Appendix C.7

Description of Input and Final Waste Streams

TABLE OF CONTENTS

LIST OF TABLES

Appendix C.7

Description of Input and Final Waste Streams

The alternatives analyzed in this EIS were designed to offer a full range of options for treating the ***mixed*** high-level waste (HLW) and ***mixed transuranic waste/***sodium-bearing waste (SBW) presently stored by DOE at the Idaho Nuclear Technology and Engineering Center (INTEC). Each option would begin with essentially the same input streams (i.e., the inventory of ***mixed*** HLW and ***mixed transuranic waste/***SBW). In addition, ongoing INTEC operations would generate new radioactive liquid wastes from decontamination activities. Ultimately, each option would result in a final waste stream suitable for disposal. For each option, the final waste stream would consist of one or more forms (i.e., borosilicate glass, grout, etc.). Each of these forms would be designed to meet the waste acceptance criteria set by the intended disposal facility (i.e., the Waste Isolation Pilot Plant, geologic repository, etc.). Table C.7-1 lists existing and projected input waste streams and quantities. ***The values in the bottom half of the table reflect the calcination of mixed transuranic waste/SBW through May 2000.*** Table C.7-2 through C.7-5 list the concentrations of chemical and radioactive constituents in the ***mixed HLW*** calcine and ***mixed transuranic waste/***SBW. The values provided in Tables C.7-2 through C.7-5 have been estimated by a variety of methods, and not all constituents have been verified by sampling and analysis. Table C.7-6 lists output waste streams for each option. The table includes the output compositions, quantities, numbers of containers, and final dispositions. Table C.7-6 only includes those wastes designated as "product waste" as defined in Section 5.2.13. Other waste generated indirectly as a result of the activities under the waste processing alternatives ("process wastes") are described in Section 5.2.13. References are provided for the data in all tables.

Table C.7-1. Waste processing alternative inputs.

Waste (type)	Quantity	Source
Draft EIS waste inputs		
Calcine – granular solid (mixed HLW)	4,155 $m^{3(a)}$ 5,435 $m^{3(b)}$	Staiger (1999) Russell et al. (1998)
SBW – acid solution (mixed transuranic waste)	~800,000 gallons	Russell et al. (1998)
Concentrated NGLW (Type 1) – acid solution (mixed transuranic waste)	~300,000 gallons[c] (1998-2016)	Russell et al. (1998) Barnes (1999) McDonald (1998)
Other NGLW (Type 2) – acid solution (mixed low-level waste)	~230,000 gallons[c] (1998-2032)	Russell et al. (1998) Barnes (1999) McDonald (1998)
Final EIS waste inputs		
Calcine – granular solid (mixed HLW)	***4,400 cubic meters***	***Beck (2000)***
SBW – acid solution	***1,300,000 gallons***	***Valentine (2000)***

a. Without SBW/NGLW calcination.

b. With SBW/NGLW calcination.

c. The volume of these wastes may be reduced or eliminated by actions taken under the INEEL liquid waste management program.

NGLW = newly generated liquid waste; m^3 = cubic meters; ~ = approximately.

Table C.7-2. Bin set total chemical inventory (fission and activation species decayed to 2016).[a]

Constituent	Total mass (kg)	Constituent	Total mass (kg)
Actinium	1.2×10^{-6}	Molybdenum	2.9×10^{4}
Aluminum	9.7×10^{5}	Neodynium	1.4×10^{3}
Americium	4.4	Neptunium	46
Antimony	10	Nickel	2.6×10^{3}
Arsenic	3.7	Niobium	2.6
Astatine	8.5×10^{-20}	Palladium	110
Barium	770	Plutonium	1.3×10^{3}
Beryllium	3.6	Polonium	2.8×10^{-9}
Bismuth	2.7×10^{-9}	Potassium	2.8×10^{4}
Boron	4.0×10^{4}	Praseodymium	380
Bromine	29	Promethium	5.7×10^{-3}
Cadmium	4.7×10^{4}	Protoactinium	2.4×10^{-3}
Calcium	1.1×10^{6}	Radium	2.7×10^{-5}
Californium	1.0×10^{-12}	Rhodium	140
Cerium	850	Rubidium	170
Cesium	740	Ruthenium	1.9×10^{3}
Chlorine	4.5×10^{3}	Samarium	280
Chromium	8.8×10^{3}	Selenium	51
Cobalt	1.6	Silver	8.3
Curium	3.6×10^{-3}	Sodium	1.3×10^{5}
Dysprosium	3.3	Strontium	2.6×10^{3}
Erbium	1.8	Technetium	280
Europium	20	Tellurium	140
Fluorine	8.4×10^{5}	Terbium	0.94
Francium	3.1×10^{-14}	Thallium	0.36
Gadolinium	15	Thorium	6.1
Gallium	14	Thulium	0.14
Germanium	1.2	Tin	43
Holmium	1.1	Uranium	1.7×10^{4}
Indium	4.0	Ytterbium	1.8
Iodine	1.4×10^{3}	Yttrium	260
Iron	2.2×10^{4}	Zinc	71
Lanthanum	440	Zirconium	5.6×10^{5}
Lead	360	NO_3	2.5×10^{5}
Lithium	18	PO_4	2.4×10^{4}
Manganese	1.2×10^{3}	SO_4	5.3×10^{4}
Mercury	1.2×10^{4}		

