

***Appendix K***  
***Environmental Laws, Regulations, Standards, and Orders***

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

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

<i>Radionuclide</i>	<i>Half-life<sup>b</sup> (years)</i>	<i>In Air</i>	<i>In Water</i>	<i>Radionuclide</i>	<i>Half-life<sup>b</sup> (years)</i>	<i>In Air</i>	<i>In Water</i>
<b>H-3<sup>c</sup></b>	1.23E+01	1E-07	2E-03	<b>Eu-152</b>	1.35E+01	5E-11	2E-05
<b>C-14<sup>c</sup></b>	5.70E+03	6E-09	7E-05	<b>Eu-154<sup>c</sup></b>	8.59E+00	5E-11	2E-05
<b>K-40</b>	1.25E+09	9E-10	7E-06	<b>Eu-155</b>	4.75E+00	3E-10	1E-04
<b>Fe-55</b>	2.74E+00	5E-09	2E-04	<b>Th-232</b>	1.40E+10	7E-15	5E-08
<b>Co-60<sup>c</sup></b>	5.27E+00	8E-11	5E-06	<b>U-232<sup>c</sup></b>	6.89E+01	2E-14	1E-07
<b>Ni-59</b>	7.60E+04	4E-09	7E-04	<b>U-233<sup>c</sup></b>	1.59E+05	9E-14	5E-07
<b>Ni-63</b>	1.00E+02	2E-09	3E-04	<b>U-234<sup>c</sup></b>	2.46E+05	9E-14	5E-07
<b>Sr-90<sup>c</sup></b>	2.89E+01	9E-12	1E-06	<b>U-235<sup>c</sup></b>	7.04E+08	1E-13	6E-07
<b>Y-90</b>	7.31E-03	1E-09	1E-05	<b>U-236<sup>c</sup></b>	2.34E+07	1E-13	5E-07
<b>Zr-93</b>	1.53E+06	4E-11	9E-05	<b>U-238<sup>c</sup></b>	4.47E+09	1E-13	6E-07
<b>Nb-93m</b>	1.61E+01	4E-10	3E-04	<b>Np-239</b>	6.45E-03	5E-09	5E-05
<b>Tc-99<sup>c</sup></b>	2.11E+05	2E-09	1E-04	<b>Pu-238<sup>c</sup></b>	8.77E+01	3E-14	4E-08
<b>Ru-106</b>	1.02E+00	3E-11	6E-06	<b>Pu-239<sup>c</sup></b>	2.41E+04	2E-14	3E-08
<b>Cd-113m</b>	1.41E+01	8E-12	9E-07	<b>Pu-240<sup>c</sup></b>	6.56E+03	2E-14	3E-08
<b>Sn-126</b>	2.30E+05	1E-10	8E-06	<b>Pu-241<sup>c</sup></b>	1.43E+01	1E-12	2E-06
<b>Sb-125</b>	2.76E+00	1E-09	5E-05	<b>Am-241<sup>c</sup></b>	4.32E+02	2E-14	3E-08
<b>Te-125m</b>	1.57E-01	2E-09	4E-05	<b>Am-242m</b>	1.41E+02	2E-14	3E-08
<b>I-129<sup>c</sup></b>	1.57E+07	7E-11	5E-07	<b>Am-243</b>	7.37E+03	2E-14	3E-08
<b>Cs-134</b>	2.07E+00	2E-10	2E-06	<b>Cm-243</b>	2.91E+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<sup>c</sup></b>	3.00E+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>			

NA - Not applicable.

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

<sup>b</sup> Nuclear Wallet Cards. April 2005. National Nuclear Data Center. Brookhaven National Laboratory. Upton, New York.

<sup>c</sup> Radionuclides measured in WVDP effluent.

