

DEPARTMENT OF HEALTH  
 RADIOACTIVE AIR EMISSIONS  
 NOTICE OF CONSTRUCTION  
 APPROVAL FOR

**PROJECT TITLE: CONSTRUCTION AND OPERATION OF THE COLD VACUUM DRYING FACILITY (CVDF)**

**Emission Unit Name: 296-K-142**

**Emission Unit ID 436**

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)]

<b>Zone or Area:</b>	<b>Abatement Technology</b>	<b>Required # of Units</b>	<b>Additional Description/Conditions</b>
Process Bay Local Exhaust	Isolation Damper	2	
Process Bay Local Exhaust	Backdraft Damper	2	
Process Bay Recirculation	HEPA	4	
Process Bay Recirculation	Fan	4	
Process Bay General Exhaust	HEPA	1	Two Stage HEPA.
Process Bay General Exhaust	Prefilter	1	
Process Bay General Exhaust	Backdraft Damper	2	
Process Bay General Exhaust	Isolation Damper	2	
Process Bay General Exhaust	Fan	2	
Process Bay Local Exhaust	HEPA	1	Two stage HEPA.
Process Bay Local Exhaust	Fan	2	

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

<b>Federal and State Regulatory</b>	<b>Monitoring and Testing Procedure</b>	<b>Radionuclides Requiring Measurement</b>	<b>Sampling Frequency</b>
40 CFR 61.93(b)(4)(i) & WAC 246-247-075(2)	Appendix B, Method 114	Each radionuclide that could contribute greater than 10	Monthly Sample

percent of the potential-to-emit TEDE

**Sampling Requirements:** Record Sample

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

**Change History**

- 06/19/1997 The original NOC, Cold Vacuum Drying Facility Phase II (DOE/RL-96-110) was approved via corrected approval letter AIR 97-605 on June 19, 1997.
- 08/05/1999 Revision 1 approved on August 5, 1999 via AIR 99-804 changed the total offsite abated dose to the MEI.
- 03/21/2000 Revision approved on March 21, 2000, modified Section 12.0, Technology Standards.
- 08/22/2000 NOC Revision Form submitted on August 8, 2000 during RTAM and approved on August 22, 2000. This NOC Revision provided page changes to the NOC to reflect "as-built" conditions.
- 01/23/2001 NOC Revision approved January 23, 2001, revised Section 6.4.1.
- 03/06/2001 NOC Application/Permit Revision form approved March 6, 2001 during RTAM to change/clarify conditions. Approval letter, AIR 01-605 mailed June 19, 2001.
- 07/27/2001 NOC Revision Form approved at the July 24, 2001 RTAM. Activity added to process description. Approval letter AIR 01-907 mailed on September 13, 2001.
- 11/20/2001 NOC Revision Form approved at the November 20, 2001 RTAM. New Condition/Limitation added to allow delay in leak testing of stack emissions sample line from December 2001 to January 2002. Approval letter AIR 01-1206 mailed on December 20, 2001.
- 12/14/2001 AOP Minor Modification, 02-RCA-085, received December 14, 2001 to state that AIR 01-907 replaced all previous Conditions and Limitations. No new Conditions and Limitations issued.
- 03/11/2002 AOP Minor Modification, 02-RCA-0214, received March 11, 2002 to state that AIR 01-1206 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 4.95E-03 mrem/year to the Maximally Exposed Individual (WAC 246-247-040(5)). The total unabated emission limit for this Notice of Construction is limited to 1.27E+01 mrem/year to the Maximally Exposed Individual (WAC 246-247-030(21)).
- 3) This process is limited to:  
the CVDF located to the west of the K Basins in the 100 K Area of the Hanford Site. The CVDF is limited to the following three adjoining radiological areas: the process bay area, the process support area, and the process water tank room. The process bay area shall contain four process bays and one bay used to off load water. Immediately adjacent and contiguous to the process bay area is the process support area, a steel-framed, two-story metal building that encloses the traffic corridor, process bay support rooms, and the second floor mechanical equipment room. Immediately adjacent to the process bay area on the north side is a single-story concrete and structural steel building that encloses the process water tank room.

Each operational process bay shall contain a process equipment skid, a safety-class helium system, a process hood, and a process bay recirculation heating, ventilation, and air conditioning (HVAC) system. Each process equipment skid shall contain a vacuum and purge system and a tempered water (annulus) system.

The CVDF interfaces with the 100 K Area, Hanford Site infrastructure services, and the Canister Storage Basin (CSB). The CVDF operation interfaces with K Basins operations by receiving cask-MCO packages for processing. Water removed from the MCO and water used for system flushes shall be cleaned and transported by tanker truck for appropriate dispositioning. The CVDF also interfaces with the CSB operation when the cask-MCO packages are shipped to the CSB after the cold vacuum drying process has been completed.

The stack sample line shall be reconfigured in a manner to facilitate inspections and testing as required by ANSI N13.1-1999 (i.e. removable spool piece(s) and tees for installation of pressure gauges). During reconfiguration, there will be no stack sampling and no MCO processing within the facility.

