

START

0031243

September 20, 1993

Fact Sheet
Permit No.: WA7 89000 8967
Page 1 of 13

FACT SHEET

RESEARCH, DEVELOPMENT, AND DEMONSTRATION HAZARDOUS WASTE TREATMENT DRAFT PERMIT

US Department of Energy, Richland Operations Office
EPA ID No. WA7 89000 8967

This fact sheet has been developed by the Environmental Protection Agency (EPA) and the Washington State Department of Ecology (Ecology). Its purpose is to discuss the proposed draft Research, Development, and Demonstration Permit for the US Department of Energy, Richland Operations Office.

Purpose of the Permitting Process

The purpose of the permitting process is to impose on a site-specific basis the requirements necessary for a facility to comply with the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) and the Hazardous and Solid Waste Amendments of 1984 (HSWA), and the regulations promulgated thereunder in Title 40 of the Code of Federal Regulations (40 CFR), and the applicable provisions of the Revised Code of Washington (RCW) Chapter 70.105 and the regulations promulgated thereunder in the Washington Administrative Code (WAC) Chapter 173-303.

EPA and Ecology are required to prepare a proposed notice of their intent to issue the permit. The public is given an opportunity to review and comment on this proposed notice prior to the Agency and Ecology taking any final action on the permit.

Procedures for Reaching a Final Decision

Section 7004(b) of RCRA (40 CFR § 124.10) requires that the public be given forty-five (45) days to comment on each proposed permit determination. The comment period will begin on October 15, 1993 and end on November 29, 1993. Any person interested in commenting on this proposed permit determination must do so within this forty-five (45) day comment period.

Comments on the proposed permit determination should be submitted in writing to:



9313027.2058

September 20, 1993

Fact Sheet
Permit No.: WA7 89000 8967
Page 2 of 13

Daniel Duncan
Hanford RCRA Permit Coordinator
EPA Region 10, HW-106
1200 Sixth Avenue
Seattle, Washington 98101

and

Toby Michelena
Nuclear and Mixed Waste Management Program,
Section Supervisor
Washington State Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-47600

Comments should include all reasonable available references, factual grounds, and supporting material.

EPA and Ecology will conduct a public meeting and hearing on November 3, 1993. The public meeting will begin at 7:00 pm. The public meeting will include a presentation describing the contents of the permit and a question and answer session. The meeting will be followed by a hearing that will begin promptly at 8:00 pm. The meeting and hearing will be held at:

Room L102, Library Building
Columbia Basin College
2600 North 20th Street
Pasco, Washington
(509) 547-0511

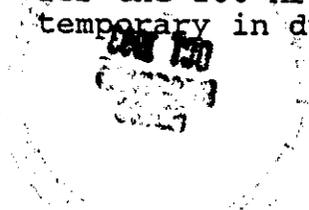
When making a final determination regarding the issuance of this permit, EPA and Ecology will consider all written comments received during the public comment period and comments received during the public hearing.

When EPA and Ecology make a final decision regarding permit issuance, notice will be given to the applicant and each person who has submitted written comments or requested notice of the final decision. The final decision shall become effective no sooner than thirty (30) days after the notice of final determination unless a review is requested pursuant to 40 CFR § 124.19.

Overview

The purpose of the Permit is to allow for the initial operational test for the 200 Area Liquid Effluent Treatment Facility. The permit is temporary in duration and limits the quantities of hazardous mixed

9313027.2059



September 20, 1993

Fact Sheet
Permit No.: WA7 89000 8967
Page 3 of 13

waste to be treated. (Mixed waste is defined as containing radioactive and hazardous constituents). The Permit also includes stringent terms to protect public health and the environment.

The treatment process which would be developed under this permit is a key element of the overall treatment system being developed to reduce the volume of mixed waste in as many as 200 underground storage tanks at Hanford's tank farms. The safety and cleanup of these tanks has been a major public concern for some time.

Liquids from the underground tanks contain mixed waste (water and hazardous substances) including some low-level radioactive materials. The liquids are pumped from the underground tanks into Evaporator 242-A where water is removed by condensation within the evaporator, thus separating the water from the suspended solids in the liquid. The resulting water, called 242-A Evaporator process condensate, is contaminated with low level radionuclides and hazardous substances resulting in a mixed waste stream. Currently, this waste water is discharged in a large pond-like impoundment.

Under the Permit, the Permittees would use existing technologies to demonstrate a mixed waste treatment process for this mixed waste stream of water.

