

# *Appendix K*

*Environmental Regulations, Orders, Standards, and Permits*

**Table K-1**  
**Department of Energy Radiation Protection Standards**  
**and Derived Concentration Guides <sup>1</sup>**

*Effective Dose Equivalent Radiation Standard for Protection of the Public*

*Continuous exposure of any member of the public from routine activities:  
All exposure pathways = 100 mrem/year (1 mSv/yr) effective dose equivalent*

**Department of Energy Derived Concentration Guides (DCGs) for  
Inhaled Air or Ingested Water ( $\mu\text{Ci/mL}$ )**

<i>Radionuclide</i>	<i>Half-life <sup>2</sup> (years)</i>	<i>In Air</i>	<i>In Water</i>	<i>Radionuclide</i>	<i>Half-life <sup>2</sup> (years)</i>	<i>In Air</i>	<i>In Water</i>
<b>H-3*</b>	1.23E+01	1E-07	2E-03	<b>Eu-152</b>	1.36E+01	5E-11	2E-05
<b>C-14*</b>	5.73E+03	6E-09	7E-05	<b>Eu-154*</b>	8.80E+00	5E-11	2E-05
<b>K-40</b>	1.28E+09	9E-10	7E-06	<b>Eu-155</b>	4.96E+00	3E-10	1E-04
<b>Fe-55</b>	2.70E+00	5E-09	2E-04	<b>Th-232</b>	1.40E+10	7E-15	5E-08
<b>Co-60*</b>	5.27E+00	8E-11	5E-06	<b>U-232*</b>	7.20E+01	2E-14	1E-07
<b>Ni-59</b>	7.50E+04	4E-09	7E-04	<b>U-233*</b>	1.59E+05	9E-14	5E-07
<b>Ni-63</b>	1.00E+02	2E-09	3E-04	<b>U-234*</b>	2.44E+05	9E-14	5E-07
<b>Sr-90*</b>	2.86E+01	9E-12	1E-06	<b>U-235*</b>	7.04E+08	1E-13	6E-07
<b>Y-90</b>	7.31E-03	1E-09	1E-05	<b>U-236*</b>	2.34E+07	1E-13	5E-07
<b>Zr-93</b>	1.53E+06	4E-11	9E-05	<b>U-238*</b>	4.47E+09	1E-13	6E-07
<b>Nb-93m</b>	1.46E+01	4E-10	3E-04	<b>Np-239</b>	6.45E-03	5E-09	5E-05
<b>Tc-99*</b>	2.13E+05	2E-09	1E-04	<b>Pu-238*</b>	8.78E+01	3E-14	4E-08
<b>Ru-106</b>	1.01E+00	3E-11	6E-06	<b>Pu-239*</b>	2.41E+04	2E-14	3E-08
<b>Cd-113m</b>	1.37E+01	8E-12	9E-07	<b>Pu-240*</b>	6.57E+03	2E-14	3E-08
<b>Sn-126</b>	1.00E+05	1E-10	8E-06	<b>Pu-241</b>	1.44E+01	1E-12	2E-06
<b>Sb-125</b>	2.77E+00	1E-09	5E-05	<b>Am-241*</b>	4.32E+02	2E-14	3E-08
<b>Te-125m</b>	1.59E-01	2E-09	4E-05	<b>Am-242m</b>	1.52E+02	2E-14	3E-08
<b>I-129*</b>	1.57E+07	7E-11	5E-07	<b>Am-243</b>	7.38E+03	2E-14	3E-08
<b>Cs-134*</b>	2.06E+00	2E-10	2E-06	<b>Cm-243</b>	2.85E+01	3E-14	5E-08
<b>Cs-135</b>	2.30E+06	3E-09	2E-05	<b>Cm-244</b>	1.81E+01	4E-14	6E-08
<b>Cs-137*</b>	3.02E+01	4E-10	3E-06	<b>Gross Alpha</b>	NA	2E-14	3E-08
<b>Pm-147</b>	2.62E+00	3E-10	1E-04	<b>(as Am-241)</b>			
<b>Sm-151</b>	9.00E+01	4E-10	4E-04	<b>Gross Beta</b>	NA	9E-12	1E-06
				<b>(as Sr-90)</b>			

<sup>1</sup> DOE Order 5400.5 (February 8, 1990). Effective May 8, 1990. (See Derived Concentration Guides, p. 1-5, in Chapter 1, Environmental Monitoring Program Information.)