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

Ag - 110	1.42E-04	Ag - 110 m	1.07E-02	Am - 241	1.87E+05
Am - 242 m	9.74E+01	Am - 242 m	9.79E+01	Am - 243	6.00E+01
Ba - 137 m	6.24E+06	C - 14	3.46E+02	Cd - 113 m	1.77E+03
Cd - 115 m	0.00E+00	Ce - 141	0.00E+00	Ce - 144	4.57E+02
Cm - 242	8.09E+01	Cm - 244	7.19E+02	Co - 60	1.98E+03
Cs - 134	7.94E+03	Cs - 135	3.87E+01	Cs - 137	6.59E+06
Eu - 152	4.72E+02	Eu - 154	5.35E+04	Eu - 155	1.10E+04
Fe - 55	9.19E+02	Gd - 153	6.39E-05	H - 3	1.83E+04
I - 129	3.18E+00	In - 113 m	1.07E-07	Kr - 85	2.95E+05
Nb - 93 m	1.23E+02	Nb - 95	1.87E-12	Nb - 95 m	6.24E-15
Ni - 59	2.05E+01	Ni - 63	2.24E+03	Np - 237	2.86E+01
Pd - 107	8.14E+00	Pm - 147	2.31E+05	Pm - 148 m	0.00E+00
Pm - 148 m	0.00E+00	Pr - 143	0.00E+00	Pr - 144	4.51E+02
Pr - 144 m	5.50E+00	Pu - 238	5.55E+04	Pu - 239	1.09E+05
Pu - 240	5.95E+04	Pu - 241	3.34E+06	Pu - 242	2.74E+01
Rh - 103 m	0.00E+00	Rh - 106	9.09E+02	Ru - 103	0.00E+00
Ru - 106	9.09E+02	Sb - 124	1.51E-18	Sb - 125	1.67E+04
Sb - 126	1.09E+01	Sb - 126 m	7.79E+01	Se - 79	4.31E+01

Sm - 151	8.79E+04	Sn - 113	1.07E-07	Sn - 119 m	1.48E-01
Sn - 121 m	3.98E+01	Sn - 123	8.69E-06	Sn - 126	7.79E+01
Sr - 89	0.00E+00	Sr - 90	5.05E+06	Tb - 160	1.38E-15
Tc - 99	1.44E+03	Te - 123	1.38E-11	Te - 125 m	4.09E+03
Te - 127	4.74E-07	Te - 127 m	4.84E-07	Te - 129 m	0.00E+00
Te - 129	0.00E+00	U - 234	4.37E+02	U - 235	1.68E+01
U - 236	6.34E+01	U - 238	3.48E+02	Y - 90	5.05E+06
Y - 91	1.11E-14	Zr - 93	2.00E+02	Zr - 95	8.44E-13

- 5) The CVDF shall consist of up to four process bays in which SNF transport trailers can be housed while water is drained and vacuum/gas purge process dries SNF. It shall have a support area consisting of a control room, change rooms, and other functions.
- 6) All controls, as described in the amended NOC are required, and building HEPA filters meet ASME AG-1.
- 7) **This condition was obsoleted on 12/1/2000.** Prior to start-up of this facility (WAC 246-247-060(4)), the department shall be notified.  
*The department was notified prior to operation of the facility*
- 8) The stack monitoring system must be continuous and NESHAPs compliant.
- 9) This approval, with its Conditions and Limitations, constitutes an 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)).
- 10) 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)).
- 11) 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)).
- 12) All reports and records must be kept and reported according to 40 CFR 61, Subpart H (WAC 246-247-080(2)).
- 13) The facility shall make requested documents available in a timely manner for review (WAC 246-247-080(10)).
- 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) **This condition was obsoleted on 3/6/2001.** 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 last 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 the approval (paragraph 5).  
*Added by Revision 1 approved on August 5, 1999 via AIR 99-804. Obsoleted on March 6, 2001 by NOC Application/Permit Revision form, AIR 01-605*
- 16) All measured or calculated emissions must be reported annually (WAC 246-247-080(3)).
- 17) 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.
- 18) 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)).
- 19) The department may require an ALARACT demonstration at any time (WAC 246-247-080(1)).
- 20) These conditions and limitations must be proceduralized prior to starting the activities described in the Notice of Construction.
- 21) 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 246-247-075(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, or equivalent to, those listed in the above cited regulation.
- 22) If the department finds that the emission unit described in this NOC, is not in compliance with the standards in WAC 245-247-040 during construction, as described in this NOC, or during operation, it reserves the right to require modifications to bring it into compliance (WAC 246-247-060(2)(d)).
- 23) 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)).

- 24) Equipment and procedures for continuous monitoring shall conform to ANSI N13.1 (1999). The specific design must be approved by the department prior to installation. Any deviation from ANSI N13.1 must be approved by the department prior to construction (WAC 246-247-075(2)).
- 25) The department retains the right to conduct its own stack sampling, environmental monitoring or other testing, as required 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)).
- 26) 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).

The following shut down of the CVDF emission control systems under circumstances specified are allowed and are excluded from the 24 hour reporting requirements:

- a) Shutdown of the process bay recirculation system when there is no MCO processing within that bay.
  - b) Shutdown of the process bay local exhaust system when there is no MCO processing within that bay.
  - c) Shutdown of the general exhaust system for no more than eight hours during which time there will be no MCO within the CVDF nor transfer of water from process water conditioning tank PWC-TK-4001 to a tanker truck for disposal nor opening of the process bay roll up doors.
- 27) The first annual leak testing of the stack emissions sample line is allowed to be deferred until January 2002 to allow installation of an access port in the stack. Future annual leak test shall be based on this new test date.