

# *Appendix B*

*Environmental Regulations, Orders, Standards, and Permits*

**Table B - 1**

**Department of Energy Radiation Protection Standards  
and Derived Concentration Guides\***

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

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

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

<i>Radionuclide</i>	<i>Half-Life (years)</i>	<i>In Air</i>	<i>In Water</i>	<i>Radionuclide</i>	<i>Half-Life (years)</i>	<i>In Air</i>	<i>In Water</i>
<b>H-3**</b>	1.2E+01	1E-07	2E-03	<b>Eu-152</b>	1.4E+01	5E-11	2E-05
<b>C-14**</b>	5.7E+03	6E-09	7E-05	<b>Eu-154**</b>	8.8E+00	5E-11	2E-05
<b>Fe-55</b>	2.7E+00	5E-09	2E-04	<b>Eu-155</b>	5.0E+00	3E-10	1E-04
<b>Ni-59</b>	7.5E+04	4E-09	7E-04	<b>Th-232</b>	1.4E+10	7E-15	5E-08
<b>Co-60**</b>	5.3E+00	8E-11	5E-06	<b>U-232**</b>	7.2E+01	2E-14	1E-07
<b>Ni-63</b>	1.0E+02	2E-09	3E-04	<b>U-233**</b>	1.6E+05	9E-14	5E-07
<b>Sr-90**</b>	2.9E+01	9E-12	1E-06	<b>U-234**</b>	2.4E+05	9E-14	5E-07
<b>Y-90</b>	7.3E-03	1E-09	1E-05	<b>U-235**</b>	7.0E+08	1E-13	6E-07
<b>Zr-93</b>	1.5E+06	4E-11	9E-05	<b>U-236**</b>	3.4E+06	1E-13	5E-07
<b>Nb-93m</b>	1.5E+01	4E-10	3E-04	<b>U-238**</b>	4.5E+09	1E-13	6E-07
<b>Tc-99**</b>	2.1E+05	2E-09	1E-04	<b>Np-239</b>	6.5E-03	5E-09	5E-05
<b>Ru-106</b>	1.0E+00	3E-11	6E-06	<b>Pu-238**</b>	8.8E+01	3E-14	4E-08
<b>Cd-113m</b>	1.4E+01	8E-12	9E-07	<b>Pu-239**</b>	2.4E+04	2E-14	3E-08
<b>Sb-125</b>	2.8E+00	1E-09	5E-05	<b>Pu-240**</b>	6.5E+03	2E-14	3E-08
<b>Te-125m</b>	1.6E-01	2E-09	4E-05	<b>Pu-241</b>	1.4E+01	1E-12	2E-06
<b>Sn-126</b>	1.0E+05	1E-10	8E-06	<b>Am-241**</b>	4.3E+02	2E-14	3E-08
<b>I-129**</b>	1.6E+07	7E-11	5E-07	<b>Am-242m</b>	1.5E+02	2E-14	3E-08
<b>Cs-134**</b>	2.1E+00	2E-10	2E-06	<b>Am-243</b>	7.4E+03	2E-14	3E-08
<b>Cs-135</b>	2.3E+06	3E-09	2E-05	<b>Cm-243</b>	2.8E+01	3E-14	5E-08
<b>Cs-137**</b>	3.0E+01	4E-10	3E-06	<b>Cm-244</b>	1.8E+01	4E-14	6E-08
<b>Pm-147</b>	2.6E+00	3E-10	1E-04	<b>Gross Alpha (as Am-241)</b>	N/A	2E-14	3E-08
<b>Sm-151</b>	9.0E+01	4E-10	4E-04	<b>Gross Beta (as Sr-90)</b>	N/A	9E-12	1E-06

\* Ref: DOE Order 5400.5 (February 8, 1990). Effective May 8, 1990.

\*\* Analysis for these radionuclides in WVDP effluent are performed routinely.

N/A = Not applicable.

## *Table B - 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 5400.1. November 9, 1988. *General Environmental Protection Program*, including Change 1 (June 29, 1990).

DOE Order 5480.1B. September 23, 1986. *Environment, Safety, and Health Program for DOE Operations*, including Change 5 (May 10, 1993).