<sup>2</sup> U.S. Department of Energy. 1981. Radioactive Decay Tables. Washington, D.C.: Technical Information Center, U.S. Department of Energy.

\* Radionuclides measured in WVDP effluent.

NA - Not applicable.

## **Table K - 2**

### ***Environmental Regulations, Orders, and Standards***

***The following environmental standards and laws are applicable, in whole or in part, to the West Valley Demonstration Project:***

*Atomic Energy Act of 1954, 42 USC§ 2011 et seq.*

DOE Order 231.1, September 30, 1995. *Environment, Safety, and Health Reporting*, including Change 2 (November 7, 1996).

DOE Order 232.1A, August 1, 1997. *Occurrence Reporting and Processing of Operations Information*.

DOE Order 451.1A, June 5, 1997. *National Environmental Policy Act*.

DOE Order 5400.1, November 9, 1988. *General Environmental Protection Program*, including Change 1 (June 29, 1990).

DOE Order 5400.5, February 8, 1990. *Radiation Protection of the Public and the Environment*, including Change 2 (January 7, 1993).

DOE Order 5480.4, May 15, 1984. *Environmental Protection, Safety, and Health Protection Standards*, including Change 4 (June 7, 1993).

DOE Order 5484.1, February 24, 1981. *Environmental Protection, Safety, and Health Protection Information Reporting Requirements*, including Change 7 (October 17, 1990).

DOE Regulatory Guide DOE/EH-0173T, January 1991. *Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance*.

*Clean Air Act (CAA)*. Pub. L. No. 84-159. 42 USC§ 7401 *et seq.*, as amended, and implementing regulations.

*Federal Water Pollution Control Act [Clean Water Act (CWA)]*. Pub. L. No. 95-217. 33 USC §1251 *et seq.*, as amended, and implementing regulations.

*Resource Conservation and Recovery Act (RCRA)*. Pub. L. No. 94-580. 42 USC §6901 *et seq.*, as amended, and implementing regulations.

*National Environmental Policy Act (NEPA)* of 1969. Pub. L. No. 91-190. 42 USC §4321 *et seq.*, as amended, and implementing regulations.

*Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)*. Pub. L. No. 96-510. 42 USC §9601 *et seq.* (including Superfund Amendments and Reauthorization Act of 1986), and implementing regulations.

*Toxic Substances Control Act (TSCA)*. Pub. L. No. 94-469. 15 USC §2601 *et seq.*, as amended, and implementing regulations.

*Emergency Planning and Community Right-to-Know Act (EPCRA)* of 1986. Pub. L. No. 99-499. 42 USC §11001 *et seq.*, and implementing regulations.

*Safe Drinking Water Act (SDWA)*. Pub. L. No. 93-523. 42 USC §300f *et seq.*, as amended, and implementing regulations.

*Environmental Conservation Law of New York State* and implementing regulations (NYCRR).

Water quality standards contained in the State Pollutant Discharge Elimination System (SPDES) permit issued for the facility are listed in Table G-1. Airborne emissions are regulated by the Environmental Protection Agency under the National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR §61 Subpart H (December 15, 1989).

*The above list covers the major activities at the West Valley Demonstration Project but does not constitute a comprehensive enumeration.*