**Table K-2**  
**Environmental Laws, Regulations, Standards, and Orders**

*The following environmental standards and laws are applicable, in whole or in part, to the West Valley Demonstration Project. Although the list covers the major activities at the West Valley Demonstration Project, it does not constitute a complete enumeration.*

*Atomic Energy Act of 1954, 42 United States Code (USC) §2011 et seq., as amended, and federal implementing regulations.*

*Clean Air Act (CAA) of 1970. Pub. L. No. 84-159. 42 USC §7401 et seq., as amended, and federal and state implementing regulations.*

*Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. Pub. L. No. 96-510. 42 USC §9601 et seq. (including Superfund Amendments and Reauthorization Act [SARA] of 1986), and federal implementing regulations.*

*DOE Order 231.1A. August 19, 2003. Environment, Safety, and Health Reporting, including Change 1 (June 3, 2004).*

*DOE Order 414.1A. April 29, 1999. Quality Assurance, including Change 1 (July 12, 2001). (Although DOE Order 414.1A was still in the WVNSCO contact through 2005, it has been superseded by DOE Orders 414.1B [April 29, 2004] and 414.1C [June 17, 2005].)*

*DOE Order 435.1. July 9, 1999. Radioactive Waste Management, including Change 1 (August 28, 2001).*

*DOE Order 440.1A. March 27, 1998. Worker Protection Management for DOE Federal and Contractor Employees.*

*DOE Order 450.1. January 15, 2003. Environmental Protection Program, including Change 1 (January 15, 2005) and Change 2 (December 7, 2005). [DOE Order 450.1 canceled DOE Order 5400.1.]*

*DOE Order 451.1B. October 26, 2000. National Environmental Policy Act Compliance Program, including Change 1 (September 28, 2001).*

*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 (January 7, 1993).*

*DOE Policy 141.1. May 2, 2001. Department of Energy Management of Cultural Resources.*

**Table K-2 (continued)**  
**Environmental Laws, Regulations, Standards, and Orders**

DOE Policy 141.2. May 2, 2003. *Public Participation and Community Relations*.

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

DOE Standard DOE-STD-1153-2002. July 2002. *A Graded Approach for Evaluating Radiation Doses to Aquatic and Terrestrial Biota*.

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

*Endangered Species Act of 1973*. Pub. L. No. 93-205. 16 USC §1531 *et seq.*, and federal and state implementing regulations.

*Environmental Conservation Law of the New York State Consolidated Laws* and state implementing regulations (NYCRR).

Executive Order 11988. May 25, 1977. *Floodplain Management*.

Executive Order 11990. May 25, 1977. *Protection of Wetlands*.

Executive Order 13101. September 16, 1998. *Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition*.

Executive Order 13148. April 26, 2000. *Greening the Government Through Leadership in Environmental Management*.

*Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) of 1996*. 7 USC §136 *et seq.*

*Federal Water Pollution Control Act (Clean Water Act [CWA]) of 1977*. Pub. L. No. 95-217. 33 USC §1251 *et seq.*, as amended, and federal and state implementing regulations.

*Migratory Bird Treaty Act of 1918*. 16 USC §703–712 as amended, and federal and state implementing regulations.

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

*National Historic Preservation Act of 1966*. Pub. L. No. 102-575. 16 USC §470 *et seq.*, and federal implementing regulations.

***Table K-2 (concluded)***  
***Environmental Laws, Regulations, Standards, and Orders***

*Resource Conservation and Recovery Act (RCRA) of 1976. Pub. L. No. 94-580. 42 USC §6901 et seq., as amended, and federal and state implementing regulations.*

*Safe Drinking Water Act (SDWA) of 1974. Pub. L. No. 93-523. 42 USC §300f et seq., as amended, and federal and state implementing regulations.*

*Toxic Substances Control Act (TSCA) of 1976. Pub. L. No. 94-469. 15 USC §2601 et seq., as amended, and federal implementing regulations.*

*U.S. Environmental Protection Agency. 1992. Region II Administrative Order on Consent. Docket No. II RCRA 3008(h)-92-0202. In the Matter of: Western New York Nuclear Service Center.*

*U.S. Environmental Protection Agency. 1996. West Valley Demonstration Project Federal Facilities Compliance Act Order on Consent.*

Water quality standards contained in the New York State Pollutant Discharge Elimination System (SPDES) permit issued for the facility are listed in Table C-1A. Airborne emissions are regulated by the Environmental Protection Agency under the National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR §61 Subpart H (December 15, 1989, including amendments effective September 9, 2002).