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a. Source : Valentine (2000).

Table C.7-3. Bin set total inventory of radionuclides (decayed to 2016).[a]

Constituent	Total activity (Ci)	Constituent	Total activity (Ci)	Constituent	Total activity (Ci)
H-3	15	Sm-148	9.0×10^{-9}	Th-227	0.085
Be-10	0.033	Sm-149	2.9×10^{-9}	Th-228	1.6
C-14	0.038	Sm-151	4.5×10^{5}	Th-229	1.4×10^{-4}
Co-60	1.5×10^{3}	Eu-150	5.3×10^{-3}	Th-230	1.4
Ni-63	6.8×10^{4}	Eu-152	430	Th-231	5.0
Se-79	9.9×10^{4}	Gd-152	5.3×10^{-10}	Th-232	2.3×10^{-7}
Rb-87	9.1×10^{-3}	Eu-154	2.9×10^{4}	Th-234	5.0
Sr-90	7.9×10^{6}	Eu-155	3.9×10^{3}	Pa-231	0.11
Y-90	7.9×10^{6}	Ho-166m	0.014	Pa-233	690
Zr-93	680	Tm-171	1.1×10^{-9}	Pa-234m	5.0
Nb-93m	630	Tl-207	0.085	Pa-234	6.3×10^{-3}
Nb-94	270	Tl-208	0.16	U-232	1.6
Tc-98	7.3×10^{-4}	Tl-209	1.9×10^{-6}	U-233	0.057
Tc-99	4.6×10^{3}	Pb-209	1.4×10^{-4}	U-234	130
Rh-102	9.1×10^{-3}	Pb-210	0.013	U-235	3.2
Ru-106	4.4×10^{-3}	Pb-211	0.085	U-236	11
Rh-106	0.029	Pb-212	1.6	U-237	1.5
Pd-107	9.1	Pb-214	0.027	U-238	3.1
Ag-108	1.1×10^{-5}	Bi-210m	5.2×10^{-17}	U-240	1.6×10^{-7}
Ag-108m	1.3×10^{-4}	Bi-210	0.013	Np-235	5.1×10^{-17}
Ag-109m	3.8×10^{-17}	Bi-211	0.085	Np-237	470
Cd-109	3.8×10^{-17}	Bi-212	1.6	Np-238	0.017
Cd-113m	1.6×10^{3}	Bi-213	1.4×10^{-4}	Np-239	50
In-115	2.7×10^{-8}	Bi-214	0.027	Np-240m	1.6×10^{-7}
Sn-121m	68	Po-210	0.013	Pu-236	0.027
Te-123	1.3×10^{-10}	Po-211	1.7×10^{-4}	Pu-238	1.1×10^{5}
Sb-125	130	Po-212	0.29	Pu-239	4.8×10^{4}
Te-125m	38	Po-213	1.4×10^{-4}	Pu-240	2.0×10^{3}
Sn-126	310	Po-214	0.027	Pu-241	4.8×10^{4}
Sb-126	43	Po-215	0.085	Pu-242	130
Sb-126m	310	Po-216	1.6	Pu-243	1.1×10^{-13}
I-129	1.6	Po-218	0.027	Pu-244	1.6×10^{-7}
Cs-134	67	At-217	1.4×10^{-4}	Am-241	1.2×10^{4}
Cs-135	360	Rn-219	0.085	Am-242m	6.1
Cs-137	8.8×10^{6}	Rn-220	1.6	Am-242	5.8
Ba-137m	8.5×10^{6}	Rn-222	0.027	Am-243	50
La-138	6.8×10^{-8}	Fr-221	1.4×10^{-4}	Cm-242	4.8
Ce-142	9.4×10^{-3}	Fr-223	0.018	Cm-243	5.0
Ce-144	8.6×10^{-5}	Ra-223	0.085	Cm-244	250
Pr-144	1.4×10^{-3}	Ra-224	1.6	Cm-245	0.071
Pr-144m	1.7×10^{-5}	Ra-225	1.4×10^{-4}	Cm-246	4.6×10^{-3}
Nd-144	4.6×10^{-7}	Ra-226	0.027	Cm-247	5.2×10^{-9}
Pm-146	2.3	Ra-228	2.3×10^{-7}	Cm-248	5.5×10^{-9}
Pm-147	5.3×10^{3}	Ac-225	1.4×10^{-4}	Cf-249	4.0×10^{-9}
Sm-146	8.6×10^{-5}	Ac-227	0.085	Cf-250	1.7×10^{-9}
Sm-147	3.0×10^{-3}	Ac-228	2.3×10^{-7}	Cf-251	6.3×10^{-11}