**Table K-3**  
**West Valley Demonstration Project Environmental Permits**

Permit Name and Number	Agency/Permit Type	Description	1999 Changes	Status
West Valley Demonstration Project Part A Permit Application	NYSDEC	Provides Interim Status under RCRA for treatment and storage of hazardous waste	None	No expiration date.
Article 19 Air State Facility Permit 90422-00005	NYSDEC	Includes 2 new boilers that began operation in 1998	Sources removed from Modification Application because of exempt status;WVDP awaiting approval	Effective 1/23/98. Modification Application to incorporate remaining COs submitted 12/31/97.
Boilers (042200-0114-00002 and (042200-0114-00003)	NYSDEC/ Certificate to Operate (CO) an Air Emission Source (2 COs)	Old boilers in utility room - backup for new boilers. Existing permit includes two boilers installed in 1997.	Boilers have been removed from service	COs issued 11/30/90. No expiration date. Extended indefinitely in accordance with revised Title 6 NYCRR § 201, which went into effect 7/7/96. Boilers have been removed from the State Facility Permit application.
Cold chemical solids transfer system (042200-0114-CTS02) Cold chemical vessel vent system (042200-0114-CTS03) Cold chemical vessel dust collection hood (042200-0114-CTS04)	NYSDEC/CO (3 COs)	Cold chemical facility. Dry or solid chemical emissions from solids transfer system and dust collection hood and from mix-tank vent for vitrification operations.	None	Solids transfer system CO (-CTS02) and vessel dust collection hood CO (-CTS04) issued 1/8/92. Vessel vent system CO (-CTS03) issued 10/26/95. No expiration date. Extended indefinitely in accordance with revised 6 NYCRR § 201.
Vitrification facility heating, ventilation, and air conditioning (HVAC) system (042200-0114-15F-2)	NYSDEC/CO	Canister-welding emissions vented through vitrification facility HVAC system, i.e., canister-welding ventilation	None	CO issued 10/26/95. No expiration date. Extended indefinitely in accordance with revised 6 NYCRR § 201.
Vitrification off-gas treatment system (04220-0114-15F-1)	NYSDEC/CO	Vitrification facility off-gas treatment system emissions	None	CO issued 5/2/97. No expiration date. Extended indefinitely in accordance with revised 6 NYCRR § 201
Slurry-fed ceramic melter (modification to WVDP-687-01) Process building ventilation	EPA/NESHAP	Slurry-fed ceramic melter radionuclide emissions - main plant stack modified 2/18/97	None	Permit approved February 18, 1997. No expiration date. Request to modify submitted to the EPA 8/99.
Vitrification facility HVAC system	EPA/NESHAP	Vitrification facility HVAC system for radionuclide emissions	None	Permit approved February 18, 1997. No expiration date. Request to modify submitted to the EPA 8/99.

**Table K-3 (concluded)**  
**West Valley Demonstration Project Environmental Permits**

Permit Name and Number	Agency/Permit Type	Description	1999 Changes	Status
01-14 building ventilation system (WVDP-187-01)	EPA/NESHAP	Liquid waste treatment system ventilation of radionuclide emissions in the 01-14 building	None	Issued 10/5/87. Modified 5/25/89. No expiration date. Request to cancel submitted to the EPA 8/99
Contact size-reduction facility (WVDP-287-01)	EPA/NESHAP	Contact size-reduction and decontamination facility radionuclide emissions	None	Issued 10/5/87. No expiration date. Request to cancel submitted to the EPA 8/99
Supernatant treatment system/Permanent Ventilation System (WVDP-387-01)	EPA/NESHAP	Supernatant treatment system ventilation for radionuclide emissions	Modified to accommodate waste tank ventilation	Revised 1/1/97. No expiration date.
Outdoor ventilated enclosures (WVDP-587-01)	EPA/NESHAP	Ten portable ventilation units for removal of radionuclides	None	Issued 12/22/87. No expiration date. Request to cancel submitted to the EPA 8/99.
State Pollutant Discharge Elimination System (NY-0000973)	NYSDEC/ Water	Covers discharges to surface waters from various sources on-site	Renewed effective 2/1/99. Expires 2/1/04. No other changes.	NYSDEC has prepared a draft permit modification for storm water discharges and for a groundwater recovery system discharge increase. Permit terms for NYSERDA and DOE responsibilities related to storm water discharges are being negotiated with NYSDEC.
Buffalo Pollutant Discharge Elimination System (99-04-TR096)	Buffalo Sewer Authority/ Sanitary sewage and sewage sludge disposal	Permit issued to hauler of waste from the wastewater treatment facility	Renewed 6/29/99	Hauler must renew permit by 6/30/00.
Chemical bulk storage (9-000158)	NYSDEC/ Chemical bulk storage tank	Registration of bulk storage tanks used for listed hazardous chemicals	None	Permit issued 6/25/99; will expire 7/5/01.
Petroleum bulk storage (9-008885)	NYSDEC/ Petroleum bulk storage tank registration	Registration of bulk storage tanks used for petroleum	None	Registration expires 9/2/01. Will renew before expiration.
Bird depredation license (DWP99-001)	New York State Division of Fish and Wildlife	State license for the removal of inactive nests of migratory birds	The WVDP is no longer required to file for a U.S. Fish and Wildlife permit for these activities.	CY 1999 license expired 12/31/99. Application for CY2000 renewal submitted to regulators.