**Table K-3**  
**West Valley Demonstration Project Act**  
**(Public Law 96-368 [S. 2443]; October 1, 1980)**

*(As presented in Exhibit G of the Cooperative Agreement between United States Department of Energy and New York State Energy Research and Development Authority on the Western New York Nuclear Service Center at West Valley, New York; Effective October 1, 1980 as amended September 18, 1981.)*

EXHIBIT G

WEST VALLEY PROJECT DEMONSTRATION ACT

PUBLIC LAW 96-368 [S. 2443]; October 1, 1980

**WEST VALLEY DEMONSTRATION PROJECT ACT**

*For Legislative History of this and other Laws, see Table 1, Public Laws and Legislative History, at end of final volume*

An Act to authorize the Department of Energy to carry out a high-level liquid nuclear waste management demonstration project at the Western New York Service Center in West Valley, New York.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

SECTION 1. This Act may be cited as the "West Valley Demonstration Project Act".

SEC. 2. (a) The Secretary shall carry out, in accordance with this Act, a high level radioactive waste management demonstration project at the Western New York Service Center in West Valley, New York, for the purpose of demonstrating solidification techniques which can be used for preparing high level radioactive waste for disposal. Under the project the Secretary shall carry out the following activities:

(1) The Secretary shall solidify, in a form suitable for transportation and disposal, the high level radioactive waste at the Center by vitrification or by such other technology which the Secretary determines to be the most effective for solidification.

(2) The Secretary shall develop containers suitable for the permanent disposal of the high level radioactive waste solidified at the Center.

(3) The Secretary shall, as soon as feasible, transport, in accordance with applicable provisions of law, the waste solidified at the Center to an appropriate Federal repository for permanent disposal.

(4) The Secretary shall, in accordance with applicable licensing requirements, dispose of low level radioactive waste and transuranic waste produced by the solidification of the high level radioactive waste under the project.

(5) The Secretary shall decontaminate and decommission—  
(A) the tanks and other facilities of the Center in which the high level radioactive waste solidified under the project was stored,

(B) the facilities used in the solidification of the waste, and

(C) any material and hardware used in connection with the project,

in accordance with such requirements as the Commission may prescribe.

(b) Before undertaking the project and during the fiscal year ending September 30, 1981, the Secretary shall carry out the following:

(1) The Secretary shall hold in the vicinity of the Center public hearings to inform the residents of the area in which the Center is located of the activities proposed to be undertaken under the project and to receive their comments on the project.

(2) The Secretary shall consider the various technologies available for the solidification and handling of high level radioactive waste taking into account the unique characteristics of such waste at the Center.

West Valley  
Demonstration  
Project Act.  
42 USC 2021a  
note.  
42 USC 2021a  
note.

Activities.

Hearings.

94 STAT. 1347

G-1

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(3) The Secretary shall—

(A) undertake detailed engineering and cost estimates for the project.

(B) prepare a plan for the safe removal of the high level radioactive waste at the Center for the purposes of solidification and include in the plan provisions respecting the safe breaching of the tanks in which the waste is stored, operating equipment to accomplish the removal, and sluicing techniques,

(C) conduct appropriate safety analyses of the project, and

(D) prepare required environmental impact analyses of the project.

(4) The Secretary shall enter into a cooperative agreement with the State in accordance with the Federal Grant and Cooperative Agreement Act of 1977 under which the State will carry out the following:

42 USC 501 note.

(A) The State will make available to the Secretary the facilities of the Center and the high level radioactive waste at the Center which are necessary for the completion of the project. The facilities and the waste shall be made available without the transfer of title and for such period as may be required for completion of the project.

(B) The Secretary shall provide technical assistance in securing required license amendments.

State costs, percentage.

(C) The State shall pay 10 per centum of the costs of the project, as determined by the Secretary. In determining the costs of the project, the Secretary shall consider the value of the use of the Center for the project. The State may not use Federal funds to pay its share of the cost of the project, but may use the perpetual care fund to pay such share.

Licensing amendment application.

(D) Submission jointly by the Department of Energy and the State of New York of an application for a licensing amendment as soon as possible with the Nuclear Regulatory Commission providing for the demonstration.

(c) Within one year from the date of the enactment of this Act, the Secretary shall enter into an agreement with the Commission to establish arrangements for review and consultation by the Commission with respect to the project: *Provided*, That review and consultation by the Commission pursuant to this subsection shall be conducted informally by the Commission and shall not include nor require formal procedures or actions by the Commission pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, or any other law. The agreement shall provide for the following:

42 USC 2011 note.  
42 USC 5801 note.

(1) The Secretary shall submit to the Commission, for its review and comment, a plan for the solidification of the high level radioactive waste at the Center, the removal of the waste for purposes of its solidification, the preparation of the waste for disposal, and the decontamination of the facilities to be used in solidifying the waste. In preparing its comments on the plan, the Commission shall specify with precision its objections to any provision of the plan. Upon submission of a plan to the Commission, the Secretary shall publish a notice in the Federal Register of the submission of the plan and of its availability for public inspection, and, upon receipt of the comments of the Commission respecting a plan, the Secretary shall publish a notice in the Federal Register of the receipt of the comments and of the availability of the comments for public inspection. If the Secre-

Publications in Federal Register.

tary does not revise the plan to meet objections specified in the comments of the Commission, the Secretary shall publish in the Federal Register a detailed statement for not so revising the plan.