Filters are designed to prevent any contamination from being released into the atmosphere from the treatment process. It is possible that the treated water may still contain some contaminants. The treated water resulting from the operation will be returned to the holding pond. The final disposal of the treated water will be addressed separately from this permit.

This RD&D project is a key step in the design of a full scale 200 Area Effluent Treatment Facility. The permitted RD&D activity would take place at two locations within the Hanford Facility. In addition, this RD&D project will provide data to evaluate a petition for the delisting of the effluent from the 242-A evaporator under RCRA authority. This RD&D project is identified as milestone M17-14 in the Hanford Federal Facility Agreement and Consent Order (FFACO).

Facility Description

This RD&D permit includes two areas within the Hanford Facility located in Richland, Washington, which are (1) the Engineering and Environmental Demonstration Laboratory, Building 1706-KE and (2) the Liquid Effluent Retention Facility.

The Permittees will demonstrate a waste treatment process to decontaminate 242-A Evaporator condensate waste. This is a mixed

9313027.2060

September 20, 1993

Fact Sheet
Permit No.: WA7 89000 8967
Page 4 of 13

waste containing both radioactive and hazardous substances (organic and inorganic contaminants as suspended and dissolved solids). This demonstration will utilize existing technology through pilot-scale treatability testing on pH adjustment, organic removal (granular activated carbon adsorption and ultraviolet light mediated oxidation), inorganic removal (ion exchange and reverse osmosis), and suspended solids removal (filtration). This demonstration and testing is required to support the design of the 200 Area Liquid Effluent Treatment Facility.

The purpose of the systems which make up the treatment train will be to treat the process condensate from the 242-A Evaporator. The 242-A Evaporator concentrates various liquid wastes stored in underground double-shell tanks (DSTs). The liquid waste in the DSTs will be piped to the 242-A Evaporator, concentrated through evaporation, and returned to the underground DSTs for storage until final disposal. The condensate derived from this evaporation process, called 242-A Evaporator process condensate, is the waste water that will be treated under this RD&D permit. The 242-A Evaporator process condensate will be stored in the pond-like Liquid Effluent Retention Facility (LERF) until a treatment unit is operational.

The 242-A Evaporator condensate is a dangerous waste as defined by WAC Chapter 173-303 because the waste is derived from listed dangerous waste as defined in WAC 173-303-080 and listed in WAC 173-303-9903 and -9904. This waste also qualifies as a toxic waste under the State of Washington criteria WAC 173-303-084(5) for toxicity.

The waste is designated dangerous due to the presence of spent solvents [RCRA Waste Codes (F001, F002, F003, F004 and F005) as defined in WAC 173-303-070(2)] and because of the concentration of ammonia [State Waste Code (WT02) under WAC 173-303-084(5)]. The 1,1,1 trichloroethane (F001) and methylene chloride (F002) were used as solvents in decontamination activities and were discarded to DSTs.

Acetone (F003) was generated by laboratories where it was used to dry glassware and was discarded through drains to DSTs. Methyl isobutyl ketone (F003) was generated in the solvent extraction process and was discarded to Single Shell Tanks (SSTs) and eventually transferred to DSTs. Cresylic acid (F004) was used as a solvent in decontamination and was discarded to DSTs. Methyl ethyl ketone (F005) was generated in past chemical processing operations. The 242-A Evaporator condensate is also designated as a state toxic dangerous waste (WT02) due to the concentration of ammonia.

Small levels of radioactive materials are also present in the waste stream; however, radionuclides are not specifically regulated under the proposed permit. Radioactive materials in the waste stream are at or below levels requiring regulation under the Atomic Energy Act.

9313027.2061

September 20, 1993

Fact Sheet
Permit No.: WA7 89000 8967
Page 5 of 13

Authority for Permitting Research and Development Activities

On November 4, 1984, the President signed into law the Hazardous and Solid Waste Amendments of 1984 (HSWA), which amended the Resource Conservation and Recovery Act (RCRA) to allow EPA to permit research, development, and demonstration (RD&D) activities utilizing an innovative and experimental technology or process for which permit standards have not been promulgated. Ecology has the authority to issue RD&D permits under the Revised Code of Washington (RCW) 70.105.

Key provisions of the law (40 CFR Section 270.65) and the State of Washington Administrative Code (WAC) 173-303-809 include the following:

RD&D Permits shall provide for the receipt and treatment of only those types and quantities of mixed waste that are necessary to determine the efficacy and performance capabilities of the technology or process and its effects on human health and the environment.

RD&D permits shall include any conditions that the Agency believes are necessary to protect human health and the environment, and such requirements the Agency may find necessary regarding testing and information with respect to facility operation.