a. Source : Valentine (2000).

Table C.7-4. Calculated radionuclides activities for SBW (curies per liter) decayed to 2016.[a]

Radionuclide		Radionuclide		Radionuclide	
Hydrogen-3	1.2×10^{-4}	Samarium-147	2.9×10^{-11}	Thorium-227	8.1×10^{-10}
Beryllium-10	3.1×10^{-10}	Samarium-148	8.5×10^{-17}	Thorium-228	1.5×10^{-8}
Carbon-14	3.6×10^{-10}	Samarium-149	2.8×10^{-17}	Thorium-229	1.3×10^{-12}
Cobalt-60	8.1×10^{-6}	Europium-150	5.0×10^{-11}	Thorium-230	1.3×10^{-8}
Nickel-63	6.0×10^{-4}	Samarium-151	4.2×10^{-3}	Thorium-231	4.7×10^{-8}
Selenium -9	2.2×10^{-5}	Europium-152	4.0×10^{-6}	Thorium-232	1.9×10^{-15}
Rubidium-87	8.6×10^{-11}	Gadolinium-152	5.0×10^{-18}	Thorium-234	4.1×10^{-8}
Strontium-90	0.15	Gadolinium-153	3.1×10^{-31}	Protactinium-231	1.1×10^{-9}
Yttrium-90	0.15	Europium-154	5.5×10^{-5}	Protactinium-233	6.4×10^{-6}
Zirconium-93	6.5×10^{-6}	Europium-155	5.4×10^{-5}	Protactinium-234m	4.1×10^{-8}
Niobium-93m	6.0×10^{-6}	Holmium-166m	1.3×10^{-10}	Protactinium-234	5.3×10^{-11}
Niobium-94	1.2×10^{-4}	Thulium-171	1.0×10^{-17}	Uranium-232	1.5×10^{-8}
Technetium-98	6.9×10^{-12}	Thallium-207	8.1×10^{-10}	Uranium-233	5.4×10^{-10}
Technetium-99	1.7×10^{-4}	Thallium-208	1.5×10^{-9}	Uranium-234	1.8×10^{-6}
Rhodium-102	8.7×10^{-11}	Thallium-209	1.8×10^{-14}	Uranium-235	2.2×10^{-8}
Ruthenium-106	2.6×10^{-10}	Lead-209	1.3×10^{-12}	Uranium-236	7.4×10^{-8}
Rhodium-106	2.6×10^{-10}	Lead-210	1.2×10^{-10}	Uranium-237	1.4×10^{-8}
Palladium-107	8.6×10^{-8}	Lead-211	8.1×10^{-10}	Uranium-238	2.0×10^{-8}
Silver-108	1.1×10^{-13}	Lead-212	1.5×10^{-8}	Uranium-240	1.5×10^{-15}
Silver-108m	1.2×10^{-12}	Lead-214	2.5×10^{-10}	Neptunium-235	4.8×10^{-25}
Silver-109m	3.6×10^{-25}	Bismuth-210m	4.9×10^{-25}	Neptunium-237	2.0×10^{-6}
Cadmium-109	3.6×10^{-25}	Bismuth-210	1.2×10^{-10}	Neptunium-238	1.6×10^{-10}
Silver-110	6.2×10^{-31}	Bismuth-211	8.1×10^{-10}	Neptunium-239	4.8×10^{-7}
Silver-110m	4.8×10^{-29}	Bismuth-212	1.5×10^{-8}	Neptunium-240m	1.5×10^{-15}
