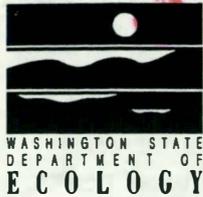


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# Focus



## 200 Area Effluent Treatment Facility

### BACKGROUND

Ecology proposes to issue a state waste discharge permit for the 200 Area Effluent Treatment Facility (Project C-018H or ETF) ). Currently slated to begin operation in early 1996, the facility will treat dilute wastewater from the 242-A Evaporator/Crystallizer. The ETF also is designed with the capability of treating wastewater from additional sources. Additional sources of wastewater for the 200 Area ETF may be allowed with Ecology's approval and may require later modification of the waste discharge permit. The treatment plant lies just outside the northeast corner of the 200 East Area, which is about 24 miles northwest of Richland.

Efforts to reduce or eliminate the discharge of contaminated wastewater (effluent) into the ground at Hanford began in 1987 when the U.S. Department of Energy (USDOE) submitted a plan to Congress. USDOE's plan became part of the 1989 Hanford Federal Facility Agreement and Consent Order, which is known as the Tri-Party Agreement(TPA) between the USDOE, the U.S. Environmental Protection Agency, and the Washington State Department of Ecology (Ecology). The agreement's Milestone 17 established an extensive pollution prevention program for certain effluents from facilities primarily in the 200 Area. The program reduced or eliminated sources of contamination and provided effluent treatment prior to discharge.

### 200 AREA EFFLUENT TREATMENT FACILITY

Hanford's 177 underground tanks presently store about 57 million gallons of radioactive and chemically hazardous wastes. The 149 single-shell tanks have outlived their design life and about 40 per cent of them have or are suspected of having leaked. USDOE proposes to move waste from those tanks into the more recently constructed double-shell tanks. In order to make room for this transfer, USDOE has used the 242-A Evaporator to concentrate liquid waste in the double-shell tanks and reduce the volume of waste in single-shell tanks. The evaporator process produces a dilute, liquid waste known as process condensate. The condensate is sent by pipeline to the Liquid Effluent Retention Facility (LERF) basins where it is stored temporarily prior to treatment in the 200 Area ETF. The LERF consists of three covered and lined surface impoundments just east of the 200 East Area.

The 200 Area Effluent Treatment Facility will use a series of wastewater treatment processes to purify the condensate. The facility is designed to remove at least 95 to 99 percent of the constituents expected in the wastewater. The ETF is expected to discharge up to 150 gallons per minute of treated wastewater. The facility may produce as much as 57 million gallons of wastewater annually. Treated wastewater will be discharged into subsurface drain field just north of the 200 West Area of Hanford. Wastewater discharged to the soil from the ETF will meet all applicable state and federal water quality criteria, except for tritium.

Currently, a cost-effective removal technology for tritium is not available. When tritium decays, it is transformed into nonradioactive helium. Half of the tritium present will decay and turn into helium every 12.3 years. Consequently, in about 120 years, 99.9 per cent of the tritium initially present will be converted into helium. The radioactivity level of tritium in the ETF effluent at the point of discharge to the ground is expected to exceed state groundwater criteria by 315 times. However, disposal to the ground allows for the radioactive decay of tritium to levels which will meet health, safety, and environmental standards when the tritium flow reaches the Columbia River. The disposal site was selected to minimize the possibility of further impacts to existing groundwater problems and to maximize the groundwater travel time to the river. USDOE groundwater studies indicate the tritium from the ETF effluent will take at least 105 years to travel approximately eight miles from the soil discharge point to the river. Because of tritium's travel time and radioactive decay, these USDOE studies conclude that surface water standards will never be violated at the area where the groundwater flows into the river.

The remaining contaminants in the process condensate, such as ammonia, acetone, chromium, lead and Cesium 137, either will be destroyed or separated out in the treatment process. A secondary waste stream containing metals and radioactive substances will be created. This waste is to be dried into powder, containerized and shipped from the ETF to an appropriate waste handling facility.

## **REGULATION OF THE DISCHARGE**

Construction and permitting of the facility were reviewed under the Washington State Environmental Policy Act (SEPA). An Environmental Checklist was completed. A "Determination of Significance and Adoption of Existing Environmental Document" was made by Ecology's Nuclear Waste Program. The document adopted is an Environmental Assessment (EA) prepared under the National Environmental Policy Act of the Hanford Environmental Compliance Project. A supplemental addendum to the EA was prepared by Ecology and was included, along with the EA, as part of the SEPA determination.

In this supplemental addendum, Ecology concurred with the selection of the soil disposal alternative for the tritium discharge. The alternative was selected from other disposal alternatives, such as direct discharge to the Columbia River, because soil discharge created the least impact to human health and the environment.

The permit calls for USDOE annually to monitor the ETF's tritium groundwater plume, evaluate and update the groundwater model used to calculate the tritium's travel time, and assess any impacts to the environment from the discharge. USDOE must report annually on potential tritium treatment/removal technologies as part of TPA Agreement Milestone M-26-05. USDOE also has requested the deletion or modification of permit conditions S7.B, S11, S12, S13, pertaining to tritium discharge. Ecology is considering modifying these sections.

## **HOW YOU CAN BE INVOLVED**

A 32-day public comment period will start May 1, 1995, and end June 1, 1995. Written comments can be sent to Ecology during this time. The public also can comment in writing or by verbal testimony at the public hearing May 30, 1995. Ecology will distribute a summary of the agency's response to all public comments by June 30, 1995. The draft permit can be modified as a result of public comment.

*If you have special accommodation needs or would like this material in an alternative format (large print, Braille, cassette tape, or on computer), please contact: Michelle Davis at (360) 407-7126 (Voice) or (360) 407-6206 (TDD).*

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**Public Hearing:**

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A public hearing will be conducted on May 30, 1995; from 7:00 p.m - 9:00 p.m.; at Department of Ecology's Nuclear Waste Program Office; 1315 W. 4th Avenue; Kennewick, Washington.

For more information, or to submit written comments, contact:

Dom Reale  
Washington Department of Ecology  
Southwest Regional Office  
P. O. Box 47775  
Olympia, WA 98504-7775  
(360) 407-6266 or Hanford Cleanup toll-free 1-800-321-2008.

The draft permit, plus the administrative record, can be reviewed by appointment at the following administrative record sites:

**SEATTLE**

U.S. Environmental Protection Agency  
Hazardous Waste Division  
1200 Sixth Avenue  
Diane Richardson (206) 553-1253  
Mon-Fri- 8:30 a.m. - 4:30 p.m.

**LACEY**

Washington State Department of Ecology  
Nuclear Waste Program  
300 Desmond Drive  
Marilyn Smith (360) 407-7097  
Mon-Fri- 8 a.m. - noon, 1-4 p.m.

**RICHLAND**

Westinghouse Hanford Company  
2440 Stevens Center Place, Suite 101  
Debbi Isom (509) 376-2530  
Mon-Fri., 9 a.m. - noon 1-3:30 p.m.  
(no appointment necessary)

The draft permit and related information are available for reading and copying in the following Hanford Information Repositories:

**SEATTLE**

University of Washington  
Suzzallo Library  
Government Publications Room  
(206) 543-4664

**PORTLAND**

Portland State University  
Branford Price Millar Library  
Science and Engineering Floor  
S.W. Harrison and Park  
(503) 725-3690

**SPOKANE**

Gonzaga University  
Foley Center  
E. 502 Boone  
(509) 328-4220 Ext. 3125

**RICHLAND**

Washington State University, Tri-Cities  
Public Reading Room, Room 130 West  
100 Sprout Road  
(509) 376-8583

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