDOH shall be notified within 24 hours if contamination is encountered prior to the WTP ambient air monitors running on the 24-hour basis. WDOH shall be notified when the WTP ambient air monitors are running on the 24-hour basis.

Obsoleted by NOC Application/Permit Revision approved via AIR 02-1014. Replaced with a new version of this condition.

28) For the reporting requirements of (WAC 246-247-080(3)), all results of the contamination surveys, emissions estimate logs, and the near field monitoring results must be kept on file as confirmation of low emissions and shall be reported annually in the Hanford Site Air Emissions Report. All periodic confirmatory air samples (PCM) will be collected and analyzed following EPA Method 114.

29) Periodic Confirmatory Measurements. As the potential unabated offsite dose associated with this activity is calculated to be less than 0.1 mrem/year, in accordance with 40 CFR 61, Subpart H, periodic confirmatory measurements (PCM) shall be made to verify emissions. For this activity the estimated emission levels are too low to measure using conventional stack sampling methods so the PCM shall consist of the following measurement methods:

* Radiological soil contamination surveys shall be used to verify compliance administratively, as the performed surveys shall limit activities to those with a potential-to-emit below the maximum threshold contamination work levels. As the emission estimates are based and calculated from the maximum threshold contamination levels and the maximum volume of contaminated soil, the true emissions shall inherently be below the estimated emissions.

* In the event that soil contamination is discovered during radiological soil surveys, the use of the near field monitoring grid shall consist of the existing 200 East Area near field monitors; an existing PNNL 200 East Area ambient monitor (east of WTP construction area); and the new ambient monitor (near an existing power pole north of WTP construction area).

* Any change to the location of the ambient air monitors must be approved by WDOH.

* In the event that soil contamination is discovered during radiological soil surveys, operation of the two ambient air monitors shall be required during excavation activities. Both WTP ambient air monitors shall run on a 24-hour basis if soil contamination is discovered. WDOH shall be notified within 24 hours if contamination is encountered prior to the WTP ambient air monitors running on the 24-hour basis. WDOH shall be notified when the WTP ambient air monitors are running on the 24-hour basis.

30) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity will not be considered permanently shut down or completed until a report of closure is received and approved by Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting requirements which are no longer applicable for that emission unit or activity.

All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8)). (WAC 246-247-080(6))