RD&D permits shall provide for the construction of the RD&D Activity and for its operation for a period not exceeding 365 operating days. Permits may be renewed up to three times, with each renewal not to exceed 365 operating days. (Note: 365 operating days may extend beyond one calendar year)

The Permittees are required to submit to EPA and Ecology RD&D Test Plans/Reports, which include a summary of the experiment, such as quantities and types of mixed waste, date(s) of experimental results, and any operational problems encountered.

The wastes will be obtained from the 242-A Evaporator condensate waste stream. The wastes will be stored in the Liquid Effluent Retention Facility and the 1706-KE Facility. The projects will be conducted at both these locations. The maximum amount of mixed waste to be received and treated at the 1706-KE Facility under this permit will not exceed 5,000 gallons per week. The maximum amount of waste to be processed at the Liquid Effluent Retention Facility will not exceed 152,000 gallons per month.

Requirements and authorities established pursuant to HSWA will be enforced by EPA until the State of Washington receives authorization to administer and enforce such authorities and requirements.

9313027.2062

September 20, 1993

Fact Sheet
Permit No.: WA7 89000 8967
Page 6 of 13

Washington has adopted RD&D Permitting in its own regulations, but the State has not yet been authorized by EPA to issue RCRA RD&D permits.

This RD&D permit will be issued by EPA under RCRA and Ecology under state law for a period of five (5) years. During the lifetime of the RD&D Permit, the State of Washington may become authorized to issue and enforce RCRA Dangerous Waste Research, Development and Demonstration permits. This authorization will not change the conditions of the proposed RD&D permit. Any citations to federal statutes or regulations will become citations to the equivalent state statutes or regulations.

In the event the State of Washington becomes authorized for RD&D permitting, the EPA shall enforce all permit conditions which are based on federal regulations that have not yet been adopted by the State of Washington and have not been included in the State's authorized hazardous waste program. The EPA shall maintain an oversight role of the state's authorized program and, in such capacity, shall enforce any permit condition based on state requirements if EPA determines that the State has failed to enforce that permit condition, except that in no case shall the Agency enforce any permit condition which is broader in scope than the federal program.

Availability of Documents for Public Review

The administrative record, including all data submitted by the applicant, the fact sheet, the draft permit and maps showing the exact location of the activity, may be reviewed at EPA and Ecology between the hours of 8:30 am and 4:30 pm, Monday through Friday at the following locations:

U.S. EPA Region 10
Hazardous Waste Division
1200 Sixth Avenue
Seattle, Washington 98101

Washington State Department of Ecology
Nuclear and Mixed Waste Program
719 Slater Kenney Road #200
Lacey, Washington 98503-1138

Westinghouse Hanford Company
740 Stevens Center, Suite 1101
Richland, Washington 99351

Any person desiring further information, copies or portions of the administrative record, or an appointment to review the record should

9313027.2063

September 20, 1993

Fact Sheet
Permit No.: WA7 89000 8967
Page 7 of 13

contact either Ms. Diane Richardson, EPA, Hazardous Waste Division, at the above address or call (206) 553-1253, Ms. Marilyn Smith, Washington State Department of Ecology at the above address, or call (206) 459-6453, or Mr. Lee Michael, Westinghouse Hanford Company at the above address, or call (509) 376-2530.

In addition, copies of the RD&D permit fact sheet, an index of the RD&D permit administrative record, and the draft RD&D permit are available for public review at the following public information repositories:

University of Washington - Suzzallo Library
Mailstop FM-25 - Government Publications
Seattle, Washington 98195
(206) 543-4664
Attention: Eleanor Chase

U.S. Department of Energy-Richland Operations Office
Washington State University Library, Tri-Cities
100 Sprout Road, Room 130
Richland, Washington 99352
(509) 376-8583
Attention: Terri Traub

Portland State University Library
Branford Price Millar Library
Science and Engineering Floor
Corner of SW Harrison and Park
Portland, Oregon 97207
(503) 725-3690
Attention: Michael Bowman

Gonzaga University
Foley Center
E. 502 Boone
Spokane, Washington 99258
(509) 328-4220, ext. 3125
Attention: Lewis Miller

9313027.2064

September 20, 1993

Fact Sheet
Permit No.: WA7 89000 8967
Page 8 of 13

Detailed References

Permit Organization

The permit is divided into five sections and eleven (11) Attachments, as described below:

<u>Section</u>	<u>Topic</u>
Part I	Standard Conditions
Part II	General Operating Conditions
Part III	Conditions for Storage in Containers
Part IV	Conditions for Storage in Tanks
Part V	Conditions for Treatment Units

<u>Attachment</u>	<u>Topic</u>
Attachment 1	<u>Facility Description and Maps of Facility Location</u>
Attachment 2	<u>Demonstration Plan</u>
Attachment 3	<u>Waste Analysis Plan</u>
Attachment 4	<u>Process Information</u>
Attachment 5	<u>Security Procedures</u>
Attachment 6	<u>Inspection Plan</u>
Attachment 7	<u>Prevention and Preparedness</u>
Attachment 8	<u>Contingency Plan</u>
Attachment 9	<u>Personnel Training Plan</u>
Attachment 10	<u>Closure Plan</u>
Attachment 11	<u>Quality Assurance Plan</u>

Parts I and II contain conditions which generally apply to all hazardous waste facilities. Parts III, IV and V pertain

9313027.2065

specifically to the dangerous and hazardous waste activities at the 1706-KE Facility and the Liquid Effluent Retention Facility in Richland, Washington.

Statutory References

This section provides a summary of the conditions in the draft permit. The column titled "Regulation" provides the regulatory authority for the permit condition specified in the column titled "Permit Condition". For convenience in reviewing the permit application, the column headed "Location in Application" is provided. The permit application cited in this section is the permit application dated 31 October 1991, as amended on 22 April 1992, 19 March 1993 and 9 September 1993.

PART I
STANDARD CONDITIONS

Part I of the draft permit sets forth the standard conditions that are applicable to all hazardous waste management facilities. All citations of the regulations refer to the regulations in Title 40 of the Code of Federal Regulations (40 CFR) and the Washington State Administrative Code (WAC) Chapter 173-303.

Permit Condition	Subject	Regulation	
		(40 CFR)	WAC 173-303
I.A.	Effect of Permit	§ 270.4	-810(8)
		§ 270.30(g)	
I.B.	General Permit Conditions	§ 270.30	-810(8)
		§ 270.12	-040
I.C.	Permit Actions	§ 270.30(f)	-810(7)
		§ 270.41	-830(3)
		§ 270.42	-830(4)
		§ 270.43	-830(4)
		§ 270.65	-809
I.C.3	Protection of Human Health and the Environment	§ 270.65	-809(3)
I.D.	Severability	§ 124.16(a)	Standard Practice
I.E.	Duties and Requirements		
		Duty to Comply	§ 270.30(a)

9313027.2066

	Duty to Reapply	\$ 270.10(h)	-810(3)
		\$ 270.30(b)	-810(6)
	Permit Expiration and Continuation	\$ 270.51	-810(3)
	Need to Halt or Reduce Activity not a Defense	\$ 270.30(c)	-810(4)
	Duty to Mitigate	\$ 270.30(d)	-810(5)
	Proper Operation and Maintenance	\$ 270.30(e)	-810(6)
	Duty to Provide Information	\$ 270.30(h)	-810(9)
	Inspection and Entry	\$ 270.30(i)	-810(10)
	Monitoring and Records	\$ 270.30(j)	-810(11)
I.F.	Monitoring, Records and Reporting	\$ 270.41	-830(3)
		\$ 270.42	-830(4)
		\$ 270.65	-809
		\$ 270.30(1) (6)	
		\$ 264.56 (d) (1) and (j)	
I.G.	Compliance Not Constituting Defense	\$ 270.30(a)	-810(3)
I.H.	Transfer of Permit	\$ 270.40(b)	-810(14) (c)
		\$ 270.41(b) (2)	-830(2)
		\$ 270.12(c)	-290(2)
I.I	Reports, Notifications, and Submissions to the Administrator and Director	\$ 270.65	-830(14) (f)
		\$ 270.30(1) (1)	-810(14)
I.J.	Signatory Requirements	\$ 270.11	-810(12)
		\$ 270.30(k)	
I.K.	Documents to be maintained at the Activity Site	\$ 264.13	-300(5)
		\$ 264.16 (d)	-330(2)
		\$ 264.53(a)	-350(2)
		\$ 264.112(a)	-610(3)
		\$ 264.142(d)	-620(3)
		\$ 264.73	-380(1)

9313027.2067

§ 264.15(b) -320(2)

**PART II
 GENERAL OPERATING CONDITIONS**

Part II of the draft permit sets forth general operating conditions with which the Permittee must comply. All citations of the regulations refer to the regulations as codified in 40 CFR and WAC Chapter 173-303.

