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**Pacific Northwest  
National Laboratory**

Operated by Battelle for the  
U.S. Department of Energy

**Hanford Site Annual  
Treatability Studies Report –  
Calendar Year 2000**

M. W. McCoy

February 2001



Prepared for the U.S. Department of Energy  
under Contract DE-AC06-76RL01830

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Pacific Northwest National Laboratory  
Richland, Washington 99352



United States  
Department of Energy  
Richland, Washington

Approved for Public Release

## **Executive Summary**

This report provides information required to be reported annually by the Washington Administrative Code (WAC) 173-303-071 (3)(r)(ii)(F) and (3)(s)(ix) on the treatability studies conducted on the Hanford Site in 2000. These studies were conducted as required by WAC 173-303-071, "Excluded Categories of Waste," sections (3)(r) and (s).

Unless otherwise noted, the waste samples were provided by and the treatability studies were performed for the U.S. Department of Energy, Richland Operations Office, P.O. Box 550, Richland, Washington 99352. The U.S. Environmental Protection Agency identification number for these studies is WA7890008967.

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**Table 1. 2000 Annual Report For Small-Quantity Treatability Studies Conducted By  
The Pacific Northwest National Laboratory**

<b>Location</b>	<b>Waste Type</b>	<b>Total Quantity in Storage (Daily)</b>	<b>Technology Tested</b>	<b>Dates of Study</b>	<b>Amount Tested Jan.-Dec. 2000 (Kg)</b>	<b>Amount to Be Tested Jan.-Dec. 2001 (Kg)</b>	<b>Final Disposal of Sample Portion</b>	<b>Final Disposal of Residues</b>	<b>Amount of Sample Shipped (Kg)</b>	<b>Date of Shipment</b>
325	Tank Waste (AN-102, AY-102, AP-101, C-104)	0Kg 1/1/00-2/9/00 3Kg 2/10/00-2/14/00 0Kg 2/15/00-11/8/00 4.6Kg 11/9/00-11/12/00 9.2Kg 11/13/00-11/14/00 13.9Kg 11/15/00-11/16/00 18.0Kg 11/17/00-11/26/00 0Kg 11/27/00-12/31/00	Hanford vitrification process	2/15/00-12/21/00	21.0	20	NA	CWC	0	NA
325	Tank Waste Supernate (AW-101, C-104, AZ-102)	0.4Kg 1/1/00-1/4/00 0Kg 1/5/00-12/31/00	Cross-flow filtration, ion exchange, and vitrification	1/1/00-9/29/00	0.4	0	NA	CWC	0	NA

**Table 1. (Contd.)**

<b>Location</b>	<b>Waste Type</b>	<b>Total Quantity in Storage (Daily)</b>	<b>Technology Tested</b>	<b>Dates of Study</b>	<b>Amount Tested Jan.-Dec. 2000 (Kg)</b>	<b>Amount to Be Tested Jan.-Dec. 2001 (Kg)</b>	<b>Final Disposal of Sample Portion</b>	<b>Final Disposal of Residues</b>	<b>Amount of Sample Shipped (Kg)</b>	<b>Date of Shipment</b>
325	Tank Waste Supernate (AN-107)	0.563Kg 1/1/00-1/4/00 0Kg 1/5/00-12/31/00	Cross-flow filtration, ion exchange and vitrification	1/1/00-9/29/00	0.563	0	NA	CWC	0	NA
NA – Not applicable										

**Table 2. 2000 Annual Report For Small-Quantity Treatability Studies Conducted By  
Fluor Hanford and Its Major Subcontractors**

<b>Location</b>	<b>Waste Type</b>	<b>Total Quantity in Storage (Daily)</b>	<b>Technology Tested</b>	<b>Dates of Study</b>	<b>Amount Tested Jan.-Dec. 2000 (or in Process) (Kg)</b>	<b>Amount to Be Tested Jan.-Dec. 2001 (Kg)</b>	<b>Final Disposal of Unused Sample Portion</b>	<b>Final Disposal of Residues</b>	<b>Amount of Sample Shipped (Kg)</b>	<b>Date of Shipment</b>
WSCF	Radioactive dilute phosphoric acid solution <sup>11</sup>	2.75 Kg 1/1/00-1/13/00	Grouting	1/1/00-1/13/00	1.75 Kg	0	NA	Put into archive.	0	NA
		1 Kg 1/14/00-4/30/00								
		2 Kg 5/1/00-5/19/00	Grouting	5/1/00-5/19/00	2.00 Kg	0	NA	Put into archive per customer request.	0	NA
		0 Kg 5/20/00								
WSCF	Treated sample residue of radioactive dilute phosphoric acid solution	0 Kg 1/1/00-1/13/00 3.75 Kg <sup>2</sup> 1/14/00 5/19/00 8.95 Kg <sup>2</sup> 5/20/00-12/31/00	N/A	N/A	NA	N/A	NA	Put onto archive per customer request.	0	NA

<sup>1</sup> Waste received from the Puget Sound Naval Shipyard, 1400 Farragut Ave, Bremerton, WA 98314, WA2170023418.

<sup>2</sup> Treated sample residue weight includes the acid solution and grout.

Table 2. (Contd)

Location	Waste Type	Total Quantity in Storage (Daily)	Technology Tested	Dates of Study	Amount Tested Jan.-Dec. 2000 (or in Process) (Kg)	Amount to Be Tested Jan.-Dec. 2001 (Kg)	Final Disposal of Unused Sample Portion	Final Disposal of Residues	Amount of Sample Shipped (Kg)	Date of Shipment
272-W	Mop water with heavy metals	0 Kg 1/1/00-6/18/00 200 Kg 6/19/00-6/21/00 400Kg 6/22/00-8/16/00 600 Kg 8/17/00 8/31/00 800 Kg 9/1/00-12/1/00 799.5 Kg 12/2/00-12/31/00	Filtration and ion exchange to remove trace elements of metals	6/21/00 8/22/00 8/31/00	200.0 Kg 200.0 Kg 4.0 Kg	1000 Kg	In storage at 272 W for eventual disposal pending reuse in Treatability Study.	In storage at 272 W awaiting offsite disposal as dangerous waste.  Residue of sample shipped to offsite lab managed by lab to be manifested to TSD.	0.5 <sup>(a)</sup>	12/1/00
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