Cadmium-113m	1.5×10^{-5}	Bismuth-213	1.3×10^{-12}	Plutonium-236	2.5×10^{-10}
Indium-115	2.5×10^{-16}	Bismuth-214	2.5×10^{-10}	Plutonium-238	7.1×10^{-4}
Tin-119m	1.9×10^{-29}	Polonium-210	1.2×10^{-10}	Plutonium-239	1.6×10^{-4}
Tin-121m	6.4×10^{-7}	Polonium-211	1.6×10^{-12}	Plutonium-240	2.3×10^{-5}
Tellurium-123	1.2×10^{-18}	Polonium-212	2.7×10^{-9}	Plutonium-241	5.8×10^{-4}
Antimony-125	6.0×10^{-6}	Polonium-213	1.3×10^{-12}	Plutonium-242	4.7×10^{-8}
Tellurium-125m	3.6×10^{-7}	Polonium-214	2.5×10^{-10}	Plutonium-243	1.0×10^{-21}
Tin-126	2.9×10^{-6}	Polonium-215	8.1×10^{-10}	Plutonium-244	1.5×10^{-15}
Antimony-126	4.0×10^{-7}	Polonium-216	1.5×10^{-8}	Americium-241	7.4×10^{-5}
Antimony-126m	2.9×10^{-6}	Polonium-218	2.5×10^{-10}	Americium-242m	5.7×10^{-8}
Iodine-129	1.3×10^{-7}	Astatine-217	1.3×10^{-12}	Americium-242	5.5×10^{-8}
Cesium-134	1.9×10^{-6}	Radon-219	8.1×10^{-10}	Americium-243	4.8×10^{-7}
Cesium-135	3.4×10^{-6}	Radon-220	1.5×10^{-8}	Curium-242	4.5×10^{-8}
Cesium-137	0.084	Radon-222	2.5×10^{-10}	Curium-243	4.7×10^{-8}
Barium-137m	0.081	Francium-221	1.3×10^{-12}	Curium-244	2.4×10^{-6}
Lanthanum-138	6.5×10^{-16}	Francium-223	1.7×10^{-10}	Curium-245	5.9×10^{-10}
Cerium-142	8.9×10^{-11}	Radium-223	8.1×10^{-10}	Curium-246	3.6×10^{-2}
Cerium-144	1.2×10^{-11}	Radium-224	1.5×10^{-8}	Curium-247	4.9×10^{-17}
Praseodymium-144	1.3×10^{-11}	Radium-225	1.3×10^{-12}	Curium-248	5.2×10^{-17}
Praseodymium-144m	1.6×10^{-13}	Radium-226	2.5×10^{-10}	Californium-249	3.8×10^{-17}
Neodymium-144	4.3×10^{-15}	Radium-228	2.1×10^{-15}	Californium-250	1.6×10^{-17}
Promethium-146	2.2×10^{-8}	Actinium-225	1.3×10^{-12}	Californium-251	5.9×10^{-19}
Samarium-146	8.1×10^{-13}	Actinium-227	8.1×10^{-10}	Californium-252	7.7×10^{-30}
Promethium-147	4.9×10^{-5}	Actinium-228	2.1×10^{-15}		

a. Source: Valentine (2000).

Table C.7-5. Chemical inventory (fission and activation species decayed to 2016) in SBW.[a]