Permit Condition	Subject	Regulation		Location in Application
		(40 CFR)	WAC 173-303	
II.A.	Design and Operation of RD&D Activity	§ 264.31	-340	Section 1.1 Section 1.5
II.B.	Authorization	§ 264.12(a)	-290(2)	Section 1.2
II.C.	Demonstration Plan	§ 270.65(a)	-290(2)	Section 2.0
I.D.	General Waste Analysis	§ 264.13(b) § 270.65(b)(2)	-300(1) -806(4)(a)(ii)	Section 3.0
II.E.	Security	§ 264.14	-310(1) -310(2)	Section 5.1
II.F.	General Inspection Requirements	§ 264.15(c) § 264.15(d)	-320(3) -320(2)	Section 5.2 Appendix 5
II.G.	Training Plan	§ 264.16	-330	Section 7.0
II.H.	Preparedness and Prevention	§ 264.32 § 264.33 § 264.34 § 264.35 § 264.37	-340(1) -340(2) -340(3) -340(4)	Section 6.0 Appendix 6A Appendix 6B Appendix 6C
II.I.	Contingency Plan	§ 264.50-56	-350(3) -360(2) -350(4) -350(5)	Section 6.0
I.J.	Recordkeeping and Reporting	§ 264.73(b)(9)	-380(1)	Section 1.6
	Test Plans and Reporting	§ 270.65(a)(3)		Section 2.1

9313027.2068

II.K.	Closure	§ 264.111-115	-610(2) -610(3) -830(3) - (4) -610(6) -610(5)	Section 8.0
II.L.	General Requirements for Ignitable, Reactive or Incompatible Waste	§ 264.17	-630(8)	Section 4.0
II.M.	Equivalent Materials/ Information			

**PART III
CONDITIONS FOR STORAGE IN CONTAINERS**

Part III of the permit sets forth conditions for storage in containers with which the Permittee must comply. All citations of the regulations refer to the regulations as codified in 40 CFR and WAC Chapter 173-303.

<u>Permit Condition</u>	<u>Subject</u>	<u>Regulation (40 CFR)</u>	<u>WAC 173-303</u>	<u>Location in Application</u>
III.A.	Unit Identification	§ 264.31	-630	Section 4.1 Section 4.2
III.B.	Waste Identification	§ 264.13	-300	Section 3.0
III.C.	Container Management	§ 264.173	-630(5)	Section 4.3
III.D.	Containment	§ 264.17	-630(7)	Section 4.3

**PART IV
CONDITIONS FOR STORAGE IN TANKS**

Part IV of the permit sets forth conditions for storage in tanks with which the Permittee must comply. All citations for the regulations refer to the regulations as codified in 40 CFR and WAC Chapter 173-303.

<u>Permit Condition</u>	<u>Subject</u>	<u>Regulation (40 CFR)</u>	<u>WAC 173-303</u>	<u>Location in Application</u>
IV.A.	Unit Identification	§ 264.31	-640(1)	Section 4.0
IV.B.	Waste Identification	§ 264.13	-300	Section 3.0

9313027.2069

IV.C.	Design and Construction	§ 264.191	-810	Section 4.0
		§ 270.11(d)	-640(3)(a)	
		§ 294.192(a)	-640(2)(c)	
		§ 264.192(b)	-640(2)(e)	
		§ 264.192(d)		
		§ 264.196		
IV.D.	Tank Management	§ 270.65(a)	640(4)	Section 4.1.2
		§ 264.192(b)	640(5)	
		§ 264.198-199		

**PART V
CONDITIONS FOR TREATMENT UNITS**

Part V of the draft permit sets forth conditions for the RD&D experiment with which the Permittee must comply. All citations of the regulations refer to the regulations as codified in 40 CFR and WAC Chapter 173-303.

<u>Permit Condition</u>	<u>Subject</u>	<u>Regulation (40 CFR)</u>	<u>WAC 173-303</u>	<u>Location in Application</u>
V.A.	Unit Identification	§ 264.31	-600	Section 4.1 Section 4.2 Figures 4-1 through 4-15
V.B.	Waste Identification	§ 265.13	-300	Section 4.1 Section 4.2
V.C.	Design and Construction	§ 264.191 § 270.11(d) § 270.65		Section 4.0
V.D.	Treatment Unit Management	§ 270.65(a)(1)		Section 4.1 Section 4.2 Section 4.3
V.E.	Operating Condition	§ 270.65(a)(1)		Section 4.1.5

9313027.2070

**THIS PAGE INTENTIONALLY
LEFT BLANK**