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

*Clean Air Act (CAA)*. 42 USC 7401 et seq., as amended, and implementing regulations.

*Federal Water Pollution Control Act [Clean Water Act (CWA)]*. 33 USC 1251 et seq., as amended, and implementing regulations.

*Resource Conservation and Recovery Act (RCRA)*. 42 USC 6901 et seq., as amended, and implementing regulations.

*National Environmental Policy Act (NEPA)* of 1969. 42 USC 4321 et seq., as amended, and implementing regulations.

*Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)*. 42 USC 9601 et seq. (including Superfund Amendments and Reauthorization Act of 1986), and implementing regulations.

*Toxic Substances Control Act (TSCA)*. 15 USC 2601 et seq., as amended, and implementing regulations.

*Emergency Planning and Community Right-to-Know Act (EPCRA)* of 1986, 42 USC 1001 et seq., and implementing regulations.

*Safe Drinking Water Act (SDWA)*. 42 USC 300f et seq., as amended, and implementing regulations.

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

The standards and guidelines applicable to releases of radionuclides from the West Valley Demonstration Project are found in DOE Order 5400.5 (February 8, 1990), including Change 2 (January 7, 1993).

Ambient water quality standards contained in the State Pollutant Discharge Elimination System (SPDES) permit issued for the facility are listed in Table C-5.1. Airborne discharges are also 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 B - 3**

**West Valley Demonstration Project Environmental Permits**

Permit Name and Number	Agency/Permit Type	Description	1995 Changes	Status
Boilers (042200-0114-00002 and 042200-0114-00003)	NYSDEC/Certificate to Operate an Air Emission Source (CO)	Boilers located in the utility room	A new CO was issued.	COs expire 8/01/99.
Cement storage silo ventilation system (042200-0114-CSS01)	NYSDEC/CO	Exhaust from the cement storage silo baghouse	A new CO was issued.	CO expires 8/01/99.
Analytical & Process Chemistry Laboratory (042200-0114-15F-1)	NYSDEC/CO	Analytical & Process Chemistry Laboratory equipment from various laboratories in the main plant	A new CO was issued.	CO expires 8/01/99.
Tank #35157 vent (042200-0114-35157)	NYSDEC/CO	Vent from 3,000-gallon sulfuric acid tank #35157	A new CO was issued.	CO expires 8/01/99.
Source-capture welding system (042200-0114-MS001)	NYSDEC/CO	Maintenance shop welding ventilation using "elephant trunk" ducts to vent welding fumes at the source of generation	A new CO was issued.	CO expires 8/01/99.
Blueprint machine (042200-0114-00012)	NYSDEC/CO	Blueprint machine vent for ammonia emissions	A new CO was issued.	CO expires 8/01/99.
Blower exhaust, welding only (042200-0114-00013) Welding/painting (042200-0114-00014) Painting only (042200-0114-00015)	NYSDEC/CO	Portable blowers (some with and some without filters) for venting emissions from typical painting and welding operations occurring at the site	None	COs expire in 1998/1999.

**Table B - 3 (continued)**

**West Valley Demonstration Project Environmental Permits**

<b>Permit Name and Number</b>	<b>Agency/Permit Type</b>	<b>Description</b>	<b>1995 Changes</b>	<b>Status</b>
Analytical cell mock-up unit (042200-0114-00027)	NYSDEC/CO	Analytical cell mock-up unit (located in the vitrification test facility) emissions from use of laboratory chemicals	None	CO expires 12/01/98.
Scale vitrification system (SVS) solids transfer system (042200-0114-SVS01) SVS vessel vent system (042200-0114-SVS02) SVS mini-melter off-gas system (042200-0114-SVS04)	NYSDEC/CO	Scale vitrification system vac-u- max solids transfer system vent, feed mix tank vent, and melter off-gas treatment system emissions.	NYSDEC inspected on 10/03/95.	The SVS is not currently operating. Extensions of the COs are forthcoming.
SVS ammonia vent system- emission point system SVS07 (04220-0114-SVS07)	NYSDEC/CO	Scale vitrification system ammonia vent system for relieving pressure before cylinder change-outs	None	CO expires 8/01/99.
Environmental Analytical Annex laboratory hoods (042200-0114-00016 through 042200-0114-00026)	NYSDEC/CO	Eleven separate blowers for laboratory hoods and analytical equipment in the Environmental Analytical Annex (EAA) [i.e., vitrification cold operations laboratory]	None	COs expire 8/01/99.