(2) The Secretary shall consult with the Commission with respect to the form in which the high level radioactive waste at the Center shall be solidified and the containers to be used in the permanent disposal of such waste.

(3) The Secretary shall submit to the Commission safety analysis reports and such other information as the Commission may require to identify any danger to the public health and safety which may be presented by the project.

(4) The Secretary shall afford the Commission access to the Center to enable the Commission to monitor the activities under the project for the purpose of assuring the public health and safety.

(d) In carrying out the project, the Secretary shall consult with the Administrator of the Environmental Protection Agency, the Secretary of Transportation, the Director of the Geological Survey, and the commercial operator of the Center.

SEC. 3. (a) There are authorized to be appropriated to the Secretary for the project not more than \$5,000,000 for the fiscal year ending September 30, 1981.

(b) The total amount obligated for the project by the Secretary shall be 90 per centum of the costs of the project.

(c) The authority of the Secretary to enter into contracts under this Act shall be effective for any fiscal year only to such extent or in such amounts as are provided in advance by appropriation Acts.

SEC. 4. Not later than February 1, 1981, and on February 1 of each calendar year thereafter during the term of the project, the Secretary shall transmit to the Speaker of the House of Representatives and the President pro tempore of the Senate an up-to-date report containing a detailed description of the activities of the Secretary in carrying out the project, including agreements entered into and the costs incurred during the period reported on and the activities to be undertaken in the next fiscal year and the estimated costs thereof.

SEC. 5. (a) Other than the costs and responsibilities established by this Act for the project, nothing in this Act shall be construed as affecting any rights, obligations, or liabilities of the commercial operator of the Center, the State, or any person, as is appropriate, arising under the Atomic Energy Act of 1954 or under any other law, contract, or agreement for the operation, maintenance, or decontamination of any facility or property at the Center or for any wastes at the Center. Nothing in this Act shall be construed as affecting any applicable licensing requirement of the Atomic Energy Act of 1954 or the Energy Reorganization Act of 1974. This Act shall not apply or be extended to any facility or property at the Center which is not used in conducting the project. This Act may not be construed to expand or diminish the rights of the Federal Government.

(b) This Act does not authorize the Federal Government to acquire title to any high level radioactive waste at the Center or to the Center or any portion thereof.

SEC. 6. For the purposes of this Act:

(1) The term "Secretary" means the Secretary of Energy.

(2) The term "Commission" means the Nuclear Regulatory Commission.

(3) The term "State" means the State of New York.

Reports and other information to Commission.

Consultation with EPA and others.

Appropriation authorization. 42 USC 2021a note.

Report to Speaker of the House and President pro tempore of the Senate. 42 USC 2021a note.

42 USC 2021a note.

42 USC 2011 note.

42 USC 5801 note.

Definitions. 42 USC 2021a note.

(4) The term "high level radioactive waste" means the high level radioactive waste which was produced by the reprocessing at the Center of spent nuclear fuel. Such term includes both liquid wastes which are produced directly in reprocessing, dry solid material derived from such liquid waste, and such other material as the Commission designates as high level radioactive waste for purposes of protecting the public health and safety.

(5) The term "transuranic waste" means material contaminated with elements which have an atomic number greater than 92, including neptunium, plutonium, americium, and curium, and which are in concentrations greater than 10 nanocuries per gram, or in such other concentrations as the Commission may prescribe to protect the public health and safety.

(6) The term "low level radioactive waste" means radioactive waste not classified as high level radioactive waste, transuranic waste, or byproduct material as defined in section 11 e. (2) of the Atomic Energy Act of 1954.

42 USC 2014. (7) The term "project" means the project prescribed by section 2(a).

(8) The term "Center" means the Western New York Service Center in West Valley, New York.

Approved October 1, 1980.