Constituent	Total mass (kg)	Average concentration (kg/L)	Constituent	Total mass (kg)	Average concentration (kg/L)
Actinium	5.2×10^{-8}	1.0×10^{-14}	Neptunium	14	2.8×10^{-6}
Americium	0.11	2.3×10^{-8}	Niobium	830	1.6×10^{-4}
Antimony	0.42	8.4×10^{-8}	Neodynium	65	1.3×10^{-5}
Arsenic	54	1.1×10^{-5}	Palladium	5.0	9.9×10^{-7}
Astatine	3.7×10^{-21}	7.4×10^{-28}	Plutonium	13	2.5×10^{-6}
Barium	2.1×10^{3}	4.1×10^{-4}	Polonium	1.2×10^{-10}	2.4×10^{-17}
Beryllium	2.1×10^{-6}	4.2×10^{-13}	Praseodymium	17	3.4×10^{-6}
Bismuth	1.2×10^{-10}	2.3×10^{-17}	Promethium	2.5×10^{-4}	4.9×10^{-11}
Bromine	0.35	6.8×10^{-8}	Protoactinium	1.0×10^{-4}	2.1×10^{-11}
Cadmium	0.080	1.6×10^{-8}	Radium	1.2×10^{-6}	2.4×10^{-13}
Californium	4.5×10^{-14}	8.9×10^{-21}	Rhodium	6.4	1.3×10^{-6}
Carbon	150	3.0×10^{-5}	Rubidium	6.8	1.4×10^{-6}
Cerium	37	7.4×10^{-6}	Ruthenium	92	1.8×10^{-5}
Cesium	34	6.8×10^{-6}	Samarium	12	2.5×10^{-6}
Cobalt	1.4	2.7×10^{-7}	Selenium	2.9	5.8×10^{-7}
Curium	1.6×10^{-4}	3.1×10^{-11}	Silver	5.8	1.2×10^{-6}
Dysprosium	4.2×10^{-3}	8.4×10^{-10}	Strontium	18	3.6×10^{-6}
Erbium	1.4×10^{-4}	2.7×10^{-11}	Technetium	12	2.5×10^{-6}
Europium	0.86	1.7×10^{-7}	Tellurium	6.0	1.2×10^{-6}
Francium	1.4×10^{-15}	2.7×10^{-22}	Terbium	9.9×10^{-3}	2.0×10^{-9}
Gadolinium	0.44	8.6×10^{-8}	Thallium	1.1×10^{-13}	2.2×10^{-20}
Gallium	1.1×10^{-7}	2.2×10^{-14}	Thorium	3.0×10^{-3}	5.9×10^{-10}
Germanium	0.021	4.1×10^{-9}	Thulium	9.1×10^{-9}	1.8×10^{-15}
Holmium	1.5×10^{-4}	3.0×10^{-11}	Tin	1.7	3.4×10^{-7}
Indium	0.16	3.2×10^{-8}	Uranium	1.5×10^{3}	3.0×10^{-4}
Iodine	820	1.6×10^{-4}	Ytterbium	1.6×10^{-9}	3.1×10^{-16}
Lanthanum	18	3.6×10^{-6}	Yttrium	6.5	1.3×10^{-6}
Lead	2.3×10^{-9}	4.5×10^{-16}	Zinc	19	3.9×10^{-6}
Lithium	5.3×10^{-6}	1.1×10^{-12}	Zirconium	23	4.5×10^{-6}
Molybdenum	310	6.1×10^{-5}			

a. Source : Valentine (2000).

Table C.7-6. Waste processing alternative outputs.[a]

Option	Composition	Quantity	No. of containers	Disposition	Source
Continued Current Operation Alternative					
Transuranic Waste (remote-handled Waste Isolation Pilot Plant containers)	Dry solids	110 m^3	280	Waste Isolation Pilot Plant	Fewell (1999a,b)
Separations Alternative					
Full Separations Option					
Vitrified high-level waste (SRS canisters)	Glass	470 m^3	780	Onsite storage – NGR	Fluor Daniel (1997)
Class A low-activity waste (cylinders)	Grout	27,000 m^3	25,100	INEEL or offsite disposal	Fewell (1999b)
Planning Basis Option					
Vitrified high-level waste (SRS canisters)	Glass	470 m^3	780	Onsite storage – NGR	Fluor Daniel (1997)
Class A low-activity waste (cylinders)	Grout	30,000 m^3	27,900	Offsite disposal	Fewell (1999b)
Transuranic Waste (remote-handled Waste Isolation Pilot Plant containers)	Dry solids	110 m^3	280	Waste Isolation Pilot Plant	Fewell (1999a,b)
Transuranic Separations Option					
Transuranic solids (remote-handled Waste Isolation Pilot Plant containers)	Al_20_3, $Zr0_2$, phosphates, sulfates	220 m^3	560	Waste Isolation Pilot Plant	Kinnaman (1999)
Class C low-activity waste (cylinders)	cesium, strontium grout	22,700 m^3	21,100	INEEL or offsite disposal	Russell et al. (1998)
Non-Separations Alternative					
Hot Isostatic Pressed Waste Option					
Glass ceramic high-level waste (SRS canister)	$Si0_2$, $Ti0_2$, calcine (70 percent)	3,400 m^3	5,700	Onsite storage – NGR	Lee (1999a) Fewell (1999b)
Transuranic Waste (remote-handled Waste Isolation Pilot Plant containers)	Dry solids	110 m^3	280	Waste Isolation Pilot Plant	Fewell (1999a,b)

Table C.7-6. Waste processing alternative outputs (continued).