*Table B - 3 (continued)*

*West Valley Demonstration Project Environmental Permits*

Permit Name and Number	Agency/Permit Type	Description	1995 Changes	Status
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	Cold chemical facility. Dry or solid chemical emissions from solids transfer system, dust collection hood, and from mix tank vent for vitrification operations	A conversion from a PC to a CO was requested in 9/95. NYSDEC inspected on 10/03/95. COs were issued.	COs expire 8/01/99.
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]	A conversion from a PC to a CO was requested in 9/95. NYSDEC inspected on 10/03/95. COs were issued.	CO expires 8/01/99.
Vitrification off-gas treatment system (042200-0114-15F-1)	NYSDEC/Permit to Construct (PC) an Air Emission Source	Vitrification facility off-gas treatment system emissions	The PC was extended.	PC extended to 7/31/96. Will convert to a CO after NOx stack testing, scheduled for 5/96.
Slurry-fed ceramic melter (modification to WVDP-687-01)	EPA/Interim NESHAP	Slurry-fed ceramic melter radionuclide emissions	A conditional NESHAP permit was issued.	Issued 5/08/95. No expiration date.
Vitrification facility HVAC system	EPA/Interim NESHAP	Vitrification facility HVAC system radionuclide emissions	None	Issued 5/08/95. No expiration date.
01-14 building ventilation system (WVDP-187-01)	EPA/NESHAP	Liquid waste treatment system ventilation of radionuclides in the 01-14 building	None	Issued 10/05/87. Modified 5/25/89. No expiration date.
Contact size-reduction facility (WVDP-287-01)	EPA/NESHAP	Contact size-reduction and decontamination facility radionuclide emissions	None	Issued 10/05/87. No expiration date.

*Table B - 3 (continued)*

*West Valley Demonstration Project Environmental Permits*

Permit Name and Number	Agency/Permit Type	Description	1995 Changes	Status
Supernatant treatment system (WVDP-387-01)	EPA/NESHAP	Supernatant treatment system ventilation for radionuclide emissions	None	Issued 10/05/87. No expiration date.
Low-level waste supercompactor (WVDP-487-01)	EPA/NESHAP	Low-level waste supercompactor ventilation system for radionuclide emissions	None	Issued 10/05/87. 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.
Process building ventilation system (WVDP-687-01)	EPA/NESHAP	Original main plant ventilation of radionuclides	None	Issued 12/22/87. No expiration date.
State Pollutant Discharge Elimination System (SPDES [NY-0000973])	NYSDEC/Water discharge	Covers discharges to surface waters from various sources on-site	The permit was modified in June 1995 to include additional water-treatment chemicals. Construction of a flow augmentation system was completed.	Expires 2/01/99.
Buffalo Pollutant Discharge Elimination System (95-05-TR096)	Buffalo Sewer Authority/Sanitary sewage and sludge	Permit issued to hauler of waste from the wastewater treatment facility	None	Expires 6/30/96. Currently pursuing auxiliary disposal alternatives.
Chemical bulk storage	NYSDEC/Chemical bulk storage tank registration	Registration of bulk storage tanks used for listed hazardous chemicals	None	Expires 7/97. Will renew before expiration.
Petroleum bulk storage	NYSDEC/Petroleum bulk storage tank registration	Registration of bulk storage tanks used for petroleum	None	Expires 9/96. Will renew before expiration.

**Table B - 3 (concluded)**

**West Valley Demonstration Project Environmental Permits**

Permit Name and Number	Agency/Permit Type	Description	1995 Changes	Status
Bird depredation permit	U.S. Fish & Wildlife Service/New York State Division of Fish and Wildlife	Licenses for the removal of nests of migratory birds	The permit was renewed.	Two-year license and annual report. Revised to adhere to Inactive Nest Standard Conditions. Expires 12/31/97. Annual report due to U.S. Fish and Wildlife Service by 1/31/97.