Option	Composition	Quantity	No. of containers	Disposition	Source
Non-Separations Alternative (continued)					
Direct Cement Waste Option					
Hydroceramic high-level waste (SRS canisters)	Clay, Slag, Caustic soda, Calcine	13,000 m^3	18,000	Onsite storage – NGR	Dafoe and Losinski (1998); Prendergast (1999); Lee (1999b)
Transuranic Waste (remote-handled Waste Isolation Pilot Plant containers)	Dry solids	110 m^3	280	Waste Isolation Pilot Plant	Fewell (1999a,b)
Early Vitrification Option					
Vitrified SBW transuranic (remote-handled Waste Isolation Pilot Plant containers)	Glass	360 m^3	900	Waste Isolation Pilot Plant	Kimmett (1999) Lopez (1998)
Vitrified calcine high-level waste (SRS canisters)	Glass	8,500 m^3	11,700	Onsite storage – NGR	Kimmett (1999)
Steam Reforming Option					
Calcined HLW (SRS canisters)	***Dry Solids***	***4,400 m^3***	***6,100***	***NGR***	***Beck (2000)***
Steam reformed SBW (remote handled Waste Isolation Pilot Plant containers)	***Dry Solids***	***1,300 m^3***	***3,300***	***Waste Isolation Pilot Plant***	***Kimmel (2002)***
Transuranic grout (remote handled Waste Isolation Pilot Plant containers)	***Grout***	***1,300 m^3***	***3,200***	***Waste Isolation Pilot Plant***	***McDonald (2001)***
Minimum INEEL Processing Alternative					
Transuranic Grout (contact-handled Waste Isolation Pilot Plant containers)	Grout	7,500 m^3	37,500	Waste Isolation Pilot Plant	Dafoe (1999) Fewell (1999b)
Vitrified high-level waste (Hanford canisters)	Glass	***3,500*** m^3	***3,000***	INEEL onsite storage – NGR	Jacobs (1998)
Vitrified low-activity waste (Hanford low-activity waste boxes)	Glass	14,400 m^3	5,550	INEEL or offsite disposal	Jacobs (1998)

Table C.7-6. Waste processing alternative outputs (continued).

Option	Composition	Quantity	No. of containers	Disposition	Source
Direct Vitrification Alternative					
Vitrification without Calcine Separations					
Vitrified HLW (SRS canisters)	***Glass***	***8,500 m^3***	***12,000***	***Onsite storage – NGR***	***McDonald (1999)***
Vitrified SBW (SRS canisters)	***Glass***	***440 m^3***	***610***	***Onsite Storage-NGR or WIPP***	***Barnes (2000)***
Vitrification with Calcine Separations					
Vitrified HLW (SRS canisters)	***Glass***	***470 m^3 (from calcine)***	***650***	***Onsite storage – NGR***	***McDonald and Spinti (1999)***
Vitrified SBW (SRS canisters)	***Glass***	***440 m^3***	***610***	***Onsite Storage-NGR or WIPP***	***Barnes (2000)***
Low-level waste (cylinders)	***Grout***	***23,800 m^3***	***22,000***	***Offsite disposal***	***Russell et al. (1998)***

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a. Product waste volumes reported here assume that post-2005 newly generated liquid waste would be treated using the same technology applied to liquid SBW. DOE could treat the post-2005 newly generated liquid waste by grouting (see project P2001 in Appendix C.6), which would result in 1,300 cubic meters of grouted waste and a small reduction in the treated SBW volume. The grout would be managed as transuranic or low-level waste depending on its characteristics.

m^3 = cubic meters; NGR = national geologic repository; SRS = Savannah River Site; WIPP = Waste Isolation Pilot Plant

Appendix C.7 References

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